

Study on the Response of Greengram (Co.3) to Growth Regulators

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Field experiments were conducted to study the response of growth regulators (Planofix and ethrel) on growth and yield of greengram Co. 3. From the result it was found that foliar application of planofix 40ppm followed by planofix 20ppm and ethrel 100ppm and planofix 40ppm followed by ethrel 50ppm and planofix 20ppm increased significantly the grain yield and yield attributes of greengram during summer and kharif, 1981 respectively.

In pulses the low yield/hectare is mainly due to more number of flower shedding (Taylor, 1965). However, Ojehomon, (1970) observed that the low yield in pulses is due to some physiological mechanism. Several studies have shown that external application of growth regulators like planofix, ethrel etc. reduces the premature abscission of flowers and young pods and there by increases the number of pods/plant.

MATERIAL AND METHODS:

Field experiments were conducted at the Agricultural Research Station, Tamil Nadu Agricultural University, Bhavanisagar during summer and kharif seasons of 1981 to study the effect of planofix (NAA) and Ethrel (2-Chloro ethyl phosphonic acid) on greengram Co. 3. The experimental design adopted was randomised block design with three replications. Planofix at 20 and 40ppm and ethrel at 50, 100 and 150 ppm were tried with a water spray

and control treatments. Foliar application of planofix and ethrel was done twice, the first at flower initiation stage and the second 15 days after the first spray. Common soap was used as an adhesive agent and the spray was given during the early hours of the day using hand operated sprayer. Cultural and plant protection practices commonly followed in the University farm were adopted. Number of pods/plant, 100 pod weight, number of seeds/pod, pod length and 100 grain weight were recorded by random selection of ten plants/plot. Net plot was harvested and the grain yield/hectare was calculated.

RESULTS AND DISCUSSION:

The grain yield was significantly increased by the application of planofix 40ppm than all other treatments during summer, 1981 (Table 1). This was followed by planofix 20ppm and ethrel 100ppm. However they were statistically found to be on par. This is also

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in accordance with Thimme Gowda (1977) who obtained maximum seed yield of 2950 kg/ha in greengram with the application of planofix 20ppm. Kaul *et al* (1976) and Jayaram and Ramiah (1980) also reported the increase in grain yield of cowpea due to planofix application. Number of pods/plant, 100 pod weight and 100 grain weight were also favourably influenced by planofix treatments during the summer season.

During kharif, 1981 planofix 40ppm and ethrel 50ppm are found to be giving maximum grain yield (Table 2) followed by planofix 20ppm spray. Even though there was marginal increase in 100 pod weight, number of seeds/pod, pod length and 100 grain weight due to planofix and ethrel application there was no statistical difference between them. Only the number of pods/plant was significantly increased by planofix and ethrel treatments. Application of ethrel was also reported to increase the grain yield of greengram Anon, 1977. In the present study also the favourable effects of planofix and ethrel were evident and this might be due to reduced flower shed-

ding and enhanced yield attributes (Jayaram and Ramiah, 1980).

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TABLE 1. Response of Greengram (CO. 3) to growth regulators (Summer, 1981)

Treatment	No. of pods/ plant	100 pod Wt. (g)	No. of seeds pod	Pod length (cm)	100 grain Wt. (g)	Grain yield kg/ha
Control	20.7	48.5	11.4	6.6	3.7	832
Water spray	22.5	47.8	10.6	6.4	4.0	810
Planofix 20 ppm	29.7	55.3	11.8	6.9	4.3	975
Planofix 40 ppm	30.9	58.2	12.2	6.8	4.4	1164
Ethrel 50 ppm	21.3	51.4	11.8	6.5	3.8	837
Ethrel 100 ppm	22.5	53.0	11.3	6.7	4.0	968
Ethrel 150 ppm	20.2	49.9	10.3	6.5	3.7	707
SEd.	4.3	3.8	1.1	0.74	0.20	41
CD(P=0.05)	9.4	8.3	N.S	N.S	0.44	88

TABLE 2. Response of Greengram (CO. 3) to Growth Regulators (kharif, 1981)

Treatments	No. of pods /plant	100 pod weight (g)	No. of seeds/ pot	Pod length (cm)	100grain wt. (g)	Grain yield kg/ha
Control	22.3	53.3	11.7	6.5	3.1	974
Water spray	25.3	56.0	13.7	6.4	3.4	1030
Planofix 20 ppm	30.7	61.0	13.8	6.9	3.4	1178
Planofix 40 ppm	32.0	63.7	13.9	7.0	3.5	1285
Ethrel 50 ppm	26.7	58.7	13.9	6.4	3.3	1203
Ethrel 100 ppm	24.3	57.0	13.8	6.5	3.1	1015
Ethrel 150 ppm	22.7	55.0	13.9	6.4	3.1	884
SEd	2.2	7.4	1.5	0.7	0.20	42
CD (P=0.05)	4.2	N.S	N.S	N.S	N.S	91