



Kerwawal farmers depend on agriculture and animal husbandry for their livelihoods

Reviving millets, reconnecting to cultures

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Farmers of Kerwawal Panchayat in Rajasthan found that by reviving bajra based cropping systems, their farming got liberated from water hungry crops such as cotton, onion and wheat. Reviving millets not only brought in more food and fodder, but also reconnected farming households to their traditional cultures where bajra is central.

Kerwawal Panchayat comprising three villages, Kerwawal, Kerwadi and Pila Dhaba is located in the north-east of Rajasthan. The Panchayat area is flanked on the east by a ring of hills and the west by a stream locally known 'Sukri River', running north-south, thus forming a natural boundary. Terrain is undulating with extensive gully formation, sloping from east to west. In between there are extensive patches of land that has been leveled for cultivation. Foot hills feature a modest forest cover under the Orans/Devbanis (community conserved

areas) over limited stretches. Agriculture and animal husbandry are the main livelihood activities in the Kerwawal Panchayat. As much as 30% of the income of the farmers is derived from their livestock - pastoralism activity.

In the Panchayat, mixed cropping has given way to large-scale agricultural systems. Cultivation is done in the valley areas and at the bottom of the hills and is below subsistence level. Only dry land agriculture is practiced. The average land holding, ranges from 0.4 ha to 2.5 ha per household. Crops grown during the Kharif include bajra, maize, cotton, jowar; teel; mung; chola; gwar. Among the crops grown in Rabi season are onion, wheat, mustard, gram and barley. Some vegetables are grown too, but these are mainly in the backyards. Most of the area is double cropped, with very limited area in the low lying region with tube wells, which raise the third crop in summer.

The shift from traditional to high yielding and hybrid varieties has been largely due to two factors: need for short maturing seeds owing to deficit rainfall and desire for higher yields. Cultivation is highly, if not fully, mechanized. There is heavy extraction of water to irrigate the fields using deep well pumps. Also, crops grown are water intensive,

especially during the Rabi season. Mixed cropping is being practised by some families having small pieces of land.

Millet revival

During 2011-12, KRAPAVIS (Krishi Avam Parithitiki Vikas Sansthan) conducted a study in the Kerwawal Panchayat, to understand the factors for declining area under millets. The study found that there has been a 25% decline in millet cultivation over last 10 years. The reasons cited by farmers included: introduction of cash crops like cotton and onion; lack of proper price for millets; inadequate warehousing facility at the government level; bajra not being distributed in ration shops or balwadies and *Bajra ki kutti/ kadbi* (dry fodder) not being part of the government fodder banks, and hesitation of insurance companies to extend their services to this crop.

KRAPAVIS study noted that the PDS (Public Distribution System) has been in existence for over 4 decades in the Panchayat. Only rice, wheat and sugar are supplied through PDS. All the three items are not locally grown and have to be procured from other places, while the locally produced bajra millet has no takers. This has resulted in change in food habits, which has led to more dependency on outside items. (See Table 1)

In order to address this challenge of declining millet farming, KRAPAVIS facilitated farmer led initiatives in the Kerwawal Panchayat, to revive millet cropping.

Many meetings were organised with farmers and importance of bajra cultivation discussed. For about two decades, farmers in Kerwawal have been cultivating cash crops like cotton and onion in low lying flat lands, on which earlier they used to grow bajra. During discussions, elderly farmers like Dhanuram Prajapat, Dasrath Singh, Dhankori Devi, Santo Devi, Nanayaram Jatav, Ganga Ram Jatav, Raghu Vir, and so on of Kerwawal village indicated the following advantages of bajra – bajra can be grown in foothills, desert, undulating terrain and poor soils with very less and erratic rainfall (like we have in Rajasthan), because it is a drought tolerant crop. It does not require many inputs (like chemical fertilizers, pesticides, hybrid seeds etc), and can be grown in mixed cropping systems, with legumes and oilseed crops. It is highly nutritional and tasty too. It provides warmth, fitness and strength during the winter. Owing to its low price, it is easily accessible to the poor in the villages. Bajra also serves as a very good fodder (green as well as dry *Kadbi*) to the livestock. Bajra is used in medicines for treating the animals. Bajra is a part of the local culture (See Box 1).

