PACKAGE OF PRACTICES FOR CULTIVATION OF ISABGOL

Isabgol

Recent years have seen a major spurt in the demand of medicinal plants not only with in the country but also for its export. More and more number of farmers are entering into this most potential sector. The National Research Centre for Medicinal and Aromatic Plants (NRCMAP), Anand has developed package of practices for cultivation of Isabgol.

Isabgol (*Plantago ovata Forsk.*) is an important medicinal crop grown during *rabi* season mainly in Gujarat, Madhya Pradesh and Rajasthan. The seed coat known as husk has medicinal properties and is used against constipation, irritation of digestive tract, etc. It is also used in food industries for preparation of ice cream, candy, biscuit, etc. At present, India is the sole exporter of the Isabgol husk and seed to the international market.

CLIMATE

Isabgol is a crop of cool and dry season. Unseasonable rain or, even high dew deposition during crop maturity can result in total loss of seed. The regions receiving winter rains are thus not suitable for its cultivation.

SOIL

The crop is traditionally grown in light sandy to sandy loam soils. However, it can also be successfully cultivated on clay loam, medium black cotton and heavy black soils. Good drainage is essential for its successful cultivation.

LAND PREPARATION

Fine tilth is necessary for better germination of the seeds. Depending upon the soil condition, the land should be ploughed and properly harrowed. The whole field may be subdivided into small plots (8–12 m × 3 m) depending upon soil type and slope.

SOWING TIME

Early sowing increases more vegetative growth while late sowing reduces total growth period and increases risk of seed shattering due to pre-monsoon rains towards maturity. Ideal sowing time is second fortnight of November. Drastic yield loss is encountered when sowing is delayed beyond first fortnight of December.

RECOMMENDED VARIETIES

The released recommended varieties and their sources of availability are given below:

Varieties	Source of availability
Gujarat Isabgol 2	Head, AICRP on Medicinal and Aromatic Plants, Gujarat Agricultural University, Anand, Gujarat.
Jawahar Isabgol 4 (MIB 4)	Head, AICRP on Medicinal and Aromatic Plants, KNK College of Agriculture, JNKVV, Mandsaur, Madhya Pradesh
HI 5	Head, AICRP on Medicinal and Aromatic Plants, CCS Haryana Agricultural University, Hisar, Haryana.

SEED RATE

Bold, disease free seeds from previous year's crop can be used for sowing. The optimum seed rate is 3–4 kg/ha. Higher seed rate may increase severity of downy mildew disease.

METHOD OF SOWING

Direct seeding (broadcasting) followed by light sweeping with a broom/ tree twig having foliage. The sweeping should be done by one-way swing. For uniform germination, care should be taken not to bury the seeds deeply in the soil.

IRRIGATION

A light irrigation with slow flow is given immediately after sowing. In case of poor germination even after 6–7 days, a second irrigation should be applied. In sandy loam soils, in general 3 irrigations are recommended—first at sowing and one each at 30 and 70 days after sowing. The last irrigation should coincide with the milk stage of the maximum number of spikes. In the drier region with light soil, more irrigation are to be applied. The plant can withstand low level of salinity, hence slightly saline water (EC upto 4 dS/m) can also be used for irrigation. Increase in salinity level beyond 4 dS/m reduces seed yield.

INTERCULTURAL OPERATIONS

Two hand weedings are generally required within two months of sowing, first weeding should be undertaken at 20–25 days after sowing.

MANURES AND FERTILIZERS

The crop requires very low level of Nitrogen. Hence, inorganic Nitrogen should only be applied if the available Nitrogen in the soil is less than 120 kg/ha. In general, application of 20–30 kg/ha of Nitrogen and 15–25 kg/ha of Phosphorous is optimum. Half of the Nitrogen and full dose of Phosphorous should be applied with the last ploughing and the remaining half of the Nitrogen should be top dressed at 40 days after sowing.

DISEASES AND INSECT-PEST MANAGEMENT

Downy mildew is the major disease of isabgol. Adoption of more than the recommended dose of Nitrogen, seed rate, and irrigation makes the crop more susceptible to this disease. The disease can effectively be controlled by (a) seed treatment with Metalaxyl (Apron SD @ 5 g/kg seed), and (b) spraying Metalaxyl 0.2% (Ridomil MZ) on first occurrence of disease, followed by two sprayings at 12–14 days intervals. Effective disease management can increase seed yield by more than 40% over the untreated crop. However, spraying of fungicides and insecticides must be stopped at least 45 days before harvesting to avoid pesticide residue problem in the produce.

Aphid is the major insect pest of this crop. Aphids generally appear 50–60 days after sowing. Two sprayings of 0.025% Oxydemeton methyl (Metasystox 25 EC) at an interval of 12–15 days can effectively check

the pest. The first spray should generally be done during first fortnight of February, as it increases seed yield by nearly 40% over unsprayed crop. The crop takes 110–120 days to mature. At maturity (by March-April) the leaves become yellowish and spikes turn brownish. To avoid the seed loss by shattering, slightly unripe spikes should be harvested, if there is a possibility of unseasonal rain. However, the husk quality of such a crop deteriorates.

HARVESTING AND YIELD

Harvest the spikes when dew dries (after 10 A.M.). The plants are harvested at the ground level or uprooted when soil is very loose. The harvested plants should be heaped on a clean threshing yard. After couple of days, the seeds are separated by trampling using tractor or bullock. The seeds can also be threshed by motor/tractor operated threshing machine (separating net of Bajra can be used). The seed yield of 800–1000 kg/ha is generally obtained in Gujarat. However, under favourable weather conditions and better management, higher seed yield is obtainable. Dry straw yield of twice the seed yield is generally harvested. Straw can be used as fodder for the farm animals.

MARKETING

There are still not many organized markets. In many areas group of farmers join together and sell the produce to get remunerative prices. The selling price varies generally between Rs 18–25 per kg depending upon the demand and quality of seed.

For more details contact:

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ECONOMICS

About Rs 10,000–12,000 net profit per hectare can be obtained.

Caution: Cultivation of medicinal plants is undertaken by first assuring its market. The growers may like to establish buy back arrangements to minimize the risk of distress selling.