Reversing Climate Change and Improving Farms

by Nicole Belanger

André Leu is both a farmer and an advocate. With his family André operates a 150-acre fruit farm in tropical Australia. Once defeated and run down, his farm is now a lush and productive permaculture landscape, a system designed to minimize inputs and labor and maximize productivity, nutrient recycling and biodiversity.

For over 10 years he has been influencing international climate change policy, not only drawing attention to the role of soil in absorbing carbon to mitigate existing climate chaos, but also demonstrating how organic agriculture can help farmers and societies adapt to the effects of climate change. After the November 2015 Paris Climate Change Conference, he sees this as a critical time to galvanize nations to agree to include shifts in farming policies in their agreements and pledges and to see those pledges from idea to action.

International farming, education and market connectivity are important parts of his work, both as a farmer and educator, and also as the president of the board of directors of the International Federation of Organic Agriculture Movements (IFOAM) - Organic International.

André draws a clear connection between organic farming and a strong, viable, and sustainable path forward. “My message is one of hope. By changing farming we can reverse climate change and at the same time improve farms and make sure the world has a good future.” He is one of our two keynote speakers at the 2016 NOFA Summer Conference, August 12-14 in Amherst, MA. The other is farmer, educator and food justice activist Leah Penniman.

His farm: “A regenerative agro-ecological system”

Leu comes from a farming family; his fondest childhood memories are times spent with his grandfather among their fruit trees. As a teen in the early 1970s he visited a pioneering organic farm in his native Australia with tropical fruits, flowers and vegetables. “For me, it was an incredible paradise. I’d just never seen anything like it. That was the moment when I said that’s what I want to do and the type of farming I want to do. I set about getting my first bit of land and that’s exactly what I do.”

Now André is on his third piece of land, which his family settled in the early 1990s. His farm is a high-yielding, low-input system, with yields equivalent to the best conventional growers in his area. Beyond just organic, Leu refers to his as a “regenerative agro-ecological system”. He will share many of the tips and techniques he utilizes on his own property, adapted for Northeast climates and ecosystems, in his Friday morning Intensive seminar, to be held on Friday, August 12.

André Leu, president of IFOAM, to keynote 2016 NOFA Summer Conference

“When you get the system up, a lot of the work in the farm now is done by the ecological system,” notes Leu. “It lowers the amount of work you have to do as a farmer since you don’t have to spray or anything like that.” On his property he focuses on mineral balancing, utilizing cover crops and perennials to manage weeds and provide organic matter and nutrients for the system, and providing habitat for beneficial insects to control pests and disease. He periodically strip mows areas of his land to get organic matter into the ground. Not wanting to eliminate beneficial habitat, he alternates rows, leaving mature ground cover as refuge and cutting it once the mowed area matures. He also boasts that he hasn’t had to spray organic approved pesticides for over seven years.

“I just love farm work,” says Leu. “Most people think I’m mad, but I regard it as a lovely mental holiday from what else I’m doing. Those of us who’ve chosen farming have a love of farming. The farmers will know what I’m talking about. The joy of being on the tractor is something only another farmer would understand.”

Climate Change: “We’ve got to get down and do the work”

Actively involved in setting climate change policy for over 10 years, André has participated in each United Nations climate meeting since Copenhagen in 2009. His message is this: We can reverse climate change through organic agriculture and we have the data to back up this assertion.

In November 2015, countries from across the world gathered to negotiate pledges of action to stem the tide of climate change at the Paris COP21 meeting. Leu was inside the negotiations, actively putting forward the benefits of organic agriculture for both climate change mitigation and adaptation.

Together with his colleagues at Regeneration International, Leu is advocating for the ‘4 per 1000 Initiative’ put forward by the French government. The aim of the Initiative, according to website 4p1000.org, is to “demonstrate that agriculture, and agricultural soils in particular, can play a crucial role where food security and climate change are concerned.” Essentially, the idea is with a sufficient increase in the amount of carbon stored in soils, it is possible to stop the increase in atmospheric carbon dioxide.

