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**Cold Treatment at 1°C, 2°C and 3°C of Australian Table grapes (*Vitis vinifera* L.)
infested with eggs and larvae of the Mediterranean fruit fly
Ceratitis capitata (Wiedemann) Diptera: Tephritidae**

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MAIN REPORT

(of the Most Tolerant Stage and Large Scale Trial Protocols for
Cold Disinfestation of Mediterranean Fruit Fly)

CONDUCTED AT THE

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**Department of
Agriculture and Food**



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1. SUMMARY

Three Australian table grape varieties, Thompson seedless, Crimson Seedless and Red Globe, were subjected to cold treatment of 1°C, 2°C and 3°C for disinfestation of the Mediterranean fruit fly.

Life history studies were conducted to determine the course of development of the immature stages and the dates when each stage (eggs, 1st, 2nd, and 3rd instars) should be tested.

The most tolerant stage trials were conducted by treating each stage for specified intervals to cold treatment up to 20 days (treating 90,000 infested fruits). Complete mortality in all stages was achieved following 12 days at 1°C, 14 days at 2°C and 16 days at 3°C exposure to the cold treatment. The 2nd instar was found to be the most tolerant stage in all cultivars.

Large-scale semi-commercial trials were conducted in export cartons for 16 days at 1°C, 18 days at 2°C and 20 days at 3°C using 3 varieties of table grapes, in 3 replicated trials exposing >10,000 individuals of 2nd instar in each replicate (treating 81,000 infested fruits placed within >120 tonnes of grapes in export cartons). Thus >30,000 insects of Mediterranean fruit fly were exposed to 1°C, 2°C and 3°C as summarised below.

No survivors were found in all trials (totals of 3 replicates) as summarised below:

Cultivar / Stage	Treatment: 1.0 ± 0.5°C		Treatment: 2.0 ± 0.5°C		Treatment: 3.0 ± 0.5°C	
	Total Live insects in 3 trials	No. of survivors	Total Live insects in 3 trials	No. of survivors	Total Live insects in 3 trials	No. of survivors
Larvae:						
Thompson seedless	142,133	0	135,853	0	142,795	0
Crimson Seedless	139,029	0	159,773	0	138,435	0
Red Globe	167,324	0	156,942	0	166,396	0
Pupae:						
	Total Pupae in Control fruits	Total Pupae in Treated fruits	Total Pupae in Control fruits	Total Pupae in Treated fruits	Total Pupae in Control fruits	Total Pupae in Treated fruits
Thompson seedless	84,560	0	78,859	0	75,884	0
Crimson Seedless	81,006	0	84,684	0	73,236	0
Red Globe	83,320	0	84,262	0	80,017	0

These trials proved that cold treatments of 1°C, 2°C and 3°C successfully killed the most tolerant stages of the Mediterranean fruit fly in 16 days, 18 days and 20 days respectively in Australian table grapes and are suitable quarantine treatments for export of Australian table grapes to markets where disinfestation is necessary.

2. INTRODUCTION

Australian producers are in a unique position to supply fresh high quality table grapes to markets in the Northern Hemisphere when local supplies in those countries are not available because of the difference in the growing seasons. There is considerable interest, both from Japanese importers and from Australian exporters to develop markets for table grapes during periods of seasonal scarcity in Japan.

Table grapes are subject to quarantine restrictions by MAFF, Japan because they are host to the Queensland fruit fly, *Bactrocera tryoni* (Froggatt) and the Mediterranean fruit fly, *Ceratitis capitata* (Wiedemann).

Cold treatments offer a commercially viable method for quarantine disinfestation of table grapes which store well under cold storage. Previous work has proved the successful disinfestation by cold storage of oranges, lemons, mandarins and tangelos for export to Japan at 1.0, 2.0 and 3.0°C.

The Japanese Ministry of Agriculture, Forestry and Fisheries has established a trial protocol which requires that quarantine levels of disinfestation must be demonstrated through a carefully conducted series of experiments to determine the LD₅₀ treatment mortality values for each life-stage of the Mediterranean fruit fly (Medfly).

The results of these trials are used to select the life-stage most tolerant to the treatment and to plan and conduct a series of large-scale trials under simulated export conditions. These large-scale trials comprise three separate replicates of the selected treatment applied to the most tolerant stage in each cultivar. To be considered successful, each replicate trial should demonstrate that no survivors are obtained when at least 10,000 individuals are exposed to the treatment.

The Mediterranean fruit fly (Medfly) is only present in Western Australia and therefore the disinfestation studies were conducted in the Department of Agriculture in South Perth. The Queensland fruit fly (Qfly) is not present in Western Australia and studies were therefore conducted in New South Wales at the Horticultural Research and Advisory Station, Gosford. The distance between the two laboratories is approximately 3,000 km. Strict interstate quarantine regulations on the movement of produce do not allow the trials to be conducted at any one laboratory. There are minor variations in technique between the trials conducted at the two laboratories, which are due to the differences between the test insects. All trial techniques are fully explained in this report.

This part of the report contains the results of trials conducted for the Mediterranean fruit fly only.

3. GENERAL INFORMATION – MATERIALS AND METHODS

This section contains general background information required on test insects, test fruits, research laboratories, cold room facilities, temperature monitoring devices and methods used in the trials.

3.1 TEST INSECTS

Mediterranean fruit fly *Ceratitis capitata* (Wiedemann)

The Medfly colony was first established in April 1983 from stock collected in Carnarvon from citrus. The genetic fitness was maintained by adding wild flies to the colony in January 1987 and in December 1989. Since 1991, wild flies have been obtained from 4-6 locations in the south west, and a new colony produced every year from December to March. The aim is to have a vigorous colony less than 12 months old for disinfestation research work. The identity of the colony has been validated every year from 1991 to 2006, through supply of colony flies for phylogenetic studies being conducted with laboratories in International Atomic Energy Authority, Sibersdorf, Austria (IAEA), Italy (University of Pavia) and the USA (USDA laboratories in Hawaii, Florida and Washington DC).

Maintenance of the colony's population is achieved by artificially breeding new stock from eggs. Adult females oviposit through the cloth side walls of the cages and eggs drop into troughs of chlorinated water. Eggs aged from 8-10 hrs are removed to a separate larval rearing room where they are introduced to an artificial rearing medium.

Mature pupae are collected from the medium 13-16 days after oviposition. The pupae are removed to the adult rearing room and used in renewed sterilised cages to breed adult flies. After a cage has remained in the adult colony room for 4 weeks it is cleaned out, sterilised and renewed with fresh pupae. When more adult flies or eggs are required for experimental work, additional cages are prepared to give insects of known age.

To infest fruits for the trials, flies aged between 2-3 weeks after emergence from puparia are used. These adult flies are fertile to produce eggs of high (approximately 85-90%) viability.

Further information of the Medfly colony is given in **Appendix 2**.

3.2. TEST FRUITS

The trials were conducted over a period of 2 seasons in 2003 - 2005. The fruit infested for the trials were all sourced from the specialised farmers growing particular grape cultivars within the Swan Valley and from the Upper Swan Research Station in Western Australia. The fruits were obtained when required and in season. They were of excellent quality in terms of maturity and Brix values and were suitable for the survival of immature stages of Medfly at the time of infestation.

Summary of fruit quality:

Quality measures	CULTIVAR:		
	Red Globe	Crimson Seedless	Thompson Seedless
Colour:	cherry red	pink red	cream / green
Condition:	firm, seeded	firm, seedless	firm, seedless
Shape:	round	elongated	elongated
Weight (range):	11.5 - 14.5 g	7.7 – 8.3	7.5 – 8.1 g
Acidity (pH):	3.9 - 4.1	3.6 - 3.7	3.5 - 3.6
Sugar (Brix):	15.5 - 17.5	15.5 - 18.5	17.5 - 19.5

3.3. RESEARCH LABORATORIES

3.3.1 Organisation: Department of Agriculture, Western Australia.

3.3.2 Location of Trials:

The Mediterranean fruit fly trials were conducted at the Fresh Fruit Disinfestation Laboratory, South Perth. This laboratory is part of the Entomology Section, Plant Industries Division. The Entomology Section is responsible for the research and advisory work on insects and related pests of agriculture and allied industries in Western Australia (Organisational details are given in Appendix 1).

3.3.3 Facilities of the Fresh Fruit Disinfestation Laboratory

The site plan for the facilities is given in **Appendix 1**. In summary the facilities include the following:

- (1) Building No. 47
 - Fruit Holding Controlled Environment Room No. #2
 - Controlled Environment Fumigation Room
 - Gas Chromatography Laboratory
- (2) Building No. 51
 - Fruit Holding Controlled Environment Room No. #1
 - Fruit Preparation Laboratory
- (3) Building No. 52
 - Cold Room Nos. #3, #4, #5 for fruit holding and trials.
- (4) Building No. 53:
 - Research Laboratory
 - Adult Rearing Controlled Environment Room
 - Main Preparation Laboratory
 - Cold Room Nos. #1 and #2 for fruit holding and trials.
- (5) Building No. 54 Larval Rearing Controlled Environment Room
- (6) Building No. 55
 - Fruit Holding Controlled Environment Room No. #3
 - Controlled atmosphere treatment facilities.

3.4. SPECIFICATIONS OF THE COLD TREATMENT FACILITIES.

3.4.1 Specifications of Cold Treatment Chambers

There are 5 cold rooms available at the South Perth Fresh Fruit Disinfestation Laboratory. The specifications are given below at saturated suction temperature of -5°C and 6K (Kelvin) Temperature Differential, space temperature 1°C .

COLD ROOM NO.	DIMENSIONS	CAPACITY (m^3)	REFRIGERATION CAPACITY (Watts)
# 1	366x280x228 cm	23.37 m^3	3760
# 2	366x308x228 cm	25.70 m^3	3760
# 3	433x378x210 cm	34.37 m^3	4580
# 4	433x378x210 cm	34.37 m^3	4580
# 5	433x378x210 cm	34.37 m^3	4580

3.4.2 DESCRIPTION OF COLD TREATMENT CHAMBERS

(1) Cold treatment chambers #1 and #2

(a) Design:

These two cold rooms are prefabricated with walls and ceilings of 100 mm expanded polystyrene with an external of 22-gauge zinc sheeting. Internal cladding is 20-gauge colour-bond glued under pressure to the insulating material. Joints are sealed with mastic to produce a surface approved by the Public Health Department. The floor is covered with a 19 mm tongue-and-grooved hardwood with a sheathing of 16 gauge zinc. The door is 2030 mm high and 1350 mm wide. The doors are 100 mm thick, insulated with expanded polystyrene and sheathed in 20 gauge stainless steel. The sealing strip for the door is rubber. A breather port is located in the front of the room.

(b) Refrigeration units:

Refrigeration for each cold room is supplied by 1 x Kirby (Model AW43MHGB2) belt driven condensing unit, on R22 refrigerant + 1 x Kirby Model KCR45 Induced Drought Evaporator with a refrigeration capacity of 3760 Watts at 1°C . The temperature of the room is controlled through a surface mounted electronic thermostat (DIXELL, Italy) having a temperature range of -50 to $+110^{\circ}\text{C}$ with a probe in the return air path. Each room has two fans (400 mm 4 blade propeller type) to circulate air across the evaporator at an air flow averaging 650 litres/second measured at various points in the room. Each room is fitted with an alarm thermostat which energises both an external red light and a bell on alarm cycle. The AKO

(Spain) alarm thermostats are set 2°C above trial temperature to provide sufficient warning to call up the refrigeration engineer for attention.

(2) Cold Chambers #3, #4, #5.

(a) Design:

The cold rooms are a prefabricated unit with walls and ceilings of 100 mm expanded polystyrene with an external skin of white colorbond. Joints and base of rooms are sealed with silicon sealant under aluminium covering extrusions. The floor is concrete; the door is 1500 mm wide 1900 mm high and 100 mm thick and is insulated with expanded polystyrene. The sealing strip for the door is rubber. A breather port is located at the rear of the room.

(b) Refrigeration units:

Refrigeration for the 3 cold rooms is supplied by 3 x Kirby (Model AW54MHGB2) air cooled belt driven Condensing Unit with R22 refrigerant + 3 x Muller MNDE33 Induced Draught Evaporator with refrigeration capacity of 4580 Watts at 1°C. The temperature of each room is separately controlled through a surface mounted electronic thermostat (CAREL, Italy) having a temperature range of -10 to +70 °C with a probe mounted in the return air path. 1 x Defrost cycle is at 2000 hrs. Six fans, two for each room (350 mm 4 blade propeller type) circulate air across the evaporator at an air flow of averaging 800 litres/second measured at various points in the room. The fans are switched off during the defrost cycle.

This configuration of 3 individual compressor units to serve one replicate cold room each was found to give the least variation in temperatures and was therefore ideal for the uniformity of replication required for the cold disinfestation work. Each room is fitted with an alarm thermostat which energises both an external red light and a bell on alarm cycle. The DIXELL (Italy) alarm thermostats are set 2°C above trial temperature to provide sufficient warning to call up the refrigeration engineer for attention.

Further information of the cold rooms is given in **Appendix 3**.

3.5 SPECIFICATIONS OF TEMPERATURE RECORDING DEVICES

The temperature recording devices used were Grant Squirrel loggers Model SQ1256, which has a factory set temperature range of -25 to +105 °C with a resolution of 0.05°C. There are 16 channels available for temperature input. The unit is controlled by a 12-bit microprocessor which stores readings in binary form with an available memory capacity of 42 000 readings shared among all deployed channels. Each cold room is fitted with a separate logger located in a central console outside the cold room. The thermistor probes are connected to the logger by a factory built and calibrated cables of 10 - 30 m length according to the desired location of the probe in the cold room. Full details are in **Appendix 4**.

The summary details are as follows:

- (1) Type: Grant Squirrel meter/logger with 16 channels (Model 1256)
- (2) Temperature sensor:
 - Type: U mini thermistors
 - Number of probes: 16 probes
 - (10 probes for fruit temperatures / 6 probes for air temperatures)
- (3) Accuracy: $\pm 0.05^{\circ}\text{C}$.

Each cold room is fitted with a separate logger located in a central console outside the cold room. The thermistor probes are connected to the logger by a factory built and calibrated cables of 10 - 34 m length according to the desired location of the probe in the cold room.

3.6. METHODS FOR COLD TREATMENT TRIALS

3.6.1 Method of Fruit Storage Before Egg Inoculation

The fruit was stored at 1°C after being received from the farm to preserve its quality in good condition before the trials were conducted. This was necessary because the trials were conducted over several weeks and good quality fruit was required for each trial. Before egg inoculation the fruit was removed from the cold room and taken to the fruit holding room for 48 h where the temperature and humidity for storage is maintained at: $26 \pm 1^{\circ}\text{C}$; 60-65% RH as described in **Sections 4 and 5** in this report.

3.6.2 Method of Infestation of Test Fruits

The Medfly does not readily infest table grapes with sufficient number of eggs to prepare satisfactory disinfestation trials. Numerous attempts to naturally infest fruit gave less than 1 pupa per kg of grapes. Therefore, to obtain sufficient insects of the different life stages it was necessary to artificially infest the table grapes. This was done by removing 0.5 ml of fruit pulp and then introducing into each fruit approximately 0.2 ml of 6 h old eggs in paper medium using a forceps. This gave an average of 100 - 120 eggs per fruit. After infestation the fruits were stored at $26 \pm 1^{\circ}\text{C}$; 60-65% RH for the required period for development of life stages. This procedure is illustrated in **Appendix 5**.

3.6.3 Characteristics of Test Containers used in the Trials

(1) Containers for most tolerant stage trials

In the most tolerant stage trials ventilated plastic boxes of size 38 x 29 x 12 cm = 13.224 cm³ were used. Each box contained a layer of 10 mm sand at the bottom to permit emerging larvae to drop into the sand for pupation. The box containing the infested fruit was covered with Terylene voile to allow air exchange and sealed in place with a plastic lid having a large aperture in the centre (**Section 4**). The fruit were held at 26°C for the period of time required for the fruit flies to develop to the stage required for the experiment. The ventilated plastic boxes were used because only a small number (50 fruit) were tested in each replicate and in the most tolerant stage trials only the direct effects of the cold treatment must be assessed.

(2) Containers for large scale trials

The large scale trials were carried out in commercial export cartons with filler fruit and dispersion of infested fruit in polystyrene trays throughout the cartons in each trial. The cartons used were sealed export cartons with polythene liners, with dimensions:
475 x 300 x 175 mm = 24937.5 cm³ = approx. 25 litres. (**Section 5**).

3.6.4 Method of Calibration of Temperature Probes before and after each Trial

Temperature sensors were calibrated before and after each trial to verify that they were functioning according to specifications. Each probe was calibrated against a certified mercury immersion thermometer in melting ice (**Appendix 3**). The data was recorded on the designated logger. Recordings were taken on each of the 16 probes at 10 second intervals. The readings were stored on disk using an IBM compatible PC computer via an RS232 C serial interface.

3.6.5 Method of Monitoring Temperature of Air and Fruit in Trials

Temperatures were monitored using Grant Squirrel Model 1256 Series data loggers with 16 channels. Temperature readings were taken every hour during the trial from the time the fruit was placed into the cold room to the time the treatment was concluded. The readings were recorded by the data loggers and stored on disc using an IBM compatible PC computer via an RS 232 C serial interface.

The 16 temperature probes were located throughout the replicate cold rooms (**Sections 4 & 5**) to give a representative record of the temperatures as follows:

(1) Air temperature probes:

Probe 1	Channel 1 =	Inlet Air
Probe 2	Channel 2 =	Exit Air
Probe 3	Channel 3 =	Top/Rear Air (at rear ceiling of cold room)
Probe 4	Channel 4 =	Middle Air (in middle of cold room)
Probe 5	Channel 5 =	Side /R (on right side of cold room front end)
Probe 6	Channel 6 =	Side/L (on left side of cold room front end)

(2) Fruit temperature probes for most tolerant stage trials

10 Probes (probes 7 - 16 i.e. channels 7 – 16 on logger) were placed in uninfested fruit with the different instars of Medfly and located throughout the trial stack in each cold room. Since three replicate trials were run simultaneously, more than two temperature probes were placed for each instar in total. This may be seen in the detailed records in **Section 4**.

(3) Fruit temperature probes for large scale trials

10 Probes (probes 7 - 16 i.e. channels 7 – 16 on logger) were placed in uninfested fruit in the export cartons and located throughout the trial stacks as described in detail in **Section 5**.

4. RESULTS OF BASIC TESTS: THE MOST TOLERANT LIFE STAGE TRIALS AT 1, 2 and 3°C.

4.1 PLAN OF THE TRIALS

The trials were conducted in the following manner:

1. All fruit was received directly from the farms were held in cold rooms #1 or #2 as described in **Section 3** until required for the trials.
2. A life history study of Medfly was conducted before each series of trials for each cultivar to determine the rate of development of immature stages to be tested.
3. From the data obtained the date when eggs had reached 50% or greater development and when 1st, 2nd and 3rd instars were 50% or more in test fruit was recorded. Incubation of all stages was carried out at $26 \pm 1^\circ\text{C}$ and 60 - 65 % rh.
4. The most tolerant life stage trials were conducted by infesting sufficient fruit to contain more than 200 insects for each dose in each replicate test of each life-stage. The trials required exposure to 16 dose-exposure periods (excluding controls) in each series of trials at $1.0 \pm 0.5^\circ\text{C}$, $2.0 \pm 0.5^\circ\text{C}$ and $3.0 \pm 0.5^\circ\text{C}$.
5. Exposure periods began at 24 h for 1°C and at 48 h for 2°C and 3°C .
6. The dose mortality data obtained from these trials were subjected to probit analysis to compare LD₅₀ and LD₉₉ values for each life-stage in each cultivar.
7. From this analysis, the treatment period at $1.0 \pm 0.5^\circ\text{C}$, $2.0 \pm 0.5^\circ\text{C}$ and $3.0 \pm 0.5^\circ\text{C}$ of the most tolerant stage was determined for the large-scale trials described in **Section 5**.

4.2. DETERMINATION OF LIFE HISTORY OF IMMATURE STAGES OF MEDFLY IN TEST FRUIT

Materials and Methods

To determine the course of development of the immature stages of Medfly in the 3 table grapes cultivars, each harvested fruit was infested by removing 0.5 ml of fruit pulp and then introducing into each fruit approximately 0.2 ml of 6 h old eggs in paper medium using a forceps. This gave an average of 100-120 eggs per fruit (see **3.6.2** above). A total of 500 infested fruit were placed in the controlled temperature room for incubation at $26 \pm 1^\circ\text{C}$; 60 - 65% RH. Thereafter at 24 hourly intervals, a sample of 20 fruit was taken for determination of the life stages present. This was done by dissecting the fruit over a series of sieves (Endecotts Ltd., London, U. K.) ranging in aperture size from 2.0 mm to 125 microns. The fruit pulp was washed with a gentle stream of tap water to separate the eggs and larvae from the fruit medium. The numbers of live and dead individuals present in each stage were counted and the proportion present in each stage, each day after injection was determined.

Results of the Life History Tests

The results of the life stage development of Medfly in the test fruits are shown in **Figures 4.1 – 4.3**. The data are summarised in **Table 4.1** and was used to determine the day of treatment for each stage in each variety. To determine the number of pupae obtained per fruit, a total of 50 fruit was set aside and incubated to pupation. The total number of pupae collected was divided by 50 to give the number of pupae per fruit. This information enabled a decision to be made of the number of fruit required per replicate. The life history data was used to plan the infestation schedule of the fruit for the trials to determine the stage of treatment as well as the date of treatment for each stage following infestation so as to obtain the required stages at the time of exposure to the treatments. Eggs were treated when more than 50% development had occurred. Similarly, the 1st, 2nd and 3rd instar larvae were treated when more than 50% of the population of each stage was present in the test fruit.

Table 4.1 Development of immature stages of Mediterranean fruit fly (Medfly), *Ceratitis capitata* Wiedemann, in 3 Table grapes cultivars in a constant environment room $26 \pm 1^\circ\text{C}$; 60 - 65% rh to determine dates when 50% or more are in the stage to be treated before conducting the Most Tolerant Stage (MTS) trials at 1.0°C , 2.0°C and 3.0°C .

DEVELOPMENTAL PERIOD IN DAYS			
Table grapes Cultivar	Medfly Life Stage	Range	50% or more in stage
Red Globe 30-10-2003 to 11-11-2003	Eggs	1 - 4	1 - 2
	1st instar larvae	2 - 8	3 - 5
	2nd instar larvae	4 - 12	6 - 8
	3rd instar larvae	6 - 12	9 - 12
Crimson Seedless 03-02-2004 to 15-02-2004	Eggs	1 - 4	1 - 2
	1st instar larvae	2 - 8	3 - 5
	2nd instar larvae	5 - 10	6 - 8
	3rd instar larvae	6 - 12	9 - 12
Thompson Seedless 09-12-2003 to 21-12-2003	Eggs	1 - 3	1 - 2
	1st instar larvae	2 - 7	3 - 5
	2nd instar larvae	4 - 12	6 - 8
	3rd instar larvae	5 - 12	9 - 12

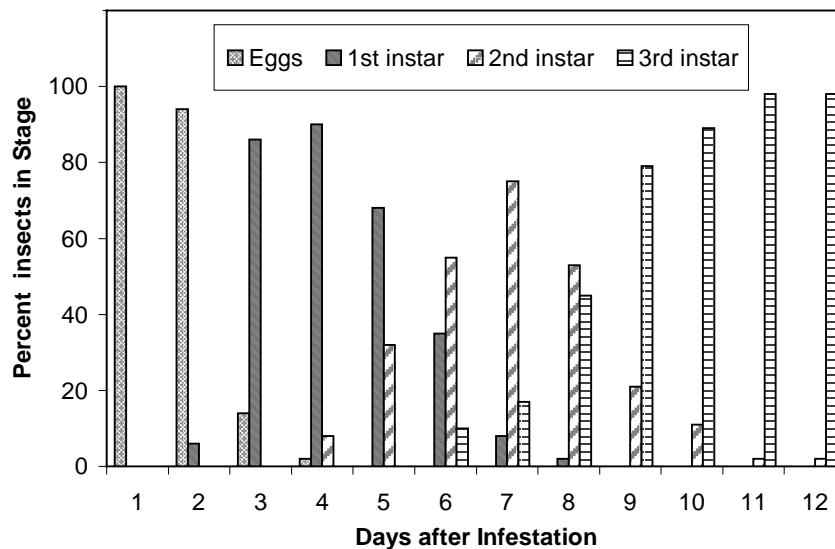


Figure 4.1 Life history of *Ceratitis capitata* (Wiedemann) in table grapes (Red Globe) for the most tolerant stage trials. 30-10-2003 - 11-11-2003

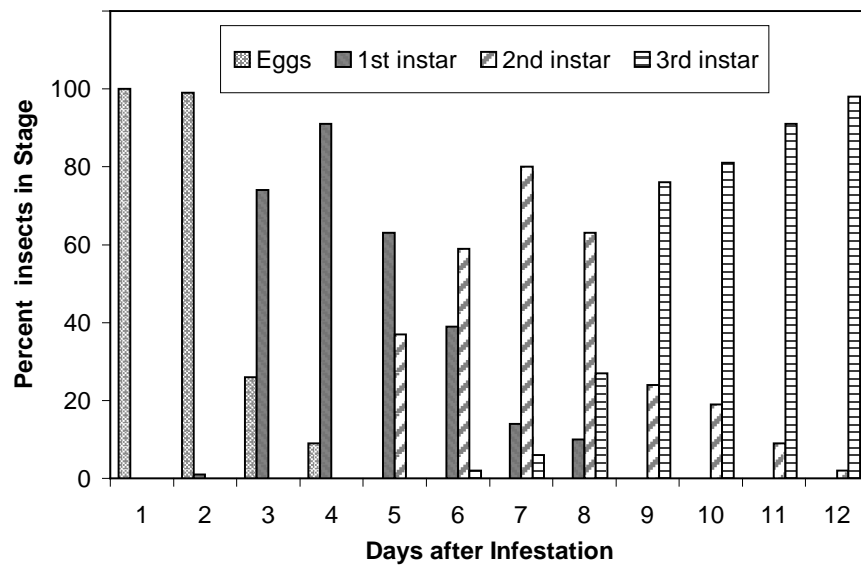


Figure 4.2 Life history of *Ceratitits capitata* (Wiedemann) in table grapes (Crimson Seedless) for the most tolerant stage trials. 03-02-2004 to 15-02-2004.

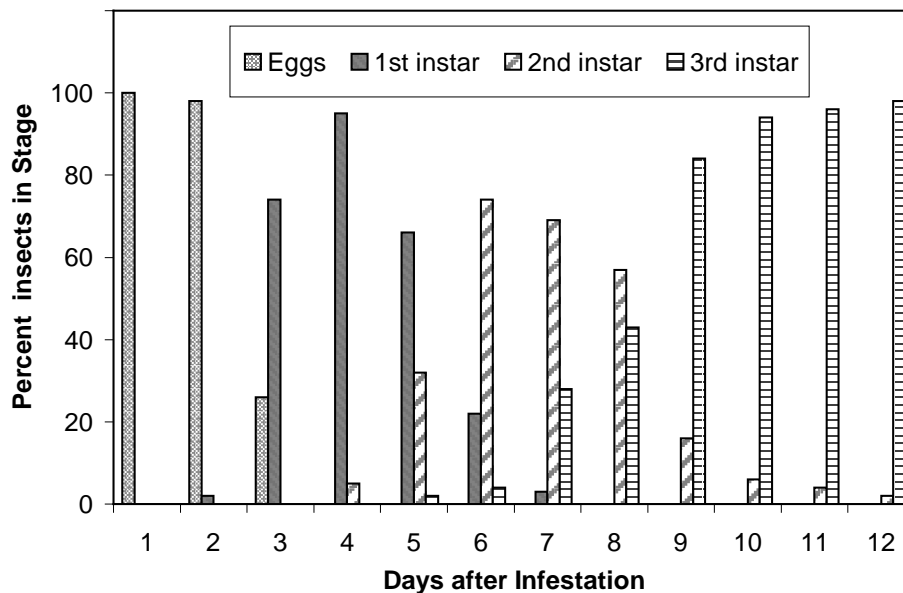


Figure 4.3 Life history of *Ceratitits capitata* (Wiedemann) in table grapes (Thompson Seedless) for the most tolerant stage trials. 09-12-2003 to 21-12-2003.

4.3 METHODS FOR THE MOST TOLERANT LIFE STAGE TRIALS IN TABLE GRAPES AT 1.0°C, 2.0°C and 3.0°C

Treatment of fruit for the trials

Fruit were infested as described above (**section 4.2**). The total number of fruit infested for each cultivar and treatment exposure periods for each trial at 1°C, 2°C and 3°C are given below.

Number of replicates, treatments and stages:

1°C: a total of 9,600 fruit were infested for each grape cultivar as follows:

No. fruit / replicate = 50

No. of treatments = 16

No. of life stages = 4

No. of replicates = 3

2 and 3°C: a total of 10,200 fruit were infested for each grape cultivar as follows:

No. fruit / replicate = 50

No. of treatments = 17

No. of life stages = 4

No. of replicates = 3

Calculation of number of table grapes required for each trial:

		Fruit Varieties: Number / Trial			
Treatments	Combinations (Fruits, Treatments, Stages, Replicates)	Red Globe	Crimson Seedless	Thompson Seedless	Total fruit / temperature
1.0 ± 0.5°C	50 x 16 x 4 x 3	9,600	9,600	9,600	28,800
2.0 ± 0.5°C	50 x 17 x 4 x 3	10,200	10,200	10,200	30,600
3.0 ± 0.5°C	50 x 17 x 4 x 3	10,200	10,200	10,200	30,600
Total fruit in all trials =		30,000	30,000	30,000	90,000

Set-up of most tolerant stage experiments

1°C: The experiments consisted of 16 treatments including the untreated control.

2°C and 3°C: The experiments consisted of 17 treatments including the untreated control.

50 fruit were selected at random from the infested batch for each replicated treatment and placed, 25 each in 2 polystyrene trays. These trays were then placed in a large labelled plastic box, having a 10 mm layer of sterilised sand to permit emerging larvae to drop into the sand for pupation. The box containing the infested fruit was covered with Terylene voile to allow air exchange and sealed in place with a plastic lid having a large aperture in the centre.

The fruit were held at $26 \pm 1^\circ\text{C}$ for the period of time required for the fruit flies to develop to the stage required for the experiment. Each exposure therefore consisted of 3 replicated boxes (150 fruit) for each stage. Since four stages were tested at each dose, 600 infested fruit were exposed to each dose. The total number of treatment doses and fruits exposed are shown above.

Treatments

1°C: The treatments consisted of 15 periods of cold exposure and one untreated control. The 15 cold exposures were incremental doses of cold beginning with 24 hours as the lowest dose and increasing by 24 hours up to 240 hours (10 days). After this the dose was increased by 48 hours up to 480 hours. Timing of exposure period began when the last probe in the fruit reached $1.0 \pm 0.5^\circ\text{C}$. The treatment conditions were held at $1.0 \pm 0.5^\circ\text{C}$ over the entire experimental period for each cultivar.

2 and 3°C: The treatments consisted of 16 periods of cold exposure and one untreated control. The 16 cold exposures were incremental doses of cold beginning with 48 hours at the lowest dose and increasing by 24 hours up to 336 hours (14 days). After this the dose was increased by 48 hours up to 480 hours for both temperature trials, that is for $2.0 \pm 0.5^\circ\text{C}$ and $3.0 \pm 0.5^\circ\text{C}$. Timing of exposure period began when the probes in the fruit reached $2.0 \pm 0.5^\circ\text{C}$ or $3.0 \pm 0.5^\circ\text{C}$. The treatment conditions were held at $2.0 \pm 0.5^\circ\text{C}$ and $3.0 \pm 0.5^\circ\text{C}$ respectively over the entire experimental period for each cultivar.

Dose increments were chosen to obtain responses that fell between 10 - 95% mortality range required to calculate an accurate probit regression line (Finney, 1972). The additional doses were used to confirm 100% mortality and to establish at least two successive dose levels at 100% to enable confidence in selecting the treatment for the large-scale trials.

Each of the 3 replicated trials was set-up in separate cold rooms each approximately 34 m^3 (Cold Rooms #3, #4, #5). Fruit pulp temperatures were recorded by placing thermistor probes into the core of uninfested fruit placed in similar plastic labelled boxes in the cold room.

After exposure to the specified cold treatment, the box containing the fruits was removed to the controlled environment room containing the control fruits for collection of surviving stages as pupae (**Appendix 5**). The number of pupae emerging at each dose was compared with the number from the untreated controls to obtain the percentage responding to the treatment. The criterion for survival was the formation of an apparently normal puparium.

Record of temperatures during the trials

Temperatures were recorded on a “Squirrel” (Grant Instruments, Cambridge, England) data logger with an accuracy of $\pm 0.05^{\circ}\text{C}$. A total of 16 thermistor probes were used, 6 to record air temperatures at various positions in the cold room, including the inlet and outlet air temperatures of the cooler. The remaining 10 thermistors were used to record fruit pulp temperatures by placing the probes in the core of uninfested fruit at different positions in the experimental stacks containing the infested fruit. Temperature recordings were automatically logged at 60-minute intervals throughout the trial. The trial arrangements in the cold rooms are shown in **Appendix 5**.

4.4 RESULTS OF MOST TOLERANT LIFE STAGE COLD TREATMENT TRIALS OF MEDFLY IN TABLE GRAPES AT $1.0 \pm 0.5^{\circ}\text{C}$.

The trials at $1.0 \pm 0.5^{\circ}\text{C}$ were conducted from November 2003 to March 2004 on the dates given in **Table 4.2**.

Table 4.2 Summary of the dates and times of the conduct of the Most Tolerant Stage trials at $1.0 \pm 0.5^{\circ}\text{C}$ in table grapes. The exposure period for several time intervals begins after temperature probes in the fruit have reached the treatment temperature.

Table grape variety	Rep.	Start date / time of Trial	Date/ Time to reach $1.0 \pm 0.5^{\circ}\text{C}$	Hours to cool down	End date / time of Trial	Cold Room No.	Logger Serial No.	Calibration: Before trial Date / time	Calibration After trial Date / time
Red Globe	1	28.10.2003 07:35 am	28.10.2003 14:35 pm	7.0	17.11.2003 14:35 pm	# 3	1256 - 00019	27.10.2003 09:01 am	18.11.2003 10:15 am
	2	07:54 am	15:54 pm	8.0	15:54 pm	# 4	1256 - 00107	09:20 am	10:40 pm
	3	08:23 am	13:23 pm	5.0	13:23 pm	# 5	1206 - 00042	09:44 am	11:05 am
Crimson Seedless		25.03.2004	25.03.2004		14.04.2004			24.03.2004	15.04.2004
	1	07:28 am	14:28 pm	7.0	14:28 pm	# 3	1256 - 00019	09:47 am	09:15 am
	2	07:56 am	14:56 pm	7.0	14:56 pm	# 4	1256 - 00107	10:11 am	09:41 pm
Thompson Seedless	3	08:31 am	15:31 pm	7.0	15:31 pm	# 5	1206 - 00042	10:42 am	10:02 am
		12.01.2004	12.01.2004		01.02.2004			11.01.2004	02.02.2004
	1	07:12 am	13:12 pm	6.0	13:12 pm	# 3	1256 - 00019	10:12 am	09:37 am
	2	07:38 am	15:38 pm	8.0	15:38 pm	# 4	1256 - 00107	10:33 am	10:11 am
	3	08:12 am	15:12 pm	7.0	15:12 pm	# 5	1206 - 00042	10:48 am	10:43 am

4.4.1 MORTALITIES OF EACH LIFE STAGE AT $1.0 \pm 0.5^{\circ}\text{C}$.

The mortality data from cold exposure to a graded series of doses from 1 to 20 days of the four life stages of Medfly in 3 table grape cultivars replicated 3 times are given in the following tables:

Red Globe: Tables 4.3 to 4.5

Crimson Seedless: Tables 4.6 to 4.8

Thompson Seedless: Tables 4.9 to 4.11

The data in these tables show that complete mortality was achieved in all stages after 12 days cold exposure to $1.0 \pm 0.5^{\circ}\text{C}$. This data was used in the Probit analysis of LD_{50} and LD_{99} to provide an estimate of the most tolerant stage and the treatment required for successful disinfestation in large scale trials of >30,000 insects.

Table 4.3 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 1.0 ± 0.5 °C (Replicate 1 : Cold Room # 3). Date of experiment : 28th October – 17th November 2003

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	598	622	619	606				
1	50	476	564	525	417	20.4	9.3	15.2	31.2
2	50	338	310	427	326	43.5	50.2	31.0	46.2
3	50	187	256	315	216	68.7	58.8	49.1	64.4
4	50	83	137	172	151	86.1	78.0	72.2	75.1
5	50	18	89	140	103	97.0	85.7	77.4	83.0
6	50	10	17	76	32	98.3	97.3	87.7	94.7
7	50	1	8	29	18	99.8	98.7	95.3	97.0
8	50	1	4	12	9	99.8	99.4	98.1	98.5
9	50	0	2	9	2	100.0	99.7	98.5	99.7
10	50	0	3	2	0	100.0	99.5	99.7	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.4 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 1.0 ± 0.5 °C (Replicate 2 : Cold Room # 4). Date of experiment : 28th October – 17th November 2003

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	606	618	639	632				
1	50	433	459	586	442	28.5	25.7	8.3	30.1
2	50	338	410	411	369	44.2	33.7	35.7	41.6
3	50	230	220	360	211	62.0	64.4	43.7	66.6
4	50	103	159	152	91	83.0	74.3	76.2	85.6
5	50	41	84	70	62	93.2	86.4	89.0	90.2
6	50	10	29	23	25	98.3	95.3	96.4	96.0
7	50	5	7	16	9	99.2	98.9	97.5	98.6
8	50	0	4	9	2	100.0	99.4	98.6	99.7
9	50	0	0	3	0	100.0	100.0	99.5	100.0
10	50	0	0	1	0	100.0	100.0	99.8	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.5 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 1.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 28th October – 17th November 2003

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	638	621	624	594				
1	50	562	578	589	430	11.9	6.9	5.6	27.6
2	50	370	347	441	304	42.0	44.1	29.3	48.8
3	50	273	243	320	236	57.2	60.9	48.7	60.3
4	50	112	117	252	132	82.4	81.2	59.6	77.8
5	50	53	76	183	114	91.7	87.8	70.7	80.8
6	50	17	37	83	31	97.3	94.0	86.7	94.8
7	50	9	24	68	17	98.6	96.1	89.1	97.1
8	50	1	9	15	1	99.8	98.6	97.6	99.8
9	50	0	2	7	0	100.0	99.7	98.9	100.0
10	50	0	0	3	0	100.0	100.0	99.5	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.6 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 1.0 ± 0.5 °C (Replicate 1 : Cold Room # 3). Date of experiment : 25th March – 14th April 2004

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	596	628	611	594				
1	50	399	407	544	459	33.1	35.2	11.0	22.7
2	50	236	331	395	278	60.4	47.3	35.4	53.2
3	50	154	218	248	207	74.2	65.3	59.4	65.2
4	50	61	114	134	72	89.8	81.8	78.1	87.9
5	50	19	49	68	24	96.8	92.2	88.9	96.0
6	50	18	28	36	17	97.0	95.5	94.1	97.1
7	50	5	4	16	5	99.2	99.4	97.4	99.2
8	50	2	0	11	2	99.7	100.0	98.2	99.7
9	50	0	0	4	0	100.0	100.0	99.3	100.0
10	50	0	0	1	0	100.0	100.0	99.8	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.7 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 1.0 ± 0.5 °C (Replicate 2 : Cold Room # 4). Date of experiment : 25th March – 14th April 2004

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	600	602	592	645				
1	50	391	415	426	442	34.8	31.1	28.0	31.5
2	50	287	363	320	246	52.2	39.7	45.9	61.9
3	50	202	221	216	198	66.3	63.3	63.5	69.3
4	50	75	66	125	79	87.5	89.0	78.9	87.8
5	50	21	41	57	26	96.5	93.2	90.4	96.0
6	50	19	33	35	23	96.8	94.5	94.1	96.4
7	50	3	11	13	3	99.5	98.2	97.8	99.5
8	50	1	5	4	1	99.8	99.2	99.3	99.8
9	50	0	1	3	1	100.0	99.8	99.5	99.8
10	50	0	0	1	0	100.0	100.0	99.8	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.8 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 1.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 25th March – 14th April 2004

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	604	605	655	582				
1	50	339	432	518	434	43.9	28.6	20.9	25.4
2	50	226	297	358	357	62.6	50.9	45.3	38.7
3	50	212	233	250	225	64.9	61.5	61.8	61.3
4	50	88	95	130	85	85.4	84.3	80.2	85.4
5	50	20	67	88	20	96.7	88.9	86.6	96.6
6	50	19	38	50	18	96.9	93.7	92.4	96.9
7	50	6	20	30	12	99.0	96.7	95.4	97.9
8	50	1	1	11	2	99.8	99.8	98.3	99.7
9	50	0	1	5	1	100.0	99.8	99.2	99.8
10	50	0	0	2	0	100.0	100.0	99.7	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.9 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 1.0 ± 0.5 °C (Replicate 1 : Cold Room # 3). Date of experiment : 12th January – 1st February 2004

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	506	532	555	616				
1	50	352	379	419	473	30.4	28.8	24.5	23.2
2	50	197	217	290	295	61.1	59.2	47.7	52.1
3	50	118	156	215	183	76.7	70.7	61.3	70.3
4	50	85	129	171	136	83.2	75.8	69.2	77.9
5	50	43	75	109	103	91.5	85.9	80.4	83.3
6	50	29	43	59	21	94.3	91.9	89.4	96.6
7	50	5	18	32	5	99.0	96.6	94.2	99.2
8	50	1	7	13	0	99.8	98.7	97.7	100.0
9	50	0	1	6	0	100.0	99.8	98.9	100.0
10	50	0	0	1	0	100.0	100.0	99.8	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.10 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 1.0 ± 0.5 °C (Replicate 2 : Cold Room # 4). Date of experiment : 12th January – 1st February 2004

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	573	616	626	563				
1	50	419	457	507	424	26.9	25.8	19.0	24.7
2	50	249	297	308	233	56.5	51.8	50.8	58.6
3	50	178	244	270	163	68.9	60.4	56.9	71.0
4	50	109	125	201	102	81.0	79.7	67.9	81.9
5	50	35	54	88	59	93.9	91.2	85.9	89.5
6	50	7	12	18	8	98.8	98.1	97.1	98.6
7	50	3	5	11	5	99.5	99.2	98.2	99.1
8	50	1	4	6	1	99.8	99.4	99.0	99.8
9	50	1	2	5	0	99.8	99.7	99.2	100.0
10	50	0	1	2	0	100.0	99.8	99.7	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.11 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 1.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 12th January – 1st February 2004

Exposure Period to 1.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	537	590	561	600				
1	50	373	427	422	446	30.5	27.6	24.8	25.7
2	50	255	329	337	283	52.5	44.2	39.9	52.8
3	50	144	182	208	193	73.2	69.2	62.9	67.8
4	50	69	155	148	168	87.2	73.7	73.6	72.0
5	50	12	56	60	70	97.8	90.5	89.3	88.3
6	50	5	40	35	19	99.1	93.2	93.8	96.8
7	50	4	16	28	3	99.3	97.3	95.0	99.5
8	50	2	9	19	2	99.6	98.5	96.6	99.7
9	50	0	4	11	0	100.0	99.3	98.0	100.0
10	50	0	0	3	0	100.0	100.0	99.5	100.0
12	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

4.4.2 ANALYSIS OF THE DATA FOR COLD EXPOSURE AT $1.0 \pm 0.5^{\circ}\text{C}$.

The above bio-assay data obtained from the exposure of the four Medfly stages - eggs, 1st, 2nd, and 3rd instar larvae were subjected to probit regression analysis (Finney, 1972) and analysed using the Genstat Program (Anon 2006) to obtain the LD₅₀ and LD₉₉ values together with their 95% confidence limits. These are given in **Table 4.12**.

The results show that the 2nd instar is the most tolerant life stage at the LD₅₀ and at the LD₉₉ estimates for all varieties. On the basis of these results it was decided that the large-scale trials should be done on 2nd instar larvae. Therefore 3 replicated trials were conducted by exposing >10,000 individuals to $1.0 \pm 0.5^{\circ}\text{C}$ in each of three replicated trials (>30,000) in all 3 table grape cultivars. The results of these large-scale trials are given in **Section 5**.

Table 4.12 Comparison of the number of days exposure at $1.0 \pm 0.5^{\circ}\text{C}$ required to kill 50% (LD₅₀) and 99% (LD₉₉) of the four immature life stages of Mediterranean fruit fly (Medfly), *Ceratitis capitata* Wiedemann, in 3 table grapes cultivars. The analysis is based on three replicate trials for each life stage.

<i>Table grapes Cultivar and Life stage treated</i>	Days	95% confidence intervals		Days	95% confidence intervals	
	LD ₅₀	<u>Lower</u>	<u>Upper</u>	LD ₉₉	<u>Lower</u>	<u>Upper</u>
<i>Red Globe</i>						
<i>Eggs</i>	2.63	2.58	2.68	7.78	7.61	7.95
<i>1st instar larvae</i>	2.91	2.85	2.96	8.59	8.42	8.78
<i>2nd instar larvae</i>	3.47	3.41	3.53	10.26	10.05	10.47
<i>3rd instar larvae</i>	2.85	2.79	2.90	8.42	8.25	8.60
<i>Crimson Seedless</i>						
<i>Eggs</i>	2.53	2.47	2.59	7.29	7.12	7.46
<i>1st instar larvae</i>	2.89	2.83	2.96	8.33	8.15	8.53
<i>2nd instar larvae</i>	3.15	3.09	3.22	9.09	8.89	9.29
<i>3rd instar larvae</i>	2.67	2.61	2.73	7.68	7.51	7.86
<i>Thompson Seedless</i>						
<i>Eggs</i>	2.46	2.40	2.53	7.83	7.64	8.04
<i>1st instar larvae</i>	2.86	2.79	2.93	9.09	8.88	9.32
<i>2nd instar larvae</i>	3.19	3.12	3.27	10.16	9.92	10.41
<i>3rd instar larvae</i>	2.73	2.66	2.79	8.67	8.46	8.89

4.4.3 SUMMARY OF COLD TREATMENT DATA FOR THE MOST TOLERANT STAGE TRIALS AT $1.0 \pm 0.5^{\circ}\text{C}$.

The records of the temperatures from the cold treatment trials for each replicate treatment are summarised in the tables in the following pages. The data shows that the required temperatures of $1.0 \pm 0.5^{\circ}\text{C}$ was maintained throughout the trials. The data loggers were calibrated before and after each trial and the summary tables for calibration are also given. These show that the records of temperatures were accurate throughout the trials.

The summary tables for each cultivar are as follows:

- (1) **Red Globe:** Tables 4.13 to 4.15
- (2) **Thompson Seedless:** Tables 4.16 to 4.18
- (3) **Crimson Seedless:** Tables 4.19 to 4.21
- (4) Calibration of loggers before and after each trial: Table 4.22

The complete details of the data are given in **Appendix 7**.

Table 4.13 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.1	0.4	0.3	-0.1	0.2	0.4	1.1	1.1	1.1	1.2	1.0	1.0	1.1	0.9	1.1	0.9
24	1	0.2	0.8	0.3	0.2	0.3	0.6	1.0	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.0	1.1
36		0.1	0.5	0.3	0.4	0.2	0.4	1.0	1.2	1.1	1.2	1.0	1.2	1.1	1.1	1.0	1.1
48	2	0.0	0.5	0.1	0.4	0.2	0.3	1.1	1.1	1.1	1.1	1.0	1.1	1.2	1.1	1.0	1.1
60		0.0	0.6	-0.1	0.1	0.2	0.5	1.1	1.1	1.1	1.1	0.9	1.1	1.1	1.1	1.1	1.2
72	3	0.2	0.5	0.1	0.4	-0.2	0.5	1.1	1.2	1.1	1.0	1.0	1.2	1.2	1.0	1.2	1.1
84		0.2	0.3	0.3	0.5	0.5	0.3	1.1	1.2	1.1	1.1	1.0	1.2	1.2	1.0	1.1	0.9
96	4	-0.1	0.3	0.2	0.2	0.0	0.2	1.2	1.2	1.1	1.2	1.0	1.2	1.1	1.0	1.0	0.9
108		-0.1	0.4	0.2	0.0	-0.1	0.3	1.2	1.2	1.0	1.3	0.9	1.2	1.1	1.0	1.0	0.9
120	5	0.1	0.6	0.4	0.4	0.2	0.2	1.2	1.2	1.0	1.3	1.0	1.2	1.2	1.0	1.1	1.0
132		0.2	0.5	0.7	0.6	0.4	0.4	1.2	1.1	1.0	1.2	1.0	1.1	1.2	1.1	1.1	1.0
144	6	0.1	0.3	0.4	0.5	0.1	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	0.9
156		-0.1	-0.2	0.1	0.0	-0.2	-0.2	1.2	1.2	1.0	1.1	1.0	1.1	1.2	1.1	1.2	1.0
168	7	0.0	0.5	0.3	0.5	0.2	0.3	1.0	1.2	1.0	1.1	1.0	1.1	1.2	1.2	1.2	1.1
180		-0.1	0.5	0.1	0.2	0.0	0.4	1.0	1.2	1.1	1.2	1.0	1.1	1.2	1.2	1.1	1.1
192	8	0.1	0.6	0.4	0.1	0.2	0.5	0.9	1.2	1.1	1.2	1.1	1.1	1.2	1.1	1.1	1.1
204		0.2	0.6	0.5	0.4	0.1	0.4	1.0	1.2	1.0	1.1	1.2	1.2	1.2	1.2	1.0	1.2
216	9	0.3	0.7	0.7	0.6	0.4	0.4	1.1	1.2	1.0	1.1	1.2	1.2	1.2	1.1	1.0	1.1
228		0.2	0.7	0.4	0.3	0.5	0.3	1.0	1.3	1.0	1.0	1.2	1.2	1.2	1.0	1.0	1.1
240	10	0.1	0.6	0.5	0.1	0.2	0.5	1.0	1.2	1.1	1.0	1.1	1.1	1.2	1.0	1.1	1.1
252		0.1	0.2	0.2	0.2	0.1	0.5	1.0	1.2	1.1	1.1	1.0	1.1	1.1	0.9	1.2	1.1
264	11	0.2	0.4	0.5	0.4	0.7	0.5	1.0	1.3	1.1	1.1	1.0	1.1	1.0	0.9	1.2	1.2
276		0.1	0.6	0.7	0.4	0.3	0.7	1.0	1.2	1.2	1.0	1.0	1.1	1.0	0.9	1.2	1.2
288	12	-0.2	0.4	0.0	-0.1	0.2	0.4	1.0	1.2	1.2	1.0	1.0	1.1	1.0	1.0	1.2	1.2
300		0.1	0.8	0.3	0.0	0.3	0.4	1.1	1.1	1.2	0.9	1.0	0.9	0.9	0.9	1.0	1.1
312	13	0.1	0.7	0.4	0.4	0.4	0.6	1.1	1.1	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.1
324		-0.1	0.1	-0.1	-0.1	0.0	0.1	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	0.9	1.1
336	14	0.0	0.1	-0.1	0.0	0.0	0.2	1.0	1.2	1.1	1.0	1.1	1.0	1.0	1.0	0.9	1.1
348		0.3	0.6	0.5	0.7	0.4	0.5	1.1	1.2	1.0	1.0	1.0	1.1	0.9	1.0	0.9	1.0
360	15	0.3	0.7	0.5	0.3	0.2	0.5	1.1	1.2	1.1	1.0	0.9	1.1	0.9	0.9	1.0	1.0
372		0.0	0.5	0.1	0.1	0.3	0.6	1.2	1.2	1.0	1.0	1.0	1.1	0.9	0.9	0.9	1.1
384	16	0.3	0.5	0.3	0.3	0.4	0.4	1.3	1.2	0.9	0.9	0.9	1.1	0.9	0.9	0.9	1.1
396		0.2	0.0	0.1	0.2	0.4	0.2	1.3	1.1	0.9	1.0	0.9	1.1	1.0	1.0	0.9	1.1
408	17	0.1	0.0	-0.1	-0.2	0.2	0.3	1.3	1.1	0.9	1.0	1.1	1.1	1.0	0.8	1.0	1.2
420		0.3	0.4	0.5	0.4	0.2	0.6	1.3	1.1	1.0	1.0	1.1	1.0	1.0	0.9	1.0	1.2
432	18	0.3	0.3	0.3	0.5	0.4	0.3	1.2	1.1	1.0	1.0	1.1	1.0	1.0	0.9	0.9	1.1
444		0.1	0.4	0.5	0.5	0.5	0.5	1.1	1.1	0.9	1.0	1.1	0.9	0.9	0.9	0.9	1.2
456	19	0.4	0.8	0.8	0.5	0.3	0.7	1.0	1.1	0.9	1.0	1.1	1.0	0.9	0.9	0.8	1.2
468		0.4	0.7	0.3	0.3	0.3	0.4	1.0	1.0	0.9	1.0	1.1	1.1	0.9	0.9	0.8	1.2
480	20	0.7	0.9	0.7	0.7	0.6	0.4	1.0	1.0	0.9	1.0	1.1	1.1	1.0	0.9	0.9	1.2
Average over trial period		0.1	0.5	0.3	0.3	0.2	0.4	1.1	1.2	1.0	1.1	1.0	1.1	1.1	1.0	1.0	1.1
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.3											

Details of logger data are given in Appendix 7

Table 4.14 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.5	0.7	0.7	0.7	0.5	0.4	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.1	1.1	1.1
24	1	0.5	0.7	0.7	0.6	0.5	0.4	1.0	1.0	1.0	1.1	1.2	1.1	0.9	1.1	1.1	1.1
36		0.3	0.4	0.2	0.3	0.2	0.1	1.0	1.1	0.9	1.2	1.2	1.0	1.0	1.1	1.0	1.1
48	2	0.5	0.5	0.6	0.6	0.7	0.2	1.0	1.0	1.0	1.1	1.2	1.0	1.1	1.1	1.1	1.1
60		0.5	0.5	0.6	0.6	0.3	0.3	1.1	1.0	1.0	1.1	1.2	1.0	1.0	1.1	1.1	1.0
72	3	0.3	0.2	0.3	0.3	-0.2	0.0	1.1	1.1	1.0	1.0	1.2	1.0	0.9	1.1	1.1	1.0
84		0.4	0.6	0.6	0.4	0.0	0.1	1.0	1.0	1.0	1.1	1.2	1.0	1.0	1.1	1.1	0.9
96	4	0.5	0.6	0.7	0.9	0.4	0.3	1.0	0.9	0.9	1.1	1.2	1.0	1.1	1.1	1.0	0.9
108		0.2	0.3	0.4	0.4	0.1	0.1	1.0	0.9	0.9	1.1	1.1	1.0	1.1	1.2	1.0	0.9
120	5	0.3	0.4	0.4	0.2	-0.2	0.1	1.0	1.0	1.0	1.1	1.1	1.0	1.1	1.2	1.1	0.9
132		0.3	0.4	0.6	0.3	0.2	0.0	1.0	1.0	0.9	1.0	1.2	1.1	1.1	1.2	1.1	0.9
144	6	0.0	0.3	0.4	0.6	0.3	0.2	1.1	1.2	1.0	1.0	1.2	1.2	1.1	1.1	1.0	0.9
156		0.3	1.0	0.6	0.7	0.3	0.4	1.0	1.2	1.1	1.0	1.1	1.2	1.0	1.1	1.0	1.0
168	7	0.0	0.3	0.5	0.2	-0.2	0.2	1.0	1.1	1.1	0.9	1.1	1.2	1.0	1.2	1.0	1.0
180		0.0	0.3	0.4	0.2	-0.2	0.1	0.9	1.1	1.0	0.9	1.1	1.2	1.0	1.2	1.0	1.0
192	8	0.0	-0.1	0.4	0.4	0.1	0.3	0.9	1.0	1.0	0.9	1.2	1.1	1.1	1.2	0.9	1.0
204		0.4	0.9	0.7	0.9	0.3	0.6	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	0.9	1.1
216	9	-0.2	0.0	0.2	0.2	0.1	0.3	1.0	1.0	1.1	1.0	1.1	1.0	1.2	1.2	0.9	1.2
228		0.1	0.3	0.3	0.1	-0.1	0.3	1.1	1.0	1.1	0.9	1.1	1.1	1.1	1.2	0.9	1.2
240	10	0.2	0.6	0.5	0.5	0.4	0.6	1.0	1.1	1.1	1.0	1.1	1.1	1.1	1.2	0.9	1.2
252		0.2	0.5	0.5	0.6	0.4	0.6	1.0	1.0	1.1	1.0	1.1	1.0	1.1	1.2	0.9	1.2
264	11	0.2	0.6	0.4	0.3	0.1	0.5	1.0	1.0	1.2	1.1	1.1	1.1	1.1	1.1	1.0	1.2
276		0.1	0.7	0.5	0.1	-0.1	0.6	1.1	1.0	1.1	1.1	1.0	1.2	1.0	1.2	0.9	1.2
288	12	-0.1	0.0	0.1	0.1	0.1	0.2	1.2	0.9	1.1	1.1	1.1	1.2	1.0	1.2	1.0	1.2
300		0.1	0.6	0.2	0.3	0.2	0.5	1.2	0.9	1.1	1.1	1.0	1.2	1.0	1.1	1.0	1.1
312	13	0.1	0.5	0.5	0.2	0.2	0.4	1.1	0.9	1.2	1.1	1.1	1.2	1.0	1.0	1.0	1.2
324		0.1	0.3	0.4	0.0	0.2	0.4	1.2	0.9	1.2	1.1	1.1	1.2	1.0	0.9	1.2	1.1
336	14	-0.1	-0.1	0.1	0.2	0.4	0.3	1.1	1.0	1.1	1.1	1.1	1.2	1.0	0.9	1.2	1.0
348		0.4	0.7	0.7	0.5	0.8	0.6	1.2	1.1	1.1	1.1	1.1	1.2	1.0	0.9	1.2	1.0
360	15	0.4	0.7	0.6	0.4	0.4	0.8	1.1	1.0	1.1	1.0	1.0	1.2	1.1	0.9	1.2	1.1
372		0.0	-0.2	-0.4	0.5	-0.1	0.3	1.1	1.1	1.1	1.0	1.0	1.1	1.2	0.9	1.1	1.0
384	16	0.1	-0.1	0.6	0.3	0.3	0.5	1.1	1.1	1.0	1.1	1.1	1.1	1.2	0.9	1.0	1.1
396		0.3	0.6	0.6	0.7	0.5	0.7	1.1	1.1	1.1	1.1	1.2	1.1	1.2	0.9	0.9	1.1
408	17	0.1	0.3	0.0	0.2	0.3	0.4	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.0	1.0	1.0
420		0.1	0.5	-0.2	0.2	0.2	0.1	1.0	1.1	1.0	1.1	1.0	1.2	1.2	1.0	1.0	1.0
432	18	0.1	0.5	0.7	0.2	-0.1	0.5	1.0	1.2	1.0	1.0	1.0	1.2	1.2	0.9	1.1	0.9
444		0.2	0.3	1.0	0.2	0.1	0.4	1.0	1.2	1.0	0.9	1.0	1.2	1.2	1.0	1.1	0.9
456	19	0.5	1.0	0.2	0.6	0.1	0.2	0.9	1.1	1.0	0.9	1.0	1.1	1.2	0.9	1.2	0.9
468		0.5	0.8	0.2	0.4	0.4	0.3	0.9	1.1	1.0	0.9	1.1	1.0	1.2	0.9	1.2	0.9
480	20	0.5	0.4	0.8	0.1	0.5	0.5	1.0	1.0	0.9	0.9	1.0	1.1	1.2	1.0	1.2	0.9
Average over trial period		0.2	0.4	0.4	0.4	0.2	0.3	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.0	1.0
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.3											