Farmers of Kerwawal village started recalling that in the past their parents followed mixed cropping systems - Bajra

Table 1: Changing food habits

Past (about 50-30 years back)		Present (over the last 5-8 years)	
Rank	Recipes	Rank	Crops / variety
1	Chhach & Rabari of bajra Dudh & Rabari of bajra	1	Tea
2	Roti - Bajra	2	Wheat Roti
3	Roti - Bejad (gram & barley)	3	Bajra Roti, only in winter
4	Roti - Tinaja (gram, barley and wheat)	4	Dal Chawal
5	Sabji of gram, mung, urad	5	Veg. like tinda, onion, gobi, loki
6	Kadi with besan of gram	6	
7	Dal - Batti - Churm	7	
8	Pitod (Chhach & besan)	8	
9	Channa Mangodi, Besan gatta	9	
10	Khichadi of Bajra	10	
11	Bajra Khichadi	11	

grown with legumes (e.g. *Urad and Mung*) and oilseeds (e.g. *Til- sesame*), Tinaja (three grains- jau, chana, gehu), Gauchani (jau & gehu), Bejad (jau & chana), 7 dhans (seven grains) - bajra, maize, mustard, wheat, jowar, pigeon pea and barley. Thus, farmers started realising that the traditional bajra and millet mix cropping systems was inherently bio-diverse.

Box 1: Bajra, its many uses in local cultures

“Annakut” on the eve of ‘Govardhan’ festival (the second day of Deepawali festival), is celebrated in Rajasthan. The entire community gets together and has bajra feast of a special recipe called “*Khadi-bajra*”. There is also a custom of donating bajra on the eve of “*Makar Sankranti*”. Making chapattis with, mixing of til (sesame), is considered auspicious on the day of “*Makar Sankranti*”. *Chauly* (minor millet) *ke laddoo* is made on the eve of Mahasivratri. “*Badpua*” - ten grains namely, bajra, jwar, corn, channa, til, rice, wheat, barley, moath, mung are mixed and filled in a mud pot and used in worship of Dashara festival. During “*Kalash puja*”, Bajra seeds are spread underneath the Kalash (mud pot) for carrying out auspicious rituals.

One ritual, “*Knaga Khelna*”, is performed on the next day of marriage during which bride & groom throw bajra seeds at each other. Another ritual called “*Dund*” is performed when a child is born in the family, then kheer of bajra is distributed to neighbors on the Holi festival of that year.

In order to maintain the best habitats for birds, there is a system of feeding birds everyday with “*Chuga dalna*”, made with bajra, in the orans and temples compound. Similarly, “*Cheetawal*” is another ritual, meaning feeding ants with millet.



Interaction with women farmers to understand traditional cropping systems

Once the farmers realised the importance of this system, KRAPAVIS facilitated the following: 1) identified traditional mixed cropping systems; 2) identified farmers who are willing to take up bajra mixed farming or who have been making efforts to practise some form of traditional farming like mixed millet-based cropping systems, vermi-composting and biofertilizers etc.

Farmer to farmer and community to community exchanges were facilitated by organizing exposure visits. An exposure visit was organized to Danta Ramgarh to visit Sunda Ram Verma, an educated farmer, who has been trying to find new options and new varieties of different crops with tolerance to drought, frost, pest and diseases.

Initially, KRAPAVIS encouraged farmers to bring back the traditional seeds of bajra and bajra based cropping system. Villagers had almost lost their traditional seeds. KRAPAVIS facilitated to collect, exchange and save indigenous bajra and jowar seeds.

