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Agronomy practices of rural farmers of SAS district of Punjab

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Abstract

Agronomic practices are crucial for enhancing agricultural productivity and sustainability, particularly in rural areas where access to advanced technologies is often limited. This research examines the agronomic practices adopted by farmers in the SAS (Sahibzada Ajit Singh) district of Punjab. The study focuses on various aspects of farming, including soil preparation, crop rotation, irrigation techniques, fertilization strategies, and pest management. Data were collected through structured surveys and interviews with 120 farmers from five selected villages: Dhianpur, Kakrali, Dhangrali, Khairpur, and Dhanauri. The findings reveal that most farmers depend on traditional agronomic methods, with limited implementation of modern agricultural technologies. Key challenges identified include restricted access to credit, inadequate agricultural extension services, and insufficient government support. The study concludes with recommendations for promoting capacity-building initiatives, enhancing access to modern farming inputs, and improving rural development policies to boost the productivity and sustainability of farming in the district.

Keywords: Agronomy practices, rural farmers, traditional farming methods, pest management, agricultural inputs, productivity, sustainability, rural development, modern technologies

Introduction

Agronomy, the science of soil management and crop production, plays a crucial role in enhancing agricultural productivity and sustainability. As the global population continues to grow, the demand for food has escalated, necessitating efficient farming practices. This research paper aims to analyze the agronomic practices utilized by farmers, understanding how these practices impact crop yield and sustainability. The focus will be on critical areas such as soil preparation, crop rotation, irrigation strategies, fertilization, pest management, and harvesting methods. By examining these practices, the study seeks to identify challenges faced by farmers and propose solutions to enhance agricultural productivity.

The collection of agronomy practices data was carried out by RAWE students through a structured questionnaire in the villages of Dhianpur, Kakrali, Dhangrali, Khairpur and Dhanauri in the Kukrali district of Punjab. This process involved personal interviews conducted by the students, with all information recorded at the University Institute of Agricultural Science at Chandigarh University in Gharuan, Punjab. Utilizing a quantitative approach, the survey encompassed 120 households, including farmers, laborers, and business operators. Data was gathered through both door-to-door interviews and community group discussions, providing a thorough insight into the agricultural practices adopted by the residents of these rural areas.

The Rural Agricultural Work Experience (RAWE) program serves to bridge the gap between theoretical agricultural knowledge and practical field experience. This initiative provides students with the opportunity to engage directly with farmers, enabling them to gain a comprehensive understanding of rural agronomy practices while applying modern agricultural practices. The primary objective of RAWE is to cultivate skilled professionals who can contribute to enhancing agricultural productivity and promoting rural development.

Through the RAWE survey, students conduct field visits in rural areas, where they collect data on agronomy practices. The program encompasses a range of activities, including farm observations, evaluations of crop management techniques, soil testing, pest control

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demonstrations, and farmer interviews. These hands-on experiences offer valuable insights into the intricacies of rural agriculture, equipping students with the knowledge and skills necessary to address contemporary agricultural challenges effectively.

Methodology

This research was carried out as part of the Rural Agricultural Work Experience Program (RAWE) in five designated villages: Dhianpur, Kakrali, Dhangrali, Khairpur, and Dhanauri, located in the Kukrali district of Punjab. A structured questionnaire was administered to survey a total of 120 farmers, aiming to collect data on their agronomy practices, including land holding, irrigation practices, manure and fertilizers, seed sowing method, livestock and poultry, pest and diseases management and access to various resources. The gathered data will be analyzed to determine the percentage of different factors using the following formula:

$$\text{Percentage (\%)} = (N/n) \times 100$$

Where

N= total number of respondents in 5 villages i.e., 120

n= number of respondents in specific village.

Results and Discussion

The data was analyzed across various factors and topics, including

Source of seed

According to the survey, 70 percent of the farmers buy their seeds from private shops of morinda and kharar, 25 percent of farmers use their own seeds and 5 percent buy them from SAUs; such as PAU.