Details of logger data are given in Appendix 7

Table 4.15 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.0	0.4	0.6	0.3	0.3	0.6	1.1	1.1	1.1	1.1	1.0	1.1	1.2	1.0	1.0	1.1
24	1	-0.1	0.3	0.5	0.0	0.1	0.5	1.2	1.0	1.0	1.1	1.1	1.2	1.2	1.0	1.0	1.0
36		-0.1	0.9	0.3	0.4	0.3	0.5	1.1	1.1	1.0	1.1	1.1	1.2	1.3	1.0	1.0	1.0
48	2	-0.1	0.2	0.0	0.2	0.1	0.4	1.1	1.1	1.0	1.2	1.1	1.2	1.3	1.0	1.0	1.0
60		0.2	0.5	1.1	0.4	0.2	0.7	1.0	1.0	1.1	1.2	1.0	1.2	1.2	1.0	1.0	1.0
72	3	0.3	0.3	0.9	0.2	0.1	0.6	1.1	0.9	1.1	1.2	1.0	1.2	1.3	1.1	1.2	1.1
84		0.1	0.2	0.1	0.1	0.1	0.3	1.2	0.9	1.0	1.2	1.0	1.2	1.3	1.1	1.2	1.1
96	4	0.2	0.0	0.2	0.2	0.1	0.2	1.2	0.9	1.3	1.2	0.9	1.2	1.3	1.1	1.1	1.1
108		0.3	0.5	0.7	0.6	0.1	0.4	1.2	1.0	1.3	1.2	0.9	1.3	1.3	1.1	1.1	1.1
120	5	0.3	0.3	0.9	0.6	0.0	0.4	1.2	1.0	1.2	1.2	1.0	1.3	1.2	1.1	1.0	1.2
132		0.2	0.2	0.1	0.5	0.2	0.1	1.2	1.0	1.1	1.2	1.0	1.3	1.2	1.1	1.0	1.1
144	6	0.3	0.7	0.4	0.8	0.2	0.3	1.2	1.0	1.1	1.2	1.0	1.3	1.2	1.1	1.0	1.1
156		0.3	0.5	0.9	0.3	0.4	0.3	1.2	1.0	1.2	1.1	1.0	1.1	1.2	1.2	0.9	1.0
168	7	0.0	-0.1	0.4	-0.1	-0.1	0.2	1.1	1.0	1.2	1.2	1.0	1.2	1.2	1.1	0.9	1.0
180		0.4	0.5	0.2	0.1	0.5	-0.1	1.1	1.0	1.2	1.1	1.0	1.2	1.2	1.1	1.0	1.1
192	8	0.3	0.4	0.6	0.2	0.7	0.0	1.0	1.0	1.1	1.1	1.0	1.3	1.2	1.1	1.0	1.0
204		-0.1	-0.3	0.7	0.0	0.3	0.2	1.2	1.0	1.1	1.1	1.1	1.3	1.2	1.1	1.1	1.0
216	9	0.3	0.4	0.8	0.2	0.3	0.2	1.2	1.0	1.0	1.1	1.0	1.3	1.1	1.1	1.1	1.0
228		0.1	0.2	0.1	0.1	0.3	-0.1	1.2	1.0	1.1	1.1	0.9	1.3	1.2	1.0	1.1	1.1
240	10	0.2	0.5	0.4	0.4	0.4	0.0	1.2	1.0	1.1	0.9	1.0	1.3	1.2	0.9	1.1	1.0
252		0.2	0.2	0.7	0.2	0.2	0.3	1.1	1.0	1.1	1.0	1.0	1.3	1.3	1.0	1.1	0.9
264	11	0.2	0.5	0.3	0.5	0.2	0.2	1.1	1.0	1.0	0.9	1.0	1.3	1.2	1.1	1.2	1.0
276		0.2	0.4	0.0	0.4	0.1	-0.2	1.1	1.0	1.0	1.0	1.0	1.3	1.2	1.2	1.2	1.1
288	12	0.4	0.8	0.3	0.5	0.3	0.2	1.2	0.9	1.0	1.1	1.0	1.2	1.2	1.1	1.1	1.0
300		0.1	0.5	0.8	0.2	-0.1	0.6	1.2	0.9	1.0	1.0	1.1	1.2	1.2	1.1	1.1	1.0
312	13	0.3	0.5	0.3	0.6	0.0	0.4	1.0	1.0	1.0	1.0	1.1	1.2	1.2	1.1	1.1	1.1
324		0.2	0.6	0.3	0.5	-0.1	0.3	1.1	0.9	1.0	1.0	1.0	1.3	1.2	1.1	1.1	1.1
336	14	0.2	0.7	0.7	0.7	0.2	0.4	1.2	1.0	1.0	1.0	1.1	1.3	1.3	1.1	1.1	1.1
348		0.0	0.6	0.3	0.2	-0.1	0.3	1.1	1.0	1.1	1.1	1.1	1.3	1.2	1.1	1.1	1.2
360	15	-0.1	0.7	0.4	0.3	0.0	0.3	1.1	1.0	1.2	1.0	1.1	1.3	1.2	1.1	1.2	1.2
372		0.1	0.8	0.3	0.0	0.1	-0.2	1.2	1.0	1.2	0.9	1.1	1.3	1.2	1.2	1.2	1.2
384	16	-0.2	0.2	0.3	0.1	-0.1	0.4	1.2	0.9	1.2	0.9	1.2	1.3	1.2	1.2	1.2	1.2
396		0.1	0.8	0.7	0.5	0.5	0.6	1.2	1.0	1.2	0.9	1.2	1.2	1.2	1.2	1.3	1.1
408	17	0.0	1.0	0.4	0.5	0.3	0.4	1.1	1.0	1.1	0.9	1.2	1.3	1.2	1.2	1.2	1.1
420		-0.2	0.8	-0.1	0.0	0.1	0.1	1.1	1.2	1.1	0.9	1.2	1.3	1.2	1.2	1.2	1.1
432	18	0.1	0.7	0.8	0.9	0.3	0.7	1.1	1.2	1.1	1.0	1.2	1.3	1.2	1.2	1.1	1.1
444		0.3	0.9	0.9	0.6	0.2	0.9	1.2	1.2	1.0	1.1	1.2	1.3	1.2	1.2	1.0	1.1
456	19	-0.2	0.4	0.2	0.3	0.0	0.6	1.2	1.1	1.0	1.2	1.1	1.3	1.2	1.2	1.0	1.1
468		0.0	0.9	0.7	0.5	0.2	0.5	1.1	1.1	0.9	1.2	1.0	1.2	1.1	1.2	1.1	1.2
480	20	-0.1	0.8	0.7	0.9	0.5	0.6	1.2	1.1	1.0	1.1	1.0	1.2	1.1	1.2	1.1	1.2
Average over trial period		0.1	0.5	0.5	0.3	0.2	0.3	1.1	1.0	1.1	1.1	1.1	1.2	1.2	1.1	1.1	1.1
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.3											

Details of logger data are given in Appendix 7

Table 4.16 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.2	0.0	0.1	0.2	0.4	0.0	1.2	1.3	1.1	1.0	1.1	1.2	1.1	1.1	1.0	1.1
24	1	0.4	0.4	0.3	0.4	0.4	0.2	1.1	1.3	1.2	1.0	1.0	1.1	1.1	1.1	0.9	1.1
36		0.5	0.9	1.0	0.6	0.5	0.3	1.1	1.2	1.2	1.0	1.1	1.1	1.1	1.1	0.9	1.1
48	2	0.4	1.0	0.7	0.6	0.8	0.5	1.1	1.2	1.2	0.9	1.0	1.1	1.2	1.1	0.9	1.1
60		0.3	0.2	0.0	0.2	0.3	0.2	1.1	1.2	1.2	1.0	1.2	1.1	1.2	1.1	0.9	1.1
72	3	0.4	0.5	0.5	0.5	0.5	0.1	1.1	1.2	1.2	1.1	1.2	1.2	1.1	1.0	0.9	1.1
84		0.4	0.7	0.5	0.6	0.6	0.2	1.1	1.2	1.1	1.1	1.2	1.1	1.1	1.0	1.0	1.1
96	4	0.6	0.7	0.4	0.6	0.9	0.3	1.1	1.2	1.0	1.1	1.2	1.2	1.1	1.1	1.0	1.0
108		0.4	0.1	0.2	0.3	0.5	-0.1	1.0	1.2	1.0	1.1	1.2	1.2	1.2	1.1	1.0	1.1
120	5	0.3	0.5	0.5	0.6	0.6	0.2	1.0	1.3	1.0	1.1	1.2	1.2	1.2	1.1	1.0	1.1
132		0.5	0.8	0.8	0.8	0.8	0.2	1.0	1.3	1.0	1.1	1.2	1.3	1.1	1.1	1.1	1.1
144	6	0.2	0.2	0.1	0.4	0.8	0.0	1.0	1.3	1.1	1.0	1.2	1.3	1.2	1.2	1.0	1.1
156		0.4	0.4	0.5	0.5	0.8	0.4	1.0	1.3	1.1	1.1	1.2	1.3	1.2	1.2	1.1	1.1
168	7	0.1	0.4	0.5	0.7	0.5	0.3	1.0	1.2	1.1	1.2	1.2	1.3	1.2	1.2	1.0	1.1
180		0.3	0.5	0.7	0.7	0.8	0.4	1.1	1.2	1.1	1.2	1.2	1.2	1.3	1.2	1.1	1.1
192	8	0.1	0.1	-0.2	0.5	0.8	0.1	1.1	1.3	1.1	1.2	1.2	1.1	1.3	1.1	1.1	1.2
204		0.1	0.1	0.2	0.3	0.6	0.0	1.1	1.3	1.1	1.1	1.2	1.1	1.3	1.1	1.1	1.2
216	9	0.2	0.1	0.8	0.3	0.6	0.0	1.0	1.3	1.0	1.0	1.2	1.2	1.2	1.1	1.1	1.2
228		0.1	0.2	0.5	0.5	0.5	0.3	1.0	1.2	1.1	1.0	1.2	1.2	1.2	1.1	1.1	1.2
240	10	0.4	0.5	0.5	0.6	0.5	0.1	1.1	1.3	1.0	1.0	1.2	1.1	1.2	1.0	1.0	1.2
252		0.1	0.3	0.2	0.3	0.1	0.1	1.1	1.3	0.9	1.0	1.1	1.1	1.2	1.1	1.0	1.3
264	11	0.3	0.4	0.8	0.5	0.8	0.3	1.1	1.2	0.9	1.2	1.1	1.1	1.2	1.1	0.9	1.2
276		0.3	0.8	1.0	0.8	1.0	0.4	1.0	1.2	1.0	1.1	1.1	1.1	1.3	1.2	1.0	1.2
288	12	0.1	0.4	0.2	0.5	0.5	0.1	1.0	1.2	1.0	1.1	1.0	1.1	1.2	1.1	1.0	1.3
300		0.0	0.0	0.0	0.3	0.6	0.0	1.0	1.3	1.1	1.2	1.1	1.1	1.2	1.2	1.1	1.3
312	13	0.3	0.5	0.8	0.6	1.2	0.2	1.1	1.3	1.2	1.2	1.2	1.1	1.2	1.2	1.1	1.2
324		0.2	0.2	0.3	0.3	0.6	0.1	1.1	1.3	1.1	1.2	1.1	1.1	1.1	1.2	1.1	1.2
336	14	0.1	0.1	0.4	0.1	0.4	0.0	1.2	1.3	1.1	1.2	1.1	1.1	1.0	1.1	1.1	1.3
348		0.3	0.8	0.9	0.4	0.8	0.2	1.2	1.2	1.1	1.2	1.1	1.1	1.0	1.2	1.1	1.2
360	15	0.4	0.7	0.5	0.7	1.0	0.4	1.1	1.2	1.2	1.1	1.2	1.1	1.0	1.2	1.1	1.2
372		0.0	0.3	0.2	0.5	0.8	0.4	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.0	1.1
384	16	0.5	0.6	0.7	0.3	0.6	0.2	1.1	1.2	1.2	1.1	1.2	1.0	1.0	1.0	1.1	1.1
396		0.4	0.5	0.7	0.4	0.4	0.4	1.2	1.1	1.2	1.2	1.1	1.1	1.0	1.1	1.0	1.1
408	17	0.5	0.5	0.9	0.4	0.5	0.2	1.2	1.1	1.2	1.2	1.1	1.1	1.0	1.1	1.1	1.1
420		0.7	0.3	0.3	0.3	0.1	0.0	1.2	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.2	1.1
432	18	0.8	0.6	0.6	0.5	0.8	0.2	1.2	1.1	1.2	1.2	1.0	1.1	1.2	1.1	1.1	1.1
444		0.7	0.5	0.7	0.3	0.6	0.2	1.1	1.0	1.1	1.2	1.1	1.1	1.1	1.1	1.0	1.0
456	19	0.5	0.3	0.1	0.2	0.3	0.4	1.0	1.0	1.2	1.2	1.2	1.1	1.0	1.2	1.0	1.0
468		0.5	0.1	0.4	0.3	0.5	0.3	1.1	1.1	1.2	1.2	1.2	1.1	1.0	1.1	1.1	1.0
480	20	0.8	0.7	0.4	0.2	0.8	0.4	1.2	1.1	1.1	1.2	1.1	1.1	1.0	1.2	1.1	1.1
Average over trial period		0.3	0.4	0.5	0.4	0.6	0.2	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 7

Table 4.17 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.0	0.0	0.1	-0.1	0.3	0.2	1.2	1.1	1.2	1.2	1.2	1.2	1.1	1.1	1.2	1.2
24	1	-0.1	0.3	0.5	0.3	0.5	0.3	1.2	1.1	1.2	1.1	1.1	1.3	1.2	1.1	1.1	1.3
36		-0.1	0.7	0.6	0.7	0.4	0.6	1.2	1.1	1.2	1.1	1.1	1.3	1.2	1.2	1.1	1.3
48	2	0.2	0.5	0.5	0.7	0.4	0.6	1.2	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.1	1.3
60		0.2	0.2	0.6	0.1	0.4	0.4	1.2	1.1	1.2	1.1	1.2	1.2	1.3	1.2	1.2	1.4
72	3	0.0	0.2	0.6	0.3	0.3	0.4	1.3	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.4
84		0.3	0.8	1.2	0.8	0.6	0.5	1.3	1.1	1.1	1.2	1.2	1.1	1.2	1.2	1.1	1.4
96	4	0.1	0.2	0.3	0.2	0.3	0.2	1.2	1.1	1.2	1.2	1.2	1.1	1.3	1.3	1.1	1.3
108		0.4	0.9	0.1	0.5	0.6	0.3	1.2	1.1	1.2	1.2	1.1	1.1	1.3	1.3	1.1	1.3
120	5	0.3	0.3	0.3	0.1	0.2	0.1	1.1	1.1	1.2	1.1	1.0	1.0	1.3	1.2	1.1	1.3
132		0.4	0.7	0.6	0.5	0.3	0.2	1.1	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.3
144	6	0.3	0.9	0.3	0.7	0.8	0.3	1.1	1.0	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.3
156		0.2	0.5	0.1	0.3	0.5	0.3	1.2	1.0	1.1	1.2	1.1	1.1	1.1	1.2	1.2	1.4
168	7	0.2	0.5	0.8	0.6	0.2	0.2	1.2	1.0	1.1	1.2	1.0	1.2	1.1	1.1	1.2	1.3
180		0.1	0.4	0.3	0.4	0.1	0.3	1.1	1.1	1.1	1.2	1.1	1.2	1.1	1.1	1.2	1.3
192	8	0.4	0.6	0.7	0.4	0.3	0.1	1.0	1.0	1.1	1.1	1.0	1.2	1.1	1.0	1.2	1.3
204		0.5	1.0	0.2	0.5	0.3	0.2	1.0	1.0	1.1	1.2	1.0	1.2	1.1	1.0	1.2	1.3
216	9	0.4	1.0	0.4	0.4	0.3	0.1	1.0	1.0	1.1	1.2	1.0	1.2	1.1	1.1	1.2	1.3
228		0.4	1.3	0.5	0.5	0.3	0.1	1.1	1.0	1.0	1.1	1.0	1.2	1.1	1.1	1.2	1.3
240	10	0.0	0.8	0.6	0.5	0.4	0.5	1.1	1.2	1.2	1.2	1.1	1.3	1.2	1.2	1.3	1.4
252		-0.1	0.4	0.1	0.5	0.3	0.2	1.0	1.2	1.1	1.1	1.1	1.2	1.2	1.1	1.1	1.3
264	11	0.3	1.0	0.5	0.8	0.8	0.6	0.9	1.2	1.1	1.0	1.0	1.1	1.0	1.1	1.1	1.2
276		-0.1	0.1	0.2	0.2	0.3	0.4	1.0	1.2	1.1	1.0	1.1	1.0	1.1	1.1	1.1	1.2
288	12	0.0	0.6	0.5	0.5	0.4	0.5	1.0	1.2	1.1	1.1	1.0	1.0	1.2	1.1	1.1	1.2
300		0.3	0.8	0.6	0.6	0.7	0.5	1.0	1.2	1.1	1.1	1.0	1.1	1.1	1.1	1.2	1.2
312	13	0.5	0.9	0.5	1.2	0.6	0.4	1.0	1.1	1.2	1.0	1.0	1.1	1.1	1.0	1.1	1.3
324		0.4	0.7	0.7	0.9	0.5	0.1	0.9	1.0	1.3	1.0	1.0	1.1	1.0	1.0	1.0	1.2
336	14	0.3	0.5	1.0	1.0	0.2	0.4	0.9	1.0	1.3	1.1	0.9	1.1	1.0	1.0	1.0	1.2
348		0.2	0.5	0.5	0.5	0.6	0.2	0.9	1.0	1.3	1.1	0.9	1.1	1.0	1.0	1.0	1.2
360	15	-0.1	0.0	0.2	0.2	0.0	-0.2	0.9	1.0	1.3	1.1	0.9	1.1	1.1	1.2	1.0	1.1
372		0.0	0.5	0.4	0.5	0.2	-0.2	0.9	1.1	1.3	1.1	1.0	1.2	1.1	1.2	1.0	1.1
384	16	0.0	0.2	0.4	0.3	0.1	0.4	0.9	1.1	1.3	1.0	0.9	1.0	1.1	1.2	1.0	1.0
396		0.0	0.2	0.7	0.5	0.3	0.3	1.0	1.2	1.3	0.9	1.0	1.0	1.0	1.2	1.0	1.0
408	17	0.2	0.7	0.5	0.5	0.6	0.3	0.9	1.2	1.2	1.0	1.0	1.0	1.0	1.2	1.0	1.0
420		0.0	0.4	0.1	0.6	0.4	-0.1	1.0	1.1	1.2	1.1	1.0	1.1	1.1	1.1	0.9	1.1
432	18	0.1	0.5	1.0	0.6	0.4	0.7	1.0	1.1	1.2	1.2	1.0	1.2	1.1	1.2	1.0	1.2
444		0.2	0.7	0.8	1.0	0.7	0.6	1.0	1.0	1.2	1.2	1.0	1.1	1.1	1.1	1.1	1.1
456	19	0.3	0.9	0.5	1.0	0.8	0.4	1.0	1.0	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1
468		0.1	0.3	-0.1	0.5	0.1	-0.1	0.9	1.0	1.2	1.1	1.1	1.0	1.1	1.1	1.1	1.2
480	20	0.1	0.3	0.3	1.0	0.0	0.5	1.0	1.0	1.1	1.1	1.2	1.0	1.1	1.1	1.2	1.2
Average over trial period		0.2	0.6	0.5	0.5	0.4	0.3	1.1	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.2
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 7

Table 4.18 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.3	0.5	0.6	0.0	0.3	0.4	1.1	1.2	1.1	1.2	1.1	1.1	1.2	1.2	1.2	1.1
24	1	0.1	0.3	0.1	0.2	0.0	0.2	1.2	1.2	1.0	1.2	1.0	1.1	1.1	1.3	1.1	1.0
36		0.6	1.5	0.8	0.7	0.6	0.3	1.2	1.2	1.0	1.3	1.0	1.0	1.1	1.3	1.1	1.0
48	2	0.3	0.6	0.5	0.3	0.0	0.2	1.2	1.2	1.1	1.2	1.0	1.1	1.0	1.3	1.1	1.0
60		0.2	0.8	0.1	0.7	-0.1	0.8	1.2	1.2	1.1	1.1	1.2	1.2	1.0	1.2	1.2	1.0
72	3	0.2	0.3	0.4	0.7	0.1	0.6	1.2	1.2	1.1	1.2	1.2	1.2	1.0	1.2	1.2	1.1
84		0.4	1.0	0.2	0.7	0.3	0.6	1.2	1.1	1.1	1.2	1.1	1.2	1.1	1.1	1.1	1.1
96	4	0.1	0.6	0.1	0.4	0.0	0.1	1.2	1.1	1.0	1.2	1.1	1.1	1.1	1.1	1.0	1.0
108		0.3	1.0	0.7	0.7	0.3	0.4	1.2	1.2	1.1	1.2	1.0	1.0	1.1	1.1	1.0	1.0
120	5	0.5	1.0	0.9	0.9	0.7	0.6	1.2	1.2	1.1	1.2	1.0	1.0	1.1	1.2	1.1	1.0
132		0.2	0.7	0.4	0.3	0.3	0.2	1.2	1.2	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.1
144	6	0.2	0.6	0.4	0.1	0.5	0.1	1.2	1.1	1.0	1.2	1.0	1.0	1.2	1.2	1.1	1.1
156		0.4	0.8	0.8	0.7	0.8	0.5	1.2	1.1	1.0	1.1	1.0	1.0	1.2	1.1	1.0	1.1
168	7	0.1	0.5	0.7	0.4	0.4	0.3	1.2	1.1	1.0	1.1	1.1	1.0	1.2	1.2	1.1	1.1
180		0.3	0.9	0.8	0.9	0.8	0.4	1.2	1.2	1.0	1.1	1.2	1.1	1.2	1.2	1.1	1.1
192	8	-0.2	0.4	0.2	0.2	0.2	0.2	1.2	1.2	1.1	1.0	1.3	1.1	1.2	1.1	0.9	1.1
204		-0.2	0.3	0.4	0.5	0.3	0.1	1.2	1.1	1.0	1.0	1.2	1.1	1.1	1.1	0.9	1.1
216	9	-0.2	0.4	0.5	0.7	0.4	0.2	1.2	1.1	1.0	1.0	1.2	1.1	1.0	1.1	1.0	1.1
228		-0.1	0.7	0.9	0.7	0.7	0.3	1.2	1.1	1.0	1.0	1.3	1.2	1.0	1.1	0.9	1.2
240	10	0.0	0.8	0.5	0.4	0.6	0.1	1.2	1.2	1.1	1.0	1.2	1.2	1.1	1.1	1.0	1.2
252		0.1	0.6	1.0	1.0	0.5	0.3	1.2	1.2	1.1	1.0	1.2	1.2	1.1	1.1	1.1	1.2
264	11	0.4	0.7	1.0	0.8	0.5	0.4	1.2	1.2	1.1	1.0	1.3	1.2	1.2	1.1	1.0	1.2
276		0.5	1.0	0.7	0.9	0.5	0.3	1.1	1.1	1.2	1.1	1.3	1.1	1.2	1.2	1.0	1.2
288	12	0.5	0.6	0.7	0.4	0.5	0.1	1.1	1.2	1.2	1.1	1.2	1.1	1.0	1.2	1.0	1.2
300		0.4	0.5	0.7	0.2	0.4	0.3	1.0	1.2	1.2	1.1	1.2	1.0	1.1	1.1	0.9	1.1
312	13	0.2	0.2	0.6	0.2	0.4	0.4	1.0	1.1	1.2	1.2	1.1	1.0	1.1	1.1	1.0	1.1
324		0.2	0.2	0.6	0.2	0.4	0.0	1.1	1.1	1.2	1.2	1.2	1.0	1.1	1.1	1.2	1.0
336	14	0.4	0.7	0.5	0.4	0.6	0.4	1.1	1.1	1.2	1.2	1.2	1.0	1.2	1.2	1.2	1.0
348		0.2	0.5	0.7	1.0	0.4	0.2	1.1	1.2	1.2	1.2	1.3	1.1	1.1	1.1	1.2	1.0
360	15	0.0	0.4	0.2	0.6	0.3	0.2	1.1	1.3	1.2	1.2	1.1	1.3	1.1	1.1	1.2	1.0
372		-0.1	0.1	0.6	0.5	0.3	0.0	1.0	1.3	1.2	1.2	1.0	1.3	1.1	1.1	1.2	1.1
384	16	0.2	0.6	0.5	0.3	0.5	0.2	1.0	1.3	1.2	1.2	1.0	1.3	1.2	1.2	1.1	1.1
396		-0.2	0.0	0.5	0.5	0.3	0.2	1.1	1.3	1.2	1.2	1.1	1.3	1.1	1.2	1.2	1.2
408	17	0.0	0.8	0.9	0.6	0.8	0.2	1.1	1.3	1.1	1.2	1.0	1.3	1.1	1.2	1.2	1.1
420		0.1	0.7	0.7	0.5	0.7	0.3	1.1	1.3	1.0	1.2	1.1	1.2	1.2	1.1	1.2	1.0
432	18	-0.1	0.2	0.4	-0.1	0.1	0.2	1.0	1.2	1.0	1.0	1.1	1.2	1.2	1.2	1.1	1.0
444		0.2	0.4	0.6	0.7	0.5	0.2	1.1	1.1	1.0	1.0	1.1	1.2	1.2	1.2	1.1	1.0
456	19	-0.1	0.6	0.4	0.4	0.2	0.2	1.1	1.2	1.1	1.1	1.2	1.1	1.2	1.2	1.1	1.1
468		-0.1	0.0	0.2	0.2	0.0	0.1	1.1	1.2	1.1	1.0	1.2	1.1	1.2	1.2	1.0	1.1
480	20	0.1	0.9	0.4	0.3	0.3	0.5	1.2	1.3	1.1	1.0	1.2	1.1	1.2	1.2	1.0	1.1
Average over trial period		0.2	0.6	0.6	0.5	0.4	0.3	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.2	1.1	1.1
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 7

Table 4.19 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.5	0.5	0.4	0.6	0.1	0.6	1.1	1.0	1.1	1.1	1.0	0.9	0.9	1.0	1.0	1.0
24	1	-0.1	0.9	0.2	0.0	-0.1	0.1	1.0	1.0	1.0	1.2	1.0	0.9	1.0	1.1	1.0	1.1
36		-0.2	0.4	0.6	0.5	0.3	0.6	0.9	1.0	1.1	1.1	1.1	0.9	1.0	1.1	1.0	1.2
48	2	0.2	1.1	0.9	0.6	0.4	0.7	0.9	0.9	1.1	1.2	1.1	0.9	1.0	1.0	1.0	1.2
60		-0.1	0.9	1.0	0.6	0.4	0.7	1.0	1.0	1.1	1.2	1.1	1.2	1.1	1.0	1.0	1.1
72	3	-0.3	0.4	0.2	0.3	0.1	0.4	1.1	0.9	1.0	1.2	1.0	1.1	1.2	0.9	1.0	1.1
84		-0.2	0.5	0.3	0.6	0.2	0.6	1.1	0.9	1.0	1.1	1.0	1.0	1.2	0.9	1.0	1.2
96	4	0.2	0.9	0.7	0.9	0.3	0.6	1.1	1.0	1.0	1.1	1.0	1.1	1.1	1.0	1.0	1.2
108		0.0	0.3	0.1	0.5	-0.2	0.3	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1	1.2
120	5	0.1	0.9	0.4	0.6	0.3	0.6	1.0	1.0	1.0	1.0	1.0	1.3	1.2	1.2	1.1	1.2
132		0.4	1.1	0.3	0.7	0.4	0.7	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.2
144	6	0.3	1.1	0.7	0.7	0.2	0.7	1.0	1.0	0.9	1.0	1.1	1.2	1.2	1.2	1.2	1.2
156		0.0	-0.3	-0.1	-0.1	0.0	0.3	1.0	1.0	0.9	1.0	1.1	1.0	1.3	1.2	1.0	1.2
168	7	0.0	1.2	0.2	0.3	0.2	0.6	1.0	1.0	1.0	1.1	1.1	1.0	1.2	1.1	1.1	1.2
180		0.3	0.7	0.5	0.7	0.2	0.5	0.9	1.1	1.0	1.0	1.1	1.1	1.2	1.1	1.1	1.2
192	8	0.6	1.0	0.8	0.7	0.3	0.7	1.0	1.0	1.0	1.0	1.1	1.2	1.1	1.1	1.1	1.1
204		-0.1	0.1	0.0	-0.3	-0.2	0.1	0.9	1.0	1.0	1.0	1.1	1.2	1.1	1.0	1.1	1.0
216	9	0.1	0.4	0.5	0.3	0.0	0.4	0.9	1.0	1.0	1.1	1.1	1.2	1.1	1.1	1.1	1.0
228		0.4	0.5	0.5	0.4	0.1	0.4	1.1	1.0	1.0	1.1	1.1	1.2	1.2	1.1	1.0	1.0
240	10	0.1	0.4	0.8	0.5	0.2	0.5	1.1	1.0	1.0	1.2	1.1	1.2	1.1	1.2	1.1	1.1
252		0.1	0.6	0.9	0.4	0.1	0.6	1.1	1.0	1.0	1.2	1.1	1.1	1.1	1.2	1.1	1.2
264	11	0.0	0.3	0.0	0.1	-0.2	0.0	1.1	1.1	1.0	1.1	1.2	1.1	1.2	1.2	1.2	1.2
276		0.3	0.4	0.6	0.7	0.3	0.5	1.1	1.1	1.1	1.1	1.2	1.1	1.2	1.2	1.2	1.2
288	12	0.4	0.5	0.8	0.4	0.2	0.3	1.1	1.1	1.2	1.1	1.0	1.1	1.2	1.2	1.2	1.1
300		0.4	-0.1	0.1	0.0	0.0	0.0	1.1	1.0	1.3	1.1	1.0	1.1	1.1	1.2	1.2	1.0
312	13	0.1	1.0	0.1	0.4	0.3	0.4	1.1	1.0	1.3	1.2	1.0	1.2	1.0	1.3	1.2	1.0
324		0.0	0.2	0.3	0.2	0.2	0.2	1.1	1.0	1.2	1.2	1.1	1.2	1.0	1.2	1.2	1.1
336	14	0.2	0.7	0.8	0.7	0.7	0.4	1.0	1.0	1.2	1.2	1.1	1.3	1.1	1.2	1.2	1.1
348		0.1	0.3	0.6	0.6	0.5	0.2	1.0	1.0	1.2	1.2	1.0	1.3	1.3	1.2	1.1	1.1
360	15	0.1	0.9	0.8	0.8	0.6	0.4	1.0	1.0	1.2	1.2	1.1	1.2	1.2	1.2	1.1	1.1
372		0.1	1.3	0.9	0.7	0.5	0.5	1.0	1.0	1.2	1.2	1.1	1.2	1.2	1.2	1.1	1.1
384	16	0.1	0.7	0.8	0.5	0.4	0.5	1.0	1.0	1.3	1.2	1.1	1.2	1.1	1.2	1.1	1.1
396		0.4	0.6	0.8	0.6	0.5	0.5	1.1	1.0	1.2	1.3	1.2	1.2	1.1	1.1	1.1	1.2
408	17	0.5	0.9	0.4	0.2	0.4	0.1	1.0	1.0	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.2
420		0.3	0.7	0.5	0.6	0.7	0.4	0.9	1.0	1.3	1.2	1.2	1.1	1.2	1.2	1.1	1.1
432	18	0.3	0.8	0.8	0.7	0.9	0.6	0.9	0.9	1.2	1.3	1.1	1.1	1.1	1.2	1.2	1.1
444		0.2	0.4	0.7	0.6	0.7	0.6	0.9	0.9	1.3	1.2	0.9	1.0	1.1	1.2	1.1	1.1
456	19	0.2	0.4	0.2	0.1	0.4	0.3	0.9	1.0	1.2	1.2	1.0	1.1	1.1	1.2	1.0	1.1
468		0.4	0.6	0.9	0.6	0.8	0.4	1.0	1.0	1.2	1.0	0.9	1.1	1.2	1.1	1.0	1.1
480	20	0.2	-0.7	0.3	-0.1	0.2	-0.1	1.0	1.0	1.3	1.1	1.1	1.0	1.1	1.1	0.9	1.1
Average over trial period		0.2	0.6	0.5	0.4	0.3	0.4	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 7

Table 4.20 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.3	0.5	0.5	0.4	0.4	0.4	1.1	1.1	1.2	1.2	1.1	0.9	1.0	1.2	1.1	1.1
24	1	0.1	0.5	0.2	0.5	0.2	0.1	1.1	1.2	1.1	1.2	1.1	1.0	1.0	1.2	1.2	1.1
36		0.2	0.4	0.2	0.6	0.4	0.3	1.0	1.2	1.0	1.2	1.0	1.1	1.0	1.1	1.2	1.1
48	2	0.3	0.9	0.3	0.6	0.7	0.3	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.2	1.1
60		0.0	-0.2	-0.1	0.5	0.5	0.2	1.0	1.0	1.1	1.3	1.0	1.0	0.9	1.0	1.2	1.0
72	3	0.0	1.0	0.4	0.8	0.6	0.3	1.0	1.0	1.1	1.2	1.0	1.0	1.0	1.0	1.0	1.0
84		0.4	0.5	0.6	0.7	0.6	0.5	1.0	1.0	1.2	1.2	1.1	1.0	1.0	1.0	1.1	1.0
96	4	0.3	0.6	0.5	0.5	0.6	0.2	1.1	1.0	1.2	1.2	1.2	1.0	1.1	1.0	1.1	1.0
108		0.4	0.8	0.7	0.9	0.6	0.3	1.1	1.0	1.3	1.2	1.2	0.9	1.2	1.1	1.2	1.0
120	5	0.3	0.2	0.8	0.7	0.4	0.2	1.1	1.0	1.3	1.2	1.1	1.0	1.1	1.1	1.2	1.0
132		0.4	1.1	0.8	0.8	0.5	0.3	1.1	1.0	1.3	1.2	1.2	1.0	1.1	1.0	1.2	1.0
144	6	0.2	0.4	0.3	0.3	0.3	0.1	1.1	1.1	1.2	1.1	1.2	1.0	1.0	1.0	1.1	1.0
156		0.3	0.2	0.3	0.6	0.2	0.1	1.2	1.1	1.2	1.1	1.2	1.0	1.1	1.1	1.1	1.1
168	7	0.1	1.5	0.9	0.7	0.6	0.3	1.2	1.0	1.2	1.1	1.2	0.9	1.1	1.0	1.0	1.0
180		-0.1	0.3	0.3	0.2	0.3	0.0	1.1	1.1	1.3	1.1	1.1	1.1	1.1	1.1	1.0	1.0
192	8	-0.2	0.3	0.2	0.3	0.4	0.2	1.0	1.1	1.2	1.2	1.1	1.0	1.0	1.0	1.0	1.1
204		-0.3	0.3	0.4	0.5	0.2	0.1	1.0	1.1	1.2	1.2	1.2	1.0	1.0	1.0	1.1	1.0
216	9	0.0	0.5	0.8	0.6	0.4	0.5	0.9	1.1	1.2	1.2	1.2	1.1	1.0	0.9	1.1	1.0
228		-0.3	0.4	0.4	0.4	0.3	0.3	1.0	1.2	1.2	1.2	1.2	1.1	1.0	0.9	1.0	1.1
240	10	0.0	0.5	0.6	0.6	0.5	0.4	0.9	1.2	1.2	1.2	1.2	1.0	1.1	1.0	1.0	1.2
252		-0.1	1.0	0.8	0.7	0.4	0.3	1.0	1.3	1.1	1.2	1.3	1.0	1.2	1.0	1.0	1.2
264	11	0.2	0.5	0.7	0.6	0.2	0.2	1.1	1.3	1.3	1.2	1.2	0.9	1.1	1.0	1.0	1.1
276		0.0	1.1	0.6	0.8	0.3	0.2	1.1	1.3	1.3	1.2	1.2	1.0	1.1	1.1	1.0	1.1
288	12	-0.1	0.1	0.5	0.3	0.3	0.3	1.1	1.2	1.3	1.2	1.2	1.1	1.1	1.0	1.0	1.1
300		0.0	0.7	0.7	0.8	0.6	0.3	1.1	1.2	1.3	1.2	1.3	1.1	1.1	1.0	1.1	1.1
312	13	-0.2	-0.2	0.3	0.4	0.3	0.2	1.1	1.2	1.3	1.2	1.3	1.2	1.3	1.1	1.1	1.1
324		-0.1	0.2	0.3	0.8	0.6	0.5	1.2	1.2	1.2	1.1	1.3	1.2	1.3	1.1	1.1	1.2
336	14	-0.4	-0.3	-0.3	0.1	-0.1	0.1	1.2	1.3	1.2	1.1	1.3	1.2	1.3	1.2	1.2	1.2
348		0.3	0.7	0.4	0.8	0.3	0.5	1.2	1.2	1.2	1.1	1.3	1.2	1.3	1.2	1.2	1.1
360	15	0.2	0.5	0.5	0.8	0.4	0.6	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.1
372		-0.1	0.1	0.5	0.8	0.4	0.7	1.2	1.2	1.2	1.1	1.2	1.2	1.3	1.2	1.2	1.1
384	16	0.0	0.3	0.4	0.7	0.2	0.8	1.2	1.2	1.2	1.0	1.2	1.2	1.3	1.1	1.2	1.1
396		-0.2	0.0	0.0	0.2	0.1	0.4	1.1	1.2	1.2	1.0	1.2	1.1	1.2	1.1	1.2	1.0
408	17	0.1	0.6	0.1	0.3	0.4	0.5	1.1	1.1	1.2	1.0	1.3	1.1	1.1	1.0	1.0	1.0
420		-0.1	-0.3	0.3	0.5	0.2	0.4	1.1	1.2	1.2	1.1	1.2	1.1	1.1	1.0	1.0	1.1
432	18	-0.2	0.3	0.4	0.4	0.2	0.4	1.0	1.2	1.2	1.1	1.2	1.1	1.2	1.0	1.0	1.1
444		-0.4	0.2	0.3	0.5	0.1	0.2	1.0	1.2	1.1	1.2	1.2	1.1	1.2	1.0	1.0	1.2
456	19	-0.1	0.5	0.7	0.9	0.4	0.4	1.0	1.2	1.1	1.2	1.2	1.2	1.2	1.0	1.0	1.2
468		0.0	0.4	0.5	0.6	0.4	0.3	1.0	1.2	1.1	1.1	1.2	1.3	1.2	1.0	1.1	1.1
480	20	0.0	0.4	0.4	0.5	0.1	0.4	1.0	1.2	1.1	1.0	1.2	1.3	1.2	1.0	1.1	1.0
Average over trial period		0.0	0.4	0.4	0.6	0.4	0.3	1.1	1.1	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 7

Table 4.21 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.2	0.6	0.1	-0.3	0.3	0.2	1.1	1.2	1.3	1.1	1.2	1.0	1.0	0.9	0.9	1.2
24	1	0.4	0.8	0.8	1.0	0.6	0.2	1.0	1.0	1.3	1.0	1.1	1.1	1.1	1.0	0.9	1.2
36		0.2	1.1	0.5	0.7	0.6	0.3	1.0	1.0	1.3	1.0	1.1	1.1	1.2	1.0	0.9	1.1
48	2	0.2	0.8	0.6	0.3	0.2	0.1	1.0	1.1	1.3	1.0	1.1	1.1	1.2	1.0	1.0	1.1
60		0.1	0.9	0.6	0.1	0.2	0.2	1.1	1.1	1.3	1.0	1.2	1.1	1.2	1.1	0.9	1.1
72	3	-0.1	-0.2	-0.1	0.1	-0.1	0.0	1.1	1.1	1.1	1.0	1.1	1.2	1.2	1.0	0.9	1.2
84		0.0	0.7	0.3	0.3	0.2	0.2	1.1	1.1	1.1	0.9	1.2	1.2	1.2	1.0	0.9	1.2
96	4	-0.1	0.9	0.6	0.1	0.4	0.2	1.2	1.0	1.1	0.9	1.2	1.2	1.2	0.9	1.0	1.2
108		-0.1	1.1	0.5	0.4	0.4	0.2	1.1	1.0	1.0	1.0	1.1	1.1	1.2	0.9	1.0	1.1
120	5	-0.1	0.1	-0.1	0.6	-0.1	-0.2	1.1	1.0	1.0	1.0	1.1	1.2	1.2	1.0	0.9	1.0
132		0.4	1.4	0.7	0.8	0.4	0.7	1.0	1.0	1.0	1.0	1.2	1.1	1.2	1.0	0.9	1.0
144	6	0.3	0.7	0.4	-0.2	0.6	0.6	0.9	0.9	0.9	0.9	1.2	1.2	1.3	1.1	0.9	1.0
156		0.5	0.6	0.6	0.4	0.3	0.5	0.9	1.0	0.9	0.9	1.1	1.1	1.2	1.0	1.0	1.1
168	7	0.4	1.0	1.1	0.7	0.4	0.7	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.0	1.0	1.0
180		0.2	0.2	0.5	0.6	0.2	0.3	0.9	1.0	1.1	1.0	1.0	1.0	1.1	1.0	0.9	1.0
192	8	0.0	-0.7	0.0	0.0	-0.3	0.2	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.1
204		0.3	0.6	0.7	0.8	0.3	0.8	1.0	1.0	1.1	1.1	1.0	0.9	1.1	1.1	1.0	1.0
216	9	0.7	0.4	1.0	1.3	0.4	0.6	1.0	1.0	1.2	1.1	1.1	1.0	1.1	1.1	1.1	1.0
228		0.5	0.3	0.8	0.8	0.5	0.6	1.0	1.0	1.2	1.0	1.2	1.1	1.1	1.0	1.2	1.0
240	10	0.2	0.0	0.4	0.3	0.2	0.4	1.1	1.0	1.2	1.2	1.2	1.1	1.2	0.9	1.2	1.0
252		0.1	0.0	0.1	0.0	0.3	0.2	1.0	1.0	1.2	1.1	1.2	1.1	1.1	0.9	1.2	1.0
264	11	0.5	0.6	0.9	1.3	0.6	0.5	1.0	1.1	1.2	1.1	1.2	1.0	1.1	1.0	1.2	1.1
276		0.5	0.7	0.7	0.9	0.6	0.7	1.1	1.0	1.1	1.1	1.0	1.0	1.2	1.0	1.1	1.1
288	12	0.3	0.6	0.4	0.6	0.7	0.6	1.1	1.1	1.1	1.2	1.0	1.0	1.2	1.0	1.1	1.2
300		0.5	0.5	0.3	0.3	0.9	0.6	1.1	1.0	1.1	1.2	1.0	1.0	1.2	0.9	1.1	1.2
312	13	0.4	0.4	0.6	1.3	0.9	0.5	1.1	1.2	1.0	1.2	1.0	1.1	1.2	0.9	1.0	1.2
324		0.4	0.1	0.3	0.6	0.5	0.4	1.2	1.2	1.0	1.2	1.0	1.1	1.2	1.0	1.0	1.2
336	14	0.4	0.7	0.5	0.4	0.7	0.6	1.1	1.1	1.0	1.2	1.0	1.1	1.1	1.0	1.0	1.2
348		0.5	0.2	0.6	0.4	0.7	0.5	1.1	1.1	1.0	1.2	1.0	1.2	1.2	1.0	1.1	1.2
360	15	0.4	-0.1	0.5	0.7	0.5	0.1	1.1	1.2	1.0	1.1	1.1	1.2	1.2	1.0	1.2	1.3
372		0.3	0.8	0.8	0.7	0.7	0.2	1.1	1.1	1.0	1.1	1.1	1.1	1.2	1.0	1.2	1.2
384	16	0.2	0.4	0.6	0.1	0.7	0.3	1.0	1.2	1.0	1.1	1.2	1.1	1.2	1.0	1.2	1.2
396		0.3	0.5	0.5	0.3	0.9	0.2	1.1	1.2	1.0	1.1	1.2	1.1	1.2	1.0	1.2	1.2
408	17	0.1	-0.1	0.4	0.6	0.4	0.0	1.2	1.2	1.0	1.1	1.2	1.1	1.2	1.0	1.1	1.2
420		0.3	0.2	0.6	0.6	0.5	0.2	1.1	1.1	1.0	1.1	1.2	1.1	1.2	1.0	1.0	1.1
432	18	0.6	0.7	0.6	0.3	0.9	0.5	1.0	0.9	1.0	1.2	1.2	1.0	1.2	1.0	0.9	1.1
444		0.1	0.1	0.0	-0.1	0.5	0.0	1.0	1.0	1.1	1.2	1.2	1.0	1.2	1.0	1.0	1.1
456	19	0.1	0.0	0.2	0.6	0.5	0.0	1.0	1.0	1.0	1.2	1.1	1.0	1.1	1.0	1.0	1.1
468		0.4	0.7	0.6	0.3	0.6	0.5	1.0	1.0	1.0	1.1	1.1	1.0	1.2	1.0	0.9	1.1
480	20	0.1	0.4	0.1	-0.2	0.5	0.2	1.0	1.1	0.9	1.2	1.1	0.9	1.3	1.0	1.0	1.1
Average over trial period		0.3	0.5	0.5	0.5	0.5	0.3	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.0	1.0	1.1
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 7

Table 4.22 Calibration summary before and after 1.0 °C Most Tolerant Stage trials

Trial		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
Red Globe 1°C																	
Before	Rep 1	-0.2	-0.1	-0.1	-0.1	0.2	0.0	-0.2	0.0	-0.1	0.0	0.0	0.1	0.0	0.1	0.1	-0.1
	Rep 2	-0.2	-0.2	-0.1	-0.1	0.2	0.0	-0.1	0.0	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1
	Rep 3	-0.2	-0.1	-0.1	0.0	-0.1	0.0	-0.2	0.0	-0.1	0.0	0.0	0.1	0.1	0.1	0.0	-0.1
After	Rep 1	-0.2	-0.1	-0.1	-0.1	0.2	-0.1	-0.2	0.0	-0.1	-0.1	0.0	0.1	0.1	0.1	0.1	-0.1
	Rep 2	-0.1	-0.1	-0.1	-0.1	0.1	0.0	-0.2	0.0	-0.1	0.0	0.0	0.1	0.0	0.1	0.0	-0.1
	Rep 3	-0.1	-0.1	-0.1	-0.1	0.1	0.0	0.1	0.0	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Thompson Seedless 1°C																	
Before	Rep 1	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.2	0.0	-0.1	-0.1	0.0	0.1	0.0	0.1	0.0	-0.2
	Rep 2	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.2	0.0	-0.1	0.0	0.0	0.1	0.0	0.1	0.0	-0.2
	Rep 3	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.2	0.1	-0.1	0.0	0.0	0.1	0.0	0.1	0.0	-0.2
After	Rep 1	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.2	0.0	-0.1	0.0	0.0	0.1	0.0	0.1	0.0	-0.2
	Rep 2	-0.1	0.0	-0.1	-0.1	0.1	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
	Rep 3	-0.1	0.0	-0.1	-0.1	0.1	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
Crimson Seedless 1°C																	
Before	Rep 1	-0.1	-0.1	-0.1	-0.1	0.1	0.0	-0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.2
	Rep 2	-0.1	-0.1	-0.1	-0.1	0.1	0.0	-0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.2
	Rep 3	-0.1	-0.1	-0.1	-0.1	0.1	0.0	-0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.2
After	Rep 1	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.2
	Rep 2	-0.1	0.0	-0.1	-0.1	0.1	0.0	-0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.2
	Rep 3	-0.1	0.0	-0.1	-0.1	0.2	0.0	-0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2

Details of logger calibration data are given in Appendix 7

4.5 RESULTS OF MOST TOLERANT LIFE STAGE COLD TREATMENT TRIALS OF MEDFLY IN TABLE GRAPESS AT $2.0 \pm 0.5^{\circ}\text{C}$.

The trials $2.0 \pm 0.5^{\circ}\text{C}$ were conducted from November 2003 to May 2004 on the dates given in **Table 4.23**.

Table 4.23 Summary of the dates and times of the conduct of the Most Tolerant Stage trials at $2.0 \pm 0.5^{\circ}\text{C}$ in table grapes. The exposure period for several time intervals begins after temperature probes in the fruit have reached the treatment temperature.

Table grape variety	Rep.	Start date / time of Trial	Date/ Time to reach $2.0 \pm 0.5^{\circ}\text{C}$	Hours to cool down	End date / time of Trial	Cold Room No.	Logger Serial No.	Calibration: Before trial Date / time	Calibration After trial Date / time
Red Globe	1	20.11.2003 07:29 am	20.11.2003 17:29 pm	10.0	10.12.2003 17:29 pm	# 3	1256 - 00019	19.11.2003 08:11 am	11.12.2003 09:02 am
	2	08:03 am	19:03 pm	11.0	19:03 pm	# 4	1256 – 00107	08:35 am	09:27 pm
	3	08:45 am	18:45 pm	10.0	18:45 pm	# 5	1206 – 00042	09:06 am	09:45 am
Crimson Seedless		19.04.2004	19.04.2004		09.05.2004			18.04.2004	10.05.2004
	1	07:19 am	19:19 pm	12.0	19:19 pm	# 3	1256 - 00019	10:29 am	09:36 am
	2	07:46 am	19:46 pm	12.0	19:46 pm	# 4	1256 – 00107	10:48 am	09:58 pm
	3	08:20 am	19:20 pm	11.0	19:20 pm	# 5	1206 – 00042	11:22 am	10:26 am
Thompson Seedless		05.02.2004	05.02.2004		25.02.2004			04.02.2004	26.02.2004
	1	07:48 am	15:48 pm	6.0	15:48 pm	# 3	1256 – 00019	08:22 am	08:46 am
	2	08:27 am	16:27 pm	8.0	16:27 pm	# 4	1256 – 00107	08:55 am	09:13 am
	3	09:18 am	16:18 pm	7.0	16:18 pm	# 5	1206 – 00042	09:27 am	09:48 am

4.5.1 MORTALITIES OF EACH LIFE STAGE AT $2.0 \pm 0.5^{\circ}\text{C}$.

The mortality data from cold exposure to a graded series of doses from 2 to 20 days of the four life stages of Medfly in 3 table grape cultivars replicated 3 times are given in the following tables:

Red Globe: Tables 4.24 to 4.26

Crimson Seedless: Tables 4.27 to 4.29

Thompson Seedless: Tables 4.30 to 4.32

The data in these tables show that complete mortality was achieved in all stages after 14 days cold exposure to $2.0 \pm 0.5^{\circ}\text{C}$. This data was used in the Probit analysis of LD_{50} and LD_{99} to provide an estimate of the most tolerant stage and the treatment required for successful disinfestation in large scale trials of >30,000 insects.

Table 4.24 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 2.0 ± 0.5 °C
(Replicate 1 : Cold Room # 3). Date of experiment : 20th November – 10th December 2003.

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	643	603	686	639				
2	50	543	547	632	525	15.6	9.3	7.9	17.8
3	50	407	513	627	327	36.7	14.9	8.6	48.8
4	50	277	425	586	281	56.9	29.5	14.6	56.0
5	50	246	330	461	205	61.7	45.3	32.8	67.9
6	50	156	251	335	153	75.7	58.4	51.2	76.1
7	50	40	132	170	46	93.8	78.1	75.2	92.8
8	50	21	83	125	24	96.7	86.2	81.8	96.2
9	50	4	27	40	3	99.4	95.5	94.2	99.5
10	50	0	9	12	0	100.0	98.5	98.3	100.0
11	50	0	3	7	0	100.0	99.5	99.0	100.0
12	50	0	1	2	0	100.0	99.8	99.7	100.0
13	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.25 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 2.0 ± 0.5 °C
(Replicate 2 : Cold Room # 4). Date of experiment : 20th November – 10th December 2003.

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	610	614	540	595				
2	50	510	588	523	552	16.4	4.2	3.1	7.2
3	50	395	556	519	340	35.2	9.4	3.9	42.9
4	50	294	450	350	302	51.8	26.7	35.2	49.2
5	50	259	364	331	251	57.5	40.7	38.7	57.8
6	50	135	238	243	142	77.9	61.2	55.0	76.1
7	50	48	129	156	59	92.1	79.0	71.1	90.1
8	50	20	101	121	29	96.7	83.6	77.6	95.1
9	50	3	34	42	5	99.5	94.5	92.2	99.2
10	50	0	12	19	3	100.0	98.0	96.5	99.5
11	50	0	4	5	0	100.0	99.3	99.1	100.0
12	50	0	0	2	0	100.0	100.0	99.6	100.0
13	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.26 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 2.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 20th November – 10th December 2003.

