

Lentil (*Lens culinaris Medik.*)

French: Lentille; Spanish: Lenteja; Italian: Lenticchia; German: Linse
Local: Masur, Adas

Crop data

Annual. Harvested part: seeds.

As a cool season crop, lentils are grown in warm temperate, subtropical regions and in high altitudes of the tropics, traditionally during the winter in Asia, South and Central America, in spring in the Middle East and the South Mediterranean Region and in summer in the North Mediterranean Region and North America; seed is usually broadcast or sown by drilling in rows 25-30 cm apart.

Flowers 2-3 months after sowing.

Harvested: 3-5 1/2 months after sowing, at maturity with low moisture content (for drying for 1 week and then threshing).

Plant density: traditional, depending on cropping type, 200 000 (intended, but often much less due to poor seedling establishment resulting from disease or limited moisture) to 300 000 (irrigated)/ha.

South Mediterranean Region, 120 000 - 300 000/ha (often grown alone but may be intercropped with wheat, barley, rice, mustard).

Grows best on well-drained soils, but tolerates a wide range of soil conditions from black cotton and clay soils to sandy loams. Preferred pH 6.5-8.0; tolerates alkalinity. Usually rainfed, can resist drought but does not withstand poor drainage.

Nutrient demand/uptake/removal

Nutrient uptake/removal - Macronutrients					
Yield kg/ha	Plant part	Source	kg/ha		
			N	P2O5	K2O
2 000	Grain	Saxena, 1981	100	28	78
1 800	Grain	Prasad et al, 1990	108	19	55
1 000	Grain	Horton et al, 1990	44	11	-

Plant analysis

Plant analysis data - Macronutrients								
Stage	Plant part	Source	% of dry matter					
			N	P	K	Mg	Ca	S
45 DAS	Whole plant	Dwivedi, 1986	-	0.39	2.26	0.61	1.33	-

Plant analysis data - Micronutrients							
Stage	Plant part	Source	ppm dry matter				
			Fe	Mn	Zn	Cu	B
45 DAS	Whole plant	Dwivedi, 1986	134	45	25	-	-

Nutritional requirements

Many cultivars are salt-tolerant, especially at germination and sprouting. The plant is also adapted to low levels of available nutrients but thrives on fairly high available P.

Fertilizer recommendations

Fertilizers are usually applied at planting, generally as a basal P dressing. If the soils are poor in specific N-fixing bacteria, a basal NP dressing will be recommended, with a top dressing of N at flowering 2.5-3 months after sowing. Advice on K is very empirical; on-farm tests and recording are encouraged. If K is applied, it will be in the form of a basal NPK dressing. Rates depend on soil class and expected yield.

Preferred nutrient forms

N: as urea.

P: in soluble form as single or triple superphosphate. If both N and P are required, DAP is considered suitable.

K: as chloride or sulphate.

Present fertilizer practices

Australia

(Southern NSW, Victoria, South Australia): 27-46 kg/ha P₂O₅ as double superphosphate, or 3-5 kg/ha N, 27-46 kg/ha P₂O₅ as monoammonium phosphate.

India

(Traditional practices): Generally in rainfed areas no fertilizers or manures are applied to pulse crops; in some places farmers may apply a small amount of FYM (e.g. 8-15 t/ha) 3-4 weeks before sowing.

In irrigated areas, a small amount of mineral fertilizer (10-15 kg/ha N, 20-30 kg/ha P₂O₅) is either placed in the seed furrow or broadcast and mixed in.

(Improved practices): Irrigated areas, basal application of 18-20 kg/ha N, 40-50 kg/ha P₂O₅, plus K, Zn, S if required;
unirrigated areas, basal application of 10-15 kg/ha N, 20-30 kg/ha P₂O₅, followed by a foliar spray of 2 % urea at pod development.

Tunisia: 45 kg/ha P₂O₅ as TSP broadcast and incorporated at planting.

Further reading

DUKE, J.A.: Handbook of legumes of world economic importance. Plenum Press, New York, USA (1981)

WEBB, C.; HAWTIN, G.: Lentils. ICARDA, Aleppo, Syria (1981)

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