GARLIC

Designed by:

Crop Manager Team

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Varieties

There are two types of garlic known today; **hard neck**- this produces a flower stem referred to as scape which can be removed and used as a salad accessory. Hard necks include (Lautrec Wight, elephant garlic, chesnok red, and the early purple Wight).

Soft neck variety- this type doesn't produce a flower stem, it even stores for much longer than the hard neck. Soft necks include (Wight cristo, Albigensian wight, cledor and Germidour).

Soil conditions

Garlic prefers well- drained, fertile soils with plenty of organic matter.

The plant tolerates a wide pH range but prefers slightly acidic soils ranging in (6.2-6.8).

Climatic conditions

Propagation

Garlic is propagated from its cloves.

These must be exposed to a temperature below 65°F or they may fail to form bulb when planted.

Planting

Break apart Garlic cloves from the bulb a few days before planting, but keep the papery husk on each individual clove.

Plant each clove 2.5 cm below the surface with the pointed end facing up so that the bulb sits just below the soil surface.

Plant each clove 10 cm (4 inches) apart and in rows 30 cm (12 inches) apart.

Water every 3-5 days during bulbing.

Garlic requires adequate levels of nitrogen; therefore, fertilize especially if you see yellowing of leaves.

Keep an eye out on white rot. It's the fungus that may attack garlic in cool weather. Not much can be done to control or prevent the problem except rotating your crops and cleaning up the area after harvesting.

Fertilization

Garlic is a heavy feeder but the fertilizer recommendation should be guided is a heavy feeder, but the fertilizer recommendation should be guided by soil test results.

There are also general recommendations that can be used. The first thing that should be done sometime before planting is to incorporate the compost into the soil as it does not only improve the soil fertility but also the soil structure.

Then at planting, about 125 g of 3:2:3 can be applied per m2 using the broadcasting method. A light side dressing of 40 g of 3:2:3 can be applied per m2 during the growing period, which can be 6 to 8 weeks after planting. However, if the compost has not been applied on the field, then a further supplement of nitrogen as a fertilizer will be required.

A solution of ammonium sulphate at the concentration of water can be used, but it is only practical for garlic garden production.λa heaped teaspoon in 5 Nitrogen can be applied through irrigation, although care must be taken to avoid foliar burn. The preferred sources of nitrogen are calcium or ammonium nitrate. Applications of urea should be avoided due to potential plant injury

Weed control

Weed control can be achieved by cultivation, hand hoeing hand-hoeing or by applying registered herbicides. Deep cultivation close to the plants should be avoided as root damage with subsequent yield losses may occur. Each method of weed control may be effective but the best way is to integrate these methods to ensure a weed free garlic field.

Disease Management

Basal Rot

Symptoms

- The leaves turn yellow and then dry up slowly.
- The affected plant shows drying of leaf tip downwards. The entire plant shows complete drying of the foliage.
- The bulb of the affected plant shows soft rotting and the roots get rotted. There will be a whitish mouldy growth on the scale. This disease can begin in the field and continue on in storage.

Management

- Growers must follow crop rotation and harvested bulbs must be thoroughly cured to reduce potential storage losses.
- Additional soil copper fertility may be needed especially on mucky and sandy soils. Soil drenching with Copper oxychloride 0.25 %.

Downey Mildew

Symptoms

- White downy growth appears on the surface of the leaves.
- Infected leaves are dried up.

Management

Three spraying with Mancozeb 0.2 % is effective. Spraying should be started 20 days after transplanting and repeated at 10-12 days interval.

Leaf Blight

Stemphylium leaf blight

Symptoms

- Light infections do not affect yields but heavy infections causing major yield reductions can occur. Hundreds of white specks are seen on the foliage. The disease then spreads very rapidly and tops of the entire crop may be killed.

Management

Bulb treatment with Captan /Thiram 0.25%. Spraying of Maneb or Mancozeb or Chlorothalonil. Fungicides may be applied every 5 - 7 days for disease control.

Pythium Root Rot

Symptoms

- This disease causes seed rotting, pre-emergence damping off.
- The disease appears in circular patches in the field here and there. All the affected plants get killed. if the disease occurs prior to seed germination, it causes gappiness. The seeds or seed materials are killed before their establishment.
- If the disease occurs very late, it causes stunting of the plant and rotting of the roots.

Management

Seed treatment with Thiram or Captan @ 4g/kg. The bulbs may be dipped in Thiram solution 0.25%. After sprouting, the root region of the plants along the rows should be given a soil drenching with Copper oxychloride 0.25%.

Smut

Symptoms

- Black smut sori are seen at the base of the leaves and leaf surface. Black powdery mass is seen after rupturing of sorus wall.

Management

Seed treatment with Thiram or Captan @ 4g/kg. The bulbs may be dipped in Thiram solution 0.25%.

White Rot

Symptoms

- The leaves become yellow and die-back and when the plants are pulled up, roots are found to be rotten and the base of the bulb covered with a white or grey fungal growth. Later, numerous small black spherical sclerotia are produced. The bulb of the onion completely rots.

Management

- Crop rotation and clean seed are the only effective control.
- Heavy manuring with organic manures reduces the disease in the crop.
- Seed dressing with Benomyl, Carbendazim or Thiophanate-methyl (100 to 150 g/kg seed) gives effective control.

Purple Blotch

Symptoms

- The infection starts with whitish minute dots on the leaves with irregular chlorotic areas on tip portion of the leaves.
- Circular to oblong concentric black velvety rings appear in the chlorotic area. The lesions develop towards the base of the leaf. The spots join together and spread quickly to the entire leaf area. The leaves gradually die from the tip downwards.

Management

Disease free bulb should be selected for planting. Seeds should be treated with Thiram @ 4 g/kg seed. The field should be well drained. Three foliar sprayings with Copper oxychloride 0.25 % or Chlorothalonil 0.2 % or Zineb 0.2 % or Mancozeb 0.2 %.

Black Mould

Symptoms

- Infection usually is through neck tissues as foliage dies down at maturity.
- Infected bulbs are discolored black around the neck, and affected scales shrivel. Masses of powdery black spores generally are arranged as streaks along veins on and between outer dry scales. Infection may advance from the neck into the central fleshy scales.
- In advanced disease stages, the entire bulb surface turns black, and secondary bacterial soft rot may make the bulb soft and mushy. No external symptoms may be found with some bulbs.

Management

Seeds should be treated with Thiram @ 4 g/kg seed. The field should be well drained. Three foliar sprayings with Copper oxychloride 0.25 % or Chlorothalonil 0.2 % or Zineb 0.2 % or Mancozeb 0.2 %. Growers must follow crop rotation and harvested bulbs must be thoroughly cured to reduce potential storage losses. Soil drenching with Copper oxychloride 0.25 %

Harvesting

Harvest time depends on when you plant, but the clue would be to look for yellow tops.

When harvesting carefully lift the bulbs with a spade or a garden fork.

Pull the plants carefully brush off the soil, and let them cure in an airy, shady spot for 2 weeks.

Hang them upside down on a string in bunches of 4-6. Make sure all sides get good air circulation.

The bulbs are cured and ready to store when their wrappers are dry and papery, and the roots are dry.

At this point the cloves should be easy to crack and the root crown is hard.