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	601	634	661	641				
2	50	506	587	598	505	15.8	7.4	9.5	21.2
3	50	419	564	584	359	30.3	11.0	11.6	44.0
4	50	362	436	461	224	39.8	31.2	30.3	65.1
5	50	266	372	418	169	55.7	41.3	36.8	73.6
6	50	112	254	316	114	81.4	59.9	52.2	82.2
7	50	51	170	209	53	91.5	73.2	68.4	91.7
8	50	18	90	134	26	97.0	85.8	79.7	95.9
9	50	3	32	37	4	99.5	95.0	94.4	99.4
10	50	0	9	15	0	100.0	98.6	97.7	100.0
11	50	0	6	5	0	100.0	99.1	99.2	100.0
12	50	0	2	2	0	100.0	99.7	99.7	100.0
13	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.27 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 2.0 ± 0.5 °C (Replicate 1 : Cold Room # 3). Date of experiment : 19th April– 9th May 2004

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	618	480	638	604				
2	50	587	429	617	581	5.0	10.6	3.3	3.8
3	50	341	384	562	375	44.8	20.0	11.9	37.9
4	50	407	327	433	292	34.1	31.9	32.1	51.7
5	50	237	299	275	171	61.7	37.7	56.9	71.7
6	50	83	127	137	74	86.6	73.5	78.5	87.7
7	50	23	106	119	44	96.3	77.9	81.3	92.7
8	50	5	72	62	7	99.2	85.0	90.3	98.8
9	50	1	21	23	1	99.8	95.6	96.4	99.8
10	50	0	1	1	0	100.0	99.8	99.8	100.0
11	50	0	3	3	0	100.0	99.4	99.5	100.0
12	50	0	1	1	0	100.0	99.8	99.8	100.0
13	50	0	0	1	0	100.0	100.0	99.8	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.28 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 2.0 ± 0.5 °C (Replicate 2 : Cold Room # 4). Date of experiment : 19th April– 9th May 2004

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	590	766	603	590				
2	50	541	635	582	470	8.3	17.1	3.5	20.3
3	50	293	526	455	334	50.3	31.3	24.5	43.4
4	50	394	406	383	256	33.2	47.0	36.5	56.6
5	50	174	259	299	181	70.5	66.2	50.4	69.3
6	50	76	173	190	81	87.1	77.4	68.5	86.3
7	50	24	119	132	30	95.9	84.5	78.1	94.9
8	50	7	88	95	10	98.8	88.5	84.2	98.3
9	50	1	22	24	2	99.8	97.1	96.0	99.7
10	50	0	9	6	0	100.0	98.8	99.0	100.0
11	50	0	4	4	0	100.0	99.5	99.3	100.0
12	50	0	1	2	0	100.0	99.9	99.7	100.0
13	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.29 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 2.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 19th April– 9th May 2004

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	614	603	586	659				
2	50	514	595	560	574	16.3	1.3	4.4	12.9
3	50	299	499	495	471	51.3	17.2	15.5	28.5
4	50	450	382	355	303	26.7	36.7	39.4	54.0
5	50	133	287	297	177	78.3	52.4	49.3	73.1
6	50	65	206	182	82	89.4	65.8	68.9	87.6
7	50	20	127	115	41	96.7	78.9	80.4	93.8
8	50	6	65	81	13	99.0	89.2	86.2	98.0
9	50	0	25	22	3	100.0	95.9	96.2	99.5
10	50	0	3	8	0	100.0	99.5	98.6	100.0
11	50	0	1	3	0	100.0	99.8	99.5	100.0
12	50	0	0	2	0	100.0	100.0	99.7	100.0
13	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.30 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 2.0 ± 0.5 °C (Replicate 1 : Cold Room # 3). Date of experiment : 5th – 25th February 2004

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	651	573	621	572				
2	50	427	468	563	375	34.4	18.3	9.3	34.4
3	50	390	455	560	356	40.1	20.6	9.8	37.8
4	50	330	364	437	231	49.3	36.5	29.6	59.6
5	50	233	307	365	177	64.2	46.4	41.2	69.1
6	50	92	188	214	118	85.9	67.2	65.5	79.4
7	50	36	145	136	41	94.5	74.7	78.1	92.8
8	50	10	69	90	12	98.5	88.0	85.5	97.9
9	50	1	26	30	2	99.8	95.5	95.2	99.7
10	50	1	7	16	1	99.8	98.8	97.4	99.8
11	50	0	4	7	0	100.0	99.3	98.9	100.0
12	50	0	1	2	0	100.0	99.8	99.7	100.0
13	50	0	0	0	0	100.0	100.0	100.0	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.31 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 2.0 ± 0.5 °C (Replicate 2 : Cold Room # 4). Date of experiment : 5th – 25th February 2004

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	622	637	602	581				
2	50	452	499	515	376	27.3	21.7	14.5	35.3
3	50	395	484	512	325	36.5	24.0	15.0	44.1
4	50	323	340	372	299	48.1	46.6	38.2	48.5
5	50	234	278	341	215	62.4	56.4	43.4	63.0
6	50	99	185	183	101	84.1	71.0	69.6	82.6
7	50	36	128	142	53	94.2	79.9	76.4	90.9
8	50	9	92	85	15	98.6	85.6	85.9	97.4
9	50	4	28	36	2	99.4	95.6	94.0	99.7
10	50	0	6	20	0	100.0	99.1	96.7	100.0
11	50	0	3	5	0	100.0	99.5	99.2	100.0
12	50	0	1	1	0	100.0	99.8	99.8	100.0
13	50	0	1	1	0	100.0	99.8	99.8	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.32 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 2.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 5th – 25th February 2004

Exposure Period to 2.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	580	744	587	620				
2	50	371	593	523	429	36.0	20.3	10.9	30.8
3	50	365	581	520	386	37.1	21.9	11.4	37.7
4	50	306	402	468	250	47.2	46.0	20.3	59.7
5	50	219	346	337	175	62.2	53.5	42.6	71.8
6	50	92	174	204	79	84.1	76.6	65.2	87.3
7	50	46	133	136	55	92.1	82.1	76.8	91.1
8	50	8	78	83	9	98.6	89.5	85.9	98.5
9	50	1	29	34	2	99.8	96.1	94.2	99.7
10	50	1	5	11	0	99.8	99.3	98.1	100.0
11	50	0	2	10	0	100.0	99.7	98.3	100.0
12	50	0	1	3	0	100.0	99.9	99.5	100.0
13	50	0	0	1	0	100.0	100.0	99.8	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

4.5.2 ANALYSIS OF THE DATA FOR COLD EXPOSURE AT $2.0 \pm 0.5^{\circ}\text{C}$.

The above bio-assay data obtained from the exposure of the four Medfly stages - eggs, 1st, 2nd, and 3rd instar larvae were subjected to probit regression analysis (Finney, 1972) and analysed using the Genstat Program (Anon 2006) to obtain the LD₅₀ and LD₉₉ values together with their 95% confidence limits. These are given in **Table 4.33**.

The results show that the 2nd instar is the most tolerant life stage at the LD₅₀ and at the LD₉₉ estimates for all varieties. On the basis of these results it was decided that the large-scale trials should be done on 2nd instar larvae. Therefore 3 replicated trials were conducted by exposing >10,000 individuals to $1.0 \pm 0.5^{\circ}\text{C}$ in each of three replicated trials (>30,000) in all 3 table grape cultivars. The results of these large-scale trials are given in **Section 5**.

Table 4.33 Comparison of the number of days exposure at $2.0 \pm 0.5^{\circ}\text{C}$ required to kill 50% (LD₅₀) and 99% (LD₉₉) of the four immature life stages of Mediterranean fruit fly in 3 table grape cultivars. The analysis is based on three replicate trials for each life stage.

Table grapes Cultivar and Life stage treated	Days	95% confidence intervals		Days	95% confidence intervals	
	LD ₅₀	<u>Lower</u>	<u>Upper</u>	LD ₉₉	<u>Lower</u>	<u>Upper</u>
<i>Red Globe</i>						
<i>Eggs</i>	4.38	4.33	4.43	9.76	9.63	9.91
<i>1st instar larvae</i>	5.51	5.45	5.57	12.28	12.12	12.46
<i>2nd instar larvae</i>	5.83	5.77	5.90	13.01	12.83	13.19
<i>3rd instar larvae</i>	4.17	4.12	4.22	9.30	9.17	9.44
<i>Crimson Seedless</i>						
<i>Eggs</i>	4.04	3.98	4.09	9.24	9.10	9.38
<i>1st instar larvae</i>	4.92	4.86	4.98	11.27	11.11	11.43
<i>2nd instar larvae</i>	5.06	5.00	5.12	11.58	11.41	11.74
<i>3rd instar larvae</i>	3.98	3.93	4.03	9.11	8.97	9.24
<i>Thompson Seedless</i>						
<i>Eggs</i>	4.60	4.54	4.66	9.37	9.23	9.51
<i>1st instar larvae</i>	5.52	5.45	5.58	11.24	11.09	11.40
<i>2nd instar larvae</i>	5.91	5.84	5.98	12.05	11.88	12.22
<i>3rd instar larvae</i>	4.52	4.46	4.58	9.20	9.07	9.35

4.5.3 SUMMARY OF COLD TREATMENT DATA FOR THE MOST TOLERANT STAGE TRIALS AT $2.0 \pm 0.5^{\circ}\text{C}$.

The records of the temperatures from the cold treatment trials for each replicate treatment are summarised in the following tables. The data shows that the required temperatures of $2.0 \pm 0.5^{\circ}\text{C}$ was maintained throughout the trials. The data loggers were calibrated before and after each trial. These show that the records of temperatures were accurate throughout the trials.

The summary tables for each cultivar are as follows:

- (1) **Red Globe:** Tables 4.34 to 4.36
- (2) **Thompson Seedless:** Tables 4.37 to 4.39
- (3) **Crimson Seedless:** Tables 4.40 to 4.42
- (4) Calibration of loggers before and after each trial: Table 4.43

The complete details of the raw data are given in **Appendix 8**

Table 4.34 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.1	2.4	1.9	2.3	1.6	2.1	2.1	2.4	2.3	2.2	2.3	2.2	2.1	2.0	2.2	2.0
24	1	2.4	2.5	2.0	2.3	2.6	2.2	2.0	2.2	2.1	2.1	2.1	2.1	2.1	1.9	2.2	2.0
36		2.2	2.2	1.6	2.2	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	1.9	2.2	2.0
48	2	2.2	2.4	1.9	2.2	1.8	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	1.9	2.2	2.0
60		2.1	2.4	1.9	2.2	1.6	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.0	1.9	2.2	2.0
72	3	2.5	2.4	1.9	2.3	2.7	2.2	1.9	2.1	2.0	2.0	2.0	2.1	2.0	1.9	2.2	2.0
84		2.2	2.3	1.7	2.2	2.3	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.0	1.9	2.2	2.0
96	4	2.2	2.4	1.9	2.2	1.9	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.1	1.9	2.2	2.0
108		2.2	2.4	2.0	2.2	1.8	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.0	1.9	2.2	2.0
120	5	2.5	2.2	1.9	2.2	2.5	2.1	1.9	2.1	2.0	2.0	2.0	2.0	2.0	1.9	2.2	1.9
132		2.2	1.8	1.5	2.1	2.1	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.0	1.9	2.1	1.9
144	6	2.3	2.0	1.8	2.1	2.0	1.9	1.9	2.1	2.1	2.0	2.1	2.1	2.0	1.9	2.1	1.9
156		2.4	2.0	1.9	2.1	1.9	1.9	1.9	2.1	2.0	2.0	2.1	2.1	2.0	1.9	2.1	1.9
168	7	2.2	2.0	1.7	2.1	2.0	1.9	1.9	2.1	2.0	2.0	2.0	2.1	2.0	1.9	2.1	1.9
180		2.1	1.9	1.6	2.1	1.9	1.9	1.9	2.1	2.0	2.0	2.0	2.1	2.0	1.8	2.1	1.9
192	8	2.4	2.1	2.0	2.1	2.0	2.0	1.9	2.1	2.0	2.0	2.0	2.1	2.0	1.9	2.1	1.9
204		2.1	2.0	1.8	2.1	1.9	2.0	1.9	2.1	2.0	2.0	2.0	2.1	2.0	1.9	2.1	1.9
216	9	2.6	2.1	1.8	2.1	3.0	2.2	1.8	2.0	2.0	2.0	2.0	2.1	2.0	1.9	2.1	1.9
228		2.6	1.9	1.6	2.1	2.5	2.0	1.8	2.0	2.0	2.0	2.0	2.1	1.9	1.9	2.0	1.9
240	10	2.4	2.0	1.8	2.1	2.1	2.0	1.8	2.0	2.0	2.0	2.0	2.1	1.9	1.9	2.0	1.9
252		2.3	2.0	1.8	2.1	2.0	2.0	1.8	2.0	2.0	2.0	2.0	2.1	1.9	1.8	2.0	1.9
264	11	2.4	1.9	1.7	2.0	2.2	2.0	1.8	1.9	1.9	1.9	1.9	2.0	1.9	1.8	2.0	1.8
276		2.3	1.9	1.6	2.0	2.1	1.9	1.7	1.8	1.8	1.8	1.8	1.9	1.8	1.7	1.9	1.7
288	12	2.3	2.0	1.8	2.1	2.0	2.0	1.7	1.8	1.9	1.8	1.8	1.9	1.9	1.7	2.0	1.7
300		2.3	2.0	1.8	2.1	1.9	2.0	1.7	1.8	1.8	1.8	1.8	1.9	1.9	1.7	2.0	1.8
312	13	2.8	2.2	2.0	2.3	2.5	2.2	1.7	1.8	1.9	1.8	1.9	2.0	2.0	1.8	2.0	1.8
324		2.4	2.0	1.8	2.2	2.2	2.1	1.8	1.9	1.9	1.9	1.9	2.1	2.0	1.9	2.1	1.9
336	14	2.3	2.0	1.8	2.2	1.9	2.0	1.9	1.9	2.0	1.9	2.0	2.1	2.0	1.9	2.2	1.9
348		2.4	2.3	2.2	2.3	1.9	2.2	1.9	1.9	2.0	2.0	2.0	2.1	2.0	1.9	2.2	1.9
360	15	2.6	2.3	2.1	2.3	2.5	2.2	1.9	1.9	2.0	2.0	2.0	2.1	2.0	1.9	2.2	1.9
372		2.3	1.9	1.7	2.2	2.1	2.0	1.9	1.9	2.0	1.9	2.0	2.1	2.0	1.9	2.1	1.9
384	16	2.4	2.2	2.1	2.3	1.8	2.2	1.9	2.0	2.0	2.0	2.0	2.1	2.0	1.9	2.2	1.9
396		2.2	2.2	2.1	2.3	1.7	2.1	1.9	2.0	2.0	2.0	2.0	2.2	2.1	1.9	2.2	1.9
408	17	2.4	2.3	2.1	2.4	2.4	2.3	1.9	2.0	2.0	2.0	2.0	2.2	2.1	1.9	2.2	1.9
420		2.1	2.0	1.7	2.3	2.0	2.1	1.9	2.0	2.0	2.0	2.0	2.1	2.0	1.9	2.2	1.9
432	18	2.3	2.2	2.2	2.3	1.8	2.1	2.0	2.0	2.1	2.0	2.0	2.2	2.1	1.9	2.2	1.9
444		2.1	2.2	2.1	2.3	1.7	2.1	2.0	2.0	2.1	2.0	2.1	2.2	2.1	1.9	2.2	2.0
456	19	2.3	2.2	1.9	2.4	2.6	2.3	1.9	2.0	2.1	2.0	2.0	2.1	2.0	1.9	2.2	1.9
468		2.3	2.1	1.8	2.3	2.2	2.2	1.9	1.9	2.0	2.0	2.0	2.1	2.0	1.9	2.2	1.9
480	20	2.5	2.3	2.2	2.4	2.0	2.2	2.0	2.0	2.1	2.0	2.0	2.2	2.1	1.9	2.2	1.9
Average over trial period		2.3	2.1	1.9	2.2	2.1	2.1	1.9	2.0	2.0	2.0	2.0	2.1	2.0	1.9	2.1	1.9
Average of Fruit temperatures						2.0											
Average of Air temperatures						2.1											

Details of logger data are given in Appendix 8

Table 4.35 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.5	1.8	2.0	1.9	1.8	1.9	2.1	2.2	2.2	2.1	2.2	2.3	2.2	2.0	2.1	2.0
24	1	2.6	1.8	1.9	1.9	2.6	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.1	2.0	2.1	2.0
36		2.5	1.6	1.6	1.8	2.4	1.9	2.0	2.1	2.1	2.0	2.1	2.2	2.1	1.9	2.1	2.0
48	2	2.5	1.7	1.9	1.9	2.1	1.9	2.0	2.1	2.1	2.1	2.1	2.2	2.1	1.9	2.1	2.0
60		2.5	1.9	2.1	1.9	1.9	2.0	2.0	2.2	2.1	2.1	2.1	2.2	2.1	2.0	2.1	2.0
72	3	2.7	1.8	1.8	2.0	2.9	2.1	2.0	2.1	2.1	2.0	2.1	2.2	2.1	1.9	2.1	2.0
84		2.7	1.6	1.6	1.8	2.6	1.9	2.0	2.1	2.0	2.0	2.0	2.1	2.0	1.9	2.0	1.9
96	4	2.9	1.9	2.1	1.9	2.3	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.1	1.9	2.0	2.0
108		2.7	1.8	2.1	1.9	2.2	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.1	1.9	2.1	2.0
120	5	2.7	1.9	2.0	2.1	2.9	2.3	2.0	2.1	2.1	2.1	2.1	2.2	2.1	1.9	2.1	2.0
132		2.8	1.7	1.7	2.0	2.7	2.1	2.0	2.2	2.1	2.0	2.1	2.2	2.1	1.9	2.1	1.9
144	6	2.7	1.8	1.9	2.0	2.3	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.2	1.9	2.1	1.9
156		2.9	2.0	2.2	2.0	2.3	2.1	2.0	2.1	2.1	2.0	2.0	2.1	2.2	2.0	2.1	1.9
168	7	3.1	2.1	2.3	2.1	2.9	2.3	2.0	2.1	2.0	2.0	2.0	2.1	2.2	1.9	2.1	1.9
180		2.8	1.7	1.8	1.9	2.6	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.2	1.9	2.1	1.8
192	8	2.8	2.0	2.2	2.0	2.2	2.2	2.0	2.1	2.1	2.0	2.0	2.1	2.2	2.0	2.1	1.9
204		2.8	1.9	2.1	2.0	2.2	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.3	2.0	2.2	1.9
216	9	2.8	1.9	2.1	2.0	2.5	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.3	2.0	2.2	1.9
228		2.6	1.7	1.7	1.9	2.4	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.0	2.1	1.9
240	10	2.9	1.9	2.1	2.0	2.3	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.3	2.0	2.2	1.9
252		2.5	1.8	1.9	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.2	2.3	2.0	2.2	1.9
264	11	2.8	1.9	2.0	2.0	2.7	2.2	2.1	2.1	2.1	2.0	2.1	2.1	2.3	2.0	2.2	1.9
276		2.5	1.8	1.8	2.0	2.4	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.0	2.2	1.9
288	12	2.6	1.8	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.3	2.0	2.2	1.9
300		2.6	1.9	2.1	2.0	1.9	2.0	2.1	2.2	2.1	2.1	2.1	2.2	2.3	2.0	2.2	1.9
312	13	2.7	1.9	2.1	2.1	2.6	2.2	2.0	2.1	2.1	2.0	2.0	2.2	2.3	2.0	2.2	1.9
324		2.5	1.7	1.8	2.0	2.4	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.2	2.0	2.1	1.9
336	14	2.7	1.8	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.3	2.0	2.2	1.9
348		2.6	1.9	2.1	2.0	1.9	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.3	2.0	2.2	1.9
360	15	2.8	2.0	2.2	2.1	2.8	2.2	2.0	2.1	2.0	2.0	2.0	2.1	2.3	2.0	2.2	1.9
372		2.7	1.8	1.8	2.0	2.5	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.2	2.0	2.1	1.9
384	16	2.8	1.9	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.2	2.3	2.0	2.2	1.9
396		2.6	1.8	2.1	2.0	1.9	2.0	2.0	2.1	2.1	2.0	2.1	2.2	2.3	2.0	2.2	1.9
408	17	2.7	1.8	1.9	2.0	2.3	1.9	2.0	2.1	2.1	2.0	2.0	2.1	2.2	2.0	2.2	1.9
420		2.4	1.7	1.8	2.0	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.2	1.9	2.1	1.9
432	18	2.8	1.9	2.1	2.1	2.3	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.2	2.0	2.1	1.9
444		2.6	1.8	1.9	2.0	2.3	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.2	1.9	2.1	1.9
456	19	2.7	1.8	1.8	2.0	2.5	2.0	2.0	2.0	2.0	1.9	2.0	2.1	2.2	1.9	2.1	1.8
468		2.4	1.6	1.6	1.9	2.2	1.9	1.9	2.0	2.0	1.9	2.0	2.1	2.2	1.9	2.1	1.8
480	20	2.6	1.8	2.0	2.0	1.9	1.9	2.0	2.1	2.0	2.0	2.0	2.1	2.2	2.0	2.1	1.9
Average over trial period		2.7	1.8	2.0	2.0	2.3	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.2	2.0	2.1	1.9
Average of Fruit temperatures						2.1											
Average of Air temperatures						2.1											

Details of logger data are given in Appendix 8

Table 4.36 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.8	2.0	2.3	2.2	2.4	2.0	2.0	2.2	2.1	2.1	2.2	2.2	2.0	1.9	2.2	1.9
24	1	3.0	2.1	2.3	2.3	3.1	2.2	2.0	2.1	2.0	2.0	2.1	2.2	2.0	1.8	2.2	1.9
36		3.0	1.9	2.0	2.3	3.1	2.1	1.9	2.0	2.0	2.0	2.1	2.2	2.0	1.8	2.1	1.8
48	2	2.9	2.1	2.4	2.3	2.5	2.1	2.0	2.1	2.0	2.0	2.1	2.2	2.0	1.8	2.1	1.9
60		2.9	2.1	2.4	2.3	2.5	2.1	2.0	2.1	2.1	2.0	2.1	2.2	2.0	1.9	2.2	1.9
72	3	2.8	2.1	2.3	2.4	2.8	2.2	2.0	2.1	2.0	2.0	2.1	2.2	2.0	1.8	2.2	1.9
84		2.8	1.8	2.0	2.2	2.8	2.0	2.0	2.1	2.0	2.0	2.1	2.2	2.0	1.8	2.1	1.9
96	4	3.2	2.2	2.5	2.4	2.9	2.2	2.0	2.1	2.0	2.0	2.1	2.2	2.0	1.8	2.1	1.9
108		3.1	2.0	2.3	2.3	2.7	2.1	2.0	2.1	2.0	2.0	2.1	2.2	2.0	1.8	2.1	1.9
120	5	3.2	2.1	2.4	2.3	3.2	2.2	2.0	2.1	2.0	2.0	2.1	2.2	2.0	1.8	2.1	1.9
132		3.2	1.9	1.9	2.3	3.2	2.1	2.0	2.1	2.1	2.0	2.1	2.2	2.1	1.8	2.2	1.9
144	6	3.2	1.9	2.2	2.2	2.6	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	1.9	2.2	1.9
156		3.0	2.1	2.4	2.3	2.5	2.1	2.0	2.1	2.1	2.1	2.2	2.3	2.1	1.9	2.2	2.0
168	7	3.1	2.2	2.4	2.4	3.3	2.3	2.0	2.1	2.1	2.0	2.1	2.2	2.1	1.9	2.2	1.9
180		3.2	1.9	2.0	2.3	3.2	2.1	2.0	2.1	2.1	2.0	2.1	2.2	2.1	1.9	2.2	2.0
192	8	3.0	2.0	2.3	2.3	2.8	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.1	1.9	2.2	2.0
204		2.8	1.9	2.1	2.2	2.7	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	1.9	2.2	1.9
216	9	2.5	2.1	1.9	2.3	2.4	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.0
228		2.4	2.1	1.9	2.1	2.4	2.1	2.2	2.0	2.2	2.2	2.1	2.1	2.3	2.2	2.1	2.0
240	10	2.7	2.4	2.6	2.3	2.2	2.5	2.3	2.0	2.3	2.3	2.1	2.2	2.3	2.1	2.1	2.1
252		2.2	2.1	2.2	1.9	1.8	2.4	2.3	2.1	2.3	2.3	2.1	2.2	2.2	2.2	2.2	2.2
264	11	3.1	2.7	2.1	2.3	2.0	2.3	2.3	2.2	2.3	2.2	2.1	2.3	2.2	2.3	2.2	2.2
276		3.2	2.8	2.0	2.4	2.1	2.2	2.3	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.2
288	12	2.3	2.1	2.1	2.2	1.8	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.3	2.2
300		2.3	2.1	2.1	2.1	1.9	2.1	2.3	2.2	2.2	2.3	2.1	2.2	2.1	2.2	2.3	2.2
312	13	2.9	2.6	2.5	2.3	2.0	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.2	2.2	2.3	2.2
324		3.1	2.6	2.0	2.5	1.9	2.3	2.2	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.2	2.2
336	14	3.1	2.6	2.6	2.4	1.9	2.4	2.1	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2
348		2.9	2.5	2.7	2.5	2.0	2.2	2.0	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.2
360	15	2.2	2.2	2.5	2.5	2.0	2.0	2.0	2.2	2.2	2.3	2.1	2.0	2.1	2.1	2.1	2.2
372		2.9	2.6	2.6	2.6	2.1	1.9	2.0	2.2	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1
384	16	2.5	2.5	2.1	2.1	1.8	2.0	2.1	2.2	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1
396		2.3	2.2	2.1	2.1	1.7	1.9	2.1	2.0	2.2	2.3	2.1	2.1	2.1	2.1	2.2	2.1
408	17	2.5	2.3	2.1	2.2	1.9	1.8	2.0	2.0	2.0	2.3	2.0	2.2	2.1	2.1	2.0	2.0
420		2.8	2.6	2.2	2.1	2.1	1.9	2.0	2.1	2.1	2.2	2.0	2.3	2.1	1.9	2.0	1.9
432	18	2.7	2.4	2.4	2.4	1.8	2.5	2.0	2.0	2.0	2.2	2.0	2.3	2.1	2.0	1.9	2.1
444		2.2	2.2	2.1	2.2	1.8	2.4	2.0	2.1	2.0	2.2	2.0	2.3	2.0	1.9	1.9	2.1
456	19	2.1	2.0	1.7	2.2	1.8	2.2	2.1	2.1	2.0	2.2	2.1	2.3	1.9	2.0	1.9	2.1
468		2.3	2.0	1.7	1.9	1.6	1.9	2.0	2.1	2.0	2.3	2.1	2.2	2.1	1.9	2.1	2.0
480	20	2.8	2.2	2.5	2.7	2.1	2.4	2.1	2.3	2.0	2.4	2.1	2.3	2.1	2.0	2.1	1.9
Average over trial period		2.8	2.2	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.1	2.0
Average of Fruit temperatures						2.1											
Average of Air temperatures						2.3											

Details of logger data are given in Appendix 8

Table 4.37 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.5	1.7	1.8	1.8	2.0	1.8	2.2	1.9	2.1	2.2	2.1	2.1	2.0	2.2	2.2	1.9
24	1	2.3	1.8	1.5	1.9	2.0	2.2	2.1	1.9	2.0	2.1	2.1	2.0	2.0	2.1	2.1	1.9
36		3.4	2.4	1.6	2.5	2.2	4.0	2.0	1.9	2.0	2.1	2.1	2.0	2.0	2.2	2.2	2.0
48	2	3.0	1.9	1.7	2.0	2.1	2.3	2.0	1.9	2.0	2.1	2.0	2.0	2.0	2.3	2.3	2.1
60		2.7	1.8	1.7	1.9	2.1	2.0	2.1	2.0	2.1	2.2	2.2	2.1	2.1	2.2	2.2	1.9
72	3	2.6	2.1	1.5	2.2	2.1	2.8	2.2	2.0	2.1	2.3	2.2	2.1	2.1	2.2	2.1	1.9
84		3.4	2.3	1.5	2.4	2.1	4.1	2.1	1.9	2.1	2.2	2.1	2.0	2.0	2.2	2.2	2.0
96	4	3.1	2.0	1.6	2.1	2.0	2.4	2.0	1.9	2.0	2.1	2.1	2.0	1.9	2.3	2.3	2.1
108		2.9	1.9	1.8	2.0	2.1	2.1	2.1	2.0	2.0	2.2	2.1	2.0	2.0	2.2	2.2	2.0
120	5	2.7	2.1	1.6	2.2	2.1	2.7	2.2	2.0	2.1	2.3	2.2	2.1	2.1	2.2	2.1	2.0
132		3.4	2.3	1.6	2.4	2.0	3.8	2.1	1.9	2.0	2.2	2.1	2.0	2.0	2.3	2.3	2.1
144	6	3.2	2.2	1.8	2.3	2.1	2.8	2.1	1.9	2.0	2.2	2.1	2.0	2.0	2.4	2.3	2.2
156		3.1	2.2	1.9	2.3	2.2	2.6	2.2	2.0	2.1	2.3	2.2	2.1	2.1	2.3	2.3	2.1
168	7	2.8	2.1	1.6	2.2	2.0	2.4	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.1
180		3.2	2.3	1.8	2.4	2.2	3.0	2.2	2.0	2.1	2.3	2.2	2.2	2.1	2.4	2.3	2.2
192	8	3.1	2.1	1.8	2.2	2.1	2.7	2.2	2.0	2.1	2.2	2.2	2.2	2.1	2.4	2.4	2.2
204		3.1	2.1	2.0	2.2	2.2	2.7	2.2	2.0	2.1	2.3	2.2	2.2	2.2	2.3	2.2	2.1
216	9	3.0	2.4	1.7	2.5	2.2	3.4	2.2	2.0	2.1	2.3	2.2	2.2	2.2	2.2	2.2	2.0
228		4.0	2.6	1.6	2.7	2.2	4.5	2.1	1.9	2.0	2.2	2.1	2.1	2.0	2.3	2.2	2.1
240	10	3.3	2.2	1.6	2.3	2.1	3.0	2.0	1.8	2.0	2.1	2.0	2.1	2.0	2.3	2.3	2.1
252		3.2	2.2	1.7	2.3	2.1	2.9	2.1	1.9	2.0	2.2	2.1	2.1	2.1	2.3	2.3	2.1
264	11	3.0	2.2	1.5	2.3	2.0	2.7	2.1	2.0	2.0	2.2	2.2	2.2	2.1	2.2	2.2	2.1
276		3.4	2.3	1.7	2.4	2.1	3.2	2.1	2.0	1.9	2.2	2.2	2.1	2.1	2.3	2.3	2.1
288	12	3.2	2.2	1.9	2.3	2.2	2.9	2.1	2.0	2.0	2.2	2.2	2.1	2.1	2.3	2.3	2.2
300		3.1	2.1	1.9	2.2	2.2	2.7	2.2	2.0	2.0	2.3	2.2	2.1	2.2	2.3	2.3	2.1
312	13	2.9	2.1	1.6	2.2	2.0	2.7	2.2	2.1	2.1	2.3	2.3	2.2	2.2	2.3	2.3	2.1
324		3.6	2.4	1.7	2.5	2.2	3.7	2.2	2.1	2.2	2.3	2.2	2.1	2.1	2.4	2.4	2.2
336	14	3.2	2.1	1.9	2.2	2.2	2.7	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.4	2.4	2.3
348		3.0	2.1	2.0	2.2	2.2	2.5	2.3	2.2	2.1	2.4	2.3	2.2	2.2	2.4	2.4	2.2
360	15	2.7	2.3	1.8	2.4	2.2	2.8	2.3	2.2	2.1	2.4	2.3	2.3	2.3	2.3	2.3	2.2
372		3.5	2.4	1.8	2.5	2.2	3.7	2.0	2.0	1.9	2.2	2.1	2.2	2.2	2.4	2.4	2.3
384	16	2.9	2.1	2.0	2.2	2.2	2.4	1.9	1.9	2.0	2.1	2.0	2.2	2.2	2.5	2.5	2.3
396		2.6	1.9	2.2	2.0	2.3	2.1	2.0	2.0	2.1	2.2	2.1	2.3	2.3	2.3	2.3	2.2
408	17	2.7	2.2	2.0	2.3	2.3	2.7	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.1
420		3.5	2.4	1.8	2.5	2.2	3.7	1.9	2.0	2.0	2.1	2.0	2.2	2.1	2.3	2.4	2.2
432	18	3.1	2.0	2.1	2.1	2.2	2.3	1.9	1.9	2.0	2.1	2.0	2.1	2.1	2.4	2.4	2.2
444		2.8	1.9	2.1	2.0	2.3	2.1	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.1
456	19	2.8	2.3	1.8	2.4	2.1	3.0	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.0
468		3.6	2.4	1.7	2.5	2.1	4.1	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.1	1.9
480	20	3.3	2.1	1.9	2.2	2.1	2.6	1.8	1.8	1.9	2.0	1.9	2.0	2.0	2.0	2.0	1.9
Average over trial period		3.1	2.2	1.8	2.3	2.1	2.9	2.1	2.0	2.1	2.2	2.1	2.1	2.1	2.3	2.3	2.1
Average of Fruit temperatures						2.1											
Average of Air temperatures						2.4											

Details of logger data are given in Appendix 8

Table 4.38 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.1	1.4	2.1	2.1	2.2	2.0	2.0	2.0	1.9	2.0	1.9	2.1	2.1	2.1	2.1	2.0
24	1	3.3	2.6	1.6	2.5	2.0	2.7	2.0	2.0	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.1
36		4.3	3.6	1.7	2.5	2.1	3.6	1.9	1.9	1.8	1.9	1.8	2.0	2.0	2.0	2.0	1.9
48	2	2.5	1.8	1.8	2.2	2.0	2.3	1.9	1.8	1.8	1.9	1.8	2.0	2.0	2.0	2.0	1.9
60		2.3	1.6	2.1	2.1	2.2	2.1	2.0	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.1	2.0
72	3	3.5	2.8	1.6	2.5	2.0	3.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1
84		4.7	4.0	1.6	2.5	2.2	4.4	1.8	1.8	1.7	1.8	1.8	1.9	1.9	1.9	1.9	1.9
96	4	2.9	2.2	1.8	2.3	2.1	2.6	1.8	1.8	1.7	1.8	1.8	1.9	1.9	1.9	1.9	1.9
108		2.6	1.9	1.9	2.2	2.1	2.4	1.9	1.9	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0
120	5	3.3	2.6	1.5	2.4	2.0	2.9	2.0	2.0	1.9	2.0	1.9	2.1	2.1	2.1	2.1	2.0
132		4.7	4.0	1.6	2.6	2.2	4.0	1.8	1.9	1.8	1.9	1.8	2.0	2.0	2.0	2.0	2.0
144	6	3.1	2.4	1.9	2.4	2.2	2.7	1.9	1.9	1.8	1.9	1.8	2.0	2.0	2.0	2.1	2.0
156		2.7	2.0	1.8	2.3	2.2	2.4	2.0	2.0	1.9	2.0	1.9	2.1	2.1	2.1	2.1	2.1
168	7	3.1	2.4	1.5	2.4	2.0	2.7	2.1	2.0	2.0	2.0	1.9	2.1	2.1	2.1	2.1	2.1
180		4.4	3.7	1.6	2.7	2.2	4.0	2.1	1.8	2.0	1.8	1.9	2.2	2.0	2.0	2.0	2.0
192	8	3.0	2.3	2.1	2.4	2.3	2.5	2.1	2.0	2.0	2.1	2.0	2.2	2.2	2.2	2.3	2.2
204		3.1	2.4	2.4	2.4	2.6	2.6	2.3	2.2	2.1	2.3	2.2	2.3	2.4	2.4	2.4	2.3
216	9	2.9	2.2	1.8	2.4	2.2	2.5	2.2	2.2	2.1	2.3	2.2	2.3	2.4	2.4	2.4	2.3
228		3.8	3.1	1.9	2.6	2.3	3.1	2.1	2.1	2.0	2.1	2.1	2.3	2.3	2.3	2.3	2.3
240	10	3.2	2.5	2.1	2.5	2.4	2.7	2.2	2.1	2.0	2.2	2.1	2.4	2.4	2.3	2.3	2.3
252		2.9	2.2	2.2	2.4	2.4	2.5	2.3	2.2	2.1	2.3	2.2	2.4	2.4	2.4	2.4	2.4
264	11	3.5	2.8	1.8	2.6	2.3	2.8	2.3	2.2	2.1	2.3	2.2	2.5	2.4	2.4	2.4	2.4
276		3.9	3.2	2.0	2.6	2.4	3.4	2.1	2.0	1.9	2.1	2.0	2.3	2.3	2.3	2.3	2.3
288	12	2.6	1.9	2.2	2.3	2.4	2.3	2.2	2.1	2.0	2.2	2.1	2.3	2.3	2.3	2.3	2.3
300		2.4	1.7	2.2	2.2	2.4	2.1	2.3	2.2	2.1	2.3	2.2	2.4	2.4	2.3	2.4	2.3
312	13	2.7	2.0	1.9	2.2	2.3	2.4	2.3	2.2	2.0	2.3	2.2	2.4	2.4	2.3	2.4	2.3
324		4.5	3.7	2.0	2.6	2.5	4.1	2.2	2.1	2.0	2.2	2.1	2.2	2.3	2.2	2.3	2.2
336	14	2.5	1.8	2.0	2.3	2.2	2.2	2.2	2.1	2.0	2.2	2.2	2.3	2.3	2.3	2.3	2.3
348		2.3	1.6	2.1	2.2	2.3	2.1	2.3	2.2	2.1	2.3	2.3	2.4	2.4	2.3	2.4	2.3
360	15	3.4	2.7	1.8	2.5	2.3	2.9	2.3	2.2	2.1	2.3	2.2	2.3	2.4	2.3	2.4	2.3
372		4.2	3.4	1.9	2.6	2.4	3.5	2.1	2.0	1.9	2.1	2.0	2.2	2.3	2.2	2.3	2.2
384	16	2.8	2.1	2.0	2.3	2.3	2.4	2.2	2.1	2.0	2.2	2.1	2.2	2.3	2.2	2.3	2.2
396		2.5	1.8	2.2	2.3	2.4	2.2	2.3	2.2	2.1	2.3	2.2	2.3	2.4	2.3	2.4	2.3
408	17	2.6	1.9	1.8	2.3	2.2	2.3	2.3	2.2	2.1	2.3	2.2	2.3	2.4	2.3	2.3	2.3
420		3.2	2.5	2.1	2.4	2.4	2.7	2.3	2.2	2.1	2.2	2.2	2.3	2.3	2.2	2.3	2.2
432	18	3.0	2.3	2.0	2.4	2.3	2.6	2.3	2.2	2.0	2.3	2.2	2.3	2.3	2.2	2.3	2.2
444		3.2	2.5	2.1	2.4	2.4	2.7	2.3	2.2	2.0	2.3	2.2	2.3	2.3	2.2	2.3	2.2
456	19	3.2	2.5	1.8	2.4	2.3	2.8	2.3	2.2	2.0	2.2	2.2	2.3	2.3	2.2	2.3	2.2
468		4.2	3.5	2.1	2.6	2.5	3.6	2.3	2.2	2.1	2.2	2.2	2.3	2.3	2.2	2.3	2.2
480	20	2.4	1.7	2.0	2.2	2.2	2.1	2.3	2.2	2.1	2.3	2.2	2.3	2.3	2.3	2.3	2.3
Average over trial period		3.2	2.5	1.9	2.4	2.3	2.8	2.1	2.1	2.0	2.1	2.0	2.2	2.2	2.2	2.2	2.2
Average of Fruit temperatures						2.1											
Average of Air temperatures						2.5											

Details of logger data are given in Appendix 8

Table 4.39 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.2	2.9	2.5	3.0	2.6	2.8	2.3	2.1	2.0	2.3	2.2	2.3	2.3	2.3	2.3	2.2
24	1	2.1	2.1	2.0	2.2	2.2	2.4	2.3	2.1	2.0	2.3	2.2	2.2	2.3	2.2	2.3	2.1
36		2.0	2.7	1.9	1.9	2.4	2.3	2.1	1.9	1.8	2.1	2.0	2.0	2.0	2.0	2.0	1.8
48	2	2.1	2.9	2.5	2.5	2.6	2.5	2.2	2.0	1.9	2.2	2.1	2.1	2.2	2.1	2.1	2.0
60		1.9	3.1	2.7	2.7	2.7	2.7	2.3	2.1	2.1	2.3	2.2	2.2	2.2	2.2	2.2	2.0
72	3	2.0	2.9	3.0	2.2	2.6	2.8	2.2	2.0	2.0	2.2	2.2	2.1	2.2	2.1	2.1	2.0
84		2.1	2.9	2.2	1.9	2.1	2.5	2.1	1.9	1.9	2.1	2.0	2.0	2.0	2.0	2.0	1.9
96	4	2.1	3.0	2.4	2.5	2.3	2.3	2.1	1.9	1.9	2.1	2.1	2.0	2.1	2.0	2.0	1.9
108		1.9	2.7	2.3	2.3	2.2	2.4	2.2	1.9	1.9	2.2	2.1	2.0	2.1	2.0	2.1	1.9
120	5	2.8	3.5	3.3	3.1	2.9	3.2	2.2	2.0	1.9	2.2	2.1	2.1	2.1	2.1	2.1	2.0
132		2.3	2.4	2.4	2.2	2.3	2.3	2.1	1.9	1.8	2.1	2.0	2.0	2.0	2.0	2.1	1.9
144	6	2.4	2.6	2.3	2.7	2.3	2.7	2.2	2.0	1.9	2.2	2.1	2.1	2.1	2.1	2.2	2.0
156		2.4	2.8	2.5	3.0	2.3	2.8	2.3	2.1	2.0	2.3	2.2	2.2	2.2	2.2	2.3	2.1
168	7	2.4	2.6	2.5	2.5	2.4	2.5	2.3	2.1	2.0	2.3	2.2	2.2	2.2	2.1	2.3	2.1
180		2.3	3.0	2.2	2.5	2.8	2.4	2.1	2.0	1.8	2.1	2.0	2.0	2.0	2.0	2.1	1.9
192	8	2.2	2.1	2.1	2.3	2.5	2.4	2.2	2.0	1.9	2.2	2.1	2.1	2.1	2.1	2.2	2.0
204		2.2	2.1	2.3	2.6	2.5	2.6	2.2	2.1	2.0	2.2	2.2	2.1	2.2	2.1	2.2	2.0
216	9	2.2	2.0	2.1	2.4	2.4	2.3	2.2	2.0	2.0	2.2	2.0	2.1	2.1	2.1	2.1	2.0
228		2.1	2.5	2.1	2.4	2.8	2.3	2.1	1.9	2.1	2.1	1.9	1.9	2.2	2.1	2.0	1.9
240	10	1.8	2.1	2.4	2.2	2.3	2.5	2.2	1.9	2.2	2.2	1.9	2.0	2.2	2.1	2.0	2.0
252		2.1	3.0	2.6	2.3	2.3	2.7	2.2	2.0	2.2	2.2	1.9	2.1	2.1	2.2	2.1	2.1
264	11	2.1	2.9	2.1	2.3	2.5	2.4	2.2	2.1	2.1	2.1	1.9	2.1	2.1	2.2	2.1	2.1
276		2.0	2.6	2.0	2.2	2.2	2.2	2.1	2.1	2.1	2.1	1.9	2.0	2.0	2.1	2.1	2.1
288	12	1.9	2.4	2.3	2.3	2.2	2.3	2.2	2.1	2.1	2.1	1.9	2.0	2.0	2.1	2.2	2.1
300		2.1	2.8	2.6	2.5	2.5	2.4	2.2	2.2	2.1	2.1	1.9	1.9	2.0	2.1	2.2	2.1
312	13	2.1	3.1	2.5	2.6	2.3	2.5	2.2	2.2	2.2	2.1	2.0	1.9	2.1	2.1	2.2	2.1
324		2.2	2.7	2.3	2.7	2.1	2.5	2.1	2.2	2.2	2.1	1.9	2.0	2.0	2.1	2.1	2.1
336	14	2.3	2.8	2.8	2.6	2.3	2.6	2.0	2.1	2.2	2.1	1.9	1.9	2.0	2.1	2.0	2.1
348		1.9	2.4	2.5	2.3	2.1	2.1	1.9	2.1	2.1	2.1	2.0	1.9	2.0	2.0	2.0	2.1
360	15	2.0	2.9	2.9	3.0	2.6	2.2	1.9	2.1	2.1	2.2	1.9	1.8	2.0	2.0	2.0	2.1
372		1.7	2.6	2.3	2.4	2.2	1.9	1.9	2.1	2.1	2.2	1.8	1.9	2.0	2.0	2.0	2.0
384	16	1.7	2.6	2.3	2.2	2.1	2.2	2.0	2.0	2.1	2.2	1.9	1.9	2.0	2.0	2.1	2.0
396		2.0	2.5	2.2	2.3	2.2	2.0	2.0	1.9	2.0	2.2	1.9	1.9	2.0	2.0	2.2	1.9
408	17	2.1	3.0	2.4	2.4	2.5	2.1	1.9	2.0	1.9	2.2	1.8	2.1	2.0	1.9	1.8	1.9
420		2.0	2.9	2.4	2.5	2.4	2.2	1.9	2.0	2.0	2.1	1.8	2.1	2.0	1.8	1.9	1.8
432	18	1.8	2.2	2.3	2.2	1.9	2.5	1.9	1.9	1.9	2.0	1.8	2.1	2.0	1.9	1.8	2.0
444		1.8	2.3	2.2	2.4	2.2	2.5	1.9	2.0	1.9	2.1	1.9	2.1	1.8	1.8	1.9	2.0
456	19	1.9	2.5	1.7	2.2	2.2	2.3	2.0	2.0	1.9	2.1	1.9	2.1	1.8	1.9	1.8	2.0
468		2.4	2.6	2.3	2.5	2.1	2.2	2.0	2.1	1.9	2.2	1.9	2.0	2.0	1.8	2.0	1.9
480	20	2.0	2.2	2.3	2.6	2.3	2.5	2.0	2.2	2.0	2.2	2.0	2.2	2.0	1.9	2.0	1.8
Average over trial period		2.1	2.6	2.4	2.4	2.4	2.4	2.1	2.0	2.0	2.2	2.0	2.0	2.1	2.0	2.1	2.0
Average of Fruit temperatures						2.1											
Average of Air temperatures						2.4											

Details of logger data are given in Appendix 8

Table 4.40 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.8	2.1	2.8	2.2	2.6	2.2	2.3	2.5	2.4	2.4	2.4	2.3	2.2	2.3	2.2	2.1
24	1	2.2	1.4	2.9	2.0	2.7	1.9	2.0	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1
36		2.1	1.9	2.8	2.1	2.3	2.1	2.0	2.2	2.1	2.2	2.1	2.1	2.0	2.2	2.1	2.1
48	2	2.0	2.4	2.9	2.2	2.3	2.5	2.0	2.3	2.1	2.2	2.1	2.1	2.1	2.3	2.2	2.2
60		2.0	1.7	3.0	2.1	2.7	2.2	2.0	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.2
72	3	2.2	1.3	2.9	1.9	2.4	1.9	1.9	2.1	2.0	2.0	2.0	1.9	2.1	2.1	2.0	2.0
84		2.2	1.7	2.9	2.1	2.1	1.9	1.9	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1
96	4	2.0	1.8	2.8	2.1	2.1	2.0	2.0	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.2
108		2.0	1.6	3.1	2.0	2.4	2.0	2.0	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1
120	5	2.2	1.7	3.0	1.9	2.5	2.0	1.9	2.1	2.0	2.0	1.9	1.9	2.1	2.1	2.0	2.0
132		2.3	2.3	3.1	2.1	2.5	2.4	1.9	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1
144	6	2.2	2.0	3.0	2.1	2.3	2.1	1.9	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1
156		2.2	1.9	3.0	2.1	2.3	2.2	2.0	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.2
168	7	2.1	1.4	2.9	2.0	2.3	1.8	2.0	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1
180		2.1	2.0	2.9	2.1	2.4	2.2	2.0	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.1
192	8	2.1	2.0	3.0	2.1	2.4	2.2	2.0	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2
204		2.2	1.7	2.9	2.1	3.0	2.0	2.0	2.2	2.1	2.2	2.1	2.0	2.1	2.2	2.1	2.1
216	9	2.3	1.4	3.1	1.9	3.2	1.8	1.9	2.2	2.1	2.1	2.1	1.9	2.1	2.0	2.0	2.0
228		2.3	1.8	2.8	2.1	2.6	2.0	1.9	2.2	2.1	2.2	2.1	2.0	2.1	2.1	2.0	2.0
240	10	2.3	2.1	3.1	2.1	2.7	2.3	1.9	2.2	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.1
252		2.3	2.2	3.1	2.1	2.9	2.3	2.0	2.2	2.2	2.2	2.2	2.0	2.1	2.1	2.1	2.1
264	11	2.3	1.4	3.1	2.0	2.6	1.9	2.0	2.2	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.1
276		2.3	2.1	3.0	2.1	2.7	2.3	2.0	2.2	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.1
288	12	2.3	2.1	3.0	2.2	2.5	2.2	2.0	2.3	2.2	2.3	2.2	2.1	2.1	2.2	2.2	2.2
300		2.3	1.5	2.9	2.1	2.7	1.9	2.1	2.2	2.1	2.2	2.1	2.0	2.1	2.1	2.1	2.1
312	13	2.2	1.2	2.9	1.9	2.5	1.7	2.2	2.0	1.9	1.9	1.9	1.9	2.1	2.0	2.0	1.9
324		2.2	1.9	2.9	2.0	2.4	2.1	2.2	2.0	1.9	1.9	1.9	1.9	2.1	2.0	2.0	2.0
336	14	2.1	2.0	2.8	2.1	2.3	2.1	2.2	2.0	1.9	2.0	1.9	2.0	2.1	2.1	2.1	2.1
348		2.1	1.6	2.7	2.1	2.4	2.0	2.2	2.0	1.9	2.0	1.9	2.0	2.1	2.1	2.1	2.1
360	15	2.2	1.5	2.9	1.9	2.4	1.9	2.2	1.9	1.8	1.9	2.0	1.9	2.2	2.0	2.0	2.0
372		2.1	1.9	2.8	2.1	2.1	2.1	2.2	2.0	1.9	1.9	2.0	2.0	2.2	2.1	2.1	2.0
384	16	2.0	2.0	2.8	2.1	2.0	2.2	2.2	2.0	1.9	2.0	2.0	2.0	2.1	2.2	2.1	2.1
396		2.0	1.7	2.7	2.0	2.2	2.0	2.2	2.0	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.1
408	17	2.2	1.3	2.8	1.9	2.0	1.7	2.2	1.9	1.8	1.9	1.9	1.9	2.1	2.0	2.0	1.9
420		2.1	1.9	2.8	2.1	2.1	2.1	2.2	2.0	1.9	1.9	1.9	2.0	2.1	2.1	2.1	2.1
432	18	2.0	1.9	2.7	2.1	2.0	2.1	2.2	2.0	1.9	2.0	1.9	2.0	2.1	2.2	2.1	2.1
444		2.0	1.6	2.8	2.0	2.5	2.0	2.2	2.0	1.9	2.0	1.9	2.0	2.1	2.1	2.1	2.0
456	19	2.0	1.2	2.8	1.9	2.3	1.7	2.0	1.9	1.8	1.9	1.8	1.9	2.1	2.0	1.9	1.9
468		2.1	1.9	2.8	2.1	2.3	2.1	2.0	2.0	1.8	1.9	1.8	1.9	2.1	2.0	2.0	2.0
480	20	1.9	1.9	2.8	2.1	2.1	2.1	2.0	2.0	1.9	2.0	1.9	2.0	2.1	2.1	2.1	2.1
Average over trial period		2.2	1.8	2.9	2.1	2.4	2.1	2.0	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1
Average of Fruit temperatures						2.1											
Average of Air temperatures						2.2											

Details of logger data are given in Appendix 8

Table 4.41 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.0	1.8	1.8	2.1	2.3	1.9	2.2	2.3	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1
24	1	2.1	2.2	2.1	2.1	3.3	2.2	2.0	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.1
36		2.0	2.0	2.2	2.0	2.6	1.9	2.0	2.1	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0
48	2	1.9	2.3	2.2	2.1	2.5	2.2	2.0	2.1	2.0	2.1	2.0	2.0	1.9	2.0	1.9	2.1
60		1.7	1.8	1.9	2.0	2.4	1.9	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1
72	3	2.1	1.9	2.2	2.1	3.6	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	2.0
84		2.1	2.2	2.1	2.1	2.9	2.1	1.9	1.9	1.8	1.9	1.8	1.8	1.8	1.9	1.9	2.0
96	4	2.0	2.3	2.0	2.2	2.7	2.2	1.9	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.1
108		1.9	1.9	2.1	2.1	2.5	2.0	1.9	2.0	1.9	2.0	1.9	2.0	1.9	2.0	2.0	2.1
120	5	2.3	2.1	2.3	2.2	3.4	2.3	1.9	2.0	1.9	2.0	1.9	1.9	1.9	2.0	1.9	2.1
132		2.3	2.2	2.2	2.2	2.9	2.2	1.9	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.1
144	6	2.2	2.4	2.0	2.3	2.7	2.4	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
156		2.0	1.7	1.9	2.0	2.2	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
168	7	2.5	2.0	2.9	2.2	3.3	2.3	1.9	2.0	1.9	2.0	1.9	1.9	1.9	2.0	1.9	2.1
180		2.5	2.8	2.5	2.4	3.1	2.7	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.3
192	8	2.3	2.5	2.2	2.4	2.8	2.5	2.2	2.3	2.2	2.3	2.2	2.3	2.2	2.3	2.3	2.4
204		2.2	2.3	2.4	2.4	2.8	2.4	2.2	2.3	2.2	2.3	2.2	2.3	2.2	2.3	2.3	2.4
216	9	2.4	2.2	2.2	2.3	3.1	2.4	2.1	2.2	2.1	2.2	2.1	2.1	2.2	2.2	2.1	2.3
228		2.4	2.4	2.5	2.3	2.9	2.4	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.3
240	10	2.3	2.2	1.9	2.3	2.7	2.3	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
252		2.2	1.7	2.1	2.3	2.5	2.0	2.2	2.3	2.2	2.3	2.2	2.3	2.3	2.3	2.2	2.4
264	11	2.4	2.2	2.4	2.4	3.3	2.5	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3
276		2.3	2.2	2.3	2.4	2.7	2.4	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.3	2.2	2.4
288	12	2.2	2.5	2.3	2.5	2.6	2.5	2.2	2.3	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.4
300		2.2	2.0	2.1	2.3	2.4	2.2	2.3	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.5
312	13	2.4	2.2	2.5	2.4	3.4	2.5	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.3
324		2.4	2.1	2.4	2.4	2.7	2.3	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.3
336	14	2.2	2.4	2.2	2.5	2.5	2.5	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.4
348		2.1	1.8	2.1	2.3	2.4	2.1	2.3	2.4	2.3	2.4	2.3	2.4	2.4	2.3	2.3	2.4
360	15	2.5	2.0	2.3	2.3	3.1	2.3	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.2
372		2.4	2.1	2.1	2.3	2.8	2.2	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.2
384	16	2.3	2.3	2.1	2.5	2.6	2.4	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.4
396		2.1	2.0	2.1	2.3	2.4	2.2	2.3	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.4
408	17	2.2	2.2	2.4	2.4	2.8	2.3	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.0	2.2
420		2.3	1.9	2.3	2.4	2.6	2.2	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.2
432	18	2.3	2.6	2.5	2.5	3.0	2.6	2.1	2.2	2.1	2.2	2.1	2.0	2.0	2.1	2.0	2.2
444		2.3	1.8	2.1	2.3	2.5	2.0	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.1
456	19	2.4	2.1	2.4	2.4	3.2	2.4	2.1	2.2	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.1
468		2.3	2.2	2.4	2.5	2.6	2.4	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2
480	20	2.1	2.4	2.1	2.5	2.5	2.4	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.3
Average over trial period		2.2	2.1	2.2	2.3	2.8	2.3	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2
Average of Fruit temperatures						2.1											
Average of Air temperatures						2.3											

Details of logger data are given in Appendix 8

Table 4.42 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.5	2.4	3.0	2.4	3.0	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.2	2.1	2.0
24	1	2.3	2.2	3.2	2.4	3.4	2.4	1.9	2.1	2.0	2.1	2.1	2.0	2.0	2.1	1.9	1.9
36		2.1	2.0	2.9	2.3	3.2	2.1	1.8	2.1	2.0	1.9	1.9	1.9	1.8	2.0	1.8	1.9
48	2	2.1	2.6	3.2	2.6	3.1	2.6	2.0	2.2	2.2	2.1	2.1	2.1	2.0	2.2	2.0	1.9
60		2.0	2.5	3.2	2.6	3.1	2.5	2.0	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	1.9
72	3	2.1	2.3	3.2	2.5	3.2	2.4	1.9	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	1.9
84		2.0	1.9	2.8	2.3	3.1	2.1	1.8	2.0	2.1	2.0	2.0	1.9	1.9	2.1	1.9	1.8
96	4	2.2	2.2	3.2	2.4	3.3	2.3	1.9	2.1	2.1	2.0	2.0	2.0	1.9	2.1	1.9	1.8
108		2.2	2.4	3.2	2.6	3.3	2.5	1.9	2.1	2.2	2.1	2.1	2.0	2.0	2.1	2.0	1.9
120	5	2.1	1.9	3.0	2.3	3.7	2.2	1.9	2.1	2.1	2.0	2.0	2.0	2.0	2.1	1.9	1.9
132		2.2	1.6	2.7	2.1	3.2	1.8	1.8	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.8	1.8
144	6	2.4	2.1	2.9	2.3	3.1	2.2	1.9	2.2	2.1	2.1	2.0	2.0	2.0	2.1	1.9	1.9
156		2.3	2.4	3.1	2.5	3.1	2.5	2.0	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.0
168	7	2.4	2.2	3.2	2.4	3.8	2.5	1.9	2.2	2.1	2.1	2.0	2.0	2.0	2.1	1.9	1.9
180		2.4	1.7	2.8	2.2	3.3	1.9	1.8	2.1	2.0	2.0	1.9	1.9	1.8	2.0	1.8	1.8
192	8	2.3	1.8	2.8	2.2	3.1	2.0	1.9	2.2	2.1	2.1	2.0	2.0	1.9	2.1	1.9	1.9
204		2.3	2.1	3.1	2.4	3.2	2.3	1.9	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.0	1.9
216	9	2.3	2.4	2.8	3.0	2.3	2.4	2.0	2.0	2.2	2.0	2.0	2.0	2.1	2.1	2.0	2.0
228		2.6	2.5	2.8	2.8	2.5	2.6	2.0	2.0	2.2	2.0	2.2	2.0	2.1	2.0	2.1	2.1
240	10	2.2	1.9	2.4	2.3	2.2	2.4	2.0	2.0	2.3	2.1	2.1	2.1	2.1	1.9	2.2	2.0
252		2.2	2.0	2.1	2.0	2.3	2.2	2.0	2.0	2.2	2.1	2.2	2.0	2.1	2.0	2.1	2.0
264	11	2.4	2.5	2.9	3.3	2.6	2.5	1.9	2.0	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1
276		2.5	2.6	2.7	2.9	2.6	2.7	2.0	2.0	2.2	2.1	2.0	2.0	2.1	2.0	2.1	2.2
288	12	2.3	2.8	2.4	2.6	2.7	2.6	2.0	2.0	2.2	2.1	2.0	1.9	2.2	2.0	2.1	2.2
300		2.5	2.5	2.3	2.3	2.9	2.6	2.0	2.0	2.2	2.2	1.9	2.0	2.2	2.0	2.0	2.3
312	13	2.4	2.3	2.6	3.3	2.9	2.5	2.1	2.1	2.1	2.2	2.0	2.1	2.2	2.0	2.0	2.3
324		2.5	2.1	2.3	2.6	2.5	2.4	2.1	2.1	2.1	2.2	2.0	2.1	2.1	2.0	2.0	2.3
336	14	2.4	2.7	2.5	2.4	2.7	2.6	2.1	2.0	2.1	2.2	1.9	2.1	2.1	2.0	2.0	2.3
348		2.6	2.3	2.6	2.4	2.7	2.5	2.0	2.1	2.1	2.1	1.9	2.1	2.1	2.0	2.1	2.3
360	15	2.4	1.9	2.5	2.7	2.5	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.2	2.0	2.1	2.3
372		2.3	2.6	2.8	2.7	2.7	2.2	2.0	2.1	2.1	2.0	2.1	2.0	2.2	2.1	2.1	2.3
384	16	2.2	2.4	2.6	2.1	2.7	2.3	2.0	2.2	2.0	2.1	2.1	2.0	2.2	2.0	2.1	2.2
396		2.2	2.5	2.5	2.3	2.9	2.2	2.1	2.2	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.2
408	17	2.1	1.9	2.4	2.6	2.4	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.2
420		2.3	2.2	2.6	2.6	2.5	2.2	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.0	2.0	2.2
432	18	2.7	2.7	2.6	2.3	2.9	2.5	1.9	1.9	2.0	2.2	2.1	2.0	2.2	2.0	1.9	2.1
444		2.1	2.0	2.0	1.9	2.5	2.0	1.9	2.0	2.1	2.2	2.1	1.9	2.1	2.0	2.0	2.2
456	19	2.0	2.1	2.2	2.6	2.5	2.0	1.9	1.9	2.1	2.1	2.0	1.9	2.1	2.1	1.9	2.2
468		2.3	2.6	2.6	2.3	2.6	2.5	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.1	1.9	2.2
480	20	2.1	2.5	2.1	1.8	2.5	2.2	2.0	2.1	2.0	2.1	2.1	1.9	2.2	2.0	1.9	2.2
Average over trial period		2.3	2.3	2.7	2.5	2.9	2.3	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.1
Average of Fruit temperatures						2.0											
Average of Air temperatures						2.5											

Details of logger data are given in Appendix 8

Table 4.43 Calibration summary before and after 2.0 °C Most Tolerant Stage trials

Trial		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
Red Globe 2°C																	
Before	Rep 1	0.0	0.0	-0.1	-0.1	0.2	0.0	-0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2
	Rep 2	-0.1	-0.1	-0.1	-0.1	0.2	-0.1	-0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	-0.2
	Rep 3	0.0	0.0	0.0	-0.1	0.2	0.0	-0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2
After	Rep 1	-0.1	-0.1	-0.1	-0.1	0.2	-0.1	-0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	-0.2
	Rep 2	0.0	0.0	-0.1	-0.1	0.2	0.0	-0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2
	Rep 3	-0.1	0.0	-0.1	-0.1	0.2	0.0	-0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	-0.2
Thompson Seedless 2°C																	
Before	Rep 1	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2
	Rep 2	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2
	Rep 3	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2
After	Rep 1	-0.1	0.0	-0.1	-0.1	0.2	0.0	-0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	-0.2
	Rep 2	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2
	Rep 3	-0.1	0.0	-0.1	-0.1	0.2	0.0	-0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	-0.2
Crimson Seedless 2°C																	
Before	Rep 1	-0.1	0.0	0.0	-0.1	0.2	0.0	-0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	-0.2
	Rep 2	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-0.2
	Rep 3	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.1
After	Rep 1	-0.1	0.0	0.0	-0.1	0.2	0.0	-0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	-0.2
	Rep 2	0.0	0.0	0.0	-0.1	0.1	0.0	-0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.1
	Rep 3	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	-0.1

Details of logger calibration data are given in Appendix 8

4.6 RESULTS OF MOST TOLERANT LIFE STAGE COLD TREATMENT TRIALS OF MEDFLY IN TABLE GRAPES AT $3.0 \pm 0.5^{\circ}\text{C}$.

