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"Fruit, Vegetable and Herb Dehydration" -- All Dried Up

By Joe Ogradnick

GENEVA, NY: Dehydrated fruits and vegetables are increasingly available in the marketplace. Dehydration is one of the oldest processing techniques—a method to preserve perishable produce while making a delicious and nutritious product that does not need refrigeration and has a long shelf life. In addition, improved techniques and more advanced and less costly equipment has made drying foods easier than ever.

A workshop held at the New York State Agricultural Experiment Station in Geneva, NY, last month addressed some of these issues. "Fruit, Vegetable, and Herb Dehydration," was organized by Cornell University food scientist John Roberts and focused on small-scale production of dehydrated products. There were 29 attendees, including five speakers.

The morning session covered dehydration basics, shelf life and regulations related to dehydrated foods, microbiology and sanitation practices, and packaging. Roberts provided an overview of dehydration. He discussed the stages of moisture loss during dehydration and the factors that affect moisture loss and product quality at each stage. He also provided information on pre-treatment techniques specific to fruits and vegetables.

Food scientist Olga Padilla-Zakour then explained how removing water in the food extends shelf life by suppressing both the growth of spoilage organisms and deteriorative reactions. She also discussed regulations regarding inspection, proper labeling and commercial sale as they pertain to food manufacturing at home and in small kitchens.

Microbiologist Randy Worobo covered the basics of food microbiology, including spoilage and pathogenic microorganisms and how these microorganisms survive and grow. He further explained how pathogens enter the food supply and talked about ways to prevent contamination through good hygiene and sanitation practices. Worobo also pointed out that raw foods should be processed, either frozen or dehydrated in this case, as quickly after harvest as possible.

An overview of the history of packaging foods was presented by Joe Hotchkiss, professor and chair of the department of food science at Cornell's main campus in Ithaca. He also talked about the purposes of packaging and offered guidelines on how to choose the best package for a dehydrated product. Hotchkiss provided an entertaining presentation with pictures of familiar food packages and also brought samples of several food products representing various types of packaging. He concluded his talk with the message that one must take the time and effort to "shop around for the best package to suit your needs."

Matthias Resen, of Healing Spirits Herb Farm and Education Center, gave an interesting presentation on solar



Workshop participants taste various samples of dried fruit and vegetables in the Pilot Plant. CREDIT: J. Ogradnick/NYSAES/Cornell

drying in the Northeast. Resen showed the group slides of his solar dehydration facility located on Route 415 between Cohocton and Andrea, NY.

The afternoon program consisted of demonstrations of the most popular dehydrators on the market, sampling a number of dehydrated fruits, vegetables and herbs that had been exposed to various pre-treatments (fresh vs. frozen for instance), and an open discussion on related start-up and development issues related to dehydrated products. Three of the most popular dehydration manufacturers for small-scale drying donated demo models and literature about their dehydrators for the workshop.

"This hands-on demo in the pilot plant was very popular with the attendees," Roberts said, "because it allowed them to see, taste and feel many different fruit, vegetable and herb products and learn what products and pre-treatments work best for dehydration. More importantly, it fostered networking and discussion among the attendees."

Roberts went on to say that, "Since most of the attendees have their own farms and are quite busy during the picking season, they were happy to hear that fruit could be frozen during the picking season and then thawed and dehydrated later in the fall or winter."

Participant, Dave Evans, director of Nelson farms at SUNY Morrisville, who has been working with small-scale food processors for the past four years, says that he has had few opportunities to work with or learn in depth, the area of dehydration. "This workshop was excellent for me," he said, "to not only learn the basics but also provide information on what equipment would best suit our clients' needs and then install that equipment and make it available at the new facility at SUNY Morrisville."

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