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Diversity of millet based recipe competitions organized by Krishi Vigyan Kendra of Sawai Madhopur district of Rajasthan

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Abstract

Despite the continued efforts being made by government and policymakers to articulate ways of preserving Millets as its become daily food habits for new generation and its associated knowledge systems, Celebrates as “International year of Millet-2023”. This paper demonstrates about the millets training products and contests based approaches applied in mobilizing rural and urban women. The Present study was conducted in Sawai Madhopur district of Rajasthan to quantify the impact of 150 Farm women’s in rural areas. The Millet based 20 trainings were organized at Krishi Vigyan Kendra campus from 2020-2023 and many millet based products were developed like millet cakes, mathri, biscuits, cookies etc. When the millet based products were popularized among population than 3 millet based competitions were organized at Village Padli, Karmoda and Kushtala in Sawai Madhopur District. Different events including radio talks, T.V. Talks, public meetings, contact with key individuals, circulation of posters and pamphlets and group discussions were organized to sensitize the members about events. During trainings and recipe contests, *Padli, Kushtala and Karmoda* women showed a sound knowledge of Millet based products and presenting as traditional cook foods recipe of bajra, jowar, ragi, samak, sava. This was conducted as Diversity of Millet based Recipe Competitions provided by KVK to Farm women for their economic growth. Trainings were 20 provided on millets during year 2020-2023 at KVK premises.

Keywords: Millets, processing, value addition, trainings, recipe competitions

Introduction

Millets are nutri cereals comprising of sorghum, pearl millet, finger millet (major millets) foxtail, little, kodo, proso, browntop, buckwheat, amaranth and barnyard millet (minor millets). These are one of the oldest foods known to humanity. Millets as a Subhead consists of Sorghum (jowar), Pearl millet (bajra), Finger Millet (ragi), Banyard Millet, Proso Millet, Kodo Millet, Buckwheat, Amaranthus and Foxtail Millet. Being excellent source of essential nutrients to the millions of Indians, they are also called as ‘nutritious cereals’. The Indian Millets are nutritionally superior to wheat and rice as they are rich in protein, vitamins and minerals. They are also gluten-free and have a low glycemic index, making them ideal for people with celiac disease or diabetes. India is the world’s Largest producer of Millets with the share of 38.40% of worlds production. (Source: Food & Agricultural Organisation (FAO) (Updated as on 01-12-2023). Millet is a type of cereal that belongs to the Poaceae family of grasses. Nigeria and India, in particular, are the biggest growing regions for this small, round whole grain in Asia and Africa. Similar to quinoa and brown rice, millet can be cooked to promote easy digestion and is nutritious, gluten-free, and easy-to-grow food. It excels in the cultivation of Bajra and Pearl Millet. Come along on a journey to discover which country in India produces the most millet and learn about the key crops, nutritional benefits, and sustainable farming methods that contribute to millet’s essential role in the nation’s agricultural landscape. We come here with different types of millets and their farming practices in India. These are one of the several species of coarse cereal grasses in the family *Poaceae*, cultivated for their small edible seeds. They are highly nutritious, non-glutinous and not acid forming foods. Hence they are soothing and easy to digest. They contain high amounts of dietary fibre, B-complex vitamins, essential amino and fatty acids and vitamin E. They are particularly high in minerals, iron, magnesium,

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phosphorous, potassium and release lesser percentage of glucose over a longer period of time causing satiety which lowers the risk of diabetes.

Millets are considered to be the sole crop that will handle critical challenges in the future such as food, fuel, malnutrition, health, and climate change. As proposed by India to the Food and Agriculture Organization, the United Nations General Assembly adopted a resolution declaring 2023 as the International Year of Millets. The main goal of this initiative is to raise public awareness of the health benefits of millets and their suitability for cultivation under challenging conditions brought on by climate change. The *International Year of Millet-2023* provides an excellent chance to improve millet's contribution to food security, increase millet output globally. Rajasthan is set to promote the consumption of millets in a big way for improving nutrition levels among different sections of the population. Rajasthan, the "National Leader in Pearl Millets" is having the largest area and highest production in the country under pearl millet. The State occupies about 46 lakh-hectare area with an average production of about 28 lakh tons and productivity of 400 kg per hectare.