“At first we were lone voices,” states Leu, “but for us it is important that as the information got out more and more people have become interested -- more and more organizations. By Paris the conversation had changed. For the first time the issue of soil carbon was a major part of the climate change talks.”

While the Paris agreement does not explicitly include agriculture to increase soil carbon, 28 of 195 countries that signed the Paris agreement have committed to increase levels of carbon stored in soils through agriculture. The countries include France, Mexico, Iran, Ukraine, Japan, and Canada, to name a few. “Where we are now is very encouraging and it’s a huge leap from where we started,” says Leu, “but there’s still a lot more work to be done to get the right language and to get these countries and their agriculture departments to understand that increasing soil carbon means a fundamental change in the way we do farming, grazing and (continued on page A-2)
agriculture. We have still got a long way to go. The fact that countries have committed towards this and started this process is to me very exciting.”

A gathering of parties will take place in Morocco in November of 2016. In the lead up to the gathering, organizations, nations and other actors are making presentations internationally to draw attention to the 4 per 1000 Initiative with the aim of securing strong action from nations that have agreed to participate as well as get commitments from nations that have not yet joined the Initiative. “We have a document signed in Paris, but now we have to get down and do the work and make that document happen. Negotiating and signing a document is actually the easy part,” quips Leu. “The critical part now is to get people to actually do what they’ve signed. The real work starts now.”

Leu also points out that not only are the farming practices that encourage accumulation of soil carbon good for mitigating atmospheric carbon, they also “increase resilience and adaptation, the ability to capture and store water, to resist droughts, to resist damaging rains, the types of changes to climate that we’re seeing at the moment. It is equally important to be able to adapt as well as mitigate.”

International Work: “Out of poverty to relative prosperity…”

IFOAM Organics International is involved with a wide variety of projects, from helping small farmers build their crops and find markets to affecting policy with governments and trade groups. Leu has been on the board of directors since 2008, serving as its president since 2011.

In places all over the world, IFOAM works with small family farmers to improve production systems. But more importantly in André’s view, the group also works to help farmers net the right price to be profitable. He provides the example of Uganda, where about 200,000 small family farmers have gone from abject poverty to having good food, health care, and the ability to send their children to school and university. He sees this work as helping “people get out of poverty to relative prosperity in their communities and turn their lives around through a combination of teaching better organic production techniques and getting paid a higher return for what they produce.”

Leu also trains farmers internationally himself, traveling extensively throughout Asia, the Middle East, the Americas and Europe. “My higher degrees are in adult education and training;” he shares. “I’ve worked with farm organizations for many years and still do. I like training farmers. That’s why I am happy to come to NOFA.”

André Leu and Leah Penniman keynote the 2016 NOFA Summer Conference, August 12-14 in Amherst, MA. Join us for three days of organic immersion, with 200 workshops to empower and educate, to build skills and confidence. Our children and teen conferences provide space for young people to cultivate their vision for an organic future. Before the conference begins, five intensive seminars will take place, including Regenerative Agriculture, Biodiversity, soil health & carbon sequestration, led by André Leu. Scholarships, work exchange and groups discounts are available. Find out more at www.nofasummerconference.org.
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Glyphosate use on many crops as pre-harvest dessicant examined

Glyphosate, the main ingredient in Monsanto's Roundup herbicide, is the world's most widely used weed-killer. But Charles Benbrook, Ph.D. has recently published a paper in Environmental Sciences Europe detailing the growing use of glyphosate for other purposes.

It's use on crops such as wheat, oats, flax, rye, millet, beets, potatoes and beans to kill the crop one or two weeks before harvest and accelerate its uniform drying down, particularly in wet years, is mounting, he claims. Seed dealers are finding it difficult to find grains not desiccated with glyphosate prior to harvest.

Besides consumers being concerned about the compound's status as a World Health Organization-cited carcinogen, grain millers feel that the chemical disrupts the natural maturing process in grain stalks, resulting in lower quality flour.

source: The Organic and Non-GMO Report, March, 2016

Global organic farmland hits 108 million acres

A new report “The World of Organic Agriculture” just published by the International Federation of Organic Agricultural Movements says that in the year 2014 organic agriculture expanded 1.2% from the previous year’s acreage, was practiced in 172 countries (up from 170 in 2013) and reached an all-time high of 2.3 million organic producers.

