

Pistachio (*Pistacia vera* L.)

French: Pistachier; Spanish: Alfontcigo, pistachero; Italian: Pistachio; German: Pistazie

Crop data

Perennial. Harvested part: fruits.

Scions are planted in autumn at 8-10 m spacing and are grafted about 3 years later.

Flowers end-April (in Turkey). Fruits 8-10 years after planting.

Male pollinators are required. Harvested end-August.

Plant density: 100-150 trees per hectare.

Pistachio has a deep and strong rooting system. It can be grown on all kinds of soils but prefers relatively deep, light soils with high lime content (pH 7.0-8.0). Sensitive to soil salinity. Strong and healthy growth is obtained in areas with cool winters and long, hot dry summers. In dry areas, additional irrigation is needed for good performance.

Major commercial production is in the southern part of Turkey.

Because of the wide spacing and the long period before coming into bearing, it is usual to intercrop with, e.g., grapevines (in arable conditions).

Nutrient demand/uptake/removal

Nutrient demand/uptake - Macronutrients					
Yield kg/ha	Source	kg/ha			
		N	P2O5	K2O	CaO
1 000	Woodroof, 1967	30	12	15	3

Plant analysis data

Leaf analysis data (optimum supply) - Macronutrients							
Plant part	Stage of growth	Source	% of dry matter				
			N	P	K	Mg	Ca
Mid-terminal compound leaves	At the end of July	Tekin et al, 1985	2.0	0.09	1.0	0.7	2.9

Leaf analysis data (optimum supply) - Micronutrients							
Plant part	Stage of growth	Source	ppm dry matter				
			Fe	Mn	Zn	Cu	B
Mid-terminal compound leaves	At the end of July	Tekin et al, 1985	105	35	18	48	140

Fertilizer recommendations

Organic materials such as farmyard manure should be applied at around 30 t/ha if the soil organic matter is below 2 per cent.

Mineral fertilizers and/or organic materials should be ploughed under and thoroughly cultivated in before planting, at rates based on topsoil (0-20 cm) and subsoil (20-40 cm) analysis (as indicated below):

Soil P (ppm)	Application rate (kg/ha P ₂ O ₅)	Soil K (ppm)	Application rate (kg/ha K ₂ O)	Soil Mg (ppm)	Application rate (kg/ha MgSO ₄)
0- 7	100-150	0-100	150-200	0-25	300-400
7-14	50-100	100-200	70-150	25-50	200-300
14-20	50	> 200	Nil	50-100	100-200
> 20	Nil				

Nitrogen fertilizer is not required before planting.

Established plantations up to 10 years old

Nitrogen fertilizer in March each year at 20 g/tree N (leaves are small and pale green when nitrogen is deficient). Other nutrients on the basis of soil analysis made at 3-4 year intervals.

In arable conditions the land should be cultivated in spring; cultivation and manuring help to retain moisture in the soil, maintain a good dust mulch and keep weeds under control.

Mature trees over 10 years old

Fertilizer applications should be based on leaf and soil analysis. Leaf samples should be taken at 3-year intervals and soil samples every 5 years. Where farmyard manure is used, the mineral fertilizer dressings may be reduced accordingly.

Nitrogen fertilizer should be applied in March each year, broadcast under the branches. Ammonium sulphate may be used where the soil is too alkaline.

Leaf N (% of dry matter)	Application rate (g N per tree);
< 1.8	500
1.8-2.2	400
2.2-2.5	300
> 2.5	Nil

Phosphate fertilizer should be applied at the beginning of March, every 2-3 years, placed in a band at least 30-40 cm deep at the drip line of the tree.

Leaf P (% of dry matter)	Application rate (g P ₂ O ₅ per tree);
< 0.06	500
0.06-0.10	400
0.10-0.13	300
> 0.13	Nil

Potassium fertilizer may be applied in a band together with nitrogen, every 2-3 years. Sulphate is preferable to muriate.

Leaf K (% of dry matter)	Application rate (g K ₂ O per tree)
< 0.4	750
0.4-0.8	500
> 0.8	Nil

Deficiencies of some micronutrients (Zn, Fe, Mn) may occur in future in S.E. Turkey. Iron deficiency may be remedied by applying Fe-EDDHA at 200-300 g/tree in March. For zinc and

manganese deficiencies, foliar spraying at petal fall with 0.4 per cent zinc and manganese sulphate is recommended.

Further reading

TEKIN, H. et al.: The nutrient content of pistachio grown in the southeast part of Turkey. Bahce 14 (1-2),47-57, Yalova Hort. Res. Inst., Istanbul, Turkey (1985)

WOODROOF, J.G.: Production of Tree Nuts, Processing Products - vol. 2. The Avi Publishing Company Inc., Westport, Connecticut, USA (1967)

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