AN INVESTIGATION INTO THE EFFECT OF FARMER FIELD SCHOOL ON ONION PRODUCTIVITY IN DISTRICT SWAT, KHYBER PAKHTUNKHWA

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ABSTRACT

The present study was conducted in 2021 to investigate the effect of Farmer Field School on onion productivity in District Swat, Khyber Pakhtunkhwa. The study was carried out in six purposively selected villages of swat namely; Baidara, Kuza Durshkhela, Sinpora, Shamak, Janu Langar and Chalyar. For primary data collection census technique was used. All the twenty five farmers were chosen based on 100 percent of the population from each FFS, resulting in total of 150 respondents from six villages in six union councils. Data were collected by using well-defined and pretested interview schedule. It was found that 34.84% of the respondents were in the age group of 36-45 years. In case of education majority (92%) of the sample respondents were literate and only 8% were illiterate. About 42.21% of the respondents have farming experience of 11-15 years. It is reported that 36.18% of the respondents have land size from 7-9 acres. The total cost on onion production before at the average was Rs. 44010.34 and after FFS was Rs. 34586.99. This does means that the total cost on onion production was reduced by Rs. 9456.51 after FFS. Total yield of onion production before at the average was 8424.66 kg/acre and after FFS was 14210.34 kg/acre. Hence, Total yield of onion crop was increased by 5785.68 kg/acre. The income of onion grower was increased by Rs. 94677.37 per acre from Rs. 271280.8 to Rs. 365958.17 per acre. It was noted that yield and income of the respondents were increased after FFS. It is recommended that more FFSs should be established in other parts of the province to increase agricultural productivity to meet the food needs of the growing population of province.

1. Introduction

Pakistan is predominantly an agricultural country, where most of the population is directly or indirectly involved in agriculture (Mehmood et al., 2018). Agriculture contributes 19.2 percent to the Gross Domestic Product (GDP) of Pakistan and it provides 38.5% employment to national workers (Rehman et al., 2022). In addition to meet the demand for food, it provides raw resources to other industrial markets, allowing them to expand their capacity (Ayub et al., 2020). Agriculture plays a significant role in the economy and improving quality of life of rural communities (GoP, 2020-21). Khyber Pakhtunkhwa has the third largest economy in the province of Pakistan but its growth has been very slow. The economy of Khyber Pakhtunkhwa is based on agriculture where 80% of the population is living in rural regions and agriculture is their main source of livelihood. It contributes 24% to the GDP of the province and provides 44% employment to the national labor force.

Swat is a district in Malakand Division of Khyber Pakhtunkhwa province (Taran et al., 2022). The 15th largest district of Khyber Pakhtunkhwa province is Swat. According to the 2017 national census, the population of Swat is 2,309,570 people. Swat District is centered in the Swat Valley, a beautiful and natural geographical area which surrounds the River of Swat and is generally referred to as Swat. The average elevation of Swat is 980 meters (3,220 feet), resulting in a milder and wetter environment as compared to other parts of Pakistan. Swat is among the most popular tourist places of the country with its beautiful green meadows, lush woods and snow-capped mountains.

The province of Khyber Pakhtunkhwa has an agrarian economy, with more than 80% of rural inhabitants relying on agriculture for their livelihood, with 70% of them working in agriculture directly or indirectly. Rice, maize, sugarcane, legumes, and horticulture crops are the most common crops sown (Mehmood et al., 2022). Tomato, radish, potato, turnip, coriander, cucumber, bottle gourd, brinjals, okra, bitter gourd, squashes, green spinach and onion are among the vegetables grown commercially in Khyber Pakhtunkhwa (Khan et al., 2022: Ayub et al., 2021: Mehmood et al., 2021). Onion (Allium cepa L) is a widely grown vegetable that is utilized in many types of traditional cooking and gastronomic preparations in Pakistan and around the world. It is also a necessary kitchen component for daily usage, as it is utilized as a vegetable in various type

of cuisines and in salads. It aids in the prevention of several chronic diseases. Because it contains naturally occurring molecules known as organic sulfur compounds, it also aids in the reduction of blood pressure and cholesterol levels. Onion is fat-free and cholesterol-free, and it includes vitamins and compounds that aid in the detection of free radicals in the human body (Hussain, 2001). Pakistan's onion production is around 2058.2 thousand tonns per year, spread over 146.1 thousand hectares. Yield per hectare is about 14.0 tons in 2019-20. Among provinces Sindh is the largest contributor in onion production having a share of 40% followed by Balochistan, Punjab and Khyber Pakhtunkhwa with a share of 33, 15 and 12 percent respectively (GoP, 2019-20).

