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Enhancement in knowledge level of farmers about wheat pest management and practices after watching video film

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Abstract
Wheat, the most crucial cereal crop, is a staple diet for two billion people, accounting for 36% of the global population, with increasing demand in urban and industrialized nations. Insect pests currently cause an annual loss to Indian agriculture of over Rs 8,63,884 million (GS Dhaliwal, Vikas Jindal, Ak Dhawan). Planting stock or seeds are the source of many insect issues. Yield reductions of up to 50% are possible with vegetatively propagated stock due to virus and disease burdens. Using clean planting materials as a starting point can help farmers significantly enhance plant health. Farmers are facing difficulties due to the pink stem borer, also known as the Gulabi Sundi, army worm (Sainik Sundi), termites, aphids, wheat weevil (at the time of storing) these are the pest which is attacking wheat in India. To control these pests, we can choose different integrated pest management practices and other pesticides. Proper ventilation is the most crucial step in storing wheat. The priority at that time should be not to use any poison-based chemical. In this whole process Firstly, we selected 5 villages namely (Sahauran, Hassanpur, Radiala, Ghataur, Allahpur) we covered 40 farmers and then made them to watch our video on wheat pest management and asked them some question before showing the video and took the result versus after showing the video and then took the result and compared these both results. Result examined that there is 27% growth in knowledge after watching video.

Keywords: Wheat crop, Indian agriculture, pesticides, integrated management, farmers Insect

Introduction
In Punjab, pest management strategies aim to address various insects that pose threats to wheat production. The following introduction highlights key aspects of wheat pest management in Punjab based on the provided search results: Wheat is susceptible to numerous pests, including a wide range of insects, mites, and rodents. Some of these pests include pink stem borer (Gulabi sundi), armyworm (Seenik Sundi), rice weevil, termites, aphids, rodents, and stored grain insects. The Punjab Agricultural University (PAU) plays a vital role in suggesting preventive and curative measures for managing these pests. For instance, chemical insecticides like thiamethoxam (Actara / Taiyo 25 WG), quinalphos are used to control specific pests, while biological methods such as applying neem extract derived from green branches and fruits help manage certain issues. Additionally, IPM techniques emphasize monitoring pest populations closely and employing cultural controls whenever possible. This approach helps minimize reliance on chemical insecticides, thereby reducing environmental impact and promoting sustainable agriculture. Overall, the focus of wheat pest management in Punjab is to implement integrated approaches that combine biological, cultural, and chemical interventions to maintain optimal crop health and productivity while minimizing adverse effects on the environment and human health. There have been reports of the pink stem borer destroying wheat fields in the Punjabi district of Bathinda. Farmers have noticed that this insect problem is more common in fields where residual paddy residue from wheat sowing was not burned and was instead plowed into the ground using methods like happy seeder or super seeder. The pink stem borer uses the waste left in the fields as a breeding site, which keeps herbicides from efficiently reaching the crop. Manav Mander *et al*. Aphids, specifically those belonging to the Hemiptera family Aphididae, do indeed feed on the leaves, stems, and grains of wheat. Adult aphids are typically small, measuring about 1/8 inch long, and may or may not possess wings. Two common species observed in wheat are the Oat-Birch aphid (*Eriosoma taurica*) and the English grain aphid (*Sitobion avenae*).

Pink stem borer attacks on Punjabi wheat have been a problem for some farmers who used Happy Seeder to plant the crop without burning crop leftovers. During the Rabi season, the

