Onion Growers Guide

Everything You Need To Know

Zambia Agribusiness Society

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— Production guideline —

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1. Introduction

Onion (Allium cepa) cultivation in Zambia dates back to more than 50 years ago. It belongs to the lily family, the same family as garlic, leeks, chives, scallions and shallots. It is a culinary 'must use' for Zambian diets and more than 10 million kg is consumed annually. There are over 600 species of Allium, distributed all over Europe, North America, Africa and Asia. The plants can be used as ornaments, vegetables, spices, or as medicine. There are over 120 different documented uses of the Alliums. This article aims to provide preliminary information on the cultivation, harvest and post-harvest of onions for profitable onion production.

2. Site Selection

Onions should be grown on friable soils, which contain high amounts of organic matter and have good water-infiltration rates and good moisture-holding capacity. The soil should not be compacted, and the pH should be 5.8 to 6.6. Sandy loams and muck soils are often used for onion production. For sweet Spanish onion production, soils with low sulphur levels (below 40 ppm) are recommended.

3. Land Preparation

Land preparation is the activities that are undertaken to produce a soil condition that is suitable for optimum crop production. This usually involves land clearing, ploughing, harrowing, rotovating and bed-shaping. Drains should also be constructed to prevent waterlogging of fields. For onions, land preparation is very critical, especially if the crop is to be direct seeded, and must result in a soil that is crumbly and of fine tilth.

4. Variety Selection

Bulbing of onions is primarily induced by photoperiod or day-length. Both long day and intermediate day onion varieties are recommended for in Zambia. In addition, onions are classified by skin colour (red, white, brown, or yellow), taste (sweet or pungent), and shape of the bulb (round, flat, or globe).

Table 1. Recommended onion varieties for growers in Zambia.

Planting Method	**Type**	**Variety**	**Days to Maturity**
*indicates hybrid variety			
Sets	N/A	Early Yellow Globe	90
Sets	N/A	Ebenezer	90
Sets	N/A	Southport Red Globe	90
Seeds/Transplants	Storage	Trailblazer*	103

Table 1. Recommended onion varieties for growers in Zambia.

Planting Method	Type	Variety	Days to Maturity
Seeds/Transplants	Storage	Hendrix*	107
Seeds/Transplants	Storage	Fortress	110
Seeds/Transplants	Storage	Spartan Banner 80*	115
Seeds/Transplants	Storage	Vega*	125
Seeds/Transplants	Sweet Spanish	Alisa Craig	95
Seeds/Transplants	Sweet Spanish	Candy*	105
Seeds/Transplants	Sweet Spanish	Expression	105
Seeds/Transplants	Sweet Spanish	Spanish Medallion	110
Seeds/Transplants	Sweet Spanish	Exacta*	110
Seeds/Transplants	Sweet Spanish	Red Sky* (red bulb)	103
Seeds/Transplants	Sweet Spanish	Redwing* (red bulb)	115
Seeds/Transplants	Sweet Spanish	Mercury* (red bulb)	115

5. Planting and Fertilization

Onions can be started as transplants or sets. Transplants are seeded in the greenhouse 10 to 12 weeks prior to planting in the field. Because onions are a cool-season crop, they can be transplanted as early as mid-March. When producing transplants in the greenhouse, the plant tops should be trimmed to a 4-inch height to produce a stout, sturdy transplant. Sets are small dry onion bulbs produced the previous year. They can be planted later in the year than transplants and still produce a marketable crop.

Growers generally plant 75,000 to 120,000 onions per acre in single rows with 2 inches between plants in the row and 24 inches between rows. For large sweet or Spanish onions, the in-row spacing would be 4 to 6 inches between plants. If you are not limited by equipment space restrictions, multiple rows of onions (up to four) can be planted on raised beds covered with black plastic mulch. In this case, two drip tapes are placed 2 inches beneath the soil to facilitate production and harvest operations.

Fertilizer application rates should be based on an annual soil test. If you are unable to conduct a test (including a test for calcium), the recommended N-P-K application rates are 60-80-80 pounds per acre banded at planting or 120-160-160 pounds per acre broadcast prior to planting. For sweet onions, a spring application (early May) calcium or potassium nitrate should be side dressed at 100 pounds per acre.

6. Pest Control

Weed control can be achieved with herbicides, cultivation, and a good crop-rotation system. Several pre-plant and post-emergence herbicides are available for onions, depending on the specific weed problem and the stage of onion growth. If infestation levels are mild, early cultivation can minimize weed problems.

Several onion diseases can cause crop losses, especially downy mildew, purple blotch, and white rot. Many of these diseases can be prevented by using a good crop rotation system, high-quality soil with good air drainage, and disease-resistant onion varieties.

Insects can be a major problem in onion production. Onion maggots and thrips have the potential to reduce or destroy crops in any given year. Monitoring insect populations will help you determine when you should use pesticides and how often you should spray.

When using any pesticides in your enterprise, remember to follow all label recommendations regarding application rates and personal protection equipment (PPE) requirements. Also remember that any Worker Protection Standards (WPS) apply to the owner as well as to employees.

7. Harvest and Storage

Onions are usually harvested when one-third to one-half of the tops have fallen over. Bulbs are generally pulled from the soil after being loosened with a disk. They are then topped approximately 1 inch above the bulb. To prevent rot organisms from entering the bulb, onions must be adequately cured (drying of the cut top or neck area) in the field, in open shade, or by artificial means before being placed in storage. Curing may require two to four weeks, depending on weather conditions. In high humidity and wet regions, onions are usually removed from the field for curing. To ensure that you are marketing a high-quality product, grade onions by size and colour and check them for insect damage. Onions that are maintained at 32°F and 65 to 70 percent relative humidity can be stored for approximately one to eight months, depending on variety.

8. Conclusion

It is vital to undertake studies on onion because increasing knowledge about this crop will not only address issues of poverty, but will also lead to development of sustainable value chain which is important in sustaining firms and industrial competitiveness.

References

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