

Morocco

Afella M., Jelloul B., Zouhry H., Bouafia A., Zemzami M.

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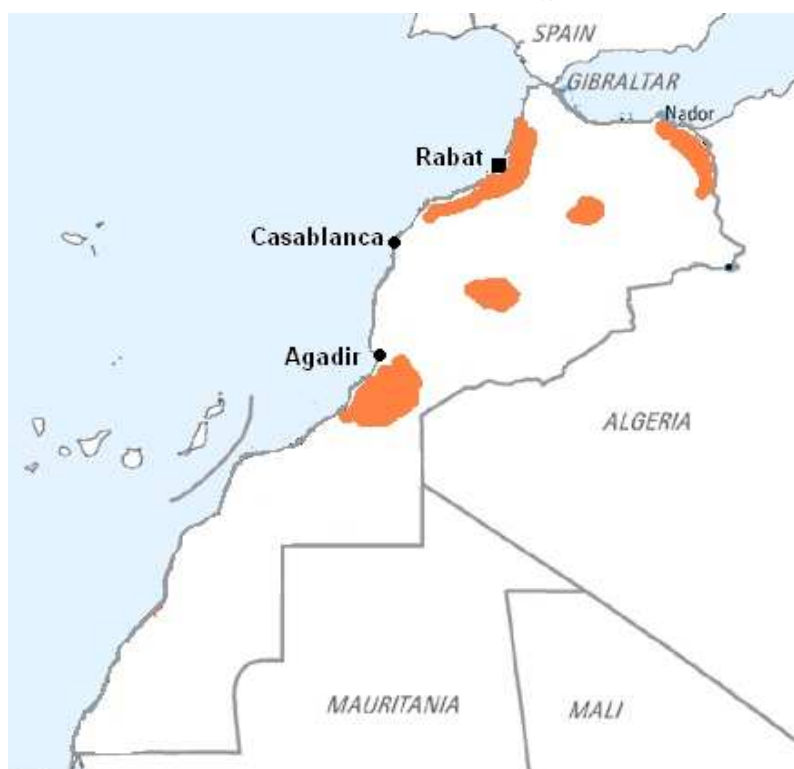
- **Project team**

- Mr. M. AFELLAH, National Project Representative, Institute Nationale Recherche Agronomique
- Mr. B. JELLOUL, Plant Protection Administration
- Mr. H. ZOUHRY, Plant Production Administration
- Mr. A. BOUAFIA, SODEA (Parastatal Institution)
- Mr. M. ZEMZAMI, Agricultural Domaines (Private)

Importance of citriculture

Thirty million trees covering 75 thousand Ha, 1.5 million tonnes of which 50% exported, major source of income for 10 thousand families, Employment of 50 thousand workers, 75 Packing Houses processing over a million T, 4 Juice factories with a capacity 200 250.000 T

Citrus distribution map



Citrus varieties

Species/Varieties	Cultivated areas	Area (Ha)	Yield/Ha (q)
Common Orange		24 500	250
Valencia late, Maroc Late, Salustiana, Hamline			
Navel Oranges		18 000	180
Washington, Thompson, Fisher, Robertson, Lane Late, Navelate, New Hall			
Blood Orange		5 000	200
Sanguine, Maltaise, Sanguinelli, Moro			
Sour Oranges			
Bouquetier de Nice, Bouquetier double fleur, Bitter sweet			
Acidless Oranges			
Lime de Palestine			
Mandarins & Mandarin-like		2 000	460
Ortanique, Afourer, Commune,			
Mandarin Hybrids		25 725	260
Aïn Taoujdade, Cadoux, Carte Noire, Berkane, Larach, Marisol, Muska, Nour, Nova, Nules, Sidi Aïssa, Tardive de Mars			
Lemons			
Eureka, Femminello, Lisbonne		1 000	140
Grapefruits			
Rubby, Shambar, Marsh, Star Ruby		200	
Others			
Khobze El Arsa, Limette de Marrakech, Lime d'OC sans épine			
Totale		74 500	

Citrus phytosanitary problems

Pathogens		Diseases		References
Virus and virus-like				
CVV		Inf.variegation/Crinkly leaf	X	Chapot, 1963
CiLRV		Leaf rugose	X	Mrani <i>et al.</i> , 2001
CPsV		Psorosis	X	
SDV		Satsuma dwarf		
CTLV		Tatterleaf/Citrange stunt		
CTV		Tristeza	X	Cassin, 1963
CVEV		Vein enation/Woody gall	X	Nadori/Zemzami/unpubl
		Concave gum	X	Chapot, 1961
		Cristacortis	X	Nhami and Kissi, 1978
		Impietratura	X	Chapot, 1961
CEVd		Exocortis	X	Chapot, 1963
CCaVd		Cachexia	X	Bourge and Nhami, 1979
CVds		Citrus viroids	X	Zemzami/unpubl.
		Chlorotic dwarf disease		
		Gummy bark	X	Nadori/unpubl
Fungus				
<i>Phytophthora sp</i>		Phytophthora gummosis	X	Vandeweyen, 1969
<i>Fusarium sp</i> , <i>Roselinia sp</i>		Root rot	X	El Grilli, 1991
<i>Phoma tracheiphila</i>		Mal secco		
Bacteria and Bacteria-like				
<i>Pseudomonas syringae</i>		Blast and Black pit		
<i>X. axonopodis pv citri</i>		Citrus canker		
<i>Candidatus L. asiaticus</i>		Greening		
<i>Candidatus L. africanum</i>				
Nematodes				
<i>Tylenchulus semipenetrans</i>			X	Remah and Abbad Unpubl.
<i>Pratylenchus vulnus</i>				
Phytoplasmas				
<i>Spiroplasma citri</i>		Stubborn	X	(Bové, 1983)
		Witches' broom		

X= present in the country

Citrus germplasm

Location	Date of creation	N° of accessions*	Characterization		
			morphological	trueness-to-type	sanitary
National					
SOUIHLA/Marrakech	Since 1930's	Over 600	X	X	X
EL MENZEH/Gharb	Since 1964's	Over 400	X	X	X
Regional					
KEDIMA/ Agadir	1980	Over 200	X	X	X
MAMORA/Rabat/ (Under Screen House)	1995	Over 600			Yes
SODEA/ Temara	1976	80	X	X	X
AFOURER	1964	80	X	X	X
TAZI	1972	100	X	X	X
KEDIMA/Agadir	1980	Over 200	X	X	X

Citrus germplasm list

Varieties/Species	
Clementines	Maroc Late vc
Aïn Taoujdate	Blood oranges
Berkane	Washington Sanguine
Cadoux	Sanguinelli
Carte Noire	Navel oranges
Larach	Washington Navel
Marisol	New Hall
Muska	Navelate
Nour	Lane Late
Nules	Lemons
Orograndé	Lisbone
Oravol	Eureka
Sidi Aïssa	Grapefruits
Mandarins	Marsh
Afourer	Rubby
Fortuna	Shambar
Nova	Star Rubby
Ortanique	
Temple	
Common oranges	
Salustiana	
Maroc Late nuc	