pink stem borer is a serious pest that can reduce production by 25.7% to 78.9%. This pest's larvae are bright pink with a purplish tint, and they can harm wheat harvests. The Punjab Agricultural University (PAU) has verified the issue and offered solutions, including dousing impacted crops with 'Exalux' insecticide. The pest problem can be caused by insect eggs left in crop leftovers, which have turned into borer breeding grounds and are harming the wheat crop. Teams from the PAU and the state agriculture department have been assembled to investigate the attacks and aid the impacted farmers. Farmers have complained that residual plant stalk residue makes it difficult to apply pesticides efficiently, making pesticide application challenging. Farmers must take immediate action to manage these insect problems to safeguard their crops and guarantee a good harvest. (ICAR) Indian Institute of Maize, Neel Kamal *et al*. By boring into the stems of immature plants, pink stem borers can harm Punjab's wheat crops by destroying the core shoot and leaving the plant with a "dead heart." Attacks occur most frequently in wheat harvests that are 30-45 days (about 1 and a half months) old. Nutrient deficiencies, overwatering, carelessness while seeding, and the application of unapproved pesticides are among the variables causing these infestations. Furthermore, pink stem borers inflict greater damage on late-planted rice fields, which affects stubble management and consequently impacts wheat crops. One way to combat pink stem borers is to use machines like rotavators to destroy rice stubbles. Bharat Khanna, Manav Mander, Babu Shahi, Wali Muhammad. During early growth stages, aphid infestations can be highly detrimental to wheat crops, leading to rolling of flags, trapping of emerging heads and awns, and interference with pollination processes. This damage can result in reduced crop yields and quality. Honeydew produced by aphids promotes the growth of mold, which can cover leaves and disrupt photosynthesis, contributing to additional yield losses Management strategies for controlling aphid infestations in wheat include monitoring and identifying resistant wheat varieties, cultural practices such as reducing refuges for aphids, and biological control measures using nature Faisal halfeez *et al*.

Materials and Methods

The current study used a non-experimental, descriptive research approach to learn more about the socioeconomic situation and farmers' quality of life in three villages in Punjab's SAS Nagar area. The goal of the study was to comprehend the current connections between dependent variables linked to socioeconomic well-being and independent variables like resource access and agricultural methods. Because of the exploratory nature of the research design, a complex and dynamic phenomenon could be seen and characterized. In conclusion, the study location and research approach made it possible to thoroughly examine the socioeconomic environment and general well-being of farmers in Punjab's SAS Nagar district. Contextualization within the larger district context was made possible by the selection of representative villages and the non-experimental, descriptive study methodology, which allowed for the observation and characterization of complicated interactions between independent and dependent variables.
Sahauran Village, Kharar, SAS Nagar, Punjab.
Hasanpur Village, Kharar, SAS Nagar, Punjab.
Radiala Village, Kharar,SAS Nagar, Punjab.
Ghataur Village, Kharar, SAS Nagar, Punjab.
Allahpur Village, Kharar, SAS Nagar, Punjab.

Data Collection

Structured questionnaires were used to gather data from the chosen farmers during in-person interviews. Aspects of socioeconomic status such as landholding size, dwelling type, education level, farm implements, agricultural techniques, access to resources and services, seed rate, wheat varieties, and so on were covered in portions of the questionnaire. Based on the participants' answers, standardized questionnaires were completed during the interview. It was encouraged by the participants to give truthful and accurate information.
The survey was carried out from January 2024 to February 2024.

Results and Discussion

Table 1: Distribution of respondents according to gain in knowledge regarding wheat pest management after watching video (n=40)

Question	Answer	Before	After
Insect pest in wheat	Wheat weevil, termite (demak), aphid	38 (95%)	40 (100%)
Best sowing time of wheat	November	38 (95%)	40 (100%)
Which is primary store grain pest?	Wheat weevil	2 (5%)	37 (92%)
Army worm comes out at what time?	Evening	5 (13%)	30 (75%)
What does army worm eat?	Leaves	13 (33%)	35 (87%)
Seed population per acre?	40-50 kg	38 (95%)	40 (100%)
IPM full form	Integrated Pest management	3 (8%)	13 (33%)
Pesticide for Gulabi Soondi	Quinalphos	33 (83%)	39 (98%)
Gulabi soondi come from which crop	Rice, maize	1 (3%)	14 (35%)
Pheromone trap use	Scent	3 (8%)	37 (92%)
Jeevik way to control wheat weevil	Neem, chuna	2 (5%)	14 (35%)
How Wheat storing area should be	Ventilated	38 (95%)	40 (100%)
Pesticide for aphid	Taiyo	30 (75%)	39 (98%)
Pesticide for termite	Durshban	22 (55%)	37 (92%)
Mean		47%	74%
%change			27%

These were the questions which we have asked to the farmers during our rawe.
After watching video there is 27% growth in knowledge about how to control insect pest in wheat.