The US is the world’s largest organic market at over $35 billion, the most producers are in India ($50,000) and Australia is the country with the single largest organic farming acreage (42.5 million –97% of which is used for grazing).

source: The Organic and Non-GMO Report, April, 2016

Crop insurance subsidies impact land costs

The Center for Rural Affairs, along with Mike Duffy, Professor Emeritus of Economics, Iowa State University, released a report that explores the impact subsidized crop insurance places on land values.

“Farmers have told us the program was helping mega-farmers outbid beginning, small and mid-sized farmers on farmland, putting upward pressure on prices. The program has substantially changed the way farmers view and price land,” said Mike Duffy.

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on land values,” explained Traci Bruckner, Senior Policy Associate with the Center. “We decided to investigate. To explore the impact subsidized crop insurance places on land values, we worked with Mike Duffy, Professor Emeritus of Economics, Iowa State University.”

Duffy’s research shows that subsidized crop insurance indeed has an impact on land values. He identifies a couple of ways the program impacts land values. The first is subsidization of the insurance premium. Duffy points out that the premium farmers pay is not the actuarially sound premium. Rather, it is the premium minus a subsidy from the government. That premium subsidy is a benefit the farmer receives.

Second, crop insurance reduces the income risk associated with crop production, either through loss of revenue or crop failure. This risk reduction adds value because future returns are not as uncertain as they would be without crop insurance. Duffy used data available from the USDA Risk Management Agency (RMA) to examine if federal crop insurance programs influence land values by the amount of the subsidy and the reduction in risk. The RMA provides detailed summaries of their business for the nation, by crop, by state, and by year going back to 1989. For this study, he used Iowa as the example. A full copy of the report can be viewed and downloaded at: http://www.cfrl.org/impact-of-crop-insurance-on-land-values.


Study: justice issues face family-scale farmers and farmworkers in the Northeast

A new study by Becca Berkley of Northeastern University and Tania Schusler of Loyola University investigates how justice-related issues affect farmers and workers on organic farms in the northeastern United States. At the study’s core is an examination of the current context of laborers in organic agriculture, Food Systems, and Community Development.

Acreage for GMO crops declined in 2015

The world’s farmers have increased their use of genetically modified crops steadily and sharply since the technology became broadly commercialized in 1996. But not anymore. In 2015, for the first time, the acreage used for the crops declined, according to a nonprofit that tracks the plantings of biotech seeds. The organization, the International Service for the Acquisition of Agri-Biotech Applications, said the main cause for the decline, which measured 1 percent from 2014 levels, was low commodity prices, which led farmers to plant less corn, soybeans and canola of all types, both genetically engineered and non-engineered.

But the figures for the last few years show that the existing market for the crops has nearly been saturated. Only three countries — the United States, Brazil and Argentina — account for more than three-quarters of the total global acreage. And only four crops — corn, soybeans, cotton and canola — account for the majority of biotechnology use in agriculture. In many cases, more than 90 percent of those four crops grown in those three countries, and in other large growers like Canada, India and China, is already genetically modified, leaving little room for expansion.

The acreage planted with biotech seeds in 2015 fell 1 percent globally to 444.0 million acres, from 448.5 million acres in 2014. The crops were grown in 28 countries and used by up to 18 million farmers, most of them small ones in developing countries. Critics say that despite the expansion over the last two decades, biotech crops still account for a small fraction of global farmland and are grown by a small percentage of the world’s farmers.

Efforts to expand use of biotechnology to other crops and to other countries have been hindered by opposition from consumer and environmental groups, regulatory hurdles and in some cases scientific obstacles.