Farmer Field School is another, more modern strategy designed to improve farmers' livelihoods. It consists of 25 to 30 farmers that gather on regular basis to learn through and experience over the course of a season. FFS brings together local and scientific knowledge which help the farmers to make better decisions. Unlike the traditional 'technology transfer' approach, which focused primarily on developing and transferring working technologies to farmers, the FFS approach was oriented towards assisting farmers in learning by doing, better decision making, inventing and adopting technologies that are both effective and appropriate to farmers. In practically all of the FFS, using common recipes to control pests and maintain biodiversity is still a hot topic (Ayub et al., 2021: Shah et al., 2021: Shahzad et al., 2021). Farmer Field School help the framers in learning by doing and teaches them through hand-on experience to improve their skills (Ponitus, 2002). Furthermore, Farmer Field School is an alternative agricultural extension strategy for assisting farmers in adjusting their IPM techniques to different and dynamic ecological circumstances (Simpson and Owens, 2002).

2. Materials and methods

Out of 35 districts in Khyber Pakhtunkhwa province, District Swat was chosen for this research study on the basis of presence of FFS in Swat. To select final respondents for data collection, multistage sampling was used. Out of the seven tehsils in Swat district, tehsil Matta and tehsil Khwaza Khela were selected purposively from district Swat because Farmer Field Schools were established in these specific tehsils and on the selected crop. Three UCs from each tehsil were selected purposively. From each union council one village was selected purposively on the basis of establishment of FFS. For the selection of respondents census technique was used. All the

twenty five farmers were chosen based on 100 percent of the total population from each FFS, resulting in a total of 150 respondents from six villages in six union councils. For this research study data both primary and secondary data were used. The primary data were collected from the farmers by using a well-defined interview schedule, while a variety of published and unpublished material were used to collect the secondary data. Data from both primary and secondary sources were gathered and analyzed. The interview schedule was developed in such a way that complete and concrete information were collected. On some farmers who were not part of sample size, the interview schedule as pre-tested to add relevant and delete irrelevant questions. Collected data were analyzed through SPSs.

3. Results and discussions

3.1 Age

Age is a significant component that influences how a person responds to different activities throughout his lifetime. It also has an impact on logical decision-making as well. How quickly a person reacts or adopt, is depend upon his age. If the person is younger he will adopt and respond quickly to any activity, especially communication and comprehension (Jensen, 2001; Basant, 1997; Tsur *et al.*, 1990).

