

PRODUCTION GUIDE OF SALUYOT

1. General description of saluyot (*Corchorus olitorius* L.)

Saluyot is known by several names like: Jew's mallow, bush okra, and Egyptian spinach.

Saluyot is famous for its sturdy natural fiber but there are cultivars that are grown as a leafy vegetable. The strong weatherproof fiber is used in the manufacturing of sacks, fashions and furnishings. . The leaves are a rich source of protein, iron, calcium, thiamin, riboflavin ,niacin, folate and dietary fiber. The young leaves are used as fresh or dried as soup thickener. The fruit is capsule, green when young turning brown when mature with many black angular seeds. They can be stored after drying and used during period of scarcity. The leaves become slimy when cooked. They are also used to cure head ache.

Latest data in year 2008 have shown that saluyot had 840 hectares devoted to its planting with production volume 1864 kilograms (BAS,2011). The top producing regions were: Ilocos and Western Visayas although the market gardens around Metro Manila are increasing and are more productive.

2. Crop varieties

In the Philippines, there are 2 common types: the purplish “Pula” and the light green “Puti”. Pula is more common but Puti is more popular in commercial production areas around Metro Manila. A stopgap variety named “Sagisag” was released by the Institute of Plant Breeding. Sagisag has a purplish tint in the stems and leaves similar to Pula.

3. Culture and Management

Climate and soil requirements. The plant grows in humid to semi arid areas throughout the tropics and subtropics. Jute mallow responds well to warm, humid weather and is often grown near riverbanks. Cold weather and extended periods of drought can kill the crop. Loam or silty-loam soil is ideal, but jute mallow grows well in many soil types. Tolerates pH of 4.5 – 8.0, but more extreme pH conditions will reduce the iron availability in the soil causing yellowing between leaf veins.

Land preparation. Plow and harrow the field. The beds are 20 cm high during dry season and 30 cm high during wet season. Distance between furrows is 150 cm and bed tops are about 90 cm wide. Incorporate organic fertilizer or compost at 2 -3 tons per hectare during land preparation

Planting. Saluyot is planted either by direct seeding or transplanting. The seeds are drilled uniformly in rows 20 -30 cm apart. Seeding rate is 3 – 5 kg/ha, depending on the viability and seed size. There are about 500 seeds/gram. In field plantings, broadcast seeds evenly and lightly then cover with fine soil by passing a wooden harrow. If transplanted, sow the seeds in seedbed and cover lightly with rice straw or dry cogon grass. Water regularly. Seeds germinate in about 4 days.

Transplant after 3 weeks. Uproot the seedlings and transplant at 12 cm x 12 cm between plants. Water immediately and frequently after transplanting.

Planting is done either by direct seeding or transplanting. Break seed dormancy by putting seeds in cloth bag and steeping them in just boiled water for 10 seconds. Let the seeds dry overnight and be sown quickly to avoid dessication.

Direct seeding - Seeds are either broadcast or sown in rows. Seeding rates range from 0.5 – 2.5 g/m² or 5 – 10 kg/ha depending on the viability and size of seeds. Each gram of seed contains about 500 seeds.

If broadcasted, spread seeds uniformly over a well prepared bed and cover lightly with a layer of compost or rice hull. If grown in rows, space furrows 10 cm apart on the bed. Plant two or three seeds per hill spaced 5 – 10 cm apart. Place seeds 0.5 cm deep and cover as stated before. Seedlings may be thinned to one plant per hill when they have 2 -3 true leaves.

Transplanting- Seedlings can be grown in a raised seedbed or in cell trays. In seedbed broadcast the seeds and cover with 0.5 cm of compost or rice hull. Use 0.5-1.0 g seed/m². If seedlings are started in trays, individual cells should be 3 – 4 cm wide. Fill trays with a potting mix composed of 1 part compost, 1 part garden soil and 1 part rice hull.

The seedbeds or plastic trays should be in partial shading to protect seedlings from rain and pests. Water seedlings thoroughly every morning or as needed (moist, but not wet), using a fine sprinkler to avoid soil splash and plant damage

If seedlings have been grown in shade, harden them by gradually exposing them to direct sunlight during the first 4 – 5 days prior to transplanting. Seedlings are ready for transplanting three weeks after sowing or when the transplants have 5 - 6 true leaves.

Rows are spaced 10 cm apart with 5 -10 cm between plants with row. Transplant late in the afternoon or during the cloudy day to minimize transplant shock. Dig holes 10 cm deep, place the transplant in the hole, cover the roots with soil. Water the plants after transplanting.

Fertilization. Jute mallow responds well to added fertilizer especially nitrogen. A combination of both inorganic and organic fertilizer improves yield and maintains soil fertility. To determine, the amount of fertilizer to be applied a soil test is highly recommended. In addition to organic fertilizer, topdress with urea at 2 bags per hectare after each harvest. Tea manure and fermented plant juice (FPJ) may be used to improve soil fertility.

