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Knowledge of Cooperative and Private Agri Input Dealers Regarding Improved Barley Production Technology

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HIGHLIGHTS

- Positive and significant correlation between cooperative agri input dealers' knowledge level and private agri input dealers' knowledge level was observed.
- There was a significant difference between the knowledge level of cooperative and private agri-input dealers regarding improved Barley production technology.
- There is a correlation between the ranking of knowledge possessed by cooperative and private agri input dealers and improved Barley production technology.

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ABSTRACT

The study assessed cooperative and private agri-input dealers' knowledge regarding improved barley production technology in the Jaipur region of Rajasthan. The investigation was conducted in 2023–24, and the data was collected from 240 cooperative and private agri-input dealers from the Jaipur and Tonk districts of Rajasthan. It was revealed from the data that the highest 45.00 per cent of cooperative agri input dealers had a medium knowledge level, whereas 30.00 percent and 25 per cent of cooperative agri input dealers had low and high knowledge levels regarding Barley crops. Just contrary to that, in the case of private agri-input dealers, 42.50 per cent had a high knowledge level, whereas 38.33 and 19.17 per cent of private agri-input dealers had medium and low knowledge levels. Also, it was reported that there is a significant difference in the knowledge level of cooperative & private agri-input dealers. The private agri-input dealers had more knowledge of different fields of improving barley production technology as compared to cooperative agri-input dealers.

INTRODUCTION

Agriculture is the backbone of the Indian economic system. It is the major source of economic livelihood for the majority of the population of our country. Agricultural development in India is very important because 69 per cent of the population is dependent on agriculture for their livelihood. It has been realized that the public sector extension system on its own is not capable enough to meet the ever-increasing and multifaceted demands of the farming community due to several constraints or weaknesses in the system. Studies on technological advancements have shown that input sellers are more likely to contact farmers than people from other sources. It is the farming community's second-most important source of agricultural messages, behind progressive farmers. It has a vast network of over 282000 agri input dealers in rural areas nationwide. Consequently, among input merchants, agricultural development holds a prominent role in the field (Chandra Shekhar, 2007). An essential conduit between manufacturers and farmers is input dealers. Therefore, it is his or her duty to spread the newest agricultural technology all the way up to the ground level, particularly in the free market and WTO eras (Khose, 2004).

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Agri input dealers are businesses that sell agricultural farm product such as seeds, fertilizers, pesticides, and other farm supplies to farmers. These dealers may operate independently or as part of a larger network, and they often work with manufacturers or distributors to obtain their products. They typically provide guidance to farmers on selecting the appropriate inputs for their specific crops and conditions, as well as advice on how to properly use these products to maximize yields and minimize environmental impact. Agri input dealers play an important role in the agricultural supply chain, helping to ensure that farmers have access to resources they need to be successful.

METHODOLOGY

The study was conducted during 2023-24 in the Jaipur region of Rajasthan. Jaipur region comprises four districts, *viz.,* Ajmer, Jaipur, Dausa, & Tonk. Out of these, Jaipur and Tonk districts were selected purposefully based on a maximum number of agri-input dealers in comparison to other districts of the Jaipur region. Jaipur and Tonk districts are comprised of 21 and 7 tehsils, respectively. Out of these, six tehsils were selected proportionately with random allocation using simple random sampling. In this way, five tehsils from Jaipur district, viz., Chomu, Sahpura, Kotputli, Amber, & Kishangarh Renwal, and one tehsil from Tonk district, *viz.,* Malpura, were selected for the study purpose.20 Gram panchayats from each tehsil were chosen randomly for the study using a simple random sampling method. Each gram panchayat selected one private and one cooperative agri input dealer. In this way, 120 cooperatives and 120 privates were selected. Thus, the total sample contained 240 agri-input dealers. A knowledge test was prepared by consulting various reviews and research to measure the knowledge level regarding improved barley production technology. Seven major aspects were included in the knowledge test: improved varieties, seed treatment, time of sowing, fertilizer application, weed management, and plant protection measures. Each aspect included several questions and sub-questions for the respondents' knowledge assessment. The questions were both close-ended and open-ended. The interview schedule was arranged in the dialect language to focus on the objectives of the investigation, and it was pre-tested. The respondents were awarded one score for each right answer and zero for each wrong answer. Therefore, secured knowledge scored between 39 and 73. Based on the score obtained, the agri input dealers were grouped into three categories: low, medium, and high knowledge levels regarding improved barley production technology, using an arbitrary method. The agri input dealers who scored up to 50.33 were grouped under low knowledge level, the agri input dealers who scored between 50.34 to 61.67 were considered to have medium knowledge level, and those who obtained a score above 61.67 were disposed under higher knowledge level regarding improved barley production technology. Statistical analyses, including frequency, percentages, and z-tests, were employed to compare the knowledge levels of agri-input dealers regarding improved Barley production technology. This rigorous methodology ensures a scientifically robust and insightful evaluation of the knowledge levels of agri input dealers.