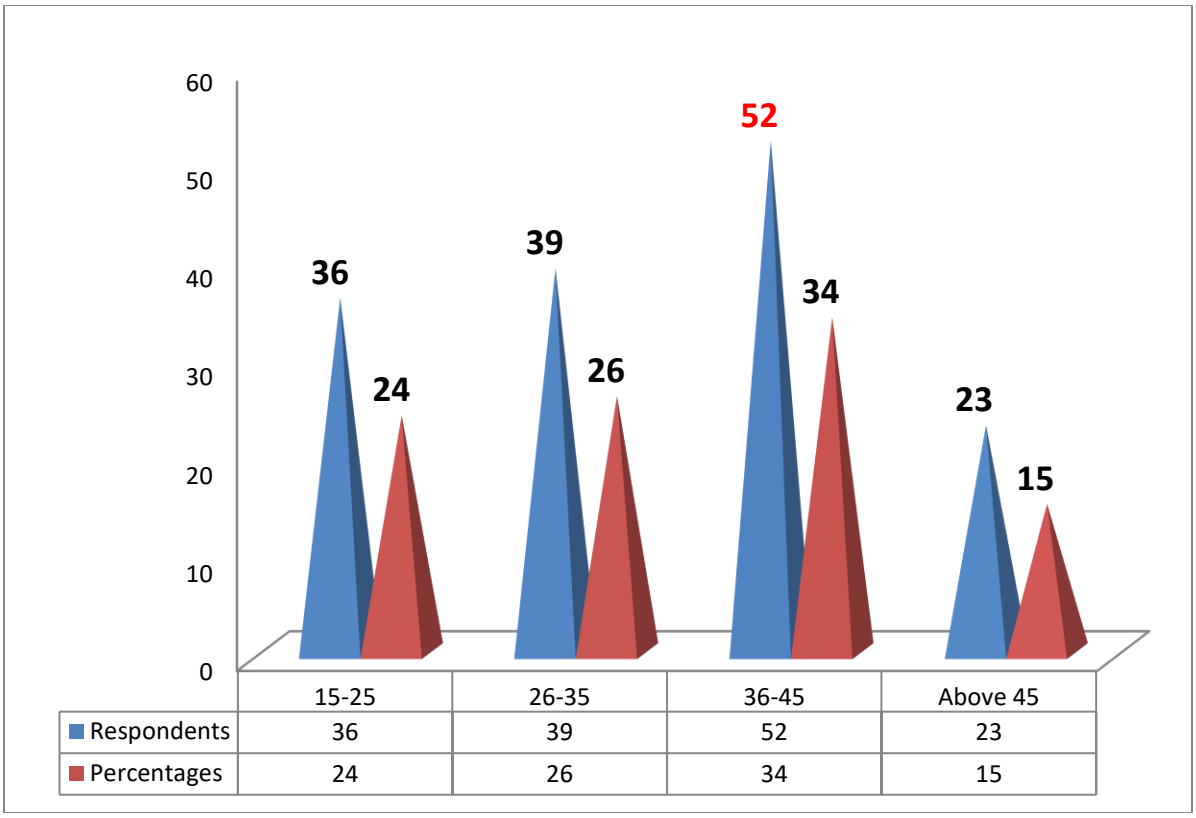


Figure 3.1 shows that there were 24% respondents in the age group of 15-25 years. In the second age group of 26-35 years, there were 26% respondents. In 36-45 years of age group contained majority of the respondents with 34%. The last age group of above 45 years comprised of 15% respondents.

3.2 Literacy status

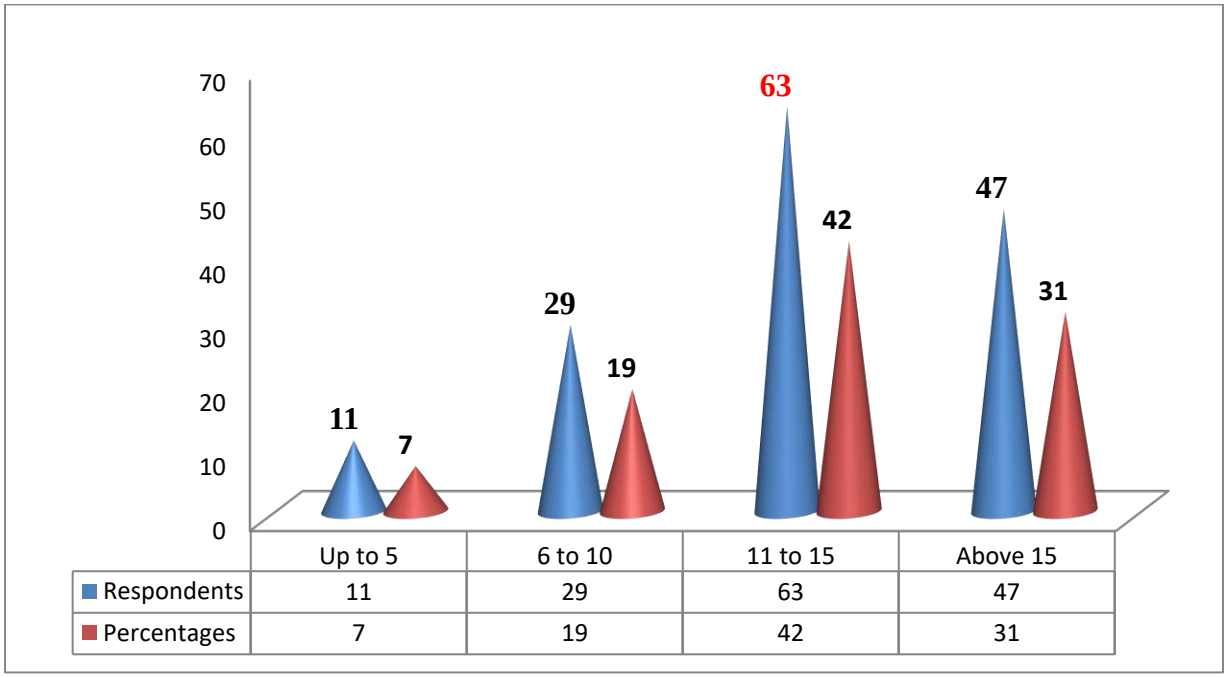
Education is a method of acquiring new knowledge in which a group of people's abilities and habits are passed down from generation to generation through instruction, study, and/or self-directed learning. So, gathering data on this feature was critical in imagining the image of literacy status. Table 3.2 shows that 92% of the sample respondents were literate and only 8% were illiterate.

