

## **Post Harvest Technologies and Value Addition**

Too much of the food harvest is lost to spoilage and infestations on its journey to the consumer. In countries like Pakistan, where tropical to subtropical weather and poorly developed infrastructure contribute to the problem, losses are sometimes of staggering proportions. Losses occur in all operations from harvesting through handling, from harvest to consumption would reduce losses and increase profitability margins of the produce. Proper evaluation of post harvest technologies includes technical, economic and social components and is being increasingly focused in agricultural research.

# POST HARVEST TECHNOLOGIES AND VALUE ADDITION

## Maize

- The work on Baby Corn (Vegetable Corn) was initiated. Some suitable genotypes have been identified along with some Pakistani products where baby corn can be utilized.

## Tea

- About 5400 kg black tea was processed. A pilot green tea processing plant of capacity 80-100 kg processed green tea was installed at NTRI with the financial assistance of Pakistan Science Foundation, Islamabad. About 200 kg green tea was processed during 2006.

## Food Quality and Nutrition

- A survey of wheat growing areas in Punjab was conducted by scientists of the Grain Quality Testing Lab.(GQTL), to assess the quality of the wheat produced in 2006. Samples of commercially grown wheat varieties were tested for physical quality ( test weight, foreign matter, broken and shriveled grains, insect damage and other damaged grain), chemical tests(moisture, ash, protein) and rheological aspects (falling number, wet and dry gluten)
- Analysis showed that the crop was dry and good for storage. Test weight was either same or higher than the required values for the best grade i.e. PAK1. Wet gluten higher than 25% is considered very good for making baked items, whereas protein in the range of 10-12 is an indication of good grade wheat. The values of wet gluten and protein in the samples were in the good range. Falling number was also found to be in the satisfactory range.  
To get the accreditation, Grain Quality Testing Lab., was striving hard to meet the requirement of ISO 17025 standard. Lab. was in the process of accreditation from Norwegian Accreditation body.
- Lab. has provided analytical services to private and public sectors. Different food commodities (cereals especially wheat, bakery items, fruits/vegetables, snacks, water etc.) were tested. Total number of about 2800 samples for different quality parameters (protein, moisture, ash, fat, fiber, gluten, falling No., farinograph, ergot/kernel bunt, microbial analysis, minerals, etc) were analyzed.
- Grain Quality Testing Lab. scientists participated in different food proficiency testing schemes, conducted by Food Analysis Proficiency Assessment Scheme of Central Science Lab., U.K. (FAPAS), (American Association of Cereal Chemists, USA (AACC) and Norsk Matanalyse (The Norwegian Institute of Food and Environmental Analysis).
- Lab. has participated for moisture, nitrogen/ protein, ash, falling number, brix, pH, sugars , falling number , coliform, E.coli, yeast and moulds.
- For these parameters the Lab. has participated once in FAPAS (2006), four times in AACC (2006, 2007) and three times in Norsk Matanalyse. (2006-2007). Overall performance was in good to excellent range.



**Baby Corn**

## Potato

- Under natural conditions, out of 53 varieties/clones.Faisalabad white, Desiree, Paramount and two NARC clones (NARC 9625 and NARC 2002-1) were significantly better for long storage with less moisture losses.

## KARINA, Juglote

- The survival rate of olive plant in Skardu where the temperature in winter declined to -16°C was only 5%. Variety Hamadi, Souri performed well.

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Olive production in KARINA, Juglote



Army Officers visiting olive production site at KARINA, Juglote



Minal (Kuth) *Saussurea lappa*

- Black zera (*Bonium persicum*) was successfully cultivated. The methodology of its cultivation has been developed and verified that it gives grain yield of 1 t/ha. The selected varieties have been planted at farmers' field at different locations.
- The product preparation of Seabuckthorn at Gahkuch continued during the year. Improvement was made in value addition and packing of oil, pulp, jam, squash, jelly, marmalade, shampoo, cream, talcum powder, chocolate, capsule, SBT cola, vinegar etc. Trainings to communities were also imparted.