

LOOFAH

The loofah plant is an annual vine which is grown for two distinct purposes. It has been used for many years as a bathroom sponge, and there has been a recent revival of interest in this use, as it is a natural product. The young fruit of the loofah is also consumed as a cooked vegetable, or used in curries and in soup.

The angled loofah (*Luffa acutangula*) bears fruit which are cylindrical, between 150 mm and 600 mm long, and are ridged or ribbed. Young fruit are harvested for consumption before they become bitter in taste and fibrous. At this immature stage the fruit and seed are soft and are cooked similarly to squash.

The smooth loofah (*L. cylindrica*) may also be consumed, when fresh young fruit of a non-bitter selection are used, but its main use is as the domestic sponge loofah. The sponge is actually the internal fibrous tissue of the mature fruit after the seeds and the dried outer shell have been removed. A ready-for-sale loofah, for use as the mildly abrasive rubbing of the skin when bathing, is 150 mm to 400 mm in length and preferably pure white in colour. In recent years, hybrid loofah cultivars have been released, which may yield fruits one metre in length before processing.

SEED AND SOWING

Seed is black, flattened and about 12 mm in length. Traditionally, seed has been saved from the previous crop for replanting in spring. Seeds are recovered from selected mature, dried fruit when the skin is cracked open. Seed of hybrid cultivars should not be collected for planting.

Germination temperatures must be above 12°C, and germination improves as temperatures rise to about 35°C. Even so, germination with direct seeding tends to be poor. The poor germination may be overcome by a high seeding density, followed by thinning out excess seedlings, or by germination in seedling trays under controlled conditions (high temperatures), before being transplanted into the field.

GROWING CONDITIONS

Once germination problems have been overcome, the plant is fairly tolerant of a range of summer growing conditions. Excessively wet weather during flowering and fruiting adversely affects yields.

Lack of soil moisture is detrimental to growth and yield, so regular irrigation is necessary at all growth stages, although allowing the soil to dry to about 10 % available water in the early growth develops a better root system. Keep moist from the flowering stage onwards. Plants grow optimally in a well-drained soil with moderately high organic content and pH values from 5,5 to 6,5. Ideally, the fertilizer programme should be based on the results of a soil analysis. In general, though, the loofah, as a member of the cucurbit family, has moderate nutrient requirements. Agricultural or dolomitic lime should be applied to acid soils.

At planting, 600 kg 2:3:4(30) fertilizer mixture per hectare may be applied in the row, reducing or increasing the amount for fertile soils or soils with low fertility, respectively. The plants should be side-dressed with 200 kg L.A.N. per hectare about six weeks later.

In the home garden loofah vines may be trained to a fence. Plants allowed to trail on

the ground will not bear the same quantity or quality of fruit as trained vines. For commercial production a simple trellis system is used, with an overhead wire about two metres above the soil surface. Plant spacing should be between 600 mm and 900 mm within the row. A vine is trained up a pole, or up twine which is anchored in the ground near the plant. Laterals are initially pruned, to stimulate early flower production. Depending upon the row width (1,1 m to 2,0 m) a plant density of 6 000 to 12 000 per ha is recommended.

FLOWERS AND FRUIT

Loofahs are monoecious, that is male and female flowers are borne separately on the same plant. Depending on the prevailing temperature, the first, smaller, male flowers are formed about seven weeks after sowing, and several days before the first female flowers appear. The female flowers are insect-pollinated, mainly by bees. In the absence of bee activity, hand pollination may be carried out in the early morning. Under good growing conditions, up to 20 fruits per plant may be expected. If picked for consumption, fruits must be harvested before they become fibrous (between 150 g and 250 g). Mature fruits for sponges would be harvested three to four months after establishment.

Immature fruit does not store well, and should be marketed for consumption as soon as possible after harvest. It consists of 94% water, and a 200 g fruit has about 38 calories of energy, with low to moderate vitamin content. These figures are very similar to those for the sousou (or chayote) fruit.

For loofah production by the home gardener, fruit may be left on the vine until the outer shell has dried, then it is cracked and peeled. In a commercial operation, fruits are harvested when they turn yellow. The fruit is dumped into tanks of agitated water until the skins and pulp disintegrate. The fibrous loofah is usually bleached in a sodium hypochlorite solution before a final wash and drying. It is either disposed of in that form, or is further processed into mittens, mats or pads, by splitting large-diameter sponges longitudinally and flattening into sheets. At present there is a definite niche market to be satisfied, as many loofah products on sale are imported.

PESTS AND DISEASES

Pumpkin flies

Several species of pumpkin fly attack the immature fruit of loofah. The flies are dark brown and wasp-like. The fruit skin is penetrated and tissue around the puncture mark dries and becomes darker and slightly sunken. Maggots which hatch in the fruit feed on the inner flesh; they are white to cream in colour and up to 10 mm long. Control is by bait treatment (mercaptathion or trichlorfon with sugar) sprayed as coarse droplets onto the undersurface of leaves. Additionally, fenthion may be sprayed onto developing fruits at fortnightly intervals.

The chemicals have various trade names.

Red spider mite

This pest may become a problem when foliage remains dry, as in dry summers with drip irrigation to plants. The minute mites remain on the underside of leaves, and are often only noticed when the upper surface becomes silvery and chlorotic. Dicofol (Kelthane) is registered, and the undersurfaces of leaves should be specifically sprayed. Repeat spraying should control the new mites that hatch, unless resistant strains are present.

Powdery mildew

This disease is most severe in warm, dry areas: White powdery areas form on leaf surfaces, petioles and young stems, infection proceeding from older to younger leaves. Infected leaves

dry and fruit ripens prematurely. A number of contact and systemic fungicides are registered for use.

Downy mildew

Greyish fungal down on lower leaf surfaces have corresponding chlorotic spots on the upper surfaces. Fruit set and flavour may be impaired. The disease is promoted by periods of moderate temperatures with high humidity and free moisture. Contact and systemic fungicides for the control of downy mildew can be used in a spray programme, if the disease is likely to occur.