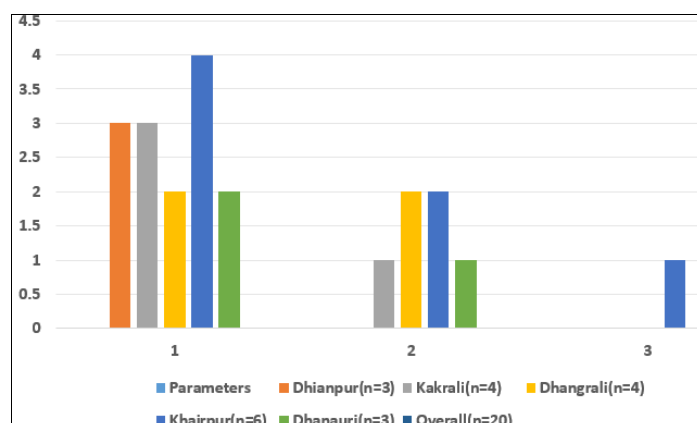


Fig 1: Source of Seeds

Table 1: Source of Seeds

S. No.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur(n=6)	Dhanauri (n=3)	Overall (n=20)
1.	Private Shop	3	3	2	4	2	14(70%)
2.	Own Seeds	0	1	2	2	1	6(25%)
3.	SAU'S	0	0	0	1	0	1(5%)

Type of crop grown by farmers

According to the survey, it was found that rice and wheat is grown by almost all farmers. 100 percent of farmers cultivated

wheat and rice, 90 percent cultivated mustard, almost 75 percent farmers cultivated fodder crops for their livestock, and 45 percent farmers cultivated other crops such as vegetables, etc.

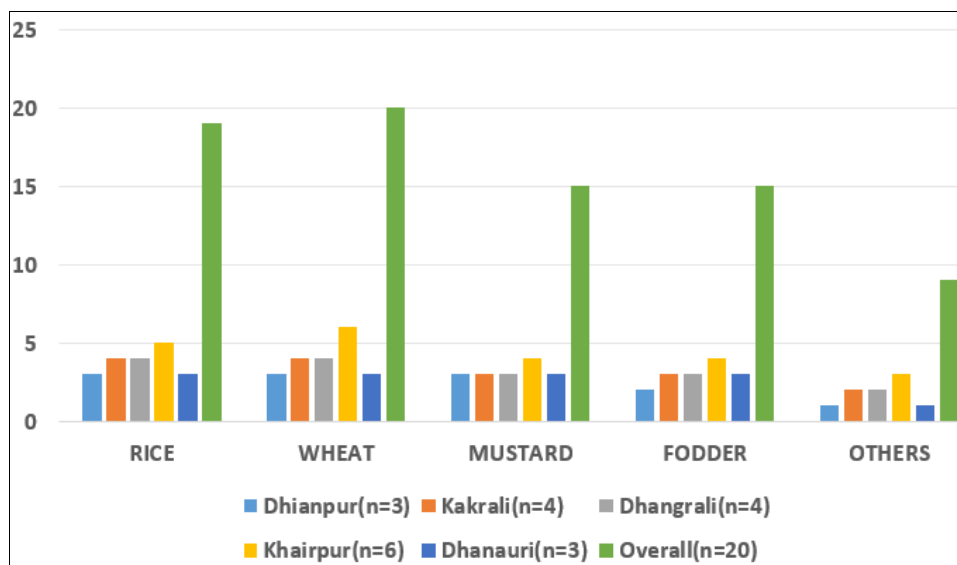


Fig 2: Types of Crops Grown by Farmers

Table 2: Types of Crops Grown by Farmers

S. NO.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur (n=6)	Dhanauri (n=3)	Overall (n=20)
1.	Rice	3	4	4	5	3	19(95%)
2.	Wheat	3	4	4	6	3	20(100%)
3.	Mustard	3	3	4	5	3	18(90%)
4.	Fodder	2	3	3	4	3	15(75%)
5.	Others	1	2	2	3	1	9(45%)

Seed treatment

According to the survey, it was found that 60 percent of farmers

used seeds which were already treated and 25 percent of farmer used seeds which were not treated at all.

