

Girdling plus potassium nitrate sprays outperformed girdling plus di-potassium hydrogen phosphate sprays in mandarin.

Ten years old 'Balady' mandarin trees, grown under sandy soil conditions in Egypt, were sprayed with 1% or 2% potassium nitrate or di-potassium hydrogen phosphate twice at the beginning of April and ten weeks later (mid June) and treated with girdling before blossoming (late Dec.). The experiment was arranged in a complete randomized design with three replicates, each consisted of three trees. Results concluded that girdling plus potassium sprays specially potassium nitrate at any concentration had a positive effect on nitrogen and potassium percentages, total carbohydrate, total chlorophyll and chlorophyll (a) content in the leaves, which reflected on increasing fruit weight, number of fruits per tree and finally yield weight per tree. In this 2-years trial, spraying trees with potassium nitrate either at 1% or 2% increased yield per tree on average with 23% and 26%, respectively, compared to girdling only (Table 1 and 2). The potassium treatments also enhanced fruit volume, soluble solids content and SSC/acid ratio. Results showed that at any concentration KNO_3 outperformed K_2HPO_4 in terms of yield and number of fruits per tree in both seasons.

Table 1. Effect of girdling and different potassium sprays on yield and fruit characteristics of Balady mandarin trees during 2002.

Treatments	Yield (kg/tree)	Number of fruit/tree	Fruit weight (g)	Fruit volumen (cm ³)
Control	40,2	348	115	136
Girdling	51,6	380	133	140
Girdling + 1% KNO_3	63,3	405	156	172
Girdling + 2% KNO_3	65,0	412	157	173
Girdling + 1% K_2HPO_4	57,4	390	147	158
Girdling + 2% K_2HPO_4	62,1	400	155	177
LSD at 5%	3,7	8,2	3,6	1,1

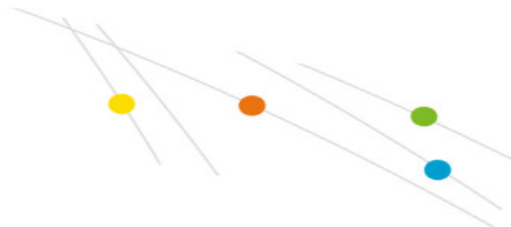


Table 2. Effect of girdling and different potassium sprays on yield and fruit characteristics of Balady mandarin trees during 2003.

Treatments	Yield (kg/tree)	Number of fruit/tree	Fruit weight (g)	Fruit volumen (cm ³)
Control	39,9	350	114	135
Girdling	51,4	378	136	140
Girdling + 1% KNO ₃	63,9	410	155	176
Girdling + 2% KNO ₃	64,7	425	155	173
Girdling + 1% K ₂ HPO ₄	57,8	385	150	159
Girdling + 2% K ₂ HPO ₄	62,8	396	158	177
LSD at 5%	1,1	12,8	3,1	3,5