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Baseline study on wheat cultivation at village condition in Fatehabad and Kurukshetra district of Haryana

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Abstract

This report is entirely based on the collection of data from neighbouring farmers engaged in wheat production in the two districts Fatehabad and Kurukshetra in Haryana during the 2021-2022 harvest season. This includes activities that are closely related to the professional work of the relevant field. The RAWE program provides a wide range of hands-on experience for acquiring knowledge and skills. We interviewed the village and interacted with the village farmers and Sarpanch to collect data. The data was collected by interacting directly with farmers and other people using the Internet. Investigation is carried out in some randomly selected villages of Fatehabad and Kurukshetra district of Haryana. 125111 and 136118. Wheat is a common crop in all villages and is the most cultivated crop in all three villages in the Fatehabad and Kurukshetra districts, so we met farmers in three different villages and gained knowledge about wheat. Farmers in the Kurukshetra area follow the sowing method, and farmers in the Fatehabad area follow the sowing method. We conclude that wheat is common in these particular regions and that HD2967, HD3086 and HD2851 are the most common varieties. Farmers said they could get more harvest with these varieties. Most farmers are not well educated. That is, they face some problems and need to accept help from others.

Keywords: Scrutinized, farmers, crop, varieties, wheat, herbicide, agricultural, village, area, problems

Introduction

The report is entirely based on the collection of data from nearby farmers who are engaged in wheat production in two districts of Haryana named as Fatehabad and Kurukshetra in crop year 2021-2022. It includes activities closely related to the professional work of the relevant discipline. Apart from that, it also provides us with information about how to live, the farm tools they use, the types of plants they grow, the chemicals used to protect their crops, and more. In addition, if they face any problems in their field, this is also being scrutinized and comparisons are being discussed based on the relevant parameters. After completing the study, students can apply the expertise and skills acquired during the study. This research is carried out under RAWE component of Student PROJECT.

RAWE

Agricultural education is an important tool in ensuring improved agricultural productivity, sustainability, environmental and environmental safety, profitability, employment safety and fairness. The World Bank (1975) found that little emphasis was placed on preparing agricultural graduates for a better career in off-government agriculture or agribusiness work. Therefore, the agenda of the 21st century in agricultural education needs to be aligned with the challenges of the near future. The RAWE program provides a wide range of hands-on experience for acquiring knowledge and skills.

RAWE (Rural Agricultural Work Experience) is a program to provide quality, practical and production-oriented training for agricultural research.

Objective of Student Project

1. To help students understand the rural environment in relation to agriculture and related activities.
2. Make students understand the socio-economic situation of farmers and their problems.
3. Through hands-on training, we provide diagnostic and therapeutic knowledge related to real-world situations.
4. Develop confidence and ability to solve agricultural problems.

5. Rural Agricultural Work Experience (RAWE) is mainly for learners to understand the situation in rural areas and the situation of agricultural technology adopted by farmers, prioritize farmer's problems and for overall development.

Importance

Preparing agricultural graduates for a better agricultural / agribusiness career.

Prepare for the task of agricultural graduates acquiring knowledge and skills through hands-on experience.

Crop Selected For Survey

Wheat

Wheat is the second most important staple food after rice, consumed by 65% of India's population and is expected to continue to grow due to dietary changes.

In our country, wheat is mainly consumed in the form of "chapati", which is why bread wheat is grown in almost 95 percent of the area. Optimal for making macaroni, noodles, semolina and pasta, durum wheat occupies about 4-5% of the area and is cultivated mainly in central India and the peninsula.

Wheat is grown on more land area than any other food crop (220.4 million hectares or 545 million acres, 2014). World trade in wheat is greater as compared to all other crops combined.

Wheat is cultivated in a variety of climates and soils, but is ideal for temperate regions with rainfall of 30-90 cm (12-36 inches).

Winter and spring wheat are two major types of crops, and the severity of winter determines whether to grow winter or spring varieties. Winter wheat is sown every time in fall. Spring wheat is generally sown in spring, but it can also be sown in autumn, when winter is mild.

Most wheat used in food requires processing. The grains are cleaned and then adjusted by adding water so that the grains are properly decomposed. During milling, the grain cracks and passes through a series of rollers. Small particles are sifted, while coarse particles are sent to other rollers for further grinding. About 72% of the crushed grain is recovered as white flour.

The flour of the whole grain is called graham flour and contains germ oil, so it will be rancid if stored for a long period of time. White flour without germ is retained longer. Inferior wheat, surplus wheat, and various milling by-products are used as feed for cattle. It is a major human edible grain and a stable crop. Wheat feeds 35% of the world's population.

Wheat is cultivated around the world mainly in two seasons, winter and spring. Spring wheat matures in 120-130 days and winter wheat matures in 240-300 days.

