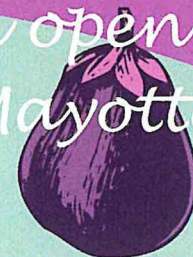


Grafted aubergine for cropping in open fields in the hot rainy season in Mayotte



J. Huat, M.E. Sanial
Cirad, Station agronomique
de Dombéni, BP 1304
97600 Mamoudzou, Mayotte
huat@cirad.fr

Vegetable production is difficult in Mayotte during the rainy season because of the risk of soil waterlogging, high temperature and humidity and soil diseases such as bacterial wilt of Solanaceae caused by *Ralstonia solanacearum*, of which only race 1, biovar 3, has been identified in Mayotte. Grafted seedling are being used more commonly, especially in Asia, to fight wilt [1–3]. Using the work conducted at INRA in the West Indies [4] and AVRDC in Taiwan [1], we evaluated the impact of grafting aubergine on plant resistance to bacterial wilt and on yields during the rainy season at Dombéni Station (Mayotte).

Material and methods

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Three types of aubergine plant laid out in random blocks were monitored under open field conditions or in the open field under shelter:

- plants of the variety 'Kalenda F1', widely grown in Mayotte, grafted on EG 203 ('Surya' variety) originating at AVRDC (Ka on EG);
- 'Kalenda F1' plants grafted on the same variety (Ka on Ka);
- non-grafted 'Kalenda F1' plants (non-grafted Ka).

Planting was performed on 28 November 2003 at a density of 1.1 plants/m². We studied plant mortality caused by bacterial wilt, the duration of the vegetation and harvest cycles and also yields.

Results and discussion

Significant differences between the yields of the plants (Ka on EG) (25.5 t/ha) and (Ka on Ka) and (non-grafted Ka) under open field conditions. Even though rainfall was abundant, the stock EG 203 thus gave the plants good resistance to wilt and asphyxiating soil conditions.

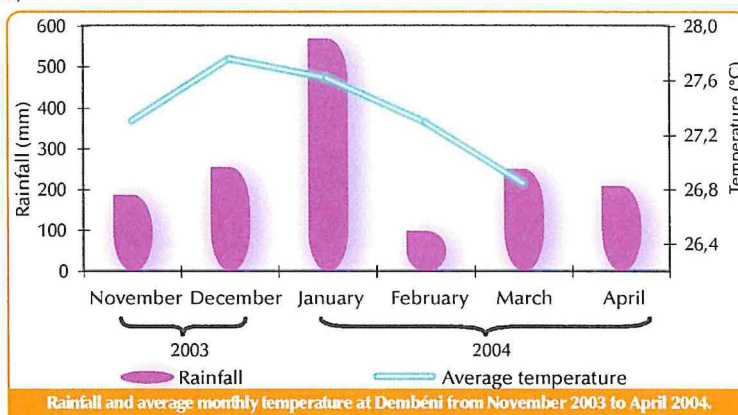
Yields of 'Kalenda F1' aubergine grafted or not on EG 203 under two types of cultivation conditions.

Type of cultivation	Type of plant	Saleable yield (t/ha)
Open field	Ka on EG	35.1 ± 5.8
	Ka on Ka	41.9 ± 14.5
	Non-grafted Ka	41.0 ± 5.8
	Ka on EG	25.5 ± 4.1 a
	Ka on Ka	6.6 ± 12.2 b
Under shelter	Non-grafted Ka	3.8 ± 4.2 b

However, resistance is not total as 75% of (Ka on EG) plants had wilted at the end of the harvest under open field conditions. Bacterial mapping of the soil after the harvest showed that *Ralstonia* was very present in the ground, in contrast with the findings for the sheltered plot.

Mortality (%), according to harvesting stage, of 'Kalenda F1' aubergine plants grafted or not on 'EG 203' and grown using two types of cultivation conditions.

Type of cultivation	Type of plant	Harvest stage		
		beginning	mid-harvest	end
Under shelter	Ka on EG	0.0	0.0	9.1
	Ka on Ka	0.0	3.0	60.6
	Non-grafted Ka	0.0	3.0	78.8
Open field	Ka on EG	0.0	5.3	75.0
	Ka on Ka	44.4	80.6	100.0
	Non-grafted Ka	40.3	93.1	100.0



Under shelter, there were no significant differences between the yields of the three treatments (35 to 42 t/ha). Wilt therefore occurred later than in the open field. According to Prior et al. [5], the stability and degree of resistance probably depend on the bacterial strains and environmental factors, and especially high temperature and humidity.

More than 90% of the harvest was marketed; average fruit weight was 300 to 400 g for all plant types.

Other rootstocks resistant to bacterial wilt, such as *Solanum richardii* found growing spontaneously in Mayotte, are currently being evaluated

[1] Black L.L., Wu D.L., Wang J.F., Kalb T., Abbass D., Chen J.H. (2003). Grafting tomatoes for production in the hot-wet season. AVRDC, International Cooperators' Guide, 6 p.
[2] Lee J.M. (2003). Advances in vegetable grafting. *Chronica Hort.* 43 (2) : 13–19.

[3] Rezaul Karim A.N.M. (2003). Eggplant grafting: a boon to Bangladeshi farmers. IPM CRSP Progress Rep. n°1, Nov. 14, 2003, 4 p.
[4] Beyries A., Beramis M. (1986). L'utilisation du greffage pour combattre le dépérissement de l'aubergine aux antilles. B.T.I., 409/411 : 439–447.

[5] Prior P., Grimault V., Schmit J. (1993). Resistance to bacterial wilt (*Pseudomonas solanacearum*) in tomato: present status and prospects. In: Hayward G.L., Hartman A.C. (Eds.), Bacterial wilt, Proc. Int. Conf., ACIAR Proc. 45, Oct. 28–31, 1992, Kaoshiung, Taiwan : 209–220.