

## Motivations Matter in Sustainable Agriculture Decisions

Farming is a challenging profession. Each year there is an ever-growing list of unknowns and risks. “100 year” weather events are happening more often than ever before, weed pressure is mounting and soil is running off of fields and into the streets. So what can farmers do?

Farmers who intentionally manage their natural resources are able to pass the farm to the next generation in better condition than before. Many are turning to sustainable agriculture such as cover crops, no till and rotational grazing to protect their farms from ever-changing conditions. To be prepared for the future means fortifying their soils now.



*Tillage radishes produce a large taproot that will penetrate compacted soils to increase aeration and infiltration. The taproot also absorbs and retains macro- and micronutrients that otherwise might leach, making those nutrients available for spring planted crops.*

Dairy farmer, Andy Bollinger, was tired of driving around after a hard rain and watching the water run off the fields due to compaction. Top soil is one of the most precious resources for a farmer. Andy’s family is a firm believer in the problem solving ability of cover crops. “We are big believers in the organic matter that is built into the soil. I want to know we are caring for our soil the best we can,” Andy said. After years of reducing tillage and building organic matter through cover crops such as tillage radishes, Andy notes, “After a hard rain, if I can drive around and see no water running off the fields, or if there is water running off, but it’s clean and clear, that’s a measure of success.”

According to research results summarized by Penn State Extension, each 1 percent increase in organic matter in the soil due to no-tilling, adds approximately 19,000 gallons of water holding capacity per acre (to a depth of over 6 inches). That is significant, especially in drought situations. It also adds 1,100 lbs of nitrogen and 110 lbs of phosphorus and potassium, requiring less fertilizer. The increase of 1% takes multiple years to achieve, but cover crop residue and the addition of manure are essential to that increased amount.



*Tillage radish taproots are mostly water, and they desiccate and decay quickly, leaving nutrients behind. The cavities left behind allow the roots of the spring-planted grain crop to channel deeper into the soil profile.*

Andy chooses cover crops and reduced tillage for his sustainable practices. Patrick and Elisa Fleming use cover crops and no-till as well. But, their focus and passion is also on raising their cow/calf beef herd using an intensive rotational grazing system.

Elisa and Patrick felt living life at a frenetic pace while dairy farming and running a Bed & Breakfast should be simplified for overall health of the family and the business. They transitioned to an intensive rotational grazing and a cow/calf beef herd of 75 animals. Patrick explained, “The relative simplicity of the grazing model drew us to it. We are essentially orchestrating the behavior of the animals....they graze their own food, they spread their own manure. I like doing little things to see the animals are satisfied and healthy, and in accord with their own nature. Rotational grazing fits well with animal health.” Elisa added, “The animals are healthier. We don’t call the veterinarian like we used to. They soil health is improved, and the overall health of the farming business is good. The sanity and health of us, the farmers, is better too.”

Andy Bollinger was motivated to switch to less tillage and more cover crops because he enjoys “...the challenge of producing good crops. I find it rewarding to reap the harvest, work with nature, and see the life cycles come and go. But, ideally, it is to care for our soil. We want to build the organic matter on top.” Andy would love to know that a 4<sup>th</sup> generation can come back to the farm, because he and his family took care of the soil, the basis of everything.

The Flemings utilize cover crops and no-till on their farm as well. They encourage anyone who is transitioning to new management styles to, “...be patient, and stay focused on why you want the farm to be better for future generations.” Regarding their own operation, Patrick and Elisa noted, “Sometimes we need to remind ourselves that in a few short years, we went from a dairy herd which was fed 90% corn silage and used a modified grazing system on 5 acres of pasture, to an almost 100% grass/hay cow-calf operation using intensive rotational grazing on 25 acres. We are now a total beef operation and have grown our beef sales through all direct marketing (selling 15 steers annually). And our lives are less busy, less frenetic, and more balanced.”

Are you considering changes for sustainable practices that protect your soil and water resources? Whether you would like to know more about cover crops and no-tilling, or need guidance transitioning to a grass-based operation, contact your County Conservation District or your local USDA Natural Resources Conservation Service (NRCS). Both agencies offer technical assistance for agronomic questions, pasture advice or design assistance. Conservation Districts and the NRCS can inform you if cost-share options are available, and will make sure you know how to get the help you desire.



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*Written by Shelly Dehoff on behalf of National Wildlife Federation's Cover Crop Champions Program. November 19, 2018*