

Onions

Diseases, symptoms and management information

a) Onion purple blotch



Look out for:-

- Small white lesions on the leaves or stalks developing into elliptical (Oval) purplish areas.
- Wilting of the leaves leading to death.
- Yellowed and collapsed leaves 3-4 weeks after attack.
- Yellow to reddish watery rot at the neck of the bulb
- Start remedial measures immediately after the first signs appear.

Recommendations for management: -

- Good Agricultural Practices recommended i.e Practice a three year rotation with non-host plants such as millet and sorghum; Plant crop in areas with a temperature range of 18-30°C; Avoid planting during wet conditions which favour disease development; Plant tolerant varieties such as, Bombay Red, Red Creole or Red Comet F1; Plant using certified seeds from reliable stockists; During land preparation remove weeds especially those of the Allium family such as wild onion; Remove infected plants parts and dispose by burning; Stop irrigating the crop as harvest time approaches; Sort and cure the bulbs to separate infected and the non-infected onions; Store in dry aerated stores.
- Chemicals should be used as a last resort. Routinely spray with Mancozeb-based products (such as Dithane M45 WP or Sancozeb 80wp at the rate of 50g in 20L of water). Repeat spray after every 14 days. 3-4 sprays are adequate per season. PHI 7 days or spray Propineb 70%+Cymoxanil 6% based products such as Milraz WP 76 at a rate of 40-50ml in 20L. PHI 7 days. Repeat spray after every 14 days. 3-4 sprays are adequate per season.
- Observe safe chemical use practices i.e. When using a pesticide, wear protective clothing when handling chemicals and follow the instruction on the product label such as dosage, pre-harvest interval, the maximum number of sprays, appropriate time of application and restricted re-entry interval.

b) Onion thrips



Look out for:-

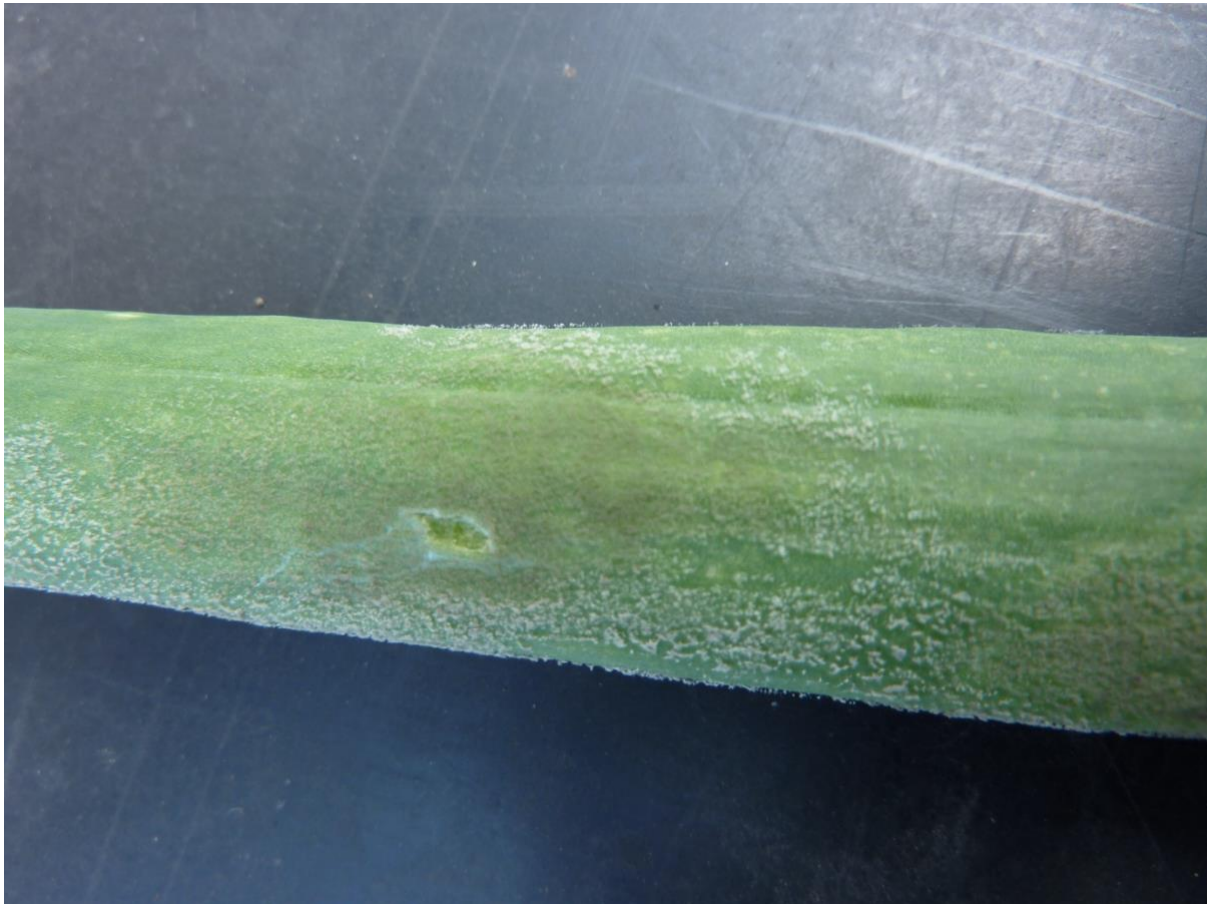
- Silvery leaf spots and patches and excreta of thrips visible as small black dots on leaves.
- Scout for small light greenish, sometimes grey-greenish, thin larvae when onion is at 4-5 leaf stage.
- Continue inspecting weekly especially on the underside of the leaves and the neck.
- Inspect seedlings when transplanting for any possible thrips infestation in leaf folds.
- Use yellow or blue sticky traps to monitor the adult.
- Take control measures when 1 – 2 thrips per leaf are found.

