Short Communication

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RESPONSE OF CHICKPEA TO NIPPING

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Chickpea (*Cicer arietinum L*) is the third important pulse crop of Bangladesh pertinent to area and production. It is grown on 0.74m hectares of land producing 0.54m tons of grain with an average yield of 371 kg ha^{-1} (Anon 1996). This crop can possibly be used as a source of vegetable without losing grain yield. By nippping the growing shoot, chickpea may produce some vegetable for human consumption in addition to its normal yield. On the other hand, it can possibly enhance branching and increase pod formation. Saxena and Sheldrake (1989) and Argikar (1990) reported that nipping of young shoots during vegetative growth causes an increase in auxillary branches in chickpea leading to increased yields. This practice is also common in some areas of Bangladesh but the exact time of nipping is not known. How much the nipping dates can be stretched without any appreciable yield loss is yet to be determined. The present study was, therefore, planned to assess the effect of nipping on the growth as well as yield of chickpea.

The experiment was conducted in the calcareous grey flood plain soils of the Regional Agricultural Research Station, BARI, Ishurdi during November to March, 1992-93 and 1993-94 under rainfed conditions. The soil of the experimental site was clay loam with pH 7.5. Five treatments were compared in a randomized complete block design. The plot size was 5m X 4.5m. The treatments were: control (no nipping), nipping at 30, 45, 60 and 75 days after emergence (DAE) of crop. The chickpea variety used was Nabin with duration of 115-120 days. Fertilizer @ 20 kg N, 40 kg P_2O_5, 20 kg K_2O and 20 kg S per hectare was applied as basal dose. The crop was harvested 118 days after sowing. Data on plant height, number of branches and pod per plant were recorded from 10 randomly selected plants from each plot. The 1000-seed weight of the sample of the grain obtained from each plot was recorded. The data were analyzed statistically (Zaman *et al* 1992). Mean differences were adjusted by DMRT.

The nipping of young shoot exerted significant influence on the yield parameters (Table 1). The height of plants at 30 DAE nipping was significantly the highest, which was also at par with nipping at 45 DAE whereas those of 75 DAE were the shortest. The nipping at 30 DAE produced maximum number of branches per plant which was statistically similar to that of 45 DAE. It indicates that the process of nipping causes an increase in auxillary branches upto 45 DAE. Saxena and Sheldrake (1989) and Das (1994) also reported that nipping of the young shoot during vegetative growth upto 45 DAE caused an increase in auxillary branches. The maximum number of pods per plant obtained from nipping at 30 DAE was probably due to the maximum number of branches which was statistically at par with that of 45 DAE. On the other hand, nipping at 75 DAE showed the lowest number of pods per plant. The seed size was also significantly influenced by nipping showing a similar trend in the number of pods per plant. The trend of contribution of all these characters was reflected in the final yield. The crop nipped at 30 DAE gave the highest yield (2394 kg h^{-1} which was statistically at par with that nipped at 45 DAE (Table 1). Similar findings were also reported by Saxena and Sheldrake (1989); Argikar (1990); Alam (1993) and Aziz *et al* (1994) who concluded that 30-45 DAE was the ideal period for nipping chickpea and deviation from this period caused reduction in yield. The yield reduction of 4.4 to 37.2% occurred as compared to nipping at 30 DAE.

The highest total gross return (928 \$ ha^{-1}) and gross margin (805 \$ ha^{-1}) with benefit-cost ratio (6.54 \$ ha^{-1}) were ob-

Table 1

Yield and yield component of chickpea as affected by nipping (pooled data of 1992-93 and 1993-94).

Treatments (nipping)	Fresh weight of shoot (kg ha^{-1})	Plant height (cm)	No.of branches per plant	No.of pods per plant	1000-seed weight (g)	Yield (kg ha^{-1})	% Yield reduction over *
Control	-	72.20b	5.40bcd	74.00c	111.7c	1923b	24.5
30 DAE	242d	74.54a	6.41a	87.67a	114.8a	2394a	-
45 DAe	326c	73.44a	6.05a	83.83a	114.2a	2294a	4.4
60 DAE	696b	71.11b	5.37cd	78.50b	112.6b	2023b	18.3
75 DAE	870a	69.02c	5.13d	68.01d	111.5c	1745c	37.2
SE	131.74	0.81	0.21	3.59	0.59	106	
CV%	12.1	9.7	8.2	6.6	2.9	10.8	

* Yield reduction over 30 DAE

tained from nipping at 30 DAE (Table 2). Alam (1993) and Aziz *et al* (1994) also found higher gross margin and benefit-cost ratio from nipping at 30 DAE. Therefore, in the light of the findings of the present study 30 to 45 DAE is the optimum time for nipping chickpea to obtain the maximum yield and economic return under rainfed condition.

Key words: Chickpea, Yield, Nipping

Table 2

Economic analysis of chickpea nipping (pooled data of 1992-93 and 1993-94)

Treatments (nipping)	Gross return ($ ha^{-1})		Total gross return ($ ha^{-1})	Total variable cost ($ ha^{-1})	Gross margin	Benefit -cost ratio ($ ha^{-1})
	Fresh shoot	Grain yield				
Control	-	721	721	105	616	5.87
30 DAE	30	898	928	123	805	6.54
45 DAE	41	860	901	143	758	5.30
60 DAE	87	759	846	175	671	3.83
75 DAE	109	654	763	189	574	3.03

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