As shown in fig 1. The farmer of age between 18 to 30 were 12. Before showing the vedio the percentage of giving correct answer was 52.08% and after showing the vedio the result was increased upto 88.58%.

The farmer of age between 30-50 were 14. Before showing the vedio the percentage of giving correct answer was 52.071% and after showing the vedio the result was increased upto 77%.

The farmer of age between 50< were 14. Before showing the vedio the percentage of giving correct answer was 42% and after showing the vedio the result was increased upto 69%.

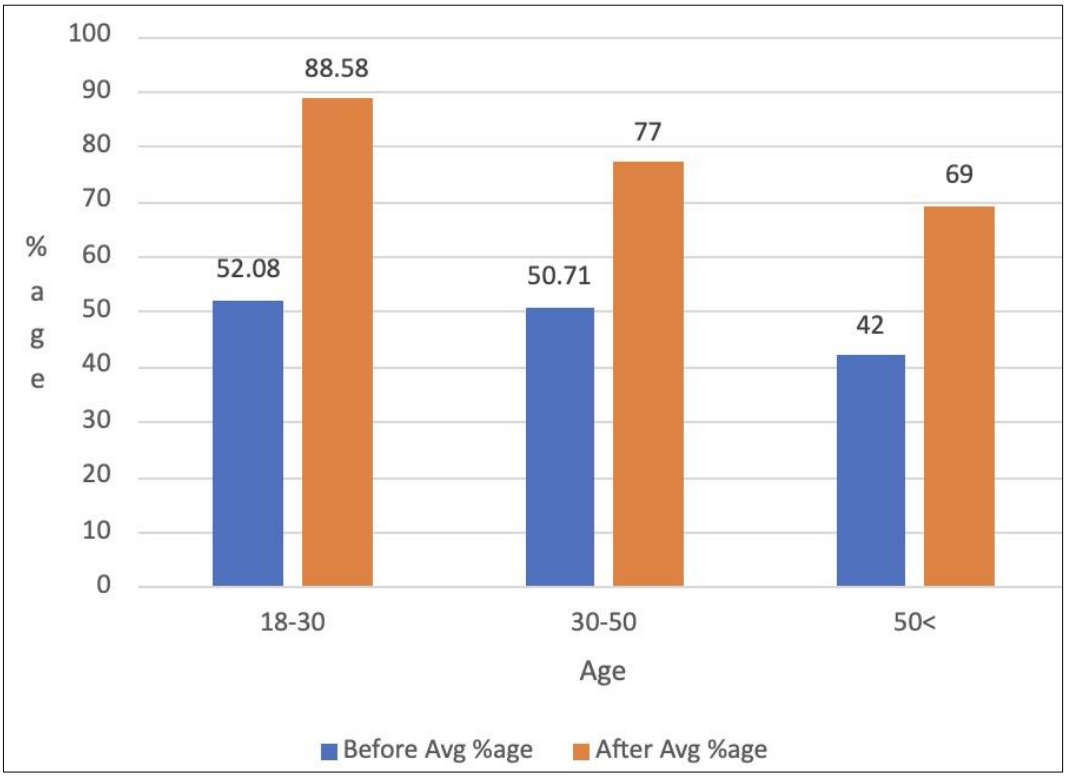

Fig 1: Gain in knowledge

As shown in the Fig 2. The total population of all the 5 villages = 9280.

