

1 **A STUDY OF SOCIO-ECONOMIC STATUS OF SWARNA**
2 ***SUB1* RICE VARIETY GROWERS IN CHANDAULI**
3 **DISTRICT OF UTTAR PRADESH**
4

5 **Abstract**

6 *The study reveals the socio-economic status of Swarna sub1 rice variety growers in*
7 *Chandauli district of Uttar Pradesh. The study was based on survey of 60 farmers and the*
8 *selection of farmers was targeted to only those who cultivated swarna sub1. Simple*
9 *descriptive statistics were employed, to understand socio-economic characteristics of*
10 *households. The average operational holding was 1.45 ha and the average size of family*
11 *was 5.80. The literacy was observed, 75%. More than 86% of cultivable land was engaged*
12 *in rice cultivation in kharif season. Wheat and rice were the two major crops grown in the*
13 *study area. Main source of irrigation was tube well and canal. Among livestock the highest*
14 *number was of calves contributes about 40% of total number of livestock.*
15

16 **INTRODUCTION:**

17 Flash-flooding and submergence adversely affect at least 16% of the rice lands of the world
18 (~22 m ha). The problem is grave in flood-prone areas of Thailand, Bangladesh, Indonesia,
19 Vietnam, and Myanmar and India because of the extensive heterogeneity in flood-prone
20 ecosystems, coupled with submergence hazards, farmers still grow many different types of
21 traditional rice varieties to withstand the flood situation. The rainfed lowland rice growing
22 environments are highly variable both over time and location. Submergence annually,
23 however, affects more than 7 million ha of rice in India. Of the total of 2.3 million ha of
24 flood-prone rice lands in eastern India, eastern Uttar Pradesh alone has 0.39 million ha. These
25 areas are located in the low-lying areas adjacent to rivers in different districts—Basti,
26 Mahrajganj, Gorakhpur, Deoria, Ballia, Chandauli, Ghazipur, Varanasi, Gonda, Faizabad,
27 Barabanki, and Bahraich—and are subject to various types of uncontrolled flooding ranging
28 from 50 to 400 cm water. Four major rice cultural types are grown in the flood-prone
29 ecosystem to reduce the yield losses of rice: (1) submergence-tolerant, (2) stagnant deep, (3)
30 floating, and (4) boro rice.

31 **Flash flood/temporary submergence** Crops are submerged for a short duration because of
32 heavy monsoon rain. Such areas are located in Barabanki, Bahraich, Gonda, Basti, Vanarasi,
33 Gorakhpur, Santkabair Nagar, Chandauli, and Kushinagar districts. About 200,000 ha are
34 submerged for a short period annually.

35 **Deep stagnant (50–100 cm)** Stagnant flooding is associated with deepwater rice where water
36 stagnates in the field for at least 30 days during the crop season. About 140,000 ha of
37 deepwater rice are grown on the flood prone of major rivers in Deoria, Gorakhpur, Basti,
38 Santkabir Nagar, Ballia, and Bahraich districts. Flood water commonly rises at 2–3 cm per
39 day depending on the rainfall coupled with river flows.

40 **Very deep stagnant (>1 m water depth)** About 50,000 ha of land are flooded from 1 to 3 m
41 annually in eastern Uttar Pradesh. Floating rice is grown in this situation. Such rice possesses
42 the ability to elongate under submergence, around 5 cm per day, to maintain its foliage above
43 the flood water (Chakia-59, Manhar).

44 In above situations which exists and variations depending on weather behaviour, land
45 type soil type and environment .In general, farmers are not tuned to adopt location specific
46 and environment friendly technologies to overcome or mitigate these stresses. The most
47 popular varieties of rice grown in these regions like Swarna, Samba Mahsuri and some
48 hybrids though high yielding but do not have tolerance to continuous submergence for more
49 than 5-6 days. Farmers of above situations have the risk of uncertainties in rice production
50 and due to this, they use little inputs also. The present study reveals the socio –economic
51 status of farmers who cultivates swarna *sub1* in their land.