RESULTS

Knowledge level of agri input dealers regarding improved Barley production technology

It was noticed from the data exhibited that out of 45 per cent cooperative agri input dealers belonged to a medium level of knowledge, whereas 30 per cent and 25 per cent of cooperative agri input dealers had low-level and highlevel, respectively. In the sheath of private agri input dealers, 42.50 per cent had a high knowledge level, followed by medium (38.33%) and low (19.17%) knowledge levels regarding improved Barley production technology.

The knowledge level of cooperative and private agri input dealers regarding improved Barley production technology was deliberate in terms of the Mean Percent Score. As many as seven parameters of improved Barley production technology were contained in the investigation to assess knowledge level.

Table 1. Knowledge of cooperative and private agri input dealers regarding improved barley production technology in terms of MPS

S. No.	Package of practices	Mean Percent Score	
		Cooperative agri input dealers (n_1=120)	Private agri input dealers (n_2=120)
1.	Improved Varieties	92.50	93.17
2.	Seed Treatment	71.48	77.69
3.	Time of Sowing	96.56	97.92
4.	Seed Rate and Recommended Spacing	81.25	81.46
5.	Fertilizer Management	71.52	75.38
6.	Weed Management	63.80	70.00
7.	Plant Protection Measures	59.79	70.07
	Overall	76.70	80.81

Table 1 data indicates that most of cooperative agri input dealers enchanted high knowledge regarding "Time of sowing" with 96.56 MPS; hence, it was 1st ranked. The 2nd highest knowledge of the cooperative agri input dealers were towards "Improved Varieties" with 92.50 MPS, respectively. This was followed by "Seed Rate & Recommended Spacing" and "Fertilizer management" were ranked third and fourth with MPS 81.25 and 72.52, respectively.

The Table 1 further shows that, the practices like "Seed Treatment" and "Weed Management" were moderately known by the cooperative agri input dealers to the extent of MPS 71.48 &63.80 Thus, ranked fifth and sixth respectively. In use of "Plant Protection Measures" was possessed least Knowledge with 59.79 MPS was ranked seventh in positions. Further, it was noticeably found that private agri input dealers enchanted high knowledge about "Time of Sowing" with 97.92 MPS; hence, it was 1st ranked. The 2nd highest knowledge of the private agri input dealers was towards "Improved Variety" with 93.17 MPS was rank second. This followed by "Seed Rate & Recommended spacing" and "Seed Treatment" which were ranked third and fourth with 81.46 and 77.69 MPS, respectively. The practices like "Fertilizer Management" and "Plant Protection Measures" were moderately

Table 2. Rank wise knowledge level of cooperative and private agri input dealers regarding improved barley production (n=240)

S. No.	Package of practices	Cooperative agri input dealers (n_1=120) Rank	Private agri input dealers (n_2=120) Rank
1.	Improved Varieties	2	2
2.	Seed Treatment	5	4
3.	Time of Sowing	1	1
4.	Seed Rate and Recommended Spacing	3	3
5.	Fertilizer Management	4	5
6.	Weed Management	6	7
7.	Plant Protection Measures	7	6
		r_s = 0.93**	

**= Significant at 1% level

known by the private agri input dealers to the extent of MPS 75.38 & 70.07. thus ranked fifth and sixth, respectively. They had the least knowledge regarding improved production technology concern "Weed Management" with 70 MPS and stood seventh-ranked in position.

It was made to determine the rank order correlation between the knowledge levels of both groups, *i.e.,* cooperative and private agri input dealers, regarding improved barley production technology. The rank order correlation (r_s) was 0.93, which exposes, a positive significantly correlation between cooperative agri input dealers' knowledge level and private agri input dealers' knowledge level. The 't' test tested the significance of ñ, and it was noticed that the 't' calculated value (5.6) was above its table value. This leads to the inference that there is a correlation between the ranking of knowledge possessed by cooperative and private agri input dealers and improved Barley production technology. However, there is a significant correlation between the ranking of cooperative and private agri-input dealers because of similar knowledge level trends between cooperative and private agri-input dealers.

