Short Research Article

ISABGOL: PACKAGE PRACTICE FOR CULTIVATION

Abstract

Isabgol is a short-stemmed annual herb that grows up to 40 cm tall. A large number of flowering shoots emerge from the plant's base. The word isabgol derives from the Persian words "isap" and "ghol," which mean horse ear and describe the shape of the seed. Psyllium, which derives from the Greek word for a flea, refers to the size, shape, and whitish colour of the seed, which is the most commercially important part of this plant. The seeds are encased in capsules that open when they reach maturity. The husk of the seed is thin, boat-shaped, white, translucent, odourless, and has a mucilaginous taste. The root system is well developed, with a well-developed tap root and a few fibrous secondary roots. Isabgol is widely grown in many parts of the world. It is native to the Mediterranean region and West Asia, reaching as far north as Sutlej and Sindh in Pakistan. It is also found in the Canary Islands, Southern Spain, North Africa, the Middle East, and North-Western Asia. It has been introduced and cultivated in North Gujarat, as well as adjoining parts of Western Rajasthan and Madhya Pradesh in India. However, the crop is spreading in previously unexplored areas of the country such as Punjab, Haryana, Uttar Pradesh, and Karnataka.

INTRODUCTION:

In recent years, there has been a significant increase in the demand for medicinal plants, both within the country and for export. A growing number of farmers are venturing into this most promising sector [1,2]. The National Research Centre for Medicinal and Aromatic Plants (NRCMAP) in Anand has developed a set of cultivation practises for Isabgol.

IMPORTANCE:

Isabgol (Plantago ovata Forsk.) is a valuable medicinal crop grown primarily in Gujarat, Madhya Pradesh, and Rajasthan during the rabi season. The seed coat, known as husk, has medicinal properties and is used to treat constipation, digestive tract irritation, and other ailments [3,4]. It is also used in the food industry to make ice cream, candy, and biscuits, among other things. India is currently the sole exporter of Isabgol husk and seed to the international market.

CLIMATE AND SOIL:

Isabgol is a cool and dry season crop. Unseasonable rain or dew deposition during crop maturity can result in total seed loss. As a result, it cannot be grown in areas that receive winter rains.

Traditionally, the crop is grown in light sandy to sandy loam soils. It can, however, be grown successfully on clay loam, medium black cotton, and heavy black soils. Its cultivation is dependent on proper drainage [5,6].

FIELD PREPARATION:

Fine tilth is required for better seed germination. The land should be ploughed and harrowed depending on the soil condition. Depending on the soil type and slope, the entire field can be subdivided into small plots (8-12 m x 3 m).

SOWING TIME:

Early sowing promotes more vegetative growth, whereas late sowing shortens the total growth period and increases the risk of seed shattering due to pre-monsoon rains as the seed matures. The second two weeks of November are ideal for sowing. When sowing is delayed past the first two weeks of December, a significant yield loss occurs.

RECOMMENDED VARIETIES:

The varieties recommended and their sources of availability were made public.

Table 1. Recommended varieties and their sources of availability

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. JNKWV, Mandsaur Madhya Pradesh
HIS	Head, MICRP on Medicinal and Aromatic Plants, CCS Haryana Agricultural University, Hisar, Haryana.

RATE OF SEED:

Sowing can be done with bold, disease-free seeds from the previous year's crop. The recommended seed rate is 3-4 kg/ha. A higher seed rate may aggravate downy mildew disease.

SOWING METHODOLOGY:

Direct seeding (broadcasting) is followed by light sweeping with a broom/leafy tree twig. Sweeping should be done with a one-way swing. To ensure uniform germination, avoid burying the seeds deeply in the soil.

IRRIGATION:

After sowing, a light irrigation with a slow flow is applied. If germination is still poor after 6-7 days, a second irrigation should be performed. In sandy loam soils, three irrigations are generally recommended: one at sowing and one each at 30 and 70 days after sowing. The final irrigation should coincide with the milk stage of the most spikes. More irrigation is required in the drier regions with light soil. Because the plant can tolerate low salinity levels, slightly saline water (EC up to 4 dS/m) can also be used for irrigation. Any increase in salinity above 4 dS/m reduces seed yield.

OPERATIONS INTERCULTURALE:

Two hand weedings are typically required within two months of sowing, with the first weeding occurring 20-25 days after sowing.

FERTILIZERS AND MANURES:

The crop has a very low nitrogen requirement. As a result, inorganic nitrogen should be used only if the available nitrogen in the soil is less than 120 kg/ha. In general, nitrogen applications of 20-30 kg/ha and phosphorus applications of 15-25 kg/ha are optimal. Half of the Nitrogen and the full Phosphorous dose should be applied with the last ploughing, and the remaining half should be top dressed 40 days after sowing.

DISEASE AND INSECT-PEST CONTROL:

Isabgol's main disease is downy mildew. The crop is more susceptible to this disease if it receives more than the recommended dose of nitrogen, seed rate, and irrigation. Metalaxyl seed treatment (Apron SD @ 5 g/kg seed) and spraying Metalaxyl 0.2% (Ridomil MZ) on first occurrence of disease, followed by two sprayings at 12-14 days intervals can effectively control the disease. Effective disease management can boost seed yield by more than 40% compared to untreated crops. Spraying of fungicides and insecticides, on the other hand, must be discontinued at least 45 days before harvesting to avoid pesticide residue problems in the produce.

Aphids are the most common insect pests in this crop. Aphids typically appear 50-60 days after planting. Two sprays of 0.025% Oxydemeton methyl (Metasystox 25 EC) spaced 12-15 days apart can effectively check the PEST. The first spray should be applied during the first two weeks of February, as it increases seed yield by nearly 40% over an unsprayed crop. The crop matures in 110-120 days. When mature (by March-April), the leaves turn yellowish and the spikes brownish. If there is a chance of unseasonal rain , harvest slightly unripe spikes to avoid seed loss by shattering. The husk quality of such a crop, however, deteriorates

YIELDING AND HARVESTING:

When the dew has dried , harvest the spikes (after 10 A.M.). When the soil is very loose, the plants are harvested at ground level or uprooted. Plants harvested should be piled on a clean threshing yard. After a few days, the seeds are separated by trampling them with a tractor or bullock. The seeds can also be threshed using a threshing machine powered by a tractor or motor (separating net of Bajra can be used). Gujarat typically produces a seed yield of 800-1000 kg/ha. Higher seed yield is possible, however, under favourable weather conditions and better management. Generally, a dry straw yield of twice the seed yield is harvested. Straw can be fed to farm animals as fodder.

MARKETING:

There are still a limited number of organised markets. In many areas, groups of farmers band together to sell their produce at a profit. The selling price ranges between Rs 18-25 per kg, depending on demand and seed quality.

ECONOMICS:

A net profit of Rs 10,000-12,000 per hectare is possible.

References

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