

19th Session of the Commission on Phytosanitary Measures

#Planthealth for food security, environmental protection
and safe trade

CPM 19

Advances in the introduction and evaluation of *Musa* spp.
materials to Colombia, promising for their resistance to *Foc* - TR4

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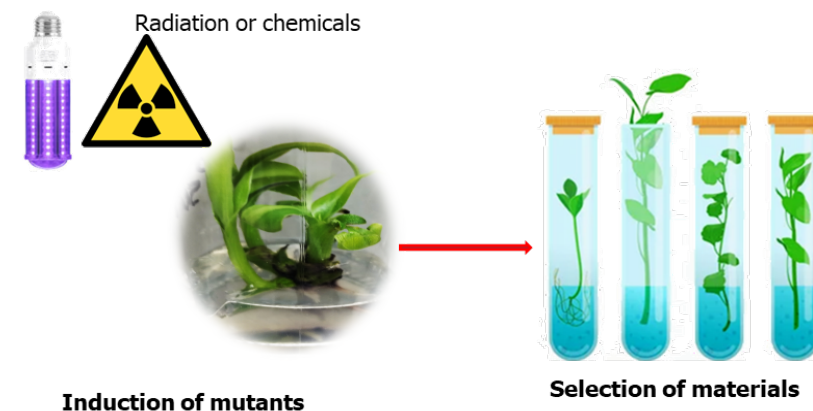
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Methods for obtaining genetic variability in *Musa* spp.

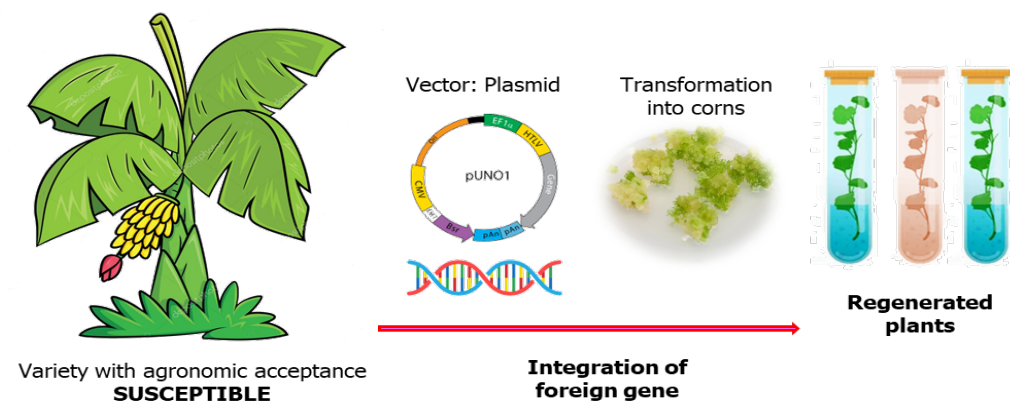
CROSS-BREEDING
IMPROVEMENT
(15-20 years)



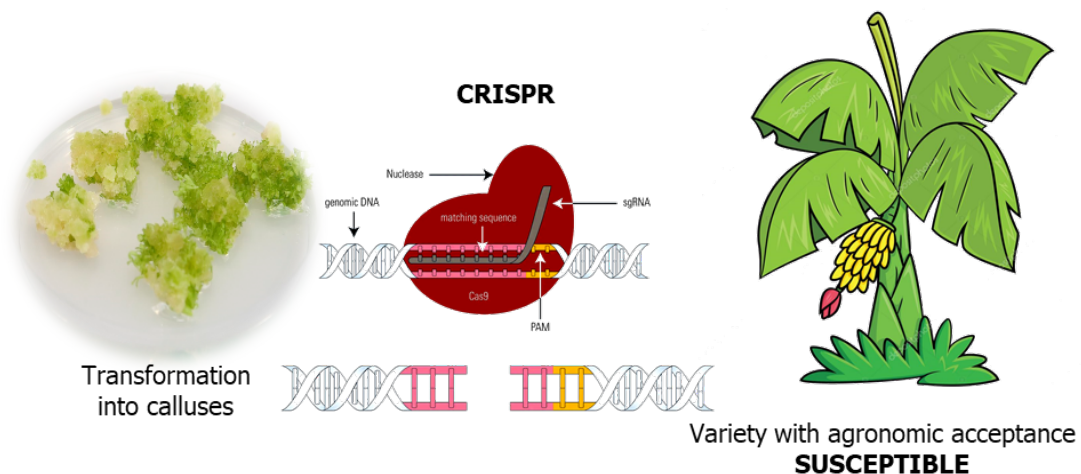
IMPROVEMENT BY
MUTATION:
(8 - 10 years)