To prepare tea manure, soak $\frac{3}{4}$ sack of dried cow or horse manure in a $\frac{3}{4}$ plastic drum (200 L capacity) of water. Soak for 5 – 7 days with frequent stirring. To prepare the FPJ, mix three parts chopped plant shoots or banana trunk with 1 part raw sugar or molasses. Ferment mixture for 5 -7 days. Dilute 1 part tea manure or FPJ to 20 parts water and drench on the plots or use as foliar fertilizer

Irrigation and Drainage. Irrigation is critical after sowing or transplanting to ensure good stand. Fields are furrow irrigated every 10 days and weekly during the hot dry season. Use furrow or manual irrigation to develop a deep healthy root system. Mulch with available materials like grass clippings or rice straw to conserve moisture. Provide canals to facilitate quick drainage of excess water after heavy rains.

Drainage is achieved through raised beds, clean furrows and construction of drainage canals. Avoid over irrigation to prevent foliar diseases development and leaching of soil nutrients. Drip irrigation or sprinkler irrigation is recommended in areas with limited water supply.

Weed control. This can be achieved through the following: thorough land preparation and mulching. Can use organic mulching materials that are free of weed seeds and can be used for direct seeded saluyot at 10 -15 cm height. Hand or hoe weeding can be done also as needed.

Weeding is done at 15 days and 45 days. As soon as the foliage overlaps, weeds will no longer be able to compete with the saluyot plants

Pest control. The common pests of saluyot are cutworms and spider mites. Frequent hand weeding can help minimize these pests. Good soil moisture will also minimize spider mites. Cutworm can be controlled with biological pesticides such as *Bacillus thuringiensis* (Bt) and Nuclear Polyhedrosis Virus (NPV). Recommended insecticides can also be applied following the recommendation of the manufacturer stated in the label. Nematodes (*Meloidogyne* spp) which caused stunting of plants can be prevented through crop rotation with corn and planting of marigold. Damping off caused by *Rhizoctonia* , *Pythium* or *Phytophthora* spp can be managed through proper watering and drainage and the use of compost or *Trichoderma*. Stem rot is managed by deep plowing, using raised beds, crop rotation and green manuring before planting.

4. Harvesting

Saluyot can be harvested 30 days after transplanting by cutting the crop at 20 – 25 cm from the ground. Subsequent harvesting is done 1 -2 weeks interval for up to 7 months. Harvesting is best done late in the afternoon for the next day market selling. Some traders in Cavite practice the tying of 16 stalks at the base to form a bunch and tie the five bunch to form a bundle. These are packed in plastic bags for wholesale market. Around one bundle can be harvested per square meter per harvest. Plant may also be harvested once by pulling the entire plant by the roots or they may be harvested repeatedly by priming the shoots. Whole plants are uprooted from the soil, washed and tied in bundles.

5. Post harvest

Saluyot wilts rapidly. A common market practice is to sprinkle the shoots with water to retain freshness. The usual practice is to harvest the saluyot with roots

intact, shoots can be kept fresh for 3 -5 days by letting them stand in a basin filled with water.

6. Cost and return analysis per hectare

| Items | Amount (P) |
|---|------------|
| VARIABLE COSTS | |
| Labor (P250/man-day (MD) | |
| Clearing (20 MD) | 5,000 |
| Bed preparation (20 MD) | 5,000 |
| Manure application (10 MD) | 2,500 |
| Sowing (2 MD) | 500 |
| Transplanting (20 MD) | 5,000 |
| Topdressing (20 MD) | 5,000 |
| Spraying (20 MD) | 5,000 |
| Weeding (30 MD) | 7,500 |
| Irrigation (300 MD) | 75,000 |
| Harvesting/sorting (240 MD) | 60,000 |
| Miscellaneous (e.g. hauling, repairs, etc.) (10 MD) | 2,500 |
| Subtotal | 173,000 |
| Materials | |
| Seeds (3 kg) | 1,500 |
| Manure (40 sacks) | 10,000 |
| Fertilizer | |
| 14 -14 - 14 (6 bags) | 7,500 |
| 46 - 0 - 0 (20 bags) | 3,000 |
| Pesticides | 6,000 |
| Fuel and oil | 6,000 |
| Packaging Materials | 4,000 |
| Miscellaneous (e.g. pail, gloves, etc.) | 4,000 |
| Subtotal | 42,000 |
| Interest on Production Loan at 21% per annum | |
| | 51,368.10 |
| Total (Variable Costs) | 266,368.10 |
| FIXED COSTS | |
| Land rental | 25,000 |
| Depreciation | |
| Sprinklers (5 pairs) | 2,500 |
| Knapsack sprayer (1 unit) | 500 |
| Scythe (5 pieces) | 100 |

| | |
|---|-------------------|
| Hoe (5 pieces) | 500 |
| Shovel (3 pieces) | 360 |
| Plastic drum (2 pieces) | 650 |
| Total (Fixed Costs) | 29,610 |
| TOTAL COSTS | 295,978.10 |
| GROSS INCOME | |
| Regular season (at P10/bundle with 80,000 bundles/ha) | 800,000 |
| Offseason (at P15/bundle with 40,000 bundles/ha) | 600,000 |
| Net Income | |
| Regular season | 504,021.90 |
| Offseason (at P12/bundle with 40,000 bundles/ha) | 304,021.90 |

7. References

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