The trials $3.0 \pm 0.5^{\circ}\text{C}$ were conducted from December 2003 to June 2004 on the dates given in **Table 4.44**.

Table 4.44 Summary of the dates and times of the conduct of the Most Tolerant Stage trials at $3.0 \pm 0.5^{\circ}\text{C}$ in table grapes. The exposure period for several time intervals begins after temperature probes in the fruit have reached the treatment temperature.

Table grape variety	Rep.	Start date / time of Trial	Date/ Time to reach $2.0 \pm 0.5^{\circ}\text{C}$	Hours to cool down	End date / time of Trial	Cold Room No.	Logger Serial No.	Calibration: Before trial Date / time	Calibration After trial Date / time
Red Globe	1	16.12.2003 07:05 am	16.12.2003 18:05 pm	11.0	05.01.2004 18:05 pm	# 3	1256 - 00019	15.12.2003 10:27 am	06.01.2004 09:35 am
	2	07:25 am	17:25 pm	10.0	17:25 pm	# 4	1256 - 00107	11:05 am	10:10 pm
	3	07:58 am	17:58 pm	10.0	17:58 pm	# 5	1206 - 00042	11:40 am	10:47 am
Crimson Seedless		14.05.2004	14.05.2004		03.06.2004			12.05.2004	04.06.2004
	1	08:12 am	17:12 pm	9.0	17:12 pm	# 3	1256 - 00019	09:27 am	09:47 am
	2	08:33 am	16:33 pm	8.0	16:33 pm	# 4	1256 - 00107	09:56 am	10:32 pm
	3	08:57 am	19:57 pm	11.0	19:57 pm	# 5	1206 - 00042	10:27 am	10:40 am
Thompson Seedless		02.03.2004	02.03.2004		22.03.2004			01.03.2004	23.03.2004
	1	07:39 am	17:39 pm	10.0	17:39 pm	# 3	1256 - 00019	09:03 am	09:36 am
	2	08:11 am	17:11 pm	9.0	17:11 pm	# 4	1256 - 00107	09:35 am	10:12 am
	3	08:47 am	17:47 pm	9.0	17:47 pm	# 5	1206 - 00042	10:08 am	10:42 am

4.6.1 MORTALITIES OF EACH LIFE STAGE AT $3.0 \pm 0.5^{\circ}\text{C}$.

The mortality data from cold exposure to a graded series of doses from 2 to 20 days of the four life stages of Medfly in 3 table grape cultivars replicated 3 times are given in the following tables:

Red Globe: Tables 4.45 to 4.47

Crimson Seedless: Tables 4.48 to 4.50

Thompson Seedless: Tables 4.51 to 4.53

The data in these tables show that complete mortality was achieved in all stages after 16 days cold exposure to $3.0 \pm 0.5^{\circ}\text{C}$. This data was used in the Probit analysis of LD_{50} and LD_{99} to provide an estimate of the most tolerant stage and the treatment required for successful disinfestation in large scale trials of >30,000 insects.

Table 4.45 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 3.0 ± 0.5 °C
(Replicate 1 : Cold Room # 3). Date of experiment : 16th December 2003 – 5th January 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	641	563	590	595				
2	50	599	544	582	558	6.6	3.4	1.4	6.2
3	50	449	516	533	457	30.0	8.3	9.7	23.2
4	50	380	487	424	396	40.7	13.5	28.1	33.4
5	50	223	400	397	176	65.2	29.0	32.7	70.4
6	50	172	344	271	134	73.2	38.9	54.1	77.5
7	50	39	178	154	68	93.9	68.4	73.9	88.6
8	50	21	159	136	19	96.7	71.8	76.9	96.8
9	50	6	58	42	7	99.1	89.7	92.9	98.8
10	50	2	42	26	3	99.7	92.5	95.6	99.5
11	50	1	11	16	1	99.8	98.0	97.3	99.8
12	50	0	7	5	0	100.0	98.8	99.2	100.0
13	50	0	1	2	0	100.0	99.8	99.7	100.0
14	50	0	1	1	0	100.0	99.8	99.8	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.46 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 3.0 ± 0.5 °C
(Replicate 2 : Cold Room # 4). Date of experiment : 16th December 2003 – 5th January 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	550	679	672	607				
2	50	478	642	655	572	13.1	5.4	2.5	5.8
3	50	418	619	604	441	24.0	8.8	10.1	27.3
4	50	391	513	591	376	28.9	24.4	12.1	38.1
5	50	249	455	493	192	54.7	33.0	26.6	68.4
6	50	128	297	335	132	76.7	56.3	50.1	78.3
7	50	48	136	193	64	91.3	80.0	71.3	89.5
8	50	16	116	167	25	97.1	82.9	75.1	95.9
9	50	7	72	88	10	98.7	89.4	86.9	98.4
10	50	1	37	60	5	99.8	94.6	91.1	99.2
11	50	0	16	18	3	100.0	97.6	97.3	99.5
12	50	0	3	8	0	100.0	99.6	98.8	100.0
13	50	0	1	1	0	100.0	99.9	99.9	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.47 Mortality Tests of the Most Tolerant Stage of Medfly in infested Red Globe at 3.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 16th December 2003 – 5th January 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	681	568	536	644				
2	50	614	538	529	594	9.8	5.3	1.3	7.8
3	50	474	463	517	430	30.4	18.5	3.5	33.2
4	50	397	388	438	323	41.7	31.7	18.3	49.8
5	50	205	324	392	166	69.9	43.0	26.9	74.2
6	50	88	265	348	118	87.1	53.3	35.1	81.7
7	50	49	191	208	73	92.8	66.4	61.2	88.7
8	50	12	143	180	20	98.2	74.8	66.4	96.9
9	50	8	38	74	8	98.8	93.3	86.2	98.8
10	50	3	34	57	6	99.6	94.0	89.4	99.1
11	50	0	9	19	2	100.0	98.4	96.5	99.7
12	50	0	4	8	1	100.0	99.3	98.5	99.8
13	50	0	0	2	0	100.0	100.0	99.6	100.0
14	50	0	1	0	0	100.0	99.8	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.48 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 3.0 ± 0.5 °C (Replicate 1 : Cold Room # 3). Date of experiment : 14th May 2004 – 3rd June 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	650	602	589	631				
2	50	587	596	578	620	9.7	1.0	1.9	1.7
3	50	493	578	565	518	24.2	4.0	4.1	17.9
4	50	348	502	490	478	46.5	16.6	16.8	24.2
5	50	197	353	370	293	69.7	41.4	37.2	53.6
6	50	121	210	248	139	81.4	65.1	57.9	78.0
7	50	45	154	157	75	93.1	74.4	73.3	88.1
8	50	26	85	101	25	96.0	85.9	82.9	96.0
9	50	6	44	50	6	99.1	92.7	91.5	99.0
10	50	0	26	27	0	100.0	95.7	95.4	100.0
11	50	0	8	10	0	100.0	98.7	98.3	100.0
12	50	0	4	6	0	100.0	99.3	99.0	100.0
13	50	0	0	2	0	100.0	100.0	99.7	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.49 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 3.0 ± 0.5 °C (Replicate 2 : Cold Room # 4). Date of experiment : 14th May 2004 – 3rd June 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	593	648	673	620				
2	50	492	604	653	582	17.0	6.8	3.0	6.1
3	50	454	594	650	425	23.4	8.3	3.4	31.5
4	50	325	501	502	322	45.2	22.7	25.4	48.1
5	50	198	339	375	216	66.6	47.7	44.3	65.2
6	50	107	192	229	114	82.0	70.4	66.0	81.6
7	50	74	139	165	59	87.5	78.5	75.5	90.5
8	50	33	101	124	38	94.4	84.4	81.6	93.9
9	50	4	48	78	7	99.3	92.6	88.4	98.9
10	50	0	30	45	2	100.0	95.4	93.3	99.7
11	50	0	10	12	1	100.0	98.5	98.2	99.8
12	50	0	6	4	0	100.0	99.1	99.4	100.0
13	50	0	3	1	0	100.0	99.5	99.9	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.50 Mortality Tests of the Most Tolerant Stage of Medfly in infested Crimson Seedless at 3.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 14th May 2004 – 3rd June 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	606	581	679	603				
2	50	517	576	670	590	14.7	0.9	1.3	2.2
3	50	478	550	667	515	21.1	5.3	1.8	14.6
4	50	338	348	441	303	44.2	40.1	35.1	49.8
5	50	222	289	354	125	63.4	50.3	47.9	79.3
6	50	120	214	175	92	80.2	63.2	74.2	84.7
7	50	53	144	164	45	91.3	75.2	75.8	92.5
8	50	30	120	114	32	95.0	79.3	83.2	94.7
9	50	7	61	54	11	98.8	89.5	92.0	98.2
10	50	2	36	26	3	99.7	93.8	96.2	99.5
11	50	0	7	7	0	100.0	98.8	99.0	100.0
12	50	0	1	3	0	100.0	99.8	99.6	100.0
13	50	0	0	1	0	100.0	100.0	99.9	100.0
14	50	0	1	1	0	100.0	99.8	99.9	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.51 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 3.0 ± 0.5 °C (Replicate 1 : Cold Room # 3). Date of experiment : 2nd - 22nd March 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	647	615	603	631				
2	50	543	603	590	599	16.1	2.0	2.2	5.1
3	50	417	583	577	535	35.5	5.2	4.3	15.2
4	50	356	498	452	344	45.0	19.0	25.0	45.5
5	50	254	269	361	264	60.7	56.3	40.1	58.2
6	50	118	238	303	159	81.8	61.3	49.8	74.8
7	50	52	132	195	60	92.0	78.5	67.7	90.5
8	50	26	110	124	28	96.0	82.1	79.4	95.6
9	50	4	47	54	19	99.4	92.4	91.0	97.0
10	50	0	22	26	12	100.0	96.4	95.7	98.1
11	50	0	5	8	4	100.0	99.2	98.7	99.4
12	50	0	2	5	0	100.0	99.7	99.2	100.0
13	50	0	1	1	0	100.0	99.8	99.8	100.0
14	50	0	1	0	0	100.0	99.8	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.52 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 3.0 ± 0.5 °C (Replicate 2 : Cold Room # 4). Date of experiment : 2nd - 22nd March 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	714	709	610	625				
2	50	682	695	605	562	4.5	2.0	0.8	10.1
3	50	559	653	594	504	21.7	7.9	2.6	19.4
4	50	394	509	427	423	44.8	28.2	30.0	32.3
5	50	285	420	382	281	60.1	40.8	37.4	55.0
6	50	123	396	324	131	82.8	44.1	46.9	79.0
7	50	48	197	192	85	93.3	72.2	68.5	86.4
8	50	26	119	147	33	96.4	83.2	75.9	94.7
9	50	6	51	61	25	99.2	92.8	90.0	96.0
10	50	2	37	43	9	99.7	94.8	93.0	98.6
11	50	1	10	9	4	99.9	98.6	98.5	99.4
12	50	0	3	4	0	100.0	99.6	99.3	100.0
13	50	0	1	2	0	100.0	99.9	99.7	100.0
14	50	0	0	0	0	100.0	100.0	100.0	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

Table 4.53 Mortality Tests of the Most Tolerant Stage of Medfly in infested Thompson Seedless at 3.0 ± 0.5 °C (Replicate 3 : Cold Room # 5). Date of experiment : 2nd - 22nd March 2004

Exposure Period to 3.0 ± 0.5 °C (days)	Number of fruit infested per stage	Number of survivors (pupae) from infested fruit following treatment as :				Percentage mortality (criteria : pupation) following treatment as :			
		Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae	Eggs	1st instar larvae	2nd instar larvae	3rd instar larvae
(control)	50	531	577	662	590				
2	50	478	562	654	572	10.0	2.6	1.2	3.1
3	50	430	522	617	475	19.0	9.5	6.8	19.5
4	50	394	401	586	398	25.8	30.5	11.5	32.5
5	50	292	295	361	284	45.0	48.9	45.5	51.9
6	50	119	255	309	145	77.6	55.8	53.3	75.4
7	50	54	161	167	55	89.8	72.1	74.8	90.7
8	50	24	128	138	22	95.5	77.8	79.2	96.3
9	50	6	58	72	17	98.9	89.9	89.1	97.1
10	50	2	39	44	7	99.6	93.2	93.4	98.8
11	50	0	9	9	3	100.0	98.4	98.6	99.5
12	50	0	4	3	0	100.0	99.3	99.5	100.0
13	50	0	0	2	0	100.0	100.0	99.7	100.0
14	50	0	0	1	0	100.0	100.0	99.8	100.0
16	50	0	0	0	0	100.0	100.0	100.0	100.0
18	50	0	0	0	0	100.0	100.0	100.0	100.0
20	50	0	0	0	0	100.0	100.0	100.0	100.0

4.6.2 ANALYSIS OF THE DATA FOR COLD EXPOSURE AT $3.0 \pm 0.5^{\circ}\text{C}$.

The above bio-assay data obtained from the exposure of the four Medfly stages - eggs, 1st, 2nd, and 3rd instar larvae were subjected to probit regression analysis (Finney, 1972) and analysed using the Genstat Program (Anon 2006) to obtain the LD₅₀ and LD₉₉ values together with their 95% confidence limits. These are given in **Table 4.54**.

The results show that the 2nd instar is the most tolerant life stage at the LD₅₀ and at the LD₉₉ estimates for all varieties. On the basis of these results it was decided that the large-scale trials should be done on 2nd instar larvae. Therefore 3 replicated trials were conducted by exposing >10,000 individuals to $1.0 \pm 0.5^{\circ}\text{C}$ in each of three replicated trials (>30,000) in all 3 table grape cultivars. The results of these large-scale trials are given in **Section 5**.

Table 4.54 Comparison of the number of days exposure at $3.0 \pm 0.5^{\circ}\text{C}$ required to kill 50% (LD₅₀) and 99% (LD₉₉) of the four immature life stages of Mediterranean fruit fly in 2 Table grapes cultivars. The analysis is based on three replicate trials for each life stage.

Table grapes Cultivar and Life stage treated	Days	95% confidence intervals		Days	95% confidence intervals	
	LD ₅₀	<u>Lower</u>	<u>Upper</u>	LD ₉₉	<u>Lower</u>	<u>Upper</u>
Red Globe						
Eggs	4.39	4.35	4.44	9.72	9.59	9.86
1 st instar larvae	5.91	5.85	5.97	13.07	12.91	13.25
2 nd instar larvae	6.18	6.12	6.24	13.67	13.50	13.85
3 rd instar larvae	4.38	4.33	4.43	9.70	9.57	9.83
Crimson Seedless						
Eggs	4.21	4.17	4.26	9.74	9.61	9.87
1 st instar larvae	5.36	5.31	5.42	12.40	12.24	12.56
2 nd instar larvae	5.45	5.39	5.50	12.59	12.43	12.75
3 rd instar larvae	4.34	4.29	4.39	10.04	9.90	10.17
Thompson Seedless						
Eggs	4.39	4.34	4.43	9.93	9.80	10.06
1 st instar larvae	5.54	5.49	5.60	12.55	12.40	12.71
2 nd instar larvae	5.79	5.74	5.85	13.11	12.95	13.28
3 rd instar larvae	4.64	4.59	4.69	10.51	10.37	10.65

4.6.3 SUMMARY OF COLD TREATMENT DATA FOR THE MOST TOLERANT STAGE TRIALS AT $3.0 \pm 0.5^{\circ}\text{C}$.

The records of the temperatures from the cold treatment trials for each replicate treatment are summarised in the following tables. The data shows that the required temperatures of $3.0 \pm 0.5^{\circ}\text{C}$ was maintained throughout the trials. The data loggers were calibrated before and after each trial. These show that the records of temperatures were accurate throughout the trials.

The summary tables for each cultivar are as follows:

- (1) **Red Globe:** Tables 4.55 to 4.57
- (2) **Thompson Seedless:** Tables 4.58 to 4.60
- (3) **Crimson Seedless:** Tables 4.61 to 4.63
- (4) Calibration of loggers before and after each trial: Table 4.64

The complete details of the raw data are given in **Appendix 9**

Table 4.55 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		4.1	3.3	3.2	3.3	4.3	3.2	3.2	3.3	3.4	3.0	3.4	3.3	3.2	3.3	3.1	3.2
24	1	4.2	3.3	3.3	3.2	3.8	3.1	3.1	3.2	3.3	2.9	3.2	3.2	3.1	3.2	3.0	3.1
36		3.9	3.3	3.2	3.2	3.9	3.2	3.1	3.2	3.3	2.9	3.3	3.2	3.1	3.2	3.1	3.1
48	2	4.4	3.3	3.2	3.2	4.3	3.2	3.1	3.2	3.4	2.9	3.3	3.2	3.1	3.2	3.0	3.1
60		4.1	3.3	3.3	3.2	3.5	3.1	3.1	3.2	3.3	2.9	3.2	3.2	3.1	3.2	3.0	3.1
72	3	4.1	3.4	3.4	3.3	3.6	3.2	3.1	3.2	3.3	2.9	3.2	3.2	3.1	3.2	3.0	3.1
84		3.7	3.1	3.0	3.2	3.5	3.1	3.1	3.2	3.3	2.9	3.3	3.2	3.1	3.2	3.0	3.1
96	4	4.2	3.3	3.2	3.2	4.0	3.1	3.1	3.2	3.3	2.9	3.2	3.1	3.0	3.1	3.0	3.0
108		4.0	3.3	3.3	3.2	3.5	3.1	3.1	3.2	3.3	2.9	3.2	3.1	3.0	3.1	3.0	3.0
120	5	3.9	3.3	3.3	3.2	3.5	3.1	3.1	3.2	3.3	3.0	3.3	3.2	3.1	3.2	3.1	3.1
132		3.8	3.1	3.0	3.2	3.6	3.1	3.1	3.3	3.3	3.0	3.3	3.2	3.1	3.2	3.1	3.1
144	6	4.4	3.4	3.2	3.2	4.2	3.2	3.1	3.2	3.3	2.9	3.3	3.2	3.1	3.2	3.0	3.1
156		4.1	3.3	3.3	3.2	3.6	3.1	3.1	3.2	3.3	2.9	3.3	3.2	3.1	3.2	3.0	3.1
168	7	4.1	3.3	3.3	3.2	3.6	3.1	3.1	3.3	3.3	3.0	3.3	3.2	3.1	3.2	3.1	3.1
180		3.8	3.0	3.0	3.2	3.5	3.1	3.2	3.3	3.3	3.0	3.3	3.2	3.1	3.2	3.1	3.1
192	8	4.4	3.0	3.4	3.2	4.0	3.1	3.1	3.2	3.3	2.9	3.3	3.2	3.1	3.2	3.1	3.1
204		4.2	2.9	3.3	3.1	3.5	3.0	3.1	3.2	3.3	2.9	3.3	3.2	3.1	3.2	3.1	3.1
216	9	3.9	2.9	3.3	3.1	3.3	3.0	3.2	3.3	3.3	3.0	3.3	3.2	3.2	3.2	3.1	3.1
228		3.7	2.8	3.1	3.1	3.6	3.0	3.2	3.3	3.3	3.0	3.3	3.3	3.2	3.3	3.2	3.2
240	10	4.5	2.9	3.1	3.1	4.3	3.1	3.1	3.2	3.3	2.9	3.3	3.2	3.2	3.3	3.2	3.2
252		3.9	2.7	3.1	3.0	3.1	2.8	3.1	3.2	3.3	3.0	3.2	3.2	3.2	3.3	3.2	3.2
264	11	3.6	2.7	3.2	3.0	2.9	2.8	3.2	3.3	3.3	3.0	3.3	3.2	3.2	3.3	3.2	3.2
276		3.4	2.7	3.0	3.0	3.4	3.0	3.2	3.3	3.3	3.1	3.3	3.3	3.2	3.3	3.2	3.2
288	12	4.4	2.9	3.2	3.0	4.3	3.1	3.2	3.3	3.3	3.0	3.3	3.3	3.2	3.3	3.1	3.1
300		3.9	2.8	3.2	3.0	3.1	2.9	3.2	3.3	3.3	3.0	3.3	3.2	3.2	3.3	3.2	3.1
312	13	3.5	2.8	3.2	3.0	2.9	2.9	3.3	3.3	3.3	3.1	3.3	3.3	3.2	3.3	3.2	3.2
324		3.3	2.6	2.8	2.9	3.2	2.8	3.2	3.3	3.3	3.1	3.3	3.3	3.2	3.3	3.2	3.2
336	14	4.3	2.9	3.2	3.0	4.1	3.1	3.1	3.2	3.2	3.0	3.2	3.2	3.1	3.1	3.0	3.1
348		3.9	2.8	3.3	2.9	3.2	2.9	3.1	3.2	3.2	3.0	3.2	3.1	3.0	3.1	2.9	3.0
360	15	3.6	2.7	3.1	2.9	3.0	2.8	3.1	3.2	3.2	3.0	3.2	3.1	3.0	3.1	3.0	3.0
372		3.5	2.6	2.9	2.9	3.2	2.8	3.1	3.2	3.1	3.0	3.2	3.1	3.0	3.1	3.0	3.0
384	16	4.0	2.7	3.1	2.9	3.5	2.8	3.0	3.1	3.1	3.0	3.1	3.0	3.0	3.0	2.9	2.9
396		3.9	2.7	3.0	2.9	3.3	2.8	3.0	3.1	3.1	2.9	3.1	3.0	2.9	3.0	2.8	2.9
408	17	3.9	2.7	3.1	2.9	3.2	2.8	3.0	3.1	3.1	3.0	3.1	2.9	2.9	3.0	2.8	2.9
420		3.6	2.6	2.9	2.9	3.5	2.8	3.0	3.1	3.1	3.0	3.1	3.0	2.9	3.0	2.9	2.9
432	18	4.3	2.9	3.2	3.0	3.9	3.0	3.1	3.2	3.1	3.0	3.1	2.9	2.9	3.0	2.8	2.9
444		3.9	2.8	3.2	3.0	3.2	2.9	3.1	3.2	3.1	3.0	3.2	2.9	2.9	3.0	2.9	2.9
456	19	3.6	2.7	3.2	3.0	3.0	2.9	3.1	3.2	3.2	3.1	3.2	3.0	3.0	3.1	3.0	3.0
468		3.4	2.6	2.9	3.0	3.2	2.8	3.2	3.3	3.2	3.1	3.2	3.1	3.0	3.1	3.0	3.0
480	20	4.2	2.8	3.1	3.0	3.9	3.0	3.0	3.2	3.2	3.0	3.2	3.1	3.0	3.1	3.0	3.0
Average over trial period		3.9	2.9	3.1	3.1	3.5	3.0	3.1	3.2	3.2	3.0	3.2	3.1	3.1	3.2	3.0	3.1
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.3											

Details of logger data are given in Appendix 9

Table 4.56 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		4.1	2.9	3.2	3.0	4.5	3.4	3.0	3.2	3.2	3.1	3.2	3.2	3.1	3.2	3.1	3.2
24	1	4.0	3.0	3.4	3.0	3.7	3.4	3.0	3.2	3.1	3.1	3.1	3.2	3.1	3.1	3.0	3.1
36		3.5	2.9	3.2	3.0	3.4	3.4	3.1	3.2	3.2	3.1	3.2	3.2	3.1	3.2	3.1	3.2
48	2	3.8	3.1	3.6	3.1	3.5	3.4	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.2
60		4.0	3.0	3.3	3.0	4.3	3.4	3.1	3.2	3.2	3.1	3.2	3.2	3.1	3.1	3.0	3.1
72	3	4.1	2.9	3.3	3.0	3.9	3.3	3.1	3.2	3.2	3.1	3.2	3.1	3.0	3.1	3.0	3.1
84		3.7	2.8	3.1	2.9	3.6	3.3	3.1	3.2	3.2	3.2	3.2	3.1	3.0	3.1	3.0	3.1
96	4	3.9	3.0	3.4	3.0	3.6	3.3	3.1	3.2	3.2	3.2	3.2	3.1	3.0	3.1	3.0	3.1
108		4.0	2.9	3.3	3.0	4.0	3.4	3.1	3.2	3.2	3.1	3.2	3.1	3.0	3.1	2.9	3.0
120	5	3.9	3.0	3.4	3.0	3.6	3.3	3.1	3.2	3.2	3.1	3.2	3.0	3.0	3.0	2.9	3.0
132		3.5	2.8	3.1	2.9	3.4	3.3	3.1	3.3	3.2	3.2	3.3	3.1	3.0	3.1	2.9	3.0
144	6	3.7	2.9	3.3	2.9	3.4	3.3	3.2	3.3	3.2	3.2	3.3	3.1	3.0	3.1	3.0	3.1
156		4.0	2.9	3.3	2.9	4.0	3.4	3.1	3.2	3.2	3.1	3.3	3.1	3.0	3.1	2.9	3.0
168	7	3.9	2.9	3.4	2.9	3.5	3.3	3.1	3.2	3.2	3.1	3.2	3.0	3.0	3.0	2.9	3.0
180		3.3	2.8	3.2	3.0	3.1	3.3	3.2	3.3	3.3	3.2	3.3	3.1	3.0	3.1	3.0	3.1
192	8	3.3	2.9	3.4	3.0	3.1	3.3	3.2	3.3	3.3	3.2	3.3	3.2	3.1	3.2	3.1	3.1
204		3.8	2.9	3.2	3.0	4.4	3.5	3.2	3.3	3.2	3.2	3.3	3.1	3.0	3.1	3.0	3.1
216	9	3.8	2.9	3.4	3.0	3.4	3.3	3.1	3.2	3.2	3.1	3.2	3.0	3.0	3.1	2.9	3.0
228		3.1	2.8	3.2	2.9	3.0	3.2	3.2	3.3	3.3	3.2	3.3	3.1	3.1	3.2	3.0	3.1
240	10	3.3	3.0	3.5	3.1	3.1	3.4	3.2	3.3	3.3	3.2	3.3	3.2	3.1	3.2	3.1	3.2
252		3.7	2.9	3.2	3.0	4.3	3.4	3.2	3.3	3.3	3.2	3.3	3.1	3.1	3.1	3.0	3.1
264	11	3.7	2.9	3.4	3.0	3.4	3.3	3.1	3.2	3.2	3.1	3.2	3.1	3.0	3.1	2.9	3.0
276		3.2	2.9	3.4	3.1	3.1	3.4	3.2	3.3	3.3	3.2	3.3	3.1	3.1	3.2	3.1	3.1
288	12	3.5	2.9	3.4	3.0	3.3	3.3	3.2	3.3	3.3	3.2	3.3	3.2	3.1	3.2	3.1	3.1
300		3.9	3.0	3.3	3.0	4.3	3.5	3.2	3.2	3.2	3.1	3.2	3.1	3.1	3.1	3.0	3.1
312	13	3.9	2.9	3.4	3.0	3.5	3.3	3.0	3.1	3.1	3.0	3.1	3.0	2.9	3.0	2.9	3.0
324		3.4	2.8	3.2	3.0	3.3	3.3	3.0	3.1	3.2	3.0	3.1	3.0	2.9	3.0	2.9	3.0
336	14	3.6	2.9	3.4	3.0	3.3	3.3	3.0	3.1	3.2	3.1	3.1	3.0	2.9	3.1	2.9	3.0
348		4.0	2.9	3.3	3.0	4.3	3.5	2.9	3.0	3.1	2.9	3.1	2.9	2.8	2.9	2.8	2.9
360	15	4.0	3.0	3.4	3.0	3.6	3.3	2.8	3.0	3.1	2.9	3.0	2.8	2.8	2.9	2.8	2.9
372		3.5	2.7	3.0	2.9	3.3	3.2	2.9	3.1	3.1	3.0	3.1	2.9	2.9	3.0	2.8	2.9
384	16	3.8	3.0	3.4	3.0	3.4	3.3	3.0	3.1	3.1	3.0	3.1	2.9	2.9	3.0	2.9	2.9
396		3.9	2.9	3.2	3.0	4.4	3.4	2.9	3.0	3.1	2.8	3.0	2.9	2.8	2.9	2.8	2.9
408	17	3.8	2.8	3.3	2.9	3.5	3.2	2.8	2.9	3.0	2.8	3.0	2.8	2.8	2.9	2.8	2.8
420		3.1	2.6	2.9	2.8	3.0	3.1	2.9	3.0	3.1	3.0	3.1	2.9	2.9	3.1	2.9	3.0
432	18	3.4	2.9	3.5	3.0	3.2	3.3	3.0	3.1	3.2	3.0	3.1	3.0	3.0	3.1	3.0	3.0
444		3.9	2.9	3.2	3.0	4.5	3.5	2.9	3.0	3.1	2.9	3.1	3.0	3.0	3.1	2.9	3.0
456	19	3.8	3.0	3.5	3.1	3.6	3.4	2.9	3.0	3.1	2.9	3.1	3.0	3.0	3.1	3.0	3.0
468		3.1	2.8	3.2	3.0	3.1	3.3	3.1	3.2	3.2	3.1	3.2	3.2	3.2	3.3	3.2	3.2
480	20	3.3	3.0	3.5	3.1	3.2	3.4	3.2	3.3	3.3	3.2	3.3	3.3	3.3	3.4	3.3	3.3
Average over trial period		3.7	2.9	3.3	3.0	3.6	3.3	3.1	3.2	3.2	3.1	3.2	3.1	3.0	3.1	3.0	3.0
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.3											

Details of logger data are given in Appendix 9

Table 4.57 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		3.7	2.8	3.5	3.3	4.0	3.3	3.1	3.1	3.2	3.1	3.2	3.2	3.1	3.1	3.1	3.0
24	1	3.7	2.8	3.6	3.3	3.3	3.2	3.0	3.1	3.1	3.1	3.1	3.1	3.0	3.1	3.0	2.9
36		3.3	2.7	3.4	3.3	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.0
48	2	3.6	2.8	3.7	3.3	3.3	3.2	3.1	3.1	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.0
60		4.0	2.8	3.5	3.3	3.9	3.3	3.0	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.0	2.9
72	3	3.8	2.8	3.7	3.3	3.5	3.2	3.0	3.1	3.1	3.1	3.1	3.0	3.0	3.0	3.0	2.9
84		3.4	2.7	3.4	3.3	3.2	3.2	3.0	3.1	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.0
96	4	3.6	2.8	3.6	3.3	3.2	3.2	3.0	3.1	3.2	3.2	3.2	3.1	3.1	3.1	3.1	3.0
108		4.0	2.9	3.7	3.4	4.1	3.4	3.0	3.1	3.2	3.3	3.2	3.2	3.1	3.1	3.1	3.0
120	5	3.8	2.8	3.7	3.3	3.4	3.2	3.0	3.1	3.2	3.1	3.1	3.2	3.0	3.0	3.1	3.0
132		3.2	2.6	3.3	3.2	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.1	3.1	3.1	3.0
144	6	3.5	2.7	3.6	3.2	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.1	3.1	3.1	3.0
156		3.9	2.8	3.6	3.3	4.0	3.3	3.0	3.1	3.2	3.1	3.1	3.2	3.1	3.1	3.1	3.0
168	7	3.8	2.7	3.6	3.2	3.3	3.1	3.0	3.1	3.2	3.1	3.1	3.2	3.1	3.0	3.1	3.0
180		3.2	2.6	3.4	3.3	2.9	3.1	3.0	3.1	3.1	3.1	3.2	3.2	3.1	3.1	3.1	3.0
192	8	3.4	2.8	3.6	3.3	3.0	3.2	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.1	3.2	3.1
204		3.7	2.7	3.4	3.2	4.1	3.2	3.0	3.2	3.2	3.3	3.2	3.2	3.1	3.1	3.1	3.0
216	9	3.7	2.8	3.6	3.2	3.3	3.1	3.0	3.2	3.1	3.2	3.1	3.2	3.1	3.0	3.0	3.0
228		3.2	2.7	3.4	3.2	3.0	3.2	3.1	3.2	3.2	3.3	3.2	3.2	3.1	3.1	3.1	3.0
240	10	3.5	2.8	3.8	3.3	3.1	3.2	3.1	3.2	3.2	3.3	3.2	3.2	3.2	3.1	3.1	3.0
252		3.7	2.8	3.5	3.2	3.9	3.2	3.1	3.2	3.2	3.3	3.2	3.2	3.1	3.1	3.0	3.0
264	11	3.8	2.8	3.6	3.2	3.5	3.1	3.1	3.2	3.2	3.3	3.2	3.1	3.0	3.0	3.0	2.9
276		3.4	2.6	3.3	3.1	3.2	3.0	3.1	3.2	3.2	3.3	3.2	3.1	3.0	3.0	3.0	2.9
288	12	3.6	2.8	3.6	3.2	3.2	3.1	3.1	3.2	3.2	3.3	3.2	3.1	3.0	3.0	3.0	2.9
300		3.7	2.8	3.5	3.2	3.7	3.2	3.1	3.2	3.2	3.3	3.2	3.1	3.0	3.0	2.9	2.9
312	13	3.6	2.8	3.6	3.2	3.2	3.1	3.1	3.2	3.2	3.3	3.2	3.0	3.0	2.9	2.9	2.9
324		3.2	2.6	3.4	3.2	3.0	3.1	3.1	3.3	3.2	3.3	3.3	3.1	3.0	3.0	2.9	2.9
336	14	3.4	2.7	3.5	3.1	2.9	3.1	3.2	3.3	3.2	3.3	3.3	3.1	3.0	3.0	3.0	2.9
348		3.7	2.7	3.5	3.1	3.6	3.1	3.1	3.3	3.2	3.3	3.3	3.1	3.0	3.0	2.9	2.9
360	15	3.6	2.7	3.5	3.1	3.2	3.1	3.1	3.2	3.2	3.3	3.2	3.0	3.0	2.9	2.9	2.9
372		3.0	2.6	3.4	3.2	2.8	3.1	3.2	3.3	3.3	3.4	3.3	3.1	3.0	3.0	3.0	2.9
384	16	3.0	2.7	3.6	3.2	2.6	3.1	3.2	3.3	3.3	3.4	3.3	3.2	3.1	3.1	3.1	3.0
396		3.4	2.7	3.5	3.2	3.9	3.3	3.2	3.3	3.3	3.3	3.3	3.1	3.1	3.0	3.0	2.9
408	17	3.5	2.7	3.6	3.2	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.0	3.0	2.9	2.9	2.9
420		2.8	2.6	3.4	3.1	2.6	3.0	3.2	3.3	3.3	3.3	3.3	3.1	3.1	3.1	3.0	2.9
432	18	3.0	2.8	3.7	3.3	2.7	3.2	3.2	3.3	3.3	3.4	3.3	3.2	3.1	3.1	3.1	3.0
444		3.4	2.7	3.4	3.2	3.9	3.2	3.2	3.3	3.3	3.3	3.3	3.1	3.1	3.0	3.0	2.9
456	19	3.5	2.7	3.6	3.2	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.1	3.0	3.0	2.9	2.9
468		2.9	2.7	3.5	3.2	2.7	3.1	3.2	3.3	3.3	3.3	3.3	3.1	3.1	3.1	3.0	2.9
480	20	3.2	2.7	3.7	3.2	2.8	3.1	3.2	3.3	3.3	3.4	3.3	3.2	3.1	3.1	3.1	3.0
Average over trial period		3.5	2.7	3.5	3.2	3.3	3.2	3.1	3.2	3.2	3.2	3.2	3.1	3.1	3.0	3.0	3.0
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.2											

Details of logger data are given in Appendix 9

Table 4.58 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		4.6	3.4	3.0	3.8	3.1	3.8	3.3	3.3	3.5	3.0	3.3	3.8	3.4	3.1	3.6	3.6
24	1	4.0	3.0	2.8	3.8	3.2	2.9	3.0	2.9	3.0	2.9	2.9	3.2	3.0	2.9	3.1	3.1
36		4.3	3.1	2.9	4.2	3.2	2.9	3.0	3.0	3.0	2.9	2.9	3.3	3.0	3.0	3.2	3.1
48	2	4.2	3.1	2.7	4.1	3.2	3.3	3.0	3.0	3.0	2.9	2.9	3.2	3.0	3.0	3.1	3.1
60		4.1	3.0	2.9	4.0	3.2	3.2	2.9	2.9	2.9	2.8	2.9	3.2	2.9	2.9	3.1	3.1
72	3	3.8	3.6	3.0	4.0	3.6	2.7	3.0	2.9	3.0	2.9	2.9	3.2	3.0	2.9	3.1	3.1
84		3.5	3.0	2.8	3.9	3.5	2.7	3.0	3.0	3.0	3.0	3.0	3.2	3.0	3.0	3.1	3.1
96	4	4.6	3.4	2.6	4.0	3.6	2.8	3.0	3.0	3.0	3.0	3.0	3.2	3.0	3.0	3.1	3.1
108		4.5	2.6	2.5	3.6	3.0	3.1	2.9	2.9	3.0	2.8	3.0	3.1	2.9	2.9	3.1	3.1
120	5	3.8	3.0	3.2	4.1	3.3	2.8	2.9	2.9	2.9	2.9	3.0	3.1	2.9	3.0	3.1	3.1
132		3.8	3.1	2.9	4.1	3.7	2.6	3.0	3.0	3.0	3.0	3.0	3.1	3.0	3.0	3.1	3.1
144	6	4.2	2.3	2.3	3.7	3.1	2.5	3.0	3.0	3.0	3.0	3.1	3.2	3.0	3.0	3.2	3.1
156		4.9	3.0	3.0	3.9	3.0	3.1	2.9	2.9	2.9	2.9	3.1	3.1	2.9	2.9	3.1	3.0
168	7	4.0	3.1	3.5	3.9	3.2	3.0	2.9	2.9	2.9	2.9	3.1	3.0	2.9	2.9	3.0	3.0
180		3.1	2.5	2.6	3.6	2.9	2.2	3.0	3.0	2.9	3.0	3.2	3.1	3.0	3.0	3.1	3.1
192	8	4.1	2.5	2.5	4.0	3.1	3.8	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.2	3.1
204		4.3	2.9	3.1	4.3	2.9	3.8	2.9	3.0	2.9	3.0	3.1	3.1	3.0	2.9	3.1	3.1
216	9	2.6	2.7	3.1	3.7	2.9	2.3	3.0	3.0	2.9	3.0	3.0	3.1	3.0	3.0	3.1	3.1
228		2.0	2.6	2.7	3.5	2.7	1.6	3.2	3.1	3.0	3.2	3.1	3.2	3.1	3.1	3.2	3.1
240	10	3.6	2.8	2.1	4.1	2.7	3.3	3.2	3.2	3.1	3.3	3.2	3.3	3.2	3.2	3.3	3.2
252		4.3	3.9	3.2	4.6	3.2	3.8	3.1	3.0	3.0	3.0	3.0	3.2	3.0	2.9	3.2	3.1
264	11	2.3	2.5	2.8	4.0	3.0	2.2	3.0	2.9	2.9	3.0	2.9	3.1	3.0	2.9	3.1	3.0
276		2.1	2.7	2.9	4.0	3.2	1.9	3.2	3.0	3.0	3.1	3.1	3.2	3.1	3.1	3.2	3.1
288	12	3.7	2.6	2.5	4.2	3.0	3.4	3.2	3.1	3.1	3.2	3.1	3.3	3.2	3.1	3.3	3.2
300		4.5	2.9	3.2	4.4	3.1	3.8	3.1	3.0	3.1	3.0	3.1	3.2	3.0	3.0	3.2	3.1
312	13	3.1	2.1	2.6	3.6	2.9	2.0	3.1	3.0	3.0	3.0	3.1	3.2	3.0	3.1	3.2	3.1
324		3.1	3.2	3.4	4.0	3.2	2.1	3.2	3.1	3.1	3.2	3.2	3.2	3.1	3.1	3.2	3.2
336	14	4.2	2.6	2.9	3.8	2.9	2.4	3.2	3.1	3.1	3.1	3.2	3.3	3.1	3.1	3.3	3.2
348		4.2	3.2	3.2	3.9	3.0	3.1	3.0	3.0	3.0	2.9	3.0	3.1	2.9	2.9	3.1	3.1
360	15	3.7	2.9	2.3	3.6	2.4	2.7	3.0	3.0	2.9	2.9	3.0	3.0	2.9	2.9	3.0	3.0
372		3.7	2.7	3.0	3.8	2.9	2.6	3.0	3.0	2.9	2.9	3.0	3.0	2.9	3.0	3.0	3.0
384	16	4.8	3.5	3.2	4.5	3.1	3.9	3.1	3.1	3.0	3.0	3.0	3.1	2.9	3.0	3.1	3.0
396		4.3	3.0	2.7	3.8	2.7	3.3	3.1	3.2	3.0	3.1	3.1	3.2	3.0	3.1	3.2	3.1
408	17	3.6	2.9	3.2	3.9	3.0	2.6	3.1	3.1	3.0	3.1	3.0	3.2	3.0	3.0	3.1	3.1
420		2.8	2.2	3.4	3.5	3.2	2.2	3.2	3.1	3.1	3.3	3.1	3.3	3.2	3.1	3.2	3.1
432	18	4.3	2.7	3.2	3.9	3.0	3.5	3.3	3.2	3.2	3.3	3.2	3.3	3.2	3.2	3.3	3.2
444		5.1	2.4	3.1	3.7	2.9	3.4	3.0	3.0	3.0	3.1	3.0	3.3	3.1	3.0	3.3	3.0
456	19	3.9	3.4	3.1	4.0	3.1	3.1	3.0	2.9	2.9	3.1	2.9	3.1	3.0	3.0	3.2	3.0
468		3.1	2.9	3.6	3.7	3.4	2.8	3.1	3.0	3.0	3.2	3.0	3.2	3.1	3.1	3.3	3.1
480	20	2.9	2.8	2.7	4.0	3.1	3.3	3.2	3.1	3.1	3.3	3.1	3.3	3.2	3.2	3.3	3.1
Average over trial period		3.8	2.9	2.9	3.9	3.1	2.9	3.1	3.0	3.0	3.0	3.0	3.2	3.0	3.0	3.2	3.1
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.3											

Details of logger data are given in Appendix 9

Table 4.59 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		4.8	3.1	2.1	3.6	3.1	4.0	3.0	2.9	2.9	3.1	3.0	3.2	3.0	2.9	3.2	2.9
24	1	3.2	2.8	2.9	3.6	3.0	2.3	3.1	2.9	2.9	3.1	3.0	3.2	3.0	3.0	3.2	2.9
36		3.1	3.1	3.1	3.6	3.1	2.3	3.2	3.0	3.0	3.2	3.1	3.2	3.1	3.1	3.2	3.0
48	2	4.6	3.1	3.0	4.1	3.4	3.6	3.2	3.0	3.0	3.2	3.1	3.3	3.1	3.0	3.3	3.0
60		5.8	3.8	3.2	3.9	3.2	3.3	3.0	2.9	2.9	3.1	3.0	3.2	3.0	2.9	3.2	2.9
72	3	4.8	2.8	2.9	3.6	2.7	2.8	3.0	2.8	2.9	3.1	3.0	3.1	3.0	2.9	3.1	2.9
84		4.3	2.8	2.8	3.4	3.0	2.5	3.1	2.9	2.9	3.1	3.0	3.2	3.0	2.9	3.2	2.9
96	4	4.7	3.2	2.9	3.9	3.4	3.0	3.1	2.9	3.0	3.1	3.1	3.2	3.1	3.0	3.2	3.0
108		4.4	2.8	2.5	3.3	3.1	3.2	3.1	2.9	2.9	3.1	3.0	3.2	3.1	3.0	3.2	2.9
120	5	3.8	3.1	3.5	2.9	3.2	2.8	3.1	2.9	2.9	3.1	3.1	3.2	3.1	3.0	3.2	3.0
132		3.1	2.5	3.1	3.0	3.0	2.2	3.2	3.0	3.0	3.2	3.1	3.2	3.1	3.1	3.3	3.0
144	6	3.7	2.8	2.9	3.3	3.4	2.6	3.3	3.0	3.1	3.2	3.2	3.3	3.2	3.1	3.3	3.0
156		4.5	3.1	2.7	3.5	3.3	3.2	3.2	2.9	3.0	3.2	3.1	3.2	3.1	3.0	3.2	3.0
168	7	2.5	2.4	3.1	2.9	3.1	2.2	3.2	3.0	3.0	3.2	3.1	3.2	3.1	3.1	3.2	3.0
180		1.5	2.6	3.2	2.9	3.2	1.6	3.4	3.1	3.1	3.4	3.3	3.4	3.3	3.2	3.4	3.2
192	8	2.8	2.8	3.2	3.6	3.7	3.5	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.3	3.4	3.2
204		3.8	3.2	2.6	3.3	3.2	3.4	3.3	3.1	3.1	3.2	3.2	3.3	3.2	3.1	3.4	3.1
216	9	2.0	2.6	3.4	2.8	2.9	2.1	3.2	3.0	3.0	3.2	3.1	3.2	3.1	3.0	3.3	3.0
228		1.3	2.4	2.7	2.9	3.1	1.4	3.4	3.1	3.1	3.3	3.3	3.3	3.3	3.2	3.3	3.1
240	10	2.4	2.4	2.3	3.6	3.3	3.0	3.4	3.1	3.2	3.4	3.3	3.4	3.3	3.2	3.4	3.2
252		4.1	3.2	3.0	3.6	3.3	3.7	3.2	3.0	3.0	3.2	3.1	3.3	3.1	3.0	3.3	3.0
264	11	2.2	2.6	3.1	3.2	2.9	2.0	3.2	2.9	3.0	3.2	3.1	3.2	3.1	3.0	3.3	3.0
276		2.0	2.4	3.0	3.1	2.7	1.8	3.3	3.1	3.1	3.3	3.2	3.3	3.2	3.2	3.3	3.1
288	12	2.8	2.7	2.7	3.3	3.1	3.1	3.3	3.1	3.1	3.3	3.2	3.3	3.2	3.1	3.3	3.1
300		4.0	3.4	3.1	3.7	2.9	3.9	3.1	3.0	3.0	3.0	3.1	3.2	3.1	2.8	3.1	3.0
312	13	2.9	2.5	2.8	3.2	2.8	2.0	3.0	2.9	2.9	3.1	3.0	3.1	3.0	2.9	2.9	3.0
324		2.9	2.6	3.2	3.5	2.9	2.2	3.1	2.9	3.0	3.1	3.0	3.1	3.0	2.9	3.0	3.0
336	14	3.5	3.0	3.1	3.7	3.3	3.2	3.0	2.9	3.0	3.1	3.0	3.1	3.0	2.9	3.0	3.0
348		4.5	2.9	2.6	3.5	2.8	3.8	2.9	2.8	2.9	3.0	2.9	3.0	2.9	2.7	2.8	2.9
360	15	3.2	3.4	3.0	3.9	3.2	2.6	3.0	2.8	2.8	3.0	2.9	3.0	2.9	2.8	2.8	2.9
372		2.7	2.3	2.8	3.2	2.7	1.9	3.1	2.9	3.0	3.1	3.0	3.1	3.0	3.0	3.0	3.0
384	16	3.7	3.2	3.1	3.9	3.4	3.7	3.1	3.0	3.0	3.2	3.1	3.1	3.0	2.9	3.0	3.0
396		4.1	3.0	2.2	3.2	3.1	3.7	3.1	2.8	2.8	3.0	3.0	2.9	2.8	2.8	2.8	2.8
408	17	2.3	2.9	3.0	3.6	3.2	2.4	3.1	2.8	2.8	3.1	3.0	3.0	2.9	2.9	2.9	2.9
420		1.6	2.5	3.2	3.6	3.2	2.0	3.3	3.1	3.1	3.3	3.2	3.2	3.2	3.1	3.2	3.1
432	18	2.6	2.6	3.1	3.5	3.8	4.0	3.4	3.1	3.1	3.4	3.3	3.2	3.2	3.0	3.2	3.1
444		3.9	3.2	2.7	3.7	3.3	4.2	3.1	2.8	2.8	3.1	3.0	3.0	2.8	2.9	2.9	2.8
456	19	2.0	2.6	3.0	3.8	3.4	2.1	3.1	2.8	2.7	3.0	2.9	3.0	2.9	2.8	2.9	2.8
468		1.2	2.3	3.2	3.4	3.2	2.0	3.2	2.9	2.9	3.2	3.1	3.1	3.1	3.0	3.0	2.9
480	20	2.4	2.1	2.9	3.5	3.0	3.2	3.2	2.9	2.9	3.2	3.1	3.1	3.0	2.9	3.0	2.9
Average over trial period		3.2	2.8	2.9	3.4	3.1	2.8	3.2	2.9	3.0	3.2	3.1	3.2	3.1	3.0	3.1	3.0
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.1											