Villages Names	literacy status		Education levels			
	Illiterate	Literate	primary	Middle	Matric	Intermediate and above
Baidara	3(2.0)	22(14.7)	1(0.67)	5(3.3)	10(6.7)	6(4.0)
Kuza Durshkhela	2(1.3)	23(15.4)	8(5.3)	2(1.3)	9(6.0)	4(2.7)
Sinpora	0(0)	25(16.75)	1(0.67)	7(4.7)	11(7.3)	6(4.0)

Shamak	4(2.7)	21(14.07)	6(4.0)	3(2.0)	7(4.7)	5(3.3)
Janu Langar	2(1.3)	23(15.4)	3(2.0)	2(1.3)	12(8.0)	6(4.0)
Chalyar	1(0.67)	24(16.0)	2(1.3)	6(4.0)	9(6.0)	7(4.7)
Total	12(8.0)	138(92.0)	21(14.07)	25(16.7)	58(38.8)	34(22.78)

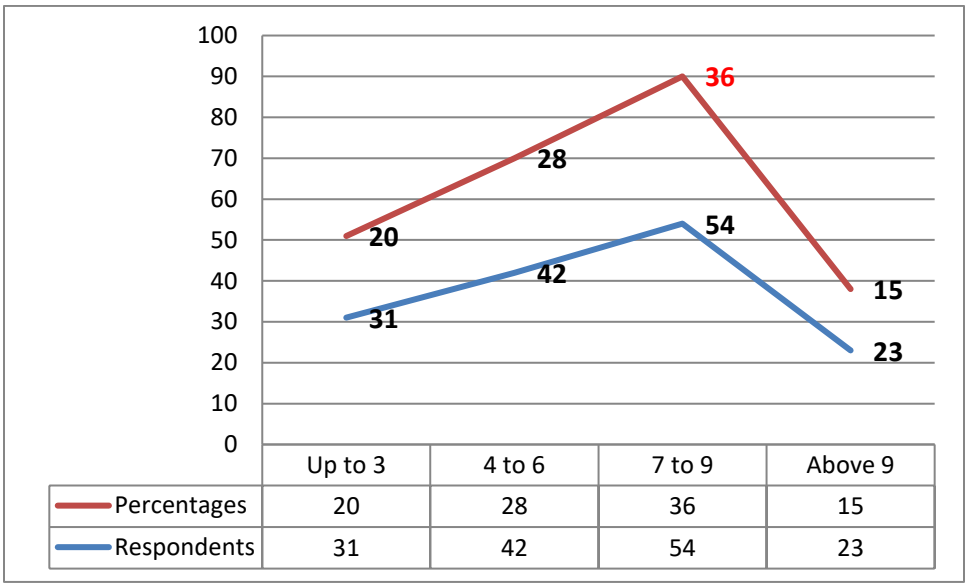
3.3 farming experience

A significant factor which has an impact on agricultural productivity is farming experience of a farmer. If the farmers are more experienced, then they are more likely to take those action that are affordable and better for their crops. According to the farming experience the farmers of study area were divided into four groups. It was found that in the first group, farmers having 5 years of farming experience comprised of 7.3% of respondents. The respondent farmers in the second group having farming experiences of 6-10 years comprised of 19.43% of respondents. The third group of farmers having 11-15 years of farming experience comprised of 42.21% of the respondents.



3.4 Size/status of land holding

Farmers with medium-sized plots of land benefited the most from the FFS method. The initiative had a minor influence on farmers with smaller plots of land. However, it has a major effect on those farmer who are medium sized holders of land. It is crucial when addressing specific populations as well. Farmers those are larger landholders may not need to participate in poverty-reduction programs like FFS. Farmers with small plots of land, are preoccupied to work on land of large landholders to fully engage in the FFS. Larger landowners may be deterred 9from participating in the FFS because of the time commitment (Davis, 2006).



	Up to 3	4 to 6	7 to 9	Above 9
Percentages	20	28	36	15
Respondents	31	42	54	23

The size of land holding of FFS farmers was divided into 4 categories i.e. up to 3 acres, 4-6 acres, 7-9 acres and above 9 acres. The first category of farmers having land up to 3 acres comprised of 20.77% respondents. The second category of farmers having land of 4-6 acres comprised of 28.14% of respondents. The third category of farmers having land of 7-9 acre included 36.18% of respondents. There were 15.41% of respondents in last category of farmers having above 9 acres of land. The size of land holding has a positive relationship with innovation adoption (Mirza, 1993).

3.5 Comparison of Cost, yield and income of onion before and after Farmer Field School

Table shows that The total cost on onion production before at the average was Rs. 44010.34 and after FFS was Rs. 34586.99. This does means that the total cost on onion production was reduced by Rs. 9456.51 after FFS. The total yield of onion production before at the average was 8424.66 kg/acre and after FFS was 14210.34 kg/acre. Total yield of onion crop was increased by 5785.68 kg/acre. The income of onion grower was increased by Rs. 94677.37 per acre from Rs.