Production

In 2022, global production of millet was 30.9 million tonnes. India is the top millet producer worldwide, with 11.8 million tonnes grown annually – some 38% of the world total and nearly triple its nearest rival. Eight of the remaining nine nations in the top 10 producers are in Africa, ranging from Niger (at 3.7 tonnes) to Chad (0.7 tonnes); the sole exception is China, number three in global production, at 2.7 tonnes.

Top Millet producers	
in 2021	
Numbers in million tonnes	
1.  India	13.2 (43.85%)
2.  China	2.7 (8.97%)
3.  Niger	2.1 (6.98%)
4.  Nigeria	1.9 (6.31%)
5.  Sudan	1.5 (4.98%)
6.  Mali	1.5 (4.98%)
7.  Senegal	1 (3.32%)
8.  Ethiopia	1 (3.32%)
9.  Burkina Faso	0.7 (2.33%)
10.  Chad	0.6 (1.99%)
World total	30.1

Uses

Millets are major food sources in arid and semiarid regions of the world, and feature in the traditional cuisine of many others. In western India, sorghum (called *jowar*, *jola*, *jonnalalu*, *jwaarie*, or *jondhahlaa* in Gujarati, Kannada, Telugu, Hindi and Marathi languages, respectively; *mutthaari*, *kora* or *panjappullu* in Malayalam; or *cholam* in Tamil) has been commonly used with millet flour (called *jowari* in western India) for hundreds of

years to make the staple, hand-rolled (that is, made without a rolling pin) flat bread (*rotla* in Gujarati, *bhakri* in Marathi, or *roti* in other languages). Another cereal grain popularly used in rural areas and by poor people to consume as a staple in the form of *roti*. Other millets such as *ragi* (finger millet) in Karnataka, *naachanie* in Maharashtra, or *kezhvaragu* in Tamil, "ragulu" in Telugu, with the popular *ragi rotti* and *Ragi mudde* is a popular meal in Karnataka. Ragi, as it is popularly known, is dark in color like rye, but rougher in texture. Millet porridge is a traditional food in Russian, German, and Chinese cuisines. In Russia, it is eaten sweet (with milk and sugar added at the end of the cooking process) or savoury with meat or jowar stews.

Research Methods

The study was conducted in Sawai Madhopur district of Rajasthan. In Sawai Madhopur, there were total 5 blocks namely Sawai Madhopur, Chouth ka Barwara, Khandaar, Bonli, Malarna. KVK Sawai Madhopur conducted 20 trainings on millets based processing during 4 years 2020-2023. For the study Sawai Madhopur block was selected as there were millet based recipe competition was organized to farm women at Padli, Karmoda and Kushtala. In this competition 150 Farm Women were participated and prepared many many millet based recipe like bajra cookies, bajra biscuit, bajra cakes, mathri, jowar cake, ragi cake, bajra ladoo, jowar ladoo, bajra chilla, bajra khichdi etc. The contests were initiated at the local level through public announcements, pamphlets and a group meeting with teachers, women and community members several days prior to each contest. On the day of the contest, the women would bring millet based recipe like bajra cookies, bajra biscuit, bajra cakes, mathri, jowar cake, ragi cake, bajra ladoo, jowar ladoo, bajra chilla, bajra khichdi etc. A jury consisting of principal, sarpanch community members, doctor and line department staff would interview and check recipes each woman and score them on their knowledge according to the following criteria: their taste, nutritive value, novelty, their knowledge about the millet millets (such as habitat, growing habits etc.), knowledge on cooked recipe nutrition, and presentation style. Winners were awarded prizes such as teaching/learning materials. Follow-up activities and 'recipe contests', were organized to emphasize knowledge about uncommon crops and uncultivated millets among different women. The recipe contests celebrated knowledge about millet millets used in cuisine, as well as some with medicinal or health value of millet millets. Identifying and using various uncommon millets for different dishes by the women folk is a well known social and cultural process that adds value to millet of millet based crops and through which many millet species have been conserved by women from time immemorial. The idea of organizing recipe contests was parallel to the millet contests: (i) to recognize and reward knowledgeable women for their efforts in identifying, (ii) conserving, and (iii) adding the value to and using uncommon millets of millets and crop lands. For these contests, different dominated villages – namely, Padli, Kushtala and Karmoda – were selected purposively on the basis of their proximity to millet based resources and the dependency of the population on the indigenous or traditional food. Through this activity, rural tribal women, engaged in such interactive knowledge creation and exchange, have opportunities to demonstrate their culinary creativity and knowledge with regard to wild millets and crop uses. These contests have often been organized for village women recognized for their knowledge and culinary skills; they are asked in advance to create new recipes, using unconventional and un-cultivated millet millet.