Details of logger data are given in Appendix 9

Table 4.60 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		4.2	2.4	2.7	2.8	2.8	4.6	3.1	2.9	3.0	3.1	3.2	3.1	3.0	3.1	3.0	3.1
24	1	3.3	1.9	2.3	2.8	2.4	2.8	3.1	2.9	2.9	3.1	3.1	3.1	3.0	3.1	3.0	3.1
36		3.9	3.1	2.9	3.2	3.0	3.0	3.1	3.0	3.0	3.1	3.0	3.1	3.0	3.0	3.0	3.0
48	2	4.2	2.2	2.6	2.9	2.5	3.6	3.1	3.0	3.0	3.1	3.0	3.1	3.0	3.0	3.0	3.0
60		4.8	2.8	2.1	3.5	2.3	4.6	3.0	2.9	2.9	3.0	2.9	3.0	2.8	2.9	2.9	2.9
72	3	4.0	2.1	2.3	3.3	2.3	3.4	3.0	2.9	2.8	3.0	2.9	3.0	2.9	2.9	2.9	2.9
84		3.7	2.6	2.2	3.3	2.6	3.3	3.1	2.9	2.9	3.1	2.9	3.1	3.0	3.0	3.0	2.9
96	4	3.9	2.2	2.1	3.1	2.4	3.5	3.1	3.0	3.0	3.1	3.0	3.2	3.0	3.0	3.0	3.0
108		5.3	3.2	2.4	3.4	2.6	4.2	3.0	3.2	3.0	3.3	3.3	3.0	3.2	3.2	3.0	3.0
120	5	3.8	2.8	3.0	3.4	3.1	3.3	2.9	3.2	3.0	3.2	3.2	2.9	3.2	3.2	3.1	3.2
132		3.6	2.3	2.5	2.8	2.6	2.9	2.9	3.3	3.1	3.2	3.2	2.9	3.3	3.3	3.1	3.2
144	6	3.8	2.2	2.7	2.7	2.9	3.0	3.0	3.3	3.1	3.2	3.2	2.9	3.4	3.2	3.1	3.1
156		5.4	3.0	2.5	3.4	3.1	4.6	3.0	3.2	3.0	3.3	3.2	2.8	3.3	3.1	3.0	3.1
168	7	3.3	2.2	2.7	2.8	2.7	2.9	3.1	3.1	2.9	3.3	3.3	2.9	3.3	3.2	3.0	3.1
180		2.9	2.3	3.0	3.4	3.2	2.7	3.1	3.3	3.1	3.3	3.3	2.9	3.4	3.3	3.0	3.1
192	8	3.3	1.9	2.3	2.8	2.6	3.0	3.1	3.2	3.0	3.4	3.3	2.9	3.3	3.2	3.0	3.1
204		3.0	2.0	2.6	2.9	2.7	2.6	3.0	3.2	3.0	3.4	3.3	2.9	3.3	3.2	2.9	3.0
216	9	2.5	1.9	2.6	3.1	2.8	2.5	3.0	3.3	3.1	3.4	3.3	2.9	3.3	3.3	2.9	3.0
228		2.8	2.8	3.0	3.4	3.1	3.0	3.0	3.1	3.0	3.3	3.3	3.1	3.2	3.2	2.9	3.0
240	10	2.7	3.4	2.6	3.2	3.1	2.8	3.0	2.8	2.9	3.3	3.3	3.2	3.1	3.2	3.1	3.1
252		2.8	3.6	2.9	3.9	2.9	3.0	3.0	2.9	2.9	3.3	3.0	3.2	3.1	3.2	3.1	3.1
264	11	3.1	3.9	3.1	3.8	3.1	3.7	3.0	2.9	2.9	3.2	2.9	3.2	3.1	3.1	3.1	3.1
276		3.1	3.6	2.8	3.7	3.0	2.9	3.0	2.8	2.9	3.2	2.9	3.2	3.0	3.1	3.1	3.1
288	12	3.2	3.3	2.8	3.2	2.9	2.8	3.1	2.9	3.0	3.2	3.0	3.2	3.0	3.1	3.1	3.1
300		3.4	4.4	2.6	3.3	2.8	4.0	3.1	3.0	3.1	3.2	2.9	3.2	3.0	3.0	3.1	3.0
312	13	2.9	3.5	2.6	3.1	2.8	3.4	3.0	3.0	3.0	3.2	2.8	3.1	2.8	3.0	2.9	2.9
324		2.8	3.1	2.6	3.0	2.9	2.8	3.1	3.0	3.0	3.2	2.9	3.1	2.9	3.1	3.0	2.9
336	14	3.1	3.5	2.6	3.2	3.0	3.1	3.1	3.0	3.1	3.2	2.9	3.1	2.9	3.1	3.0	3.0
348		3.1	4.2	2.6	3.9	2.7	3.5	3.1	3.0	3.1	3.2	2.9	3.1	2.9	3.0	3.0	3.0
360	15	2.7	3.8	2.3	3.5	2.7	3.3	3.0	3.0	3.0	3.1	2.8	3.0	2.8	3.0	2.9	2.8
372		2.6	2.8	2.8	3.3	2.7	3.0	3.1	3.0	3.0	3.1	2.8	3.0	2.8	3.0	2.9	2.9
384	16	2.7	3.4	2.6	3.1	2.9	3.3	3.1	3.0	3.1	3.0	2.9	3.1	2.9	3.0	3.0	3.0
396		2.1	1.5	2.9	3.0	2.9	2.4	3.2	3.0	3.0	3.0	3.0	3.1	3.0	2.9	3.1	3.0
408	17	2.1	2.0	3.1	3.0	3.1	2.2	3.4	3.1	3.2	3.1	3.1	3.2	3.1	3.0	3.2	3.1
420		2.8	3.9	2.6	3.6	3.0	5.0	3.3	3.1	3.2	3.0	3.1	3.3	3.1	3.0	3.2	3.1
432	18	2.5	3.1	2.4	2.8	2.5	3.3	3.1	3.1	3.2	2.8	2.9	3.1	3.0	3.0	2.9	3.0
444		2.6	2.3	2.8	3.3	2.9	2.6	3.1	3.1	3.2	2.9	2.9	3.1	2.9	2.9	3.0	2.9
456	19	2.3	2.6	2.6	3.0	2.6	2.6	3.2	3.0	3.1	3.0	3.0	3.1	3.0	2.9	3.1	3.0
468		2.6	3.5	2.1	3.1	2.2	3.1	3.2	3.0	3.1	3.0	3.0	3.2	3.0	2.9	3.1	3.0
480	20	2.8	4.0	2.3	3.1	2.6	3.3	3.0	3.0	3.1	3.0	2.9	3.2	3.0	2.9	3.1	3.0
Average over trial period		3.2	2.9	2.6	3.2	2.8	3.2	3.1	3.0	3.0	3.1	3.0	3.1	3.1	3.1	3.0	3.0
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.0											

Details of logger data are given in Appendix 9

Table 4.61 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		3.8	2.8	3.2	3.0	3.7	2.9	3.0	3.0	3.0	3.2	3.3	3.2	3.3	3.4	3.3	3.3
24	1	3.9	2.5	3.3	2.9	3.6	2.7	2.8	2.8	3.0	2.9	3.0	2.9	3.0	3.1	3.0	3.1
36		3.9	3.2	3.4	3.1	3.6	3.1	2.9	2.8	3.1	2.9	3.0	2.9	3.0	3.0	3.0	3.1
48	2	4.0	3.1	3.4	3.0	3.5	3.0	2.9	2.8	3.1	2.9	3.0	2.9	3.0	3.1	3.0	3.1
60		4.0	3.2	3.4	3.1	3.8	3.2	2.9	2.8	3.1	2.9	3.0	2.9	3.0	3.1	3.1	3.2
72	3	4.0	2.7	3.4	3.0	3.8	2.9	2.9	2.8	3.1	2.9	3.0	2.9	3.0	3.1	3.1	3.1
84		3.9	3.1	3.4	3.1	3.6	3.0	2.9	2.9	3.1	2.9	3.0	3.0	3.0	3.1	3.1	3.2
96	4	3.9	3.2	3.4	3.1	3.7	3.1	3.0	2.9	3.1	3.0	3.1	3.0	3.1	3.1	3.1	3.2
108		4.0	3.1	3.4	3.0	3.9	3.1	2.8	2.9	3.1	3.0	3.0	3.0	3.1	3.1	3.1	3.2
120	5	4.1	2.7	3.4	2.9	3.8	2.8	2.8	2.8	3.0	2.9	3.0	2.9	3.0	3.0	3.0	3.1
132		4.0	3.1	3.4	3.0	3.7	3.0	2.9	2.8	2.9	2.9	3.0	2.9	3.0	3.0	3.0	3.1
144	6	3.9	3.1	3.4	3.0	3.6	3.0	2.9	2.8	3.0	2.9	3.0	3.0	3.0	3.1	3.1	3.2
156		3.9	3.2	3.4	3.0	3.8	3.1	2.9	2.9	2.9	3.0	3.0	3.0	3.1	3.1	3.1	3.2
168	7	4.0	2.9	3.4	2.9	3.7	2.9	2.9	2.8	2.9	3.0	3.0	2.9	3.0	3.1	3.0	3.1
180		4.0	3.1	3.4	3.0	3.6	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1
192	8	3.8	3.1	3.4	3.1	3.4	2.9	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.2	3.1	3.2
204		3.9	3.0	3.2	2.9	4.0	2.8	3.1	3.0	3.1	3.1	3.2	3.1	3.1	3.2	3.1	3.2
216	9	3.9	2.7	3.4	2.9	3.8	2.8	3.0	3.0	3.1	3.1	3.1	3.0	3.0	3.1	3.0	3.1
228		3.8	3.1	3.3	3.1	3.4	3.0	3.2	3.1	3.3	3.2	3.2	3.1	3.1	3.2	3.2	3.2
240	10	3.7	3.1	3.2	3.2	3.2	3.0	3.3	3.3	3.4	3.3	3.4	3.2	3.2	3.3	3.3	3.3
252		3.7	3.1	3.3	3.0	4.0	3.1	3.2	3.2	3.2	3.3	3.3	3.2	3.2	3.3	3.2	3.3
264	11	3.8	2.7	3.3	2.8	3.7	2.7	3.0	3.0	3.1	3.1	3.1	3.0	2.9	3.0	3.0	3.1
276		3.7	3.0	3.2	3.0	3.2	2.8	3.1	3.0	3.2	3.1	3.1	3.0	3.0	3.0	3.0	3.1
288	12	3.5	3.1	3.0	3.0	3.2	2.9	3.2	3.2	3.3	3.2	3.2	3.2	3.1	3.2	3.2	3.2
300		3.6	2.8	3.2	2.9	3.7	2.9	3.1	3.1	3.1	3.2	3.2	3.2	3.1	3.2	3.1	3.2
312	13	3.8	2.5	3.2	2.8	3.6	2.6	2.9	2.9	3.0	3.0	3.1	2.9	2.8	2.9	2.9	3.0
324		3.7	3.1	3.3	3.0	3.4	2.9	3.0	2.9	3.1	3.0	3.0	2.9	2.9	2.9	2.9	3.0
336	14	3.6	3.0	3.3	3.0	3.2	2.8	3.1	3.1	3.2	3.1	3.2	3.1	3.0	3.1	3.1	3.1
348		3.8	3.4	3.5	3.0	3.7	3.2	3.0	3.1	3.1	3.1	3.1	3.1	3.0	3.1	3.0	3.1
360	15	3.9	2.6	3.3	2.9	3.4	2.7	2.9	3.0	3.0	3.0	3.0	3.0	2.9	3.0	2.9	3.0
372		3.9	2.9	3.3	2.9	3.5	2.7	2.9	2.9	3.0	2.9	2.9	2.9	2.8	2.9	2.9	3.0
384	16	3.8	2.8	3.2	2.8	3.3	2.7	2.9	2.9	3.0	2.9	2.9	2.9	2.8	2.9	2.9	3.0
396		4.0	3.0	3.3	2.9	3.9	2.9	2.9	3.0	3.1	3.0	3.0	2.9	2.8	2.9	2.9	3.0
408	17	4.0	2.9	3.5	3.0	3.8	2.9	3.0	3.1	3.2	3.1	3.1	2.9	2.9	2.9	2.9	3.0
420		3.9	2.9	3.3	2.9	3.5	2.9	3.0	3.0	3.1	3.0	3.0	2.9	2.9	3.0	2.9	3.0
432	18	3.8	3.2	3.4	3.1	3.3	3.0	3.2	3.3	3.4	3.3	3.3	3.2	3.2	3.2	3.1	3.2
444		3.9	3.3	3.4	3.0	3.8	3.2	3.2	3.3	3.4	3.3	3.4	3.2	3.1	3.2	3.1	3.2
456	19	4.0	2.9	3.6	2.9	3.8	3.0	3.0	3.2	3.3	3.2	3.3	2.9	2.9	3.0	2.9	3.0
468		3.9	3.0	3.4	3.0	3.4	2.9	3.1	3.2	3.4	3.2	3.3	3.0	3.0	3.0	3.0	3.1
480	20	3.8	3.3	3.4	3.1	3.4	3.1	3.1	3.3	3.4	3.3	3.3	3.1	3.1	3.2	3.1	3.2
Average over trial period		3.9	3.0	3.3	3.0	3.6	2.9	3.0	3.0	3.1	3.1	3.1	3.0	3.0	3.1	3.0	3.1
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.3											

Details of logger data are given in Appendix 9

Table 4.62 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		3.6	3.3	3.6	3.0	4.2	3.2	3.1	3.3	3.3	3.3	3.4	3.2	3.1	3.3	3.0	2.8
24	1	3.5	3.3	3.5	3.0	3.8	3.1	3.0	3.3	3.2	3.2	3.3	3.1	3.0	3.1	2.9	2.7
36		3.3	2.8	3.5	3.0	3.2	2.9	3.1	3.3	3.3	3.3	3.3	3.2	3.1	3.2	3.1	2.9
48	2	3.2	3.1	3.6	3.1	3.3	2.9	3.2	3.4	3.3	3.4	3.4	3.3	3.2	3.3	3.1	2.9
60		3.4	3.2	3.6	3.0	3.9	3.1	3.1	3.3	3.2	3.3	3.4	3.2	3.2	3.3	3.1	2.9
72	3	3.5	3.3	3.5	3.0	3.9	3.1	3.0	3.3	3.2	3.3	3.3	3.2	3.1	3.2	3.0	2.8
84		3.4	2.9	3.6	3.0	3.6	2.9	3.1	3.3	3.2	3.3	3.3	3.2	3.1	3.2	3.0	2.9
96	4	3.4	3.2	3.5	3.1	3.5	3.0	3.1	3.3	3.2	3.3	3.3	3.2	3.2	3.2	3.1	2.9
108		3.3	3.3	3.5	3.0	3.9	3.1	3.1	3.2	3.2	3.3	3.3	3.2	3.2	3.2	3.0	2.8
120	5	3.3	3.3	3.4	3.0	3.6	3.1	3.0	3.1	3.1	3.2	3.3	3.1	3.1	3.1	3.0	2.8
132		3.2	3.3	3.5	3.1	3.4	3.1	3.1	3.2	3.2	3.3	3.3	3.2	3.2	3.2	3.1	2.9
144	6	3.2	3.3	3.6	3.1	3.4	3.1	3.1	3.2	3.2	3.3	3.4	3.2	3.2	3.3	3.1	2.9
156		3.2	3.1	3.5	2.9	3.6	3.0	3.1	3.2	3.2	3.3	3.4	3.2	3.2	3.3	3.1	2.9
168	7	3.5	3.2	3.4	3.0	3.5	3.0	3.0	3.1	3.1	3.3	3.3	3.1	3.1	3.2	3.0	2.8
180		3.2	2.8	3.3	3.1	3.1	3.0	3.1	3.3	3.3	3.4	3.4	3.3	3.3	3.3	3.2	3.0
192	8	3.1	3.0	3.3	3.1	3.1	3.1	3.3	3.5	3.4	3.5	3.5	3.5	3.4	3.5	3.4	3.1
204		3.2	3.1	3.4	2.9	3.8	3.1	3.2	3.2	3.2	3.4	3.5	3.4	3.3	3.4	3.2	3.0
216	9	3.4	3.3	3.4	3.0	3.5	3.1	2.9	3.0	3.0	3.2	3.2	3.2	3.1	3.2	3.0	2.8
228		3.1	2.7	3.2	3.1	2.9	2.8	3.1	3.2	3.2	3.3	3.4	3.4	3.3	3.3	3.3	3.0
240	10	3.1	3.4	3.5	3.3	3.2	3.2	3.2	3.4	3.4	3.5	3.5	3.4	3.5	3.5	3.5	3.2
252		3.1	2.8	3.2	2.8	3.6	2.8	3.1	3.2	3.1	3.4	3.4	3.4	3.3	3.5	3.3	3.0
264	11	3.4	3.5	3.4	3.1	3.6	3.3	2.9	2.9	2.9	3.1	3.2	3.2	3.0	3.2	3.0	2.8
276		3.1	2.9	3.2	3.0	3.0	2.9	3.0	3.2	3.1	3.2	3.3	3.3	3.2	3.3	3.2	2.9
288	12	3.1	3.5	3.4	3.1	3.3	3.3	3.1	3.2	3.2	3.3	3.4	3.4	3.3	3.4	3.3	3.0
300		3.2	2.8	3.2	2.8	3.6	2.9	3.0	3.1	3.2	3.3	3.3	3.2	3.1	3.2	3.1	2.8
312	13	3.4	3.0	3.1	2.9	3.3	2.9	2.9	3.0	3.0	3.1	3.2	3.0	2.9	3.0	2.9	2.6
324		3.3	2.8	3.3	3.0	3.1	2.9	3.0	3.2	3.1	3.2	3.3	3.1	3.0	3.1	3.0	2.8
336	14	3.3	3.4	3.4	3.2	3.3	3.3	3.1	3.2	3.2	3.3	3.4	3.2	3.1	3.2	3.1	2.9
348		3.5	3.1	3.4	2.9	3.8	3.3	3.0	3.1	3.0	3.2	3.3	3.1	2.9	3.1	2.9	2.8
360	15	3.6	3.1	3.3	3.0	3.5	3.1	2.9	2.9	2.9	3.1	3.1	2.9	2.8	2.9	2.8	2.8
372		3.4	2.8	3.3	2.9	3.1	2.9	2.9	3.1	3.0	3.2	3.2	3.0	2.9	3.0	2.9	2.7
384	16	3.4	3.2	3.3	3.1	3.3	3.2	3.0	3.2	3.1	3.3	3.3	3.2	3.0	3.1	3.0	2.8
396		3.4	3.0	3.6	2.9	3.8	3.1	2.9	2.9	2.9	3.1	3.2	3.0	2.9	3.0	2.8	2.9
408	17	3.5	3.1	3.2	2.9	3.4	3.0	2.7	2.8	2.8	2.9	3.0	2.8	2.7	2.8	2.7	2.8
420		3.4	3.1	3.3	3.0	3.4	3.1	2.9	3.0	3.0	3.2	3.2	3.1	2.9	3.1	2.9	2.8
432	18	3.2	3.2	3.4	3.2	3.3	3.3	3.1	3.3	3.2	3.3	3.4	3.3	3.2	3.3	3.2	2.9
444		3.3	2.8	3.1	2.8	3.7	2.9	2.9	3.0	2.9	3.2	3.2	3.4	3.2	3.4	3.2	3.0
456	19	3.4	3.1	3.2	3.1	3.5	3.1	2.7	2.9	2.9	3.0	3.0	3.4	3.3	3.5	3.4	3.0
468		3.2	3.2	3.3	3.3	3.2	3.2	3.0	3.2	3.2	3.2	3.3	3.4	3.5	3.4	3.4	3.3
480	20	3.1	3.1	3.3	3.3	3.3	3.4	3.2	3.4	3.3	3.4	3.5	3.5	3.4	3.4	3.3	3.4
Average over trial period		3.3	3.1	3.4	3.0	3.5	3.0	3.0	3.2	3.1	3.3	3.3	3.2	3.1	3.2	3.1	2.9
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.2											

Details of logger data are given in Appendix 9

Table 4.63 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 3.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		3.7	3.4	3.5	3.2	3.8	3.3	3.0	3.1	3.0	3.3	3.3	3.4	3.4	3.4	3.3	3.1
24	1	3.7	2.7	3.2	2.9	3.5	2.8	2.7	2.8	2.8	2.9	3.0	3.2	3.3	3.4	3.2	3.0
36		3.8	3.0	3.4	3.2	3.5	3.1	2.7	2.9	2.9	3.0	3.0	3.2	3.4	3.3	3.3	3.0
48	2	3.8	3.3	3.6	3.2	3.7	3.3	2.8	3.0	2.9	3.0	3.1	3.2	3.4	3.3	3.3	3.1
60		3.9	3.1	3.3	3.1	4.1	3.2	2.8	2.9	2.9	3.0	3.0	3.3	3.4	3.3	3.3	3.0
72	3	4.0	2.7	3.3	2.9	3.8	2.8	2.7	2.8	2.8	2.9	2.9	3.3	3.3	3.3	3.4	2.9
84		3.9	2.9	3.3	3.0	3.7	3.0	2.7	2.8	2.8	2.9	3.0	3.3	3.3	3.3	3.4	3.0
96	4	3.9	3.0	3.2	3.2	3.5	3.1	2.8	2.9	2.9	3.0	3.0	3.4	3.4	3.2	3.4	3.0
108		3.8	2.8	3.1	2.9	4.0	3.0	2.8	3.0	2.9	3.0	3.1	3.3	3.3	3.2	3.4	3.0
120	5	3.8	2.5	3.2	2.7	3.7	2.7	2.8	2.8	2.8	3.0	3.2	3.2	3.0	3.3	3.3	3.0
132		3.8	2.9	3.2	3.0	3.5	3.0	2.8	2.9	2.9	2.9	3.2	3.3	3.2	3.3	3.4	2.9
144	6	3.8	3.3	3.5	3.2	3.6	3.3	2.8	3.0	2.9	2.9	3.2	3.4	3.2	3.3	3.4	2.9
156		3.7	2.7	3.1	2.8	3.7	2.9	2.8	2.9	2.8	3.0	3.1	3.4	3.2	3.3	3.4	2.9
168	7	3.8	2.5	3.3	2.8	3.8	2.7	2.8	2.8	2.8	3.0	3.0	3.3	3.0	3.3	3.3	2.9
180		3.8	3.2	3.2	3.1	3.6	3.2	2.8	2.8	2.8	2.9	3.1	3.3	3.2	3.2	3.2	2.9
192	8	3.6	2.9	3.3	3.0	3.3	3.1	2.9	2.9	2.9	2.9	3.0	3.3	3.3	3.2	3.2	3.1
204		3.6	3.2	3.6	3.2	3.9	2.9	3.1	2.9	2.9	3.1	3.1	3.2	3.3	3.2	3.1	3.0
216	9	3.6	2.7	3.5	3.3	3.3	2.6	3.1	3.0	3.0	3.3	3.2	3.2	3.1	3.2	3.1	3.0
228		3.3	2.5	3.6	3.4	2.8	2.8	3.2	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.0
240	10	3.3	2.7	3.4	3.5	2.8	2.7	3.3	3.1	3.1	3.2	3.3	3.2	3.3	3.2	3.2	3.0
252		3.3	2.7	3.6	3.2	3.7	2.8	3.2	3.1	3.2	3.2	3.3	3.2	3.3	3.2	3.2	3.0
264	11	3.4	2.8	3.5	3.2	3.3	2.7	3.1	3.1	3.2	3.1	3.2	3.3	3.2	3.3	3.1	2.9
276		3.2	2.4	3.3	3.2	2.7	2.5	3.2	3.1	3.3	3.1	3.2	3.3	3.2	3.3	3.1	3.0
288	12	3.1	2.9	3.4	3.4	2.8	2.8	3.2	3.2	3.3	3.1	3.2	3.3	3.3	3.3	3.2	3.0
300		3.3	2.3	3.4	3.1	3.4	2.5	3.2	3.2	3.3	3.1	3.3	3.3	3.3	3.3	3.1	2.9
312	13	3.4	2.7	3.5	3.2	3.3	2.6	3.1	3.2	3.2	3.2	3.3	3.2	3.2	3.2	3.1	2.9
324		3.2	2.4	3.5	3.2	2.8	2.5	3.2	3.3	3.3	3.2	3.3	3.3	3.3	3.3	3.2	3.0
336	14	3.2	2.8	3.6	3.3	2.8	2.7	3.2	3.3	3.3	3.2	3.3	3.3	3.3	3.4	3.2	3.0
348		3.5	3.0	3.8	3.3	3.3	2.9	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.4	3.2	3.0
360	15	3.6	2.7	3.5	3.2	3.2	2.6	3.1	3.2	3.2	3.3	3.3	3.2	3.2	3.3	3.1	2.9
372		3.4	2.1	3.4	3.1	2.8	2.3	3.2	3.3	3.3	3.2	3.2	3.2	3.3	3.2	3.2	3.0
384	16	3.4	2.5	3.5	3.1	2.9	2.4	3.4	3.3	3.3	3.2	3.2	3.2	3.3	3.2	3.3	3.2
396		3.7	2.8	3.7	3.2	3.7	2.8	3.3	3.2	3.3	3.2	3.2	3.2	3.3	3.2	3.2	3.1
408	17	3.7	2.9	3.7	3.3	3.4	2.8	3.2	3.1	3.1	3.2	3.2	3.3	3.2	3.3	3.1	2.9
420		3.5	2.5	3.7	3.4	2.9	2.6	3.2	3.2	3.2	3.3	3.3	3.4	3.3	3.3	3.3	3.1
432	18	3.4	3.0	3.7	3.4	3.0	2.8	3.3	3.2	3.2	3.3	3.3	3.4	3.3	3.3	3.3	3.2
444		3.5	2.8	3.7	3.3	3.5	2.8	3.3	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.2	3.2
456	19	3.6	3.0	3.7	3.3	3.5	2.8	3.0	3.0	3.1	3.2	3.3	3.3	3.1	3.3	3.1	3.1
468		3.4	2.4	3.6	3.3	2.9	2.6	3.1	3.2	3.1	3.3	3.3	3.3	3.3	3.3	3.2	3.0
480	20	3.4	2.9	3.6	3.4	3.0	2.8	3.2	3.3	3.1	3.3	3.3	3.3	3.4	3.3	3.2	3.1
Average over trial period		3.6	2.8	3.5	3.2	3.4	2.8	3.0	3.1	3.0	3.1	3.2	3.3	3.3	3.3	3.2	3.0
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.2											

Details of logger data are given in Appendix 9

Table 4.64 Calibration summary before and after 3.0 °C Most Tolerant Stage trials

Trial		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
Red Globe 3°C																	
Before	Rep 1	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	-0.1
	Rep 2	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	-0.1
	Rep 3	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	-0.1
After	Rep 1	0.0	0.1	0.1	-0.1	0.2	0.0	-0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.1	-0.1
	Rep 2	0.0	0.0	0.0	-0.1	0.1	0.0	-0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	-0.1
	Rep 3	0.0	0.1	0.0	-0.1	0.2	0.0	-0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.1	0.1	-0.1
Thompson Seedless 3°C																	
Before	Rep 1	0.0	0.1	0.0	-0.1	0.2	0.0	0.0	0.1	0.2	0.0	0.2	0.2	0.0	0.1	0.0	0.0
	Rep 2	-0.1	-0.2	0.0	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	0.1	0.0	-0.1	0.1	0.1
	Rep 3	-0.1	-0.1	0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	0.2	0.0	-0.1	0.1	0.1
After	Rep 1	-0.1	-0.2	0.1	-0.2	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	0.1	-0.1	-0.1	0.1	0.1
	Rep 2	-0.1	-0.2	0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	0.2	0.0	-0.1	0.1	0.1
	Rep 3	0.0	-0.1	0.1	-0.1	0.0	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.1	0.1
Crimson Seedless 3°C																	
Before	Rep 1	0.0	-0.1	0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.1	0.1
	Rep 2	0.0	-0.1	0.1	-0.1	0.0	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.1	0.0	-0.1	0.2	0.1
	Rep 3	0.0	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.2	0.0	-0.1	0.2	0.1
After	Rep 1	0.0	-0.1	0.1	-0.1	0.0	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.1	0.0	-0.1	0.2	0.1
	Rep 2	0.0	-0.1	0.1	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.2	0.1
	Rep 3	0.0	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.2	0.0	-0.1	0.2	0.1

Details of logger calibration data are given in Appendix 9

5. LARGE SCALE DISINFESTATION TESTS FOR MEDFLY.

5.1 PLAN OF THE TRIALS

The large-scale trials were conducted as follows:

1. All table grapes were supplied directly from the farms in export cartons and were held in cold rooms #1 and #2 and in a refrigerated container until required for the trials.
2. A life history study of Medfly was conducted at $26 \pm 1^{\circ}\text{C}$ and 60 - 65 % RH in each cultivar before each series of trials to determine the date when 2nd instar was most prevalent (>50%) as the stage to be tested.
3. The large-scale trials were conducted by infesting sufficient fruit of each cultivar with 6-hour-old eggs and incubating at $26 \pm 1^{\circ}\text{C}$ and 60 - 65 % RH to obtain >10,000 insects of 2nd instar in each replicate to be treated.
4. In each replicate, sufficient fruits were also infested for untreated controls and for dissection on day of treatment to verify numbers of live 2nd instar and other stages present at the time of the trial.
5. The treated fruit (3 replicates / treatment) was exposed to cold treatment for: 16 days at $1.0 \pm 0.5^{\circ}\text{C}$; 18 days at $2.0 \pm 0.5^{\circ}\text{C}$; and 20 days at $3.0 \pm 0.5^{\circ}\text{C}$. After the specified treatment was completed the infested fruit was removed from the cartons and incubated at $26 \pm 1^{\circ}\text{C}$ and 60 - 65% RH for 3 weeks for emergence of any survivors.
6. Untreated controls for each replicate treatment were incubated at $26 \pm 1^{\circ}\text{C}$ and 60 - 65 % RH for a further 3 weeks to obtain pupae. The number of pupae obtained from each untreated control was used to confirm the number (>10,000 / replicate) of live 2nd instar exposed to the treatment.
7. The cold exposure treatment was considered successful if no survivors were obtained after the incubation period of the treated fruit.

5.2 DETERMINATION OF LIFE HISTORY OF IMMATURE STAGES OF MEDFLY IN TEST FRUIT

Materials and Methods

The required quantities of fruit were obtained from the sources given in **Section 3.2**. The fruits were grown free of pesticides and were of excellent quality in terms of maturity and Brix values and were confirmed for comparability by infesting representative samples and recording the development of life stages using the procedures described in **Section 4.2**.

Results of the Life History Tests

The results of the life-stage development of Medfly in the test fruits are shown in **Figures 5.1-5.3**. The data are summarised below (**Table 5.1**) and were used to determine the day of treatment for 2nd instar in each variety.

To determine the number of pupae obtained per fruit, a total of 100 fruit were set aside and incubated to pupation. The total number of pupae collected was divided by 100 to give the number of pupae per fruit. This information enabled a decision to be made of the number of fruit required to be infested per replicate. This procedure was repeated before each set of trials.

Table 5.1 Development of immature stages of Mediterranean fruit fly (Medfly), *Ceratitidis capitata* Wiedemann, in 3 table grape cultivars in a constant environment room $26 \pm 1^\circ\text{C}$; 60 - 65% rh to determine dates when 50% or more are in the stage to be treated before conducting the **Large Scale** trials at $1.0 \pm 0.5^\circ\text{C}$, $2.0 \pm 0.5^\circ\text{C}$ and $3.0 \pm 0.5^\circ\text{C}$.

Table grapes Cultivar	Medfly Life Stage	DEVELOPMENTAL PERIOD IN DAYS	
		Range	50% or more in stage
Red Globe 01-10-2004 to 12-10-2004	Eggs	1 - 4	1 - 2
	1st instar larvae	2 - 7	3 - 5
	2nd instar larvae	4 - 11	6 - 8
	3rd instar larvae	6 - 12	9 - 12
Crimson Seedless 14-02-2005 to 25-02-2005	Eggs	1 - 3	1 - 2
	1st instar larvae	2 - 8	3 - 5
	2nd instar larvae	4 - 12	6 - 8
	3rd instar larvae	6 - 12	9 - 12
Thompson Seedless 15-11-2004 to 27-11-2004	Eggs	1 - 4	1 - 2
	1st instar larvae	3 - 7	3 - 5
	2nd instar larvae	4 - 12	6 - 8
	3rd instar larvae	6 - 12	9 - 12

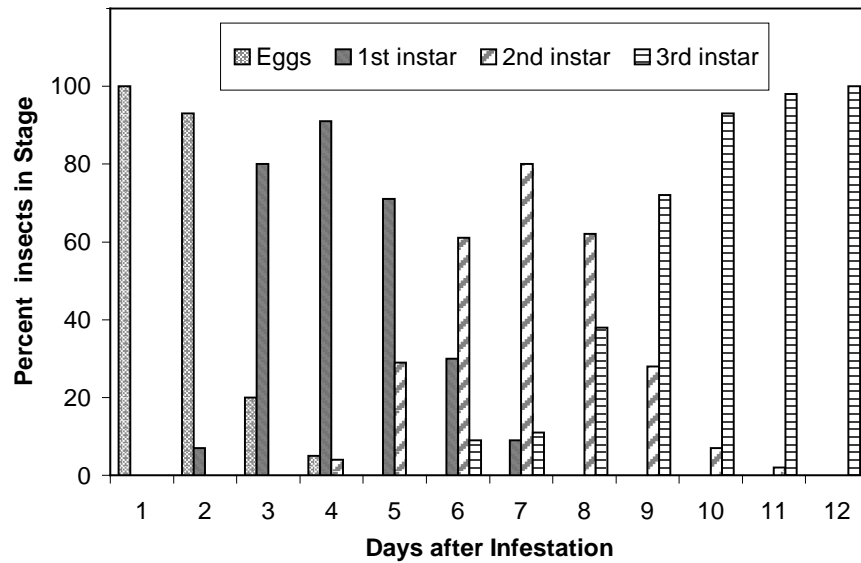


Figure 5.1 Life history of *Ceratitidis capitata* (Wiedemann) in Red Globe for the large-scale trials (1st to 12th October 2004).

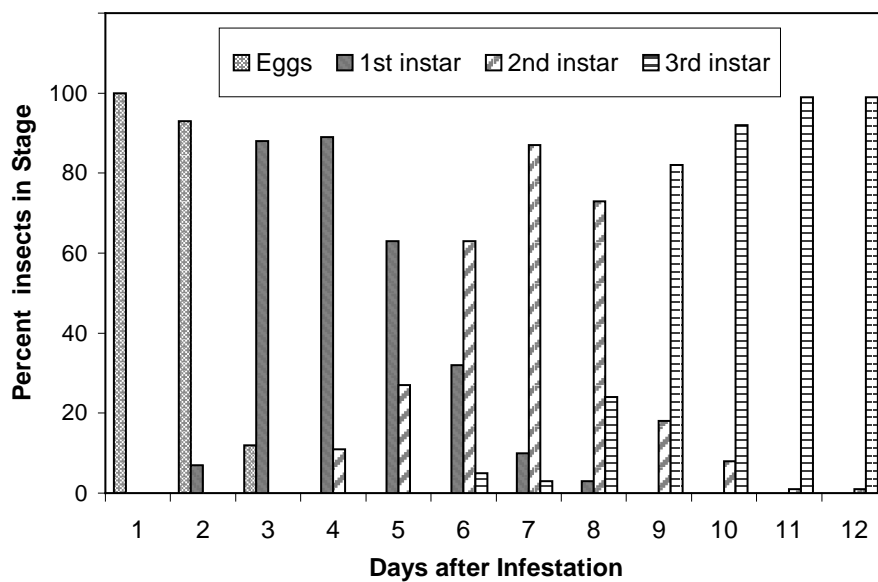


Figure 5.2 Life history of *Ceratitidis capitata* (Wiedemann) in Crimson Seedless for the large-scale trials (14th to 25th February 2005).

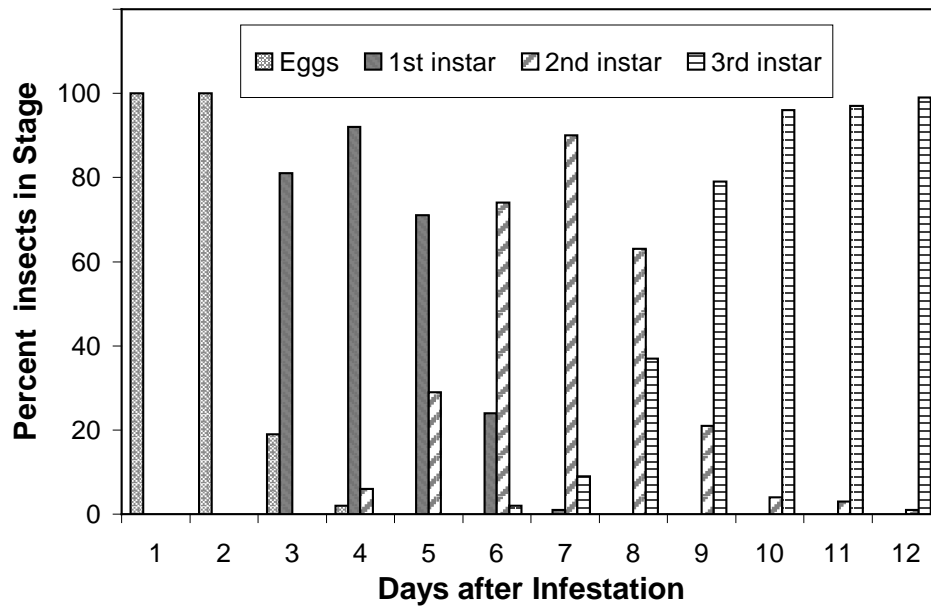


Figure 5.3 Life history of *Ceratitis capitata* (Wiedemann) in Thompson Seedless for the large-scale trials (15th to 27th November 2004).

5.3 METHODS FOR THE LARGE SCALE TRIALS OF IMMATURE LIFE-STAGES OF MEDFLY IN TABLE GRAPES AT 1, 2 and 3°C

Preparation of the test fruits for the trials

Fruit were infested as described above (section 4.2). A total 27,000 fruits were infested for each cultivar and treatment exposure periods for each trial at 1°C, 2°C and 3°C. The infested fruits were incubated in a controlled environment room at $26 \pm 1.0^\circ\text{C}$; 60 - 65% RH to obtain development of 2nd instar larvae. Extra fruit were infested for dissection to determine the numbers present in each life stage on the day of treatment. The details are described below.

Treatment / Variety	Number treated fruit / replicate	Number control fruit / replicate	Total treated fruit in 3 replicates	Total control fruit in 3 replicates	Total infested fruit in 3 replicates
1.0 ± 0.5°C					
<i>Red Globe</i>	2,000	1,000	6,000	3,000	9,000
<i>Crimson Seedless</i>	2,000	1,000	6,000	3,000	9,000
<i>Thompson Seedless</i>	2,000	1,000	6,000	3,000	9,000
TOTALS	6,000	3,000	18,000	9,000	27,000
2.0 ± 0.5°C					
<i>Red Globe</i>	2,000	1,000	6,000	3,000	9,000
<i>Crimson Seedless</i>	2,000	1,000	6,000	3,000	9,000
<i>Thompson Seedless</i>	2,000	1,000	6,000	3,000	9,000
TOTALS	6,000	3,000	18,000	9,000	27,000
3.0 ± 0.5°C					
<i>Red Globe</i>	2,000	1,000	6,000	3,000	9,000
<i>Crimson Seedless</i>	2,000	1,000	6,000	3,000	9,000
<i>Thompson Seedless</i>	2,000	1,000	6,000	3,000	9,000
TOTALS	6,000	3,000	18,000	9,000	27,000
TOTAL FOR 3 TEMPERATURES	18,000	9,000	54,000	27,000	81,000

The trials required large quantities of infested fruit and these were placed in wire cages in single layers supported by mesh to promote uniform exposure to the development conditions. The fruit infested for treatment and controls were held in wire cages over sand in a controlled environment room at $26 \pm 1.0^{\circ}\text{C}$; 60 - 65% RH and covered with custom-made Terylene voile covers.

The infested fruits in each treatment replicate were incubated to 2nd instar stage for testing. Selection of fruits for treatment and control was done at random. On the day of treatment the specified number of fruit for each stage for treatment and control were separated. The control fruits were placed in wire cages for development to pupation. Extra fruits were taken from each replicate trial for dissection to estimate the numbers and life stage treated.

The specified number (see above) of infested fruits for cold treatment were taken and placed in the export cartons containing uninfested filler fruit and packed following standard export practice. The cartons were then stacked in the cold rooms in the standard arrangement for continuous air-cooling to begin the disinfestation trial. Cartons were labelled to ensure recovery of infested fruits after treatment (**Appendix 6**).

Record of temperatures during the trials

Temperatures were recorded on a “Squirrel” (Grant Instruments, Cambridge, England) data logger with an accuracy of $\pm 0.05^{\circ}\text{C}$. A total of 16 thermistor probes were used, 6 to record air temperatures at various positions in the cold room, including the inlet and outlet air temperatures of the cooler. The fruit pulp temperatures were recorded by placing the probes in the core of uninfested fruit in 10 locations throughout the stack in each cold room so as to give representative data for the whole trial (**Figures 5.14 and 5.15**). Temperature recordings were automatically logged at 60-minute intervals throughout the trial.

Trial arrangement

Each of the 3 replicated trials was set-up in a separate cold room, each measuring approximately 34 m³ (Cold Rooms #3, #4, #5). Each replicate trial consisted of 448 cartons each containing approximately 10 kg of fruit. The layout of the trials is shown in (**Appendix 6**). There were 8 pallets in each replicate cold room. Each pallet carried 56 cartons arranged as 8 cartons per layer and 7 layers high to bring the treated volume to 39.53%. Thus there were 4,480 kg fruit in each replicate cold trial. 2000 fruits infested with 2nd instar larvae were placed in 80 selected cartons (25 infested fruits / carton) throughout the stacks in the cold room, per replicate trial, to obtain a representative treatment.

Test fruit were exposed to cold treatment for the following specified periods:

- 16 days at $1.0 \pm 0.5^{\circ}\text{C}$
- 18 days at $2.0 \pm 0.5^{\circ}\text{C}$
- 20 days at $3.0 \pm 0.5^{\circ}\text{C}$

After exposure to the cold treatment, the infested fruits were removed from the cartons and taken to the controlled environment room and placed in containers over sand to collect pupae.

(1) Quantity and distribution of test fruits used for each cultivar / temperature for each replicate trial:

No. of treated fruit / replicate / stage =	2,000
No. of control fruit / replicate / stage =	1,000
No. of life stages =	1 (2 nd instar) 6-7 days after egg infestation
No. of export cartons / replicate =	448
No infested fruits / carton =	25
No. of cartons containing infested fruits =	80

(2) Loading of export cartons in cold rooms for each trial:

Number of cartons / layer =	8
Number of layers / pallet =	7
Numbers of pallets / cold room	8
8 cartons / layer x 7 layers / pallet =	56 cartons / pallet
8 pallets / cold room replicate =	8 x 56 = 448 cartons / cold room
Total for 3 replicate cold rooms =	3 x 448 = 1,344 cartons
Wt. fruit / carton =	10 kg
Total weight of fruit / replicate	10 x 448 = 4,480 kg
Total weight of fruit in 3 replicate trials =	4,480 x 3 = 13,440 kg

(3) Data on load factors in cold room for each trial:

No. of export cartons / replicate =	448 cartons
10 kg / carton x 448 cartons =	4,480 kg
Volume of carton =	475 x 300 x 175 mm = 30 litres
Total volume of 448 cartons =	448 x 30 / 1000 = 13.44 m ³
Volume of cold room =	34 m ³
Load factor (weight) =	4,480 / 34 = 131.8 kg / m ³
Load factor % (volume) =	(13.44 m ³ / 34) x 100 = 39.53 %

(4) Summary data of quantity of table grapes used in all trials

Total weight of fruit / trial for each cultivar at each temperature =	4,480 kg x 3 = 13.44 tonnes
Total weight of fruit / trial for each cultivar at 3 temperatures =	13.44 tonnes x 3 = 40.32 tonnes
Total weight of fruit tested for 3 cultivars =	40.32 x 3 = 120.96 tonnes.

5.4 RESULTS OF THE LARGE SCALE COLD TREATMENT TRIALS OF MEDFLY IN TABLE GRAPES AT $1.0 \pm 0.5^{\circ}\text{C}$.

The $1.0 \pm 0.5^{\circ}\text{C}$ trials were conducted from October 2004 to May 2005. The dates are given in **Table 5.2**.

Table 5.2 Summary of the dates and times of the conduct of the Large Scale trials at $1.0 \pm 0.5^{\circ}\text{C}$ in Table grapes. The exposure period of 16 days begins after temperature probes in the fruit have reached the treatment temperature.

Table grapes Variety	Rep.	Start date / time of Trial	Date/ Time to reach $1.0 \pm 0.5^{\circ}\text{C}$	Hours to cool down	End date / time of Trial	Cold Room No.	Logger Serial No.	Calibration: Before trial Date / time	Calibration After trial Date / time
<i>Red Globe</i>		15.10.2004	16 / 17 .10.2004		01 / 02 .11.2004			14.10.2004	3.11.2004
	1	07:15 am	16.10.2004 23:15 pm	40	01.11.2004 23:15 pm	# 3	1256 - 00019	10:08 am	09:36 am
	2	07:43 am	17.10.2004 01:43 am	42	02.11.2004 01:43 am	# 4	1256 - 00107	10:30 am	10:27 am
	3	08:32 am	17.10.2004 06:32 am	47	02.11.2004 06:32 am	# 5	1206 - 00042	10:45 am	10:48 am
<i>Crimson Seedless</i>		08.03.2005	09.03.2005		25.03.2005			07.03.2005	27.03.2005
	1	07:10 am	19:10 pm	36	19:10 pm	# 3	1256 - 00019	09:10 am	08:11 am
	2	07:34 am	22:34 pm	39	22:34 pm	# 4	1256 - 00107	09:25 am	08:43 am
	3	08:11 am	18:11 pm	34	18:11 pm	# 5	1206 - 00042	09:47 am	09:12 am
<i>Thompson Seedless</i>		27.12.2004	28.12.2004		13.01.2005			26.12.2004	15.01.2005
	1	07:12 am	23:12 pm	39	23:12 pm	# 3	1256 - 00019	09:28 am	09:12 am
	2	07:39 am	22:39 pm	40	22:39 pm	# 4	1256 - 00107	09:48 am	09:31 am
	3	08:14 am	08:14 am	24	08:14 am	# 5	1206 - 00042	10:27 am	09:52 am

The large amount of fruit to be infested made it necessary to spread the work over 2 days (1,500 fruit/day, total 3,000 fruit/replicate). Thus treated fruit were of day 6 and day 7 after infestation when $>50\%$ 2nd instar live larvae were present, however these fruits also had a proportion of live 1st instar larvae. Data on live numbers of both stages present in each replicate before the treatment were obtained by dissecting the extra fruit infested at the same time.

5.4.1 Medfly data for cold treatment of Red Globe table grapes.

The results (tables 5.3 & 5.4) show that, from the dissection data an estimated 53,184 1st instar and 114,140 2nd instar (**total 167,324**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **83,320** Medfly were exposed to cold treatment. There were no survivors after 16 days cold exposure to $1.0 \pm 0.5^{\circ}\text{C}$ in Red Globe table grapes and the treatment is suitable for disinfestation.

Table 5.3: Red Globe table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $1.0 \pm 0.5^{\circ}\text{C}$ for 16 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 1.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	10,850	9,940	10,640	31,430
		2 nd instar	17,050	15,620	15,620	48,290
day 7	3,000	1 st instar	8,210	6,272	7,272	21,754
		2 nd instar	23,250	21,300	21,300	65,850
Total	6,000		59,360	53,132	54,832	167,324

Table 5.4: Red Globe table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $1.0 \pm 0.5^{\circ}\text{C}$ for 16 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	16462		32924	0
2	12762		25524	0
3	12436		24872	0
Total	41,660		83,320	0

5.4.2 Medfly data for cold treatment of Crimson Seedless table grapes.

The results (tables 5.5 & 5.6) show that, from the dissection data an estimated 38,378 1st instar and 100,651 2nd instar (**total 139,029**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **81,006** Medfly were exposed to cold treatment. There were no survivors after 16 days cold exposure to $1.0 \pm 0.5^{\circ}\text{C}$ in Crimson Seedless table grapes and the treatment is suitable for disinfestation.

Table 5.5: Crimson Seedless table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $1.0 \pm 0.5^{\circ}\text{C}$ for 16 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 1.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	9,867	9,360	9,013	28,240
		2 nd instar	14,927	14,160	13,635	42,722
day 7	3,000	1 st instar	3,542	3,360	3,236	10,138
		2 nd instar	20,240	19,200	18,489	57,929
Total	6,000		48,576	46,080	44,373	139,029

Table 5.6: Crimson Seedless table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $1.0 \pm 0.5^{\circ}\text{C}$ for 16 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	12,932		25,864	0
2	13,791		27,582	0
3	13,780		27,560	0
Total	40,503		81,006	0

5.4.3 Medfly data for cold treatment of Thompson Seedless table grapes.

The results (tables 5.7 & 5.8) show that, from the dissection data an estimated 44,835 1st instar and 97,297 2nd instar (**total 142,133**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **84,560** Medfly were exposed to cold treatment. There were no survivors after 16 days cold exposure to $1.0 \pm 0.5^{\circ}\text{C}$ in Thompson Seedless table grapes and the treatment is suitable for disinfestation.

Table 5.7: Thompson Seedless table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $1.0 \pm 0.5^{\circ}\text{C}$ for 16 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 1.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	9,484	9,916	10,347	29,747
		2 nd instar	17,102	18,027	14,098	49,226
day 7	3,000	1 st instar	1,293	7,760	6,036	15,089
		2 nd instar	15,947	14,791	17,333	48,071
Total	6,000		43,826	50,493	47,813	142,133

Table 5.8: Thompson Seedless table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $1.0 \pm 0.5^{\circ}\text{C}$ for 16 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	14,524		29,048	0
2	14,732		29,464	0
3	13,024		26,048	0
Total	42,280		84,560	0

5.4.4 Summary of cold treatment data for the large scale trials at $1.0 \pm 0.5^{\circ}\text{C}$.

The records of the temperatures from the cold treatment trials for each replicate treatment are summarised in the Tables in the following pages. The data shows that the required temperatures of $1.0 \pm 0.5^{\circ}\text{C}$ was maintained throughout the trials. The data loggers were calibrated before and after each trial and the summary tables for calibration are also given. These show that the records of temperatures were accurate throughout the trials.

The summary tables for each cultivar are as follows:

- (1) **Red Globe:** Tables 5.9 to 5.11
- (2) **Thompson Seedless:** Tables 5.12 to 5.14
- (3) **Crimson Seedless:** Tables 5.15 to 5.17
- (4) Calibration of loggers before and after each trial: Table 5.18

The complete details of the raw data are given in **Appendix 10**.

