

# LUCERNE (ALFALFA)

**Botanical Name** : *Medicago sativa*  
**Family** : Leguminosae  
**Origin** : South-West Asia.

## Economic Importance:

- Lucerne is an most important winter season fodder crop of India.
- Lucerne is known as Alfalfa (Arabic meaning 'the best') '**Queen of fodder**' or '**Green gold.**'
- It provides **nutritious and palatable** fodder which contains about 15-20 per cent crude protein with 72 per cent digestibility 1.5 per cent calcium, 0.2 per cent phosphorous and high amount of vitamin A, B and D.
- **Since lucerne is a rich feed, it should be used only in small quantities when fed to the animals.**
- Feeding of lucerne hay may replace use of grains and concentrates.
- Lucerne **hay** is particularly **rich in protein, calcium and vitamins.**
- Being deep rooted crop lucerne extracts water from the deeper zone of the soil.
- It can be grown both an annual as well as perennial crop.

## Geographical Distribution:

It is mainly grown on large area in USA, Canada, Argentina, India, Australia, New Zealand, France, Italy and Russian Fed. The Lucerne crop in India is mostly grown with irrigation in the states of Punjab, Haryana, Uttar Pradesh, Gujarat, Maharashtra and Tamil Nadu.

## Ecology:

### Climatic requirements:

Lucerne **performs better in cooler and drier conditions** than in cloudy, humid and wet seasons. Seed growth is satisfactory in 20° to 30°C but afterwards a low temperature of 15 to 20°C is best. Both, high as well as low temperatures are harmful to crop.

### Soil requirement:

Lucerne can be grown on a wide range of soils, from sandy loam to clay. A well-drained fertile, deep loam soils with a pH between 5.5 to 8.5 is good for cultivation of lucerne. It does not thrive well on very heavy and waterlogged soils. It cannot thrive on alkaline soils but can be grown on acid soils with application of lime.

### Field Preparation:

Lucerne needs a fine well leveled and firm seedbed required. A fine seed bed ensures better contact of seeds with soil particles and facilitates better germination. For prepare good seedbed, one ploughing should be done with mould board plough followed by three to four harrowing's and planking to break soil clods and well leveled the field.

## **Seed and Sowing:**

### **1. Seed treatment :**

- a. **Seed Soaking:** The seed coat of lucerne is hard and if the seed is sown as such takes more time for germination, therefore seeds are soaked in water for 10-12 hours to soften the hard seed coat.
  - b. **Rhizobium Seed Treatment:** Seeds are inoculated with *Rhizobium meliloti* @ 250 gm per 10 kg of seeds.
2. **Sowing Time:** October to November.
  3. **Seed-rate** : Broadcasting: 25 Kg/ha, Drilling: 12-15 Kg/ha.
  4. **Spacing** : Generally seeds are sown by broadcast method if line sowing is followed maintain 20-30 cm apart in rows.
  5. **Sowing Depth: 1 cm.**
  6. **Sowing method:** Broadcasting and Drilling

## **Manures and fertilizers:**

Being a perennial crop, it is advantageous to apply every year 15-20 tonnes of FYM or compost per ha. Lucerne being a leguminous crop fulfills its major part of nitrogen requirement through the process of symbiotic nitrogen fixation which works effectively from three to four weeks of sowing. Apply 15:150:40 kg of NPK/ha at the time of sowing as a basal dose and apply additional dose of 15 kg nitrogen and 50 kg phosphorous/ha every four month interval.

## **Irrigation and Water Management:**

To attain good germination, pre-sowing irrigation is essential. Apply irrigation water at 12-15 days interval in *rabi* season while 8-10 days during Summer season.

## **Weed control:**

Lucerne takes long time to establish itself and due to that there is a scope for weed growth up to time of first cutting. Generally, one weeding at 20-25 DAS gives effective control. Subsequently one weeding is carried out at each cutting for controlling weeds.

## **Harvesting and Threshing:**

The first cutting should be taken when the crop is about 55-60 days old. The subsequent cuttings should be taken at 25-30 days interval when crop attains the height of 60cm from ground.

## **Seed Production:**

For seed production, the crop is allowed to flower after taking a cutting in the end of January. At flowering and seed setting stages, irrigation should give frequently. Seed crop matures in the end of May; the crop should be harvested and threshed either by beating with sticks or by trampling with bullocks.

**Yield:** A well-managed crop may yield **1000-1200 quintals of green fodder** and 1.75 to 2.5 quintals of seed per hectare.

**Varieties:** Sirsa No-8, Sirsa No-9, RL-88, Anand-2, Anand-3, CO-1, Rambler, Moopa, NDRI selection No-1, IGFRI-S-54, IGFRI-244, LH-84, Poona-1 and S-627.

Mr. S.S. Nitave M.Sc. (Agri.) NET