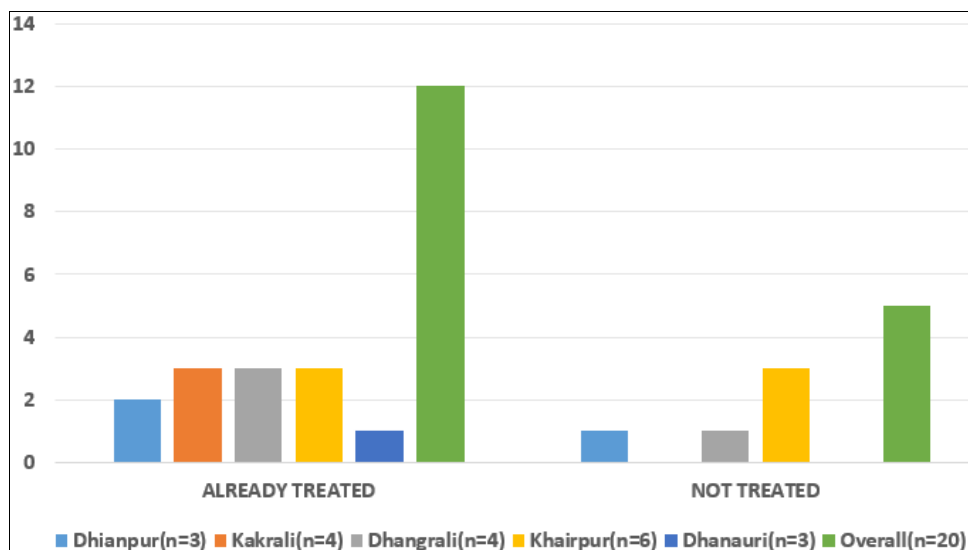


Fig 3: Seed treatment

Table 3: Seed treatment

S. NO.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur (n=6)	Dhanauri (n=3)	Overall (n=20)
1.	Already treated	2	3	3	3	1	12(60%)
2.	Not treated	1	0	1	3	0	5(25%)

Fertilizer and manure used by farmers

According to the survey, we found that 55 percent of farmers we interviewed used organic manure with chemical fertilizer, 100

percent dependent on urea and 90 percent DAP, 40 percent used MOP, and 25 percent used other chemical fertilizers.

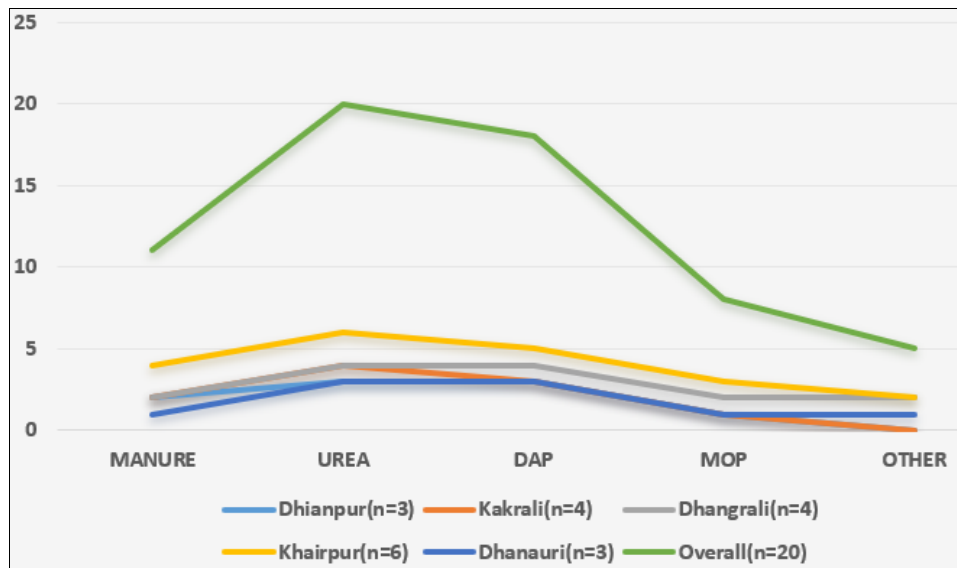


Fig 4: Fertilizer and manure used by farmers

Table 4: Fertilizer and manure used by farmers

S. NO.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur (n=6)	Dhanauri (n=3)	Overall (n=20)
1.	Manure	2	2	2	4	1	11(55%)
2.	Urea	3	4	4	6	3	20(100%)
3.	Dap	3	3	4	5	3	18(90%)
4.	Mop	1	1	2	3	1	8(40%)
5.	Other	0	0	2	2	1	5(25%)

Irrigation facility

According to the survey, 90 percent of the farmers had their own

irrigation system and 10 percent farmers did not have their own irrigation system and borrowed it from other farmers.