TRANSGENESIS
IMPROVEMENT:
(8 - 12 years)



GENOME EDITING:
(4 - 6 years)

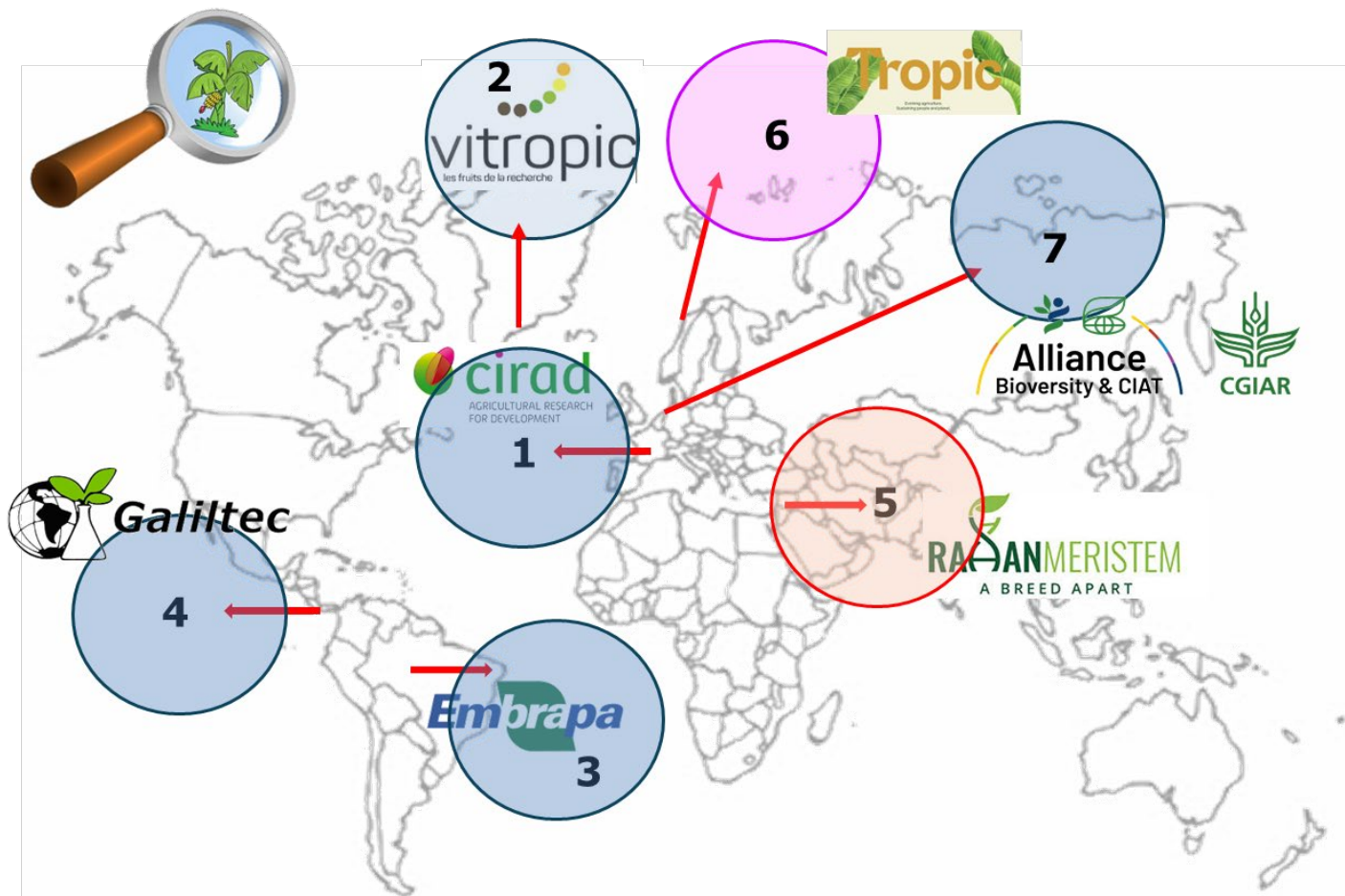


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INTRODUCTIONS IN COLOMBIA:



ICA
Instituto Colombiano Agropecuario

AGROSAVIA
Corporación colombiana de investigación agropecuaria

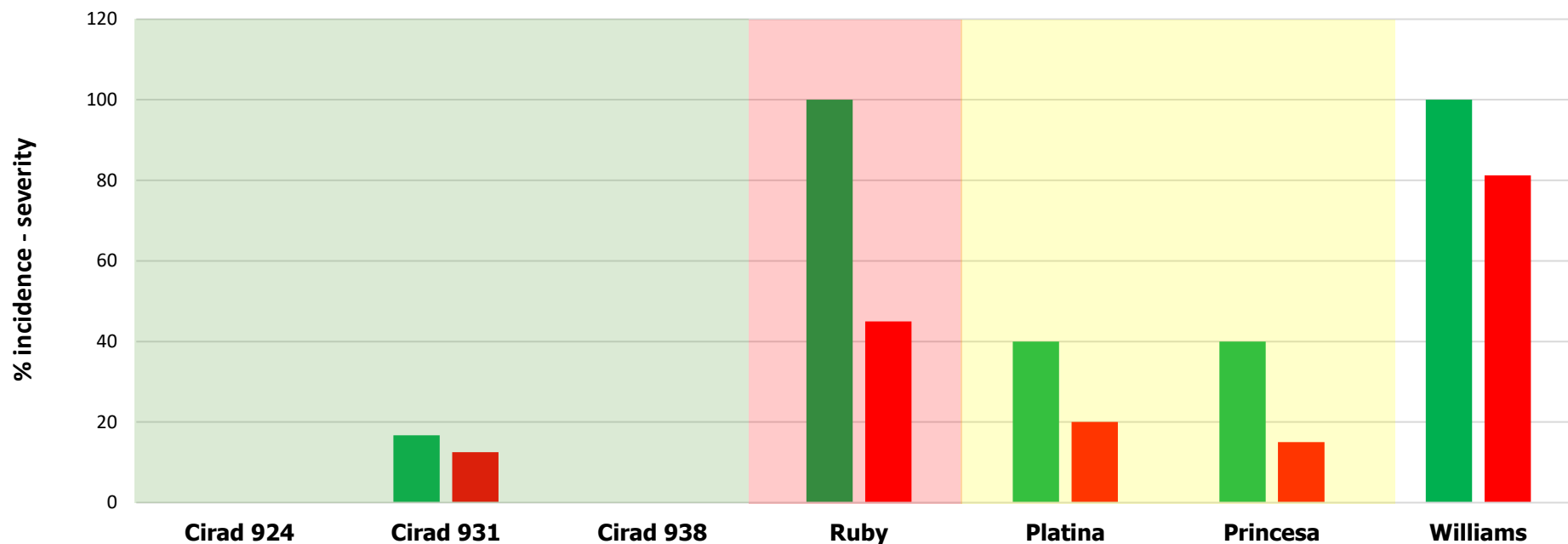
Origen	Plant Material (clon)	Plant breeding technique
1 Francia	CIRAD 924, 931, 938	Conventional breeding CROSSING
2 Francia	Ruby, LothaR4	SELECTIONS IN FIELD Cavendish
3 Brazil	BRS Princess, Platinum and diploids	Conventional breeding CROSSING
4 Honduras	GCTCv 218 (Formosana)	SOMACLONAL VARIATION (Cavendish)
5 Israel	C4, Gal, DR4	MUTATION VARIATION (Cavendish) in selection and evaluation process
6 England	Tropic	First phase: GMOs Second phase: Gene editing
7 Belgium	Alliance – CIAT Bioversity	Wild materials and selections from different sources