52 **METHODOLOGY:**

53 The present study was conducted in Chandauli district of Uttar Pradesh. The study was
54 mainly based on primary data. The required primary data were collected from selected
55 farmers. The primary data were collected personally by survey method through intensive
56 household survey. For the collection of primary data, an in depth household survey based on
57 purposively developed and pre-tested survey instrument (well structured schedule) was used.
58 The district comprises of nine development blocks, viz. Barahani, Chandauli, Niyamtabad,
59 Chahaniya, Sakaldeeha, Dhanapur, Chakiya, Shahabganj and Naugarh. The selection of
60 farmers is targeted to those farmers who grow Swarna *sub1* rice variety on their farms.
61 Therefore, scanty nature of farmers over large number of villages was available for this study.
62 A sample of 60 farmers belongs to 15 different villages of Chandauli block selected for detail
63 study. Census method was followed for data collection for the study. To fulfil the objective,
64 data on various socio-economic variables like age, family size, their composition,

65 educational status, operational land holding possessed by a farmer, farm income were
66 analyzed using simple descriptive statistical tools like average, percentage etc.

67 **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

68 **RESULT AND DISCUSSION**

69 **1. Socio economic status of sample farm**

70 It provides an insight of socio economic status of sample household in terms of education
71 level, family size, occupational pattern, irrigated area, size of operational holdings, cropping
72 pattern, sources of irrigation, livestock population, fixed assets and different sources of
73 income.

74 1.1 Characteristics of sample farms

75 The main feature of the sample farmers are summarized in the table 1.1. The
 76 average operational holding of sample farmers in Chandauli district was 1.45 ha. And
 77 they do not left any fallow land so their operational holding is the same as their land
 78 holding (1.45 ha). The area is basically flood prone in rainy season. About 91.00% area is
 79 covered under irrigation through canal and shallow tube wells. Average age of household
 80 head is 51.63 years. Rice is the important crop in rainy season and covered about 86.85%
 81 area to total cropped area. The share of swarna *sub1* rice is 36.15% and swarna is 42.69%
 82 of total cropped area. So it can concluded from the table that rice is most important crop
 83 of *kharif* season on selected farms which supports livelihood of farm families. The
 84 average yield of rice was 50.80qtl/ha, of swarna was 50.29 qtls and swarna sub1 was
 85 51.30qtls/ha on sample farms.

86 **Table 1.1: Characteristics of sample household**

Characteristics	
No. of households	60.00
Average age of household head (years)	51.63
Average operational holding (ha)	1.45
Irrigated area (%)	91.66
Source of irrigation	Canal, tube well
Share of total rice area in total cropped area in <i>kharif</i> (%)	86.85
Share of swarna in total rice area in <i>kharif</i> (%)	42.69
Share of swarna <i>sub1</i> in total rice area in <i>kharif</i> (%)	36.15
Average yield of rice (qtls/ha)	50.80
Average yield of Swarna (qtls/ha)	50.29
Average yield of Swarna <i>sub1</i> (qtls/ha)	51.30

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88 1.2 Composition of family members on sample farms

89 The size of the family and its composition decides the contribution of family labour
 90 and use of hired labour employed for various rice cultivation practices. Therefore, family size
 91 also plays an important role in agrarian economy. In context of agriculture sector particularly
 92 in rural areas, this affects much more to the level of income and employment for the rural

93 masses. With the increasing pressure of population, the per capita availability of agriculture
94 land is continuously declining.

95 **Table 1.2: Composition of family members on sample farms**

Particulars	Average number	Share (%)
Male	1.76	30.34
Female	1.61	27.75
Child male	1.33	22.93
Child female	1.10	18.96
Total	5.80	100.00

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97 Table 1.2 shows that the number of male as usual was higher than female in the study area.
98 The average family size in study area was 5.80. Average number of adult male was 1.76 that
99 was 30.34% of total family size and number of adult female was 1.61 contributed 27.75% to
100 total family size. In case of child male and female average number were 1.33 and 1.10
101 respectively.

102 **1.3 Educational status of sample households**

103 Table 1.3 represents the education level of households on sample farms. Small proportions
104 (25%) of family members are illiterate on sample farms. Table indicate that a higher
105 proportion of population educated up to higher secondary level accounted 55.00% to total
106 population, family members educated upto senior secondary level was being 16.66% and
107 above graduation was only 3.30%.

108 **Table 1.3: Education status of sample household**

Characteristics	Number	Share(%)
Illiterate	15.00	25.00
Up to higher secondary	33.00	55.00
Up to senior secondary	10.00	16.66
Graduation and above	2.00	3.30
Total	60.00	100.00

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110 **1.4 Distribution of operational holding and area under rice**

111 The concept of operational holding indicates that the land was wholly belonged to
 112 household for agriculture production. The size of operational holding and area allocated
 113 under rice on the sample farms was described under table 1.4. Table shows that total size of
 114 operational holding was 87.00 hectares of 60 farmers. In this area all land was cultivable
 115 land. No land was belonged to any kind of tenure system in the study area. Average own land
 116 and cultivable land was 1.45 ha per farm.