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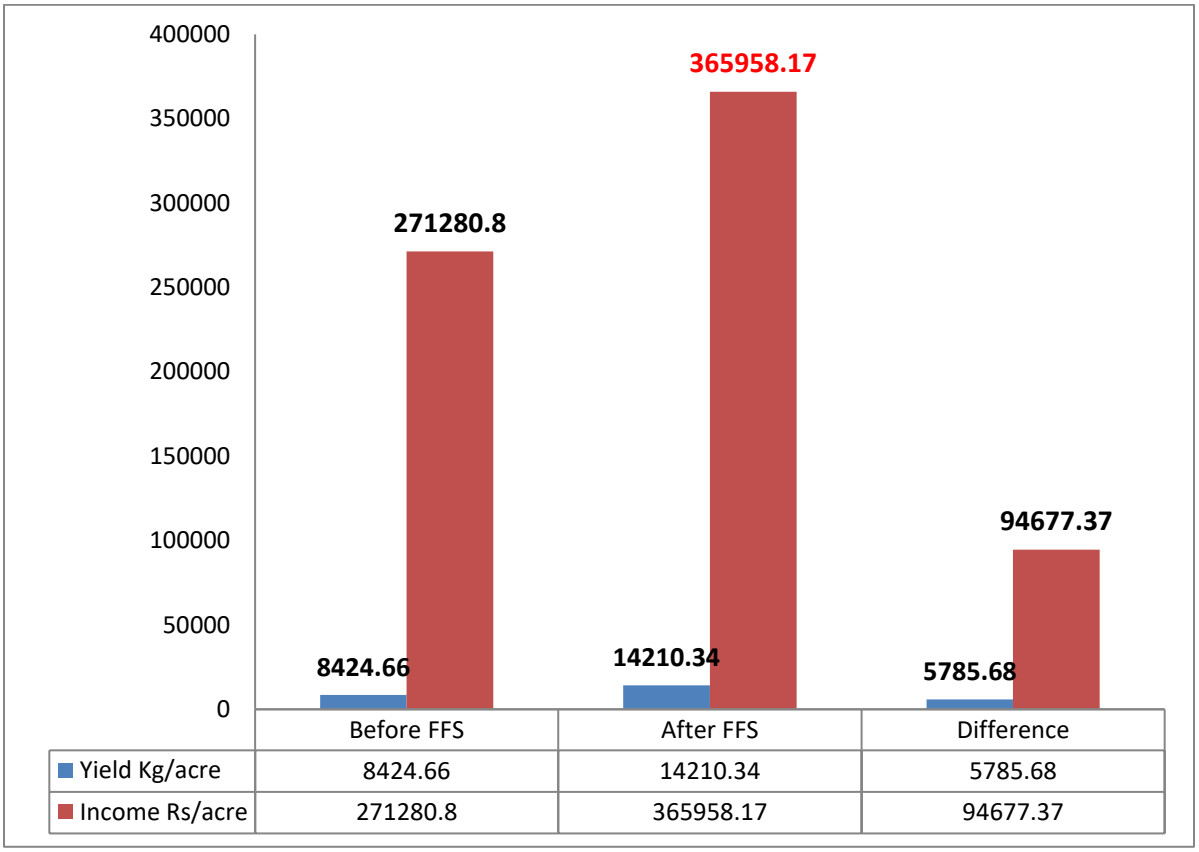

	Before FFS	After FFS	Difference
Yield Kg/acre	8424.66	14210.34	5785.68
Income Rs/acre	271280.8	365958.17	94677.37

CONCLUSION AND RECOMMENDATIONS

Based on the above discussion, it can be concluded from the study that Farmer Field School is beneficial, useful and increased the agricultural production, particularly in onion. It is also concluded that interaction between extension agents and farmers not only helps to raise awareness among farmers, but it also spreads a new approach, namely FFS, as a useful tool. Farmers and extension personnel have a stronger relationship as a result of the FFS approach; extension personnel visit the farming community on a regular basis to solve problems. The FFS approach was fully adopted by the majority of respondents, and some were partially adopted. Farmers were empowered as a result of increased awareness of the FFS, which was achieved sthrough both formal and informal methods. Farmers were able to make timely and feasible decisions when faced

with problems in their field crops. Farmers who use the FFS approach not only improve their socioeconomic conditions, but they also learn how to maximize profit. It is recommended that agriculture extension department should expand developmental activities through FFS approach to rural populations that have not been accessed so far. Farmers must understand their responsibilities as FFS members and participate in FFS activities.

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