Impact of Krushik Agricultural Exhibition on Technology Dissemination and Farmers

Abstract:

Disseminating knowledge and information within the farming community in a short span of time is a difficult task in developing countries. In the present era,social media may mislead the farming community, resulting in heavy losses. So, agricultural exhibitions based on the principles of 'Seeing is believing' & 'Learning by doing' must be planned to provide a real site of state-of-the-art advanced technologies developed by different agencies.So, the present study was conducted to analyze the impact of the Live Agricultural Expo, i.e. Krushik-2024, with the objective of getting information regarding the behaviour and feedback of farmers visiting the Exhibition. The study reveals that the interest of young generation agricultural students is increasing in the agriculture sector. Moreover, live demonstration exhibitions/ farmer's fairs/ technological weeks like "Krushik" can play a crucial role in the development of the farming community. It has emerged as an excellent platform through which advancedtechnologies from both public and private sectorscan effectively disseminate within a short period of time.

Keywords: Krushik, Farmer Fair, Technological week, Agricultural exhibition, Kisan mela

INTRODUCTION:

Since 1991,Agricultural Development Trust's Agricultural Science Center, Baramati, which is locally known as Krishi Vigyan Kendra, i.e. KVK, Baramati, is mainly working for mandates designed by the Indian Council of Agricultural Research, Government of India, New Delhi.The main objective of Krishi Vigyan Kendra is the rapid dissemination of needed information to the farmers.In this context, KVK Baramati has been organising a farmer's fair/technological week at KVK Instructional Farmsince 2015 (Photo No.1&2). This farmer's fair/Technological week is known as "KRUSHIK-India's Biggest Live Demo and Agricultural Expo". Recently, the 9th edition of KRUSHIK-2024 was held from 18th to 22nd January 2024.During this technological week, different emerging technologies were demonstrated to the farmers, like "Farm of the Future", which comprises Artificial Intelligence and Agriculture Technologies based on sensors, drones, robotics, etc.,Live demonstration of important crops like Vegetables, Sugarcane & Maize, fertilizer & other agri. Inputs, Organic farming, Dryland farming, Animal husbandry, machinery and Processing Technology. Demonstrations of Vertical farming, Hydroponics, Aeroponics, NFT, Protected Cultivation Technology, Exotic Vegetable Production, Urban Farming & Terrace Gardening, Water Recycling, Climate Control, Packhouse& Cold-Storage Unit, Export Guideline & Training, Novel Farming:Abiotic & biotic stress management, demonstration of improved seed & variety by use of improved crop production technology, use of low-cost polyhouse, Use of Nano spray grade & Chloride-Sulphate free Israel, Germany, Netherlands imported fertilizer grade for crop production, Drought Management; Natural Farming; Use of Homeopathy for Crop residue free crop production, PROM Organic Manure, Crop residue Management, residue-free crop production, Use of Bio-agent for crop production,Processing, Value addition & Interaction with Experts, Crop Diversification and Intercropping Technology. Also showcased technologies like advanced Indo Dutch Center of Excellence for Genetic Improvement in Cattle; Automation in milking & Processing, Cutting edge livestock technology, Embryo transfer technology, Sensor base animal health monitoring system, Hydroponics feed production, Genomics, Climate SMART animal management technology, value addition technology, balanced nutrition through TMR, SMART Housing and Advisory services. Also, I planned the demo plots of Millets (Shree Dhanya) for the Introduction of

Positive Millets like Kodo, Foxtail, Barnyard, and Little Millet; millet Production & Processing Technology.During Krushik-2024, Interactions with experts were also arranged. We have highlighted technologies such asAquaculture:Aquaponics, Hatchery, Cage Culture, Plastic lining fish farming, Biofloc, Ornamental fish farming, Integrated fish farming, Feed mill (Floating, non-floating) and Integrated Farming Systems*i.e.*Technology Demonstration on Agri-Horti-Dairy-Poultry-Fishery-Apiary-Sericulture Farming System Model. So, new technologies and information can effectively reach the farmers in a short span of time. In the present investigation, a study was conducted to obtain information regarding the behaviour and feedback of farmers visiting farmers' Krushik-2024.

