

AN ECONOMIC ANALYSIS OF WHEAT SEED PRODUCTION IN EASTERN UTTAR PRADESH

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Abstract: Seed is the important input for majority of crops in agriculture and forms only a small part of its cost of cultivation. It is the most crucial input in the crop production cycle. The study is based on primary data collected from Ghazipur district of Eastern Uttar Pradesh during the agricultural year 2012-13. Tabular analysis was used to compare the different values of farm economy and other aspects of farm business and weighted average was used for average analysis. Garrett's ranking technique was used to analyse the reasons for adoption and non-adoption of seed production. The analysis of data shows that net return was 37 per cent higher in certified seed production of wheat (₹ 33100/ha) than the grain production (₹ 24100/ha). Higher return in seed production is mainly due to increased productivity and better price realization of output. The cost of production is around 30 per cent higher in the seed production of wheat because of high labour requirement, foundation seed, seed certification charges and higher level of other input use. The respondents have reported four reasons for adoption and six reasons for non-adoption of wheat seed production. Higher yield, profitability and increased return to labour have been cited as important factors behind preferring certified seed production of wheat. These facts should be popularized among the farming community to increase the certified seed production. The study has revealed that certified seed production of wheat would help to increase the farm income without increasing the area under cultivation. The increased productivity and net profit would attract the farmers for adoption of certified seed production of wheat.

Keywords: Wheat seed, production economics.

Introduction: Seed is the important input for majority of crops in agriculture and forms only a small part of its cost of cultivation. It is the most crucial input in the crop production cycle. It is estimated that the direct contribution of quality seed alone to the total production is about 15-20 per cent depending upon the crop and it can be further raised up to 40 per cent with effective management of other inputs (Anonymous, 2007).

Quality seed production is a specialised activity. The general farm produce retained for seed cannot be substituted for quality seed, farm saved seed generally lacks genetic vigour and has poor germination (Singh *et al.*, 1990). Joshi *et al.* (2007) have highlighted that more than 80 per cent of the seed in India and South Asian countries is saved by the farmers, especially for self-pollinating crops like wheat. This is also influenced by the poor availability of new varieties of seed due to weak seed delivery and weak linkages (Joshi *et al.*, 2007 and Yadav *et al.*, 2010). Ghimire *et al.* (2012) reported that most of the farmers keep continuing using old varieties of seed for years. The main reason behind this is seed production and replication of new varieties is not efficient; the distribution channel for seed to farmers is weak and the availability of good quality new seed variety in the public domain is not efficient.

Wheat is the important crop of Uttar Pradesh, grown in 9.73 Mha with the 30.29 Mt during 2011-12 contributing 32.36 per cent of total national wheat production. The seed replacement rate of wheat in

Uttar Pradesh is 40.85 compared to 32.55 per cent for India as a whole (2011). The major reason for low replacement rate of quality seed could be its high price and non-availability at proper place and right time. This is particularly true in case of marginal and small farmers who generally have shortage of cash. The production and availability of quality seed will certainly improve the seed replacement rate in the state. The information on economics of quality seed production in wheat, particularly in Uttar Pradesh is meagre. Keeping in view the above facts, the present study has been undertaken to examine the economics of certified seed production of wheat with comparison to grain production and reasons for adoption and non-adoption in certified seed production of wheat.

Methodology: The study is based on primary data collected from Ghazipur district of Eastern Uttar Pradesh. The list of certified seed growers of wheat in Ghazipur district have been obtained from Uttar Pradesh State Seed Certification Agency, Regional Office, Mau for the year 2012-13. From the list four certified seed producing villages of wheat has been selected randomly and from each selected village ten certified seed producers of wheat have been selected randomly. For comparison study with grain production of wheat again ten grain producers of wheat selected randomly from the selected villages. Thus, the total number of selected farmers (grain and certified seed producer of wheat) was eighty.

Data collection: Primary data were collected by

personnel interview with the respondents using a well-structured and pre-tested interview schedule. Data on various inputs used in the grain and seed production of wheat and their costs and returns were collected for the agricultural year 2012-13. Tabular analysis was used to compare the different values of farm economy and other aspects of farm business and weighted average was used for average analysis.

Garrett’s ranking technique: Garrett’s ranking technique was used to rank the sources of information, reasons for adoption and non-adoption of seed production in wheat. In the Garrett’s rank scoring technique, the respondents were asked to rank the factors for adoption and non-adoption of seed production in wheat and these ranks were converted into per cent position by using following equation:

$$\text{Per cent position} = \{100 (R_{ij} - 0.5)\} / N_j \quad \text{Where,}$$

R_{ij} = Rank given to the i^{th} attribute by the j^{th} individual and

N_j = Number of attribute ranked by j^{th} individual
 By referring to the Garrett’s table, the estimated per cent positions were converted into scores. Thus for each factor the scores of various respondents were added and the mean scores were estimated. The

mean thus obtained for each of the attributes were arranged in a descending order.

