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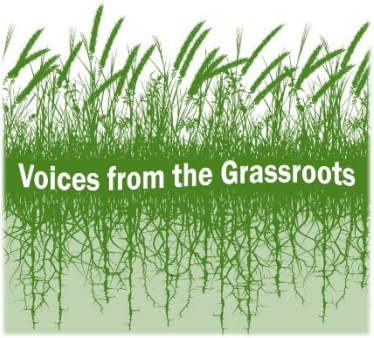
Community kitchen freezing and vacuum packaging



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In a 2016 study of fresh food loss on Vermont farms, Salvation Farms Director Theresa Snow and her colleague offered insights into farmer production problems. They extrapolated from their survey results that about 14.3 million pounds (6.5 million kg) of vegetable and berry losses occur on Vermont farms every year. Farm food problems included market saturation of fresh zucchini, lack of available help, not enough storage, blemishes on edible produce, fewer customers at farmers markets, and deterioration of produce in storage while waiting for a future market. Farm fresh produce waste problems, however, can be a training opportunity for community kitchens.

My interest in frozen food processing began after working on a community supported agriculture (CSA) vegetable farm in the late 1990s, where excess produce was composted, left to rot, or fed to pigs. To me, a retired farmer and former family and consumer science teacher, these farm food waste issues shouted opportunities for addressing today's food waste and healthy food challenges through freezing.

My response to this waste was to design and build a kitchen in 2000 (inspected by New York State Agriculture and Markets) to explore value-added processing. The next year the Cornell Food Venture Center approved several frozen and vacuum-packed procedures I had developed. Boil-in-bags are used for blanching vegetables. After cooling, the vegetable broth is drained off and frozen to use to cook grains or to include in soup kits. Cut vegetable pieces are weighed, put into labeled 3 ml bags, vacuum sealed, and frozen. The vegetables are combined with separately packed cooked dry beans, cooked whole grains, savory sauces, and spices as freezer meal kits.

The front label (printed on a color laser printer) should include the product name, a photo of the product, an ingredients list, and the product weight. Labeling laws also require the statement

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"Keep frozen until use!" on the front label. Cooking instructions and nutrition information go on the back label. Inside, stories about the cooks and participating farmers can be shared to increase community food system connections.

Community kitchen–sized equipment are used. These include a storage freezer; a commercial upright tray freezer and an upright tray refrigerator, each with 17 shelves; a commercial vacuum packager; an outer vacuum bag sealer; and a commercial scale. Supplies include boil-in-bags for blanching, vacuum pouches for storing the frozen food, and the product labels.

With the help of a Cornell department of food science intern, I used a 2001 Northeast Sustainable Agriculture Research and Education (NESARE) grant, "A Community-Supported Kitchen," to see if local customers would be interested in purchasing frozen individual foods and meal kits. I continued to explore creative freezing possibilities with community groups in Schenectady, NY, and Pittsfield, Massachusetts. I received interest even from kitchen managers at food banks. The teacher in me wanted to empower others to freeze local foods.

I discovered that it makes sense to freeze and vacuum-pack foods individually as fruits and vegetables are harvested. Vegetable blanching times were determined by their "cut shape," in the form of cubes, purees, pieces, fresh seeds, or shreds. Fruits become frozen purees. Cooked whole grains and dry beans with 290% to 390% added water freeze and reheat nicely. These ingredients are combined with separately frozen savory sauces whose main ingredient is water. Spices provide the opportunity to flavor the meals creatively. Consumers can add their own salt to taste. Cookbook recipes inspired kit combinations for soups (see Photo 1), quick breads (such as pumpkin bread), stir-fry meals (see Photo 2), heat-and-eat veggie burgers, and fruit sauces with less sugar than jam and more uses to boot.

Many farmers in the Northeastern U.S. grow small amounts of a lot of different foods. However, food hubs use freezing equipment that require lots of one kind of food. How can we freeze smaller quantities of unsold local produce foods that will otherwise be wasted or underutilized? Community kitchens near the farms could be the answer. With the appropriate training materials, school cafeterias, vocational technical classrooms, family and consumer science culinary classes at high schools, food banks, and church kitchen cooks could freeze and vacuum-pack the wide variety of foods grown locally.

One barrier to producing frozen and vacuum-packed foods is that Hazard Analysis Critical Control Point (HACCP) plans are required that cover all the processing steps. Since November 2017, the New York State Health Department website has supported food service operators wanting to freeze and

Photo 1. Curried Butternut Squash Chowder Freezer Meal Kit

Photo 2. Cajun Vegetable Cheese Stir Fry Freezer Meal Kit

vacuum-pack local foods (also called reduced oxygen packaging, or ROP).[1]

HACCP plans are approved by the appropriate New York county health departments for school and food bank kitchens. Help writing HACCP plans is available at other online websites. A vacuum-packaging company offers online help.[2] HACCP training is available at the U.S Food and Drug Administration (FDA) website.[3] The Cornell Food Venture Center works with food entrepreneurs in the Northeast who use state-inspected kitchens. Cornell offers a HACCP course to students. HACCP-trained college interns could work with county health departments and community kitchen staffs to produce plans for approvals.

My vision is to reduce local farm food waste by producing freezer meal kits with instructions that teach consumers how to cook while addressing today's consumer health issues. Dietitians could lead the way by helping design products. Culinary-trained professionals can use their sensory imagination to create culturally relevant recipes for taste-testing and production. Training programs involving community kitchen staff, teens, retirees, and food pantry participants can reduce initial product development costs while creating interest and developing culinary skills for future jobs. Even CSAs with excess fresh produce could add frozen offerings to their fresh ones.

Why isn't this happening now? I believe the major problem is the lack of easy-to-follow, online training materials suitable for teens and adults. Professionally designed presentations with video clips can empower community cooks to produce meals that address local farm sustainability issues and meet consumer health needs. Community kitchens could become year-round local farm food markets. I am working on developing the training materials and welcome collaborators.

References

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[1] Information about this is at http://www.health.ny.gov/environmental/indoors/food_safety/pubs/rop_guidance.pdf
[2] See http://www.haccp-portal.com
[3] See https://www.accessdata.fda.gov/scripts/foodSafetyPlanBuilder/