



Ensuring Nutritional security by Rural Business Entrepreneurship at Madurai District

Written by: Dr.S.Kamalasundari, Dr.N.S.Venkataramen, Dr.C.Ravindran, KrishVigyan Kendra

Background – what was the drive behind the new development

Rice was the main crop grown in the Madurai District of Tamil Nadu, India. Due to the problem of inadequate irrigation water due to ground water depletion, farmers started giving up rice. Millet is highly suitable for promotion as an alternative crop in climate change era for the food and nutritional security. With the intervention of ICAR Krishi Vigyan Kendra (KVK), the activities on millet technologies in terms of location specific sustainable land use systems to convert rice growing areas to millet growing areas was taken. At present the production of millets is increased and estimated at all time high levels in this region. Millets grown at Madurai include finger millet (*Eleusine coracana*), pearl millet (*Pennisetum glaucum*) foxtail or Italian millet (*Setaria italica*), kodos millet (*Paspalum scrobiculatum*), common or proso millet (*Panicum miliaceum*), little millet (*Panicum sumatrense*), and barnyard or sawa millet (*Echinochloa utilis*). But the farmers are not really benefitted of it because of the disrupt rate they get on selling millets to middlemen's or directly to processors. KVK created awareness to farmers on secondary agriculture of millets.

Thus, dietary diversification towards these crops offered an opportunity particularly in low income households to improve their food and nutritional security. Its known fact that Millets are rich source of nutrients B complex vitamins and minerals. The deficiency of these nutrients is most acute among the poor and among children, women of reproductive age, pregnant and lactating women. As millet provide a low cost solution to combating malnutrition due to micronutrient deficiency also provide additional health related advantages because of their higher level of dietary fibre and balanced more amino acid profile and low glycaemic index.

Description of how the new development works and how it is changing real lives

There are certain constraints like coarse skin, undesirable colour pigment presence of anti nutrients, poor keeping quality, etc. which hinder the utilization of these millets by the consumers. Various processing methods have been developed and standardized to overcome these constraints and improve the nutritive value of millets. These processing help to improve utilization of millets for product development. The processing also helps in increasing the shelf life of the processed pearl millets flour to 2-3 months from 5-8 days. KVK organised many short and long-term vocational training courses in processing of millets for the farmers and rural youth. One thousand trainees attended them between 2010 and 2012.



As a result the knowledge on value addition of millets by the farmers was converted to social enterprise under the initiative of the District Collector, Madurai. A farmer's Food Court was started as a massive programme. In this Food Court, farmers prepare various breakfast foods, convenience foods, bakery products and snacks using millets and sell them. One thousand farmers started growing millets and got trained by KVK to prepare value added preparations using them. Hundred farmers prepare food regularly and on seasonal occasions. The Food Court functions from 4:00 PM to 10:00 PM. A minimum of 400-500 customers purchase food items every day. This practice leads to an income of Rs.2000-3000/day with mere expenditure of Rs.500 and less, besides providing employment. This training gave them confidence to run a food court by themselves. They are now successful entrepreneurs.

In addition to increase in household income, the villagers of target village gained employment. 100 farmers were made as successful entrepreneur by constant monitoring and guidance leading to sustainability of the millet production.

Hurdles and challenges that were overcome

Initially farmers was not willing to grow millets because of lack of improved varieties suitable for value addition. In this context, Tamil Nadu Agricultural University, Coimbatore has released high yielding, drought tolerant, non-lodging millet variety suited for both kharif and rabi with a short duration of 95 days, highly suitable for value addition. All the grain was assessed for the physical, chemical and cooking characteristics. The results showed higher specific gravity, less absorption of water (1:1.5) and less cooking time. The grains in whole form, broken form, flour, barn yard millet rice were tested for various preparations of food products such as multigrain atta, health mixes, convenience food mixes, ready to eat products like flakes, snacks, etc.

Comments and experiences of 'developers' and users

Awareness was created among the farmers on various nutritional benefits of the grain. This transformed them to utilize the millet in their own meal. Thus, the nutrition of the individual has improved besides, preventing them from selling at a low price. Moreover as the growing public understand the link between diet and disease, and has an interest in self-health maintenance, these foods that are of therapeutic value always have greater demand. This in turn it replaces the junk foods and introduce healthier foods, traditional foods etc.

Limitations/constraints/future challenges

Maintaining the quality of products in line with food certification is in the process. There is difficulty in getting continuous supply of millet based foods because of very few entrepreneurs targeting a great mass. Appropriate efforts must be done for enrolling more entrepreneur, marketing of the produce, maintain the supply chain management.

What next in terms of development? What lessons have been learnt/can be transferred elsewhere?

Food processing can increase farmers income by 20-40% will create around 50-100 million jobs and considerably improve nutrition level At Tamilnadu Agricultural university and KVK there are sufficient technology on value addition of millets. But it has not reached the farmers. The KVK has established a minimal processing unit and also purchased equipment for processing of millets exclusively. Using this many value added products can be prepared in ready to use form. By getting proper food certification and branding farmers can become a successful entrepreneur. These challenges have to be foreseen in future.

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