Photo No.1 Farmers Visit to live demonstration plots

Photo No.2 Farmers Visit to live demonstration plots

MATERIAL METHOD:

This farmer fair or technological week, i.e. KRUSHIK, is held on an area of 110 acres at Agricultural Development Trust's Krishi Vigyan Kendra's farm every January. More than 350^{+} International, National, and state-level exhibitors from the public as well as private sectorparticipate in this exhibition every year. 9^{th} edition of KRUSHIK-2024 was held during

18th to 22nd January 2024. More than 1.5 lakh farmers visited this event. In the present investigation, a team of Krishi Vigyan Kendra has randomly selected 320 feedback from the visitors. For this, a questionnaire was designed to conduct the survey, and a feedback form was created.Randomly selected 320 feedback from visitors were analyzed in this survey to study the impact analysis of the Krushik exhibition on the farming community.

RESULT AND DISCUSSION:

During Krushik 2024, very interesting, encouraging and satisfying feedback wasreceived from visitors. The following data reveals the feedback analysis of randomly selected & personally interviewed 320 respondents (Fig. No.1 & Table No.1). Among them, it was found that most of the visitors were highly impressed by the animal show & followed by demonstrations arranged in the exhibition. Most interestingly, 44.4 % of visitors from agriculture backgrounds appreciated & interested in adopting future Artificial Intelligence technology in agriculture, which was demonstrated during the Krushik 2024 exhibition. It reveals that most farmers, i.e. 69.1 % of farmers, were interested in live demonstrations rather than stalls type of exhibitions. Data also reveals that present-era farmers are very much interested in modern emerging technologies demonstrated on the fieldby various agencies, such as field visits (60.3 %) followed by AI- Artificial Intelligence (44.4%). 47.8 % of evaluated feedbacksuggeststhat it is the best place for farmer-farmer interactions from different regions.

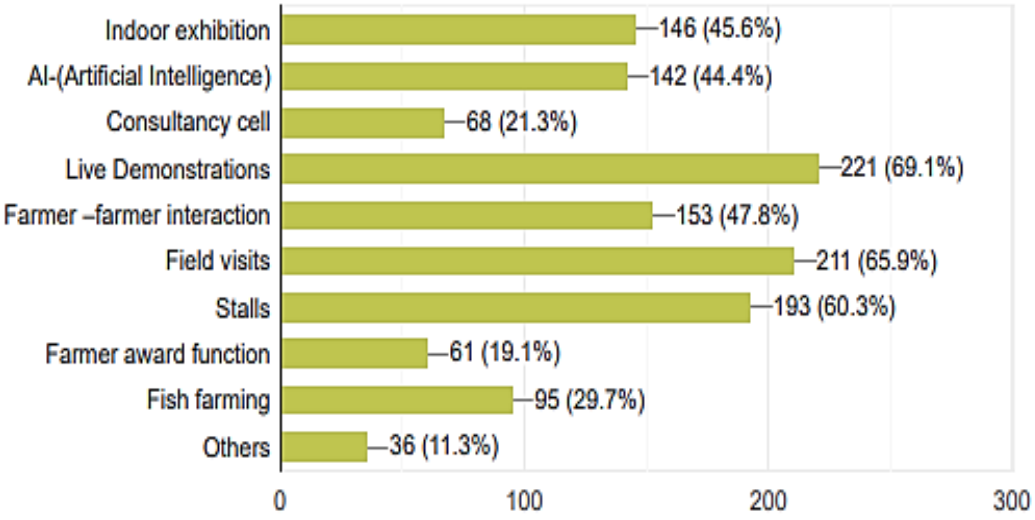

Figure 1 feedback analysis of randomly selected & personally interviewed visitors

Table No. 1 Analysis of most liked technologiesin Krushik 2024

Sr. No.	Category	Frequency	Percentage
1	Live demonstration vegetable plots	149	46.56
2	Technology Stalls	116	36.25
3	Machinery and implements	123	38.44
4	Artificial intelligence technology demonstration	127	39.69
5	Animal exhibition	219	68.44
6	Floriculture	80	25.00
7	Poly house technology	74	23.13

8	Fish farming	19	5.94

From the feedback, it was also found that farmer-exhibitor interaction was best, and farmer interaction was high (83.1%) due to the Krushik exhibition, which helped the farmers in cross-learning, changing the boundaries of their imaginations, and goingfor group farming (Fig. No.2).