Comparison of knowledge between cooperative and private agri input dealers

To determine the difference in the knowledge level of cooperative and private agri input dealers regarding improved Barley production technology, the null and alternative hypotheses were formed and tested using the 'Z' test to determine the significance of the difference. The data relating to the knowledge level of both cooperative and private agri input dealers intermixed in Table 3 shows that the calculated 'Z' value was more than the tabulated value at a 5% level of significance in "Seed Treatment" and "Fertilizer Management" While the calculated 'Z' value was higher than the tabulated value at 1% level of significance in rest of two packages regarding improve barley crop viz. "Weed Management" and "Plant Protection Measures". In other words, there was a significant difference between the knowledge level of cooperative and private agri-input dealers regarding improved Barley production technology. The overall knowledge calculated 'z' value was also more significant than that of its tabulated value at a 1% level of significance. This suggests that there was a significant difference between cooperative and private agri-input dealers' knowledge of improved Barley production technology.

DISCUSSION

The majority of cooperative agri-input dealers (45.00%) had medium knowledge; in the case of private agri-input dealers, the majority (42.50%) had high knowledge levels regarding improved Barley production technology. The findings are comparable with those of Nain & Chandel (2010); Patel et al., (2019); Kale et al., (2020); Banerjee et al., (2022); Kumar et al., (2022); Mayekar et al., (2022) & Khambhala et al., (2024). Cooperative and private agri input dealers possessed maximum knowledge level regarding "Time of sowing." While last rank order was assigned by cooperative agri input dealers to the practice "Plant Protection Measure" and private agri input dealers assigned the last rank to the practice "Weed Management" regarding improved production technology of Barley crop cultivation practices. The value of rank correlation (r_s) was 0.93, which shows a positive correlation between cooperative and private agri input dealers' knowledge level regarding improved production technology of Barleycrops. The present findings are similar to Kher et al., (2004); Kumar et al., (2007); Nain et al., (2007); Khatri et al., (2018); Singh et al., (2015); Raina et al., (2017); Singh et al., (2021). It was concluded that private agri-input dealers may have more knowledge regarding improved Bajra production technology compared to cooperative agri-input dealers because they often specialize in specific crops or product

Table 3. Comparison of knowledge between cooperative and private agri input dealers regarding improved Barley production technology

S.No.	Package of practices	Cooperative agri input dealers (n_1 =120)		Private agri input dealers (n_2 =120)		'Z' value
		Mean	SD	Mean	SD	
1.	Improved Variety	9.25	0.76	9.32	0.77	0.68^{NS}
2.	Seed Treatment	6.43	1.55	6.99	1.52	2.82*
3.	Time of Sowing	7.73	0.50	7.83	0.40	1.86^{NS}
4.	Seed Rate and Recommended Spacing	3.25	0.70	3.26	0.75	0.09^{NS}
5.	Fertilizer Management	7.87	1.59	8.29	1.56	2.09*
6.	Weed Management	5.74	1.43	6.30	1.13	3.34**
7.	Plant Protection Measures	14.35	3.81	16.82	3.14	5.47**
	Overall	54.62	8.80	58.81	7.94	3.87**

*= Significant at 5 percent, **= Significant at 1 percent, NS= non-significant

lines. They invest in research, training, and partnerships to gain expertise in their chosen areas. Cooperative agri-input dealers, on the other hand, may have a broader focus and cater to a wider range of crops and inputs. It's a difference in specialization and the resources dedicated to acquiring crop-specific knowledge. The present findings are similarto Khatri et al., (2018); Latha et al., (2021); Banerjee et al., (2022); Jaiswal et al., (2023)

CONCLUSION

The most of the cooperative dealers had medium to low-level of knowledge. While in case of private agri input dealers had belong to high to medium level knowledge regarding improved Barley production technology. It was concluded from findings that mostly private agri input dealers were having high knowledge about time sowing, improved variety, seed rate, recommended spacing, fertilizer management etc. there was shows positive rank correlation between cooperative agri input knowledge level private agri input merchant knowledge level regarding improved Barley production technology.

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