

## SWEET FLAG



### GENERAL INFORMATION

It is the most popular known medicinal plant which is used for many Ayurveda drugs in India. It is a semi aquatic plant and is cultivated in damp and marshy places. It is found in Holland, North America, most of the European countries, Central Asia, India and Burma. In India it is found in Manipur, Himalayas and Naga hills and on the edges of lakes and streams. The leaves have sword shape and are yellowish green in color. Plant size is big i.e. 2m tall. Flowers are cylindrical in shape and are greenish brown in color. The rhizomes of the plant is used to cure various diseases such as sedative, stomachic, aromatic , insecticidal, anti-inflammatory, aphrodisiac, antipyretic, insecticidal, carminative and many other diseases.

### CLIMATE

Temperature

10-38°C

## **Rainfall**

**70-250**

## **70-251 Sowing Temperature**

**30-32°C**

## **Harvesting Temperature**

**15-20°C**

## **SOIL**

It gives best result when grown in sandy, clayey and alluvial soil of river banks. It requires the pH ranging from 5 to 7.

## **POPULAR VARIETIES WITH THEIR YIELD**

**Acorus calamus:** Found in Eurasia and eastern North America. The leaves of this variety have 5 feet long leaves and have elliptical spadix which is 4 inches long. The species are evergreen and have slow spreading underground rhizomes.

**Acorus calamus Variegatus:** The leaves of this variety have cream and yellow color leaves.

**Acorus gramineus Argenteostriatus:** It is native to Japan. The leaves of this variety are 18 inches long and the flowers are about 3 inches long. It has clumps which are 2 feet wide and have a slow growth rate.

**Acorus gramineus:** Found in Pacific Northwest. It is an evergreen plant.

**Acorus gramineus Golden Pheasant:** The foliage of this variety has golden to chartreuse color and 12-14 inches tall.

**Acorus gramineus Minimus Aureus:** The foliage of this variety has fine texture and is 4 inches tall.

**Acorus gramineus Ogon:** The variegated leaves of this variety have golden and green color which is 10-12 inches tall.

**Acorus gramineus Variegatus:** The variegated leaves have white and green color which is 8-12 inches tall.

**Acorus gramineus Yodo-No-Yuki:** The foliage of this variety is olive-green in color with a yellowish edge. The foliage grows up to 12 inches tall.

**Acorus gramineus Hakuro-nishiki:** The foliage of this variety is yellowish-green in color.

## **LAND PREPARATION**

For sweet flag plantation, it requires water logged soil. To bring soil to fine tilth, first fields are watered well with mixture of FYM (Farm Yard Manure) and green leaf manure. Then ploughing is done two to three times. The land should be prepared before the onset of monsoon. The best time for planting the crop is March-April.

## **SOWING**

### **Time of sowing**

The planting should be done in the month of July-August but the best time to plant the crop is second fortnight of June.

### **Spacing**

The plant spacing should be done at 30 x 30cm distance.

### **Sowing Depth**

Rhizomes are sown at depth of 4cm.

### **Method of Sowing**

Direct sowing of sprouted rhizomes or seeds on bed.

## **SEED**

### **Seed Rate**

Propagation is mainly done through rhizomes. The rhizomes are first cut into smaller pieces and then sprouted rhizomes are planted. For planting, use seed rate of 44400 per acre.

When propagation is done through seeds then it is sown in greenhouse. First fill a tray with organic soil and then firmly press the seeds in soil. Moist the soil until it starts germinating. The germination takes place in around 2 weeks.

## **NURSERY MANAGEMENT AND TRANSPLANTING**

Do wet the soil before sowing. Sow Sweet flag seeds on wet beds with convenient length. After sowing covers the bed with wet cloth so that moisture will retain in the soil.

Transplanting is not done in this crop as the seeds or rhizomes are directly sowed in the main field. The rhizome or seeds should not press too much for sowing in the soil. The gentle pressing should be done to sow seeds.

When the seedlings attain some height then irrigation should be done of about 5cm water standing is required and when the plant becomes tall then at the time of irrigation 10 cm water standing should be done.

## FERTILIZER

### Fertilizer Requirement (kg/acre)

UREA	SSP	MURIATE OF POTASH
39	32	9

### Nutrient Requirement (kg/acre)

NITROGEN	PHOSPHORUS	POTASH
18	5	5

At the time of land preparation, apply FYM@60q/acre and mix well in soil. Apply fertilizer dose of N:P:K @18:5:5kg/acre in form of Urea@39kg, SSP@32 and MOP@9kg/acre. Apply one third dose of nitrogen, full dose of phosphorus and potash as a basal dose. Remaining amount of nitrogen should be given after one and two months after planting.

## WEED CONTROL

Weeding should be done once in every month for the first 4-5 months to make field free from weeds.

## IRRIGATION

In rainy season, irrigation should not be done. In dry season, apply irrigation with interval of 2-3 days. In initial period the water standing will be up to 5cm and then it is increased to 10 cm.

## PLANT PROTECTION



- **Pest and their control:**

**Slug damage:-** It is the damage caused by the slug on the leaves of the plant. They feed themselves on fresh leaves of plant.

Application of metaldehyde or iron phosphate is used to get rid from slugs.



**Mealy bugs:-** Caused by *Lepidocephalus* and *Pseudococcus*. The leaves start yellowing and withering. Application of Methyl parathion@10ml or Quinalphos@20ml in 10L of water is done on roots and shoots of the plant.



- **Disease and their control:**

**Leaf spot:-** The fungal discolored spots occur on the leaves of the plant.

Application of Captan@10g and Chlorpyrifos @20ml/10L should help to control the leaf spot.

### **HARVESTING**

Plant starts yielding by 6-8 months after sowing. Harvesting is done when the lower leaves dry and turns yellow in color as it indicates its maturity. Before harvesting the field should be partially dried so that digging will be easier.

### **POST-HARVEST**

After harvesting, cleaning is done. After cleaning rhizomes are cut unto 5-7.5 cm of size. Then rhizomes are air dried and are beaten and rubbed. The rubbing is done 2-3 times. After rubbing, packing is done for transportation. The useful products are made by processing such as extract, oil, powder etc.

### **REFERENCES**

- 1.Punjab Agricultural University Ludhiana
- 2.Department of Agriculture
- 3.Indian Agricultural Research Institute, New Delhi
- 4.Indian Institute of Wheat and Barley Research
- 5.Ministry of Agriculture & Farmers Welfare