117 **Table 1.4: Distribution of operational holding and area under rice**

S. No.	Particulars	Area (ha)	Area(ha/farm)
1.	Own land	87.00	1.45
2.	Leased-in-land	0.00	0.00
3.	Cultivable land	87.00	1.45
4.	Uncultivable land	0.00	0.00
5.	Area under rice	75.55	

118 **1.5 Cropping pattern on selected farms**

119 The proportion of different crops grown by farmer in a year on his farm determines
 120 the level of input use, production, pattern of income and importance of crops on farm. In the
 121 farm, rice occupied 86.82 % area to total cropped area. The next crops after rice were maize
 122 and bajra accounted for 5.20% and 2.30% area to total cropped area, respectively. Other
 123 crops were jowar (1.30%), arhar (2.10%) and urd (1.10%) which has minor importance in
 124 terms of acreage in kharif season. In rabi season major area was occupied by wheat (86.20%)
 125 followed by gram (6.30%), pea (5.40%), potato (2.40%) and mustard (1.25%).

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132 **Table 1.5: Cropping pattern on sample farm**

Seasons/ crops	Area under crop (ha)	Productivity (qtls/ha)	Share in area (%)
<i>Kharif</i>			
Rice	75.54	50.80	86.82
Maize	4.61	14.58	5.20
Jowar	1.21	10.59	1.30
Bajra	2.03	15.37	2.30
Urd	0.95	6.69	1.10
Moong	0.78	4.24	0.90
Arhar	1.82	9.56	2.10
Sub-total	87.00		100.00
<i>Rabi</i>			
Wheat	75.00	29.70	86.20
Gram	5.56	8.82	6.30
Pea	4.78	9.37	5.40
Mustard	1.08	11.12	1.25
Potato	2.17	200.00	2.40
Sub-total	87.00		100.00
Grand total	174.00		

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134 **1.6 Distribution of livestock on sample farms**

135 The livestock possession in this area is very low due to availability of non-farm employment
136 in nearby urban and city areas. Table 1.6 indicate the average livestock population on sample
137 farm was only 99.00 (nbs.) comprising cows, buffaloes and calves. It was shared by 26.05%
138 cows, 33.06 % buffaloes and 40.88 % calves.

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143 **Table 1.6: Distribution of livestock on sample farms**

Particulars	No.	Share (%)
Cow	26.00	26.05
Buffalo	33.00	33.06
Calf	40.00	40.88
Total	99.00	100.00

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145 **1.7 Investment on farm machinery and fixed assets**

146 Table 1.7 shows the average investment on fixed assets on sample farms which was
 147 Rs.3,08,717.00. In total investment, more than half of share being 64.90% invested on
 148 purchase of tractor for agricultural uses. The share of investment on cattle shed and farm
 149 storage were 6.50% and 15.11% to total investment, respectively. Whereas on trolley and
 150 small implements gave 13.05% and 0.32% investment to the total investment on sample farm,
 151 respectively.

152 **Table 1.7: Investment on farm machinery and equipments**

S. No	Particulars	Investment	Share (%)
1.	Cattle shed	20317.00	6.50
2.	Farm building storage structure	46,667.00	15.11
	Tractor		64.90
3.	Trolley	200417.00	13.05
4.	Minor implements	40317.00	0.32
	Total	1000.00	100.00
		308717.00	

153 **1.8 Average annual income of sample households**

154 The average annual income from all sources of the household is presented in table 1.8.
 155 It is clear from the table that the sources of income of rice growing farmers were highly
 156 diversified. Diversified sources of income help in households' income stabilization and to
 157 mitigate adverse consequences, if one or more source becomes failure in income generation.

158 The major share of income contributed by non-farm sectors which accounted for 67.00%
 159 while remaining 33.00% income generated from farm sectors. The average annual income of
 160 sample household was Rs.2,95,953.00. Major share of income was generated through
 161 teaching job (Shiksha mitra) which contributes 27.62% of total annual income on sample
 162 farms. A significant proportion of income is comes from government jobs that was 19.73%
 163 of total annual income. Self employment and private sector contributes 9.65% and 9.82% to
 164 the total annual income respectively. The second part of income comes from agriculture in
 165 which rice and wheat were major economic activity of households and contributed 14% and
 166 14.36% to total annual income, respectively. The income contributions by other crops were
 167 negligible on sample farms.