The total number of men were 4388 which is in dark blue colour, the women population was 3934 and is shown in orange colour and the children were 938 which is shown in grey colour.

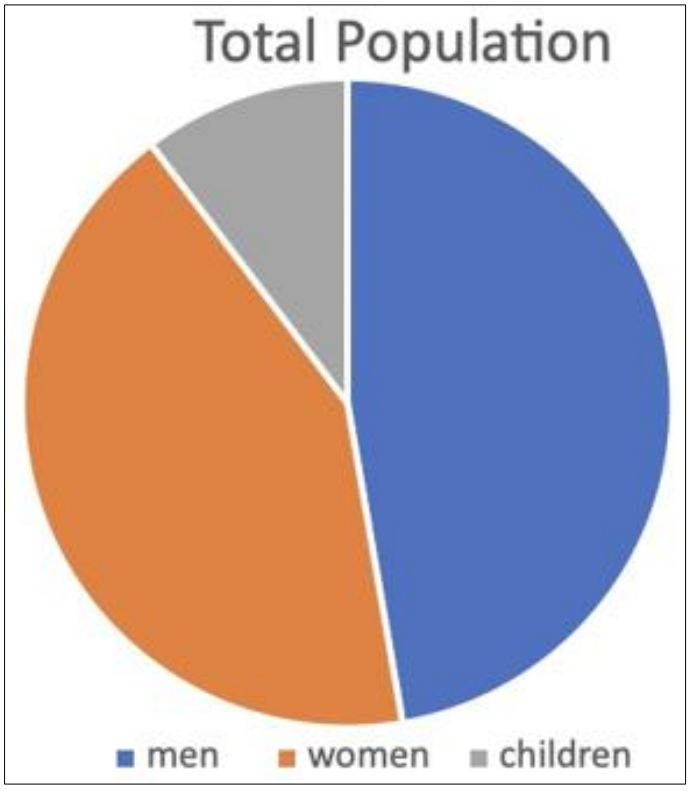

Fig 2: Population of men, women and children

We started by covering 12 farmers in Shauran village, then moved on to Hassanpur village, covering 3 farmers there. Next, we went to Radiala, covering 5 farmers there. Finally, we moved on to Ghataur village, covering 8 farmers there, and finally, we finished Allapur village, covering 12 farmers. As shown in fig. 3.