Each dish was judge using such criteria as: i) number of different millet millets, ii) conservation value, ii) taste, and iv) the participant's knowledge of the different millets and parts used in her dishes. The recipe contests are generally publicized through pamphlets or appropriate available. media such as radio, posters, village gatherings, etc. On the day of the contest, the participating women bought the dishes and/or outline the methods of preparing them to a central place. A jury of principal, sarpanch community members, doctor and line department staff and concerned formal scientists was set-up to evaluate the participants. The winners were awarded prizes in the form certificate and kitchen utensils, etc. in a public gathering in the village. The winning recipes were displayed and shared with. communities and schools under the leadership of the chief of a village, who later addresses the participants, recognizing their knowledge and accomplishments and emphasized the value of available millets. Successful recipe contests have involved about 150 women from 3 villages. The dishes prepared often represented the wise use of millet and often have special nutritional values. Some were dishes that helped to cope with extreme seasons and calamities, and other dishes are recognized as having medicinal values or health benefits. Pre-survey was conducted to obtain information regarding profile and respondent's dietary food habits and nutritional deficiency diseases were also pre-surveyed. After one year of establishment of millet trainings, a post-survey was done to analyses the impact of millet trainings on nutritional status of selected families. Data were collected by interview schedule.



Research findings and Discussion

Approach and methodological learning about the millet contest

The millet contests were limited to 18-45 years, and were conducted as an extra-curricular innovation with the help of Padli, Kushtala and Karmoda and All India Radio, The targeted objectives were to identify and support knowledgeable women in ecological matters, strengthening the process of vertical and horizontal learning among women through displays of specimens and the dialogue surrounding them, establishing knowledge networks, generating respect for excellence in millet knowledge through recognition and reward, and inventorying women's knowledge of millet millet diversity. Krishi Vigyan Kendra Sawai Madhopur conducted 20 trainings on millets based processing during 4 years 2020-2023. For the study sawai madhopur block was selected as trainers were participates and prepare many millet based recipe like bajra cookies, bajra biscuit, bajra cakes, mathri, jowar cake, ragi cake, bajra ladoo, jowar ladoo, bajra chilla, bajra khichdi etc. Table 1 depicts that there were total 20 trainings were conducted at KVK premises

from 2020-2023 in which total 895 participants were too part and get skill development Training as Learning by doing about millet products. Participants firstly learning about millets crops, its agronomical conditions, varieties and recipes. There were many types of trainings were organized of 7 days vocational training, long duration 15 days and 21 days trainings. Farmers, farm women, rural youth all were attended training and learn about millets products bajra cookies, bajra biscuit, bajra cakes, mathri, jowar cake, ragi cake, bajra ladoo, jowar ladoo, bajra chilla, bajra khichdi etc.

