



# Garlic

## About Garlic

Garlic is a cool season vegetable that is typically planted in the fall and harvested the following spring or summer. Garlic is grown from individual cloves. Seed garlic (i.e., the cloves to be planted) and plant vigor require mild vernalization (i.e., a period of cool temperatures). Varieties can be stiff neck or soft neck types, and can vary in bulb color, maturity, bulb size, clove size, and clove arrangement within the bulb. Garlic varieties can be short day or long day (i.e., the amount of darkness they require to flower).



## Climate and Soil

Temperature	Frost tolerance	Water needs	Tolerance to waterlogging	Drought tolerance
Grows well with average daily 10-20°C. Optimum temperature for planting is 10°C. Optimum plant growth is 20-25°C.	Tolerant to mild frost, and severe frost if roots are protected.	Medium root depth. Moderate total needs but responds to irrigation.	Moderate. Late irrigation can cause bulb rot.	Poor to fair. Stress will cause small bulb size. Roots can extract deep water.
Humidity tolerance	Wind tolerance	Soil needs	Nutrient requirements	
Medium – Leaf foliar diseases occur if wet.	Fair to good.	Tolerates a wide range of well drained soils. Heavier soils can provide greater rooting depth and higher yield potential	Moderate N, P and K	

## Production, Harvest and Postharvest Practices

<b>Planting Material</b>	Vegetative using cloves. Disease free "seed" stock is important.
<b>Varieties</b>	Stiff neck, soft neck. Local adaptation important. Market preferences are local.
<b>Spacing</b>	5-10 cm in-row. Single row or multiple rows on 1 meter beds, 10-15cm apart. Approx. 30-60,000 plants/ha
<b>Field Preparation and Planting</b>	Level soil to permit irrigation. Irrigate pre-plant. Plant in Fall from September - December. Use raised beds to increase soil surface area, aeration and drainage. Plant 2-5 cm deep in moist soil.
<b>Time to harvest</b>	6 to 9 months after planting. Bulbs are mature when cloves are well formed and several dry leaves surround the entire bulb.
<b>Length of harvest</b>	2-4 weeks after removing bulbs from soil, necks are dry for top clipping.
<b>Expected yields</b>	10-20 t/ha
<b>Harvest</b>	Hand harvest. Pull bulbs when mature; dry bulbs in field or by hanging. Clip tops when neck is dry.
<b>Storage</b>	Best with low humidity (60-70%) and when cold (-3 to +2 °C). Warm is okay (20-25 °C) but causes high bulb shrinkage. Intermediate is poor (8-12 °C).
<b>Pests and diseases</b>	Weeds, insects, nematode, viral/fungal/bacterial diseases

Prepared by Ron Voss and Mark Bell. June 21, 2007

**Primary references:** R.E. Voss. Garlic Production Principles and Tips. [www.vric.ucdavis.edu](http://www.vric.ucdavis.edu).

M.I. Cantwell. Postharvest recommendations for Garlic. [www.vric.ucdavis.edu](http://www.vric.ucdavis.edu)

UC IPM Pest Management Guidelines. [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)

**For more information visit:** International Programs <http://ip.ucdavis.edu>

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