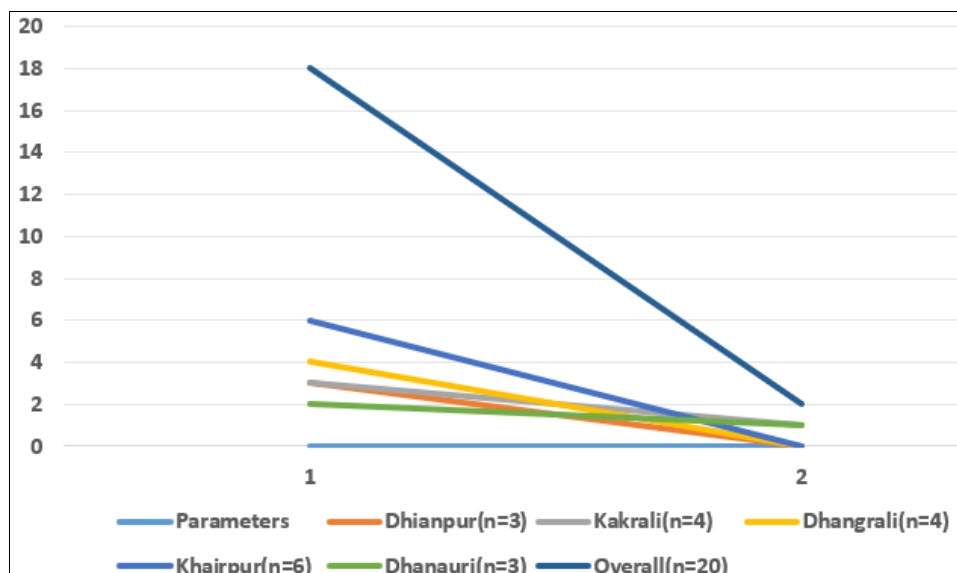


Fig 5: Irrigation facility

Table 5: Irrigation facility

S. NO.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur (n=6)	Dhanauri (n=3)	Overall (n=20)
1.	Have irrigation	3	3	4	6	2	18
2.	Don't have irrigation	0	1	0	0	1	2

Sowing method

According to the survey, we found that 55 percent of the farmers use broad casting method for seed sowing of wheat and 25

percent used seed drill for seed sowing , whereas for rice 90 percent of the people used transplantation for seed sowing.

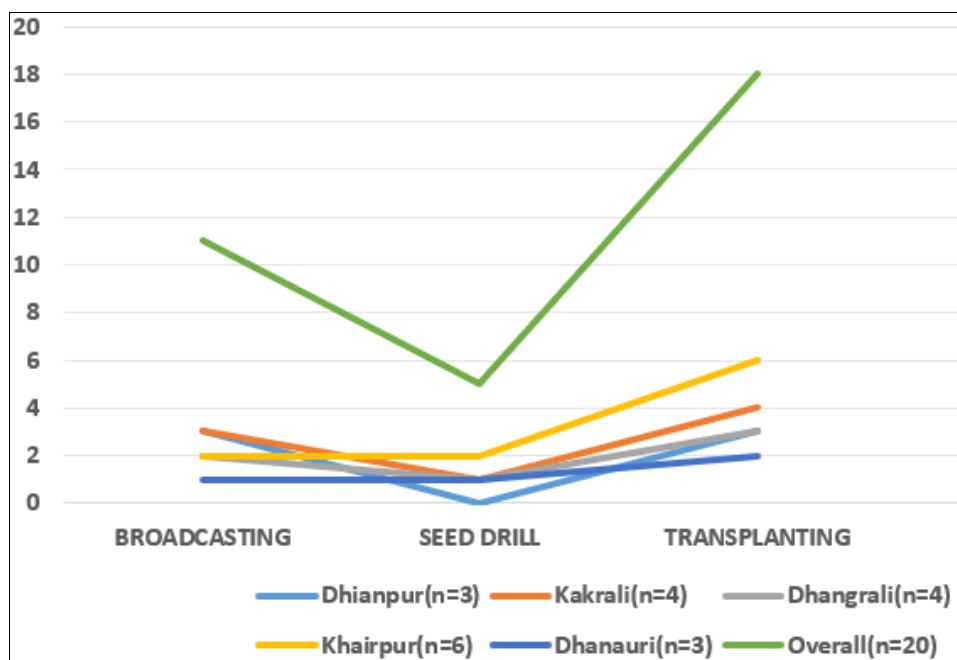


Fig 6: Sowing method

Table 6: Sowing method

S NO.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur (n=6)	Dhanauri (n=3)	Overall (n=20)
1.	Broadcasting	3	3	2	2	1	11(55%)
2.	Seed drill	0	1	1	2	1	5(25%)
3.	Transplanting	3	4	3	6	2	18(90%)

Weeding method

According to the survey, it was found that only 10 percent of

farmers removed their weeds manually while 90 percent used chemical methods to eradicate the weeds.

