

Texas Agricultural Extension Service

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GARLIC PRODUCTION IN TEXAS

Tom Longbrake*

Garlic, a member of the onion family, has production practices similar to onions. Garlic is an important food spice, with increasing use worldwide. Most of the 10,000 acres of garlic produced in the United States is grown in California. More than 80 percent of the production is dehydrated. Imports from Central and South America supplement off-season supplies. Garlic is an expensive crop to grow because of the high cost of seed-cloves and is termed a high-risk crop.

Varieties

Bulbing of garlic is influenced by length of day. For the South Texas area, the Mexican Pink or Creole is the principal variety produced because of its ability to bulb under short day conditions. It matures in late May. Texas White, which matures in June, is the major variety produced in other areas of the state. California Early White may be best planted in Central to northern Texas; it matures in June or July. Growers select and save bulbs for the next year's crop, and some growers have developed their own individual varieties or selections.

Soil and Fertilizers

Garlic does best on sandy loam or clay loam soil, but when fertilized and managed, it does well on most Texas soils with a pH of 6.0 to 8.4. Rely on soil tests for basic soil fertility and pH. Fertilization requirements for garlic are 100 to 200 pounds of nitrogen and 80 to 100 pounds of phosphate per acre. Band the phosphate 2 to 3 inches directly beneath the row at or before planting. Little nitrogen need be applied at planting for fall-planted garlic. When active growth begins in the spring, apply the nitrogen in split applications at 3- to 4-week intervals. Except in sandy soils, sufficient potassium is available for garlic production in most Texas soils.

Planting

Garlic produces no true seed but is propagated by cloves, which are small bublets making up the whole garlic bulb (figure 1). Larger plants produce larger bulbs. About 750 to 1,000 pounds of seed-cloves are needed to plant an acre depending on plant and row spacing. Planting in the southern half

of Texas is done in October. In the northern half of the state, planting may be delayed until early spring. Early planting is desirable because the plant continues to grow vegetatively during the short days of winter and early spring, thereby becoming larger before bulbing. But extended periods below freezing adversely affect production and quality of garlic bulbs.

In most Texas areas, cloves are planted by hand at a depth of 1 inch, 3 to 4 inches apart in the row. Two lines are usually planted 12 to 14 inches apart on top of flattened 40-inch beds. Garlic clove planting machines are used on large acreages in California.

Growing

Garlic requires cool temperatures below 40° F. for 6 to 8 weeks during the growing season to vernalize the plant. Once vernalized, the plant initiates bulbing when the daylength reaches approximately 13 hours and soil temperatures are above 60° F. Prolonged temperatures below 32° F. cause rough shaped bulbs and small axillary cloves. Temperatures above 80° F. speed up bulb formation under favorable daylength. Warm temperatures continuously above 60° F. and/or days with fewer than 12 hours daylight prevent bulbs from forming.

Cultivation and Weed Control

Garlic is a shallow-rooted plant. To obtain satisfactory weed control, use 8 to 10 pounds per acre of 80W Dacthal applied preemergence on a broadcast basis. Apply the Dacthal in 40 to 60 gallons of water on the soil surface just after planting but before the first irrigation. Incorporating the herbicide with the soil into the seed zone may cause crop injury.

Use shallow cultivation to avoid root injury. Avoid throwing soil around the plant, as misshapen bulbs result.

Post-emergent herbicides are available; apply them in sufficient water to give thorough coverage when weeds are 2 to 4 inches tall.

Irrigation

Supplemental irrigation is necessary in Texas for economical production. Once active growth begins in the spring, use timely waterings of 1 to 2 inches per week to keep the crop growing vigorously. When garlic starts to mature, as evidenced by

* Extension horticulturist-vegetables, The Texas A&M University System.