Meeting on domestic fair trade planned at 2016 NOFA Summer Conference

On Friday, August 12, from 9:00 am to 12:30 pm the Domestic Fair Trade Committee of NOFA’s Interstate Council’s (IC) Policy Committee invites people to discuss: (1) the current landscape of domestic fair trade, nationally & regionally, (2) what activities we and our organizations are currently engaged in relative to domestic fair trade and how we collaborate with others, and (3) the most promising areas for collaboration. Farm workers, farmers, food service workers, processors, manufacturers,
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Concern developing over direction of FSMA enforcement

Small farm advocates in Washington are raising concerns about the Model Produce Safety Implementation Framework proposed by the National Association of State Departments of Agriculture (NASDA) for enforcement of the FDA’s Food Safety Modernization Act (FSMA). FSMA is designed to be largely enforced by state departments of agriculture, so their plans for enforcement are crucial. The framework has been under development for over a year and a half via a cooperative agreement between NASDA and FDA, and NASDA initially promised “To ensure that state regulatory entities and other associations and stakeholders are fully integrated into our project plan, a significant portion of the project budget will be expended on outreach to, and inclusion of, national produce safety stakeholders to include leaders in food safety policy and operations.” Critics charge, however, that the framework was presented to small farm stakeholders for the first time in April, 2016, over 19 months after the agreement was signed. The framework draft calls for a heavily regulatory approach, observers say, policing producers rather than supporting them. Farm registries, assessments as low or high-risk producers, burdensome documentation, and high farmer costs of required testing are some of the concerns raised by small farm advocates.

Most retiring farmers in New England have no one to take over the farm

Nearly 30 percent of New England’s farmers are likely to exit farming in the next 10+ years, and nine out of ten are farming without a young farmer alongside. According to a new analysis of U.S. Census of Agriculture data that was part of a study released by the American Farmland Trust (AFT) and Land For Good (LFG). Ninety-two percent of New England’s farmers are farming without a young farmer as an obstacle. Farmers identified a need for help to navigate the complex process of choosing the right succession strategy and finding a suitable successor. Many also want technical assistance on specific aspects of farm succession and transfer.

To ensure that these farmers don’t have a succession plan, under age 45 working with them. While this does not mean that these farmers don’t have a succession plan, it suggests that the future of many of these farms is uncertain.

Farmers who participated in the study -- most of whom do not know who will succeed them on the farm -- generally want to see their land remain in farming, but are concerned about their own retirement and see financing and future economic viability for younger farmers as an obstacle. Farmers identified a need for help to navigate the complex process of choosing the right succession strategy and finding a suitable successor. Many also want technical assistance on specific aspects of farm succession and transfer.

A group has found glyphosate, the primary ingredient in the herbicide RoundUp, in 46% of popular breakfast foods. Enzyme-linked immunosorbent assay (ELISA) testing revealed the presence of the chemical, the most widely used agricultural herbicide, in 11 of the 24 food samples tested. The compound was recently named a probable carcinogen by the World Health Organization. Analysis also revealed the presence of glyphosate in oatmeal, bagels, eggs, potatoes and even non-GMO soy coffee creamer. The presence of glyphosate in eggs and dairy supports the fear that the chemical is accumulating in the tissue of these animals, and therefore presumably also in human tissue, in a process called bioaccumulation.

57 pesticides found in honeybees

European honeybees have been shown to carry residues from 57 different pesticides, virtually all of them approved for agricultural use in the European Union, according to research published in the Journal of Chromatography. The researchers’ new method of detecting pesticides in bees could help unlock the mystery of the worldwide decline in honeybees, one of the world’s most important pollinators. Since 2003, the mysterious spread of Colony Collapse Disorder has led to a crash in honeybee colonies worldwide. In the U.S. annual colony losses reported by beekeepers between 2012 and 2014 reached up to 45 percent.

The exact causes for the death and disappearance of honeybees are unknown, but several studies have linked pesticides and bee death. In 2013, the European Union restricted use of nonicotinoid pesticides, a pesticide that targets the nervous system of insects. Since there are so many pesticides in use, it is difficult to isolate which may be harming the bees. The researchers tested bees for 200 different pesticides simultaneously, using the same method used to detect pesticides in food. The European Union restricted use of nonicotinoid pesticides in 2013.

