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Short Communication

Profitability of Pea Cultivation under Different Sowing Times

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INTRODUCTION

Pea (*Pisum sativum* L.) is one of the most important commercial vegetable crops and grown in many states of India. Pea is also a major vegetable crop in the district Shaheed Bhagat Singh Nagar (SBS Nagar) and cultivated for green pods after the harvesting of paddy or maize. After that, late wheat is sown which makes the crop production system to the intensive one. In this intensive cropping system, sowing time plays an important role in terms of crop yield and profitability. It has been observed that early sowing drastically reduce the green pod yield due to unfavorable weather conditions at germination. A large variation in the sowing time of pea crop by the farmers for green pods was reported which ultimately affects the pod yield as well as profitability of pea cultivation. Keeping in view the above factors, an effort was made to know the most economic growing period for cultivation of garden pea so that maximum profitability can be achieved.

MATERIALS AND METHODS

The study was carried out in the district SBS Nagar during Rabi 2017-18. One hundred fifty pea growers were selected and the data were collected on a questionnaire containing parameters *viz*., name and address of farmer, area sown, crop, variety, sowing time, seed rate, number of irrigations applied, herbicide, fertilizer and pesticide used, yield obtained and selling price. Other parameters like gross returns, net returns and B: C ratio was calculated from the data collected.

RESULTS AND DISCUSSION

Time of sowing

The data (Table 1) show that out of total 150 farmers interviewed, 107 farmers sown pea crop on 25th to 30th September (71.3%), 30 farmers between 1st to 20th October (20.0%) and 13 farmers between 15th to 25th September (8.7%) whereas the recommended sowing time is 1st to 20th October by the research institutes. It has been observed that sowing of pea crop between mid- October to mid- November gives the best crop yield, whereas farmers in the area are of the view that the crop harvested does not fetch a remunerative price in the market due to enhanced supply of green pods. Therefore, farmers sow the crop as early as possible in the month of September.

Variety

The data on preference of variety with respect to sowing time showed that variety AP3 was grown on area of 98% during15th-25th and 25th to 30th September whereas during 1st to 20th October area under AP3 decreased to 45% leaving the rest area under Punjab 89 (55%) cultivation.

Seed rate and irrigation

Data on seed rate indicated that during early sowing of the crop, all the farmers use seed rate of 150 kg/ha as compared to 100 kg during 1st to 20th October. Use of high seed rate in early sowing can be attributed to decrease in plant population due to occurrence of wilt due to high temperature and attack of stem fly at the time of germination. With advancement in the sowing period, a decrease in number of irrigations was recorded. For instance, in the early sown crop (15th to 25th September), farmers applied 5 irrigations while in the crop planted on 1st to 20th October, only 3 irrigations were recorded. Major reason behind application of 5 irrigations to early sown crop was high temperature.

Table 1. Major cultivation practices in different growing periods of pea.

Sr. No.	Growing period	15th to 25th September	25th to 30th September	1st to 20th October
1.	Number of farmers	13	107	30
2.	Variety	AP3 (98%)	AP 3 (98%)	Punjab 89 (55%)
		Matar Ageta 7 (2%)	Matar Ageta 7 (2%)	AP 3 (45%)
3.	Seed rate (kg/ha)	150	112.5	100
4.	Irrigation (No)	5	4	3
5.	Yield (q/ha)	1.25	43.00	71.00

Figure in the parenthesis indicate per cent area under given cultivar

Green pod yield and B: C ratio

Data on the green pod yield (Table 2) of pea were collected from the farmers and presented as an average of all the farmers who planted in the respective planting period. It was found that highest pod yield was achieved in the late planting period (71.0 q/ha) followed by 25th to 30th September (43.0 q/ha) and 15th to 25th September (1.25 q/ha). Hasan *et al* (2003) also reported highest yield of cabbage during late *Rabi* growing period followed by main *Rabi* and pre *Rabi* seasons. Highest cost of cultivation was recorded in the early sown crop (Rs. 1,01,125/ha) which was attributed by farmers mainly to the high seed rate, more number of irrigations, more pesticide application due to attack of stem fly and wilting during seedling stage. Sowing of crop during 1st to 20th October resulted in least cost of cultivation relative to other planting periods. At the time of marketing of produce, early sown crop fetched the highest price (Rs. 5,200/q) followed by 25th to 30th September (Rs. 3,850/q) and 1st to 20th October (Rs. 1,500/q). On the contrary, highest gross return was recorded in crop sown during 25th to 30th September (Rs. 1, 65,550/ha) followed by 1st to 20th October (Rs. 1, 06,500/ha) and 15th to 25th September (Rs. 6,500/ha). Similarly, pea crop sown during 25th to 30th September recorded highest net return as compared to 15th to 25th September (Rs. 94,625/ha) and 1st to 20th October (Rs. 12,750/ha) sown crop. Increase in gross as well as net returns in 25th to 30th September sown crop can be attributed to high pod yield and less cost of cultivation as compared to 15th to 25th September sown crop. Simultaneously, high selling price of

Table 2: Economics analysis of pea under different growing periods

Sr. No.	Parameter	Growing periods		
		15th to 25th September	25th to 30th September	1st to 20th October
1.	Yield of green pods (q/ha)	1.25	43.0	71.0
2.	Cost of cultivation (Rs/ha)	1,01,125	96,700	93,750
	Selling Price (Rs/q)	5,200	3,850	1,500
3.	Gross return (Rs/ha)	6,500	1,65,550	1,06,500
4.	Net return (Rs/ha)	-94,625	68,850	12,750
5.	B:C ratio	0.06	1.71	1.13

green pods in 25th to 30th September sown crop relative to 1st to 20th October sowing period led to increase in net returns in former as compared to later. Computation of B: C ratio indicated that highest B: C was recorded by the crop when it was sown during 25th to 30th September (1.71) planting period relative to early (0.06) and late sown conditions (1.13). This improvement in B: C can be positively related with high selling price of green pods and high net returns in context of district agro climatic conditions. Chaudhary *et al* (2017) also reported comparative advantage in the region due to its climatic conditions in pea, cabbage, tomato and bean.

CONCLUSION

The study revealed that majority of farmers from the district cultivate AP 3 cultivar of pea between 25th to 30th September which is more profitable sowing time and least profitable crop sown between 15th to 25th September. The study thus depicted that location specific recommendation can be made with the help of research experiments for sowing of pea between 25th to 30th September. So, enhancement in the gross and net returns by the planting of pea crop during 25th to 30th September window period improves the B: C which ultimately makes it economically viable and optimum relative to early and late planting.

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