Table 5.9 Large Scale trials at 1°C for 16 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.4	0.6	0.6	0.7	0.6	0.5	1.3	1.3	1.2	1.2	1.2	1.4	1.2	1.3	1.2	1.3
24	1	0.1	0.0	0.0	0.4	0.4	0.4	1.2	1.3	1.2	1.3	1.1	1.4	1.2	1.3	1.2	1.3
36		0.3	0.8	0.5	0.9	0.7	0.9	1.2	1.3	1.1	1.2	1.1	1.3	1.2	1.2	1.2	1.2
48	2	0.3	0.6	0.4	0.4	0.2	0.4	1.2	1.3	1.1	1.3	1.1	1.3	1.2	1.3	1.1	1.3
60		0.6	0.8	0.6	0.8	0.5	0.8	1.3	1.3	1.1	1.3	1.1	1.3	1.3	1.2	1.2	1.3
72	3	0.5	0.5	0.4	0.6	0.2	0.5	1.3	1.3	1.2	1.3	1.1	1.4	1.2	1.3	1.2	1.2
84		0.5	0.8	0.6	1.0	0.4	0.6	1.3	1.3	1.2	1.4	1.1	1.3	1.2	1.3	1.2	1.3
96	4	0.2	0.1	0.4	0.8	0.4	0.5	1.3	1.2	1.1	1.3	1.2	1.4	1.2	1.3	1.2	1.2
108		0.2	0.8	0.4	0.7	0.6	0.6	1.3	1.3	1.2	1.3	1.2	1.3	1.2	1.2	1.1	1.2
120	5	0.3	0.3	0.5	0.7	0.5	0.7	1.2	1.3	1.2	1.3	1.2	1.3	1.2	1.4	1.2	1.2
132		0.3	0.5	0.2	0.4	0.5	0.6	1.2	1.4	1.2	1.2	1.1	1.3	1.1	1.4	1.2	1.3
144	6	0.4	0.4	0.4	0.7	0.6	0.7	1.2	1.3	1.1	1.3	1.2	1.3	1.2	1.3	1.2	1.3
156		0.3	0.5	0.3	0.6	0.2	0.5	1.2	1.3	1.2	1.2	1.2	1.4	1.2	1.3	1.2	1.3
168	7	0.2	0.1	0.1	0.4	0.3	0.4	1.2	1.4	1.1	1.3	1.1	1.4	1.2	1.3	1.1	1.2
180		0.1	0.4	-0.2	0.3	0.1	0.3	1.3	1.3	1.1	1.3	1.1	1.4	1.2	1.3	1.2	1.2
192	8	0.0	0.2	0.0	0.4	0.2	0.3	1.2	1.3	1.1	1.3	1.1	1.4	1.2	1.3	1.2	1.3
204		0.1	0.5	0.0	0.5	0.5	0.4	1.3	1.3	1.2	1.3	1.2	1.4	1.2	1.3	1.2	1.2
216	9	0.1	0.7	0.5	0.7	0.3	0.6	1.2	1.3	1.2	1.2	1.3	1.4	1.2	1.4	1.2	1.3
228		0.1	1.0	0.5	0.5	0.1	0.5	1.2	1.4	1.2	1.3	1.1	1.4	1.2	1.2	1.2	1.2
240	10	0.1	0.2	0.2	0.5	0.2	0.6	1.3	1.3	1.2	1.3	1.1	1.3	1.1	1.3	1.1	1.3
252		0.3	0.9	0.7	0.9	0.2	0.7	1.2	1.3	1.1	1.2	1.1	1.4	1.2	1.3	1.2	1.3
264	11	0.5	0.7	0.5	0.6	0.3	0.5	1.3	1.3	1.2	1.3	1.1	1.4	1.1	1.3	1.2	1.2
276		0.3	0.2	0.0	0.0	-0.2	0.2	1.2	1.3	1.2	1.3	1.2	1.4	1.2	1.3	1.1	1.2
288	12	0.4	0.5	0.6	0.7	0.1	0.5	1.2	1.4	1.2	1.2	1.1	1.4	1.2	1.3	1.2	1.2
300		0.5	0.5	0.6	0.7	0.1	0.4	1.3	1.3	1.2	1.3	1.1	1.4	1.2	1.3	1.2	1.2
312	13	0.3	0.1	0.8	0.5	0.3	0.7	1.3	1.3	1.1	1.2	1.2	1.4	1.2	1.3	1.2	1.3
324		0.3	0.6	0.5	0.1	0.1	0.4	1.2	1.4	1.2	1.3	1.1	1.4	1.1	1.3	1.2	1.3
336	14	0.0	0.2	0.3	0.1	0.2	0.4	1.2	1.4	1.1	1.2	1.3	1.3	1.2	1.3	1.2	1.3
348		0.2	0.3	0.6	0.5	0.3	0.5	1.2	1.3	1.2	1.2	1.1	1.4	1.2	1.4	1.2	1.3
360	15	0.2	0.2	0.4	0.1	0.1	0.4	1.3	1.3	1.2	1.2	1.2	1.4	1.2	1.3	1.2	1.2
372		0.5	0.8	0.9	0.6	0.4	0.7	1.2	1.2	1.1	1.2	1.2	1.3	1.2	1.3	1.1	1.3
384	16	0.3	0.7	1.0	0.9	0.4	0.8	1.2	1.3	1.1	1.3	1.1	1.4	1.3	1.3	1.2	1.2
Average over trial period		0.3	0.5	0.4	0.5	0.3	0.5	1.2	1.3	1.2	1.3	1.2	1.4	1.2	1.3	1.2	1.3
Average of Fruit temperatures						1.2											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 10

Table 5.10 Large Scale trials at 1°C for 16 days 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.1	-0.3	0.0	0.0	0.1	0.0	1.2	1.2	1.3	1.3	1.2	1.1	1.1	1.2	1.2	1.4
24	1	0.2	0.7	0.8	1.1	0.5	0.6	1.2	1.3	1.2	1.3	1.2	1.1	1.1	1.1	1.2	1.3
36		0.2	0.5	0.4	0.4	0.2	0.1	1.3	1.1	1.1	1.3	1.2	1.2	1.2	1.2	1.4	1.3
48	2	0.1	0.1	-0.1	0.3	0.0	0.2	1.2	1.2	1.1	1.3	1.3	1.2	1.2	1.3	1.4	1.3
60		0.2	-0.1	0.3	0.7	0.2	0.2	1.2	1.2	1.1	1.3	1.3	1.1	1.3	1.3	1.4	1.4
72	3	0.3	0.8	1.0	0.7	0.4	0.5	1.1	1.3	1.2	1.3	1.3	1.1	1.2	1.3	1.4	1.3
84		0.3	1.1	0.3	0.9	0.3	0.1	1.2	1.2	1.2	1.4	1.2	1.2	1.2	1.3	1.4	1.4
96	4	0.0	0.0	0.1	0.1	0.4	0.2	1.3	1.3	1.1	1.3	1.3	1.1	1.2	1.3	1.4	1.4
108		0.2	1.0	0.8	1.1	0.3	0.6	1.2	1.2	1.1	1.3	1.3	1.2	1.3	1.3	1.3	1.3
120	5	0.4	0.9	0.3	0.4	0.4	0.8	1.2	1.3	1.2	1.3	1.4	1.2	1.1	1.3	1.3	1.3
132		0.4	0.4	0.5	0.5	0.4	0.2	1.2	1.3	1.2	1.3	1.3	1.2	1.2	1.4	1.3	1.4
144	6	0.4	0.6	0.5	0.5	0.2	0.4	1.2	1.2	1.1	1.2	1.3	1.1	1.3	1.3	1.3	1.4
156		0.5	0.9	1.1	1.1	0.4	0.8	1.2	1.2	1.2	1.3	1.3	1.1	1.2	1.3	1.3	1.3
168	7	0.3	0.7	1.0	0.8	0.4	0.3	1.2	1.2	1.2	1.3	1.3	1.1	1.2	1.4	1.4	1.4
180		0.1	0.8	0.6	0.6	0.3	0.4	1.1	1.2	1.1	1.3	1.2	1.2	1.1	1.3	1.3	1.4
192	8	0.1	1.0	0.9	1.1	0.5	0.5	1.1	1.3	1.2	1.3	1.2	1.1	1.2	1.3	1.3	1.4
204		0.2	0.6	1.1	0.5	0.3	0.3	1.2	1.3	1.1	1.4	1.3	1.2	1.2	1.4	1.4	1.4
216	9	0.2	0.9	0.9	0.9	0.5	0.4	1.2	1.3	1.2	1.3	1.3	1.1	1.2	1.3	1.4	1.3
228		0.1	0.4	0.7	0.2	0.4	0.1	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.3	1.4	1.3
240	10	0.0	0.6	0.7	0.6	0.2	0.1	1.2	1.2	1.1	1.3	1.3	1.1	1.2	1.3	1.4	1.3
252		0.1	0.9	1.0	0.6	0.5	0.4	1.2	1.3	1.1	1.2	1.3	1.1	1.2	1.3	1.3	1.4
264	11	-0.1	0.2	0.3	0.4	0.2	0.3	1.2	1.3	1.1	1.2	1.2	1.1	1.2	1.3	1.4	1.3
276		0.0	0.8	0.3	0.6	0.4	0.3	1.2	1.2	1.1	1.4	1.3	1.2	1.2	1.3	1.3	1.4
288	12	-0.2	0.3	0.4	0.5	0.2	0.4	1.2	1.2	1.1	1.3	1.4	1.2	1.2	1.4	1.4	1.4
300		-0.1	0.0	0.3	0.8	0.2	0.3	1.2	1.3	1.2	1.4	1.3	1.1	1.2	1.3	1.4	1.4
312	13	-0.1	0.3	0.1	0.4	0.2	0.2	1.2	1.3	1.1	1.3	1.3	1.1	1.2	1.3	1.3	1.3
324		0.0	0.4	0.3	0.4	0.6	0.3	1.2	1.2	1.1	1.4	1.3	1.1	1.2	1.3	1.3	1.3
336	14	-0.2	-0.2	0.1	0.3	0.2	0.4	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.4	1.4	1.3
348		0.0	0.0	0.7	0.6	0.4	0.4	1.1	1.2	1.2	1.3	1.3	1.1	1.1	1.3	1.4	1.4
360	15	0.0	0.4	0.8	0.6	1.0	0.8	1.2	1.2	1.1	1.3	1.2	1.2	1.2	1.2	1.4	1.4
372		-0.1	0.2	0.3	0.6	0.5	0.2	1.2	1.1	1.2	1.3	1.3	1.1	1.2	1.3	1.4	1.4
384	16	-0.2	0.1	0.6	0.4	0.5	0.3	1.2	1.3	1.1	1.3	1.3	1.2	1.2	1.3	1.3	1.4
Average over trial period		0.1	0.5	0.5	0.6	0.4	0.4	1.2	1.2	1.1	1.3	1.3	1.2	1.2	1.3	1.3	1.4
Average of Fruit temperatures						1.2											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 10

Table 5.11 Large Scale trials at 1°C for 16 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.2	1.0	0.7	0.7	0.5	0.7	1.3	1.2	1.4	1.3	1.4	1.3	1.2	1.3	1.2	1.2
24	1	0.3	1.0	1.1	0.8	0.5	0.8	1.2	1.2	1.3	1.2	1.4	1.3	1.3	1.2	1.2	1.2
36		0.0	0.6	0.1	0.6	0.2	0.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.3
48	2	0.4	1.0	0.3	0.6	0.7	0.3	1.2	1.2	1.3	1.3	1.4	1.3	1.2	1.3	1.1	1.2
60		0.6	0.9	0.5	0.7	0.5	0.3	1.3	1.2	1.4	1.3	1.4	1.4	1.2	1.3	1.2	1.2
72	3	0.0	0.2	-0.1	0.2	0.1	0.2	1.3	1.2	1.3	1.2	1.3	1.3	1.2	1.2	1.2	1.3
84		0.4	0.9	0.5	0.4	0.6	0.6	1.1	1.2	1.3	1.2	1.4	1.3	1.3	1.2	1.2	1.2
96	4	0.5	1.0	0.8	0.8	0.7	0.9	1.2	1.3	1.3	1.2	1.4	1.3	1.2	1.1	1.2	1.2
108		0.3	0.6	0.4	0.7	0.6	0.5	1.2	1.2	1.4	1.3	1.4	1.2	1.3	1.2	1.2	1.3
120	5	0.1	0.8	0.3	0.4	0.7	0.7	1.2	1.2	1.3	1.3	1.4	1.2	1.3	1.3	1.2	1.2
132		-0.2	0.4	0.4	0.1	0.5	0.4	1.2	1.2	1.3	1.3	1.4	1.3	1.3	1.3	1.2	1.2
144	6	-0.1	0.8	0.6	0.7	0.5	0.5	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3
156		0.3	0.7	1.1	0.7	0.3	0.4	1.2	1.2	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.3
168	7	0.3	1.1	0.5	0.8	0.4	0.7	1.2	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.1
180		-0.3	0.2	0.6	0.5	0.4	0.4	1.2	1.3	1.4	1.3	1.4	1.3	1.2	1.2	1.2	1.2
192	8	-0.2	0.5	0.5	0.5	0.1	0.6	1.2	1.2	1.3	1.2	1.4	1.4	1.2	1.2	1.2	1.2
204		-0.2	0.8	0.0	0.6	-0.1	0.4	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.3
216	9	-0.1	0.2	0.6	1.1	0.3	0.8	1.2	1.1	1.3	1.2	1.3	1.3	1.2	1.2	1.1	1.2
228		0.0	0.8	0.7	0.6	0.4	0.8	1.2	1.2	1.4	1.2	1.3	1.3	1.2	1.2	1.2	1.2
240	10	0.0	0.3	0.7	0.3	0.3	0.7	1.2	1.2	1.3	1.2	1.4	1.2	1.2	1.2	1.1	1.2
252		0.3	0.7	0.4	0.6	0.4	0.6	1.2	1.2	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.2
264	11	0.4	0.7	0.2	0.5	0.4	0.4	1.2	1.2	1.2	1.3	1.3	1.3	1.2	1.2	1.2	1.3
276		0.1	-0.1	0.3	0.1	-0.2	0.3	1.2	1.1	1.2	1.2	1.4	1.3	1.2	1.2	1.2	1.3
288	12	0.3	0.7	1.1	0.7	0.3	0.7	1.2	1.2	1.3	1.3	1.3	1.2	1.3	1.2	1.2	1.3
300		0.3	0.2	0.3	0.1	0.3	0.3	1.2	1.2	1.3	1.3	1.4	1.3	1.3	1.2	1.2	1.3
312	13	0.5	0.3	0.3	0.4	0.2	0.4	1.2	1.2	1.3	1.3	1.4	1.3	1.2	1.2	1.2	1.2
324		0.3	0.3	0.6	0.3	0.2	0.6	1.2	1.2	1.3	1.3	1.5	1.3	1.2	1.2	1.2	1.2
336	14	0.3	0.7	0.7	0.6	0.3	0.7	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.2	1.2	1.2
348		0.0	0.6	0.6	0.5	0.2	0.4	1.2	1.2	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2
360	15	0.1	0.3	0.2	0.0	0.3	0.7	1.2	1.2	1.3	1.3	1.4	1.3	1.3	1.2	1.3	1.2
372		0.1	0.2	0.3	-0.2	0.1	0.2	1.2	1.2	1.3	1.2	1.3	1.3	1.3	1.1	1.2	1.3
384	16	0.2	0.5	1.0	0.7	0.2	0.3	1.2	1.1	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2
Average over trial period		0.2	0.6	0.5	0.5	0.4	0.5	1.2	1.2	1.3	1.3	1.4	1.3	1.2	1.2	1.2	1.2
Average of Fruit temperatures						1.2											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 10

Table 5.12 Large Scale trials at 1°C for 16 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.1	0.8	0.9	1.0	0.5	0.8	1.2	1.2	1.1	1.3	1.2	1.2	1.0	1.1	0.9	1.0
24	1	0.1	0.3	0.4	0.1	0.3	0.4	1.1	1.3	1.1	1.3	1.2	1.2	0.9	1.1	0.9	0.9
36		0.1	0.2	0.0	0.1	0.3	0.3	1.2	1.3	1.1	1.3	1.2	1.1	1.0	1.0	0.9	1.0
48	2	0.4	1.0	1.0	1.3	0.6	0.9	1.2	1.3	1.2	1.3	1.2	1.1	1.0	1.0	0.9	1.0
60		0.0	0.2	0.3	0.3	0.2	0.4	1.2	1.2	1.2	1.3	1.2	1.1	0.9	1.1	0.9	1.0
72	3	0.2	0.7	0.4	0.4	0.5	0.5	1.1	1.2	1.2	1.3	1.2	1.1	0.9	1.1	0.9	0.9
84		0.1	0.3	0.2	0.3	0.4	0.5	1.1	1.2	1.2	1.3	1.2	1.1	0.9	1.1	1.0	0.9
96	4	0.2	0.5	0.7	0.7	0.5	0.5	1.1	1.2	1.2	1.3	1.2	1.1	1.0	1.0	0.9	1.1
108		0.1	0.5	0.6	0.8	0.5	0.7	1.2	1.3	1.1	1.3	1.2	1.1	0.9	1.1	0.9	0.9
120	5	-0.1	0.2	0.0	0.1	0.1	0.4	1.2	1.2	1.1	1.3	1.3	1.1	0.9	1.1	0.9	1.0
132		0.0	0.6	0.3	0.2	0.3	0.3	1.2	1.3	1.1	1.3	1.2	1.1	0.9	1.0	0.9	1.0
144	6	-0.1	0.3	0.2	0.5	0.1	0.1	1.2	1.2	1.2	1.4	1.2	1.1	0.9	1.1	0.9	0.9
156		0.3	0.7	0.5	0.7	0.2	0.4	1.2	1.3	1.1	1.3	1.2	1.1	1.0	1.0	0.9	0.9
168	7	0.5	0.7	0.4	0.5	0.3	0.5	1.2	1.2	1.2	1.3	1.2	1.1	0.9	1.0	0.9	1.0
180		0.4	0.9	0.3	0.8	0.4	0.6	1.2	1.3	1.1	1.3	1.2	1.1	0.9	1.0	0.9	1.0
192	8	0.4	0.8	0.7	0.7	0.3	0.4	1.1	1.2	1.2	1.3	1.2	1.1	0.9	1.0	0.8	1.0
204		0.1	0.5	0.2	0.4	0.0	0.4	1.1	1.2	1.2	1.3	1.2	1.1	0.9	1.0	0.9	1.0
216	9	0.3	0.6	0.5	0.1	0.1	0.3	1.1	1.2	1.2	1.4	1.2	1.2	0.8	1.0	0.8	0.9
228		0.3	0.9	0.7	0.7	0.4	0.6	1.1	1.2	1.2	1.3	1.2	1.1	1.0	1.0	0.9	1.0
240	10	0.2	0.5	0.7	0.9	0.1	0.2	1.1	1.2	1.2	1.3	1.2	1.1	1.0	1.0	1.0	1.0
252		0.2	0.3	0.4	0.4	0.1	0.1	1.1	1.2	1.1	1.4	1.2	1.2	1.0	1.0	0.9	0.9
264	11	0.3	0.7	0.8	0.4	0.3	0.3	1.2	1.2	1.1	1.3	1.2	1.2	1.0	1.0	0.9	0.9
276		0.1	0.7	0.1	0.6	0.3	0.5	1.2	1.3	1.1	1.3	1.2	1.2	0.9	1.1	1.0	0.9
288	12	0.1	0.1	0.4	0.5	0.3	0.1	1.2	1.2	1.1	1.3	1.2	1.1	0.9	1.1	0.9	1.0
300		0.5	0.7	0.6	1.0	0.6	0.4	1.1	1.2	1.2	1.3	1.2	1.1	1.0	1.0	0.9	1.0
312	13	0.4	0.5	0.7	0.8	0.5	0.2	1.2	1.2	1.2	1.3	1.2	1.2	1.0	1.1	0.9	0.9
324		0.2	0.5	0.2	0.6	0.4	0.1	1.1	1.2	1.1	1.2	1.2	1.2	0.9	1.0	1.0	1.0
336	14	0.4	0.7	0.8	1.1	0.1	0.2	1.1	1.2	1.1	1.3	1.2	1.1	1.0	1.0	0.9	1.0
348		0.6	0.8	0.6	1.1	0.2	0.3	1.2	1.2	1.1	1.3	1.2	1.1	0.9	1.1	0.8	0.9
360	15	0.4	0.5	0.7	0.8	0.3	0.2	1.2	1.2	1.1	1.3	1.2	1.2	0.9	1.0	0.9	0.9
372		0.3	0.2	0.1	0.5	0.2	0.2	1.1	1.2	1.2	1.3	1.3	1.2	1.0	1.1	0.9	1.0
384	16	0.5	0.7	0.6	0.8	0.7	0.4	1.2	1.2	1.2	1.3	1.3	1.1	1.0	1.2	0.9	0.9
Average over trial period		0.2	0.5	0.5	0.6	0.3	0.3	1.2	1.2	1.2	1.3	1.2	1.1	0.9	1.1	0.9	0.9
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 10

Table 5.13 Large Scale trials at 1°C for 16 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.0	0.9	0.6	0.3	0.4	0.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.3
24	1	0.0	0.6	0.4	0.3	0.4	0.4	1.2	1.2	1.3	1.2	1.3	1.2	1.3	1.2	1.2	1.3
36		0.1	0.2	0.0	0.1	0.2	0.5	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.2	1.2	1.3
48	2	-0.1	0.2	0.0	0.2	0.1	0.4	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.3	1.2	1.3
60		0.1	0.3	0.5	0.8	0.4	0.8	1.2	1.2	1.1	1.1	1.4	1.2	1.2	1.2	1.2	1.3
72	3	0.3	0.8	0.3	1.0	0.6	0.8	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.2	1.2	1.3
84		0.4	0.6	0.3	0.9	0.3	0.6	1.2	1.3	1.1	1.2	1.3	1.2	1.3	1.2	1.3	1.3
96	4	0.4	0.3	0.4	0.8	0.7	0.7	1.1	1.2	1.1	1.2	1.4	1.2	1.3	1.2	1.2	1.4
108		0.5	0.7	0.3	0.7	0.8	0.8	1.2	1.3	1.1	1.2	1.2	1.1	1.2	1.2	1.2	1.3
120	5	0.1	-0.1	0.0	0.5	0.4	0.3	1.2	1.3	1.1	1.2	1.3	1.2	1.2	1.2	1.2	1.4
132		0.1	-0.1	-0.1	0.2	0.6	0.5	1.2	1.2	1.1	1.3	1.3	1.2	1.2	1.3	1.1	1.3
144	6	0.0	0.4	-0.1	0.5	0.6	0.7	1.3	1.2	1.2	1.3	1.3	1.2	1.2	1.3	1.2	1.3
156		0.3	0.4	0.3	0.6	0.8	0.7	1.2	1.2	1.2	1.2	1.4	1.2	1.2	1.2	1.2	1.4
168	7	0.4	0.5	0.4	0.7	0.9	0.6	1.2	1.3	1.1	1.2	1.3	1.2	1.2	1.2	1.2	1.4
180		0.5	0.6	0.4	0.7	0.7	0.5	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.3
192	8	0.3	0.7	0.1	0.7	0.8	0.6	1.2	1.1	1.1	1.2	1.3	1.2	1.3	1.2	1.2	1.4
204		0.4	0.4	0.2	0.6	0.7	0.6	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.2	1.3	1.3
216	9	0.2	0.4	-0.1	0.4	0.4	0.2	1.1	1.3	1.2	1.2	1.3	1.2	1.3	1.2	1.2	1.3
228		0.2	0.4	0.0	0.4	0.3	0.3	1.2	1.2	1.1	1.2	1.3	1.2	1.2	1.2	1.2	1.4
240	10	0.3	0.7	0.4	0.8	0.5	0.3	1.2	1.1	1.1	1.1	1.4	1.2	1.2	1.1	1.2	1.4
252		-0.1	-0.1	0.1	0.6	0.3	0.2	1.2	1.2	1.1	1.2	1.3	1.2	1.2	1.2	1.2	1.4
264	11	0.4	0.4	0.4	0.6	0.5	0.4	1.3	1.1	1.1	1.1	1.3	1.3	1.2	1.2	1.2	1.4
276		0.2	0.3	0.0	0.3	0.2	0.3	1.2	1.2	1.1	1.2	1.3	1.1	1.3	1.2	1.2	1.3
288	12	0.2	0.5	0.4	0.5	0.4	0.5	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.2	1.3	1.4
300		0.4	0.7	0.6	0.9	0.5	0.6	1.2	1.2	1.1	1.2	1.2	1.2	1.3	1.2	1.2	1.4
312	13	0.1	0.1	0.0	0.4	0.3	0.0	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.3	1.2	1.3
324		0.4	0.3	0.4	0.7	0.2	0.4	1.3	1.1	1.1	1.2	1.4	1.2	1.2	1.2	1.2	1.4
336	14	0.1	0.1	0.0	0.4	0.2	0.3	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.4
348		0.4	0.2	0.3	0.5	0.5	0.3	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.2	1.3	1.3
360	15	0.4	0.1	0.2	0.9	0.6	0.3	1.2	1.2	1.1	1.1	1.3	1.2	1.3	1.2	1.2	1.3
372		0.0	0.1	0.1	0.2	0.7	0.3	1.2	1.1	1.1	1.2	1.3	1.2	1.3	1.2	1.2	1.3
384	16	0.2	0.5	0.4	0.4	0.8	0.4	1.2	1.2	1.1	1.3	1.3	1.2	1.2	1.3	1.1	1.3
Average over trial period		0.2	0.4	0.2	0.5	0.5	0.4	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.2	1.2	1.3
Average of Fruit temperatures						1.2											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 10

Table 5.14 Large Scale trials at 1°C for 16 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.2	0.8	0.2	0.2	0.3	0.3	1.1	1.2	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.0
24	1	0.4	0.8	0.6	1.0	0.4	0.3	1.1	1.2	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0
36		0.2	0.8	0.8	0.5	0.5	0.6	1.1	1.2	0.9	1.0	1.1	1.0	1.0	1.0	1.1	1.0
48	2	0.0	0.6	0.3	0.1	0.2	0.2	1.1	1.2	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.0
60		0.4	1.1	0.4	0.8	0.6	0.2	1.1	1.2	0.9	0.9	1.0	1.1	1.0	1.0	1.1	1.1
72	3	0.5	0.5	0.4	0.4	0.3	0.3	1.1	1.2	0.9	1.0	1.1	1.0	1.0	1.0	1.1	1.1
84		0.2	0.4	0.6	0.7	0.2	0.4	1.1	1.2	1.0	1.0	1.0	0.9	1.0	0.9	1.1	1.1
96	4	0.2	0.9	0.2	0.2	0.1	0.5	1.1	1.2	1.0	0.9	1.1	1.0	1.0	0.8	1.2	1.1
108		0.2	0.4	0.0	-0.1	0.3	0.0	1.0	1.2	0.9	1.0	1.1	1.0	0.9	0.9	1.1	1.1
120	5	0.4	0.8	0.8	0.8	0.6	0.3	1.0	1.2	0.9	0.9	1.0	1.0	1.0	0.9	1.1	1.1
132		0.2	0.5	0.6	0.7	0.2	0.2	1.1	1.2	0.9	0.9	1.1	1.1	1.0	1.0	1.1	1.0
144	6	0.2	0.4	0.8	0.5	0.2	0.3	1.1	1.1	0.9	0.9	1.1	1.0	1.0	1.0	1.1	1.1
156		0.4	0.1	-0.2	0.4	0.4	0.0	1.1	1.2	0.8	0.9	1.0	1.0	1.0	0.9	1.1	1.1
168	7	0.5	0.8	0.8	0.7	0.3	0.4	1.1	1.1	0.8	0.9	1.1	1.0	1.0	0.9	1.1	1.0
180		0.5	0.7	0.9	0.8	0.8	0.7	1.1	1.1	0.9	0.9	1.0	0.9	1.0	0.9	1.1	1.1
192	8	0.3	0.5	0.8	0.8	0.7	0.4	1.1	1.1	0.9	0.9	1.0	1.0	1.0	0.9	1.1	1.0
204		0.0	0.5	-0.5	0.2	0.7	0.3	1.1	1.2	0.9	0.9	1.0	1.0	1.1	0.9	1.0	1.1
216	9	0.1	0.1	0.4	0.3	0.5	0.3	1.1	1.2	0.9	0.9	1.1	1.0	1.1	0.9	1.0	1.0
228		0.3	0.2	1.2	0.8	0.8	0.6	1.2	1.2	0.8	0.9	1.0	1.1	1.0	0.9	1.1	1.0
240	10	0.0	-0.1	0.3	0.8	0.1	0.2	1.1	1.2	0.9	1.0	1.1	1.0	1.0	1.0	1.1	1.0
252		0.2	1.2	0.7	1.0	0.7	0.2	1.0	1.2	0.8	1.0	1.0	1.0	1.0	1.0	1.1	1.0
264	11	0.1	0.4	0.2	0.4	0.1	0.2	1.1	1.1	0.8	0.9	1.1	1.1	1.0	0.9	1.2	1.0
276		0.4	1.2	1.1	1.2	0.7	0.6	1.2	1.2	0.8	1.0	1.1	1.1	1.0	1.0	1.1	1.1
288	12	0.5	0.4	0.7	0.9	0.7	0.5	1.1	1.2	0.8	1.0	1.1	1.0	1.0	1.0	1.1	1.1
300		0.3	0.2	0.2	0.3	0.6	0.2	1.1	1.2	0.8	1.0	1.1	1.0	1.0	1.0	1.1	1.1
312	13	0.1	0.3	0.2	0.4	0.6	0.1	1.1	1.2	0.9	1.0	1.1	1.0	1.0	0.9	1.1	1.1
324		0.1	0.4	0.5	0.1	0.6	0.3	1.2	1.2	0.9	1.0	1.1	1.0	1.0	0.9	1.2	1.0
336	14	0.1	0.5	0.1	0.2	0.6	0.2	1.1	1.2	0.9	1.0	1.0	1.0	1.0	0.9	1.1	1.0
348		0.1	0.3	0.1	0.1	0.7	-0.1	1.1	1.3	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.1
360	15	0.0	1.0	0.8	0.5	0.8	0.3	1.1	1.2	0.9	0.9	1.0	1.0	1.1	0.9	1.0	1.0
372		-0.1	0.5	0.4	0.2	0.5	0.5	1.1	1.2	0.9	1.0	1.1	1.0	1.0	0.9	1.1	1.0
384	16	-0.2	0.4	0.4	0.4	0.6	0.2	1.1	1.1	0.9	1.0	1.1	1.0	1.0	1.0	1.1	1.1
Average over trial period		0.2	0.6	0.5	0.5	0.5	0.3	1.1	1.2	0.9	0.9	1.1	1.0	1.0	0.9	1.1	1.0
Average of Fruit temperatures						1.0											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 10

Table 5.15 Large Scale trials at 1°C for 16 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.5	0.8	0.5	0.7	0.5	0.4	1.0	1.0	1.1	1.2	1.1	1.1	1.1	1.0	1.1	1.1
24	1	0.4	0.6	0.3	0.5	0.2	0.6	1.0	1.0	1.0	1.2	1.2	1.0	1.1	0.9	1.1	1.1
36		0.0	0.1	-0.2	0.1	-0.4	-0.1	1.1	0.9	1.1	1.2	1.2	1.1	1.1	0.9	1.1	1.0
48	2	0.2	0.6	0.2	0.8	0.4	0.5	1.1	0.9	1.1	1.2	1.2	1.0	1.2	0.9	1.1	1.1
60		0.4	0.9	0.5	0.8	0.6	0.4	1.1	1.0	1.1	1.3	1.2	1.1	1.1	0.9	1.1	1.1
72	3	0.2	0.8	0.5	0.7	0.5	0.3	1.0	0.9	1.1	1.3	1.1	1.1	1.2	1.0	1.1	1.0
84		0.4	0.8	0.5	0.4	0.3	0.1	1.0	0.8	1.0	1.2	1.2	1.1	1.2	0.9	1.1	1.1
96	4	0.2	1.0	0.7	0.6	0.8	0.4	1.0	1.0	1.1	1.2	1.2	1.1	1.2	0.9	1.0	1.1
108		-0.1	0.5	0.3	0.4	0.4	0.2	1.1	0.9	1.1	1.2	1.2	1.0	1.1	0.9	1.0	1.0
120	5	-0.3	0.3	0.4	0.4	0.3	0.2	1.0	1.0	1.1	1.2	1.2	1.0	1.2	0.9	1.1	1.1
132		-0.1	0.8	0.8	0.5	0.4	0.4	1.1	1.0	1.0	1.3	1.1	1.0	1.2	0.9	1.0	1.0
144	6	0.4	0.8	0.7	1.0	0.5	0.6	1.1	1.0	1.0	1.3	1.2	1.0	1.1	1.0	1.0	1.0
156		0.1	0.4	0.4	0.4	0.3	0.3	1.1	0.9	1.0	1.3	1.2	1.0	1.1	0.9	1.1	1.0
168	7	0.4	0.9	0.7	0.9	0.7	0.6	1.1	0.9	1.1	1.3	1.2	1.0	1.1	0.9	1.0	1.1
180		0.3	0.5	0.5	0.7	0.5	0.7	1.2	1.1	1.2	1.4	1.1	1.0	1.1	0.9	1.0	1.1
192	8	0.2	0.4	0.5	0.4	0.3	0.4	1.1	1.1	1.2	1.3	1.2	1.0	1.1	0.9	1.1	1.2
204		0.3	0.7	0.6	0.5	0.2	0.8	1.1	1.0	1.1	1.3	1.1	1.0	1.2	0.9	1.1	1.1
216	9	0.2	0.6	0.5	0.4	-0.1	0.5	1.2	1.0	1.1	1.3	1.2	1.1	1.2	1.0	1.1	1.0
228		0.0	0.3	0.1	0.1	0.0	0.4	1.1	0.9	1.1	1.3	1.1	1.1	1.1	1.0	1.1	1.1
240	10	0.3	0.8	0.5	0.9	0.5	0.5	1.1	0.9	1.1	1.3	1.2	1.0	1.1	0.9	1.1	1.1
252		0.0	0.7	0.4	1.0	0.5	0.4	1.1	0.9	1.1	1.3	1.1	1.0	1.2	0.9	1.1	1.0
264	11	0.0	0.4	0.1	0.4	0.3	0.2	1.1	0.9	1.1	1.3	1.1	1.0	1.2	0.9	1.1	1.0
276		0.2	0.9	0.4	0.7	0.1	0.4	1.0	1.0	1.1	1.3	1.1	1.0	1.2	0.9	1.1	1.1
288	12	0.1	0.4	0.2	0.5	0.3	0.3	1.0	0.9	1.1	1.2	1.2	1.0	1.2	0.9	1.0	1.1
300		-0.2	0.2	0.2	0.6	0.3	0.3	0.9	0.9	1.1	1.1	1.2	1.0	1.1	0.8	1.1	1.0
312	13	-0.1	0.5	0.0	0.4	0.4	0.4	1.0	0.9	1.0	1.2	1.1	1.0	1.1	0.9	1.1	1.1
324		0.0	0.7	0.4	0.4	0.6	0.3	1.0	0.9	1.0	1.2	1.1	1.0	1.2	0.9	1.1	1.0
336	14	-0.1	0.1	0.1	0.6	0.4	0.3	1.0	0.9	1.0	1.2	1.2	1.0	1.2	0.9	1.1	1.0
348		0.2	0.7	0.7	0.6	0.9	0.7	1.0	0.9	0.9	1.1	1.1	1.0	1.2	0.9	1.0	1.1
360	15	-0.3	-0.3	-0.2	0.1	-0.2	-0.3	1.1	1.0	1.0	1.3	1.1	1.0	1.1	0.9	1.0	1.1
372		-0.1	0.5	0.6	0.8	0.4	0.5	1.0	0.9	1.1	1.2	1.1	1.0	1.1	0.9	1.0	1.0
384	16	-0.1	0.0	-0.1	0.4	0.3	-0.1	1.1	0.9	1.0	1.2	1.1	1.1	1.2	0.9	1.0	1.0
Average over trial period		0.1	0.6	0.4	0.6	0.4	0.4	1.1	0.9	1.1	1.2	1.1	1.0	1.1	0.9	1.1	1.1
Average of Fruit temperatures						1.1											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 10

Table 5.16 Large Scale trials at 1°C for 16 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.1	0.2	0.3	0.2	0.7	0.5	0.9	1.1	1.0	1.0	1.1	1.1	0.9	0.8	1.0	1.0
24	1	0.0	0.3	0.0	0.3	0.3	0.3	0.9	1.1	1.0	1.1	1.0	1.2	0.9	1.0	1.1	0.9
36		0.2	0.7	0.5	0.4	0.7	0.5	0.9	1.0	1.1	1.1	1.0	1.1	0.9	0.9	1.1	1.1
48	2	0.2	-0.1	0.0	0.2	0.0	-0.1	0.9	1.0	1.0	1.1	1.0	1.1	0.9	0.9	1.1	1.0
60		0.2	0.3	0.3	0.5	0.6	0.1	0.9	1.0	1.0	1.0	1.1	1.1	0.9	0.9	1.0	1.0
72	3	0.0	0.1	0.1	0.7	0.5	0.2	0.9	1.0	1.1	1.0	1.1	1.1	0.9	1.0	1.1	0.9
84		0.4	0.5	0.5	0.7	0.5	0.1	0.9	1.1	1.1	1.0	1.0	1.1	0.8	1.0	1.1	1.0
96	4	0.2	0.2	-0.2	0.5	0.3	0.4	0.9	1.0	1.0	1.1	1.1	1.1	0.9	1.0	1.1	1.0
108		0.5	0.7	0.4	0.7	0.4	0.2	0.9	0.9	1.0	1.0	1.1	1.2	0.9	0.9	1.1	1.0
120	5	0.4	0.7	0.6	0.8	0.7	0.3	0.8	1.1	1.0	1.0	1.0	1.2	0.9	0.9	1.0	0.9
132		0.3	0.6	0.5	1.0	0.7	0.5	0.9	1.0	1.0	1.1	1.0	1.2	0.9	0.9	1.1	1.0
144	6	0.1	0.5	0.3	0.5	0.5	0.4	0.9	1.0	1.0	1.0	1.0	1.1	0.9	1.0	1.1	1.0
156		-0.1	0.3	0.1	0.5	0.6	0.3	1.0	1.1	1.1	1.0	1.1	1.2	0.9	0.9	1.1	1.0
168	7	0.2	0.5	0.6	0.9	0.7	0.3	0.9	1.1	1.0	0.9	1.2	1.2	0.9	1.0	1.1	1.1
180		-0.1	0.5	0.5	0.8	0.6	0.4	0.9	1.1	1.1	1.0	1.0	1.1	0.9	0.9	1.1	1.0
192	8	-0.2	0.0	-0.1	0.3	0.3	0.2	1.0	1.1	1.1	1.0	1.0	1.1	0.8	0.9	1.0	1.0
204		0.1	0.7	0.6	0.7	0.8	0.3	0.9	1.0	1.0	1.0	1.1	1.1	0.9	0.9	1.1	1.0
216	9	0.1	0.6	0.6	0.4	0.6	0.3	1.0	1.0	1.1	1.0	1.0	1.1	0.8	0.9	1.1	0.9
228		0.2	0.4	0.3	0.1	0.5	0.5	0.9	1.0	1.1	1.0	1.1	1.1	0.8	0.9	1.0	0.9
240	10	0.1	0.1	0.0	-0.3	0.3	0.3	0.9	1.1	1.1	0.9	1.0	1.1	0.9	0.9	1.1	1.0
252		0.2	0.7	0.7	0.5	0.5	0.7	0.9	1.0	1.1	1.0	1.0	1.1	0.9	0.9	1.1	0.9
264	11	0.4	0.8	0.8	0.4	0.5	0.6	1.0	1.0	1.0	1.0	1.0	1.1	0.8	0.9	1.1	1.0
276		0.2	0.5	0.4	0.4	0.2	0.6	0.9	1.1	1.0	1.0	1.0	1.1	0.8	0.9	1.1	1.0
288	12	0.1	0.1	0.2	0.4	0.0	0.6	0.9	1.1	1.0	1.0	1.2	1.1	0.9	1.0	1.1	1.0
300		0.1	0.1	0.3	0.4	0.2	0.6	0.9	1.0	1.0	0.9	1.1	1.1	0.8	1.0	1.1	1.1
312	13	0.1	0.1	0.4	0.3	0.2	0.3	0.9	1.0	1.0	0.9	1.1	1.2	0.9	0.9	1.1	1.0
324		0.3	0.3	0.4	0.5	0.1	0.5	0.9	1.0	1.0	0.9	1.1	1.1	0.8	0.9	1.1	1.0
336	14	0.4	0.5	0.6	0.8	0.4	0.8	0.9	1.0	0.9	1.0	1.0	1.2	1.0	1.0	1.2	1.0
348		0.2	0.7	0.7	1.0	0.6	0.6	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.0	1.2	1.0
360	15	0.1	0.4	0.0	0.2	-0.1	0.5	0.8	1.0	1.0	1.0	1.1	1.2	0.8	0.9	1.2	1.1
372		0.1	0.4	0.4	0.5	0.4	0.3	1.0	1.0	1.0	1.0	1.0	1.1	0.9	0.9	1.1	1.0
384	16	-0.1	0.2	0.0	0.3	-0.1	0.6	1.0	1.1	1.1	1.0	1.0	1.2	0.9	1.0	1.2	1.1
Average over trial period		0.1	0.4	0.3	0.5	0.4	0.4	0.9	1.0	1.0	1.0	1.1	1.1	0.9	0.9	1.1	1.0
Average of Fruit temperatures						1.0											
Average of Air temperatures						0.3											

Details of logger data are given in Appendix 10

Table 5.17 Large Scale trials at 1°C for 16 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 1.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		0.3	0.4	0.6	0.7	0.3	0.1	1.0	0.9	1.1	0.9	1.0	0.9	1.0	0.9	1.0	1.0
24	1	0.3	0.4	0.2	0.1	0.1	0.2	1.0	1.0	1.0	0.9	0.9	1.0	1.1	0.9	1.1	1.0
36		0.4	0.5	0.6	0.7	0.6	0.4	1.0	0.9	1.1	0.9	0.9	0.9	1.0	0.9	1.1	1.0
48	2	0.3	0.6	1.1	1.3	0.6	0.3	0.9	0.9	1.1	0.9	0.9	0.9	1.0	0.9	1.1	1.0
60		-0.3	0.5	0.8	0.8	0.3	0.3	0.9	0.9	1.0	0.8	1.0	1.0	1.0	0.9	1.1	1.0
72	3	0.3	0.4	0.6	0.7	0.8	0.6	0.9	0.9	1.1	0.8	1.0	0.9	1.0	1.0	1.1	1.0
84		0.0	0.2	-0.1	0.5	0.3	0.1	0.9	0.9	1.1	0.9	0.9	0.9	0.9	1.0	1.1	1.0
96	4	0.1	0.7	0.9	1.2	0.8	0.6	0.9	0.9	1.0	0.9	1.0	0.9	1.0	1.0	1.1	1.1
108		-0.1	-0.2	0.3	0.6	0.6	0.5	1.1	0.9	1.1	1.0	1.0	1.0	1.0	0.9	1.1	1.0
120	5	0.3	0.3	0.1	0.1	0.4	0.2	0.9	1.1	1.1	1.0	1.0	1.0	1.1	0.9	1.1	0.9
132		0.4	0.2	0.6	0.5	0.5	0.4	1.0	0.9	1.0	1.2	1.0	1.0	1.1	1.0	1.1	1.0
144	6	0.5	0.7	0.8	0.6	0.7	0.5	1.0	1.0	1.1	1.1	0.9	1.0	1.1	1.0	1.0	1.0
156		0.3	0.7	0.3	0.0	0.5	0.4	1.0	1.0	1.1	1.1	1.0	1.0	1.1	1.0	1.1	1.0
168	7	0.3	0.5	0.5	0.4	0.4	0.5	1.0	0.9	1.1	1.1	1.1	1.0	1.1	1.0	1.1	1.1
180		0.2	0.5	0.9	0.8	0.5	0.7	1.0	1.0	1.2	1.1	1.0	1.0	1.1	1.0	1.1	1.0
192	8	0.2	0.3	0.3	0.4	0.2	0.4	1.0	1.0	1.1	1.1	0.9	1.0	1.0	0.9	1.0	1.0
204		0.1	0.9	0.2	0.0	0.3	0.7	1.0	0.9	1.1	1.1	1.0	1.0	1.0	0.9	1.1	1.0
216	9	0.4	0.9	0.5	0.4	0.6	0.5	1.0	1.0	1.1	1.1	0.9	0.9	1.0	1.0	1.1	0.9
228		0.1	0.2	0.6	0.5	0.2	0.4	1.0	0.9	1.1	1.1	1.0	1.0	1.0	1.0	1.1	0.9
240	10	0.4	0.6	0.9	0.8	0.4	0.7	0.9	1.0	1.1	1.1	1.0	1.0	1.0	0.9	1.1	0.9
252		0.2	0.4	0.2	0.2	0.3	0.4	1.0	1.0	1.1	1.1	0.9	1.0	1.1	1.0	1.1	0.9
264	11	0.1	0.3	-0.1	0.1	0.1	0.1	1.1	1.0	1.1	1.1	0.9	1.0	1.0	1.0	1.1	1.0
276		0.3	0.4	0.5	0.5	0.4	0.3	1.0	1.0	1.1	1.1	1.0	1.0	1.0	0.9	1.1	1.0
288	12	0.4	1.1	0.6	0.6	0.6	0.5	1.0	1.0	1.1	1.1	1.1	0.9	1.0	1.0	1.1	1.0
300		0.1	0.7	0.1	0.2	0.4	0.3	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0
312	13	0.4	1.0	0.4	0.4	0.5	0.3	1.0	1.0	1.1	1.0	1.0	1.0	1.1	1.0	1.1	0.9
324		0.4	0.3	0.6	0.6	0.0	0.1	1.0	0.9	1.1	1.1	1.0	0.9	1.0	0.9	1.1	1.0
336	14	0.4	0.7	1.0	0.5	0.5	0.6	1.0	0.9	1.0	1.1	1.0	1.0	1.1	0.9	1.1	0.9
348		0.1	0.8	0.5	0.2	0.6	0.5	1.0	1.0	1.1	1.1	1.0	0.9	1.1	1.0	1.1	0.9
360	15	0.1	0.6	0.8	0.6	0.5	0.7	0.9	0.9	1.1	1.1	1.0	1.0	1.0	0.9	1.1	1.0
372		0.1	0.5	1.1	0.7	0.8	0.5	1.1	0.9	1.0	1.1	1.0	0.9	1.0	0.9	1.0	1.0
384	16	0.2	0.5	0.7	0.6	0.4	0.3	1.1	1.0	1.1	1.0	1.0	0.9	1.0	0.9	1.1	1.0
Average over trial period		0.2	0.5	0.5	0.5	0.4	0.4	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.0
Average of Fruit temperatures						1.0											
Average of Air temperatures						0.4											

Details of logger data are given in Appendix 10

Table 5.18 Calibration summary before and after 1.0 °C Large Scale trials

Trial		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
Red Globe 1°C																	
Before	Rep 1	0.0	-0.1	0.1	-0.1	0.0	-0.1	-0.1	0.1	-0.1	-0.1	0.0	0.1	0.0	-0.1	0.2	0.1
	Rep 2	0.0	-0.1	0.1	-0.1	0.0	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.2	0.0	-0.1	0.2	-0.1
	Rep 3	0.0	-0.1	0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.2	-0.2
After	Rep 1	0.0	-0.1	0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.1	0.0	-0.1	0.2	0.0
	Rep 2	0.0	-0.1	0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.2	-0.2
	Rep 3	0.1	-0.1	0.1	-0.1	0.0	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.2	0.0	-0.1	0.2	-0.2
Thompson Seedless 1°C																	
Before	Rep 1	0.0	-0.1	0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.1	-0.2
	Rep 2	0.0	-0.1	0.2	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.0	-0.2
	Rep 3	0.0	-0.1	0.2	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.2	0.0	-0.2
After	Rep 1	0.0	-0.1	0.2	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.0	-0.2
	Rep 2	0.0	-0.1	0.2	-0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.0	-0.2
	Rep 3	0.0	-0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.2	0.0	-0.2	0.0	-0.2
Crimson Seedless 1°C																	
Before	Rep 1	0.0	-0.1	0.1	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.2	0.2
	Rep 2	0.0	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.2	0.0	-0.1	0.2	0.2
	Rep 3	0.0	-0.1	0.1	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.2	0.2
After	Rep 1	0.0	-0.1	0.1	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	0.0	-0.1	0.2	0.2
	Rep 2	0.0	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.2	0.0	-0.1	0.2	0.2
	Rep 3	0.0	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	-0.1	-0.1	0.0	0.2	0.0	-0.1	0.2	0.1

Details of logger calibration data are given in Appendix 10

5.5 RESULTS OF THE LARGE SCALE COLD TREATMENT TRIALS OF MEDFLY IN TABLE GRAPES AT $2.0 \pm 0.5^{\circ}\text{C}$.

The $2.0 \pm 0.5^{\circ}\text{C}$ trials were conducted from November 2004 to April 2005. The dates are given in **Table 5.19**.

Table 5.19 Summary of the dates and times of the conduct of the Large Scale trials at $2.0 \pm 0.5^{\circ}\text{C}$ in Table grapes. The exposure period of 18 days begins after temperature probes in the fruit have reached the treatment temperature.

Table grapes Variety	Rep.	Start date / time of Trial	Date/ Time to reach $2.0 \pm 0.5^{\circ}\text{C}$	Hours to cool down	End date / time of Trial	Cold Room No.	Logger Serial No.	Calibration: Before trial Date / time	Calibration After trial Date / time
<i>Red Globe</i>	1	05.11.2004 07:04 am	07.11.2004 14:04 pm	55	25.11.2004 14:04 pm	# 3	1256 - 00019	04.11.2004 09:15 am	26.11.2004 08:48 am
	2	07:42 am	13:42 pm	54	13:42 pm	# 4	1256 – 00107	09:35 am	09:12 am
	3	08:11 am	16:11 pm	56	16:11 pm	# 5	1206 – 00042	09:49 am	09:30 am
<i>Crimson Seedless</i>		29.03.2005	31.03.2005		18.04.2005			28.03.2005	19.04.2005
	1	07:13 am	12:13 pm	53	12:13 pm	# 3	1256 – 00019	09:26 am	09:08 am
	2	07:46 am	13:46 pm	54	13:46 pm	# 4	1256 – 00107	09:50 am	09:26 am
	3	08:28 am	14:28 pm	54	14:28 pm	# 5	1206 – 00042	10:13 am	09:41 am
<i>Thompson Seedless</i>		18.01.2005	20.01.2005		07.02.2005			17.01.2005	08.02.2005
	1	07:02 am	16:02 pm	57	17:10 pm	# 3	1256 – 00019	08:45 am	09:23 am
	2	07:31 am	15:31 pm	56	21:49 pm	# 4	1256 – 00107	09:01 am	09:47 am
	3	08:09 am	17:09 pm	57	13:16 pm	# 5	1206 – 00042	09:40 am	10:06 am

The large amount of fruit to be infested made it necessary to spread the work over 2 days (1,500 fruit/day, total 3,000 fruit/replicate). Thus treated fruit were of day 6 and day 7 after infestation when $>50\%$ 2nd instar live larvae were present, however these fruits also had a proportion of live 1st instar larvae. Data on live numbers of both stages present in each replicate before the treatment were obtained by dissecting the extra fruit infested at the same time.

5.5.1 Medfly data for cold treatment of Red Globe table grapes.

The results (tables 5.20 & 5.21) show that, from the dissection data an estimated 47,860 1st instar and 109,082 2nd instar (**total 156,942**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **84,262** Medfly were exposed to cold treatment. There were no survivors after 18 days cold exposure to $2.0 \pm 0.5^{\circ}\text{C}$ in Red Globe table grapes and the treatment is suitable for disinfestation.

Table 5.20: Red Globe table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $2.0 \pm 0.5^{\circ}\text{C}$ for 18 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 2.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	9,120	8,820	7,620	25,560
		2 nd instar	17,324	17,324	15,494	50,142
day 7	3,000	1 st instar	7,100	7,600	7,600	22,300
		2 nd instar	19,880	21,280	17,780	58,940
Total	6,000		53,424	55,024	48,494	156,942

Table 5.21: Red Globe table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $2.0 \pm 0.5^{\circ}\text{C}$ for 18 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	13,170		26,339	0
2	14,038		28,076	0
3	14,923		29,846	0
Total	42,131		84,262	0

5.5.2 Medfly data for cold treatment of Crimson Seedless table grapes.

The results (tables 5.22 & 5.23) show that, from the dissection data an estimated 61,320 1st instar and 98,453 2nd instar (**total 159,773**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **84,684** Medfly were exposed to cold treatment. There were no survivors after 18 days cold exposure to $2.0 \pm 0.5^{\circ}\text{C}$ in Crimson Seedless table grapes and the treatment is suitable for disinfestation.

Table 5.22: Crimson Seedless table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $2.0 \pm 0.5^{\circ}\text{C}$ for 18 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 2.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	7,396	5,778	5,316	18,489
		2 nd instar	14,560	13,404	15,022	42,986
day 7	3,000	1 st instar	9,311	11,173	22,347	42,831
		2 nd instar	20,107	18,489	16,871	55,466
Total	6,000		51,373	48,844	59,555	159,773

Table 5.23: Crimson Seedless table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $2.0 \pm 0.5^{\circ}\text{C}$ for 18 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	12,932		25,864	0
2	15,630		31,260	0
3	13,780		27,560	0
Total	42,342		84,684	0

5.5.3 Medfly data for cold treatment of Thompson Seedless table grapes.

The results (tables 5.24 & 5.25) show that, from the dissection data an estimated 39,018 1st instar and 96,835 2nd instar (**total 135,853**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **78,859** Medfly were exposed to cold treatment. There were no survivors after 18 days cold exposure to $2.0 \pm 0.5^{\circ}\text{C}$ in Thompson Seedless table grapes and the treatment is suitable for disinfestation.

Table 5.24: Thompson Seedless table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $2.0 \pm 0.5^{\circ}\text{C}$ for 18 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 2.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	10,347	6,622	5,298	22,267
		2 nd instar	17,102	13,867	11,556	42,524
day 7	3,000	1 st instar	6,467	5,173	5,111	16,751
		2 nd instar	20,800	16,178	17,333	54,311
Total	6,000		54,715	41,840	39,298	135,853

Table 5.25: Thompson Seedless table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $2.0 \pm 0.5^{\circ}\text{C}$ for 18 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	13,798		27,596	0
2	13,259		26,518	0
3	12,373		24,746	0
Total	39,429		78,859	0

5.5.4 Summary of cold treatment data for the large scale trials at $2.0 \pm 0.5^{\circ}\text{C}$.

The records of the temperatures from the cold treatment trials for each replicate treatment are summarised in the Tables in the following pages. The data shows that the required temperatures of $2.0 \pm 0.5^{\circ}\text{C}$ was maintained throughout the trials. The data loggers were calibrated before and after each trial and the summary tables for calibration are also given. These show that the records of temperatures were accurate throughout the trials.

The summary tables for each cultivar are as follows:

- (1) **Red Globe:** Tables 5.26 to 5.28
- (2) **Thompson Seedless:** Tables 5.29 to 5.31
- (3) **Crimson Seedless:** Tables 5.32 to 5.34
- (4) Calibration of loggers before and after each trial: Table 5.35

The complete details of the raw data are given in **Appendix 11**.

Table 5.26 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		1.5	0.8	0.7	1.4	1.5	0.8	2.3	2.3	2.1	2.2	2.3	2.3	2.4	2.5	2.3	2.4
24	1	1.8	1.5	1.3	1.8	1.9	1.3	2.2	2.3	2.1	2.2	2.3	2.3	2.3	2.5	2.1	2.3
36		1.7	1.6	1.3	2.2	1.6	1.3	2.2	2.3	2.1	2.1	2.3	2.3	2.2	2.4	2.2	2.1
48	2	1.7	1.7	1.5	2.2	1.9	1.5	2.1	2.4	2.2	2.1	2.4	2.2	2.2	2.3	2.3	2.2
60		1.7	1.7	1.2	1.9	2.3	1.4	2.1	2.4	2.1	2.1	2.3	2.2	2.3	2.2	2.2	2.2
72	3	2.0	2.0	1.5	2.2	2.2	1.7	2.1	2.4	2.1	2.1	2.3	2.2	2.3	2.2	2.2	2.2
84		1.9	1.8	1.4	2.1	1.9	1.3	2.1	2.4	2.1	2.0	2.3	2.3	2.2	2.1	2.2	2.1
96	4	2.0	1.3	1.3	1.8	1.8	1.1	2.1	2.3	2.1	2.0	2.3	2.3	2.1	2.1	2.2	2.1
108		1.8	1.3	1.3	1.4	1.8	1.1	2.2	2.3	2.0	2.0	2.2	2.3	2.1	2.1	2.1	2.0
120	5	2.0	1.7	1.3	1.5	1.9	1.3	2.3	2.4	2.0	2.1	2.2	2.2	2.2	2.2	2.0	2.1
132		2.4	1.8	1.8	1.9	2.0	1.6	2.3	2.2	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1
144	6	2.1	1.6	1.4	1.9	1.9	1.4	2.3	2.2	2.0	2.2	2.2	2.2	2.3	2.2	2.1	2.1
156		2.1	1.2	1.3	1.6	1.8	1.3	2.3	2.2	2.1	2.2	2.3	2.2	2.3	2.2	2.1	2.1
168	7	2.0	1.8	1.5	1.8	2.1	1.6	2.3	2.2	2.1	2.2	2.3	2.1	2.3	2.2	2.1	2.1
180		1.9	1.5	1.4	2.2	1.7	1.5	2.3	2.2	2.1	2.2	2.3	2.0	2.3	2.2	2.1	2.1
192	8	2.1	1.5	1.5	2.0	2.0	1.4	2.4	2.2	2.1	2.2	2.3	2.1	2.3	2.3	2.2	2.1
204		1.8	1.4	1.2	1.6	2.1	1.3	2.4	2.2	2.1	2.2	2.3	2.1	2.3	2.3	2.2	2.2
216	9	2.3	2.2	1.9	2.1	2.6	1.8	2.4	2.3	2.1	2.2	2.3	2.1	2.3	2.3	2.2	2.2
228		2.1	1.8	1.8	2.2	2.0	1.6	2.4	2.3	2.1	2.3	2.3	2.2	2.4	2.3	2.2	2.2
240	10	2.0	1.4	1.2	1.7	2.0	1.4	2.4	2.2	2.1	2.3	2.3	2.2	2.4	2.3	2.2	2.2
252		1.6	1.3	1.3	1.9	2.1	1.5	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.3	2.3	2.3
264	11	1.9	1.7	1.5	1.9	2.3	1.6	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
276		1.7	1.5	1.4	2.0	1.8	1.6	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
288	12	2.5	1.6	1.5	2.0	2.2	1.5	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
300		2.1	1.8	1.9	2.1	1.9	1.3	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
312	13	2.1	1.7	1.5	1.7	1.9	1.3	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
324		1.8	1.6	1.3	1.5	1.7	1.2	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
336	14	2.1	1.7	1.6	1.6	2.1	1.5	2.4	2.4	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
348		1.9	2.0	1.7	1.6	2.3	1.4	2.4	2.4	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
360	15	2.3	2.0	1.6	1.8	2.2	1.7	2.4	2.4	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
372		2.4	2.0	1.5	1.6	2.7	1.6	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
384	16	1.9	2.0	1.5	1.7	2.3	1.5	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
396		2.1	1.7	1.6	1.8	2.4	1.4	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
408	17	2.0	1.8	1.6	1.9	2.3	1.5	2.4	2.3	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
420		2.2	1.5	1.4	1.7	2.3	1.3	2.4	2.4	2.2	2.3	2.4	2.2	2.4	2.4	2.3	2.3
432	18	2.2	2.0	1.8	2.1	2.5	1.6	2.4	2.3	2.1	2.3	2.3	2.2	2.4	2.3	2.2	2.2
Average over trial period		2.0	1.6	1.4	1.8	2.1	1.4	2.3	2.3	2.1	2.2	2.3	2.2	2.3	2.3	2.2	2.2
Average of Fruit temperatures						2.2											
Average of Air temperatures						1.7											

Details of logger data are given in Appendix 11

Table 5.27 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		1.8	1.7	1.0	1.7	1.8	1.1	2.1	2.2	2.0	2.1	2.1	2.1	2.3	2.3	2.1	2.3
24	1	1.9	1.7	1.6	2.1	1.9	1.4	2.1	2.1	1.9	2.0	1.9	2.1	2.2	2.3	2.0	2.2
36		1.4	1.1	1.0	1.6	1.4	0.9	2.0	2.1	2.0	1.9	1.9	2.1	2.1	2.2	2.1	2.0
48	2	1.8	1.0	1.1	1.4	1.8	1.0	2.0	2.2	2.0	1.9	1.9	2.2	2.0	2.1	2.1	2.1
60		1.9	1.3	1.3	1.5	2.2	1.3	1.9	2.2	2.0	2.0	2.0	2.2	1.9	2.0	2.1	2.1
72	3	1.9	1.4	1.5	1.7	2.3	1.2	1.9	2.2	2.0	2.0	2.0	2.2	1.9	2.0	2.1	2.0
84		1.7	1.0	1.2	1.5	1.8	1.0	1.9	2.2	1.9	2.0	2.0	2.2	1.8	1.9	2.0	2.0
96	4	1.9	1.2	1.3	1.5	2.1	1.2	1.9	2.1	1.9	2.1	2.1	2.1	1.8	1.9	2.0	2.0
108		1.9	1.4	1.2	1.4	2.3	1.3	2.0	2.1	1.9	2.1	2.0	2.1	1.8	1.9	2.0	1.9
120	5	2.0	1.5	1.3	1.7	2.4	1.3	2.1	1.9	1.8	2.1	2.0	1.9	2.0	2.1	1.9	2.0
132		1.8	1.5	1.3	1.7	2.2	1.4	2.2	2.0	1.9	2.0	2.0	1.9	2.0	2.1	1.9	2.0
144	6	2.1	1.7	1.5	1.6	2.1	1.3	2.2	2.0	1.9	2.0	2.0	1.9	2.0	2.1	2.0	2.0
156		2.1	1.8	1.5	1.5	2.4	1.5	2.2	2.0	1.9	2.0	2.0	1.9	2.1	2.1	2.0	2.0
168	7	1.8	1.6	1.5	1.6	2.2	1.4	2.2	2.0	1.9	2.0	2.0	1.8	2.1	2.2	2.0	2.0
180		1.6	1.2	1.3	1.9	1.6	1.2	2.2	2.0	1.9	2.0	2.0	1.8	2.1	2.2	2.0	2.0
192	8	2.2	2.0	1.5	2.1	2.2	1.6	2.2	2.0	1.9	2.0	2.1	1.8	2.1	2.2	2.0	2.0
204		2.2	1.8	1.3	1.8	2.7	1.5	2.2	2.0	2.0	2.0	2.1	1.9	2.1	2.1	2.1	2.1
216	9	2.1	1.5	1.3	1.9	2.4	1.5	2.1	2.1	2.0	2.0	2.1	1.9	2.1	2.1	2.1	2.1
228		1.9	1.7	1.4	2.2	2.1	1.4	2.1	2.1	2.0	2.1	2.1	1.9	2.2	2.2	2.1	2.1
240	10	2.0	1.8	1.4	1.8	2.5	1.4	2.1	2.1	2.0	2.1	2.1	1.9	2.2	2.2	2.1	2.1
252		1.8	1.7	1.1	1.9	2.4	1.4	2.1	2.1	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
264	11	1.8	1.5	0.9	1.9	2.3	1.3	2.2	2.1	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
276		1.8	1.7	1.6	2.5	2.0	1.3	2.2	2.2	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
288	12	1.6	1.0	0.7	1.5	2.3	0.7	2.2	2.2	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
300		1.9	2.0	1.6	2.4	2.7	1.5	2.2	2.2	2.0	2.1	2.2	2.0	2.2	2.2	2.1	2.2
312	13	1.9	1.9	1.7	2.4	2.6	1.4	2.2	2.2	2.0	2.1	2.2	2.0	2.2	2.2	2.1	2.2
324		1.7	1.3	1.6	1.8	1.8	1.0	2.2	2.2	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
336	14	2.1	1.7	1.6	2.0	2.6	1.5	2.2	2.2	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
348		2.0	1.8	1.4	1.8	2.5	1.7	2.2	2.2	2.0	2.1	2.2	1.9	2.3	2.3	2.1	2.2
360	15	1.7	1.8	1.7	2.0	2.1	1.7	2.2	2.2	2.0	2.1	2.2	1.9	2.3	2.2	2.1	2.2
372		1.9	1.2	1.3	1.5	2.1	1.3	2.2	2.2	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
384	16	2.1	1.8	1.9	2.0	2.3	1.7	2.2	2.2	2.0	2.1	2.2	2.0	2.2	2.2	2.1	2.2
396		2.0	1.6	1.4	1.7	2.2	1.3	2.2	2.2	2.0	2.1	2.2	2.0	2.2	2.2	2.1	2.2
408	17	1.8	1.7	1.7	1.9	2.1	1.4	2.2	2.2	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
420		2.1	1.6	1.5	1.6	2.5	1.4	2.2	2.2	2.0	2.1	2.2	1.9	2.2	2.2	2.1	2.2
432	18	1.7	1.2	1.4	1.3	1.8	1.4	2.1	2.1	2.0	2.1	2.1	1.9	2.2	2.1	2.1	2.1
Average over trial period		1.9	1.5	1.4	1.8	2.2	1.3	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1
Average of Fruit temperatures						2.1											
Average of Air temperatures						1.7											

