

Adding Value in the 'Circular Economy'

Exchanging byproducts can optimize the local entrepreneurial ecosystem

By Susan Smiley

As markets for recyclables have shifted and declined, institutions and businesses have worked to find new approaches to handling the byproducts of manufacturing. One particularly interesting set of concepts could be headlined the Circular Economy.

The hallmark of this big idea is an exchange of byproducts among local businesses, coming from their industrial activities, adding value to undervalued resources. The byproducts are not simply directed to external recycling markets; they are reinserted and optimized in the local entrepreneurial ecosystem, adding value and richness to the local economy.

Two such fruitful and novel collaborations are taking place in the Champlain Valley. One enhances the health of honey bees and the productivity of a local apiary. The other has created a food product from leftover brewing grains from the craft brewing process.



Photo by Clark Johnson

[Vermont Coffee Company](#), in Middlebury, roasts and distributes organic coffee. It's committed to better energy solutions to roasting coffee, partnering with renewable biogas sources for the energy to roast and investing in energy-efficient equipment and programs (Cow Power). Two byproducts of Vermont Coffee Company's manufacturing process are coffee bean hulls (chaff) from the roasting process and burlap bags, used to ship green beans from the farms where they are grown. Not surprisingly, Vermont Coffee sought ways to re-value these materials through a collaboration with another local business.

[Champlain Valley Apiaries](#) helps the coffee roaster close the circle for chaff and burlap. This local company has been producing high-quality honey since 1931, describing itself as producer of a hardy strain of honeybee that is resistant to disease and thrives even in the harshest of Vermont winters.

Winter protection for the hives is paramount if the bees are to survive. The business first began using Vermont Coffee Company's burlap bags to insulate the exterior of the hives and increase protection. The burlap is reusable from year to year. And because the beans are certified organic, there are no toxins in the coarse cloth.

The coffee roaster's chaff also became an essential part of C.V. Apiaries winter hive protection strategy. Chaff is fluffy and light and is used to fill the topmost part of the hive, where it absorbs and releases moisture from the bees' winter efforts to maintain an optimal temperature in the hive. Chas Mraz, 3rd generation beekeeper, credits these two revalued materials with greatly improving the bee's winter survival.

In beer making, when the mash and the boil are finished and the wort is happily mixing with the yeast in the fermenter, what is there to do with the grains left over from the mash? Spent grains or brewers grains are a major byproduct of beer making and are often composted.

One entrepreneur, Kyle Fiasconaro, decided to revalue the waste product as an ingredient in crackers. Brewer's Crackers, his product line uses spent grains and flour as part of his formulation, baked and packaged in Bristol at Bristol Bakery Café Wholesale. Fiasconaro credits the bakery with helping him create a highly nutritious and incredible tasting line of crackers and flatbreads for his company.

[Frost Beer Works](#) in Hinesburg is the source of spent grains for [Brewer's Crackers](#). The spent grains are transported in totes to Bristol. R&D work was necessary to perfect the inclusion of the moist grains with the other ingredients. Bristol Bakery's director of purchasing, Ian Smiley, reports that the water in the formula is adjusted with each delivery of spent grains, whose moisture content is variable. The craft brewer's care in sourcing the malted barley and other grains for their beer is valued by both the baker and Brewer's Crackers.



The relationships described here will continue to draw value from residual materials. Their use represents a reduction in costs of production for all participants. The network of the Circular Economy is expanding and this newsletter, will, from time to time, highlight more of these partnerships

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