



Determinants of Adoption of Swarna Sub1 Rice Variety Cultivation in Chandauli District of Uttar Pradesh

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ABSTRACT

An attempt was made in the study to examine the determinants of adoption of cultivation of Swarna sub1 rice variety in Chandauli district of Uttar Pradesh. The study was based on survey of 60 farmers and the selection of farmers was targeted to only those who cultivated swarna sub1. Regression analysis was done to get the factors which had a major influence on adoption of swarna sub1 variety. In adoption of swarna sub1, % age area under lowland, yield difference between swarna sub1 and swarna and distance from market had significant influence. For better adoption of swarna sub1 rice variety more demonstration of swarna sub1 would be helpful for farmers.

Keywords: swarna sub1 rice, Land Holding

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INTRODUCTION

Rice -wheat is the main cropping system in Eastern Uttar Pradesh. As a result of agro-ecological situations, the rice farming in this region experience two typical stresses 1. Short -term inundation or complete submergence, 2.longer -term partial or stagnant flooding. Prolonged drought during crop season either at early or late stage of growth resulting in partial or complete failure of the crop. Transient flash floods that result in complete inundation of rice fields can occur at any growth stage, from crop establishment to harvest, and for durations of a few days to more than 2 weeks. The estimate losses in 1990s due to complete submergence indicated that they were between US\$ 600 million to US\$ 1 billion a year in Asia. Long-term partial floods are common in low-laying areas where water accumulates through most of monsoon season and at various depths [1, 2]. It hinders tillering and increases lodging, and in some cases causes a severe reduction in crop stand [3, 4], though they have lower yields and poor grain quality.

In above situations which exists and variations depending on weather behaviour, land type soil type and environment .In general, farmers are not tuned to adopt location specific and environment friendly technologies to overcome or mitigate these stresses. The most popular varieties of rice grown in these regions like Swarna, Samba Mahsuri and some hybrids though high yielding but do not have tolerance to continuous submergence for more than 5-6 days. Farmers of above situations have the risk of uncertainties in rice production and due to this, they use little inputs also. In present study effort has been made to determine the different bio-physical and socio-economic variables influencing the adoption of Swarna Sub1.

MATERIAL AND METHODS

The present study was conducted in Chandauli district of Uttar Pradesh. The study was mainly based on primary data. The required primary data were collected from selected farmers. The requisite secondary data were collected from various published records of government offices, books, block development offices, reports, and other related sources. Data regarding age of farmers and family members, their educational level, family size, sources of income were collected from each sample farmer. The primary data were collected personally by survey method through intensive household survey. Effort was made to collect data as reliable as possible from selected farmers. For the collection of primary data, an in depth

household survey based on purposively developed and pre-tested survey instrument (well structured schedule) was used. The district comprises of nine development blocks, viz. Barahani, Chandauli, Niyamtabad, Chahaniya, Sakaldeeha, Dhanapur, Chakiya, Shahabganj and Naugarh. The selection of farmers is targeted to those farmers who grow Swarna sub1 rice variety on their farms. The survey year was the beginning of initiation of Swarna *Sub1* cultivation in the area after its release from CVRC. Therefore, scanty nature of farmers over large number of villages was available for this study. A sample of 60 farmers belongs to 15 different villages of Chandauli block selected for detail study. Census method was followed for data collection for the study.

Table1: 15 different villages of Chandauli block selected for detail study

S.No.	Villages	Number of farmers
1.	Bhaderpur	2
2.	Bisauri	5
3.	Footia	2
4.	Godhara	5
5.	Gorai	1
6.	Halwa	2
7.	Hinauti	4
8.	Lauda	1
9.	Majhwar	2
10.	Masauni	13
11.	Negura	10
12.	Phesura	1
13.	Seruka	9
14.	Sirsi	2
15.	Tiron	1
Total		60

ANALYTICAL FRAMEWORK

Identification of various bio-physical and socio-economic variables influencing the adoption of Swarna *Sub1*.

OLS regression model applied to determine different factors influencing adoption of variety Swarna *Sub1*.

$$Y = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7)$$

where,

Y = Relative area of Swarna *Sub1* (ha)

X₁ = Land holding (ha)

X₂ = Age of head of household (years)

X₃ = Schooling of farmer (years)

X₄ = Percentage area under low land of ith farmer (ha)

X₅ = Percentage irrigated area on the ith farmer

X₆ = Yield difference between Swarna *sub1* and major variety.

X₇ = Distance from the market

b₀, b₁, b₂,, b₇ are the coefficients to be estimated.

RESULT AND DISCUSSION

Factors influencing the adoption of swarna *sub1* rice variety

Table 2 generates information of various biophysical and socio economic factors which generally influenced adoption of swarna *sub1* on selected farms. Table shows that the coefficient of multiple determination (R²) was 0.68, indicating that about 68% of variation in the relative area of swarna *sub1* could be explained by the variables included in function and rest by the error term. The values of regression coefficients for percentage area under lowland and yield difference between swarna *sub1* and swarna were noted to be 0.059 and 0.092 showing that 1 % increase from existing mean level of above variables would increase the relative area under swarna *sub1* by 0.059 and 0.092%. Although coefficient

of distance from the market appeared significant but had negative sign indicating negative effect on area of swarna *sub1*, if market is away from the field. In other words, an increase in 1% from existing mean level of market distance, there must decrease in 9.060% area under swarna *sub1*.

Table 2: Factors influencing the adoption of swarna *sub1* rice variety

Variables	Estimated coefficient	SE	t-value
Intercept	40.235*	8.928	4.506
Land holding	-1.984	1.490	-1.331
Age of head of household	0.154	0.105	1.470
Schooling of head of family	0.057	0.187	0.306
%age area under lowland	0.059*	0.033	1.778
Irrigation access to field	-3.957	3.847	-1.028
Yield difference between Swarna <i>sub1</i> and Swarna(yield advantage of swarna <i>sub1</i> over swarna)	0.092***	0.026	3.489
Distance from market	-9.060***	2.295	-3.946
Coefficient of Multiple Determination	0.680		

***, ** and * indicates level of significance at 1, 5 and 10 % probability level.

Interestingly, there was no significant difference in other socio-economic variables such as farm size, age of head of household, schooling of farmers. However, distribution of all socio-economic, factors seems to be even. After in deep analysis of independent variable (biophysical and socio economic) and their potential influence on adoption of swarna *sub1*, it could be concluded that the biophysical factors have greater influence on adoption of swarna *sub1*. Socio-economic variables do not have much effect on adoption on swarna *sub1*.

CONCLUSION

Present study indicates that in adoption of swarna *sub1*, % age area under lowland, yield difference between swarna *sub1* and swarna and distance from market had significant influence, while socio-economic variables like farm size, age of head of household, schooling of farmers found to be insignificant in adoption of swarna *sub1*

POLICY IMPLICATIONS

For better adoption of swarna *sub1* rice variety more demonstration of swarna *sub1* cultivation by the State Agriculture Universities (SAUs), Government and non-government organizations (NGOs) and other extension agencies would be helpful for farmers to reallocate the available resources efficiently in swarna *sub1* cultivation to enhance the profitability in rice cultivation.

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