

## Value-Added Processing of Underutilized Fruits & Vegetables: A Treasure for Naga's Future

### INTRODUCTION

Fruit & vegetable crops play a significant role in addressing nutritional needs while also adding value and earnings. Crops that have traditionally been used for food, fibre, fodder, oil, or medicinal purposes are among the underutilized fruit crops. Those crops, on the other hand, have untapped potential to provide food security, nutrition, health, income, and environmental services. Fruits & Vegetables such as jackfruit, passion fruit, jamun, radish, wild apple, ginger and others that are underutilized are major sources of livelihood for the poor and it helps to combat malnutrition (Gajanana et al., 2010). Crops that are underutilized are mostly high in antioxidants and nutrients but due to the significant level of astringency and acidic character of the fruits, these crops are not widely known. Diversification and popularization of such underutilized crops are urgently needed. This can be accomplished by establishing appropriate processing and marketing methods and by transforming them into a variety of products.

### KVK KOHIMA'S INTERVENTION

KVK Kohima after considering the scope and potential of value-added products in Kohima district due to the availability of underutilized fruits and vegetables, conducted Frontline Demonstration (FLD) to popularize the use of underutilized fruits and vegetables in the District during the year 2022-23. An On campus FLD programmed along with Skill programme was carried out for 3 days and 6 days respectively, where the participants were educated unemployed youths from Ziphenyu Village (20 nos) and Tseminyu Town (20 nos) under Kohima district. During the FLD Programme, theory as well as hands on practical sessions were conducted where the participants were trained on making of various value-added products like Pickle preparation, Candy making, Squash, Jam, Jackfruit & Banana chips, Marmalades etc. followed by Packaging & labelling of prepared food products for sell and exhibitions.



Participants during the conduct of FLD programme

Hands on practical session on preparation of Value-Added products during FLD programme



Products prepared during the FLD programmes on Value Addition by KVK

**Fig. 1: Frontline Demonstration on Popularization of Underutilized Fruits and Vegetables as value added products.**

## Result and Economic analysis:

During the demonstration period, as per results of the demonstration the average quantity of produce per kg was 1150 g/kg followed by Organoleptic test as per 9 point hedonic scale, where the results indicate Colour (7.88), Flavour (8.25), Texture (8.38), Overall acceptability (8.50), Shelf life (Up to 3 months (Chips and candies) and 6 months (Pickles & Squash) compared to only 2 to 3 weeks in local check. The highest yield was (1200 gm/kg), lowest yield (800 gm/kg), and average yield (1150 gm/kg) compared to local check (750 gm/kg). The percentage of increase in yield i.e., change in average yield over local was 34.78 %.

**Table 1: Performance in terms of various parameters over local preparation and % increase under Kohima District.**

Demonstration Yield (gm/kg)			Yield of local Check (gm/kg)	% increase/ change in avg. yield over local
H	L	A		
1200	800	1150	750	34.78 %
8.75	8.00	8.50	6.00	
3 to 6 Months	3 to 6 months	3 to 6 months	2-3 weeks	

**Table 2. Technology Output**

Crop	Gross Cost (Rs/kg)	Gross Return (Rs/kg)	Net Return (Rs/kg)	B:C Ratio (GR/GC)
Fruits & Vegetables	400	2400	2000	1:6

## Marketing, Outcome and Impact:

The Agri-preneurs are selling their items @ Rs. 150/- /100 gm (Wholesale), fetching a gross return of Rs. 3,75,000/- with a net profit of Rs. 3,15,000/- in a year (Approx. estimation). As value addition is one of the fastest growing food sectors globally and driven by increased consumer demand, and with the intervention by KVK, Kohima, the eagerness to try improved technology-based product making has influenced many youths to go for value added product making.

**Horizontal spread within the social system:** After the successful intervention made by KVK under this sector more number of youths were interested to take up this sector as an enterprise, so further dissemination through trainings and method demonstrations were carried out in different locations for horizontal spread. The extent of adaptation in the district was 40%.



**Fig. 2: Promotion of Value-Added Products of SHGs and Rural Youth during State and Inter State exhibitions**