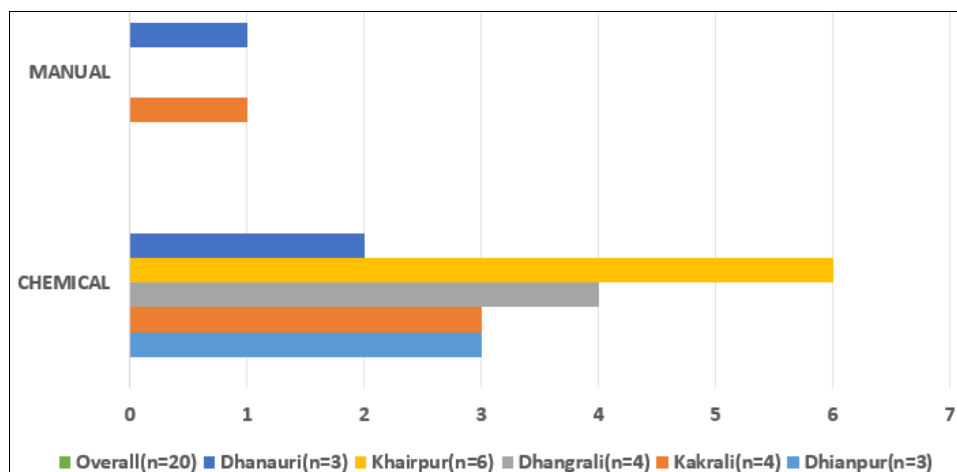


Fig 7: Weeding method

Table 7: Weeding method

S NO.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur (n=6)	Dhanauri (n=3)	Overall (n=20)
1.	Chemical	3	3	4	6	2	18(90%)
2.	Manual	0	1	0	0	1	2(10%)

Livestock and poultry possessed by farmers

According to the survey, it was found that 95 percent of the farmers had livestock mainly cow and buffalo, 75 percent of the farmers sell milk and 25 percent of them kept it for their own personal use.

The farmers were also asked whether they had any awareness about government schemes, but only 35 percent of them knew

about it, 95 percent of the farmers knew about the disease of the animal.

The farmers were also questioned about the sheds of animal, we found that almost all farmers had shed for their animals and kept their sheds clean and tidy. 100 percent of the farmers knew about the vaccination available for the animals and they were also getting their animal vaccinated.