Farmers develop "BeetClock" app for timing crop work in field

In my work managing a small vegetable farm, I create budgets for each of the many crops we grow. However, I have found that it can be difficult to keep track of the labor and equipment hours that go into producing each crop. I created BeetClock, a phone app for the Android mobile operating system, to address this difficulty.

BeetClock allows farmers to quickly record the time invested in each of their crops without leaving the field. The app can be used as a time clock, punching in and out of each job, or it can be used to record work times after the fact. Users can track multiple jobs at one time with any number of workers per job, and they can also track the equipment used in each job. BeetClock generates summaries of the labor and equipment hours invested in each crop, broken down by job (tractor cultivation, harvesting, etc.). Users can then send summaries to their email inbox as a spreadsheet file. They can also send data directly to the NOFA Enterprise Analysis Workbook developed by Richard Wiswall (author of the Organic Farmers Business Handbook), helping users create a whole farm budget. BeetClock costs only $4 from the Google Play Store. (Richard Wiswall endorses the clock and even says: “I encourage you to try it out. If you are not completely satisfied, let me know and I’ll send you a full refund.”)” For more information about the app, you can visit www.beetclock.com.

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Book Reviews

The Carbon Farming Solution: A Global Toolkit of Perennial Crops and Regenerative Agriculture Practices for Climate Change Mitigation and Food Security
by Eric Toensmeier
published by Chelsea Green Publishing
480 pages, hardbound, $75.00
review by Jack Kittredge

I have always enjoyed reading Eric Toensmeier. His enthusiasm for perennials is infectious and we have planted several varietal selections found in his 2007 book “Perennial Vegetables” on our farm in Barre, MA. The amazing 1/10 of an acre he and Jonathan Bates planted to perennials in their back yard in Holyoke, “Paradise Lot”, is a wonder of diversity.

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"COG Pro has taken much of the anxiety out of my yearly on-site organic inspections. And it has made the inspector happy as well.

Carmen Fernholz
Organic Agriculture Research Coordinator
Southwest Research & Outreach Center
Lamberton, MN

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Many of us in NOFA have been focused on developing practices and tools that sequester carbon and mitigate climate extremes when raising primarily annual crops, especially those grown in the north-east. The term “carbon farming” has been used for these practices (although often, according to Toensmeier, it is associated with direct compensation of the farmer for such sequestration.) Now Eric has taken on the long-needed task of analyzing perennial plantings from the same perspective.

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The book is organized into 5 detailed sections plus some useful appendices, sources, etc.
The first section, fifty-some pages in all, explores the "Big Idea" behind the book: the good news of carbon sequestration. An introductory chapter addresses climate change, its causes (including agriculture) and impact on people around the world, and the need to sequester greenhouse gases already in the atmosphere as well as drastically reduce emissions. The second chapter relates in some detail how good agriculture can manage this, both by reducing agricultural emissions and by increasing yields via agroecological intensification. But the primary focus here is to explain how carbon is sequestered via photosynthesis with the assistance of an amazing microbial ecosystem below ground.

The third chapter follows up on this by looking at various crops and cropping systems to see which have the greatest sequestration potential. He discusses here some of the complexities involved in arriving at useful numbers in such analyses: climate variability, soil versus biomass carbon, depth and techniques used in measurement, etc. The fourth chapter in this section goes into detail on agroforestry and perennial crops and systems, distinguishing among various types and subtypes. Finally, a chapter on carbon farming and its multifunctional benefits finds its roots in permaculture design principles, contrasting it with geoengineering, and talks about its benefits to the ecosystem, the farm, and society.

The second section, a little over sixty pages, is the Global Toolkit mentioned in the book's title. Starting with chapter 6 on annual cropping Eric lays out its current dominance in food production (89% of global cropland) and mentions his own preference for a transition to agroforesty-based perennial systems. Toensmeier discusses various ways of using annuals including Conservation Agriculture, Rice Intensification, and Organic, then devotes more than half the chapter to ways of integrating perennials with annuals (strip intercropping, alley cropping, hedgerows, pasture cropping, etc.) Chapter 7, on livestock systems, addresses the various ways that 12 billion acres around the world are used for pasture. This includes discussions of integrating livestock and crops, managing for pasture improvement, silvipasture (integrating pasture and trees), fodder trees and green corals. Chapter 8 on perennial cropping looks at agroforestry, monocultures like orchards, bamboo, herbaceous biomass crops, aquaculture, and perennial grains. A following short chapter 9 on additional tools to deal with specific problems delves briefly into topics such as rainwater harvesting, terracing, keyline design, biochar, and indigenous management.

