



On farm Agricultural produce processing:

A boon for Indian farming

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Farm-level entrepreneurship development is the best option for enhancing income and employment opportunities in rural areas. In India, there is a great scope for entrepreneurship development due to the immense quantity of raw material production, adequate labour and facilities, shifting of people to value-added and processed foods, assured market supply, consumer demand. Identifying this opportunity, Farmer FIRST Project, ICAR-CIPHET, Ludhiana, Punjab is encouraging farmers for on-farm processing of agricultural produce in production catchment. About 20–25 farmers are successfully processing honey, sugarcane, cereals, pulses, oilseeds, spices and horticultural crops with the established processing centres in field areas by the project. Processing of these crops helped in increasing income of farmers by 25–30%. Among them, success stories of three farmers are briefed here.

Keywords: Agricultural produce, Entrepreneurship, Processing and value addition

GREEN revolution has made possible self-sufficiency in food production in India from ship-to-mouth stage prevailing three and half decades ago. But, surplus production of any commodity affects the market price of that commodity, often resulting at selling price less than production cost and therefore, processing of these materials helps in value addition, product diversification, enhancing income and employment opportunities that result in development of overall rural livelihood. On-farm primary and secondary processing of agricultural produce has now become a very important tool for boosting our economy which leads to the development of rural agro-processing industries. The processing of the food commodities at the village level not only prevent the post-harvest losses but also provide additional employment (both direct and indirect) to the local people.

The Farmer FIRST project entitled Processing and value addition of agricultural produce for enhancing farmers' income and employment in production catchment at ICAR-CIPHET, Ludhiana was initiated in District Shahid Bhagat Singh Nagar, Punjab and now it has been expanded to state of Punjab. Under the project many awareness programmes were organized in order to sensitize the growers from time to time. Now, farmers are getting convinced that they can do processing in production catchment. However, in order to motivate the masses, three number of success stories

are mentioned below. The authors believe that the stories will be helpful in encouraging the fellow growers to start their enterprise as per the availability of raw material in respective area.

Processing of organic produce in Banga, SBS Nagar, Punjab

Organic farming is a means of farming system which primarily aims at land cultivation in such a way to keep soil alive and in good health by use of organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials along with beneficial microbes (bio-fertilizers). This method of farming increases sustainable agricultural production in an eco-friendly way and brings natural balance in environment.

S. Surjit Singh Riar (50 years) progressive farmer took an initiative of organic farming. He is doing cultivation of wheat, paddy, mustard, sugarcane and some vegetables in 5 acres of land. He has a great interest in sustainable farming and hence, he collected information about package of practices of organic farming. He undertook training from PAU, Ludhiana and ATMA, SBS Nagar on methods and technology of organic farming in 2014. In year 2016, he started organic farming in some parts of land and in 2021 got certification of organic land in area of 1.5 acres from Punjab Agro. After that, he started organic farming of wheat, paddy, turmeric and sugarcane. In 2020, he also established small scale

jaggery production unit and processed organic jaggery under the technical guidance of FFP, ICAR-CIPHET, Ludhiana. In 2021, he produced organic paddy in 1 acre of land, that is appreciable among his fellow farmers. Many farmers and officers visited his method of organic farming of paddy and pleased his efforts. In case of organic sugarcane production, he is not getting premium price of premium organic product. During, meeting of FFP team with sugarcane growers, he came to know about the modern technology of jaggery production. He also visited chemical free jaggery production plant established at Uppal Farm, Rahon, SBS Nagar. ICAR-CIPHET, FFP team guided him about modern methods of jaggery production and the ways of preparation of different shapes in order to increase the appearance of jaggery. This helped in fetching more prices and received a huge demand from consumers. He is selling his organic jaggery at ₹100–120 per kg. He has produced 15 q of organic jaggery in a season and earned additional income of ₹80,000 from sugarcane processing. He is earning annual income of approx. ₹4 lakhs from agricultural produce. He also contacted ICAR-CIPHET for processing of organic turmeric powder and wheat flour. According to farmer, the yield received from organic farming is quite low but price realization is higher than crop produced with synthetic chemicals being premium produce & further the profitability can be expanded if the product is processed and marketed at farm itself. Therefore, one can shift his cultivation into organic farming without any hesitation of price realization. Hence, organic and natural farming is the urgent need to be adopted by farmers for sustainable development in agriculture with minimum harm to environment and further processing will adds towards more profit.

Processing of Raw Honey

Honey bees are special gift to mankind because beekeeping can be done for both their pollination services and their cherished products such as honey, beeswax, propolis, bee venom, etc. Beehive is a place in which single colony of honey bee exists and performs various functions for their livelihood. Bee farmers keep these hive boxes in areas containing rich flora and fauna from October-April every year to harvest honey from different types of crops.