Table 1: Training of Millets Processing and Value added Products

S. No	Name of training	Duration	No. of Trainings	Participants
			Year 2020-2023	
1.	Processing and Value addition of Millets	7 Days	11	578
2.	Processing and Value addition of Millets	15 days	5	197
3.	Processing and Value addition of Millets	21 days	4	120

Building participation

Rapport-building and contact process was attempted by approaching community chief at village level, school-teachers and All India Radio and introducing them to the concept of millet with special reference to the indigenous knowledge system. After thorough discussions, ways were determined by which a maximum participation of women could be assured. To create environment awareness, an effort was made to enlist the participation women by elaborating on problem of water quality and availability and its relation to millet in the environment of the concerned schools and villages. Unfortunately, at that time land slides due to heavy rain were a major problem, but these events served as a catalyst to help motivate previously indifferent people and helping to enlist a good level of participation. Networking, with lectures in every school and spreading the message through womens, was one of the valuable means to ensure successful participation in the millet contests.



It was decided that parallel extension of this message would be broadcasted through the All India Radio, fully aware of the contest and to activate their curiosity and promote. knowledge of millet millets. Through this, it was realized, they could generate and disseminate knowledge through vertical and horizontal. The printed pamphlets were distributed explaining the aims of the contest and the procedure for participation to women. Hence, this occasion was selected as a forum for explaining the concept of millet and for distributing the printed pamphlets to communicate the idea of this educational experiment on the indigenous millet and to convince them to participate in the contest.



Empathy among participants

During the time of introducing the concepts of millet and the idea of the contest to the women, it was necessary to use the regional language. To explain and promote the concept to the women the organizer selected a recognized wise women proficient in the regional language. With this women leader promoting the concept of millet, many other women came to the organizer to learn more about millet and its relevance to society. The organizer was surprised to find a competitive environment among the women; they all wanted to know and document all the information on millet through different sources, especially with the prizes and certificates as incentives. It was necessary to allow sufficient time – five or more days – to allow the women to learn about millet, to seek out knowledge from their peers and other sources, and to document this knowledge and present it in front of the organizer.

Mode of documentation and presentation of millet -based knowledge

Before the contest began, the women were informed that the first prize would go to those who received the highest marks for their project. The criteria were for the women to write about a minimum of 30 millets and their uses, along with preparing a sample to enter into the contest. In each school another criterion was kept for the participants that the total strength of women in each school should not be less than 20 to organize the potential contest. One mark for each was given for naming the millet, recording its use and providing a sample, thus total marks 3 to each millet. The women's used different ways to present their ideas regarding millet. The process of obtaining samples of the millet millets was found to be most significant to determine the knowledge of the women.

Assessment of contest

Results

On the fixed day when the contest ended, the organizer went to each class in order to collect the samples and answer from the women. As per the rules of the contest, four women from each village were selected as first, second, third and fourth prize winners. The prizes included utensils and all the prize winners received a certificate.

Results related to the participants and millet millets

The total number of participants was 150, with a minimum age of 18 and a maximum age of 45yrs old. The mean age of participants was 30 yrs. The participants were from different age ranges, the total, the majority (100%) were female. The total number of prizes awarded, including consolation prizes, was 30. The best performers (55.0%) were from village areas, with 30% from semi-urban areas and only 15.0% were from urban areas. This indicates the importance of closeness to the natural and rural environment in learning about nature.



Our analysis showed that, on average the women wrote about 52 millets, and presented samples of an average of 44 millets. Most of the millets identified and written about were jowars, while the average use of millets in ethno medicines and other purposes.