The concluding chapter ten in section two is on Species. This is an effort to prepare us for the next two sections, which deal with perennial staple and industrial crops. In this chapter Eric defines the categories he uses to classify cultivation status for perennials – such things as scope of plantings, wildness, whether newly developed, experimental, etc. In addition he lists 10 climate categories – tropical, highland, boreal, arid, etc. – he uses to classify growing conditions. An interesting section here talks about breeding perennials. Toensmeier feels a real sense of urgency in this task as climate change mitigation needs to happen quickly and breeding a perennial variety of what we know as an annual can take 5 to 10 years for a crop like rice and a generation or more for something like maize. He also singles out efforts to breed better varieties of existing perennials such as: Roger Leakey's farmer-driven plus-trees at the World Agroforestry Centre, perennial grain development in Salinas, Kansas and in China, and hybrid swam breeding of nuts in Minnesota.

Section three deals with Perennial Staple Crops, the tree and other long-lived plants that provide the human diet with proteins, carbohydrates and fats. These once fed much of the world's population, but were ultimately out produced by annuals, particularly annual grains. Now oil palms, coconuts, bananas, olives, dates, avocados, and many nuts are eaten by our diet more than annuals. The first chapter introduces these crops and their groupings. Toensmeier feels a real sense of urgency in this task as climate change mitigation needs to happen quickly and breeding a perennial variety of what we know as an annual can take 5 to 10 years for a crop like rice and a generation or more for something like maize. He also singles out efforts to breed better varieties of existing perennials such as: Roger Leakey's farmer-driven plus-trees at the World Agroforestry Centre, perennial grain development in Salinas, Kansas and in China, and hybrid swam breeding of nuts in Minnesota.

Eric analyzes scores of crops in great detail, citing yields and the need to sequester greenhouse gases already in the atmosphere as well as drastically reduce emissions. He also warns against trying to continue our level of energy consumption, instead getting what we need from wind, water, and solar. For materials and chemicals he would rely on perennials grown on diversified farms and processed locally using appropriate technology. Following this stimulating introductory chapter are crops raised for biomass, industrial starch, industrial oil, hydrocarbons, fiber, and other uses. As in section three, Toensmeier discusses perennials grown on diversified farms and processed locally using appropriate technology. Following this stimulating introductory chapter are crops raised for biomass, industrial starch, industrial oil, hydrocarbons, fiber, and other uses. As in section three, Eric analyzes scores of crops in great detail, citing interesting uses, facts, and histories.

Starting with chapter ten on Species and running through the seven chapters on staple crops and the seven on industrial ones, this text runs almost 200 pages and could clearly make a wonderful book of this nature.
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its own on the potential for transforming our society through research, breeding, growing and using perennial crops. Toensmeier is at his best here, informative and inspiring both.

The book’s final section of 30+ pages consists of five short chapters on policies needed going forward. Eric’s 3-point plan to promote carbon farming is 1) to support farmers in making the transition, 2) to finance effective carbon farming efforts, and 3) to remove policy barriers.

Toensmeier repeatedly asserts that we are living in the last days for effective action against climate change. He rightly feels that many farmers and others have already gotten the message and are developing and practicing carbon farming systems. He finds inspiration in the example of Cuba, learning virtually overnight to transition its industrial agricultural system to one functioning without fossil fuels. Many indigenous communities also exhibit sophisticated agricultural management, balancing human needs with biodiversity and ecosystem function. He calls for stopping the feeding of annual grains to livestock, with ruminants to subsist on pasture, monogastrics on perennial grains, and insects to be developed as both food and feed. To support farmers he feels local perennial nurseries should be encouraged and simple farmer-based carbon measuring tools developed.

