

Leavenworth Vegetable Farmer Supports Production with Healthy Soils and Cover Crops

By Jim French

Paul Conway has grown vegetables for market on seven acres of land west of Leavenworth since 1996. He markets vegetables through the Leavenworth Farmers Market, and runs a CSA (Community Supported Agriculture) service on the farm. He also produces for the Rolling Prairie Farmers Alliance CSA at the Roland Park Community Center distribution point. From the beginning, he knew that planting vegetables alone would only lead to problems and restrict his goal to farm organically and build a healthy soil. After an initial plow down of the clay-based soil, he has rotated vegetable production with both perennial and annual cover crops with only light tillage as needed.

For Conway, cover crops were the tool that would allow the soil to rebuild both nutrients and organic matter after the depleting impact of vegetables. He also observed that “cover crops in rotation help control diseases and suppress weeds.” Conway employs a strip method of production. Out of the seven acres only two acres is annually producing vegetables. The producing acres are in strips alternating with perennial strips. The perennial strips will either be in alfalfa, which a neighbor hays in exchange for manure from his horse barn, or in strips of a perennial grass and clover mix like fescue and red clover.

Conway stated that while alfalfa has been a useful crop, it does have the

disadvantages of “not being easy to kill, and not suppressing Johnson grass which is a major pest on these acres.”

Intervals between crops

In the beginning, Conway said he knew he had to start somewhere in developing a system using vegetables and covers, and “with experience I would learn to better manage the system.”

Generally, the alfalfa or grass mix stays in 3 years followed by 3 years of vegetable/annual cover crop rotations before returning to a perennial. The strips are generally twenty-four to thirty-two feet wide. In addition to building soil and suppressing weeds, the grass mix strips also provide additional benefits of reducing compaction while providing a place to drive small vehicles, and eliminating erosion.

Horse manure is applied after planting to keep it on top of the strips. Conway spreads a light application in the fall and winter. He said, “I only use manure on the off-season cover crops and perennials. This eliminates the potential for pollution and contamination.”

“While I look for opportunities to double-crop vegetables, I never let any strip go without a cover or live roots for any extended period. Since, I farm organically, I must till at times, so coming in with a crop or cover crop is essential for maintain-

ing a healthy soil,” observed Conway.

The Cover Crop varieties Conway constantly experiments with different varieties of cool and warm season grasses and legumes, but mostly to fine tune what will work best on his own fields. As he stated in a presentation at the Great Plains Growers Conference in 2015, “One size does not fit all – be prepared to manage different fields differently” (http://www.greatplainsgrowersconference.org/uploads/2/9/1/4/29140369/conway_p_-_tying_it_all_together_building_healthy_soil_and_profits_with_cover_crops.pdf).

With that rule of thumb in mind, Conway has some cover crops that he likes to work with. For the warm season, he likes sorghum-sudan and pearl millet for the biomass they produce, and they work well when mixed with cowpea varieties like Iron and Clay, and Red Ripper. However, he recommends that the mix not contain more than 25% of the summer grass in order that it not outcompete the legume.

For early spring plantings of cover crops, Conway will often choose to

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mix cool season grasses like oats, annual ryegrass, and buckwheat with legumes. The legumes he works with include chickling vetch, spring forage peas, and Lana Woolypod vetch either alone or mixed with oats. Conway stated that “for sheer biomass, nothing beats a forage pea/oat mix.” He also observed that the buckwheat did well to suppress early spring weeds, and it also slowed down the growth of Johnson grass.

While the spring and summer plantings are most often worked in with vegetable production, it is the late summer and fall planted cover crops that will set the stage for the next year’s cash crops. One sequence he described moved from a planting of cowpeas and oats in August, followed by an overseeding of cereal rye in November followed by bean, cabbage, and potatoes the following spring. Conway has also mixed legumes like common and hairy vetch and Austrian Winter Peas, and tillage radishes with the winter grasses.



Paul Conway, at his market stand.

Another late summer practice that Conway uses is planting cool season covers like oats and brassicas between September 1 to 15. These crops will develop good fall growth but will freeze out during the winter. He then can overseed with rye, which will cover the ground until terminated in the spring.

The Larger Perspective

Paul Conway admits that his system has taken time to develop and that each grower should start where they are at and make gradual steps to develop what will work best in their setting. However, that doesn’t change what

Conway believes should be the guidelines for sustainable food production whether the grower is organic or not. First, Conway says that continuous vegetable production is hard on the soil. To buffer that impact, he stated that “biologically active healthy soils are the key to growing good crops over the long run.” He noted that healthy soils are more resilient and can better tolerate periods of drought, and the erosion potential of hard rains and winds, and “healthy plants are more resistant to disease and pests” (Great Plains Growers Conference presentation). I visited Conway in late July to prepare for this article. At one point, he dug down with his hand and picked up some soil in a strip of late July planted cowpeas and sudan grass. It had a look of large curd cottage cheese, which meant that it had a good aggregate structure and would hold together while allowing for water absorption and retention. That soil also displayed none of the plating that results from soil compaction meaning that roots could easily move downward and that there was a good percentage of organic matter and carbon.

Paul Conway is dedicated to the health and productivity of his farm. He is also a life-long learner ready to consider new approaches and innovations. In a summary e-mail of his cover crop experience in late 2016 and early 2017, he wrote: “I was planting peas on ground where I had planted rye and spread manure over several years. I was suddenly struck by how friable and mellow the soil was. These strips had been clayey, with terrible tilth. Not any more. How much faster would the soil organic matter percent increase if I had coupled the use of cover crops, especially Summer annual grasses with legumes, with intensive grazing?”

Conway is generous with what he has learned, producing summaries of his experiences and research each year. Persons interested in receiving those summaries or to learn more about his experience with vegetable production and cover crops can contact him at pconway@wildblue.net or 913-775-2559.

Jim French is researching and writing KRC’s third in a series of Specialty Crop guides, “Building Resilience from the Ground Up: Conservation Practices for Specialty Crops” to be published in December 2017. Paul Conway is one of the specialty crop farmers profiled in the guide.