With the procurement of traditional bajra seed, crop demonstration of mixed cropping with 7 dhans (seven grains-bajra, maize, mustard, wheat, jowar, tur, barley) was organised.

In the village, the women groups called Mahila Mandals (SHGs) were formed. The group meets every month and does saving as well. In this group, it was good to observe

that members maintain registers and also manage credit activities. Women members were taken to exposure visits to places where they saw many varieties of seeds. To improve access to traditional seeds, SHGs created seed banks. Mahila Mandals started storing the seeds and providing the same to both internal members as well as those outside the group. Each member in turn returns the amount of seeds borrowed by him/her along with a little bit extra to increase the seed bank size. A steel container was provided by KRAPAVIS to the groups to enable easy storage of seeds as well as keeping the seeds safe from attacks by various insects. As a result of the seed bank, women were able to preserve the traditional seeds, reduce dependence on hybrid seeds, as well as cut down on expenses incurred on buying expensive hybrid seeds.

Some demonstrations on water conservation and renovation of traditional water bodies were carried out, through desilting and deepening of tanks, including catchment treatment, to facilitate ground water recharge, improve availability of water for livestock as well as water for

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domestic use. Communities with help of KRAPAVIS, renovated two oldest Johads (water harvesting structures) in Kerwawal village located in the best millet agricultural lands. Also, built several *khels* (water troughs) to store water for watering plants, fodder crop, livestock and birds.

As a member of a larger network called MINI (Millet Network of India), lobbying and advocacy efforts were made for a favourable millet policy. We involved many scientists, doctors, farmer organisations, and consumer organisations in the Millet Campaign. With the support of many groups and with as many as 92 endorsement letters from Rajasthan (including MP, Sarpanch, Doctors, Scientists, Panch, and Academicians etc), we have sent the Millet Campaign letter to our Agriculture Minister and Chief Minister and also released it to the media.

Also established MINOR (Millet Network of Rajasthan) to promote sustainable livelihoods of rural pastoral communities through “forest (orans)-livestock-agriculture trinity”. KRAPAVIS has continued to campaign for sustainable agriculture; advocating for traditional mixed cropping systems, traditional seeds, particularly of mustard, gram, tur and bajra. Through network, we have been demanding the government to ensure supply of indigenous seeds of bajra and other traditional crops through its agriculture extension services; procure *Bajra ki kutti/kadbi* as part of government fodder banks and supply during the famine period, distribute bajra through ration shops (PDS), Anganbadi and midday meal schemes; and set up community managed warehousing at the village level.

Major outcomes

There is greater acceptance and adoption of traditional millet based mixed cropping systems, not only in Kerwawal Panchayat but in surrounding villages too. This is evident by the number of farmers in Kerwawal and 14 neighbouring villages growing mixed cropping of bajra with indigenous seeds and low input agriculture. Around 177 farmers are now practising sustainable agriculture with indigenous varieties. With increase in number of farmers accepting sustainable agricultural practices, there is improvement in productivity and sustainability of agriculture.

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There is increased awareness amongst villagers regarding local seed conservation. As many as 7 issues of the quarterly



Farmers trying out bajra based cropping systems in Kerwawal

newsletter “Devbani Re Baat” were brought exclusively on millet and mixed cropping systems as an effective resource cum communication material on local seed conservation. The concept of saving traditional seeds through SHGs managed ‘Seed Banks’ spread to other 4 Panchayats/villages – Kalikhol, Bandhe ka bas, Kagpur and Bakhtpura. Networking among farmers from over 20 villages has been developed and strengthened, further facilitating seed exchanges.

Millet Network of Rajasthan (MINOR), on its own and as a part of larger networks like MINI, has continuous dialogue with local government department, politicians, NGOs and policy makers. These efforts contributed towards the National Food Security Act getting passed. Due to advocacy efforts, state government has now taken steps to ensure minimum support price (MSP) for bajra farmers.

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