Training on organic farming

Mr. Deepak Sunda (22 years) is doing beekeeping for last 4 years with 50 boxes. Raw honey when extracted from combs and apiaries is to be heat processed at 60–65°C for 20–25 min. to destroy yeast cells to increase shelf-life up to 1–2 years. In the traditional method of honey processing, raw honey is heated using a wood fire and there is no mechanism to control the temperature. Most of the times uncontrolled heating leads to over-heating which affects the quality parameters of honey, like the colour becomes darker and wood fire burning results in absorption of smoke particles which can ultimately impart undesirable flavour to processed honey. At large, farmers were forced to sell their raw honey in bulk to traders, brokers and middlemen multinational companies at ₹120–140/kg. This problem can be tackled by hygienically processing of raw honey with a modern honey processing unit (capacity 50–60 kg/h) developed by ICAR. During the demonstration of the honey processing unit established at Rahon, Punjab under FFP of ICAR-CIPHET to beekeepers of nearby areas, Mr. Deepak Sunda came to know about this modern technology. He showed interest in modern honey processing and also approached the institute for training. The FFP team assisted him in gaining insights of maintaining the quality of honey by scientific processing. After that, he started processing honey



Intervention of raw honey processing



Chemical-free jaggery production unit



Chemical-free jaggery production



at Rahon, SBS Nagar on a custom hiring basis. This mechanized honey processing unit helps in controlled heating of honey which results in the superior quality of honey under hygienic conditions.

With this intervention, he is processing and selling honey at the rate of 300–350 ₹/kg after packaging in glass and plastic bottles. Team FFP of ICAR-CIPHET is also guiding growers and processors to register under FSSAI to their brand value. The beekeeper is selling his processed and packed honey under the brand name “Hive Honey”. This branding, packaging and labelling helped in selling honey at good prices in the retail market. On an average, he is processing about 1000 kg of honey every month and earns an additional profit of ₹4.5 lakh per season. Some benefits he is also passing to the beekeepers of his group. Now, more fellow farmers from nearby areas are also processing honey from this established unit on a custom hiring basis which helps in enhancing the income of farmers.

Sugarcane processing into chemical free jaggery

Jaggery production is one of the major traditional businesses of rural livelihood from ancient times. But, due to popularization of sugar among consumers in recent years there is great downfall in jaggery production. S. Kulveer Singh (34 years) is growing sugarcane in 15 acres of his land. He was selling his canes to sugar mills at the price announced by the state government from time to time. He was also producing some jaggery by traditional methods. The farmer has been receiving inappropriate and late payments from sugar mills and also due to low scale of Jaggery production with traditional method leads to an increase in processing cost of Jaggery. Chemical-free jaggery production plant has been established under FFP, ICAR-CIPHET, Ludhiana at Uppal Farm, Rahon, SBS Nagar, Punjab. The sugarcane growers are being guided to start their venture of sugarcane processing into solid and granular jaggery by this established unit as custom hiring centre.

This intervention of chemical-free jaggery production under hygienic conditions helped the farmers in the production of jaggery in large quantities with good product quality. Production of solid jaggery in uniform shaped cubical and cuboidal size helps in fetching more prices in the market than traditional shapes (round blocks). Due to 3-pan semi-automatic plant operation,

scale of production is also increased which decreases the cost of production than traditional methods. This season, the farmer had produced 210 q of solid jaggery and 125 q of granular jaggery. He was also guided for branding, labelling and packaging of jaggery for sales in the retail market. Through this activity, the farmer had earned an additional profit of ₹4 lakhs. Selling of jaggery in the retail market helps increase in income of farmers by 25% as compared with the selling of raw canes to mills. In addition, the jaggery production unit can provide direct employment to 5–6 skilled and unskilled persons during the season. Now, more farmers are also visiting the established unit to understand this new technology of jaggery production. Some of them are interested in setting up the same unit at their farm. According to the farmer, this venture is the need of upcoming generation due to the increase in health consciousness of consumers about the consumption of jaggery over sugar. Therefore, due to assured market and higher price realization, a self-proficiency and sustainable livelihood can be achieved by budding entrepreneurs in this field.

SUMMARY

To achieve the goal of “doubling farmers income” there is a need of shifting to entrepreneurship development through primary and secondary processing of agricultural produce at the farm level. These enterprises helps in increasing the income of farmers by 20–25%. More number of fellow farmers are required to be linked to one established unit at the community level on profit basis. The major requirements for enhancement in the level of processing are production and availability of good quality raw material, appropriate training on post-harvest technologies, awareness about the benefits of farm level processing, capitalization of the local market, and awareness and knowledge of government schemes and subsidies. However, Govt. of India is also promoting these entrepreneurship facilities to budding entrepreneurs through various subsidy schemes such as MUDRA Yojana, PM-FME, PM-KSY etc. ICAR-CIPHET is already contributing and willing to provide hand holding for producers who wish to be the processor.

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