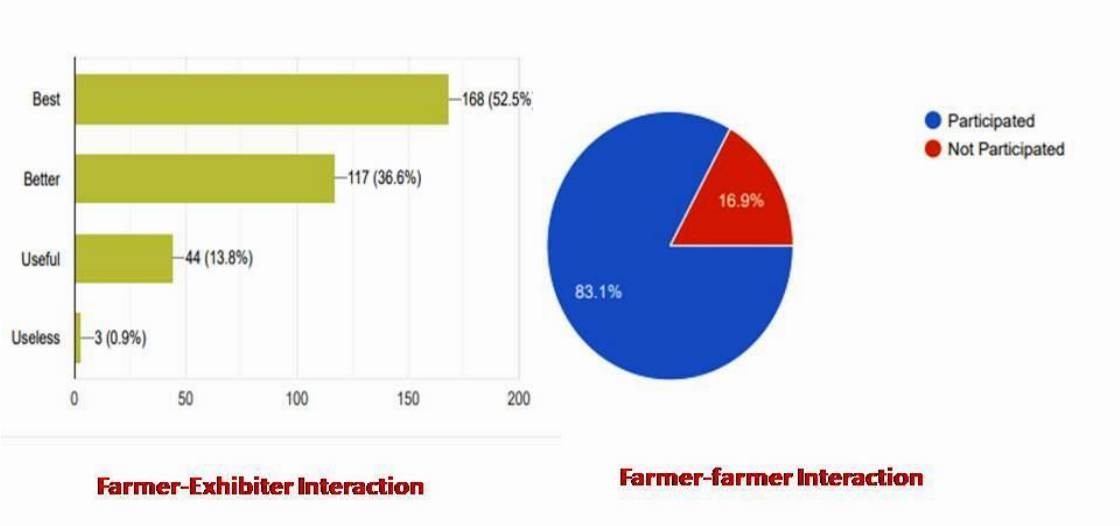

Figure 2: Farmer- farmerand farmer-exhibiter interaction

A. Interventions & Prospective :

The overall perspective of the respondents was best & Farmer's perception of the usefulness of Krushik indicates that all 35 technological interventions displayed during Krushik were most useful & helpful (Table No. 2 & 3). Among them, Dairy & Animal Husbandry, Information on fertilizers, Soil and water conservation, Agricultural Weather information, Biofertilizers, Honeybee rearing, Improved Sugarcane production technology,AI-artificial intelligence, Organic farming,Seed Storage & Processing and Agricultural implements & machine was appraised as a most useful. This indicates that a tremendous number of visitors from varying ranges of interest visited the exhibition. Exhibitions have created a vast impact on diverse kinds of visitors & it has the capacity to boost the farmingcommunity.

Strategic management facilities will increase the impact on farmers, asreported by Burgelman *et al.* (2008), Sattari *et al.* (2021) andYadav & Kumar (2017).

Table No. 2 Overall perspective of the respondents about Krushik 2024

Sr. No.	Category	Percentage	Frequency
1	Best	172	53.75
2	Better	116	36.25
3	Normal	30	9.375
4	Poor	2	0.625
	Total	320	100

