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Response of cabbage to N and K fertilization under sub-montane and low hills of Himachal Pradesh

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INTRODUCTION

The cabbage (*Brassica oleracea* var. -*Capitata* L.) is one of the most important vegetable crop grown in winter season. In hilly states like Himachal Pradesh, it is being cultivated almost throughout the year in one part of the state or the other. The variety Pride of India is recommended for cultivation in the state of H.P. Therefore, it was felt necessary to study the response of nitrogen and potash for getting higher yield of this crop.

MATERIAL AND METHODS :

A field experiment was conducted during 1990-91 and 1991-92 in rabi season at experimental farm, HFKV, Regional Research Station, Dhaulakuan. The treatment comprised combination of four levels of nitrogen (0, 125, 150, 175 kg/ha) and three levels of potash (0, 50, 100 kg/ha). Thus the twelve treatment combinations were replicated three times in randomized block design. The plot size used was 2.7m x 2.7 m. Seedlings were transplanted on 12th November, 1990-91 and 29th Oct., 1991-92, respectively at spacing of 45 x 45 cm. normal dose of FYM (10 t/ha) and phosphorus (60 kg/ha) alongwith potash were applied at the time of transplanting. Nitrogen was top dressed in three splits : first when the plants have established, second after one month of the first application and third at head formation stage. The observations recorded were

average weight of head with non-wrapper leaves, average weight of head without non-wrapper leaves, number of marketable heads per plot and yield per hectare.

RESULTS AND DISCUSSION

The nitrogen application had a pronounced effect on yield of cabbage heads (Table 1). Significant yield was observed with increase in nitrogen level upto 150 kg/ha. The other yield associated characters were also influenced because nitrogen increased vegetative growth with larger leaf area and these were more usefully utilized in the formation of heads. So the average weight of head with and without non-wrapper leaves and number of marketable heads per plot were increased with increase in the level upto 150 kg/ha. It was observed that further application of nitrogen decreased the yield and other traits. These findings are in agreement with that of Srinivas (3). Prabhakar and Srinivas (2) also reported that application of 150 kg N gave highest yield under Bangalore condition.

Like nitrogen, application of potash proved beneficial in increasing the yield. Significantly higher yield was recorded than control with 50 kg K/ha. However, application of 100 K/ha had no significant effect on the yield as well as other traits. Agarwal *et al* (1) observed that 60 kg K/ha is optimum dose under Kanpur condition.

Table 1. Effect of nitrogen and potash on cabbage cv. Pride of India.

Treatments	Weight of head with non-wrappers leaves (kg)		Weight of head without non-wrappers leaves (kg)		No. of marketable heads per plot		Yield (q/ha)	
	1990-91	1991-92	1990-91	1991-92	1990-91	1991-92	1990-91	1991-92
N-levels (kg/ha)								
0	0.82	1.03	0.67	0.82	12.33	11.33	119.31	130.50
125	1.97	2.19	1.75	1.84	28.00	26.11	237.17	245.60
150	2.57	2.77	2.35	2.55	30.00	28.54	285.95	270.85
175	2.26	2.35	1.90	2.11	29.00	27.60	243.90	235.65
C.D. at 5%	0.22	0.24	0.19	0.23	1.47	2.06	37.10	32.15
K-levels (kg/ha)								
0	1.51	1.64	1.31	1.48	20.91	19.82	191.47	175.40
50	2.11	2.28	1.81	1.98	27.50	25.25	240.54	245.70
100	2.09	2.08	1.87	2.02	26.08	24.67	232.78	236.45
C.D. at 5%	0.19	0.21	0.17	0.20	1.27	1.79	32.14	28.85

SUMMARY

The response of four levels of nitrogen and three levels of potash were assessed on the morphological traits and yield of cabbage head cv. Pride of India. Average weight of head with and without non-wrapper leaves, number of marketable heads per plot and yield increased linearly upto 150 kg K/ha. The application of 50 kg K/ha also played significant role than control. Thus, 150 kg N and 50 kg K is the optimum does for higher yield under Sub-montane and low hills of H.P.

LITERATURE CITED

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