

BOMBAY ONION SEED PRODUCTION EXPERIENCE
AT KALPITIYA.

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Introduction

Onion (*Allium cepa.*) is popular both as a vegetable and spice crop, in Sri Lanka. The two major types of onion grown in Sri Lanka are

1. the small onions commonly called the 'Red onions' and
2. the big onions commonly called 'B onions'.

In the Kalpitiya Penninsula onion production has achieved considerable progress in the recent past. In this area the most widely cultivated type is 'Red onion'. There are two common varieties of red onion grown in the area.

1. 'Mal Lunu' (Vethalam) the most popular variety and grown throughout the year and
2. Small red onion variety called 'Shallots' grown during the maha season.

'Mal Lunu' produces true seeds under Kalpitiya conditions. This has contributed to its popularity among cultivators in the area, and the production and use of true seeds of this variety is becoming more popular than the use of seed bulbs as planting material in this area. The studies done by the Economics Division of the Department of Agriculture has revealed that B.Onion is the most profitable crop in the area. However at present the B.Onion production in this area is restricted to a low level. This is due to non-availability of seed during the Planting season and also the poor storability of the B.Onion true seeds.

B.Onion seed production programme:

Several varieties and lines of B.Onion, mainly from India and Ethiopia were collected during 1983 Maha season. These collections were evaluated continually during the last four years at the Agricultural Research Station, Kalpitiya to estimate their

1. bulb yield
2. quality
3. ability to flower and produce seeds under local conditions. Mass selection was practiced by discarding undersirable types at various stages of crop growth

Methods of seed production:

The main methods of B.Onion seed production were,

The seeds were sown in May - June, transplanting seedlings was done in July - August.

After transplanting seedlings, the bulbs were left in the field and allowed to regrow, bolt and flower in the field (in situ) Bolting starts in December - January and the seeds were ready for harvest during the period, April - May. With this method poor bolting and low seed yields were observed. Also the seed to seed method excluded any possibility of selection for bulb quality (as the bulbs were not lifted from the soil)

Bulb to seed method

The seeds were sown in nurseries in May - June. Seedlings were transplanted in July - August. Bulbs were ready by September - October. Bulbs were harvested at maturity and cured in the field for 4 - 5 days and carefully selected bulbs were stored for 2 - 4 weeks and then replanted in the field to flower and produce the seed. The seed yield and the percentage bolting were high when this method was adopted. Selection of bulbs was essentially for bulb quality.

Use of dry-sets

Seeds were sown in the nurseries in March - April and the seedlings were allowed to grow in the nursery for 10 - 12 weeks to produce mature dry-sets. The dry-sets were harvested and stored for 2 months. In October - November the dry-sets were replanted in the field; bolting occurred in December - January. Seeds were ready for harvesting during March - April

The first two are conventional methods of seed production. The third method (use of dry sets) is preferred under Kalpitiya conditions. The high air

temperature and excessive wind velocities prevailing in the area during the months of July and August adversely affect the growth of the onion crop. The use of dry setts provides the seed produces an opportunity to evade the expolsure of the crop to the adverse effects of temperature and wind stresses. During July - August period (because the dry setts one kept in the stores during this period).

Climatic requirements :

Bolting is strongly influenced both by day length and temperature. Therefore it is important to adjust the time of planting the seed crop to synchronize bolting with the cooler period of the year (December - January) is the cooler period in Kalpitiya area)

Seeds, Seed sowing, Transplanting and After care:

Eight to ten Kg. of seed is sufficient to raise seedlings for planting one hectare. Seeds may be sown in flat beds. Sowing is done in continuous lines spaced at 5 - 10 C.M distance. The normal bed size is 3m x 1m. When the seedlings are 12 - 18 cm tall (6-8 weeks) and 0.6 to 0.9 cm thick at the base, they are considered ready for transplanting. (in the bulb to seed' method) Transplanting seedlings in the field is done at a spacing of 15 x 10 cm. When the bulbs are ready for harvest, any further vegetative growth must be suppressed through careful thrashing of the green tops, using a smooth stick. After thrashing irrigation is stopped and the harvesting is done 3 - 4 days later.

Bulb, Selection, Storage and the Seed crop:

Select and remove the injured, rotten, thick necked, bolted, twin bulbs and off types. Bulbs having the diameter of 2.5 to 3 cm are best for planting. Tie the selected bulbs into small bundles Stroed the bundles in a well ventilated place. Plant selected bulbs in a well prepared field at a spacing of 30cm x 30cm. To plant one hectare 2500-3000 kg of bulbs is required.

Onion is a highly cross-pollinated crop. A distance of 400 m between varieties must be kept. Rogue Diseased and off type plants before flowering commences.

Attempts to improve the seed yield through increased pollination by introduction of honeybees were not shown any convincing results.

All the seed heads do not mature simultaneously. Therefore staggered harvesting must be practiced. When the seeds inside the capsules become black, cut the umbels. Thresh the capsules when they become brittle and break readily.

Kalpitiya types:

Four (4) promising types of B.Onion have been identified during the past four years through continuous selection. Some characters of these types are shown in Tables 1 and 2.

Table 1. Some important characters of the Bulb crop

<u>Types</u>	<u>Colour</u>	<u>shape</u>	<u>average bulb diameter</u>	<u>weight of 10 bulbs in gm.</u>	<u>%twin Bulbs</u>
K1-1	red	globular	4.5 cm	545	10.5
K1-2	red	globular	3.8 cm	360	8.6
KE-1	scarlet red	globular	4.0 cm	525	5.2
KE-2	scarlet red	globular	3.2 cm	325	3.5

Table 2. Some important characters of the seed crop

<u>Type</u>	<u>% flowering</u>	<u>average seed weight in gm per flower</u>	<u>average number of seeds per flower</u>
K1-1	51.3	1.64	615
K1-2	48.2	1.71	514
KE-1	67.5	1.20	335
KE-2	55.2	0.93	315