Therefore, the productivity of winter wheat is higher than that of spring wheat. Wheat is qualitatively divided into two categories: soft wheat and durum wheat. *Triticum aestivum* (bread wheat) is known as common wheat, and *Triticum durum* is known as durum wheat.

Methodology

In this regard, this report discusses

- Communicating with farmers and their families.
- Collecting a broad range of data during interaction.
- Recording and preserving this data.
- Listening their difficulties and their hard situations.

Activities

The whole RAWE programme was carried out under the supervision of some teachers from the Department of Agriculture, that stayed continuously with the students during their all activities related to RAWE to guide, supervise and monitor the work. The activities done during the whole semester of RAWE are as follows: Guest lectures, Village surveys and Farm visits.

Investigation is carried out in some randomly selected villages of Fatehabad and Kurukshetra district of Haryana. 125111 and 136118.

Climatic condition: Fatehabad has a Subtropical steppe climate (Classification: BSh). The district's yearly temperature is 29.75°C (85.55°F) and it is 3.78% higher than India's averages.

The climate in Kurukshetra is characterised as warm and temperate. The Köppen-Geiger climatic classification for this location is Cwa. Kurukshetra has an average yearly temperature of 23.9 °C | 75.0 °F.

Brief information of villages selected for this project

Bhuna

Social structure: Bhuna is a small town in Fatehabad District in the Hisar Division of the state of Haryana India. It is located 26 kilometres (16 mi) from Fatehabad 18 kilometres (11 mi) from Uklana, 50 kilometres (31 mi) from Hisar 4 kilometres (2.5 mi) from Dullat village, and 11 kilometres (6.8 mi) km from Hasinga Village. Bhuna is an old village with Bishnois, Jats, Punjabis, Sardars, and Dalits. It has a famous Ranadhir mandir dedicated to lord Ranadhir.

Common Crops

Cotton, Cucumber, Coriander, Okra, Mustard, Maize,, Wheat,, Sorghum, Bajra, Chilli
Fodder Crops like Sorghum, Berseem etc.

Morthala

Morthala is a Village in Thanesar Tehsil in Kurukshetra District of Haryana State, India. It belongs to Ambala Division. It is located 13 KM towards North from District headquarters Kurukshetra. 13 KM from Thanesar. 89 KM from State capital Chandigarh. Morthala Pin code is 136156 and postal head office is Shahabad (M). Kalalmajra (3 KM), Untsal (3 KM), Jalkheri (3 KM), Masana (3 KM), Kasithal (3 KM) are the nearby Villages to Morthala. Morthala is surrounded by Kurukshetra Tehsil towards South, Thanesar Tehsil towards South, Shahbad Tehsil towards North, Ladwa Tehsil towards East. Thanesar, Shahbad, Ladwa, Taraori are the nearby Cities to Morthala. This Place is in the border of the Kurukshetra District and Karnal District. Karnal District Nilokheri is South towards this place.

Jandwala sottar

Jandwala Sottar village is located in Ratia Tehsil of Fatehabad district in Haryana, India. It is situated 15km away from sub-district headquarter Ratia (tehsildar office) and 11km away from district headquarter Fatehabad. The total geographical area of village is 512 hectares. Jandwala Sottar has a total population of 3,049 peoples, out of which male population is 1,634 while female population is 1,415. There are about 573 houses in Jandwala Sottar village. Pincodes of Jandwala Sottar is 125051.

Collection of data: Surveyed the village and interact with farmer and sarpanch of the village for collection of data. Data was collected by direct interaction with farmers and other was with help of internet.

Weekly report & data analysis: Student project programme have 8 weeks report. Data analysis was done on the various factors as demography, social structure, land holding, farm resources, detail of agronomical crop grown, crop

management practices, crop protection and detail of animal resources etc.

Result and Discussion

We met farmers from three different villages and get knowledge from them about wheat crop because wheat is the mutual crop among all of them and it is the most grown crop in all three villages of Fatehabad and Kurukshetra district.

Bhuna Village

S. No.	Farmers name	Village	Major Crops	Education	Land Holding	Herbicides	Land Preparation	Sowing Method	Yield
1	Munshi Ram	Bhuna	Wheat	Illiterate	7 acre	Pendimethaline+Pyroxasulfone	1 disc harrow,2 cultivator+Planker	Broadcasting	24Quintal/acre
2	Davinder Singh	Bhuna	Wheat	Bsc (Agriculture)	7acre	Pendimethaline,Axial+ Topik	2 disc Harrow,1Cultivator+Planker	Seed Drilling	23Quintal/acre
3	Arjun Singh	Bhuna	Wheat	BA	6 acre	Awkira,Axial	Zero Tillage	Super Seeder	24Quintal/acre
4	Hardeep Singh	Bhuna	Wheat	DPED	6 acre	Pendimethaline, Topik	1 disc harrow,2 cultivator+Planker	Broadcasting	25 Quintal/acre
5	Vikas Singh	Bhuna	Wheat	B tech.	6 acre	Pendimethaline, Topik	2 disc Harrow,1Cultivator+Planker	Broadcasting	24 Quintal/acre