Recommendations for management: -

- Good Agricultural Practices recommended i.e Intercrop onions with trap crops e.g. carrots, cucurbits, kale, spider plant and flowers like carnations; Maintain a healthy onion crop as it will tolerate thrips; Avoid planting onions near an existing infested field; Mulch onion fields as this helps reduce thrips population; Use overhead irrigation where possible to reduce thrips populations; Remove and destroy volunteer onion plants and debris that may harbour thrips; Grow onions under agronet, 0.4mm mesh size to reduce infestation.
- Additionally, discard any infested seedlings during transplanting; Remove heavily infested plant material and burn
- Use yellow or blue sticky traps to trap the adults.
- Apply soapy sprays (mix 5 teaspoon full of soap powder or chopped bar soap with cold water in a ten-litre bucket and stir until dissolved; Spray the solution on the infested plants whenever there are thrips)

- Spray neem based products like Neemroc EC and Nimbecidine (Azadiractin). Use 1 litre per acre (10 plastic bottle tops per 20 litres of water); Apply *Bacillus thuringiensis* var. *kurstaki* (e.g. Bio T Plus).
- Chemicals should be used as a last resort. Spray with Spinosad (tracer 480 SC) at the rate of 4ml per 20litres of water or Spray with lambda- cyhalothrin based products e.g. Triger 5% EC at the rate of 7ml per 20L of water or Duduthrin 1.7EC at the rate of 65mls per 20L of water; or Karate 2.5 WG at the rate of 20gms/ 20liters. PHI 7days or spray with Imidacloprid containing products. PHI 3days
- Observe safe chemical use practices i.e. When using a pesticide (even a botanical home-brew), wear protective clothing when handling chemicals and follow the instruction on the product label such as dosage, pre-harvest interval, the maximum number of sprays, appropriate time of application and restricted re-entry interval.

c) Downy mildew



Look out for:-

- Lesions formed near the tips of older leaves
- Yellowish patches covered in purplish-grey web of fungus

- Shrunken leaf tips and death of leaves
- Monitor additional relevant crops: leek, garlic, shallot, chive, watermelon, pumpkins
- Take action when symptoms appear on one plant

