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*Research Paper*

# Effect of decapitations and PGR's on seed yield and its attributes in Cluster bean cv. PUSA NAVBAHAR

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## ABSTRACT

An experiment was carried out to study the effect of decapitation and PGR's on seed yield and its attributes in cluster bean cv. Pusa Navbahar with 3 (three) decapitation treatments and three plant growth regulators each at two concentrations with water spray as control in factorial randomized design with three replications at Main Vegetable Research Station, Anand Agricultural University, Anand during summer 2008 and 2009. The results showed significant differences among the yield parameters due to decapitation treatments. Decapitation at 70 DAS registered significantly the highest number of pods per cluster (7.55), number of clusters per plant (18.29), number of pods per plant (138.00) and weight of 1000 seeds (37.00 g) in pooled analysis. However, maximum dry pod length (9.59 cm) and number of seeds per pod (7.05 cm) were found in treatment decapitation at 85 DAS. Similar trend was also noted in seed yield (971.47 kg/ha) in decapitation at 70 DAS, which was 9.26 % higher than control (Without decapitation). Similarly harvest index was also recorded higher in decapitation at 70 DAS. Among the PGR's treatment spraying of thiourea 500 mg/l at flowering stage recorded significantly the maximum number of pods per cluster (7.25), number of clusters per plant (18.75), number of pods per plant (136.01), dry pod length (9.86 cm) and weight of 1000 seeds (37.22 g). Maximum seed yield (1030.36 kg /ha) was also recorded by the same treatment and registered 26.67 % higher seed yield than control. Harvest index remained higher in treatment $GA_3$ -20 mg/l (638.80).

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**Key words :** Decapitation, PGR's, Sink, Source, Abscission, Cluster bean

Cluster bean [*Cyamopsis tetragonoloba* (L) Taub.] popularly known as guar is an important legume vegetable crop. Cluster bean is grown for its young tender green immature pods, which are used as a nutritive vegetable. It can be grown on almost all types of soil. It can grow well in *Kharif* and summer seasons. In spite of commercial importance of cluster bean crop in our daily diet and wide spread cultivation, availability of pure and a good quality seed is not satisfactory.

Among the various factors responsible for increasing seed production source manipulation through decapitation play an important role in diversification of food materials from sink to source to *i.e.* seed yield. Plant growth regulators play a role to initiate the flowering and fruiting on the plant when applied at the time of flowering and it also reduce flower drop to some extent. Thus, PGR's play a role in reducing flower abscission and also increased biomass production and ultimately yield. However, very rare information is available on this matter, therefore, the present study was undertaken to study the effect of decapitation and PGR's on seed yield and its attributes of cluster bean.

## MATERIALS AND METHODS

A field study was undertaken during summer season of 2008-09 and 2009-10 at Main Vegetable Research Station, Anand Agricultural University, Anand. The experiment was laid out in factorial randomized block design replicated thrice. Treatment comprised three decapitation levels and seven PGR's treatments along with water spray as control. The PGR's were NAA (20 and 40 mg/l), $GA_3$ (20 and 40 mg/l) and thiourea (500 and 1000 mg/l). All the concentrations of PGR's were applied at flowering stage. Five tagged plant from each net plot were selected for recording observations of yield attributes. Weight of 1000 seeds worked out by randomly counting 1000 seed and weighing them on top pan electrical balance. Seed yield and harvest index were worked out