

## Effect of different cuttings and growth retardant (Cycocel) on higher forage yield and seed yield in berseem (*trifolium alexandrinum* L.)

P.N. NIGAM, R.L. SRIVASTAVA AND N.C. VERMA

Accepted : June, 2010

### SUMMARY

An experiment was conducted during winter season of 2002-2003 and 2003-2004 of C.S. Azad University of Agriculture and technology, Kanpur. Berseem (*trifolium alexandrinum* L.) is winter season crop and is propagated through seed. It has regenerative capacity after its each cutting. It is regenerative characteristics having a negative correlation between green fodder production and seed yield over the variety "Wardan" which was cut five times. All the cuttings were done at 25 days interval except 1<sup>st</sup> cutting which was at 45 days after date of sowing. Three doses of different concentration of growth retardant i.e., CCC (cycocel) as control S<sub>1</sub> (0 ppm) and S<sub>2</sub> (1000 ppm), S<sub>3</sub> (2000 ppm), and S<sub>4</sub> (3000 ppm), were applied at 10 days intervals in the form of foliar spray after each cutting. The higher doses of cycocel S<sub>4</sub> (3000 ppm) produced maximum green forage yield as compared to control (S<sub>1</sub>) during both the years. Highest seed yield was obtained from S<sub>2</sub> doses (1000 ppm) at third cutting stage against the control in both the years.

**Key words :** Cycocel, Multicut forage, Regenerative, Correlation

**G**reen forage of berseem is plays vital role in animal feed. It is palatable, digestible, nutritive and full of minerals, vitamin and protein and useful for the health of animals, especially milch cattles. The berseem fodder on dry weight basis contains 18-21 per cent protein, 1.98 per cent calcium, 0.64 per cent phosphorus which are basic requirement for the milch animals and had got 70-75 per cent digestibility. Berseem has no anti-nutritional and toxic effects, therefore, it is used not only as green forage but in the form of hay, pellets, etc. during off seasons. It is shy in seed bearing, so the seed in sufficient quantity of high quality essentially required for raising this succulent feed for Indian milch and other draft animals. in general, it has been in practice that the crop is left after harvesting maximum possible green fodder which resulted into low seed production (3.5 q/ha). The higher percentage of photosynthates about 60-70 per cent mostly stored in crown root and remaining protein is utilized for developing new branches and leaves. Reserve carbohydrates in the crown root protein are the source of energy for development of new tillers and branches in plants. Therefore, in general, negative correlation was found between green fodder production and seed yield. Since the berseem is multicut forage crop, it is essential to

standardize the appropriate cutting after which the maximum possible good quality seed can be produced with or without use of growth promoter or growth retardant which has direct effect on flowering, seed setting, higher number of branching and healthy sink capacity.

### MATERIALS AND METHODS

The experiment was conducted during winter season 2002-2003 and 2003-2004 at C.S. Azad university of Agriculture and technology, Kanpur. The berseem (*trifolium alexandrinum* L.) variety 'Wardan' was selected on the basis of its popularity in form of green fodder. The treatment considered for five cuttings (C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> and C<sub>5</sub>) and four levels of growth retardant as CCC (cycocel) consisted three concentrations like S<sub>1</sub> (0 ppm) as control, S<sub>2</sub> (1000 ppm) S<sub>3</sub> (2000 ppm) and S<sub>4</sub> (3000 ppm). The cutting were made to assess the fodder yield and ultimately for seed production and seed quality. first cutting was done at 45 days after sowing, the subsequent four cuttings were done at 25 days interval. The crop was left for seed production in form of cycocel solution which were applied of 10 days interval at after each cutting. The experiment was conducted in randomized block design with three replications. Each plot consisted of 2x1.5 m<sup>2</sup> having five rows at 30 cm apart. The length of rows was 2.0 m and plant to plant distance was maintained at 8-10 cm. Agronomical practices were followed for raising good crop in both the years. Observations were recorded on forage yield after each cutting and finally the harvested seed was weighted to record the seed yield/plot in gram and converted in quintal

#### Correspondence to:

P.N. NIGAM, Agricultural Research Station, Kalai, ALIGARH (U.P.) INDIA

#### Authors' affiliations:

R.L. SRIVASTAVA AND N.C. VERMA, Department of Plant Breeding and Genetics, C.S.A. University of Agriculture and Technology, KANPUR (U.P.) INDIA