Recommendations for management: -

- Good Agricultural Practices recommended i.e. Use disease free seedlings raised from a clean nursery; Rotate with maize, sweet potatoes, sorghum for three seasons; Avoid poorly drained fields, rogue volunteer onions and avoid using overhead irrigation; Remove and burn onion debris after harvest; Use recommended spacing of 30 x 8 cm to allow free movement of air; keep the field free from weeds that may act as alternative host; Avoid working on the field when leaves are wet; Remove and burn infected leaves.
- Chemicals should be used as a last resort. Spray matalaxyl based fungicide such as Redomil gold at a rate of 20gms in 20 litres of water or tata master at the rate of 50g in 20 litres of water. Start spraying shortly after transplanting when plants are about 15 cm high before symptoms appear. Spray every 7 to 10 days (more applications during dampy weather and less during dry weather)- PHI 1 day or spray using mancozeb, e.g. Farmcozeb at a rate of 50g in 20 litres of water or Melthane super at a rate of 50g in 20 litres of water - PHI 3days or spray chrolothionil e.g. Daconil, at the rate of 40gm in 20 litres of water or Katerina720 SC at the rate of 40mls in 20 litres of water 2 weeks before rainy season. Apply as soon as you see the disease at 7 to 14 day intervals. Apply as soon as conditions are favourable for disease outbreak.
- Observe safe chemical use practices i.e. When using a pesticide (even a botanical home-brew), wear protective clothing when handling chemicals and follow the instruction on the product label such as dosage, pre-harvest interval, the maximum number of sprays, appropriate time of application and restricted re-entry interval.

d) Oxalis weed



Look out for:-

- Small low, creeping plants with three heart-shaped or fish-tail shaped leaflets, at the tip of about 10 cm weak thin stems.
- Leaves are green to purple about 4cm wide. They fold at the midrib at night
- The flowers have five flower-leaves which fuse at the base. They are greenish on outside and purple on the inside but pale towards the base
- Look for small whitish to brown bulbs (short carrot shaped, 1-2 cm) when the soil is moist before sowing
- Oxalis weeds grow in clusters of more than 15 plants per cluster. Control measures should be initiated when there are 3 – 6 clusters/ metre
- Monitor once a week at seed bed and continue after transplanting until up to 3 months after transplanting (time for the onion to form bulbs)

Recommendations for management: -

- Good Agricultural Practices recommended i.e. Use onion seeds certified free of weed seeds; Prepare the seed bed and leave it for moist for weed to grow. Remove the initial weed flush mechanically by shallow hoeing (to reduce subsequent weed flushes and also prevent bringing up weed seed and bulbs from deeper soil). Uproot or hand hoe in the germination nursery before the oxalis starts to flower; Apply mulch from plant residues or polythene sheets to prevent Oxalis germinating. Apply organic or dry grass/plant residue mulch 15-20cm thick around the onion plants to limit the number of germinating oxalis and suffocate any germinated; Deep plough and desiccate the rhizomes/ bulbs – do not plough when the soils are moist as this will initiate Oxalis germination; Remove, where possible, all the bulbs on ploughed field by hand when the soil is slightly moist (tiny brownish to white bulbs easy to spot on moist ploughed soils); Do not place the weed in compost bins/ heaps for re-use as this will re-introduce the weeds to the fields; Rotate onion with broad-leaved crops as cover crops such as legumes and pumpkin to suppress the Oxalis weed.
- Chemicals should be used as a last resort. You may consider oxyfluorfen – based products (Galigan 240EC, or Predator 340EC and others) pre- emergence and post- emergence herbicides used for controlling a wide range of broad-leaf weeds in onion or Glyphosate – based herbicides (Glycel 480SL or Burnwid 48% SL and others), applied against germinating weeds pre-emergence of crop. Requires 2 days of no rain. It will only clear surface growth but not the Oxalis bulbs. The bulbs will re-grow.
- Observe safe chemical use practices i.e. When using a pesticide (even a botanical home-brew), wear protective clothing when handling chemicals and follow the instruction on the product label such as dosage, pre-harvest interval, the maximum number of sprays, appropriate time of application and restricted re-entry interval.