ONIONS

Designed by:

Crop Manager Team

Table of Contents

Varieties

Common varieties include Jambar F1, Red passionF1, and Bombay red and red-pinoy.

Soil requirements

Bulb onions do best in well drained, sandy loam soils with a pH range of 6.5-7.0
Let the soil be free from grasses and weeds.
The soil must also be free from diseases and insects and was not planted with onion in previous year.

Climatic conditions

Onions grow under a wide range of climatic conditions but mild season without great extremes of heat or cold or excessive rainfall is best suited. It requires a temperature of 12-25 degrees before bulbing and 15-21degrees celsius for bulb formation. The plant is somehow hardy and can withstand freezing temperature. It can be grown as a rain fed crop at 1500 to 2100 metres elevation. The plant may not survive heavy rainfall. It requires 70%relative humidity. A sudden raise in temperature may favor early crop maturity resulting in small sized bulbs

Pest control

Nurseries must be free from grasses and weeds. One or two applications of fungicides and insecticides are needed during the period of transplant production.

One application of protective fungicides such as bravo (chlorothalonil) or Dithane M45 is needed and followed by one application of systematic fungicide like Ridomil are needed for good disease control.
Extra care must be utilized when selecting and applying herbicides to onion nurseries.
For irrigation depending on soil type irrigation on a 4-7 days schedule is optimum. However, soil should not be over irrigated or let be dried and cracked.

Planting Procedure

It’s preferable to plant onions at the onset of rains, though one can plant if they have means of irrigating.

Make rows of 12 to 18 inches apart, and then place onion sets or transplants 4 to 6 inches apart in 1cm deep holes in the soils.

Gently cover the transplants with soil. Water thoroughly after planting and regularly thereafter when it does not rain.

Watch out for pests like onion fly, onion thrips and onion neck rot disorder.

Fertilizer application

Calcium super phosphate is applied during land preparation and before planting at the rates recommended locally. Nitrogen and potassium fertilizers are applied at 2 or 3 times on a 3 weeks schedule. It is highly recommended to apply a foliar application of micro-nutrients to onion seedlings when they are about 45 days old.

Weed control

Weed management involves herbicide application and manual/hand weeding. The pre-emergent herbicide glyphosate is mainly used for initial weed control in both onion nurseries and farms and this was followed up with hand picking of weeds. Hand picking of weeds was carried out throughout the nursery stage of the onion crop while farms were weeded from four to ten weeks after transplanting, depending on the effectiveness of the herbicide treatment. Hand picking of weeds is carried out throughout the nursery stage of the onion crop while farms are weeded from four to ten weeks after transplanting, depending on the effectiveness of the herbicide treatment.

Disease management

Botrytis brown stain

Disease description

The fungus causes shallow white flecks on older, senescent leaves of onion that may be mistaken for insect injury or spray burn. It generally does not infect healthy leaves. Blub infections do not cause decay but the spores may produce a brown stain that reduces market value.

Management

- Make sure cull (waste) piles of old plant material are not left in the field.
- Bury or compost old material.
- When harvested bulbs are dry the outer scales can be removed to usually remove the brown stain.

Sclerotium bulb and stem rot

Disease description

The fungus lives in the soil and infects the stem at the top of the bulb, causing decay of the bulb and stem collapse. Small round sclerotiare may form later in the season on the stem and soil surface. About 2 mm diameter; they are white at first then tan or brown.

Cultural Control

Long rotations to non-host crops such as small grains may help. Avoid moving soil and plant debris from infested fields to clean fields.

Chemical Control

Few fungicides are available for this disease.

Bacterial Soft Rot

Disease description

Decay occurs mostly on mature bulbs in storage but may also appear on bulbs in the field following rain. Affected layers turn light yellow, gray or white and appear full of water. They later become soft and sticky and the inside of the bulb rots and smells bad.

Cultural control

Control insects that may damage bulbs. Harvest after leaves are mature and handle bulbs carefully to avoid physical damage. Store bulbs with good ventilation and only after they are properly dry.

Chemical control

Copper-based products may reduce spread.

Slippery Skin

Disease description

These bacteria are found worldwide. They are favored by high temperatures, rain, excessive irrigation and damaging wind or hail. The bacteria live in the soil and splash onto the neck of the onion and may enter wounds such as those caused by high winds, hail or wind-blown sand. The infection moves within the infected scale from the neck of the bulb downward. Bulbs may decay within 10 days after infection in the field or in 1-3 months under dry storage conditions. **Slippery Skin:** Inner scales are affected first **Sour Skin:** One or two leaves turn light brown then rot moves into the neck and the outer scales. Infected bulbs have a sour vinegar-like smell due to secondary

Management

Harvest after leaves are mature and handle bulbs carefully to avoid physical damage. Store bulbs with good ventilation and only after they are properly dry. Avoid irrigation near harvest. Store at low temperatures (1-2 C) with good ventilation.

Xanthomonas leaf blight

Disease description

Leaf symptoms begin as elliptical white spots or long narrow streaks that appear water-soaked and later turn brown and blight the entire leaf under wet conditions with temperatures above 26 C. The pathogen is spread by seeds and crop debris.

Management

Remove and destroy infected plant material. Work in the field only when foliage is dry. Clean tools and equipment after working in an infested field. Control volunteer onions, beans and other weeds. Rotate to non-host plants such as small grains for two years. Use only disease free seed.

Chemical control

Copper based sprays can help reduce spread

Black Spot

Disease description

The fungus infects bulbs through infect leaves or through breaks in bruised or wounded outer scales. Black areas of spores develop between layers of dry outer scales. Infected tissue appears water-soaked at first and soft rot may follow. Favored by temperatures greater than 30degrees Celsius.

Cultural control

Store bulbs in a cool, dry area and avoid bruising. Remove infected onions from other bulbs.

Chemical control

Fungicides are not generally needed unless the problem becomes severe.

Smudge (Anthracnose)

Disease description

Smudge is caused by the soil-borne fungus *Colletotrichumcircinans.* White onions tend to be more susceptible and it is usually on the dried outer scales. Lesions are black and may have concentric rings.

Cultural control

Store bulbs in a cool, dry area and avoid bruising. Remove infected onions from other bulbs. Provide good soil drainage and rotate to other crops.

Chemical control

None

Botrytis brown stain

Disease description

The downy mildew pathogen is spread by spores in the air and survives winter as spores in seed and plant debris. Disease is favored by cool temperatures and rain or dew on leaves and high humidity.

Cultural control

Use disease free seeds and plants, rotate to other crops, irrigate on surface of soil or in trenches and clean up or bury old cull piles. Turn under crop debris each fall.

Chemical control

Fungicides may be needed where this disease has been a problem in past years.

Harvesting

Harvesting normally begins when the onion plant leaves have senesced, the necks have sealed and the bulbs have matured and reached their normal size. The roots are undercut to reduce water uptake and to stop further growth. Onions are lifted and tops are cut to leave about 2 inches (5cm) of neck. They are transferred to the store and periodically sun dried.