

Title: Use of Different Growth Promoters to Enhance Yield and Quality of Green Gram (*Vigna radiata* L.) Crop.

Objective: To assess the influence of organic and commercial liquid growth promoters on yield attributes and grain quality of green gram.

INTRODUCTION

Green gram (*Vigna radiata* L.) is an important pulse crop in India due to its short duration, soil enriching ability and high protein content. However, yields remain low due to imbalanced fertility and inadequate crop management practices. In recent years, emphasis has shifted toward use of organic growth promoters such as Panchagavya, vermiwash and bio-stimulants to improve crop growth and sustainability.

Organic growth promoters are known to enhance physiological activities, nutrient use efficiency, and microbial population in the rhizosphere. Panchagavya is a fermented product derived from cow dung, urine, milk, curd and ghee and acts as a natural stimulant due to presence of growth hormones and beneficial microbes (Somasundaram et al., 2007). Vermiwash improves nutrient uptake through enzyme activity and humic substances (Edwards et al., 2004).

Therefore, the present investigation aimed to assess the influence of different growth promoters on growth, yield and productivity of green gram under field conditions.

Experimental Details:

Crop	Green gram	Treatments	Eight
Variety	GAM-5	Spacing	30 X 15 cm
Season	<i>Rabi</i>	Sowing Date	23/01/2025
Design	RBD	Plot Size	9.0 m x 2.6 m
Replications	Three	RDF	20:40:00 kg NPK ha ⁻¹

Treatment Details:

Treat. No.	Treatment Details
T1	Control (Only RDF)
T2	Vermiwash @ 10 ml/Litre
T3	Cow urine @ 10 ml /litre
T4	Panchgavya @ 4 ml /litre
T5	Flow Grow @ 1 ml / Litre

T6	Photon X @ 1 ml/Litre
T7	Novel @ 1.5 ml /litre
T8	Prithvi Poshak @ 5 ml /litre

Methodology

The field experiment was conducted during the Rabi season of 2024–25 at the ASPEE Agricultural Research & Development Foundation Farm on green gram (*Vigna radiata* L.) variety GAM-5. The experiment was laid out in a Randomized Block Design with eight treatments and three replications, following recommended agronomic practices. A uniform basal dose of RDF at 20:40:00 kg NPK ha⁻¹ was applied to all plots. Different growth promoters were applied as foliar sprays at vegetative, flowering, and pod development stages. Observations on growth, yield attributes, and yield were recorded from randomly selected plants, and the data were statistically analyzed using ANOVA.

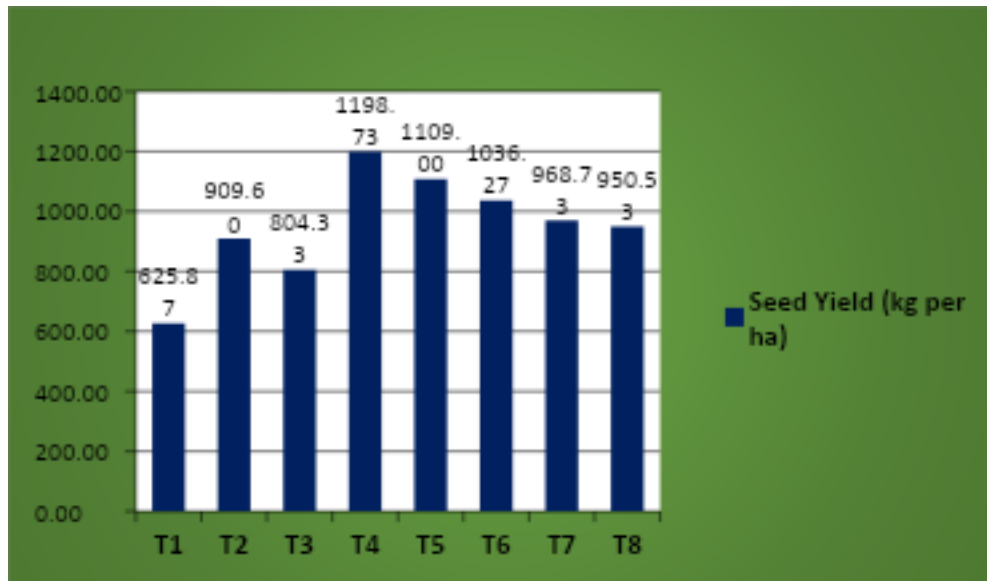
Layout



Results

The results indicated that growth promoters significantly influenced growth, yield attributes, and yield of green gram. Among the treatments, Panchagavya (T₄) recorded the highest plant height (61.6 cm) and number of branches per plant (9), which was significantly superior to the control, likely due to the presence of growth regulators and enhanced microbial activity. Yield-attributing characters such as number of pods per cluster, pod length, and number of seeds per pod were also maximum in T₄, reflecting improved nutrient translocation and hormonal stimulation. Consequently, the highest test weight (50.47 g), seed yield (1198.73 kg ha⁻¹), haulm yield (2065.73 kg ha⁻¹), and harvest index (36.71%) were recorded with Panchagavya application, showing a marked improvement over the control. These findings confirm the effectiveness of Panchagavya as a foliar growth promoter for enhancing productivity and yield efficiency in green gram.

Graph:



Conclusion

The study clearly demonstrated that foliar spray of Panchagavya at 4 ml L⁻¹ significantly improved growth, yield attributes, seed yield and harvest index in green gram. Flow Grow and Photon also showed promising results. Therefore, Panchagavya can be recommended as an economical and eco-friendly growth stimulant for enhancing green gram productivity.