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## Farmer's vegetables have significantly higher nutritional value than average produce

By Alana Melanson, [amelanson@sentinelandenterprise.com](mailto:amelanson@sentinelandenterprise.com)

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WESTMINSTER -- M.L. Altobelli's crops have a secret: The nutritional values of the vegetables she grows are significantly higher than those of average produce found at a traditional grocery store.

No, the land at her Woody End Farm does not have magical properties that cause it to create superbly efficient plants. The key is what Altobelli adds to the soil prior to planting, she said.

There isn't one specific ingredient that will ensure the plants will grow to their highest possible level of functionality, rather, it is a mix of several that are necessary, the amounts of which are highly dependent upon the soil composition and the desired outcome; measuring and balancing out what elements are already present in the soil and supplementing them with others, she said.

The major soil components that are needed in growing are calcium, magnesium, nitrogen, phosphorus and potassium; trace amounts of boron, iron, manganese, copper, zinc, aluminum, cobalt, molybdenum, selenium and silicon are also necessary and often greatly affect the plant's absorption of the major nutrients, she said.

"You need a whole lot of calcium. You only need a little boron," Altobelli said. "But without that boron, all that calcium will go nowhere. It will not move up into the plant, no matter how much calcium is in the soil."

Altobelli uses North Country Organics' Pro Gro fertilizer, a combination of several mineral-rich natural ingredients, mixed with alfalfa meal and



M.L. Altobelli, uses a mix made up of alfalfa meal, azomite, and Pro-Gro fertilizer to grow vegetables. (SENTINEL & ENTERPRISE)



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azomite, a mineral she also feeds to her goats to regulate their stomach bacteria and keep them free of worms. The mixture of these ingredients has helped her plants to produce vegetables larger in size and yield, and she says they taste better and sweeter than any she has ever bought at a store. She has also done brix testing on them, a measurement of the quality of the sugars and proteins in the plant's sap, and found the levels to be very high.

"A healthy plant will taste sweet if it has

all of the minerals it's supposed to have," Altobelli said. "Our taste buds are designed to find what is needed. We desire for sweet because, to the body, sugar is associated with having a high mineral content. These days, we dump sugar into everything, but cane sugar has no nutritional value. It tastes sweet, so we eat and eat and crave more, but our bodies aren't getting what they think they're getting."

The methods Altobelli uses are far from new, they are just relatively unknown to the general public. Altobelli owns an entire library of books related to the subject, most of which she says were written prior to World War II.

"We had a lot of chemical companies that came into being during the war," she said. "After, as a nation, we had this great capacity to produce chemicals, and we thought, what do we do with them?"

Ammonium nitrate, which had once been used to kill soil life in order to compact the ground to make it hard enough on which to land a plane, was slightly reformulated after the war to be used as fertilizer, Altobelli said.

"Constant use of synthetic fertilizers destroys soil life, burns off carbon and creates compaction, making it essentially dead soil," she said, noting it kills off microorganisms, fungi and bacteria which keep plants healthy and help them to soak up nutrients. "It's so compact that no oxygen can get through and the plants can't grow their roots. And then you end up with weak, sad plants liable to be attacked by insects and disease, so then you have to spray pesticides, adding more chemicals to the process and contributing to further loss of nutrients."

Though she has practiced these methods to some extent for the last 27 years as she has run her fine garden landscaping business Greenery in Motion, Altobelli recently participated in a two-day class taught by Dan Kittredge, a North Brookfield organic farmer and director of the Real Food Campaign, a movement aimed at returning crops to a nutrient-dense state and educating people on the complex relationship between soil, food and health.

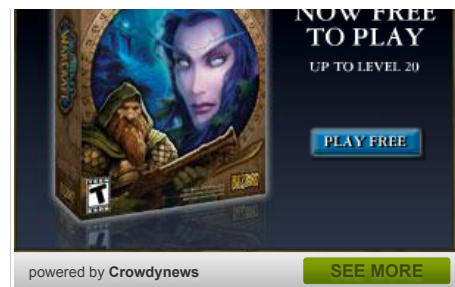
"We as animals have certain types of compounds that are most valuable and beneficial for our biosystems to function, such as antioxidants and phytonutrients," Kittredge said. "Plants create these compounds in high quantities when they're healthy. But because they are complex compounds, it takes a high level of functionality to create them. Most growing systems don't have that level of functionality."

