

Overview of Homestead Technologies in Agriculture and Allied Sectors

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ARTICLE ID: 34

Introduction:

Women are considered as untapped national resources and society would benefit more if were given the opportunity to use their unique talents. Meaningful development can be expected if women participated both in their traditional domestic role as well as productive role in a more planned way in technological sound activities for economic independence. The homestead agriculture is basically the domain of female members of the households. According to some historians, women first initiated agricultural practices by first domesticating crops and developed art and science of farming. Women played significant and crucial role in agricultural development in the allied fields including crop production, livestock production, horticulture, post-harvest operations, agro and social forestry and fisheries. The homestead area is not utilized in a very planned manner rather this is used indiscriminately.

Homestead farming:

This farming system is a well-established land use system where different crops, fruits and vegetables including trees are grown in combination with livestock. A judicious mix of agricultural enterprises like dairy, poultry, goatary and fishery are under taken for additional income generation.

Agricultural commodity:

Any plant or part of animal or animal product produced by person (farmer / animal keeper / plant propagator) for consumption sale or for other uses. Its characteristics include came out of the field, no value addition and may have undergone through primary processing like drying in the field after harvesting, shelling / threshing and winnowing.

Food processing:



Food processing is the transformation of agricultural products into food, or of one form of food into other forms. Food processing takes many forms, from grinding grain into raw flour, home cooking, and complex industrial methods used in the making of convenience foods. Some food processing methods play important roles in reducing food waste and improving food preservation, thus reducing the total environmental impact of agriculture and improving food security.

History of Food processing:

It dates back to the prehistoric ages when crude processing incorporated fermenting, sun drying, preserving with salt and various types of cooking like roasting, smoking, steaming and oven baking. Salt-preservation was especially common for foods that constituted warrior and sailors' diets until the introduction of canning methods.

Categories of food processing:

The action of performing a series of mechanical or chemical operations on food in order to change or preserve it. Processed foods are not just microwave meals and ready meals. A processed food is any food that has been altered in some way during preparation. The Nova classification groups food according to different food processing techniques which are:

- Primary food processing
- Secondary food processing
- Tertiary food processing

Primary food processing is necessary to make most foods edible while secondary food processing turns ingredients into familiar food products like bread. Tertiary food processing results in ultra-processed food products and has been widely criticized for contributing to many life style disorders. These ultra-processed food products can contain added man-made chemicals and preservatives that are not naturally occurring and / or easily extracted from hybridized and / or genetically manipulated plants like sugar, corn syrup and seed oils.

Primary food processing:

Primary food processing turns agricultural products like raw wheat kernels or livestock into something that can eventually be eaten. This category includes ingredients that are produced by traditional processes like drying, threshing, winnowing, milling grains, shelling nuts and butchering animals for meat. It also includes deboning and cutting meat, freezing

and smoking fish and meat, extracting and filtering oils, canning food, preserving food through food irradiation and candling eggs as well as homogenizing and pasteurizing milk.



Traditional processing methods

Secondary food processing:

It is the everyday process of creating food from ingredients that are ready to use. Baking bread, regardless of whether it is made at home or small bakery or large factory is an example of secondary food processing. Fermenting fish and making wine, beer and other alcoholic products are traditional forms of secondary food processing. Sausages are a common form of secondary processed meat formed by grinding of meat that has already undergone primary processing. Most of the secondary food processing methods known to humankind are commonly described as cooking methods.

Tertiary food processing:

It is the commercial production of what is commonly called processed food. These are ready-to-eat or heat-and-serve foods such as frozen meals and re-heated airline meals.

Categories of food processing

Type of food	Primary processing	Secondary processing	Tertiary processing
Fruits and vegetables	Cleaning, cutting and sorting	Pulps, pastes and slices	Jams, jellies and pickles
Grains and cereals	Sorting and grading	Milling, parboiling, ravva, flour	Biscuits, noodles and cakes
Dairy products	Grading and refrigeration	Cottage cheese, cream and dried milk	Yogurts and spreadable fats
Meat and poultry	Sorting and refrigeration	Cut, fried and frozen	Ready to eat

Marine products	Chilling and freezing	Cut, fried and frozen	Ready to eat
Edible oils	Sorting and grading	Refined oils	Fortified oils

Benefits of food processing:

It includes toxin removal, preservation, easing marketing and distribution tasks, and increasing food consistency. In addition, it increases yearly availability of many foods, enables transportation of delicate perishable foods across long distances and makes many kinds of foods safe to eat by de-activating spoilage and pathogenic micro-organisms. Modern supermarkets would not exist without modern food processing techniques, and long voyages would not be possible.

Drawbacks in food processing:

Processing of food can decrease its nutritional density. The amount of nutrients lost depends on the food and processing method. For example, heat destroys vitamin C. Therefore, canned fruits possess less vitamin C than their fresh alternatives.