CROSSING

**SOMACLONAL
VARIATION**

Gene editing

Evaluation of resistance of CIRAD and EMBRAPA and Vitropic materials in a nursery in La Guajira



■ % Incidence ■ % Severity



CLONES	Score	Ranking
CIRAD 924	0,00	AR
CIRAD 931	0,20	R
CIRAD 938	0,10	R
PLATINA	0,0	R
PRINCESA	0,5	I
RUBY	1,22	S
Williams	1,67	MS

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Evaluation of resistance others plant material

Williams



Formosana



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Agronomic Evaluation Test in an area with high incidence of Foc TR4 in La Guajira

FIRST CYCLE

Clon	Quantity	Number infected plant
CIRAD 924	187	0
CIRAD 938	170	0
CIRAD 931	119	0
Ruby	136	0
LothaR4	136	0
Formosana	204	0
Princesa	100	0
Platina	100	0
Cavendish 1	1405	46 (3,27%)
Cavendish 2	7034	386 (5,48%)



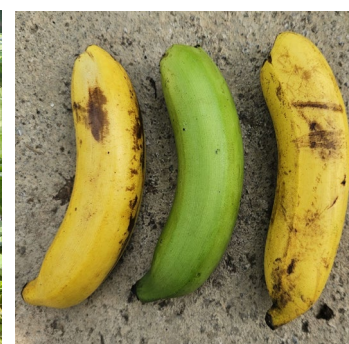
*Experimental design: Completely randomized
Planted area: 1ha / Lot 12
Planting density: 2.72 x 2.36*



CIRAD 938



CIRAD 924



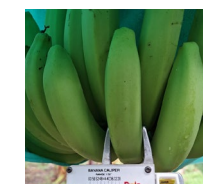
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INTRODUCTIONS IN COLOMBIA: CURRENT STATUS: CONCLUSION

ORIGIN	Name Plant material	PLANT BREEDING TECHNIQUE	Date of entry	CLONES AND No. OF PLANTS INTRODUCED	Resistance evaluation tests	Type of material
1	CIRAD 924, 931, 938	Conventional breeding CROSSING	August/21	Hybrids: 938, 924, 931, 938	NURSERY: The 3 resistant materials CONTROLLED FIELD (INOCULATED): No symptoms, first cycle. INFECTION UNDER NATURAL CONDITIONS: No symptoms, first cycle.	Traditional bananas Not cavendish
2	Vitropic	Ruby, LothaR4 SELECTIONS IN THE FIELD	August 2021 May 2023	Ruby LothaR4	NURSERY: Susceptible materials CONTROLLED FIELD (INOCULATED): 100% infection in first cycle = (Ruby) INFECTION UNDER NATURAL CONDITIONS: 1.4% first cycle incidence (Ruby) 2.2% first cycle incidence (LothaR4)	Export banana Cavendish
3	BRS Princesa, Platina and improved diploids	Conventional breeding CROSSING	February 22 December/22	49 materials 2 commercials: Princess and Platinum 20 improved diploids	NURSERY: Princesa and Platina: RESISTANT CONTROLLED FIELD (INOCULATED): Princesa: Intermediate, Platina: Resistant INFECTION UNDER NATURAL CONDITIONS: Without symptoms, cycle 1 Diploids in evaluation	Prata banana Not cavendish
4	GCTCv 218 (Formosana)	VARIATION SOMACLONAL (Cavendish)	September/2023	1000 plants	NURSERY: Susceptible CONTROLLED FIELD INOCULATION: Susceptible INFECTION UNDER NATURAL CONDITIONS: No symptoms, cycle 1	Export banana Cavendish





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Thank you