RESEARCH NOTES

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Effect of Growth Regulator Spray and Harvesting Time on Yield and Protein Content of Co 3 Red Gram

Hormones regulate a number of activities of the plants like germination, growth, flowering and fruiting. Evidence at hand supports the thesis that growth hormones, both naturally occuring and synthetic chemical act at the gene level influencing the translational transcriptional and mechanisms of protein biosynthesis (Key, 1969). An attempt has been made to find out whether the yield of Co3 red gram can be increased by hormone spray and to see whether the grain yield and yield of grain protein may be increased by harvesting at physiological maturity instead of waiting for on field loss of moisture of grain.

A trial was laid out in Kharif 1977 with Co3 red gram in split plot design with three replications. The main plot treatments consisted of

C_1 : Spraying Ethrel, 100 ppm at 200 lit/ha

C_2 : Spraying Planofix, 100 ppm at 200 lit/ha

C_3 : Removing the spical buds one week after peak flowering stage

C_4 : Water spray

and C_5 : No spray

Ethrel and Planofix were sprayed at initial flowering and at peak flowering stages. The different sub plot treatments wers :-

S_1 : Harvesting on 120th day

S_2 : Harvesting on 125th day

S_3 : Harvesting on 130th day

S_4 : Harvesting on 135th day

and S_5 : Harvesting on 140th day

The experiment was repeated in Kharif 1978 with two replications and three doses of P_2O_5 (viz. 25, 50 and 75 kg/ha as M_1. M_2 and M_3 respectively) as the main plot treatments. The hormone spray constituted the sup plot treatments and harvesting at different stages constituted the sub sub-plot treatments. N at 25 kg/ha was applied at the time of sowing along with P_2O_5 as per the schedule. Other cultural operations were common to all the treatments.

Statistically significant differences in the mean yields due to hormone spray were observed only in 1978 and not in 1977. The grain yield was the highest in planofix spray in 1978 and in 1977. Ethrel gave higher yield closely followed by planofix. The yield data indicated that in Kharif 1977

harvesting on 120th day gave significantly lower yields than harvesting on all other days which were on par with each other. In 1978 harvesting on 130th day or afterwards gave higher yields than harvesting earlier. P_2O_5 application did not bring out a significant increase in yield. None of the treatments produced a significant change in the protein content of grain in both the years.

Harvesting at later stages of maturity has been found to increase the yield and oil content of soybean (Reddy and Singh, 1976). Co3 red gram has a duration of 140 days. By harvesting 10 days earlier the yield and the protein content of the grain have not been affected. P in combination with N has been known to increase the yield of cereals but the grain protein content was not altered to a significant extent.

Desai and Khanvilker (1977) have reported that atrataf and 2, 4-D produced a significant increase in the crude protein and the essential amino-acids content of bengal gram seeds. This increase may be due to enchanced RNA synthesis after hormone treatment (Carr, 1972). In the present study contradictory to the above no increase in protein content was observed in Co3 red gram.

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TABLE Effect of Hormone Spray and Harvesting at Different days on the Yield and Protein content of Red gram

Treament	Yield Kg/ha		Protein as %	
	1977	1978	1977	1978
M_1	—	1586	—	20.38
M_2	—	1742	—	20.24
M_3	—	1687	—	20.46
'F' Test	—	NS	—	NS
C_1	1438	1728	20.50	19.93
C_2	1418	1873	19.68	20.81
C_3	1360	1554	19.68	20.37
C_4	1135	1644	20.03	20.67
C_5	1253	1558	20.04	20.11
CD (5%)	NS	82.7	NS	NS
S_1	1132	1489	19.67	20.11
S_2	1340	1601	19.60	20.88
S_3	1347	1801	21.10	20.33
S_4	1372	1762	20.05	20.67
S_5	1413	1705	19.50	19.97
CD (5%)	148.8	156.3	NS	NS

NS = Not significant