In potato production, seed alone accounts for 40-50% of the total cost of cultivation due to higher seed rate per unit area (2, 3). The cost of seed can be reduced by using small sized seed tubers (4). Under such situations, there is need to develop a seed potato production technology for maximizing yield and number of small tubers. Therefore, the field experiment was conducted to find out the optimum planting geometry, level of nitrogen and phosphorus and time of haulms cutting on production of small size seed tubers.

A field experiment was conducted during rabi season of 2000-01 and 2001-02 at the Central Potato Research Station, Patna (Bihar), with variety Kufri Ashoka in randomized block design with four replications. The treatments consisted of two plant spacings (60 x 15 and 60 x 10 cm), two levels of nitrogen and phosphorus (100 and 35, and 150 and 52 kg/ha of N and P) and two schedules of haulms cutting at 70 and 80 days after planting. The level of potassium (83 kg K/ha) was uniform for both the levels of N and P. A control treatment having 60 x 20 cm planting geometry was planted with 150, 35 and 83 kg/ha of N, P and K and haulm cutting was done at the appearance of critical level (20 aphids/100 compound leaves on unsprayed crop) of aphid population. The soil was sandy loam with a pH of 7.6, low in organic matter (0.42%), high in available P (14.5 ppm) and medium in available K (86.5 ppm).

Well sprouted seed tubers weighing 30-40g were planted. The multiplication rate was calculated by using the formula:

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\text{Multiplication Rate} = \frac{\text{Total tuber yield (q/ha)}}{\text{Seed rate (q/ha)}} = \frac{\text{Number of tubers/ha}}{\text{Number of seed tubers planted/ha}}
\]

The data over the two years were pooled and analyzed by standard statistical procedures.

Number of stems/m² decreased significantly with the increase in plant spacing from 60 x 10 cm to 60 x 15 cm. Significantly lowest number of stems was recorded at 60 x 20 cm (Table 1). Yield of small sized tubers (upto 40g) and total tubers increased significantly with closer plant spacing, while the yield of bigger size tubers (>40g) increased with wider planting geometry. Number of small sized tubers (upto 40g) as well as total tubers increased significantly at closer planting geometry, while the number of larger size tubers (>40g) increased with wider planting geometry. Multiplication rate on the basis of yield decreased from 7.8 times to 4.21 times with a decrease in plant spacing. The effect of different doses of nitrogen and phosphorus on the number of stems/m² was not-significant (Table 1). Yield as well as number of small size (<10g) tubers were significantly higher at

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100 kg N along with 35 kg P/ha. The higher yields of tubers were recorded at 150 kg N along with 52 kg P/ha. Yield of large size tubers were increased significantly from 75.3 q/ha to 101.5 q/ha due to increase in N and P level from 100 and 35 to 150 and 52 kg N and P/ha. Number of small size tubers decreased while number of large size tubers increased with increase in N and P levels. Multiplication rate on the basis of number of tubers remained unaffected, but on the basis of tubers yield, it was significantly higher by 0.73 times at higher levels of N and P. The yield of small sized (<10g) tubers reduced by 3.0q/ha with an increase in crop duration by ten days. A significant increase of 15, 11 and 23 q/ha, respectively was recorded in the yield of seed size, large size and total tubers with the increase of crop duration from 70 to 80 days (1). Except small (<10g) tubers, the number of all other grade tubers were higher when haulms were cut at 80 days as against 70 days crop age, but the difference was significant only in case of larger size (>40g) tubers. Number of small tubers was recorded significantly higher at early haulms cutting. Benefit cost ratio was higher at higher fertility, higher crop duration and at wider plant spacing.

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**LITERATURE CITED**


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