Details of logger data are given in Appendix 11

Table 5.28 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		1.9	1.1	1.1	1.6	2.2	1.2	2.2	2.3	2.2	2.1	2.1	2.3	2.3	2.4	2.1	2.3
24	1	1.9	1.5	1.3	1.8	2.4	1.7	2.2	2.3	2.1	2.0	2.0	2.2	2.2	2.4	2.0	2.2
36		1.8	1.9	1.4	2.4	2.2	1.9	2.1	2.2	2.1	2.0	1.9	2.2	2.1	2.3	2.1	2.1
48	2	1.9	2.1	1.7	2.6	2.5	2.2	2.1	2.2	2.2	1.9	1.8	2.3	2.0	2.2	2.2	2.2
60		1.7	2.0	1.4	2.1	2.6	1.9	2.0	2.2	2.1	1.9	1.8	2.3	2.0	2.1	2.1	2.1
72	3	2.0	2.6	1.7	2.8	2.9	2.1	2.0	2.2	2.1	1.9	1.8	2.3	1.9	2.1	2.1	2.1
84		1.9	2.3	1.7	2.4	2.5	1.7	2.0	2.3	2.1	1.8	1.8	2.3	1.9	2.0	2.1	2.0
96	4	1.8	1.2	1.2	1.7	2.0	1.4	2.0	2.2	2.1	1.8	1.8	2.2	1.9	2.0	2.1	2.0
108		2.0	1.8	1.6	1.7	2.1	1.6	2.1	2.1	2.0	1.8	1.8	2.2	1.9	2.0	2.0	2.0
120	5	2.2	2.1	1.7	2.2	2.6	2.0	2.2	2.0	2.0	1.9	2.0	2.0	2.0	2.2	1.9	2.0
132		2.3	1.8	1.6	2.2	2.5	1.9	2.2	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.0
144	6	2.4	2.2	1.6	2.6	2.5	1.9	2.3	2.1	2.0	2.0	2.1	2.0	2.1	2.2	2.0	2.0
156		2.2	1.3	1.1	1.9	2.1	1.7	2.3	2.1	2.1	2.0	2.1	2.0	2.1	2.2	2.0	2.1
168	7	2.3	1.9	1.4	2.5	2.9	2.0	2.3	2.1	2.1	2.0	2.1	1.9	2.1	2.3	2.0	2.1
180		2.0	1.7	1.5	2.7	2.3	1.9	2.3	2.1	2.1	2.0	2.1	1.9	2.1	2.3	2.0	2.1
192	8	2.4	1.7	1.8	2.4	2.4	1.7	2.3	2.1	2.1	2.1	2.1	1.9	2.1	2.3	2.1	2.1
204		2.1	1.5	1.1	1.9	2.5	1.4	2.3	2.1	2.1	2.1	2.1	2.0	2.2	2.3	2.1	2.1
216	9	2.7	2.5	2.2	2.9	3.1	2.2	2.2	2.2	2.1	2.1	2.2	2.0	2.2	2.2	2.1	2.1
228		2.5	2.4	2.1	3.0	2.4	2.0	2.2	2.2	2.1	2.1	2.2	2.0	2.2	2.3	2.1	2.2
240	10	2.2	1.4	1.4	2.1	2.4	1.7	2.2	2.2	2.1	2.1	2.2	2.0	2.2	2.3	2.1	2.2
252		2.0	1.8	1.8	2.5	2.6	2.0	2.2	2.2	2.2	2.1	2.2	2.0	2.2	2.3	2.2	2.2
264	11	2.1	2.0	1.4	1.9	2.7	1.7	2.3	2.2	2.2	2.1	2.2	2.0	2.3	2.3	2.2	2.2
276		2.1	2.1	1.6	2.5	2.4	1.8	2.3	2.3	2.2	2.2	2.2	2.1	2.3	2.3	2.2	2.2
288	12	2.9	2.1	1.8	2.4	2.9	1.9	2.3	2.3	2.2	2.2	2.2	2.0	2.3	2.3	2.2	2.2
300		2.2	2.1	1.8	2.2	2.5	1.3	2.3	2.3	2.2	2.2	2.2	2.1	2.3	2.3	2.2	2.3
312	13	2.6	2.0	1.7	2.0	2.7	1.5	2.3	2.3	2.2	2.2	2.2	2.1	2.3	2.3	2.2	2.3
324		2.0	1.9	1.3	1.6	2.4	1.4	2.3	2.3	2.2	2.2	2.2	2.0	2.3	2.3	2.2	2.2
336	14	2.2	2.3	1.8	1.7	2.9	1.8	2.3	2.3	2.2	2.2	2.2	2.0	2.3	2.3	2.2	2.3
348		1.9	2.5	1.5	1.9	3.1	1.8	2.3	2.3	2.2	2.2	2.2	2.1	2.3	2.4	2.2	2.3
360	15	2.4	2.6	1.9	2.1	2.9	2.0	2.3	2.3	2.2	2.2	2.2	2.0	2.3	2.3	2.2	2.3
372		2.8	3.0	2.1	2.3	3.6	1.9	2.3	2.3	2.2	2.2	2.2	2.0	2.3	2.3	2.2	2.2
384	16	2.4	2.6	1.9	2.0	2.9	1.6	2.3	2.3	2.2	2.2	2.2	2.1	2.3	2.3	2.2	2.3
396		2.1	2.6	2.1	2.3	3.1	1.6	2.3	2.3	2.2	2.2	2.2	2.1	2.3	2.3	2.2	2.3
408	17	2.0	1.9	1.5	1.9	2.8	1.5	2.3	2.3	2.2	2.2	2.2	2.0	2.3	2.3	2.2	2.2
420		2.4	2.3	1.9	2.1	3.1	1.6	2.3	2.3	2.2	2.2	2.2	2.0	2.3	2.3	2.2	2.3
432	18	2.1	2.2	1.8	1.9	2.9	1.7	2.2	2.2	2.1	2.1	2.2	2.0	2.2	2.3	2.1	2.2
Average over trial period		2.2	2.0	1.6	2.2	2.6	1.7	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2
Average of Fruit temperatures						2.1											
Average of Air temperatures						2.1											

Details of logger data are given in Appendix 11

Table 5.29 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.1	2.0	0.5	1.1	0.9	2.1	2.0	2.2	2.1	2.0	2.1	2.1	2.4	2.1	2.3	2.3
24	1	1.5	1.3	0.6	1.1	1.0	1.5	2.0	2.1	2.0	2.0	2.1	2.0	2.3	2.1	2.2	2.4
36		2.0	1.3	0.8	1.2	1.1	1.9	2.1	2.1	2.1	2.0	2.1	2.1	2.3	2.0	2.2	2.3
48	2	2.1	1.4	0.7	1.2	1.1	2.5	2.1	2.1	2.0	2.0	2.1	2.1	2.3	2.1	2.1	2.2
60		2.1	1.7	0.6	1.2	1.0	2.4	2.2	2.1	2.0	2.0	2.1	2.1	2.3	2.0	2.1	2.2
72	3	1.3	1.1	0.4	1.1	0.8	1.5	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.0	2.1	2.2
84		2.3	2.3	0.6	1.2	1.0	2.5	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.0	2.1	2.1
96	4	2.3	2.6	0.4	1.2	0.9	2.4	2.1	2.1	2.1	2.0	2.2	2.1	2.2	1.9	2.0	2.1
108		2.3	2.6	0.5	1.3	1.0	2.4	2.1	2.1	2.1	2.0	2.1	2.1	2.1	1.9	2.0	2.1
120	5	1.7	2.2	0.4	1.2	0.9	1.9	2.1	2.1	2.1	2.3	2.1	2.1	2.1	1.9	2.0	2.0
132		2.2	2.2	0.8	1.4	1.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2
144	6	2.3	2.5	0.8	1.4	1.1	2.3	2.1	2.1	2.1	2.3	1.9	2.1	2.1	2.0	2.1	2.0
156		2.4	2.3	0.9	1.5	1.3	2.5	2.2	2.1	2.1	2.3	2.0	2.2	2.1	2.1	2.2	2.1
168	7	1.7	1.7	0.7	1.3	1.1	1.8	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1
180		2.2	1.5	0.9	1.3	1.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.1
192	8	2.4	1.8	0.9	1.5	1.3	2.5	2.3	2.2	2.2	2.1	2.3	2.2	2.2	2.2	2.2	2.1
204		2.5	2.1	0.7	1.4	1.2	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2
216	9	1.8	2.0	0.7	1.4	1.2	2.0	2.4	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.2
228		2.4	1.9	1.0	1.5	1.3	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.2	2.3
240	10	2.6	2.6	1.0	1.5	1.4	2.7	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.2	2.3
252		2.5	2.3	1.0	1.6	1.4	3.0	2.4	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.3
264	11	1.6	1.4	0.7	1.4	1.1	1.7	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.3
276		2.5	1.9	1.1	1.5	1.4	2.7	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.3
288	12	2.6	2.7	0.7	1.5	1.3	3.0	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.2	2.3
300		2.4	2.6	0.7	1.4	1.1	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.3
312	13	1.8	1.9	0.9	1.5	1.3	2.0	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.3
324		2.5	2.5	0.8	1.5	1.3	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.5	2.2	2.4
336	14	2.6	2.8	0.8	1.5	1.3	3.1	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.5	2.2	2.4
348		2.5	2.8	0.8	1.5	1.2	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.5	2.2	2.4
360	15	1.8	2.1	0.6	1.3	1.1	2.0	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.3
372		2.3	2.8	0.4	1.2	0.9	2.3	2.3	2.3	2.2	2.3	2.1	2.2	2.3	2.0	2.2	2.2
384	16	2.0	1.8	0.6	1.2	1.0	1.8	2.2	2.2	2.2	2.3	2.1	2.2	2.3	2.1	2.2	2.2
396		1.7	1.9	0.4	1.2	0.9	2.3	2.4	2.3	2.2	2.2	2.1	2.3	2.4	2.1	2.2	2.3
408	17	2.1	1.9	0.5	1.1	0.9	2.3	2.3	2.3	2.2	2.2	2.1	2.3	2.4	2.2	2.2	2.3
420		1.6	1.9	0.5	1.1	0.9	1.8	2.2	2.2	2.2	2.2	2.0	2.2	2.2	2.0	2.1	2.1
432	18	2.3	2.3	0.8	1.4	1.1	2.2	2.2	2.1	2.1	2.3	1.9	2.1	2.1	2.0	2.1	2.0
Average over trial period		2.1	2.1	0.7	1.3	1.1	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.1	2.2	2.2
Average of Fruit temperatures						2.2											
Average of Air temperatures						1.6											

Details of logger data are given in Appendix 11

Table 5.30 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		1.5	3.0	0.1	0.9	0.8	1.9	1.8	2.0	1.9	1.9	2.0	1.9	2.2	1.9	2.1	2.3
24	1	1.9	2.4	0.4	1.0	0.9	1.6	1.8	1.9	1.9	1.8	2.0	1.9	2.1	1.9	2.1	2.3
36		2.0	2.2	0.6	1.0	1.0	1.7	1.9	2.0	1.9	1.9	2.0	2.0	2.1	1.9	2.0	2.2
48	2	2.1	2.5	0.4	1.1	1.0	2.2	1.9	2.0	1.9	1.9	2.0	1.9	2.1	1.9	2.0	2.2
60		1.6	2.7	0.3	1.1	1.0	2.1	2.0	2.0	1.9	1.9	2.0	2.0	2.1	1.9	2.0	2.2
72	3	1.9	2.2	0.5	1.0	0.9	1.7	2.0	2.0	1.9	1.9	2.0	2.0	2.0	1.9	1.9	2.2
84		2.1	3.3	0.4	1.0	0.9	2.3	2.0	2.0	1.9	1.9	2.1	2.0	2.0	1.8	1.9	2.2
96	4	2.2	3.6	0.2	1.0	0.9	2.3	1.9	2.0	1.9	1.9	2.0	2.0	2.0	1.8	1.9	2.2
108		1.7	3.6	0.0	1.0	0.8	2.0	1.9	2.0	1.9	1.9	2.0	1.9	1.9	1.8	1.9	2.1
120	5	2.2	3.3	0.5	1.1	1.0	2.0	1.9	1.9	1.9	2.1	2.0	1.9	1.9	1.8	1.9	2.1
132		2.5	3.6	0.8	1.2	1.2	2.4	1.9	1.9	2.0	2.1	2.0	1.9	1.9	1.8	1.9	2.1
144	6	2.4	3.6	0.6	1.2	1.1	2.3	1.9	2.0	2.0	2.1	2.0	2.0	1.9	1.9	2.0	2.1
156		1.8	3.3	0.5	1.2	1.1	2.1	2.0	2.0	2.0	2.2	2.0	2.0	1.9	1.9	2.0	2.1
168	7	2.2	2.8	0.7	1.2	1.1	1.9	2.0	2.0	2.0	2.0	2.1	2.0	2.0	1.9	2.0	2.1
180		2.1	2.5	0.7	1.1	1.1	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.0	1.9	2.0	2.1
192	8	2.3	2.8	0.8	1.3	1.2	2.3	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.2
204		1.8	3.1	0.3	1.1	1.0	2.2	2.1	2.1	2.1	2.0	2.2	2.1	2.1	2.0	2.1	2.2
216	9	2.4	3.2	0.8	1.3	1.3	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.0	2.1	2.2
228		2.3	2.8	0.7	1.2	1.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.0	2.1	2.2
240	10	2.5	3.7	0.9	1.4	1.4	2.7	2.2	2.1	2.1	2.1	2.3	2.2	2.2	2.1	2.1	2.3
252		1.8	3.3	0.3	1.2	1.0	2.5	2.2	2.1	2.1	2.1	2.3	2.2	2.2	2.0	2.1	2.3
264	11	2.2	2.5	1.0	1.4	1.4	2.0	2.1	2.1	2.1	2.0	2.2	2.1	2.2	2.1	2.2	2.3
276		2.3	2.9	0.7	1.3	1.2	2.4	2.1	2.1	2.0	2.0	2.3	2.1	2.2	2.1	2.2	2.3
288	12	2.6	3.8	0.5	1.3	1.2	2.8	2.2	2.1	2.1	2.0	2.3	2.1	2.2	2.1	2.2	2.3
300		2.0	3.5	0.5	1.3	1.1	2.4	2.1	2.1	2.1	2.0	2.3	2.1	2.2	2.1	2.2	2.3
312	13	2.3	3.0	0.9	1.4	1.4	2.2	2.1	2.1	2.1	2.0	2.3	2.1	2.2	2.1	2.2	2.3
324		2.5	3.5	0.8	1.3	1.3	2.4	2.1	2.1	2.0	2.0	2.3	2.1	2.3	2.1	2.2	2.3
336	14	2.5	3.8	0.6	1.3	1.2	2.8	2.1	2.1	2.1	2.0	2.3	2.1	2.3	2.1	2.2	2.3
348		1.9	3.7	0.3	1.2	1.0	2.3	2.1	2.1	2.1	2.0	2.3	2.1	2.3	2.1	2.2	2.3
360	15	2.9	3.3	1.0	1.4	1.3	2.3	2.1	2.1	2.0	2.0	2.2	2.1	2.3	2.0	2.2	2.3
372		1.8	3.8	0.2	1.1	0.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.9	2.0	2.3
384	16	2.0	2.7	0.6	1.1	1.0	1.8	2.1	2.1	2.0	2.2	2.1	2.1	2.1	2.0	2.1	2.2
396		2.2	3.1	0.4	1.1	1.0	2.5	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.0	2.1	2.4
408	17	2.2	3.1	0.5	1.1	1.0	2.5	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.0	2.1	2.4
420		2.1	2.7	0.8	1.2	1.2	1.9	2.1	2.1	2.1	2.0	2.2	2.1	2.2	2.1	2.1	2.3
432	18	2.5	3.8	0.7	1.4	1.3	2.7	2.1	2.1	2.0	2.0	2.3	2.1	2.3	2.1	2.2	2.3
Average over trial period		2.1	3.1	0.6	1.2	1.1	2.2	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.2
Average of Fruit temperatures						2.1											
Average of Air temperatures						1.7											

Details of logger data are given in Appendix 11

Table 5.31 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.1	2.0	0.7	1.2	1.0	2.1	1.9	2.1	2.0	1.9	2.1	2.0	2.4	2.0	2.2	2.3
24	1	1.9	1.4	0.7	1.1	0.9	1.6	1.9	2.0	1.9	1.9	2.0	1.9	2.2	2.0	2.1	2.3
36		2.0	1.1	0.7	1.1	1.0	1.5	2.0	2.0	2.0	1.9	2.0	2.0	2.2	1.9	2.1	2.2
48	2	1.5	1.4	0.3	1.1	0.8	2.1	2.0	2.0	1.9	1.9	2.0	2.0	2.2	2.0	2.0	2.2
60		2.1	1.8	0.6	1.2	1.0	2.2	2.1	2.0	1.9	1.9	2.0	2.0	2.2	1.9	2.0	2.2
72	3	1.9	1.2	0.8	1.2	1.0	1.7	2.1	2.0	2.0	2.0	2.1	2.1	2.1	1.9	2.0	2.1
84		2.2	2.2	0.5	1.1	0.9	2.2	2.1	2.1	2.0	2.0	2.1	2.1	2.1	1.9	2.0	2.1
96	4	1.7	2.5	0.2	1.1	0.8	2.2	2.0	2.0	2.0	1.9	2.1	2.0	2.1	1.8	1.9	2.1
108		2.3	2.7	0.6	1.3	1.0	2.2	2.0	2.0	2.0	1.9	2.0	2.0	2.0	1.8	1.9	2.1
120	5	2.2	2.3	0.8	1.3	1.0	2.1	2.0	2.0	2.0	2.2	2.0	2.0	2.0	1.8	1.9	2.1
132		2.4	2.6	0.7	1.3	1.1	2.3	2.0	2.0	2.0	2.2	2.0	2.0	2.0	1.9	2.0	2.1
144	6	1.8	2.4	0.3	1.2	0.8	1.9	2.0	2.0	2.0	2.2	2.0	2.0	2.0	1.9	2.0	2.1
156		2.3	2.3	0.8	1.4	1.1	2.2	2.1	2.0	2.0	2.2	2.1	2.0	2.0	2.0	2.1	2.1
168	7	2.3	1.9	1.0	1.4	1.2	1.9	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.2
180		2.1	1.4	0.9	1.2	1.1	1.8	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.2
192	8	1.8	1.8	0.9	1.4	1.3	2.2	2.2	2.1	2.1	2.0	2.2	2.1	2.1	2.1	2.1	2.2
204		2.4	2.2	0.9	1.4	1.3	2.4	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.3
216	9	2.4	2.2	1.0	1.5	1.2	2.2	2.3	2.2	2.1	2.1	2.3	2.2	2.3	2.1	2.1	2.3
228		2.3	1.8	0.9	1.3	1.1	2.1	2.3	2.2	2.2	2.1	2.3	2.2	2.3	2.1	2.2	2.3
240	10	2.0	2.6	0.6	1.4	1.2	2.4	2.3	2.2	2.2	2.1	2.3	2.2	2.3	2.1	2.2	2.3
252		2.5	2.3	1.0	1.5	1.3	2.8	2.3	2.2	2.1	2.1	2.3	2.2	2.3	2.1	2.2	2.3
264	11	2.2	1.5	1.1	1.5	1.3	2.0	2.2	2.1	2.1	2.1	2.3	2.1	2.3	2.1	2.2	2.3
276		2.3	1.8	0.8	1.3	1.2	2.2	2.2	2.2	2.1	2.1	2.3	2.1	2.3	2.1	2.2	2.4
288	12	2.0	2.7	0.4	1.4	1.0	2.6	2.2	2.2	2.1	2.1	2.3	2.2	2.3	2.1	2.2	2.4
300		2.5	2.6	0.9	1.5	1.2	2.5	2.2	2.2	2.1	2.1	2.3	2.1	2.3	2.1	2.2	2.4
312	13	2.3	2.0	1.1	1.5	1.3	2.1	2.2	2.2	2.1	2.1	2.3	2.1	2.3	2.2	2.2	2.4
324		2.4	2.3	0.8	1.4	1.2	2.2	2.2	2.2	2.1	2.1	2.3	2.1	2.4	2.1	2.3	2.4
336	14	2.0	2.7	0.3	1.4	1.0	2.6	2.2	2.2	2.1	2.1	2.3	2.1	2.4	2.1	2.3	2.4
348		2.5	2.9	0.7	1.4	1.1	2.6	2.2	2.2	2.1	2.1	2.3	2.1	2.4	2.1	2.3	2.4
360	15	2.4	2.2	0.9	1.4	1.2	2.1	2.2	2.2	2.1	2.1	2.3	2.1	2.4	2.1	2.2	2.4
372		2.3	2.9	0.5	1.3	1.0	2.4	2.2	2.2	2.1	2.2	2.2	2.1	2.2	1.9	2.1	2.3
384	16	1.6	1.7	0.7	1.3	1.1	1.8	2.2	2.1	2.1	2.2	2.2	2.1	2.2	2.0	2.1	2.3
396		2.2	2.0	0.5	1.1	0.9	2.2	2.3	2.2	2.1	2.1	2.2	2.2	2.3	2.0	2.1	2.4
408	17	2.1	2.1	0.6	1.2	1.0	2.4	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.1	2.1	2.4
420		2.2	2.1	0.8	1.3	1.1	2.1	2.2	2.2	2.1	2.1	2.3	2.2	2.3	2.1	2.2	2.4
432	18	2.6	2.8	0.8	1.5	1.2	2.5	2.2	2.2	2.1	2.1	2.3	2.1	2.4	2.1	2.3	2.4
Average over trial period		2.2	2.1	0.7	1.3	1.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.0	2.1	2.3
Average of Fruit temperatures						2.1											
Average of Air temperatures						1.6											

Details of logger data are given in Appendix 11

Table 5.32 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.4	0.7	2.0	0.7	2.0	0.8	2.4	2.5	2.5	2.4	2.5	2.4	2.4	2.2	2.3	2.2
24	1	2.2	0.8	1.7	0.8	1.7	0.9	2.3	2.4	2.5	2.5	2.5	2.5	2.3	2.2	2.4	2.2
36		2.2	0.7	1.9	0.7	1.8	0.8	2.2	2.4	2.5	2.4	2.5	2.4	2.2	2.1	2.3	2.1
48	2	2.3	0.5	1.9	0.5	2.2	0.7	2.2	2.4	2.4	2.3	2.5	2.3	2.2	2.0	2.2	2.1
60		2.2	0.7	1.8	0.5	1.8	0.7	2.2	2.4	2.4	2.3	2.5	2.2	2.2	1.9	2.0	2.1
72	3	2.0	0.7	1.5	0.7	1.5	0.8	2.2	2.3	2.3	2.3	2.5	2.1	2.1	1.9	2.0	2.0
84		2.0	0.6	1.7	0.6	1.5	0.7	2.2	2.3	2.3	2.2	2.4	2.1	2.2	1.9	1.9	2.0
96	4	2.2	0.8	1.9	0.6	2.2	0.9	2.2	2.3	2.3	2.2	2.3	2.0	2.3	1.9	1.9	2.0
108		2.2	0.8	1.9	0.7	1.9	0.9	2.2	2.3	2.4	2.2	2.2	2.0	2.3	2.0	1.9	2.0
120	5	2.1	0.8	1.6	0.7	1.7	0.9	2.2	2.3	2.4	2.2	2.2	2.1	2.4	2.0	1.9	2.1
132		2.0	0.7	1.7	0.7	1.4	0.8	2.1	2.3	2.4	2.2	2.2	2.1	2.4	2.0	1.9	2.1
144	6	2.2	1.0	2.1	0.8	1.8	1.1	2.2	2.3	2.3	2.1	2.1	2.0	2.3	1.9	1.8	2.1
156		2.1	0.7	1.8	0.7	1.5	0.8	2.2	2.3	2.3	2.1	2.1	2.0	2.3	1.9	1.8	2.2
168	7	1.9	0.8	1.5	0.8	1.3	0.9	2.2	2.3	2.3	2.1	2.1	2.0	2.3	1.9	1.8	2.2
180		1.9	0.8	1.8	0.8	1.3	0.9	2.2	2.3	2.3	2.1	2.1	2.0	2.3	1.9	1.9	2.2
192	8	2.1	0.5	1.9	0.5	1.6	0.7	2.1	2.4	2.3	2.1	2.0	1.9	2.4	2.0	2.0	2.1
204		2.0	0.6	1.8	0.6	1.4	0.7	2.1	2.4	2.3	2.1	2.0	1.9	2.4	2.0	2.0	2.1
216	9	1.7	1.0	1.4	1.0	1.2	1.1	2.1	2.4	2.3	2.1	2.0	1.9	2.4	2.0	2.0	2.1
228		1.6	0.9	1.7	0.9	1.2	1.0	2.1	2.4	2.2	2.1	2.0	2.0	2.4	1.9	2.0	2.1
240	10	2.0	0.7	1.9	0.5	1.9	0.9	2.0	2.4	2.2	2.0	2.0	1.9	2.3	1.9	2.0	2.2
252		2.0	0.6	1.8	0.6	1.5	0.7	2.0	2.4	2.2	2.0	1.9	1.9	2.3	1.9	2.0	2.2
264	11	1.8	0.7	1.4	0.7	1.2	0.8	2.0	2.3	2.2	2.1	1.9	1.9	2.4	2.0	2.0	2.1
276		1.8	0.8	1.8	0.8	1.3	1.0	2.0	2.3	2.2	2.0	1.9	1.9	2.4	2.0	2.0	2.1
288	12	2.1	0.6	2.0	0.4	2.2	0.8	2.0	2.3	2.2	2.0	1.9	1.8	2.3	1.9	1.9	2.1
300		2.2	0.7	1.8	0.6	1.7	0.8	2.0	2.4	2.1	2.0	1.9	1.8	2.4	2.0	1.9	2.1
312	13	1.9	0.8	1.5	0.8	1.3	1.0	2.0	2.4	2.1	2.1	1.9	1.9	2.4	2.0	2.0	2.1
324		1.8	0.8	1.8	0.8	1.3	1.0	2.0	2.4	2.1	2.0	1.9	1.9	2.3	1.9	2.0	2.0
336	14	2.2	0.7	2.0	0.5	2.2	0.9	1.9	2.4	2.1	2.0	1.9	1.8	2.3	1.9	1.9	2.0
348		2.2	0.7	1.9	0.6	1.8	0.8	1.9	2.4	2.1	2.0	1.8	1.8	2.4	2.0	1.9	2.0
360	15	2.0	0.6	1.5	0.7	1.4	0.7	1.9	2.4	2.1	2.0	1.9	1.9	2.4	2.0	2.0	2.0
372		2.0	0.9	1.9	0.8	1.6	1.0	1.9	2.4	2.0	2.0	1.8	1.8	2.3	1.9	1.9	2.0
384	16	2.3	0.6	1.9	0.4	1.9	0.7	1.9	2.4	2.0	1.9	1.8	1.8	2.4	2.0	1.9	2.0
396		2.3	0.7	1.9	0.5	1.8	0.7	1.9	2.4	2.0	1.9	1.8	1.8	2.4	2.0	1.9	2.0
408	17	2.1	0.8	1.7	0.7	1.7	0.9	1.9	2.4	2.0	2.0	1.8	1.8	2.3	1.9	1.9	1.9
420		2.1	0.8	1.9	0.7	1.6	0.9	1.9	2.4	2.0	2.0	1.8	1.8	2.4	2.0	1.9	1.9
432	18	2.4	0.8	2.1	0.6	1.8	0.9	1.8	2.4	2.0	2.0	1.8	1.8	2.4	2.0	1.9	1.9
Average over trial period		2.1	0.7	1.8	0.7	1.6	0.8	2.1	2.3	2.2	2.1	2.1	2.0	2.3	2.0	2.0	2.1
Average of Fruit temperatures						2.1											
Average of Air temperatures						1.3											

Details of logger data are given in Appendix 11

Table 5.33 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.5	1.0	2.1	0.8	1.8	1.1	2.1	2.4	2.3	2.1	2.2	2.1	1.9	1.9	2.1	2.2
24	1	2.2	0.9	1.8	0.8	1.8	1.1	2.1	2.4	2.3	2.1	2.3	2.1	1.9	2.0	2.1	2.2
36		2.2	0.8	2.0	0.8	1.8	0.9	2.2	2.4	2.3	2.1	2.3	2.1	1.9	2.0	2.2	2.2
48	2	2.5	0.9	2.1	0.8	2.1	1.0	2.1	2.5	2.3	2.1	2.3	2.1	1.9	1.9	2.2	2.2
60		2.4	1.0	2.1	0.8	2.0	1.1	2.1	2.5	2.3	2.1	2.3	2.1	1.9	1.9	2.2	2.2
72	3	2.3	1.0	1.9	0.9	1.9	1.2	2.2	2.5	2.4	2.2	2.3	2.2	2.0	2.0	2.2	2.2
84		2.3	0.8	2.0	0.8	1.9	1.0	2.2	2.5	2.4	2.2	2.3	2.2	2.0	2.0	2.2	2.2
96	4	2.5	0.9	2.1	0.7	2.2	1.0	2.2	2.5	2.4	2.2	2.3	2.2	2.0	1.9	2.2	2.2
108		2.3	0.9	2.0	0.9	2.0	1.0	2.2	2.5	2.3	2.2	2.3	2.2	1.9	2.0	2.2	2.2
120	5	2.2	1.0	1.8	0.9	1.8	1.1	2.2	2.5	2.4	2.2	2.4	2.2	2.0	2.0	2.2	2.2
132		2.2	1.0	2.1	1.0	1.8	1.2	2.2	2.5	2.4	2.2	2.4	2.2	2.0	1.9	2.3	2.2
144	6	2.4	0.9	2.0	0.7	2.0	1.0	2.2	2.5	2.4	2.2	2.4	2.2	2.0	1.9	2.2	2.2
156		2.4	0.9	2.0	0.8	2.0	1.0	2.2	2.5	2.4	2.2	2.4	2.2	2.0	1.9	2.2	2.2
168	7	2.2	1.2	1.8	1.0	1.8	1.3	2.2	2.6	2.4	2.2	2.4	2.2	2.0	1.9	2.3	2.2
180		2.2	1.0	2.1	1.0	1.7	1.2	2.2	2.5	2.4	2.2	2.4	2.2	2.0	2.0	2.3	2.2
192	8	2.3	1.0	2.1	0.8	1.9	1.1	2.2	2.5	2.4	2.2	2.4	2.2	2.0	1.9	2.3	2.2
204		2.2	1.0	2.0	0.9	1.7	1.0	2.2	2.5	2.4	2.2	2.4	2.2	2.0	1.9	2.2	2.2
216	9	2.0	1.0	1.6	1.1	1.4	1.1	2.1	2.5	2.4	2.2	2.4	2.2	2.0	1.9	2.3	2.2
228		1.9	1.0	1.9	1.1	1.4	1.2	2.0	2.5	2.5	2.3	2.5	2.3	2.1	2.0	2.3	2.2
240	10	2.2	1.0	2.2	0.9	1.9	1.2	2.0	2.4	2.5	2.3	2.5	2.3	2.1	2.0	2.3	2.3
252		2.4	1.1	2.1	0.9	1.8	1.2	2.0	2.4	2.4	2.2	2.5	2.2	2.0	2.0	2.3	2.3
264	11	2.1	1.1	1.8	1.1	1.6	1.3	2.0	2.4	2.5	2.3	2.5	2.3	2.1	2.0	2.3	2.3
276		2.1	1.1	2.1	1.1	1.6	1.2	2.1	2.4	2.5	2.3	2.5	2.3	2.1	2.0	2.4	2.3
288	12	2.4	0.9	2.2	0.8	2.0	1.1	2.0	2.4	2.5	2.3	2.5	2.3	2.1	2.0	2.3	2.3
300		2.5	0.8	2.1	0.8	2.1	1.0	2.0	2.4	2.4	2.2	2.5	2.2	2.0	1.9	2.3	2.3
312	13	2.3	1.0	1.9	1.0	1.9	1.2	2.0	2.4	2.4	2.2	2.5	2.2	2.0	2.0	2.3	2.3
324		2.3	1.1	2.1	1.1	1.8	1.2	2.1	2.4	2.5	2.3	2.5	2.3	2.1	2.0	2.4	2.3
336	14	2.5	1.1	2.2	0.9	2.4	1.3	2.0	2.4	2.5	2.2	2.5	2.3	2.1	2.0	2.3	2.3
348		2.4	1.0	2.0	0.9	1.9	1.1	2.0	2.3	2.4	2.2	2.5	2.2	2.0	2.0	2.3	2.3
360	15	2.1	1.1	1.7	1.1	1.5	1.3	2.1	2.3	2.5	2.3	2.5	2.3	2.1	2.0	2.4	2.3
372		2.1	1.2	2.0	1.1	1.5	1.3	2.1	2.3	2.5	2.3	2.5	2.3	2.1	2.0	2.4	2.3
384	16	2.5	1.1	2.3	0.9	2.1	1.3	2.1	2.3	2.5	2.3	2.5	2.3	2.1	2.0	2.4	2.3
396		2.5	0.9	2.1	0.8	2.0	1.0	2.1	2.3	2.4	2.2	2.5	2.2	2.0	2.0	2.3	2.3
408	17	2.3	1.0	1.9	0.9	1.9	1.1	2.1	2.3	2.5	2.3	2.5	2.3	2.1	2.0	2.4	2.3
420		2.3	1.1	2.1	1.1	1.8	1.2	2.1	2.3	2.5	2.3	2.5	2.3	2.1	2.0	2.4	2.3
432	18	2.5	1.2	2.2	0.8	2.4	1.3	2.1	2.3	2.5	2.2	2.5	2.3	2.1	2.0	2.4	2.3
Average over trial period		2.3	1.0	2.0	0.9	1.9	1.1	2.1	2.4	2.4	2.2	2.4	2.2	2.0	2.0	2.3	2.2
Average of Fruit temperatures						2.2											
Average of Air temperatures						1.5											

Details of logger data are given in Appendix 11

Table 5.34 Large Scale trials at 2°C for 18 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.4	0.8	2.0	0.8	1.7	0.8	2.0	2.4	2.3	2.2	2.4	2.2	2.0	2.0	2.2	2.1
24	1	2.1	1.0	1.8	1.0	1.6	1.1	2.1	2.4	2.4	2.3	2.4	2.3	2.1	2.0	2.3	2.2
36		2.1	1.0	1.9	1.0	1.6	1.2	2.1	2.4	2.4	2.3	2.5	2.3	2.1	2.1	2.3	2.2
48	2	2.5	1.1	2.3	0.7	2.5	1.2	2.1	2.4	2.4	2.2	2.4	2.3	2.1	2.0	2.3	2.2
60		2.4	0.9	2.0	0.9	1.8	1.0	2.0	2.4	2.3	2.2	2.4	2.2	2.0	2.0	2.2	2.2
72	3	2.1	1.2	1.8	1.2	1.5	1.3	2.1	2.4	2.4	2.3	2.4	2.3	2.1	2.0	2.3	2.2
84		2.1	1.0	1.9	1.0	1.6	1.2	2.1	2.4	2.4	2.3	2.5	2.3	2.1	2.0	2.4	2.2
96	4	2.6	1.0	2.4	0.6	2.4	1.1	2.1	2.4	2.3	2.2	2.4	2.3	2.0	2.0	2.3	2.2
108		2.6	1.1	2.2	0.8	2.1	1.1	2.0	2.3	2.3	2.1	2.4	2.2	2.0	1.9	2.2	2.2
120	5	2.3	0.9	1.9	0.9	1.8	1.1	2.1	2.3	2.3	2.2	2.4	2.2	2.0	2.0	2.2	2.2
132		2.4	1.0	2.0	1.0	2.1	1.1	2.1	2.3	2.4	2.2	2.4	2.3	2.1	2.0	2.3	2.2
144	6	2.6	1.0	2.3	0.9	2.5	1.3	2.1	2.3	2.3	2.2	2.4	2.2	2.0	2.0	2.2	2.2
156		2.4	1.0	2.1	0.9	1.9	1.1	2.1	2.3	2.3	2.2	2.4	2.2	2.0	2.0	2.2	2.2
168	7	2.2	0.7	1.7	0.8	1.5	0.8	2.1	2.3	2.4	2.3	2.4	2.3	2.1	2.0	2.3	2.2
180		2.3	0.8	1.9	0.9	1.8	1.0	2.1	2.3	2.4	2.3	2.5	2.3	2.1	2.0	2.3	2.2
192	8	2.6	1.1	2.3	0.8	2.5	1.2	2.1	2.3	2.3	2.2	2.4	2.2	2.0	2.0	2.3	2.2
204		2.5	1.0	2.1	0.9	2.0	1.1	2.1	2.3	2.3	2.2	2.4	2.2	2.0	1.9	2.2	2.2
216	9	2.2	1.1	1.9	1.1	1.6	1.2	2.1	2.3	2.3	2.2	2.4	2.3	2.0	2.0	2.3	2.2
228		2.3	1.1	2.1	1.1	1.9	1.4	2.1	2.3	2.4	2.3	2.5	2.3	2.1	2.0	2.3	2.2
240	10	2.7	1.1	2.4	0.7	2.9	1.2	2.0	2.3	2.3	2.2	2.4	2.2	2.0	1.9	2.2	2.2
252		2.6	1.2	2.2	0.9	2.2	1.2	2.0	2.3	2.3	2.1	2.4	2.2	2.0	2.0	2.2	2.2
264	11	2.3	1.1	2.0	1.0	1.8	1.2	2.1	2.3	2.3	2.2	2.4	2.2	2.0	2.0	2.3	2.1
276		2.4	1.0	2.0	0.9	1.9	1.2	2.1	2.3	2.4	2.2	2.4	2.3	2.1	2.0	2.3	2.2
288	12	2.7	0.9	2.3	0.7	2.4	1.1	2.1	2.3	2.3	2.2	2.4	2.2	2.0	1.9	2.2	2.2
300		2.5	1.0	2.1	0.9	2.2	1.1	2.1	2.3	2.3	2.2	2.4	2.2	2.0	1.9	2.2	2.1
312	13	2.4	1.1	2.1	1.1	2.0	1.3	2.1	2.3	2.3	2.2	2.4	2.3	2.0	2.0	2.3	2.2
324		2.3	1.2	2.0	1.0	1.9	1.3	2.0	2.3	2.3	2.2	2.4	2.2	2.0	2.0	2.2	2.1
336	14	2.2	0.9	1.9	0.8	1.8	1.0	1.9	2.4	2.2	2.1	2.2	2.1	1.9	2.0	2.0	2.0
348		2.3	0.8	1.8	0.8	1.9	1.0	1.9	2.4	2.2	2.1	2.2	2.1	1.9	2.0	2.1	2.0
360	15	2.5	0.9	2.2	0.7	2.1	1.0	1.9	2.5	2.2	2.1	2.2	2.1	1.9	1.9	2.1	2.0
372		2.4	1.0	2.1	0.9	1.9	1.1	1.9	2.5	2.3	2.2	2.3	2.1	1.9	2.0	2.2	2.2
384	16	2.3	0.9	2.0	0.8	1.8	1.0	1.9	2.5	2.4	2.2	2.3	2.2	2.0	2.0	2.2	2.2
396		2.7	1.2	2.2	0.7	2.3	1.1	2.0	2.4	2.4	2.2	2.5	2.2	2.0	1.9	2.3	2.3
408	17	2.5	1.0	2.1	0.9	1.9	1.1	2.0	2.3	2.4	2.2	2.5	2.2	2.0	2.0	2.3	2.3
420		2.4	1.0	2.1	0.9	1.9	1.1	2.1	2.3	2.4	2.2	2.5	2.2	2.0	2.0	2.4	2.3
432	18	2.4	0.9	2.1	0.9	2.3	1.1	2.1	2.3	2.5	2.2	2.5	2.3	2.1	2.0	2.4	2.3
Average over trial period		2.4	1.0	2.1	0.9	2.0	1.1	2.0	2.3	2.3	2.2	2.4	2.2	2.0	2.0	2.2	2.2
Average of Fruit temperatures						2.2											
Average of Air temperatures						1.6											

Details of logger data are given in Appendix 11

Table 5.35 Calibration summary before and after 2.0°C Large Scale trials

Trial		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
Red Globe 2°C																	
Before	Rep 1	0.1	-0.1	0.2	-0.1	0.1	0.0	-0.1	0.1	-0.1	-0.1	0.0	0.2	0.1	-0.2	0.1	-0.2
	Rep 2	0.1	-0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	-0.2	0.1	-0.1
	Rep 3	0.1	-0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	-0.2	0.1	-0.1
After	Rep 1	0.1	-0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	-0.2	0.1	-0.2
	Rep 2	0.1	-0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	-0.2	0.1	-0.1
	Rep 3	0.0	-0.2	-0.1	-0.1	0.0	-0.1	0.1	-0.1	-0.2	0.1	0.0	0.0	0.0	-0.1	0.0	-0.2
Thompson Seedless 2°C																	
Before	Rep 1	0.0	-0.2	-0.1	-0.1	0.0	-0.1	0.1	-0.1	-0.2	0.1	0.0	0.0	0.0	-0.1	0.0	-0.2
	Rep 2	0.0	-0.2	-0.1	-0.1	0.0	-0.1	0.1	-0.1	-0.2	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 3	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.2	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2
After	Rep 1	0.0	-0.2	-0.1	-0.1	0.0	-0.1	0.1	-0.1	-0.2	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 2	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.2	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2
	Rep 3	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.2	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2
Crimson Seedless 2°C																	
Before	Rep 1	0.0	-0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.2	0.0	-0.2	0.0	-0.2
	Rep 2	0.1	-0.1	0.2	-0.1	0.1	0.0	-0.1	0.1	-0.1	-0.1	0.0	0.2	0.1	-0.2	0.1	-0.2
	Rep 3	0.1	-0.1	0.2	-0.1	0.1	0.0	-0.1	0.1	-0.1	-0.1	0.0	0.2	0.1	-0.2	0.1	-0.2
After	Rep 1	0.1	-0.1	0.2	-0.1	0.1	0.0	-0.1	0.1	-0.1	-0.1	0.0	0.2	0.1	-0.2	0.1	-0.2
	Rep 2	0.1	-0.1	0.2	-0.1	0.1	0.0	-0.1	0.1	-0.1	-0.1	0.0	0.2	0.1	-0.2	0.1	-0.2
	Rep 3	0.1	-0.1	0.2	-0.1	0.1	0.0	-0.1	0.1	-0.1	-0.1	0.0	0.2	0.1	-0.2	0.1	-0.2

Details of logger calibration data are given in Appendix 11

5.6 RESULTS OF THE LARGE SCALE COLD TREATMENT TRIALS OF MEDFLY IN TABLE GRAPES AT $3.0 \pm 0.5^{\circ}\text{C}$.

The $3.0 \pm 0.5^{\circ}\text{C}$ trials were conducted from November 2004 to May 2005. The dates are given in **Table 5.36**.

Table 5.36 Summary of the dates and times of the conduct of the Large Scale trials at $3.0 \pm 0.5^{\circ}\text{C}$ in Table grapes. The exposure period of 20 days begins after temperature probes in the fruit have reached the treatment temperature.

Table grapes Variety	Rep.	Start date / time of Trial	Date/ Time to reach $3.0 \pm 0.5^{\circ}\text{C}$	Hours to cool down	End date / time of Trial	Cold Room No.	Logger Serial No.	Calibration: Before trial Date / time	Calibration After trial Date / time
<i>Red Globe</i>	1	30.11.2004 07:16 am	01.12.2004 19:16 pm	36	21.12.2004 19:16 pm	# 3	1256 - 00019	29.11.2004 09:02 am	23.12.2004 09:06 am
	2	07:48 am	19:48 pm	36	19:48 pm	# 4	1256 - 00107	09:21 am	09:32 am
	3	08:31 am	23:31 pm	39	23:31 pm	# 5	1206 - 00042	09:53 am	09:58 am
<i>Crimson Seedless</i>		23.04.2005	24 / 25 .04.2005		14 / 15 .05.2005			22.04.2005	16.05.2005
	1	07:22 am	24.04.2005 17:22 pm	34	14.05.2005 17:22 pm	# 3	1256 - 00019	08:42 am	09:05 am
	2	07:42 am	25.04.2005 06:42 am	47	15.05.2005 06:42 am	# 4	1256 - 00107	09:01 am	09:27 am
	3	08:09 am	25.04.2005 17:09 pm	57	15.05.2005 17:09 pm	# 5	1206 - 00042	09:29 am	09:51 am
<i>Thompson Seedless</i>		11.02.2005	13.02.2005		05.03.2005			10.02.2005	06.03.2005
	1	07:16 am	09:16 am	50	09:16 am	# 3	1256 - 00019	08:17 am	08:22 am
	2	07:49 am	12:49 pm	53	12:49 pm	# 4	1256 - 00107	08:30 am	08:40 am
	3	08:32 am	13:32 pm	53	13:32 pm	# 5	1206 - 00042	09:01 am	09:05 am

The large amount of fruit to be infested made it necessary to spread the work over 2 days (1,500 fruit/day, total 3,000 fruit/replicate). Thus treated fruit were of day 6 and day 7 after infestation when $>50\%$ 2nd instar live larvae were present, however these fruits also had a proportion of live 1st instar larvae. Data on live numbers of both stages present in each replicate before the treatment were obtained by dissecting the extra fruit infested at the same time.

5.6.1 Medfly data for cold treatment of Red Globe table grapes.

The results (tables 5.37 & 5.38) show that, from the dissection data an estimated 50,524 1st instar and 115,872 2nd instar (**total 166,396**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **80,017** Medfly were exposed to cold treatment. There were no survivors after 20 days cold exposure to $3.0 \pm 0.5^{\circ}\text{C}$ in Red Globe table grapes and the treatment is suitable for disinfestation.

Table 5.37: Red Globe table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $3.0 \pm 0.5^{\circ}\text{C}$ for 20 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 3.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	9,120	10,032	10,640	29,792
		2 nd instar	14,200	17,040	17,892	49,132
day 7	3,000	1 st instar	7,952	7,100	5,680	20,732
		2 nd instar	19,880	22,720	24,140	66,740
Total	6,000		51,152	56,892	58,352	166,396

Table 5.38: Red Globe table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $3.0 \pm 0.5^{\circ}\text{C}$ for 20 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	12,821		25,643	0
2	13,284		26,568	0
3	13,903		27,806	0
Total	40,009		80,017	0

5.6.2 Medfly data for cold treatment of Crimson Seedless table grapes.

The results (tables 5.39 & 5.40) show that, from the dissection data an estimated 35,360 1st instar and 103,075 2nd instar (**total 138,435**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **73,236** Medfly were exposed to cold treatment. There were no survivors after 20 days cold exposure to $3.0 \pm 0.5^{\circ}\text{C}$ in Crimson Seedless table grapes and the treatment is suitable for disinfestation.

Table 5.39: Crimson Seedless table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $3.0 \pm 0.5^{\circ}\text{C}$ for 20 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 3.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	7,396	5,778	5,316	18,489
		2 nd instar	16,178	14,329	15,484	45,991
day 7	3,000	1 st instar	6,471	4,853	5,547	16,871
		2 nd instar	18,489	18,951	19,644	57,084
Total	6,000		48,533	43,911	45,991	138,435

Table 5.40: Crimson Seedless table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $3.0 \pm 0.5^{\circ}\text{C}$ for 20 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	11,555		23,110	0
2	12,981		25,962	0
3	12,082		24,164	0
Total	36,618		73,236	0

5.6.3 Medfly data for cold treatment of Thompson Seedless table grapes.

The results (tables 5.41 & 5.42) show that, from the dissection data an estimated 45,267 1st instar and 97,528 2nd instar (**total 142,795**) Medfly were exposed to cold treatment, with no survivors. Another estimate from the pupae obtained in the untreated control fruit show that **75,884** Medfly were exposed to cold treatment. There were no survivors after 20 days cold exposure to $3.0 \pm 0.5^{\circ}\text{C}$ in Thompson Seedless table grapes and the treatment is suitable for disinfestation.

Table 5.41: Thompson Seedless table grapes large scale trials. Estimated number of live insects found in infested fruits on the day of placement in cold treatment at $3.0 \pm 0.5^{\circ}\text{C}$ for 20 days.

Days after infestation	Number of infested fruits treated (total of 3 replicates)	Stage treated	Estimate of total eggs & larvae treated at 3.0°C			Total live insects treated
			Rep 1	Rep 2	Rep 3	
day 6	3,000	1 st instar	9,484	8,622	8,191	26,298
		2 nd instar	11,556	15,715	14,329	41,600
day 7	3,000	1 st instar	6,467	5,604	6,898	18,969
		2 nd instar	18,489	19,413	18,027	55,929
Total	6,000		45,995	49,355	47,444	142,795

Table 5.42: Thompson Seedless table grapes large scale trials. Total number of pupae recovered from control fruits (2000 / replicate/) and treated fruits (1000 / replicate) in cold treatment at $3.0 \pm 0.5^{\circ}\text{C}$ for 20 days.

Cold treatment Replicate	Pupae obtained in (untreated) control fruit 1000/replicate		Estimated number of Pupae in treated fruit 2000/replicate	Number of Survivors after cold treatment
1	13,010		26,021	0
2	12,643		25,286	0
3	12,289		24,578	0
Total	37,942		75,884	0

5.6.4 Summary of cold treatment data for the large scale trials at $3.0 \pm 0.5^{\circ}\text{C}$.

The records of the temperatures from the cold treatment trials for each replicate treatment are summarised in the Tables and Figures in the following pages. The data shows that the required temperature of $3.0 \pm 0.5^{\circ}\text{C}$ was maintained throughout the trials. The data loggers were calibrated before and after each trial and the summary tables for calibration are also given. These show that the records of temperatures were accurate throughout the trials.

A list of these summary Tables is given below for each table grapes cultivar and is shown in this report as follows:

The summary tables for each cultivar are as follows:

- (1) **Red Globe:** Tables 5.43 to 5.45
- (2) **Thompson Seedless:** Tables 5.46 to 5.48
- (
(3) **Crimson Seedless:** Tables 5.49 to 5.51
- (4) Calibration of loggers before and after each trial: Table 5.52

The complete details of the raw data are given in **Appendix 12**.