Table No. 3 Farmer's perception of the usefulness of Krushik 2024

Sr. No.	Category	Most useful	Useful	Less useful
1	High Yielding Varieties of seed	171 (53.44)	138 (43.13)	14 (4.38)
2	Information of fertilizers	195 (60.94)	118 (36.88)	12 (3.75)
3	Information of pesticides	168 (52.50)	127 (39.69)	34 (10.63)
4	Agricultural implements & machine	182 (56.88)	127 (39.69)	18 (5.63)
5	Irrigation methods	173 (54.06)	136 (42.50)	14 (4.38)
6	Soil and water conservation	192 (60.00)	114 (35.63)	18 (5.63)
7	Information on high-tech horticulture	126 (39.38)	177 (55.31)	25 (7.81)
8	Information on Kitchen gardening	146 (45.63)	151 (47.19)	27 (8.44)
9	Information on IFS	123 (38.44)	152 (47.50)	48 (15.00)
10	Dairy & Animal Husbandry	210 (65.63)	94 (29.38)	19 (5.94)
11	Fisheries	143 (44.69)	163 (50.94)	19 (5.94)
12	Agro forestry	106 (33.13)	193 (60.31)	25 (7.81)
13	Ag. Weather information	199 (62.19)	100 (31.25)	26 (8.13)
14	Dry farming technology	123 (38.4)	184 (57.50)	16 (5.00)
15	Biofertilizers	195 (60.94)	113 (35.31)	14 (4.38)
16	Mushroom Cultivation	122 (38.13)	185 (57.81)	15 (4.69)
17	Honeybee rearing	209 (65.31)	99 (30.94)	17 (5.31)
18	Vermicomposting	180 (56.25)	139 (43.44)	8 (2.50)
19	Organic farming	183 (57.19)	128 (40.00)	17 (5.31)
20	Medicinal & herbal planting	134 (41.88)	169 (52.81)	18 (5.63)
21	Improved Sugarcane production technology	221 (69.06)	95 (29.69)	17 (5.31)
22	Contingency Crop planning	140 (43.75)	166 (51.88)	16 (5.00)
23	Seed Storage & Processing	183 (57.19)	124 (38.75)	19 (5.94)
24	Models/Charts/Poster	137 (42.81)	162 (50.63)	24 (7.50)

25	Hydroponics	157 (49.06)	137 (42.81)	31 (9.69)
26	Aeroponics	130 (40.63)	157 (49.06)	37 (11.56)
27	AI-Artificial Intelligence	175 (54.69)	127 (39.69)	25 (7.81)
28	Natural Farming	149 (46.56)	151 (47.19)	23 (7.19)
29	Mushroom production technology	156 (48.75)	148 (46.25)	24 (7.50)
31	Bio-flock	126 (39.38)	145 (45.31)	51 (15.94)
32	Floriculture	173 (54.06)	132 (41.25)	18 (5.63)
33	Poly house technology	166 (51.88)	134 (41.88)	24 (7.50)
34	Exotic and new fruit crops	172 (53.75)	124 (38.75)	27 (8.44)
35	Any other	146 (45.63)	142 (44.38)	39 (12.19)

B. Impact study:

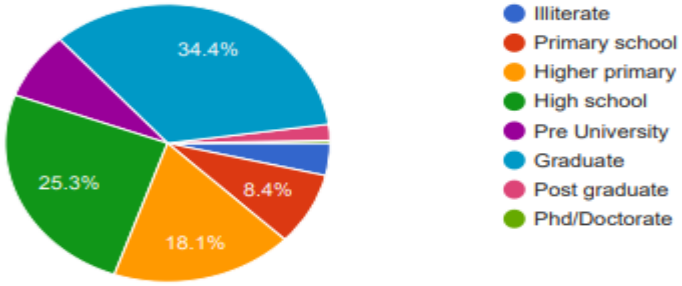

Figure 3 Pie chart showing educational status

Analysis of Krushik-2024 data revealsthat the frequency of graduate Youth visitors is high as it satisfies their appetite for emerging information and modern agriculture technologies, Followed by High school students. It reflects the changing perception &changing the mindset of young youth towards the agriculture sector.In this context, Exhibitions like “Krushik” play an important role as a knowledge & information hub centre and play a crucial role in nation-building.

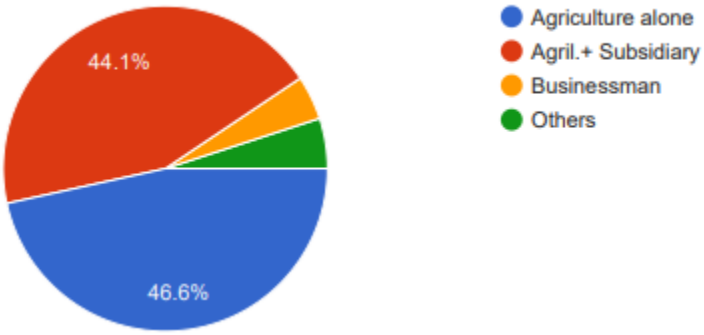

Figure 4 Pie chart showing subsidiary business status

Most of the visitors involved are from Agriculture (46.06%) or agricultural allied subsidiary businesses (44.06%) (Fig.4). Moreover, analysis of visitor interest shows that farmer-farmer and farmer-exhibitor interaction really helps them expand their business. Exhibitions like Krushik are a platform for them to learn about and acquire recent advances in the agriculture sector.

