

Cucumber (*Cucumis sativus* L.)

French: Concombre; Spanish: Pepino; Italian: Cetriolo; German: Gurke

Under Temperate Conditions

Crop data

Plant density: 1-2.5/m² or more, depending on pruning and training system.0

Yields commonly 30-60 t/ha can reach 100 t/ha or more (up to 300 t/ha under glass).

Prefers sandy or well-structured soils rich in organic matter. Tolerates rather low pH (down to 5.5).

Requires a long warm season (optimum temperatures for growth: night, about 18 °C, and day, about 28 °C) and a high light intensity.

Nutrient demand/uptake/removal

Depends very much on yield. Typical values reported:

Yield 300 t/ha under glass: 450-500 kg N, 200-250 kg P₂O₅, 800-1 000 kg K₂O, 130 kg MgO, 300 kg CaO per ha.

High-yielding outdoor crop: 170 kg N, 130 kg P₂O₅, 270 kg K₂O per ha.

Yield 30 t/ha outdoors: 50 kg N, 40 kg P₂O₅, 80 kg K₂O per ha.

Yield 15 t/ha outdoors: 47 kg N, 13 kg P₂O₅, 65 kg K₂O per ha.

Fertilizer recommendations

Organic manures useful even for outdoor crops. In addition, on soils of normal nutrient content, fertilizer rates of 100 kg N, 100 kg P₂O₅, 200 kg K₂O per ha are recommended for yield levels up to 30-40 t/ha. The N application should be split into several dressings according to the length of the harvesting cycle, preferably every 2 weeks if practicable.

Cucumber is very sensitive to N deficiency, which can alter the fruit shape, and is intolerant of salinity. Deficiencies of Mg and of B, Fe and Mn, can occur and demand direct application of these nutrients.

Under Tropical/Subtropical Conditions

Crop data

Annual. Harvested part: Fruit. Directly seeded. Flowers 35 - 45 days after planting. Harvested: 45 - 55 days after planting. Plant density: 33 000 to 54 450 plants/ha. Preferably grown in well drained, non saline soils. Adapted to a wide-range of soils, but will produce early in sandy soils. Generally irrigated.

Target marketable yields in intensive commercial production: 13 - 30 t/ha.

Nutrient demand/uptake/removal

Nutrient uptake/removal (outdoor) - Macronutrients					
Yield t/ha	kg/ha				
	N	P2O5	K2O	MgO	CaO
20	39	27	70	10	35
Source: various					

Plant analysis data

Plant analysis data - Macronutrients							
Plant part	Growth stage	% of dry matter					
		N	P	K	Mg	Ca	S
Young mature leaf	Fruit set	3.3	0.4	2.8	0.4	1.8	0.3
Source: various							

Plant analysis data - Micronutrients						
Plant part	Growth stage	ppm dry matter				
		Fe	Mn	Zn	Cu	B
Young mature leaf	Fruit set	108	60	23	8	25
Source: various						

Fertilizer recommendations

Cucumbers are sensitive to Mg deficiency and respond to Mn and Cu applications.

Present fertilizer practices

Senegal (Camberene)

On light sandy soils in a semi-arid area apply 20 t/ha of organic manure, 130 kg/ha N, 95 kg/ha P2O5, and 200 kg/ha K2O. Before planting broadcast all the organic manure and P2O5 and one-third of N and K2O. At 30, and again at 50 days after planting apply one-third of the N and K2O.

Brazil (Minas Gerais)

General recommendations are, firstly, 50 kg/ha N, 200 kg/ha P2O5 and 150 kg/ha K2O incorporated in the soil at planting and, secondly, 50 kg/ha N and 50 kg/ha K2O broadcast in two applications 15 and 30 days after transplanting. Greater yields are achieved by incorporating 20 t/ha organic matter two weeks or more before planting.

Philippines

In the dry season 120 kg/ha N, 120 kg/ha P2O5 and 120 kg/ha K2O. Band one-third at planting. When the vines have reached about 1 m in length, sidedress a second one-third. Sidedress the remaining one-third when the first fruit is about the size of an egg.

India (Assam)

In sandy loam soils with pH 6.5 and soil boron content of 0.58 ppm, apply 80 kg/ha N, 45 kg/ha P₂O₅, 85 kg/ha K₂O and a 0.25 % Na₂B₄O₇·10 H₂O solution. Apply all the N, P₂O₅ and K₂O at planting. Spray the 0.25 % boron solution at the six leaf stage and at the flower bud initiation stage.

Further reading

HOCHMUTH, G. (ed.): Cucumber production guide for Florida. Florida Coop. Ext. Serv. Circ. 101E (1988)

MAURYA, K.R.: Effect of nitrogen and boron on sex ratio, yield, protein and ascorbic acid content of cucumber (*Cucumis sativus* L.). *Indian J. Hort.* 44, 239-240 (1987)