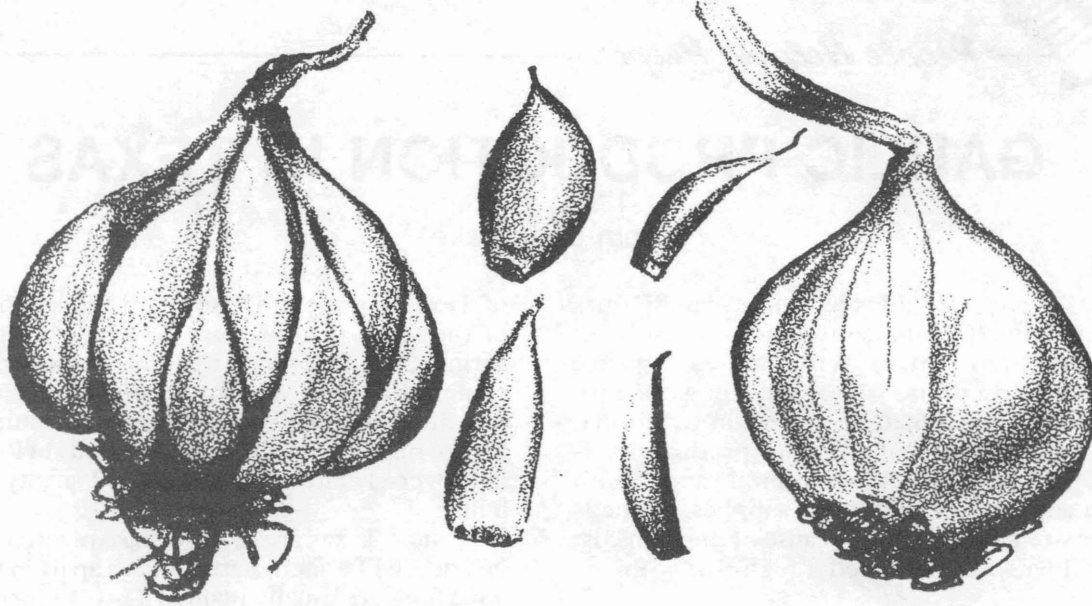


Figure 1. Shown here are whole garlic bulbs and sections of the bulbs, which are called cloves. The cloves are used for seedstock in both regular and elephant garlic.

yellow discoloring and drying of the leaves, discontinue irrigation to allow the crop to mature properly.

Disease Control

Garlic is susceptible to pink root, botrytis, purple blotch and powdery mildew diseases. Regular applications of Mancozeb, Bravo, Ridomil or Dithane M-45 satisfactorily control most foliage diseases such as mildew and purple blotch. Insect control and sanitary growing practices along with crop rotation help control virus diseases. Pink root can be controlled best by long-term rotation and use of seed-cloves grown in non-infested soil areas. Avoid seed stock infected with the damaging bulb and stem nematode.

Insect Control

The onion thrip is the major garlic pest in Texas. Malathion, Methomyl or Vydate are used for controlling thrips at labeled rates. Control cutworms or cabbage looper with Methomyl or *Baccillus thuringiensis* respectively. Check soils with plant residues for possible insect larvae such as wireworms or grubworms which may cause plant damage.

Harvesting and Handling

Garlic is ready to harvest when bulb growth stops

and the tops begin to turn yellow. Under South Texas conditions, garlic is usually ready to harvest in late May or June but not until July in North Texas. When mature, pull the plants by hand. In heavy soils, loosen the bulbs by running a cutter blade or rod weeder below the bulb cutting the roots.

After pulling, the bulbs are topped, roots trimmed and bulbs placed in burlap sacks where they are field cured for several days; or they may be topped and trimmed immediately after pulling and dried in sheltered areas with adequate ventilation. Rain on garlic bulbs during the curing process increases storage disease problems and reduces storage life and bulb quality.

After curing, the bulbs are sized and graded for market. Garlic is sold in 5-, 10-, 20- and 30-pound cartons or in 50-pound mesh sacks. Well cured bulbs are stored best at 32° F. When stored at 40° F., sprouting occurs most rapidly; at 70 percent humidity, root growth emerges from the base at most temperatures.

Grade standards for garlic include "USDA No. 1" and "unclassified." USDA No. 1 consists of garlic of similar varietal characteristics which is mature, compact, plump cloves free from mold, dirt, staining, sunburn, cuts, sprouts, roots, insects or other mechanical damage. "Unclassified" consists of garlic which has not been classified in accordance with the above standards.

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