Jandwala sottar

S. No	Name	Village	Land holding	Major crop	Seed variety	Seed treatment	Tillage operation	Sowing method	Yield
1	Jaswant Singh	Jandwala Sottar	12	Wheat	HD2851	Captan+Thiram	1disc harrow	Super seeder	24
2	Karan Singh	Jandwala Sottar	4	Wheat	HD2851	Captan+Thiram	2disc harrow, 1cultivator, 1rotavator	Seed drill	22
3	Ravinder Sihag	Jandwala Sottar	4	Wheat	WH1184	Captan+Thiram	1disc harrow	Super seeder	23
4	Chand Ram	Jandwala Sottar	8	Wheat	HD2851	VITAVAX-200	2disc harrow, 1cultivator, 1rotavator and seed drill	Seed drill	25
5	Veer Singh	Jandwala Sottar	20	Wheat	WH1184	Captan+Thirm	Zero tillage	Super seeder	25

Review of Literature

Bak (1996) ^[1] said that for a network's diploma distribution, scale unfastened implies a power-regulation distribution and vice versa.

Barabási and Albert (1999) ^[2] counseled that WHEAT partnerships may agree to a scale-unfastened network, in which preferential attachment is a likely driver.

Baudron *et al.* (2017) ^[3] said that withinside the Munesa Forest, Ethiopia, variety of family diets changed into inversely associated with distance to the wooded area; this distinction changed into now no longer defined with the aid of using wooded area meals series however with the aid of using biomass flows from the wooded area to farmlands withinside the shape of feed and fuelwood. Baudron *et al.* (2019b) ^[4] used piece-clever structural equation modeling to record proof of an instantaneous pathway in 4 landscapes (Bangladesh, Cameroon, Ethiopia, and Zambia) and proof for an agroecological pathway in 3 landscapes (Bangladesh, Ethiopia, and Indonesia), without a proof for an profits pathway in any of the landscapes sampled.

Buttar and Aulakh (1999) ^[5] in Bathinda, Punjab, reported that sowing mustard on October 25 resulted in significantly higher plants and more pods per plant compared to late sowing.

Lopez Ridaura *et al.* (2018) ^[6] Conservation agriculture compared to livestock intervention is important primarily for wealthier and medium-sized grain farmers who are more vulnerable to drought, but may have great potential in East India. I found that there is. Pal *et al.* (1996) ^[7] at Hisar conducted a field experiment and observed that seed yield was higher with 20th October sowing as compared to latter planted mustard.

Rahut and Ali (2017) ^[8] reported a study on climate risk in the Himalayan region of Pakistan found that most farmers were aware of climate and temperature changes, as well as variations in the rainfall patterns and wind, and that predominant climate risk adaptation strategies included adjusting sowing time, adopting tolerant varieties, engaging in off farm employment, and exploiting crop livestock interactions.

Slafer (2008) ^[10] found that the impact factor of the paper and the impact factor of the Journal of Agronomy and Plant Sciences were not related. Shin *et al.* (2019) CGIAR Research Program 2020 Review: WHEAT emphasized slow sales of cultivars in WHEAT countries and considered limiting faster rates. Van Loon *et al.* (2020) ^[11] evaluated three case studies designed to use scaling scan tools to scale different models of mechanized service providers influencing development interventions in Mexico, Zimbabwe and Bangladesh.

Conclusion

We have concluded that wheat is common crop in these particular areas and HD2967 HD3086 and HD2851 are most common varieties. Farmers said that they get more yield from these varieties and they are growing them from last few years. Most of the farmers used Pendimethaline as a pre emergence weedicide.

We came to know that land of few farmers are more deep due to which water stand more in their crop which further results in less yield.

For many farmers, their land is the only source of income while others have dairy farms and some are doing government jobs also.

Some farmers have good land and others donot have good land which makes the big difference between their crop yield. Nowadays most of the farmers prefer combine harvester for harvesting of their crop as compared to the past.

Farmers in Kurukshetra district follow seed drilling method whereas farmers follow broadcasting method of sowing in Fatehabad district.

from sub-Saharan Africa, South Asia, and Latin America. *Agricultural Systems*. 2020;180:102792.

Problems faced by most of the farmers

Water logging in rainy season due to which their crops does not grow properly most of the times which further results in less yield.

Shortage of labour from last 2-3 years due to pandemic situation. Farmer's lack knowledge of latest technologies and several government schemes.

Increasing cost of cultivation as well as chemical fertilisers. There is limited supply of electricity in villages.

Most of the farmers are not well educated due to which they face several problems and they have to take help of others.

Most of the farmers are not satisfied with the government's scheme of direct transfer of funds of their produce into their account. Unavailability of fertilizers at the right time which affect their crop yield.

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