Benefits of value addition:

Simple but at the same time low-cost processing and packaging technologies can improve the shelf life and storage quality of food considerably. Can preserve many of the health promoting compounds. Functionality can be added to foods with convenience and easy to use for better nutritional status of consumers.

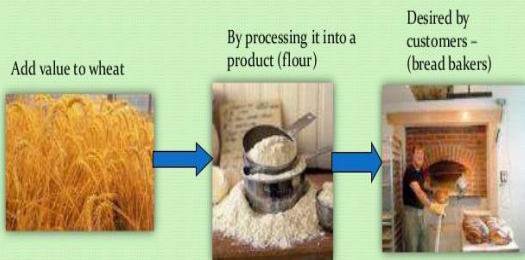
What is – Value-Added Agriculture?

- **Adding Value** - Process of changing or transforming a product from its original state to a more valuable state

Add value to wheat

By processing it into a product (flour)

Desired by customers - (bread bakers)

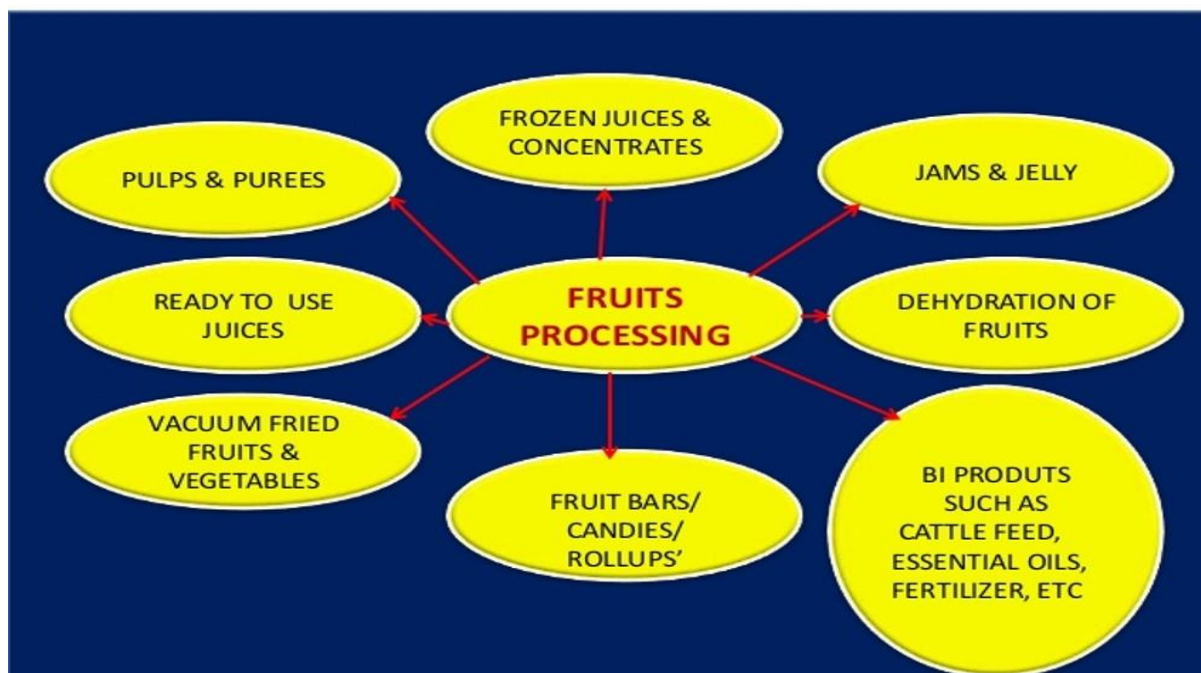


Visible benefits

Table 4 : Additional income due to adoption of improved post harvest operations

S.No.	Crop	Post Harvest Operations	Additional income %
1	Fruits and vegetables	i. Cleaning, grading and sorting	25.0
		ii. Drying	30.0
		iii. Preservation	15.5
2	Spices	i. Milling	20.0
3	Maize	i. Dehusking & shelling	12.5
		ii. Cleaning	7.5
		iii. Storage	15.5
4	Wheat	i. Cleaning & grading	7.5
		ii. Storage	15.0
		iii. Milling	15.5
5	Paddy	i. Cleaning & grading	7.5
		ii. Storage	15.0
		iii. Puffing	15.0
6	Pulses	iv. Milling	15.0
		i. Splitting	10.0
		ii. Dehusking	10.0
		iii. Besan making	18.5
7	Oil seeds	i. Milling	12.5

Types of processed fruit products:



Meat processing:

The meat value addition helps in masking of odour, colour and other attributes of meats, minimize waste to consumer and processor, uniformity of colour, texture and fat distribution, accurate prediction of yield, lower cooking losses, ready to eat food products and convenience to consumers.



Chicken balls curry



Chicken sausages



Enrobed eggs



Chicken wings