168 **Table 1.8: Average annual income of sample household (Rs per household)**

Source of income	Income (Rs.)	Share (%)
<u>Non-farm income</u>	197845.00	67.00
Government jobs	58416.00	19.73
Teacher (Govt. & private)	81766.00	27.62
Self employed	28583.00	9.65
Private services	29080.00	9.82
<u>Farm income</u>	98108.00	33.00
Rice	41438.00	14.00
Wheat	42500.00	14.36
Other crops	14170.00	4.70
Total	2,95,953.00	100.00

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170 **SUMMARY AND CONCLUSION:**

171 The average operational holding was 1.45 ha in the study area in which average area
 172 under rice was 1.25 ha, particularly under swarna *sub1* was 0.45 ha. and under swarna
 173 0.53ha/farm. There was no land found fallow and uncultivable. No leased-in and leased-
 174 out land tenure system were present in the study area. The average size of family
 175 members was almost 6. The average adult male were 30.34% and adult female were 27.7%,

176 child males were 22.9% and child females were 18.9%. More than 50% of the head of
 177 households were educated up to higher secondary. Share of rice was 86.82% that of and
 178 wheat was 86.20% to total cropped area in respective seasons. The absolute number of
 179 animals in the study area were 99, in which the share of calves was maximum that was
 180 26.052% followed by buffalo 33.066% and cows 26.052%. In study area average
 181 annual income of household from all sources of income was Rs. 295953.00. Teaching
 182 job was major source of income. Income from rice cultivation was 14%, wheat 14.36%
 183 and from other crops 4.7% to total income. Farmers' planted high yielding rice varieties
 184 like swarna, Samba mahsuri, Jalpriya, Barh avrodhi and Saket 4 and recently introduced
 185 submergence tolerant rice variety swarna *sub1* on their field. The share of swarna was
 186 maximum to the total area under rice that was 42% and share of swarna *sub1* was 36%
 187 to the total area under rice.

188 REFERENCES:

- 189 **Abdelbagi M. Ismail, Singh Uma S., Sudhansu Singh, Manzoor H. Dar, David J.**
 190 **Mackill** 'The contribution of submergence-tolerant (Sub1) rice varieties to flood
 191 security in flood-prone rainfed lowland areas in Asia'. *Field Crops Research* **30**(2-11)
- 192 **Atibodhi, H.N. and Sahoo, S. 2000.** 'Effect of education on productivity of HYV of rice in
 193 Sambalpur district, Orissa', *Indian journal of Agricultural Economics*, **55**(2):231-238
- 194 **Atibudhi, H.N. 1993.** 'An economic analysis of rice based cropping system'. *Agricultural*
 195 *situation in India*, **47 (12)**: 71-77.
- 196 **Badal, P. S. and Singh, R. P. 2001.** Technological change in maize production : A case
 197 study of Bihar. *Indian Journal of Agricultural Economics*, **56**(2): 211-219.
- 198 **Boiling, A (2000),** ' Effect of climate, agrohydrology, and management on rainfed rice
 199 production in central Java, Indonesia : a modeling approach', *Characterising and*
 200 *Understanding Rainfed Environments*. pp.57-75
- 201 **Dash, J.K., Singh, R.P. and Pandey, R.K. 1995.** 'Economic analyses of summer rice
 202 production in Bhangra block of Singhbhum district of Bihar- a case study'. *Journal of*
 203 *Research, Birsa Agriculture University*, **7**(2): 131-135.

- 204 **Dutta, K.K.; Mandal, S. and Singh, S. B. 2006.** ‘Rice in the north eastern hilly region: its
205 scope, opportunity and challenges’, Presented in 2nd international rice congress 2006
206 October 9-13, New Delhi.
- 207 **Hondrade 2003.** ‘Upland rice varietal access ,test and multiplication (ATM) Philippine
208 Journal of Crop Science (Phollipines)’, **28** supplement (1) p.26
- 209 **Joshi, P.K and Pal, S. 2000.** ‘The role of characterization in ex ante assessment off research
210 programs :‘a study in the rainfed rice production system’, characterizing and
211 Understanding rainfed environments p 291 303
- 212 **Kheim, N.T.; Pandey, S. and Hong H.N. 2000.** ‘agricultural commercialization and land-
213 intensification : a microeconomic analysis of uplands of northern Vietnam’,
214 Characterizing and Understanding rainfed environments.pp71-391