

LECTURE 31

BERSEEM

Trifolium alexandrinum

Berseem (*Trifolium alexandrinum*) is an annual leguminous fodder crop. It is one of the most suitable fodder crops for areas below 1700 m altitude with irrigation facilities. It remains soft and succulent at all stages of growth. It can be grown without irrigation in areas with high water table and under water-logged conditions.

Berseem is believed to be indigenous to Egypt. It is the main forage legume and it is cultivated in Syria and Persia, where it forms the principal green forage for horses, donkeys and camels. It was introduced into India in 1904. Berseem is now a prominent fodder legume in irrigated areas of the Punjab, Delhi, Rajasthan and Uttar Pradesh and other parts of Western and Northern India. It is widely grown both for fodder and green manure. In peninsular India, it is less popular than Lucerne.

Description

Berseem is a low shrubby annual growing 60 – 90 cm high. The main, succulent stem gives off branches terminating in two or three leaves. These stems become fibrous after the flowering stage. Leaves are small, oblong and rounded at the extremities, bright green and slightly hairy.

- **Climate**

- Prefers dry and cool climate
- Grown during *rabi* season with high humidity
- Cloudy days are not good
- Temperature - 25 to 30° C for germination, 35 to 37° C for flowering

- **Season**

- Rabi – Oct – Nov

- **Soil**

- All soils with mild cold winter
- It grows well in medium to heavy soil
- Tolerant to alkali
- Clay loam soil rich in calcium and phosphorus, soil must be well drained

- **Improved varieties**
 - Pusa giant, IGFR-S-99-1, UPB-101,103,104 & 105

- **Varieties**

- **Meseavi**

- It is a fast growing variety and attains plant height of about 75 cm at flower initiation stage. On an average, it gives 500-600 quintals green fodder and 100-125 quintals dry matter yields per hectare in about five cuttings. It contains about 20 per cent crude protein on dry matter basis at early flowering stage.

- **BL-1**

- This is a long duration variety as compared to the commonly grown variety Mescavi. Because of this, one additional cutting may be obtained from this variety by the end of June. It gives, on an average, green fodder and dry matter yields of 600 and 130 q/ha, respectively.

- **BL-22**

- This is a long duration variety which gives additional cut during June. It gives, on an average, green fodder and dry matter yields of 750 and 135 q/ha, respectively.

- **Field preparation**

- Fine and smooth seed bed free from clods
 - Free of termites and ants
 - The land should be well tilled, levelled and should be free from weeds.

- **Seed rate**

- 20-25 kg/ha is needed for sowing
 - Spacing – 25 cm apart by drilling and then planked

- **Sowing**

- October
 - Broadcasting/ line sowing
 - Since seeds are small in size mixed with mustard and sown
 - Sowing Methods
 - Flooded fields
 - In dry fields
 - As relay cropping in rice field

- **Inoculation**

If berseem is going to be seeded for the first time in any field, the seed must be inoculated with rhizobium culture which is very essential for its growth.

- **Method of inoculation**

Prepare 10% *gur* solution and heat it to boiling point and then cool at room temperature. Sprinkle a small quantity of *gur* solution over the seeds to moisten them nicely. Spread thin layer of culture over the *gur* treated seeds and mix thoroughly. Dry the culture treated seeds in shade before sowing.

- **Seed rate and method of sowing**

Sowing should be done by broadcasting the seed at the rate of 25 kg per hectare in standing water. The seed should be free from seeds of weeds such as *kasni*. This can be done by dipping the seed in one per cent salt solution and decanting-off the floating seeds. If the mixture of Mescavi and tetraploid berseem is not being seeded, 500 g of Chinese sarson seed may be sown mixed with berseem to get higher yield in the first cutting. Mixture of berseem and oats (50:50 ratio) also gives higher yield. Under *ultera* conditions, seedling should be done 8-10 days before harvesting of paddy.

- **Nutrient management**

- Organic manures – 15 to 20 tonnes/ha
- Responds well to P
- 20 – 40 – 0 Kg NPK/ha & molybdenum – 1 kg/ha

- **Weed management**

- Weed free condition upto 25 DAS
- 2 hand weedings at 21 DAS and after 35 to 40 DAS

- **Water management**

- Interval of irrigation during October – 10 days, November to January – 15 days and there after 8 to 10 days
- Totally 10 to 12 irrigations

- **Harvesting**

- First cutting 40 -45 DAS
- Subsequent cuttings at an interval of 20 – 25 DAS
- Number of harvest depends up on winter season
- Total cuttings – 6 to 8 per year
- 50-100 t green fodder



Yield

The first cutting is obtained usually 60 days after sowing and subsequent cutting at the interval of 25 to 30 days. In the mid-hill zone during winter, interval between cutting is about 50 to 60 days. In all, 5 to 6 cuttings may be obtained. On an average, nearly 550 quintals of green fodder per hectare may be obtained.

- Green fodder - 60 to 80 t/ha/year
- Seed yield – 300 to 500 kg/ha

Seed production

The final cutting should not be taken later than the end of February if crop is to be left for seed purpose. *Kasni* and other weeds should be eradicated. Irrigate frequently during the formation and ripening of seeds. On an average, 2.5 quintals seed may be obtained per hectare.

Multiple choice questions

1. Best season for Berseem cultivation is _____
a. **Rabi** b. *Kharif* c. *Summer*
2. The centre of origin of Berseem is _____
a. S. Africa b. America **c. Asia minor**
3. Soil suitable for Berseem cultivation is _____
a. Heavy soil b. Sandy loam **c. Clay loam**
4. Optimum temperature required for germination of Berseem is ____
a. 30⁰c b. 10⁰c c. 20⁰c
5. Scientific name of Berseem is _____
a. *Pennisetum purpureum* **b. Trifolium alexandrium** c. *Medicago sativa*