Out of the total of 52 millets in a best sample, a good majority (76.9%) were bajra millets existing in the. ity, which are utilized by the women folk in the form of leafy jowars to enhance food and nutritional security. It can be inferred that indigenous jowars still provide a major and significant contribution in the diets and most of the younger women can readily learn about these important foods. Ecological analysis of the millets indicates that a maximum number of millets (48.5%) were collected from forest areas. The contribution of kitchen gardens to the total number of millets in the millet contests was just over 40.0% while the contribution of shifting land and areas was 15.0%.

The sources of knowledge learned about millet were also analyzed. Over 35.0% of the contribution of knowledge about millets was from the grandmothers, followed by the mothers (17.0%) and grandfathers (14.0%) respectively.

A. Results of recipe contest: Learning with rural

The recipe contest was adopted as an approach to learn indigenous knowledge systems pertaining to recipes made from uncommon and unusual millet millets which are either cultivated in shifting lands or garden lands or occur naturally in forests or surrounding areas. The experiment was applied in three villages with a carefully designed methodology. This approach has helped tremendously to feature more than 60 varieties of ethnic millet foods consumed by the *villagers*. In forests, deserts and mountains, women from *padli*, *kushtala*, *karmoda* village tribal peoples possessed an outstanding knowledge of millet millets and their sustainable use and management for domestic health, agriculture, livestock and natural resource use. The knowledge of rural women regarding millet contributes not only to the improvement of livelihoods, health and nutrition, but also holds potential for the sustainable management of natural resources.



The different knowledge patterns held by different age groups towards uncommon millet millets and crops can be explored. Further it has been found that a higher age of a person does not necessarily ensure higher knowledge of the environment and

millet. There are many other factors such as interest and curiosity that affect the extent of one's knowledge (see the case study-1 of Mrs. Urmila).

Case study1

It was an interesting event during the recipe contest to meet with a women, Mrs Urmila, who won first prize. It was an interesting event during the recipe contest to meet with Mrs. Urmila Raiger, who won first prize. She is 37 years old belong to karmoda village. Of sawai madhopur district of rajasthan. From childhood, She has loved cooking, gardening, farming and working in kitchen garden. At the age 37, she knows more than 40 indigenous and all variety names of millet crops like jowar, bajra, ragi, sawa, rajgiri, samak and their preparation process of different recipes. She was rich in knowledge about preparing millet products as well as grown in their field and kitchen gardening like bajra, gowar. Millets like bajra, jowar, ragi, products like cakes, biscuits, cookies, mathri, sweets, roties, khichdi are integral part of her daily cooking. She had carried out some interesting knowledge from her native place to her working place and indigenous millet which are used in making some ethnic food are found in her native place like millet based bajra cookies, cakes, biscuit, mathri, sweets. These are some ethnic food of millet like samak, rajgiri, sawa are festive foods where also made by Mrs. Urmila raiger. She knows growing and agronomical aspects of millets crop like sowing, spacing to irrigation and harvesting. She knows some of ethnic food made from millet millets which help both in treating disease and nutrition. She shares native knowledge about local culture, festival changes over time and roles, responsibilities of women.

Conclusion

From the foregoing study, it could be concluded that women's participation in millet analysis through the contest was not just a matter of a competition but also was beneficial for women, teenagers, rural youth. This helped them to learn about millet and develop a knowledge network. It has also been learned that socially critical environmental education will be more useful and practical, if it relies on approaches that build on. Millets based products knowledge systems and approaches like millet contests and recipe contests. It will help to create a platform on which local knowledge systems can inform, interact and transform with formal knowledge and connect the holders of these multiple knowledge systems in collaborative and cooperative learning and action networks. When traditional healers and facilitators are given an opportunity to express and share their wisdom about millet among the women, they can use several participatory means such as drawing pictures of medicinal trees and millets and the irrelation to the ecosystem to communicate their ideas. The process of developing and creating the settings for millet analysis through contests based on local wisdom may initially seem weak due to a lack of confidence in the participants, but as soon as the interactions among and between women, teachers and pastoralists increases, the learning process for millet will significantly strengthen. The concluding of millet contests infers that through creating knowledge networks, millet contests may help to transfer wisdom from the older generations to the newer generations through various types of learning, and media. In turn, this may result into enriching the existing body of knowledge and reducing the rate of knowledge erosion. Further the outcomes of such millet contests diffuse in the social system vertically and horizontally, and through this process, the learning networks and knowledge dams retaining sustainable millet conservation strengthen.

