

Onion Production: requirements, growing, diseases, harvesting and marketing

22 April 2015

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1. Agronomic aspects

1.1 Climatic requirements

- Onions grow best during cool weather i.e. autumn and winter so that they are lifted in early summer.
- The bulb results from accumulation of food reserves in the lower portion of the plant
- The process of bulbing is closely associated with an interaction between two environmental factors – light and temperature. Cool conditions with long days are normally essential for production of onions and warmer weather is required when the crop is harvested.
- Temperature plays a significant role in initiating and influencing the rate of bulbing.
- Fluctuating weather conditions can influence flowering of onions although they normally flower in the second year. It also causes bolting but low temperatures will inhibit bolting.

1.2 Soil Requirements

- Onions prefer lighter soils although they can be grown on a wide range of soils.
- Onions have a shallow root system and a soil depth of 450mm is adequate.
- Hybrid varieties have a low tolerance to low pH, hence for acidic soils correct the pH by applying lime.

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1.3 Fertilizer and manure Application

- Lime should be incorporated into the soil at least four weeks before planting.
- For fertilization a general recommendation of Compound S (6:17:6) should be applied at the rate of 1 000kg/ha.
- Onions respond to organic manure which may be applied at the rate of 50 tons per ha.
- Heavy applications of manure or nitrogen may cause several problems such as delayed ripening of the crop, formation of large, thick-necked bulbs which makes it a problem during storage and bolting will be encouraged.
- A top dressing of Ammonium Nitrate at the rate of 100kg per ha is recommended. It should be applied four to six weeks after transplanting. If the crop remains yellow further application of ammonium nitrate is recommended.
- The keeping quality and pungent smell of onions is closely associated with the content of sulphur but as long as one uses compound fertilizer or SSP there is no need to put additional sulphur.

1.4 Cultivars

Some of the common cultivars grown in Zimbabwe include the following;

- Cape Flat
- Pyramid
- Texas Grano
- Hojem
- Bon accord
- Dessex hybrid

1.5 Crop Establishment

Various methods of growing onions are used in Zimbabwe:

- The most common method is to sow seed in a nursery or prepared seedbed followed by transplanting the seedlings into a field at a later date.
- Sowing directly in the field especially spring onion sets
- Planting onion bulbs
- Seed takes 7-10 days to germinate.
- 28g of onion seeds contains 7 000 seeds. One ha requires 8kg seed.
- Seed is usually sown from February to April depending on the cultivar.
- Seed beds are watered twice daily until the seedlings appear.

- Seedlings become ready for transplanting 6 to 8 weeks after sowing.
- The plants should be 5-7mm in diameter at the time of transplanting or thickness of a pencil.
- Seedlings should be top dressed with 350g /m² ammonium nitrate. At 2-3 weeks of age.
- Transplanted seedlings are spaced 230-300mm X 50-75mm

1.6 Rotation

Onions are best rotated with legumes like peas, beans etc.

2. Pest and Disease Management

Major pests for onions are Thrips and cutworms;

- **Thrips** feed on young leaves which develop silvery speckled appearance at maturity. It causes a yield loss of up to 40%. For control of thrips use endosulfan 35% or Malathion 25% or 50 % wp.
- **Cutworms** are often a problem particularly on newly cultivated lands. For control of cutworms use carbaryl 85% wp or endosulfan 50% wp.
- **Purple blotch fungus** causes more damage where humidity and warm temperatures favour development. It causes irregular white patches on the foliage. Use preventive spray of Dithane M45.
- **Downy Mildew** is a problem during humid conditions in winter.
- **Storage rots** which are characterized by black sooty like-mould which develops between the scales of the bulb. Control in stored onions is difficult but in the field spray with Benlate at the rate of 500g /500 litres water.
- **Nematodes** should be destroyed by fumigating at the nursery seedbeds.
- **Bolting** –It is the dry hollow flower-stalk arising from the crown and descending to the bulb.

3. Yields

Usually up to 5 000 pockets per ha or 62.5 tonnes per ha although the normal is usually 2 500 pockets per ha.

4. Harvesting & Marketing

Onions may be harvested when 50% of the crop foliage has fallen over. It is important to allow the foliage to dry out naturally. Once dry the foliage and roots are removed and the bulbs are packed into pockets for marketing. The pockets should weigh a little over 12.5kg to allow for moisture loss. March sown crop is harvested in October. The crop can be stored up to 5 months.

Thick necked onions should be removed and sold as fresh onions because when they die back they are not able to seal the neck and this allows entry of the diseases into the bulbs.

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