"Really well grown food does not rot when you let it sit on a counter," Altobelli said. "It gently dehydrates."

Strong cell walls, aside from making the plants resistant to disease, also ward off insects, which would otherwise eat their way into the plants, he said. The



M.L. Altobelli, an organic gardener, greets one of her goats at her farm in Westminster. (SENTINEL & ENTERPRISE / BRETT CRAWFORD)



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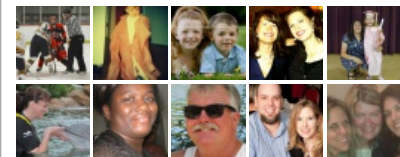
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combination of these resulting factors make the use of pesticides completely unnecessary in farming, provided that the crops are grown well to begin with, he said. Strong cell walls will also allow plants to withstand freezing as temperatures drop, at least for awhile, Altobelli said.

"Plants have the genetic potential to create these higher level compounds, they just need the right environmental factors to do so," Kittredge said. "Insects can't digest these compounds."

The relationship between these resulting factors also has a great economic advantage: Aside from removing the need for and cost of potentially harmful chemicals, it becomes much less likely that all or a portion of a crop will be lost to disease or pests, meaning a much lower chance of lost income for the farmer, Kittredge said.

The major reason Kittredge is interested in increasing the nutritional values of his crops is because, nationally, these numbers have decreased greatly across the produce board since 1975. Based on numbers provided by the USDA National Nutrient Database, in broccoli alone, measured per 100 grams of the raw edible portion, over the course of 1975 to 2010 the amount of calcium in the plant has decreased by 54.4 percent, iron by 33.6 percent, thiamin by 35 percent, riboflavin by 47.8 percent, niacin by 28.9 percent, vitamin C by 21.1 percent and vitamin A by a whopping 75.1 percent.

The database also shows the majority of cauliflower produced in the U.S. by major farms no longer contains vitamin A. The vitamin is also down by 58.8 percent in grapefruits, 75.5 percent in peaches and 80 percent in strawberries. Iron is down by 58 percent in onions, 59 percent in strawberries, 60 percent in apples, 61.8 percent in cauliflower, 62.9 percent in bananas (domestic and imported), 75 percent in oranges and 85 percent in grapefruits.

Essentially, in most cases, one has to eat about five times the amount of a fruit or vegetable today to obtain the same nutritional value one serving would have provided back then, but the vast majority of people do not realize this. Part of the problem, according to Alex Jack, one of the directors for Amber Waves based in Becket, an organization dedicated to preserving grains from genetic engineering, is that the USDA stopped publishing nutritional data in print form in the 1990s and switched to an online database; however, Jack says, most government agencies, medical associations, restaurants and other organizations still refer to nutritional data collected in 1975 or earlier, largely relying on the USDA's 1975 "Handbook #8" for such information.

"Our nutrients are disappearing," Kittredge said. "The minerals just aren't there in the soil anymore at the level the plants need to be healthy and that we need to be healthy. The good news is we've got everything we need to revitalize the soil."

Altobelli recommends small farmers and backyard gardeners get their soil tested in the fall, cover the area intended for planting with leaves or straw to allow for fungi and bacteria growth and make the major changes needed for their particular land first thing in the spring. Allowing the soil to sit a minimum of six weeks between any major mineral application and planting is important, she said, to stabilize the system and allow for the greatest absorption of nutrients.

Altobelli also warned against applying lime, especially the cheapest kinds available, without testing the soil first. New England soil is naturally high in magnesium and low in calcium, she said, so using cheap dolomite lime, which is very high in magnesium, can destroy a crop before it's even planted. Instead, for the soil here, she recommends lime made of calcite (calcium carbonate) or gypsum (calcium sulfate), which are both high in calcium and can safely be applied to the soil before testing.

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