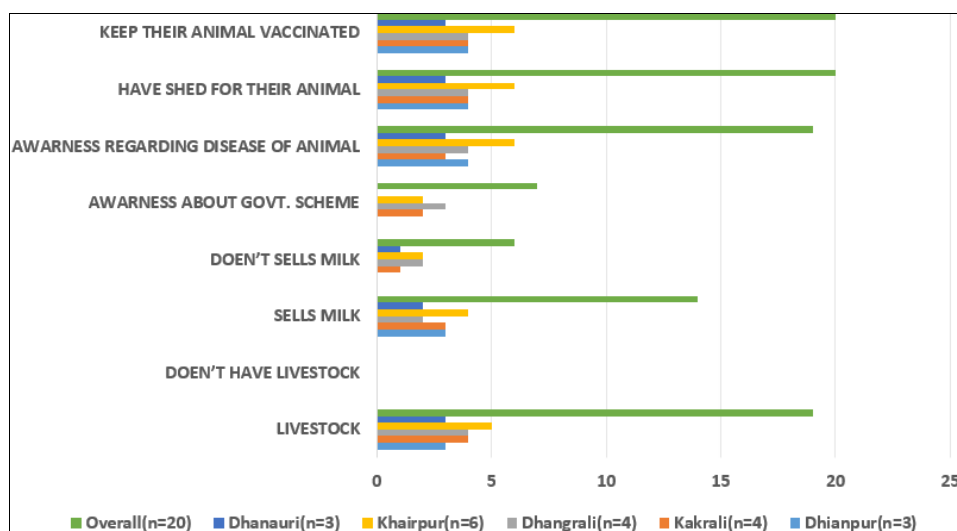


Fig 8: Livestock and poultry possessed by farmers

Table 8: Livestock and poultry possessed by farmers

S NO.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur (n=6)	Dhanauri (n=3)	Overall (n=20)
1.	Livestock	3	4	4	5	3	19(95%)
2.	Doesn't have livestock	0	0	0	0	0	0
3.	Sells milk	3	3	2	4	2	14(75%)
4.	Doesn't sells milk	0	1	2	2	1	6(25%)
5.	Awareness about govt. Scheme	0	2	3	2	0	7(35%)
6.	Awareness regarding disease of animal	4	3	4	6	3	19(95%)
7.	Have shed for their animal	4	4	4	6	3	20(100%)
8.	Keep their animal vaccinated	4	4	4	6	3	20(100%)

Owned machinery

Machinery is one of important input used in today's agriculture. Farmers buy machinery for their use and put it on rent

depending on their capital. In survey of five villages, only 25 percent of farmers have their own machinery and 75 percent farmers uses machinery on rent.

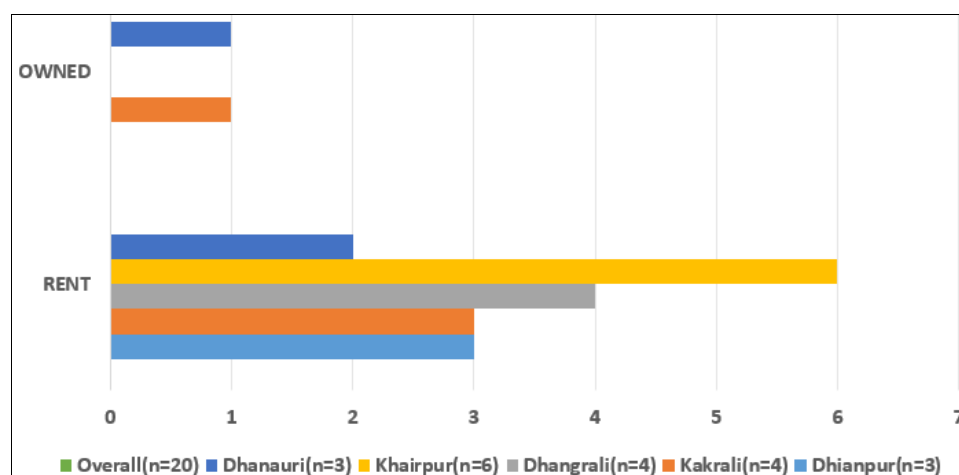


Fig 9: Machinery status

Table 9: Machinery status

S NO.	Parameters	Dhianpur (n=3)	Kakrali (n=4)	Dhangrali (n=4)	Khairpur (n=6)	Dhanauri (n=3)	Overall (n=20)
1.	RENT	3	3	4	6	2	15(75%)
2.	OWNED	0	1	0	0	1	5(25%)

Conclusion

The research paper titled Agronomy Practices of Rural Farmers of SAS District, Punjab explores the agricultural methods used by farmers in the villages of Dhianpur, Kakrali, Dhangrali, Khairpur and Dhanauri. Through surveys and interviews with 120 farmers, the study reveals that most rely on traditional farming practices such as broadcasting for sowing wheat and transplanting for rice, with limited use of modern technologies like seed treatment. Rice and wheat are the dominant crops and chemical fertilizers such as urea and DAP are widely used though some farmers also incorporate organic manure.

The study identifies several challenges faced by these farmers including limited access to credit, inadequate agricultural extension services and insufficient awareness of government schemes. Only 35% of the farmers were aware of available government support programs. Despite these limitations, 90% of the farmers have their own irrigation systems, although most use rented machinery for farming.

In conclusion, the paper emphasizes the need for initiatives to enhance farmers' access to modern inputs and technologies. Improved agricultural extension services, capacity-building programs and stronger government support are critical for boosting productivity and sustainability in these villages. By addressing these challenges, the agricultural sector in SAS district can see significant improvement in both yield and long-term viability.

Acknowledgment

We sincerely thank the farmers of Dhianpur, Kakrali, Dhangrali, Khairpur and Dhanauri for their cooperation and valuable insights during this study. We also extend our gratitude to the University Institute of Agricultural Science, Chandigarh University, for providing the necessary support and resources and to the RAWE students for their dedication in conducting the surveys and interviews. Lastly, we are grateful to our mentors and colleagues for their guidance throughout this research.

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