Table 5.43 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.3	1.8	1.5	2.3	2.0	2.2	3.1	3.0	3.1	3.2	3.0	3.2	3.2	3.2	3.0	3.1
24	1	2.7	2.1	2.0	2.4	2.3	1.9	3.1	3.0	3.0	3.1	2.9	3.2	3.2	3.2	3.0	3.1
36		2.7	2.2	2.1	2.5	2.3	1.9	3.2	3.0	3.2	3.3	3.1	3.2	3.2	3.0	3.1	3.2
48	2	3.2	2.7	1.8	2.8	2.4	3.7	3.2	2.9	3.1	3.2	3.0	3.3	3.2	3.0	3.0	3.1
60		2.4	1.8	1.8	2.4	2.2	2.2	3.1	3.0	3.0	3.1	3.0	3.2	3.1	3.1	3.1	3.0
72	3	2.8	2.2	2.3	2.6	2.5	1.8	3.1	2.9	2.9	3.1	3.0	3.1	3.0	3.2	3.1	2.9
84		2.9	2.3	2.4	2.7	2.6	1.9	3.1	2.9	2.9	3.0	2.9	3.1	3.0	3.1	3.1	2.9
96	4	3.4	2.8	1.8	2.8	2.4	4.0	3.1	2.9	2.8	2.9	2.9	3.0	2.9	3.1	3.1	2.9
108		2.4	1.9	1.5	2.4	2.1	2.2	3.0	3.0	2.8	2.9	2.9	3.0	2.9	3.1	3.1	2.9
120	5	2.7	2.2	2.2	2.5	2.4	1.8	3.0	3.1	2.8	2.9	2.9	2.9	2.9	3.1	3.1	2.9
132		2.9	2.3	2.3	2.8	2.5	1.9	3.1	3.1	2.8	2.9	2.9	2.9	2.9	3.0	3.1	3.0
144	6	3.8	3.2	2.3	3.2	2.9	4.3	3.1	3.1	2.8	2.9	2.9	2.9	2.9	3.0	3.0	3.0
156		2.7	2.2	1.9	2.7	2.5	2.6	3.1	3.0	2.8	2.9	3.0	2.9	2.9	3.0	3.1	3.0
168	7	3.3	2.8	2.5	2.9	2.8	2.6	3.1	3.0	2.8	2.9	3.0	2.9	2.9	3.0	3.1	3.0
180		3.2	2.7	2.4	2.9	2.7	2.5	3.1	3.0	2.8	2.9	3.0	2.9	2.9	3.0	3.1	3.1
192	8	3.6	3.0	2.5	3.1	2.9	3.2	3.1	3.0	2.8	2.9	3.0	3.0	2.9	3.1	3.1	3.1
204		2.7	2.2	2.2	2.9	2.7	2.3	3.1	2.9	2.8	2.9	3.1	3.0	2.9	3.1	3.2	3.1
216	9	3.4	2.9	2.7	3.0	2.9	2.4	3.1	2.9	2.9	3.0	3.1	3.0	2.9	3.1	3.2	3.1
228		3.5	3.0	2.8	3.1	3.0	2.6	3.2	2.9	2.9	3.0	3.2	3.1	2.9	3.1	3.2	3.1
240	10	4.0	3.4	2.8	3.5	3.2	4.0	3.2	3.0	2.9	3.0	3.2	3.1	3.0	3.1	3.2	3.1
252		3.0	2.5	2.3	3.0	2.8	2.7	3.2	3.1	2.9	3.1	3.2	3.1	3.0	3.1	3.3	3.2
264	11	3.6	3.0	2.9	3.2	3.1	2.7	3.2	3.1	3.0	3.1	3.3	3.1	3.0	3.2	3.3	3.2
276		3.6	3.1	2.8	3.3	3.1	2.9	3.3	3.1	3.0	3.1	3.3	3.2	3.1	3.2	3.1	3.1
288	12	4.1	3.5	3.0	3.6	3.4	3.7	3.3	3.1	3.0	3.1	3.3	3.2	3.1	3.2	3.0	3.0
300		3.2	2.6	2.5	3.2	3.0	2.9	3.3	3.2	3.1	3.2	3.3	3.2	3.1	3.2	3.0	3.0
312	13	3.7	3.2	3.1	3.3	3.2	2.8	3.3	3.2	3.1	3.2	3.4	3.3	3.2	3.3	3.0	3.0
324		3.8	3.2	2.9	3.4	3.2	3.0	3.3	3.2	3.1	3.2	3.4	3.3	3.2	3.3	3.0	3.0
336	14	4.2	3.6	2.9	3.6	3.3	3.9	3.4	3.2	3.1	3.2	3.4	3.3	3.2	3.3	3.0	3.0
348		3.4	2.8	2.7	3.4	3.1	3.2	3.4	3.3	3.1	3.2	3.4	3.4	3.3	3.3	3.1	3.0
360	15	3.9	3.3	3.0	3.4	3.3	3.2	3.3	3.3	3.2	3.3	3.4	3.4	3.3	3.4	3.1	3.0
372		3.9	3.4	3.0	3.5	3.3	3.3	3.3	3.3	3.2	3.3	3.4	3.4	3.3	3.4	3.1	3.1
384	16	4.3	3.7	2.9	3.7	3.4	3.9	3.3	3.3	3.2	3.3	3.4	3.4	3.3	3.4	3.1	3.1
396		3.4	2.8	2.6	3.4	3.1	3.2	3.3	3.3	3.2	3.3	3.4	3.3	3.4	3.3	3.1	3.1
408	17	3.9	3.3	2.9	3.5	3.3	3.2	3.3	3.3	3.2	3.3	3.4	3.3	3.4	3.3	3.2	3.1
420		3.9	3.3	2.9	3.5	3.3	3.2	3.3	3.3	3.2	3.3	3.4	3.3	3.4	3.4	3.2	3.2
432	18	4.4	3.8	3.0	3.8	3.5	4.5	3.3	3.3	3.2	3.3	3.4	3.3	3.4	3.4	3.2	3.2
444		3.3	2.7	2.5	3.3	3.0	3.0	3.3	3.4	3.3	3.3	3.4	3.3	3.4	3.4	3.2	3.2
456	19	3.5	3.0	3.0	3.4	3.2	2.6	3.3	3.4	3.3	3.4	3.4	3.3	3.4	3.4	3.2	3.2
468		3.7	3.2	3.3	3.6	3.4	2.9	3.3	3.3	3.3	3.4	3.4	3.3	3.4	3.4	3.2	3.3
480	20	4.4	3.8	2.8	3.7	3.4	4.4	3.3	3.3	3.3	3.3	3.4	3.3	3.4	3.4	3.2	3.3
Average over trial period		3.4	2.8	2.5	3.1	2.9	2.9	3.2	3.1	3.0	3.1	3.2	3.1	3.1	3.2	3.1	3.1
Average of Fruit temperatures						3.1											
Average of Air temperatures						2.9											

Details of logger data are given in Appendix 12

Table 5.44 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		3.7	2.3	3.3	3.2	3.1	2.5	3.3	3.1	3.2	3.1	3.2	3.2	3.3	3.1	2.9	3.2
24	1	3.8	2.7	3.5	3.3	3.1	2.7	3.3	3.0	3.2	3.1	3.1	3.2	3.3	3.1	2.9	3.2
36		4.3	4.6	3.3	3.4	3.2	3.7	3.3	3.1	3.1	3.1	3.2	3.2	3.3	3.1	3.0	3.2
48	2	3.3	3.1	2.9	3.1	2.8	2.7	3.3	3.1	3.1	3.2	3.2	3.2	3.3	3.1	3.1	3.3
60		3.7	2.7	3.2	3.1	3.0	2.6	3.2	3.0	3.1	3.1	3.1	3.2	3.4	3.1	3.1	3.3
72	3	3.8	2.7	3.5	3.3	3.1	2.7	3.2	2.9	3.0	3.1	3.1	3.2	3.3	3.1	3.1	3.2
84		4.2	4.2	3.2	3.5	3.1	4.1	3.2	2.9	3.0	3.1	3.1	3.2	3.3	3.1	3.0	3.3
96	4	3.3	3.2	2.9	3.1	2.8	2.9	3.2	3.0	3.0	3.1	3.1	3.2	3.3	3.1	3.0	3.3
108		3.7	2.3	3.5	3.2	3.1	2.7	3.2	3.0	3.0	3.1	3.1	3.2	3.4	3.1	3.0	3.2
120	5	3.8	2.3	3.6	3.4	3.2	2.6	3.2	3.0	3.0	3.1	3.1	3.2	3.4	3.1	2.9	3.2
132		4.0	4.1	3.1	3.3	3.0	3.8	3.2	3.0	2.9	3.1	3.1	3.2	3.4	3.1	2.9	3.3
144	6	3.2	3.0	3.0	3.1	2.8	2.7	3.2	3.0	3.0	3.1	3.2	3.2	3.4	3.1	2.9	3.3
156		3.5	2.0	3.4	3.1	3.0	2.3	3.2	3.0	3.0	3.1	3.1	3.2	3.3	3.1	2.9	3.3
168	7	3.6	2.1	3.4	3.3	3.1	2.4	3.2	3.1	3.0	3.1	3.1	3.2	3.2	3.1	2.9	3.3
180		4.3	4.5	3.1	3.5	3.2	4.3	3.2	3.0	2.9	3.1	3.1	3.2	3.3	3.1	2.9	3.3
192	8	3.3	3.2	2.9	3.0	2.8	2.9	3.2	3.0	2.9	3.1	3.1	3.2	3.3	3.1	3.0	3.3
204		3.7	2.8	3.2	3.1	3.0	2.7	3.2	3.0	3.0	3.1	3.1	3.2	3.2	3.1	3.0	3.3
216	9	3.8	3.0	3.3	3.2	3.0	2.9	3.1	2.9	3.0	3.1	3.0	3.2	3.3	3.1	3.0	3.3
228		3.9	3.7	3.2	3.2	3.0	3.2	3.1	2.9	3.0	3.1	3.1	3.2	3.3	3.1	3.1	3.3
240	10	3.1	2.6	3.1	3.0	2.9	2.5	3.2	2.9	3.0	3.1	3.1	3.2	3.3	3.1	3.1	3.3
252		3.5	1.4	3.4	3.0	3.0	2.0	3.1	2.9	3.0	3.1	3.1	3.2	3.3	3.1	3.1	3.3
264	11	3.5	1.4	3.5	3.2	3.1	2.1	3.1	2.9	3.0	3.1	3.0	3.2	3.3	3.1	3.1	3.3
276		4.0	3.8	3.1	3.4	3.1	3.7	3.2	3.0	3.0	3.2	3.1	3.2	3.3	3.1	3.1	3.3
288	12	3.2	2.8	2.9	3.0	2.8	2.6	3.1	3.0	2.9	3.1	3.1	3.3	3.3	3.1	3.2	3.3
300		3.5	1.5	3.3	3.0	2.9	2.1	3.1	3.0	2.9	3.1	3.1	3.3	3.4	3.1	3.2	3.3
312	13	3.5	1.7	3.3	3.2	3.0	2.2	3.2	3.0	3.0	3.1	3.1	3.3	3.4	3.1	3.1	3.3
324		4.2	4.3	3.1	3.5	3.1	4.0	3.1	3.0	3.0	3.1	3.1	3.3	3.3	3.1	3.2	3.3
336	14	3.1	2.9	2.7	2.9	2.7	2.6	3.1	3.0	3.0	3.1	3.2	3.3	3.4	3.1	3.2	3.3
348		3.7	2.3	3.4	3.2	3.1	2.6	3.2	2.9	3.0	3.1	3.1	3.3	3.3	3.1	3.2	3.3
360	15	3.5	2.5	3.2	3.0	2.9	2.5	3.1	2.9	3.0	3.1	3.1	3.3	3.3	3.1	3.1	3.3
372		3.9	4.1	3.0	3.2	3.0	3.7	3.1	2.9	3.0	3.1	3.1	3.3	3.3	3.1	3.2	3.3
384	16	3.0	2.8	2.7	2.9	2.6	2.5	3.2	3.0	3.0	3.1	3.1	3.3	3.3	3.1	3.2	3.3
396		3.4	1.7	3.1	2.9	2.8	2.1	3.2	2.9	2.9	3.1	3.1	3.3	3.3	3.1	3.1	3.4
408	17	3.5	1.8	3.3	3.2	3.0	2.2	3.2	2.9	2.9	3.1	3.0	3.3	3.3	3.1	3.1	3.4
420		4.0	4.0	2.9	3.3	2.9	3.9	3.1	2.9	3.0	3.1	3.1	3.3	3.3	3.1	3.1	3.3
432	18	3.1	2.9	2.6	2.9	2.6	2.6	3.1	2.9	3.0	3.1	3.1	3.3	3.3	3.1	3.1	3.3
444		3.5	2.0	3.3	3.0	3.0	2.3	3.2	2.9	3.0	3.1	3.1	3.3	3.4	3.1	3.1	3.3
456	19	3.5	2.1	3.2	3.2	3.0	2.3	3.2	2.9	3.0	3.1	3.0	3.3	3.3	3.1	3.1	3.3
468		4.1	4.4	2.9	3.4	3.0	4.0	3.2	2.9	3.0	3.1	3.1	3.4	3.3	3.1	3.1	3.3
480	20	3.1	3.0	2.6	2.9	2.6	2.7	3.2	2.9	3.0	3.1	3.1	3.4	3.4	3.1	3.1	3.3
Average over trial period		3.6	2.9	3.2	3.2	3.0	2.8	3.2	3.0	3.0	3.1	3.1	3.2	3.3	3.1	3.1	3.3
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.1											

Details of logger data are given in Appendix 12

Table 5.45 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Red Globe in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		3.3	2.8	3.1	3.2	3.1	2.7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.3	3.1
24	1	3.2	2.3	3.5	3.3	3.3	2.5	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.3	3.1
36		2.9	3.4	2.9	3.5	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.1	3.3	3.1
48	2	3.9	4.7	3.2	3.5	3.4	4.0	3.2	3.2	3.2	3.1	3.2	3.2	3.3	3.1	3.3	3.1
60		3.4	3.0	3.2	3.3	3.2	2.8	3.2	3.2	3.3	3.0	3.2	3.2	3.3	3.1	3.3	3.1
72	3	3.3	2.3	3.5	3.4	3.4	2.6	3.1	3.2	3.3	3.0	3.2	3.2	3.3	3.2	3.3	3.1
84		3.1	2.5	3.1	3.2	3.0	2.5	3.1	3.2	3.2	3.0	3.2	3.2	3.3	3.1	3.3	3.2
96	4	2.6	1.5	2.9	2.6	2.6	1.8	3.1	3.2	3.2	3.0	3.2	3.2	3.3	3.1	3.3	3.2
108		2.1	2.1	2.2	2.8	2.3	2.3	3.1	3.2	3.2	3.0	3.2	3.2	3.3	3.1	3.3	3.2
120	5	3.2	3.3	2.6	2.8	2.7	3.4	3.1	3.2	3.3	3.0	3.2	3.2	3.3	3.2	3.3	3.2
132		2.8	1.8	2.9	2.8	2.8	2.1	3.1	3.2	3.2	3.1	3.2	3.2	3.3	3.1	3.3	3.2
144	6	2.7	1.1	3.1	2.7	2.8	1.7	3.1	3.2	3.2	3.1	3.2	3.2	3.3	3.1	3.3	3.2
156		2.2	2.1	2.4	3.0	2.6	2.5	3.1	3.2	3.2	3.1	3.2	3.2	3.3	3.2	3.3	3.2
168	7	3.3	3.5	2.5	2.9	2.7	3.7	3.1	3.2	3.2	3.1	3.2	3.2	3.3	3.2	3.2	3.2
180		2.8	1.8	2.8	2.7	2.7	2.1	3.1	3.1	3.1	3.1	3.2	3.2	3.3	3.1	3.2	3.2
192	8	2.6	0.9	2.9	2.7	2.7	1.6	3.1	3.1	3.0	3.1	3.2	3.2	3.3	3.1	3.2	3.2
204		2.4	2.4	2.7	3.2	2.8	2.8	3.1	3.1	3.0	3.1	3.2	3.2	3.3	3.1	3.2	3.2
216	9	3.7	3.9	2.9	3.2	3.1	3.9	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2
228		3.2	2.6	3.2	3.1	3.1	2.6	3.1	3.1	3.0	3.1	3.2	3.2	3.3	3.1	3.2	3.2
240	10	3.1	2.4	3.2	3.0	3.0	2.5	3.1	3.1	3.0	3.1	3.1	3.2	3.2	3.1	3.1	3.2
252		2.6	2.8	2.7	3.1	2.8	2.5	3.1	3.1	3.0	3.1	3.1	3.2	3.3	3.1	3.1	3.2
264	11	3.5	3.3	3.3	3.3	3.2	3.1	3.1	3.1	3.0	3.1	3.2	3.1	3.2	3.1	3.2	3.2
276		3.3	2.2	3.4	3.2	3.2	2.4	3.1	3.1	3.0	3.1	3.2	3.2	3.3	3.1	3.2	3.2
288	12	3.3	2.3	3.5	3.3	3.3	2.5	3.1	3.1	3.0	3.1	3.1	3.2	3.2	3.1	3.2	3.2
300		2.8	3.1	3.1	3.3	3.1	2.8	3.1	3.1	3.0	3.1	3.2	3.1	3.3	3.1	3.2	3.1
312	13	3.9	4.0	3.3	3.6	3.4	3.8	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.1
324		3.5	2.7	3.6	3.4	3.4	2.8	3.1	3.1	3.1	3.1	3.2	3.2	3.3	3.1	3.1	3.2
336	14	3.4	2.5	3.6	3.4	3.4	2.7	3.1	3.1	3.0	3.1	3.2	3.1	3.2	3.1	3.2	3.1
348		3.1	3.4	3.2	3.6	3.3	3.1	3.1	3.1	3.1	3.0	3.2	3.1	3.3	3.2	3.2	3.2
360	15	3.9	4.0	3.6	3.7	3.5	3.6	3.1	3.1	3.1	3.0	3.2	3.1	3.3	3.2	3.2	3.2
372		3.7	2.8	3.6	3.5	3.5	2.9	3.1	3.1	3.1	3.1	3.2	3.1	3.3	3.2	3.2	3.2
384	16	3.5	2.5	3.9	3.6	3.6	2.8	3.1	3.1	3.1	3.1	3.2	3.1	3.2	3.2	3.2	3.2
396		3.2	3.7	3.1	3.5	3.2	3.0	3.1	3.1	3.1	3.1	3.2	3.1	3.3	3.2	3.2	3.2
408	17	4.2	4.5	3.8	3.8	3.8	4.0	3.1	3.1	3.1	3.1	3.2	3.1	3.3	3.2	3.2	3.2
420		3.8	3.3	3.7	3.6	3.6	3.2	3.1	3.0	3.1	3.1	3.2	3.1	3.3	3.2	3.2	3.2
432	18	3.7	3.1	3.8	3.7	3.6	3.2	3.1	3.0	3.1	3.1	3.2	3.1	3.3	3.2	3.2	3.2
444		3.3	3.9	3.2	3.6	3.3	3.3	3.0	3.1	3.1	3.1	3.2	3.1	3.3	3.2	3.2	3.2
456	19	4.2	4.6	3.5	3.8	3.6	3.8	3.0	3.0	3.1	3.1	3.2	3.1	3.3	3.2	3.2	3.2
468		3.8	3.6	3.7	3.7	3.6	3.3	3.1	3.0	3.0	3.1	3.2	3.1	3.3	3.1	3.2	3.2
480	20	3.7	3.3	3.6	3.7	3.6	3.2	3.1	3.0	3.0	3.1	3.2	3.1	3.3	3.1	3.3	3.2
Average over trial period		3.3	2.9	3.2	3.3	3.2	2.9	3.1	3.1	3.1	3.1	3.2	3.1	3.3	3.1	3.2	3.2
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.1											

Details of logger data are given in Appendix 12

Table 5.46 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		1.7	2.2	1.6	2.2	2.3	2.8	3.2	3.2	3.1	3.2	3.1	3.0	3.1	3.1	3.2	3.1
24	1	2.1	1.2	2.1	2.0	2.5	2.1	3.2	3.2	3.2	3.2	3.0	3.0	3.1	3.0	3.2	3.1
36		2.5	0.9	3.3	3.2	3.0	2.6	3.2	3.2	3.2	3.1	3.1	3.2	3.1	3.1	3.2	3.2
48	2	2.9	2.9	2.2	2.9	2.9	4.4	3.2	3.2	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1
60		1.6	1.5	2.0	2.2	2.6	2.6	3.2	3.2	3.1	3.2	3.0	3.0	3.1	3.1	3.2	3.1
72	3	2.5	1.2	2.9	2.4	2.9	2.2	3.2	3.2	3.2	3.2	3.1	3.1	3.1	3.0	3.2	3.1
84		2.6	0.7	3.2	2.9	3.2	1.8	3.1	3.2	3.1	3.2	3.1	3.1	3.0	3.0	3.1	3.1
96	4	3.5	3.5	2.7	3.2	3.1	4.3	3.1	3.2	3.2	3.1	3.0	3.1	3.1	3.0	3.1	3.2
108		2.4	2.0	1.4	2.2	2.2	2.6	3.1	3.2	3.1	3.2	3.0	3.1	3.1	3.1	3.1	3.1
120	5	2.7	0.7	2.6	1.9	2.6	1.6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2
132		2.9	0.6	2.6	2.7	2.7	2.3	3.2	3.2	3.1	3.2	3.0	3.2	3.1	3.1	3.2	3.2
144	6	3.4	3.5	2.2	3.4	3.2	4.9	3.2	3.2	3.1	3.2	3.1	3.1	3.1	3.1	3.2	3.1
156		2.6	2.3	2.0	2.3	2.8	3.1	3.2	3.3	3.2	3.2	3.1	3.1	3.1	3.1	3.2	3.1
168	7	3.1	2.6	2.6	2.4	3.2	2.7	3.1	3.2	3.1	3.2	3.0	3.1	3.1	3.1	3.2	3.1
180		3.0	2.3	3.1	3.0	3.4	3.3	3.2	3.2	3.1	3.1	3.0	3.1	3.2	3.1	3.1	3.1
192	8	3.2	3.1	3.4	3.6	3.4	3.9	3.0	3.2	3.1	3.1	3.1	3.1	3.2	3.0	3.1	3.1
204		2.1	2.3	2.5	2.9	3.2	3.1	3.2	3.2	3.0	3.1	3.0	3.1	3.1	3.0	3.1	3.0
216	9	2.9	2.4	2.5	2.8	3.3	2.9	3.2	3.2	3.1	3.2	3.1	3.1	3.1	3.1	3.2	3.1
228		3.2	1.9	3.4	3.6	3.8	3.5	3.1	3.2	3.1	3.2	3.0	3.0	3.1	3.1	3.1	3.0
240	10	3.8	3.9	3.6	3.8	3.9	4.7	3.1	3.2	3.0	3.1	3.1	3.1	3.1	3.0	3.2	3.0
252		2.6	2.7	2.6	3.5	3.3	3.2	3.2	3.2	3.0	3.2	3.1	3.1	3.1	3.0	3.2	3.1
264	11	3.1	2.6	2.8	3.1	3.4	3.1	3.1	3.2	3.0	3.2	3.1	3.0	3.1	3.1	3.1	3.0
276		3.1	2.2	3.4	3.7	3.8	3.5	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1
288	12	4.0	3.5	3.2	3.9	3.9	4.2	3.1	3.3	3.1	3.2	3.1	3.0	3.1	3.0	3.1	3.1
300		3.0	2.5	2.5	3.1	3.3	3.3	3.2	3.2	3.1	3.2	3.1	3.1	3.1	3.0	3.2	3.1
312	13	3.9	2.0	3.2	3.2	3.6	3.2	3.1	3.2	3.1	3.2	3.0	3.0	3.1	3.0	3.2	3.0
324		3.7	2.3	3.4	3.7	3.7	3.4	3.2	3.3	3.1	3.2	3.0	3.0	3.1	3.0	3.1	3.1
336	14	3.9	3.8	3.0	3.6	3.7	4.3	3.1	3.2	3.1	3.1	3.0	3.0	3.1	3.0	3.1	3.0
348		3.2	3.0	2.7	3.5	3.6	3.7	3.2	3.1	3.1	3.2	3.1	3.0	3.1	3.0	3.1	3.0
360	15	3.7	2.4	2.7	3.1	3.4	3.5	3.2	3.1	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1
372		3.6	2.4	3.4	3.6	3.8	3.6	3.2	3.1	3.0	3.1	3.1	3.0	3.0	3.1	3.2	3.0
384	16	4.3	4.3	3.5	4.0	3.7	4.5	3.1	3.2	3.1	3.2	3.1	3.1	3.0	3.1	3.2	3.0
396		3.3	3.6	3.5	3.7	3.8	4.0	3.1	3.2	3.1	3.2	3.0	3.0	3.1	3.1	3.1	3.1
408	17	3.3	2.4	3.0	3.0	3.4	3.3	3.1	3.2	3.1	3.1	3.0	3.1	3.1	3.1	3.2	3.1
420		3.5	2.7	3.8	4.1	3.8	3.7	3.2	3.2	3.0	3.1	3.1	3.1	3.1	3.1	3.2	3.0
432	18	3.9	4.2	3.9	4.1	4.2	4.6	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.3	3.1
444		3.0	3.0	3.4	3.6	3.6	3.5	3.1	3.1	3.1	3.1	3.0	3.1	3.1	3.0	3.1	3.0
456	19	3.3	1.9	3.3	3.3	3.5	2.9	3.1	3.2	3.1	3.1	3.1	3.0	3.1	3.1	3.1	3.1
468		3.5	1.8	4.3	4.0	4.0	3.2	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
480	20	4.0	4.7	3.7	4.0	4.0	5.0	3.1	3.1	3.1	3.2	3.0	3.1	3.1	3.1	3.2	3.1
Average over trial period		3.1	2.5	2.9	3.2	3.3	3.4	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1	3.2	3.1
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.1											

Details of logger data are given in Appendix 12

Table 5.47 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.0	2.3	1.6	1.7	2.4	2.6	3.2	3.1	3.3	3.1	3.1	3.2	3.3	3.2	3.1	3.0
24	1	2.4	1.9	2.5	2.2	2.7	2.3	3.2	3.1	3.2	2.9	3.2	3.1	3.2	3.2	3.1	3.0
36		2.0	1.1	2.0	1.9	2.5	2.0	3.2	3.2	3.2	3.1	3.2	3.1	3.2	3.3	3.1	3.0
48	2	2.8	2.8	2.0	2.5	2.5	3.8	3.2	3.1	3.2	3.0	3.2	3.1	3.3	3.3	3.1	3.0
60		2.2	2.3	2.4	2.3	2.7	2.6	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.0
72	3	2.5	1.4	2.9	2.5	3.0	2.2	3.2	3.2	3.2	3.0	3.1	3.1	3.3	3.2	3.1	3.0
84		2.4	0.9	2.8	2.4	2.9	2.0	3.2	3.1	3.2	3.1	3.2	3.1	3.3	3.2	3.1	3.0
96	4	2.7	3.2	2.2	2.9	2.9	4.3	3.2	3.1	3.3	3.1	3.2	3.1	3.3	3.2	3.0	3.0
108		2.0	2.0	1.6	2.2	2.3	2.7	3.1	3.2	3.2	3.1	3.2	3.1	3.3	3.3	3.0	3.0
120	5	2.2	1.3	2.9	2.5	2.9	2.5	3.1	3.0	3.2	3.2	3.2	3.1	3.2	3.2	3.1	3.0
132		2.4	1.1	2.9	2.7	3.1	2.5	3.2	3.1	3.3	3.1	3.2	3.0	3.2	3.2	3.0	3.1
144	6	3.2	3.2	2.6	2.9	3.0	4.5	3.1	3.1	3.3	3.0	3.3	3.1	3.2	3.2	3.1	3.0
156		2.4	2.4	2.4	2.2	2.5	3.2	3.1	3.2	3.3	3.1	3.2	3.1	3.2	3.3	3.0	3.1
168	7	3.0	2.0	2.9	2.5	2.6	3.1	3.2	3.1	3.3	3.1	3.2	3.0	3.2	3.2	3.1	3.0
180		2.7	2.0	2.4	2.8	2.9	2.8	3.1	3.1	3.2	3.0	3.3	3.1	3.2	3.2	3.1	3.0
192	8	3.0	2.6	3.1	2.9	3.0	3.9	3.1	3.1	3.2	3.0	3.2	3.1	3.2	3.2	3.1	3.0
204		2.3	2.2	3.0	2.5	2.7	2.8	3.1	3.1	3.2	3.0	3.2	3.2	3.2	3.3	3.1	3.0
216	9	3.3	2.1	3.1	3.0	3.2	3.2	3.2	3.1	3.2	3.0	3.2	3.1	3.2	3.2	3.1	3.0
228		3.3	2.3	3.1	2.8	3.2	3.0	3.1	3.1	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.1
240	10	3.7	3.9	3.7	3.2	3.6	4.6	3.1	3.1	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.0
252		2.7	2.7	3.3	2.9	3.1	3.2	3.2	3.1	3.2	3.1	3.1	3.1	3.2	3.2	3.1	3.0
264	11	2.8	1.8	3.3	2.8	3.1	2.9	3.1	3.1	3.2	3.0	3.2	3.2	3.2	3.2	3.1	3.0
276		3.0	2.4	2.7	3.0	3.2	2.6	3.1	3.1	3.2	3.1	3.2	3.1	3.2	3.3	3.1	3.0
288	12	3.3	3.4	3.5	3.5	3.7	4.4	3.2	3.1	3.1	3.0	3.2	3.1	3.2	3.2	3.2	3.0
300		2.7	3.0	3.5	3.1	2.9	3.4	3.2	3.1	3.1	3.1	3.2	3.1	3.1	3.1	3.1	2.9
312	13	3.1	2.2	3.4	3.3	3.5	3.0	3.1	3.1	3.2	3.2	3.2	3.1	3.1	3.2	3.1	3.0
324		3.2	2.7	3.3	3.1	3.6	2.9	3.1	3.1	3.2	3.1	3.2	3.0	3.2	3.2	3.1	3.0
336	14	3.3	3.8	3.4	3.4	3.6	4.2	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.1
348		2.9	3.1	3.7	3.3	3.5	3.5	3.2	3.0	3.2	3.1	3.2	3.0	3.2	3.2	3.1	3.1
360	15	3.6	3.0	3.4	3.7	3.9	3.6	3.1	3.1	3.2	3.1	3.2	3.1	3.3	3.2	3.2	3.0
372		3.4	2.4	2.8	2.9	3.3	2.8	3.2	3.1	3.2	3.1	3.2	3.1	3.3	3.2	3.1	3.0
384	16	4.0	4.3	3.4	3.8	3.7	4.5	3.1	3.1	3.2	3.2	3.3	3.1	3.2	3.3	3.2	3.0
396		3.2	3.4	3.6	3.2	3.3	3.4	3.1	3.1	3.2	3.1	3.2	3.1	3.2	3.2	3.0	3.0
408	17	3.5	3.5	3.4	3.6	3.7	3.7	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.1
420		3.0	2.5	2.7	2.9	3.2	2.9	3.1	3.1	3.2	3.1	3.2	3.1	3.2	3.3	3.1	3.0
432	18	4.0	4.6	4.0	4.1	4.0	5.1	3.2	3.1	3.3	3.1	3.2	3.1	3.1	3.2	3.1	3.0
444		2.8	2.8	3.3	3.1	3.3	3.4	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.0
456	19	3.2	1.8	3.9	3.4	3.6	3.1	3.1	3.0	3.2	3.1	3.2	3.1	3.2	3.3	3.1	3.0
468		3.5	2.0	3.7	3.4	4.0	3.1	3.1	3.0	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.0
480	20	3.9	4.5	3.4	3.3	3.8	4.8	3.1	3.1	3.3	3.1	3.2	3.1	3.3	3.2	3.1	3.0
Average over trial period		2.9	2.6	3.0	2.9	3.2	3.3	3.2	3.1	3.2	3.1	3.2	3.1	3.2	3.2	3.1	3.0
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.0											

Details of logger data are given in Appendix 12

Table 5.48 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Thompson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.3	2.6	1.3	2.2	1.9	3.3	3.1	3.2	3.1	3.2	3.2	3.1	3.3	3.2	3.0	3.1
24	1	2.7	1.8	2.0	2.4	2.2	3.0	3.2	3.3	3.0	3.2	3.1	3.1	3.3	3.2	3.1	3.1
36		2.7	1.2	2.1	2.5	2.3	2.8	3.1	3.2	3.0	3.1	3.1	3.1	3.2	3.2	3.1	3.1
48	2	3.1	3.2	1.7	2.7	2.3	4.6	3.1	3.3	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2
60		2.4	2.3	1.7	2.4	2.2	3.3	3.1	3.3	3.0	3.1	3.1	3.1	3.2	3.2	3.1	3.1
72	3	2.8	1.3	2.2	2.5	2.4	2.8	3.1	3.2	3.1	3.2	3.1	3.1	3.2	3.2	3.2	3.1
84		2.9	1.0	2.3	2.6	2.5	2.8	3.2	3.2	3.0	3.1	3.1	3.0	3.2	3.2	3.1	3.1
96	4	3.4	3.3	1.8	2.9	2.4	5.0	3.1	3.3	3.1	3.2	3.1	3.1	3.2	3.2	3.1	3.1
108		2.5	2.4	1.4	2.4	2.0	3.4	3.1	3.2	3.1	3.2	3.0	3.1	3.3	3.2	3.1	3.1
120	5	2.7	1.2	2.1	2.4	2.3	2.8	3.1	3.1	3.0	3.2	3.1	3.2	3.3	3.1	3.1	3.1
132		2.8	1.0	2.3	2.6	2.5	2.8	3.1	3.2	3.1	3.1	3.1	3.2	3.3	3.2	3.1	3.1
144	6	3.7	3.8	2.2	3.2	2.8	5.3	3.1	3.2	3.1	3.2	3.1	3.1	3.3	3.2	3.1	3.1
156		2.8	2.9	1.9	2.7	2.4	3.7	3.1	3.2	3.1	3.2	3.1	3.3	3.2	3.1	3.1	3.1
168	7	3.3	2.4	2.4	2.8	2.7	3.5	3.1	3.3	3.0	3.2	3.1	3.3	3.3	3.1	3.1	3.0
180		3.3	2.4	2.4	2.8	2.6	3.5	3.1	3.2	3.0	3.2	3.0	3.3	3.3	3.2	3.1	3.0
192	8	3.6	3.3	2.5	3.1	2.8	4.2	3.2	3.2	3.0	3.2	3.1	3.3	3.3	3.2	3.1	3.1
204		2.7	2.4	2.2	2.8	2.6	3.4	3.2	3.2	3.2	3.2	3.1	3.1	3.2	3.1	3.1	3.1
216	9	3.4	2.2	2.7	3.0	2.9	3.4	3.1	3.2	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1
228		3.5	2.3	2.7	3.0	2.9	3.5	3.1	3.3	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.2
240	10	4.0	4.0	2.8	3.4	3.2	4.9	3.1	3.3	3.0	3.1	3.1	3.1	3.2	3.1	3.1	3.1
252		3.1	3.0	2.2	3.0	2.8	3.8	3.2	3.3	3.0	3.2	3.1	3.2	3.3	3.2	3.2	3.0
264	11	3.6	2.5	2.8	3.1	3.0	3.7	3.2	3.2	3.0	3.1	3.2	3.2	3.2	3.2	3.2	3.1
276		3.6	2.6	2.8	3.2	3.0	3.8	3.1	3.2	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1
288	12	4.0	4.0	3.0	3.6	3.3	4.7	3.2	3.2	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.0
300		3.2	3.2	2.4	3.2	2.9	4.0	3.2	3.2	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1
312	13	3.8	2.4	3.0	3.3	3.2	3.8	3.1	3.3	3.0	3.2	3.2	3.1	3.3	3.1	3.1	3.1
324		3.8	2.8	2.9	3.3	3.2	3.9	3.1	3.2	3.1	3.2	3.1	3.1	3.2	3.2	3.1	3.2
336	14	4.2	4.5	2.8	3.5	3.3	4.8	3.1	3.2	3.1	3.0	3.1	3.1	3.2	3.0	3.1	3.1
348		3.4	3.6	2.6	3.3	3.1	4.2	3.1	3.2	3.0	3.2	3.0	3.1	3.2	3.1	3.1	3.1
360	15	3.8	3.1	2.9	3.4	3.2	4.1	3.1	3.3	3.1	3.2	3.1	3.1	3.2	3.1	3.1	3.1
372		3.9	3.2	3.0	3.4	3.3	4.2	3.2	3.2	3.1	3.1	3.2	3.1	3.2	3.1	3.2	3.1
384	16	4.2	4.6	2.8	3.6	3.3	4.9	3.1	3.2	3.0	3.1	3.1	3.1	3.2	3.1	3.1	3.1
396		3.4	3.8	2.6	3.4	3.1	4.3	3.2	3.3	3.0	3.1	3.1	3.1	3.2	3.1	3.0	3.1
408	17	3.9	3.3	2.8	3.4	3.2	4.2	3.1	3.2	3.2	3.2	3.2	3.1	3.2	3.1	3.1	3.1
420		3.9	3.2	2.9	3.4	3.2	4.2	3.2	3.2	3.1	3.1	3.1	3.2	3.3	3.1	3.1	3.1
432	18	4.3	4.7	2.9	3.8	3.4	5.5	3.2	3.2	3.0	3.2	3.1	3.2	3.2	3.1	3.0	3.1
444		3.4	3.3	2.5	3.3	3.0	4.1	3.1	3.3	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1
456	19	3.5	2.1	2.9	3.3	3.2	3.6	3.1	3.3	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.2
468		3.7	2.2	3.2	3.5	3.4	3.8	3.2	3.3	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1
480	20	4.3	4.9	2.8	3.7	3.3	5.4	3.1	3.2	3.0	3.1	3.0	3.1	3.2	3.2	3.1	3.2
Average over trial period		3.4	2.8	2.5	3.1	2.8	3.9	3.1	3.2	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1
Average of Fruit temperatures						3.1											
Average of Air temperatures						3.1											

Details of logger data are given in Appendix 12

Table 5.49 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #3 (Rep 1)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		2.4	2.5	1.6	2.6	2.2	2.7	2.9	2.9	2.8	2.7	2.9	2.9	2.9	3.0	2.8	3.1
24	1	3.2	2.7	2.5	2.9	2.8	2.9	2.9	2.9	2.8	2.7	2.9	2.9	2.9	3.0	2.8	3.1
36		3.4	2.5	2.7	3.0	2.9	2.8	3.0	2.9	2.7	2.8	3.0	2.9	2.9	2.8	2.9	3.2
48	2	3.7	3.3	2.8	3.2	3.1	3.4	3.0	2.9	2.7	2.9	3.1	3.0	3.0	2.7	2.9	3.3
60		3.0	3.2	2.4	3.2	2.9	3.1	3.1	2.9	2.8	2.9	3.2	3.1	3.1	2.8	3.0	3.3
72	3	3.8	3.2	3.1	3.4	3.3	3.3	3.1	3.0	2.9	3.0	3.3	3.2	3.2	2.9	3.0	3.2
84		3.9	3.5	3.1	3.5	3.4	3.6	3.2	3.0	3.0	3.1	3.3	3.3	3.3	3.0	3.1	3.1
96	4	3.9	4.1	2.8	3.5	3.2	3.7	3.3	3.1	3.0	3.1	3.4	3.4	3.2	3.0	3.2	3.1
108		3.4	3.8	2.5	3.4	3.1	3.6	3.3	3.1	3.1	3.2	3.2	3.3	3.3	3.1	3.2	3.2
120	5	3.6	2.9	3.0	3.5	3.3	3.3	3.4	3.2	3.1	3.2	3.2	3.3	3.3	3.1	3.3	3.3
132		3.8	3.6	2.7	3.3	3.1	3.6	3.4	3.1	3.1	3.2	3.4	3.3	3.2	3.2	3.3	3.3
144	6	3.8	3.3	2.9	3.4	3.2	3.5	3.4	3.1	3.1	3.2	3.4	3.3	3.3	3.2	3.3	3.3
156		3.0	3.2	2.4	3.1	2.8	3.0	3.3	3.1	3.1	3.2	3.4	3.3	3.3	3.2	3.3	3.3
168	7	3.5	2.9	2.8	3.3	3.1	3.2	3.3	3.1	3.1	3.2	3.4	3.3	3.3	3.2	3.3	3.4
180		3.6	2.7	2.8	3.2	3.1	3.1	3.3	3.1	3.1	3.2	3.4	3.3	3.3	3.2	3.3	3.4
192	8	3.5	3.1	2.7	3.3	3.1	3.3	3.3	3.0	3.1	3.2	3.4	3.3	3.3	3.2	3.3	3.4
204		2.9	3.0	2.3	3.1	2.8	3.1	3.3	3.0	3.1	3.2	3.4	3.3	3.3	3.2	3.3	3.4
216	9	3.4	3.0	2.7	3.2	3.0	3.1	3.3	3.0	3.1	3.2	3.3	3.3	3.3	3.2	3.3	3.4
228		3.3	1.9	2.9	3.1	3.0	2.6	3.3	3.0	3.1	3.2	3.4	3.3	3.3	3.2	3.3	3.3
240	10	3.5	2.8	2.7	3.2	3.0	3.1	3.3	3.0	3.1	3.2	3.4	3.3	3.3	3.2	3.3	3.4
252		2.8	2.7	2.2	3.1	2.7	2.9	3.3	3.0	3.1	3.2	3.4	3.1	3.3	3.2	3.4	3.4
264	11	3.4	2.6	2.7	3.1	3.0	3.0	3.3	3.0	3.1	3.2	3.4	3.1	3.3	3.2	3.4	3.4
276		3.3	2.2	2.5	3.0	2.8	2.6	3.2	2.9	3.1	3.2	3.3	3.1	3.3	3.2	3.4	3.4
288	12	3.5	3.0	2.5	3.2	2.9	3.2	3.2	2.9	3.1	3.2	3.3	3.1	3.3	3.2	3.3	3.4
300		2.9	2.9	2.2	3.0	2.7	3.0	3.3	2.9	3.1	3.2	3.4	3.2	3.3	3.2	3.3	3.4
312	13	3.4	2.6	2.7	3.3	3.1	3.1	3.3	2.9	3.1	3.2	3.4	3.2	3.3	3.2	3.3	3.4
324		3.4	3.0	2.5	3.0	2.9	3.1	3.3	2.9	3.0	3.2	3.3	3.3	3.3	3.2	3.3	3.4
336	14	3.5	3.5	2.5	3.2	2.9	3.5	3.3	2.9	3.0	3.2	3.4	3.3	3.4	3.2	3.4	3.4
348		2.9	3.4	2.0	3.0	2.6	3.2	3.3	2.9	3.0	3.2	3.4	3.3	3.4	3.2	3.4	3.4
360	15	3.4	2.7	2.7	3.2	3.1	3.0	3.3	2.9	3.0	3.1	3.4	3.3	3.3	3.2	3.3	3.3
372		3.8	3.3	3.0	3.4	3.3	3.4	3.2	3.1	3.0	3.1	3.4	3.3	3.3	3.0	3.2	3.1
384	16	4.1	4.7	2.8	3.6	3.3	4.1	3.3	3.1	3.0	3.1	3.4	3.4	3.2	3.0	3.2	3.1
396		3.3	3.9	2.6	3.4	3.1	3.5	3.3	3.1	3.0	3.1	3.4	3.4	3.2	3.0	3.2	3.1
408	17	3.8	3.4	2.8	3.4	3.2	3.4	3.3	3.1	3.0	3.1	3.4	3.4	3.2	3.1	3.2	3.1
420		3.8	3.3	2.9	3.4	3.2	3.4	3.3	3.1	3.1	3.2	3.3	3.3	3.3	3.1	3.2	3.2
432	18	4.2	4.8	2.9	3.8	3.4	4.7	3.3	3.1	3.1	3.2	3.2	3.3	3.3	3.1	3.3	3.2
444		3.3	3.4	2.5	3.3	3.0	3.3	3.4	3.1	3.1	3.2	3.2	3.3	3.3	3.1	3.3	3.2
456	19	3.4	2.2	2.9	3.3	3.2	2.8	3.4	3.1	3.1	3.2	3.2	3.3	3.3	3.1	3.3	3.2
468		3.6	2.3	3.2	3.5	3.4	3.0	3.4	3.2	3.1	3.2	3.2	3.3	3.2	3.2	3.3	3.3
480	20	4.2	5.0	2.8	3.7	3.3	4.6	3.4	3.1	3.1	3.2	3.3	3.3	3.2	3.2	3.3	3.3
Average over trial period		3.5	3.2	2.7	3.3	3.0	3.3	3.2	3.0	3.0	3.1	3.3	3.2	3.2	3.1	3.2	3.3
Average of Fruit temperatures						3.2											
Average of Air temperatures						3.1											

Details of logger data are given in Appendix 12

Table 5.50 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #4 (Rep 2)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		3.3	2.5	2.2	2.9	2.6	3.7	3.1	3.1	3.0	2.9	3.0	3.0	3.1	3.1	2.9	3.2
24	1	3.2	2.7	2.3	2.8	2.6	3.4	3.1	3.1	3.0	2.9	3.0	3.0	3.1	3.1	2.9	3.1
36		3.4	2.5	2.4	2.9	2.8	3.3	3.2	3.1	2.9	3.0	3.1	3.0	3.1	2.9	3.0	3.1
48	2	3.0	3.2	2.2	3.1	2.8	3.7	3.2	3.1	2.9	3.1	3.2	3.1	3.2	2.9	3.0	3.1
60		3.7	3.4	2.8	3.3	3.2	4.0	3.3	3.1	3.0	3.1	3.3	3.2	3.3	2.9	3.1	3.1
72	3	3.7	3.2	2.8	3.3	3.2	3.9	3.3	3.2	3.1	3.2	3.4	3.3	3.4	3.0	3.1	3.0
84		3.9	3.4	2.9	3.4	3.3	4.1	3.4	3.2	3.2	3.3	3.4	3.4	3.5	3.1	3.2	3.0
96	4	3.3	4.0	2.3	3.3	2.9	4.0	3.5	3.3	3.2	3.3	3.5	3.5	3.4	3.1	3.3	3.1
108		3.9	3.9	2.8	3.5	3.3	4.4	3.5	3.3	3.3	3.4	3.3	3.4	3.5	3.2	3.3	3.2
120	5	3.6	3.0	2.8	3.4	3.2	3.9	3.6	3.4	3.3	3.4	3.3	3.4	3.5	3.2	3.4	3.3
132		3.8	3.5	2.7	3.4	3.2	4.1	3.6	3.3	3.3	3.4	3.5	3.4	3.4	3.3	3.4	3.3
144	6	3.1	3.2	2.3	3.2	2.9	3.8	3.6	3.3	3.3	3.4	3.5	3.4	3.3	3.3	3.4	3.3
156		3.6	3.3	2.7	3.3	3.1	3.8	3.5	3.3	3.3	3.4	3.5	3.4	3.3	3.3	3.4	3.3
168	7	3.5	2.9	2.6	3.2	3.0	3.8	3.5	3.3	3.3	3.4	3.5	3.4	3.3	3.3	3.4	3.4
180		3.6	2.6	2.8	3.3	3.1	3.6	3.5	3.3	3.3	3.4	3.5	3.4	3.3	3.3	3.4	3.4
192	8	2.9	2.9	2.2	3.1	2.8	3.6	3.5	3.2	3.3	3.4	3.5	3.4	3.3	3.3	3.4	3.3
204		3.7	3.1	2.7	3.4	3.2	4.0	3.5	3.2	3.3	3.4	3.5	3.4	3.3	3.3	3.4	3.3
216	9	3.4	2.9	2.6	3.1	3.0	3.6	3.5	3.2	3.3	3.4	3.5	3.4	3.3	3.3	3.4	3.3
228		3.4	1.8	2.8	3.1	3.1	3.1	3.5	3.2	3.3	3.4	3.5	3.4	3.4	3.3	3.4	3.3
240	10	2.8	2.6	2.2	3.0	2.7	3.5	3.5	3.2	3.3	3.4	3.5	3.4	3.4	3.3	3.4	3.4
252		3.5	2.7	2.5	3.2	2.9	3.7	3.5	3.2	3.3	3.4	3.5	3.2	3.4	3.3	3.5	3.4
264	11	3.3	2.7	2.4	3.1	2.9	3.6	3.5	3.2	3.3	3.4	3.5	3.2	3.4	3.3	3.5	3.4
276		3.3	2.1	2.4	3.0	2.8	3.1	3.4	3.1	3.3	3.4	3.4	3.2	3.4	3.3	3.5	3.4
288	12	2.8	2.9	2.0	3.0	2.6	3.6	3.5	3.1	3.3	3.4	3.4	3.2	3.4	3.3	3.4	3.4
300		3.5	3.0	2.4	3.2	2.9	3.8	3.5	3.1	3.3	3.4	3.5	3.3	3.5	3.3	3.4	3.4
312	13	3.5	2.7	2.4	3.2	2.9	3.6	3.5	3.1	3.3	3.4	3.5	3.3	3.5	3.3	3.4	3.4
324		3.5	3.0	2.5	3.1	2.9	3.7	3.5	3.1	3.2	3.4	3.4	3.4	3.5	3.3	3.4	3.4
336	14	2.9	3.3	1.9	3.0	2.6	3.8	3.5	3.1	3.2	3.4	3.5	3.4	3.6	3.3	3.5	3.4
348		3.6	3.6	2.4	3.2	2.9	4.1	3.5	3.1	3.2	3.4	3.4	3.4	3.6	3.3	3.5	3.4
360	15	3.4	3.0	2.6	3.2	3.0	3.7	3.5	3.2	3.3	3.4	3.4	3.4	3.5	3.3	3.5	3.4
372		3.6	3.0	2.6	3.2	3.0	3.7	3.5	3.3	3.3	3.4	3.4	3.4	3.5	3.3	3.4	3.4
384	16	3.0	3.1	2.2	3.1	2.8	3.8	3.5	3.3	3.3	3.4	3.4	3.4	3.5	3.3	3.4	3.4
396		3.6	3.0	2.8	3.3	3.1	3.9	3.5	3.2	3.3	3.4	3.4	3.4	3.5	3.3	3.4	3.4
408	17	3.4	2.4	2.7	3.3	3.1	3.5	3.5	3.2	3.3	3.4	3.4	3.4	3.5	3.3	3.4	3.4
420		3.6	3.2	2.6	3.2	3.0	3.9	3.5	3.2	3.3	3.4	3.4	3.4	3.5	3.3	3.4	3.4
432	18	2.9	2.7	2.2	3.0	2.8	3.3	3.5	3.2	3.3	3.4	3.4	3.4	3.5	3.3	3.4	3.3
444		3.5	2.3	2.8	3.2	3.1	3.6	3.5	3.2	3.3	3.4	3.4	3.4	3.5	3.3	3.4	3.3
456	19	3.3	1.8	2.7	3.2	3.0	3.1	3.5	3.2	3.3	3.4	3.4	3.3	3.5	3.3	3.4	3.3
468		3.8	2.6	3.4	3.7	3.6	3.8	3.5	3.3	3.3	3.3	3.4	3.3	3.3	3.2	3.3	3.2
480	20	4.5	5.2	2.9	3.9	3.6	5.5	3.5	3.2	3.3	3.3	3.4	3.3	3.3	3.2	3.3	3.2
Average over trial period		3.4	3.0	2.5	3.2	3.0	3.7	3.4	3.2	3.2	3.3	3.4	3.3	3.4	3.2	3.3	3.3
Average of Fruit temperatures						3.3											
Average of Air temperatures						3.1											

Details of logger data are given in Appendix 12

Table 5.51 Large Scale trials at 3°C for 20 days. 12 hour average temperatures taken over the trial period when all sensor probes achieved temperature at 2.5°C. (Data corrected using calibration records before trial. **Test Fruit: Crimson in Cold Room #5 (Rep 3)**)

Hours	Days	Air P1	Air P2	Air P3	Air P4	Air P5	Air P6	Fruit P7	Fruit P8	Fruit P9	Fruit P10	Fruit P11	Fruit P12	Fruit P13	Fruit P14	Fruit P15	Fruit P16
12		3.6	2.8	2.5	3.0	2.8	3.0	3.2	3.2	3.1	3.1	3.2	3.1	3.2	3.2	3.1	3.0
24	1	3.7	2.9	2.5	2.9	2.8	2.6	3.1	3.1	3.0	3.0	3.0	3.0	3.1	3.1	3.0	2.9
36		3.0	2.4	2.2	2.8	2.6	2.2	3.2	3.1	2.9	3.0	3.1	3.1	3.1	2.9	3.0	2.9
48	2	4.1	3.4	2.8	3.3	3.2	3.3	3.2	3.1	2.9	3.1	3.2	3.1	3.2	2.9	3.1	3.0
60		4.1	3.6	2.8	3.3	3.1	3.1	3.3	3.1	3.0	3.1	3.2	3.2	3.3	3.0	3.1	3.1
72	3	4.1	3.5	2.8	3.4	3.2	3.1	3.2	3.2	3.1	3.2	3.2	3.2	3.3	3.0	3.1	3.0
84		3.5	3.4	2.4	3.2	2.9	2.8	3.3	3.2	3.1	3.2	3.2	3.2	3.4	3.0	3.2	3.1
96	4	4.4	4.2	3.0	3.6	3.4	3.5	3.4	3.2	3.1	3.2	3.2	3.2	3.3	3.1	3.2	3.1
108		4.4	4.1	2.9	3.6	3.3	3.6	3.4	3.2	3.2	3.3	3.2	3.2	3.3	3.1	3.3	3.2
120	5	4.1	3.3	3.0	3.5	3.3	3.2	3.5	3.3	3.2	3.3	3.2	3.2	3.2	3.2	3.3	3.3
132		3.5	3.4	2.4	3.2	2.9	2.8	3.5	3.2	3.2	3.3	3.1	3.2	3.2	3.2	3.4	3.3
144	6	4.1	3.4	2.9	3.4	3.2	3.1	3.5	3.2	3.2	3.3	3.1	3.3	3.2	3.2	3.4	3.3
156		4.1	3.5	2.9	3.4	3.2	3.1	3.4	3.2	3.2	3.3	3.1	3.3	3.2	3.2	3.4	3.2
168	7	4.0	3.2	2.8	3.4	3.1	3.1	3.4	3.2	3.2	3.3	3.1	3.3	3.2	3.2	3.4	3.2
180		3.3	2.6	2.6	3.2	2.9	2.5	3.4	3.2	3.2	3.3	3.1	3.3	3.3	3.2	3.4	3.2
192	8	3.9	3.2	2.8	3.3	3.1	3.0	3.4	3.1	3.2	3.3	3.2	3.3	3.2	3.2	3.4	3.2
204		4.0	3.3	2.7	3.4	3.2	3.2	3.4	3.1	3.2	3.3	3.2	3.3	3.2	3.2	3.4	3.2
216	9	3.8	3.1	2.7	3.2	3.0	2.8	3.4	3.1	3.2	3.3	3.2	3.3	3.2	3.2	3.4	3.2
228		3.0	1.8	2.4	2.9	2.7	1.9	3.4	3.1	3.2	3.3	3.2	3.3	3.2	3.2	3.4	3.2
240	10	3.9	2.9	2.8	3.3	3.2	3.0	3.4	3.1	3.2	3.3	3.2	3.3	3.3	3.2	3.4	3.2
252		3.9	3.0	2.8	3.4	3.1	3.0	3.4	3.1	3.2	3.3	3.2	3.2	3.3	3.3	3.4	3.2
264	11	3.8	2.9	2.7	3.2	3.1	2.9	3.4	3.1	3.2	3.3	3.1	3.2	3.3	3.3	3.4	3.2
276		3.0	2.1	2.3	2.9	2.7	2.1	3.3	3.0	3.2	3.3	3.1	3.2	3.3	3.3	3.4	3.2
288	12	3.8	3.1	2.5	3.2	3.0	3.0	3.4	3.0	3.2	3.3	3.1	3.2	3.3	3.2	3.4	3.3
300		3.9	3.2	2.5	3.2	3.0	3.0	3.4	3.0	3.2	3.3	3.1	3.3	3.3	3.2	3.4	3.2
312	13	3.8	3.0	2.6	3.3	3.0	2.9	3.4	3.0	3.2	3.3	3.1	3.3	3.3	3.2	3.4	3.3
324		3.2	2.9	2.1	2.8	2.6	2.4	3.4	3.0	3.1	3.3	3.2	3.3	3.3	3.2	3.4	3.3
336	14	3.9	3.6	2.5	3.2	3.0	3.2	3.4	3.0	3.1	3.3	3.2	3.4	3.3	3.3	3.4	3.3
348		4.0	3.7	2.6	3.3	3.1	3.3	3.4	3.0	3.1	3.3	3.2	3.4	3.3	3.3	3.4	3.3
360	15	3.1	2.8	2.3	3.0	2.7	2.4	3.4	3.0	3.2	3.3	3.2	3.3	3.3	3.3	3.4	3.3
372		3.7	2.3	2.8	3.1	3.0	2.4	3.4	3.1	3.2	3.3	3.2	3.3	3.2	3.2	3.4	3.2
384	16	3.9	2.9	2.7	3.3	3.1	2.9	3.4	3.1	3.2	3.3	3.2	3.3	3.2	3.2	3.4	3.2
396		3.9	2.7	2.9	3.4	3.2	2.9	3.4	3.1	3.2	3.3	3.1	3.2	3.3	3.3	3.4	3.2
408	17	3.1	2.5	2.4	3.0	2.8	2.3	3.4	3.1	3.2	3.3	3.1	3.2	3.3	3.3	3.4	3.2
420		3.7	2.7	2.7	3.1	3.0	2.7	3.3	3.0	3.2	3.3	3.1	3.2	3.3	3.3	3.4	3.2
432	18	3.8	3.1	2.5	3.2	2.9	3.0	3.3	3.0	3.2	3.3	3.1	3.2	3.3	3.2	3.4	3.2
444		3.9	3.1	2.6	3.3	3.1	3.0	3.4	3.0	3.2	3.3	3.1	3.2	3.3	3.2	3.4	3.2
456	19	3.0	2.4	2.2	3.0	2.6	2.2	3.4	3.0	3.2	3.3	3.1	3.3	3.3	3.2	3.4	3.3
468		3.9	3.5	2.5	3.1	3.0	3.2	3.4	3.0	3.1	3.3	3.1	3.3	3.3	3.2	3.4	3.3
480	20	3.9	3.6	2.3	3.2	2.9	3.2	3.4	3.0	3.1	3.3	3.2	3.4	3.3	3.3	3.4	3.3
Average over trial period		3.8	3.1	2.6	3.2	3.0	2.9	3.3	3.1	3.2	3.2	3.1	3.2	3.2	3.2	3.3	3.2
Average of Fruit temperatures						3.2											
Average of Air temperatures						3.1											

Details of logger data are given in Appendix 12

Table 5.52 Calibration summary before and after 3.0 °C Large Scale trials

Trial		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
Red Globe 3°C																	
Before	Rep 1	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.2
	Rep 2	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.2
	Rep 3	0.0	-0.2	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
After	Rep 1	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.2
	Rep 2	0.0	-0.2	-0.1	0.0	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 3	0.0	-0.2	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
Thompson Seedless 3°C																	
Before	Rep 1	0.0	-0.2	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 2	0.0	-0.2	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 3	0.0	-0.2	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
After	Rep 1	0.0	-0.2	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 2	0.0	-0.2	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 3	0.0	-0.2	-0.1	-0.1	0.1	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
Crimson Seedless 3°C																	
Before	Rep 1	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.2	0.0	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 2	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2
	Rep 3	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.2
After	Rep 1	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.2	0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2
	Rep 2	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.2
	Rep 3	0.0	-0.2	-0.1	0.0	0.0	-0.1	0.1	-0.1	-0.1	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.2

Details of logger calibration data are given in Appendix 12

6. SUMMARY AND CONCLUSIONS

In the most tolerant stage trials complete mortality was achieved following 12 days at 1°C, 14 days at 2°C and 16 days at 3°C exposure to the cold treatment in all stages. In the probit analysis the 2nd instars were found to be the most tolerant stage in all 3 cultivars tested at 1, 2 and 3°C.

As required by the trial protocol, on the basis of these results, the large-scale trials were done on the 2nd instars at 1, 2 and 3°C in **Red Globe, Crimson Seedless, and Thompson Seedless** using 3 replicates of each in export cartons. More than 10,000 individuals were exposed in each replicate trial and **no survivors** were found.

The Large Scale trials showed that the treatment of table grapes at:

1°C was completely effective in controlling immature stages of the Mediterranean fruit fly for an exposure period of **16 days**;

2°C was completely effective in controlling immature stages of the Mediterranean fruit fly for an exposure period of **18 days**; and

3°C was completely effective in controlling immature stages of the Mediterranean fruit fly for an exposure period **20 days**.

The requirements of the protocols of the Japanese Ministry of Agriculture Forestry and Fisheries (MAFF) for the conduct of the trials to lift the ban on export of Australian table grapes to Japan have been satisfied for disinfestation of the Mediterranean fruit fly, at 1°C, 2°C and 3°C.

It is recommended that the cold treatments in this report be considered as effective quarantine treatments for export of Australian table grapes to markets where disinfestation is necessary.

7. REFERENCES

Anon 2006: GenStat Release 8. Copyright 2005, Lawes Agricultural Trust (Rothamsted Experimental Station)

Finney, D. J. 1971 Probit Analysis, 3rd edition. Cambridge University Press, London.

8. APPENDICES

The Appendices are numbered as shown in the main text.

A printed copy is bound with this report and electronic files are stored on the CD.

The list of documents is given below:

Appendix 1 Organisation & Facilities.doc

Appendix 2 Rearing Medfly.doc

Appendix 3 Cold rooms & loggers.doc

Appendix 4 Squirrel 1250 series.pdf

Appendix 5 MTS trials.doc

Appendix 6 Large Scale trials.doc

Appendix 7 MTS 1°C (Folder contains 9 spreadsheets, 3 each of Red Globe, Thompson Seedless and Crimson Seedless)

Appendix 8 MTS 2°C (Folder contains 9 spreadsheets, 3 each of Red Globe, Thompson Seedless and Crimson Seedless)

Appendix 9 MTS 3°C (Folder contains 9 spreadsheets, 3 each of Red Globe, Thompson Seedless and Crimson Seedless)

Appendix 10 LS 1°C (Folder contains 9 spreadsheets, 3 each of Red Globe, Thompson Seedless and Crimson Seedless)

Appendix 11 LS 2°C (Folder contains 9 spreadsheets, 3 each of Red Globe, Thompson Seedless and Crimson Seedless)

Appendix 12 LS 3°C (Folder contains 9 spreadsheets, 3 each of Red Globe, Thompson Seedless and Crimson Seedless)