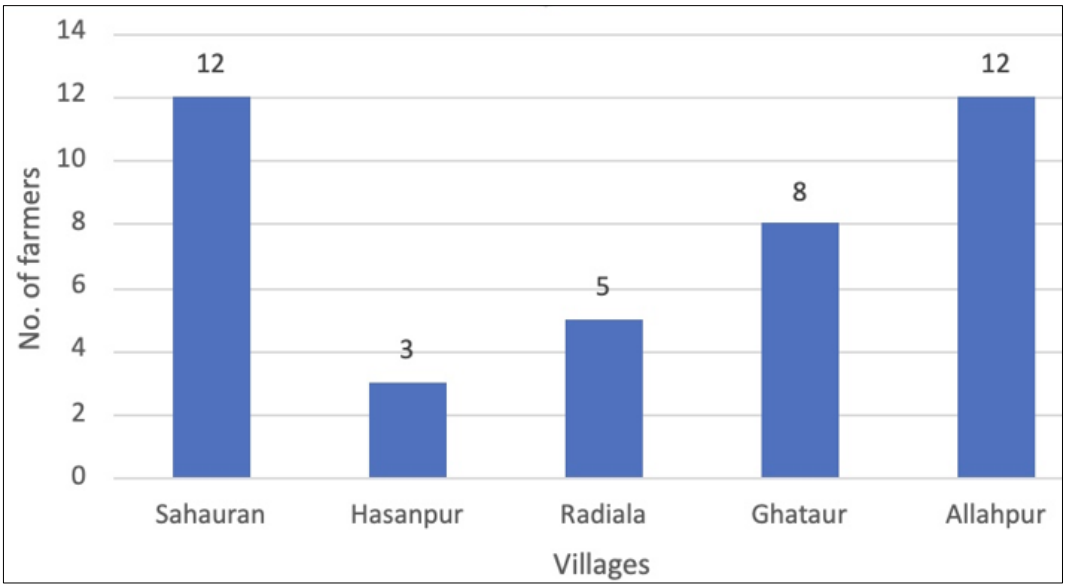

Fig 3: Number of farmers per village

Age of people doing farming

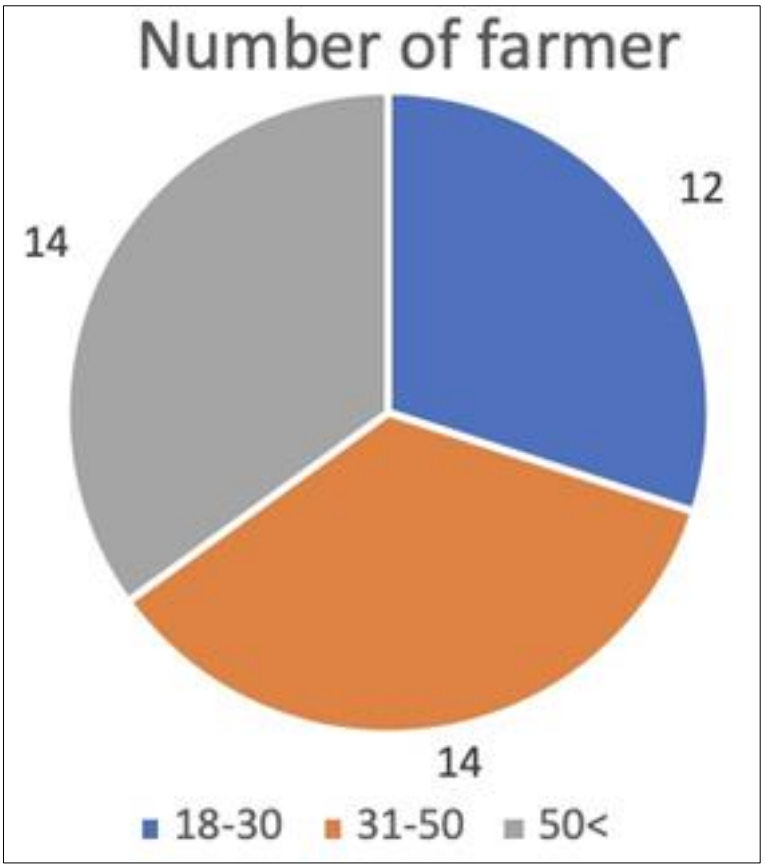

Fig 4: Age category per village

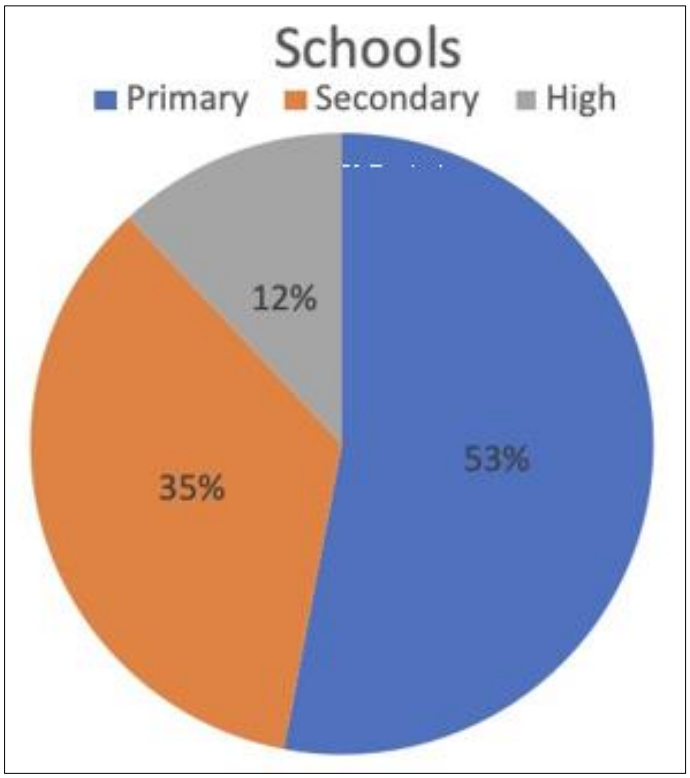

Fig 5: Type of schools in villages

Most of the percentage of schools include primary i.e 53%, on second secondary schools come with 35%, on last high schools are 12% as shown in fig. 5.

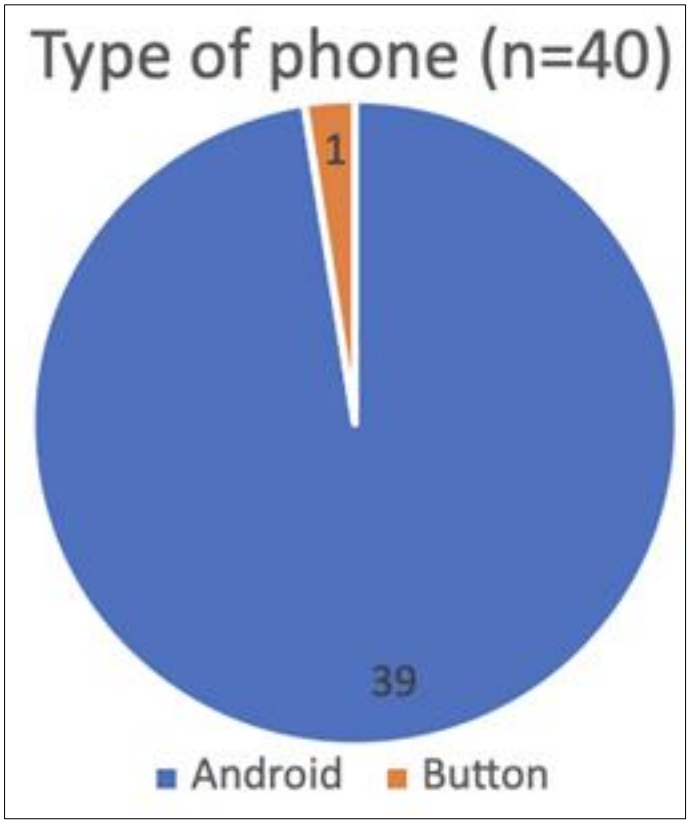

Fig 6: Types of phone owned

Conclusion

In conclusion, a thorough grasp of the socioeconomic situation, farming methods, and knowledge dynamics among farmers was obtained from the cross-sectional survey carried out in five rural villages in the Punjab region. The demographic profile showed a population of mostly adult

farmers, with a balanced distribution of genders, and a range of educational backgrounds and degrees of farming experience. The increasing use of smartphones and the dependence on progressive farmers and peer networks for agricultural information brought to light the rapidly changing technology landscape and the significance of social networks in the sharing of knowledge.The variety of landholding patterns highlighted the need for focused support systems and recognized the heterogeneous socioeconomic environment that exists within the farming community. The inclination toward conventional methods of storing seeds and the concurrent knowledge of recently introduced cultivars suggested a sophisticated strategy for crop management that combined conventional knowledge with a willingness to embrace new ideas. The wheat pest management video presentation improved farmers' understanding and illustrated the value of using multimedia techniques in agricultural extension. Nonetheless, the enduring inclination towards last year's seeds indicated the significance of attending to variables other than information sharing, like the accessibility of pesticides, financial concerns, and farmer inclinations.

The significant increase in farmers' knowledge following video presentations on wheat pest control demonstrates the effectiveness of multimedia tools in agricultural education and extension.

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