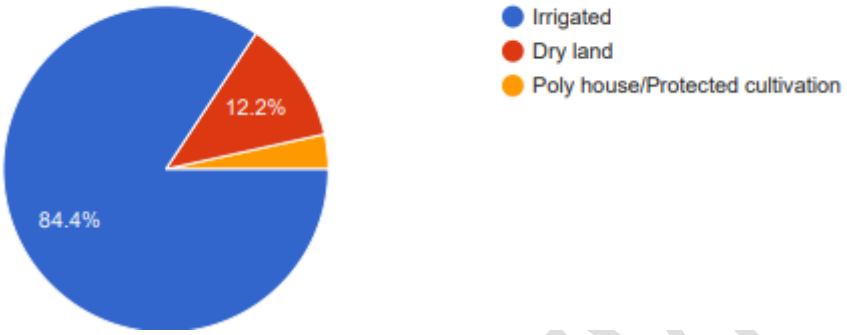

Figure 5 Pie chart showing agriculture status

The maximum number of visitors, 84.39%, are involved in irrigated types of agriculture, mostly fruit crop growers (55%), followed by agronomical crop growers, vegetable growers, and floriculturists (Fig.5).

Table No. 4 Useful and innovative technology/information as perceived by the respondents in Krushik 2024

Sr. No.	Category	Frequency	Percentage
1	Technical information	206	64.38
2	Machineries and implements	165	51.56
3	Solar machineries	94	29.38
4	Demonstration	221	69.06
5	Livestock	189	59.06
6	Future Agriculture	151	47.19
7	Agri. allied technology	143	44.69

They are highly satisfied with the way technology is demonstrated (69.06%) and technology received through the Krushik exhibition, i.e. (64.38%) visitors, followed by other categories of units. Table-4.

All the above data indicate that information & knowledge received from Krushik is the key to establishing a new subsidiary allied agribusiness. Table No.5 reflects the impact of the Krushik Exhibition that 87.5 % of respondent farmers are willing to adopt the technologies demonstrated in Krushik-2024.

Table No. 5 Opinion about the adoption of technology received in Krushik 2024

Sr. No.	Category	Frequency	Percentage
1	Adopt	280	87.5
2	Will not adopt/ not decided	40	12.5
	Total	320	100

Table No.6 Motivation of Respondents to others to participate in Krushik 2024

Sr. No.	Category	Frequency	Percentage
1	Motivated	316	98.75
2	Not Motivated	4	1.25
	Total	320	100

Table No. 7 Planning for next year's Krushik-2025 visit

Sr. No.	Category	Frequency	Percentage
1	Yes	314	98.13
2	No	6	1.88
	Total	320	100.00

Data also reveals that the percentage of motivated respondents was 98.75%, & Visitors were satisfied by all kinds of demonstrations and unit arrangements made during the exhibition. 98.13 % of visitors are willing to visit next year's Krushik-2025 exhibition in search of new technologies & information (Table No.7).

This indicates that the Krushik-2024 exhibition is highly successful in arrangement, Demonstration, and technology dissemination on a large scale among visitor farmers of varying categories. Similar results were also observed by Jambagi (2020), Sharma (2019), Jiyawan et al. (2012), Sharma and Hasan (2012), and Rathore(2013).

CONCLUSION:

The study reveals that the interest of young generation agricultural students is increasing in the agriculture sector. Moreover, live demonstration exhibitions/ farmers fairs/ technological weeks like "Krushik" can play a crucial role in the development of farming communities in a country. These are the platforms through which advanced technologies from both the public and private sectors can effectively disseminate within a short period of time. Even complex high-tech technologies like AI, IoT, Machine Learning, and sensor technologies can effectively reach the end farmer within a short period of time.It is the right place for a combination of individual, group and mass contact methods to sharetheirexperiences and knowledge.

Agricultural exhibitions like Krushik are effective methods for creating awareness of different technologies among farmers, scientists, officers from agriculture and allied sectors, NGOs, public and private agencies, etc. As they work on the principles of 'Seeing is believing' and 'Learning by doing', they have the capacity to accomplish the goal of doubling the farmer's yield by reaching the unreached.

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