Results and discussion : Economics of wheat seed production

The cost and return of certified seed production of wheat have been provided in Table 1. Human labour was the major component of cost on inputs applied for seed production of wheat. Its share in total costs was about 30 per cent. It was followed by machine labour accounting for about 27 per cent of the total cost of wheat seed production. Cost of manures and fertilizers used for crop accounted for about 14 per cent. The share of irrigation in total cost was around 11 per cent. The share of seed cost to total input was about 9 per cent. The share of plant protection chemicals and seed certification charges were less than five per cent of total cost of cultivation. Hence, the total cost of all inputs used in certified seed production of wheat was ₹ 31900 per hectare. The average yield of wheat seed and undersize seed was 36 quintal and 4 quintal respectively. The gross return and net return was ₹ 65000 and ₹ 33100 per hectare respectively.

Sl.	Particulars	Amount (₹)	Per cent
1	Human labour	9500	29.78
2	Machine labour	8500	26.65
3	Seed	3000	9.40
4	Manures & Fertilizers	4500	14.11
5	Irrigation	3500	10.97
6	Plant protection chemicals	1400	4.39
7	Seed certification charges	1000	3.13
8	Others	500	1.57
9	Total cost	31900	100.00
10	Total yield		
a	Wheat seed (q)		36.0
b	Undersize seed (q)		4.0
11	Gross return (₹)		65000
12	Net return (₹)		33100
13	BC ratio		2.03

Comparison in wheat grain and seed production:
 The gross return was about 34 per cent higher in seed production of wheat (₹ 65000 /ha) than grain production (₹ 48600/ha). Consequently, net return from seed production of wheat was 37 per cent (₹ 33100/ha) than grain production (₹ 24100/ha). Hence, production of certified seed has resulted in win-win

situation for the farmers with higher yield and better quality of output. Because of seed production, seed producer fetched higher price that the grain in the marketing of produce. Graphical presentation of cost and return in wheat grain and seed production has been made in Fig. 1.

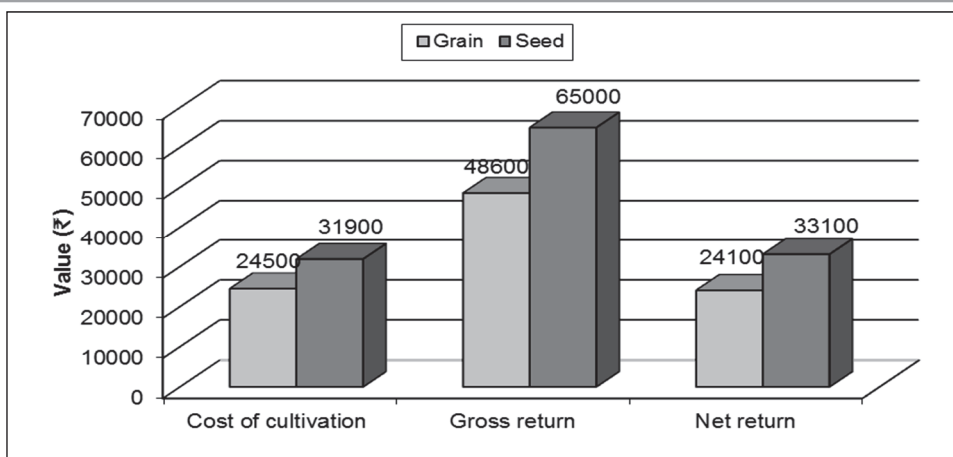


Fig.1. Cost and return in wheat grain and seed production

Reasons for adoption of seed production: Farmers were asked to rank the reasons for adoption of wheat seed production and the same were analysed using Garrett’s ranking technique. The results are presented in Table 2. It was revealed that higher yield and profitability were the top most reason for adopting

wheat seed production, followed by increased return to labour. Availability of high quality seed and easy marketability of produce were ranked third and fourth important reasons respectively for adoption of wheat seed production.

Particulars	Garrett score	Rank
Higher yield and profitability	73.0	I
Increased return to labour	56.0	II
Availability of high quality seed	38.3	III
Easy marketability of produce	32.7	IV

Reasons for non-adoption of seed production: Reasons for non-adoption of seed production are presented in Table 3. It was revealed that high cost of cultivation was the top most reason for non-adopting wheat seed production followed by lack of awareness.

Lack of experience, maintenance of isolation distance, non-availability of seed in time and lack of skilled labour were ranked third, fourth, fifth and sixth important reasons respectively for non-adoption of wheat seed production.

Particulars	Garrett score	Rank
High cost of cultivation	71.8	I
Lack of awareness	52.0	II
Lack of experience	51.5	III
Maintenance of isolation distance	36.0	IV
Non-availability of seed in time	34.0	V
Lack of skilled labour	24.0	VI

Conclusions and implications: The net return has been found 37 per cent higher in certified seed production of wheat (₹ 33100/ha) than the grain production (₹ 24100/ha). Higher return in seed production is mainly due to increased productivity and better price realization of output. The cost of production is around 30 per cent higher in the seed production of wheat because of high labour requirement, foundation seed, seed certification charges and higher level of other input use. The

respondents have reported four reasons for adoption and six reasons for non-adoption of wheat seed production, the implication being that awareness programmes on seed production, availability of seed in time be taken care for adoption of wheat seed production. The study has revealed that certified seed production of wheat would help to increase the farm income without increasing the area under cultivation. The increased productivity and net profit would

attract the farmers for adoption of certified seed production of wheat.

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