The enabling conditions under which the methods of millet contests and recipe contests function are their simplistic ways and down-to-earth approaches to communication through informal/learning and teaching, promoting links between and interests in more than one generation and their knowledge systems and creating conditions for local knowledge systems to nurture and interact with formal knowledge systems. Millet and recipe contests are, however, more process-oriented methods, which helped to create platforms for future actions which not only assisted in the recognition of local knowledge but also combined it with formal knowledge and created a model for sustainable co-management of millet. There were many types of trainings were organized of 7 days vocational training, long duration 15 days and 21 days trainings. Farmers, farm women, rural youth all were attended training and learn about millets products bajra cookies, bajra biscuit, bajra cakes, mathri, jowar cake, ragi cake, bajra laddoo, jowar laddoo, bajra chilla, bajra khichdi etc. It can conclude that knowledge of women about millets crops and its products was very good because they are continuously connected to Krishi Vigyan Kendra Sawai Madhopur and taking trainings. Training from Krishi Vigyan Kendra Sawai Madhopur build a base and provide concrete knowledge about millets and its products.

References

1. Intodia SL, Mathur P. A Study on assessment and refinement of crop production technologies generated by agricultural universities for different Agro-climatic zones of Rajasthan. A Project Report submitted to Maharana Pratap University of Agriculture and Technology, Udaipur, Rajasthan. 2000-2002. p. 1-7.
2. FAO STAT. Food and Agriculture Organization of the United Nations. Available from: <http://Fao3.fao.org/faostat-gateway/go/to> [Accessed 20 Oct 2013].
3. Directorate of Agriculture. Agriculture Statistics at a Glance, Department of Agriculture, Government of Rajasthan, Jaipur. 2011-2012. Available from: www.krishi.rajasthan.gov.in/Department/Agriculture/AGRI_CULTURAL_STATISTICS_2011_12.pdf [Accessed 24 Oct 2013].
4. Directorate of Economics and Statistics. Agriculture Statistics at a Glance. Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India. 2012. Available from: eands.dacnet.nic.in/Publication12-122012/Agriculture_at_a_Glance%202012/page-139-140 [Accessed 24 Oct 2013].
5. Palmer JA. Environmental Education in the 21st Century: Theory, practice, progress and promise. New York: Routledge; 1998.
6. Center for Environment Education (CEE). Environmental Orientation for School Education: Some experiences and learning. A program of Ministry of HRD. Ahmedabad, India: CEE India; 1999.
7. Chawla L. Significant Life Experiences Revisited Once Again: Response to Vol. 5 (4) Five Critical Commentaries on Significant Life Experience Research in Environmental Education. *Environ Educ Res.* 2001;7(4):451-61.
8. Sauv e L. Environmental Education and Sustainable Development: Further Appraisal. *Can J Environ Educ.* 1996;1:7-35.
9. Gardner J, Shukla S. The use of Indigenous knowledge in post-secondary environmental Education: Strengthened global environmental management through local understanding. Paper presented at Canadian Congress; June

- 2002; Toronto, Canada. University of Toronto; 2002.
10. Sherry Chand V, Shukla SR. Biodiversity Contest: Indigenously Informed and Transformed Environmental Education. *App Environ Educ Commun*. 2003;2:229-236.
 11. Sherry Chand V. Innovations in rural higher education: Gramvidyapiths of Gujarat, Ahmedabad. Unpublished Doctoral Dissertation, Indian Institute of Management, Ahmedabad, Gujarat, India; c1996.