To finance carbon farming Eric believes we need to spend far more to cover the costs of transitioning to a low-carbon global economy, especially agriculture mitigation work. He finds that carbon offsets are ineffective in reducing greenhouse gases, that few carbon funds go toward agricultural practices, and those that do require huge land areas to be attractive. He would like to see financing go to small-scale and grassroots farmers. Toensmeier also supports carbon certification programs like the one proposed in Vermont as a way for market forces to provide price incentives to responsible farmers.

Barriers to carbon farming, he feels, are created by trade policies promoting mono-cropping, mechanization, and agrochemical use. Small farmers, women, and indigenous people are often the ones who are...
most productive and can implement new practices most easily. Perhaps they should be paid to increase carbon soil content in whatever ways work for them; Ninety-two percent of farmers occupy only 25% of farmland. Perhaps land itself needs to be more widely distributed?

Eric sees the need to educate governments and policy makers about the basic facts of carbon farming. The individuals, journalists, farmers, students, activists, NGOs, agencies, businesses, funders and investors of the world all have a role to play, which he lays out for them on the last pages of this book with hope and energy for the transformative challenge it will be.

I did have some issues with this book, however. One misprint I noticed makes me wonder if others might also have missed the editor’s eye; a key graphic, Figure 3.1 on page 31, was mislabeled so that the source of the studies (single study versus review or estimate) was reversed.

A more significant issue is whether carbon sequestered as aboveground biomass in living plants should be equated with carbon sequestered in soil. Eric discusses this and makes clear that he considers the two equally valid. I think carbon flow is quite nuanced. Biomass crops are limited carbon sinks, planted for the purpose of later harvest and consumption, at which point they release their carbon back into the atmosphere. Soil carbon, on the contrary, is an almost limitless sink and can be quickly digested and broken down this potent greenhouse gas. I saw no accounting of this natural process in Eric’s treatment of the subject in chapter seven.

Despite my concerns, however, a work of this size and significance is an impressive major effort and Toensmeier is to be thanked for putting it forth. Portions of it, especially those showing the depth of his knowledge of perennials, are quite illuminating. I am sure it will be much read and studied. It is an important addition to the canon of carbon farming and especially perennial literature and I hope the paperback is soon available.

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Organic Struggle: The Movement for Sustainable Agriculture in the United States

by Brian K. Obach

published by The MIT Press, 2015

344 pages, hardbound, $29.00

review by Jack Kilttredge

Obach, a professor of sociology at the State University of New York at New Paltz, is a student of social movements who has also written about the labor and environmental movements. As any scholar would, he starts with a history of the organic movement, beginning with Jerome Irving Rodale and his concerns about synthetic fertilizers, already used in agriculture in 1942 when “Organic Farming and Gardening” was first published, and the proponents of natural and spiritual approaches to farming such as Albert Howard, Rudolf Steiner, Eve Balfour and Ralph Borsodi. Come the nineteen sixties and seventies, of course, the advent of Rachel Carson and Cesar Chavez’ indictment of agricultural chemicals and the growth of the counterculture seeking an alternative to a corrupt commercial society came together to create the back-to-the-land movement of food coops and communal farms.

Organic sales, going from the insignificant output of a fringe movement in 1971, when NOFA began, to a still small but obviously growing market worth $1 billion in 1990, not only selected for hardworking and business oriented farmers but also was attracting the attention of outsiders. At first denouncing organics as a ‘food fad’ and threat to good nutrition, establishment figures such as Cornell’s Kenneth Beevon and Harvard’s Jean Mayer and Frederick Stare (whose self-interest in extensive ties to the food industry Obach neatly exposed) were quick to rail against the movement as ‘anti-science’.

As time passed, however, distrust of agrichemicals continued to spread despite the exportations of the leading academics, certification committees began springing up among non-profits, for-profits, and even state governments to set production standards, some organic companies found comfortable niches and started making serious money, and the sector as a whole became the fastest growing part of the food industry.
At this point, Obach believes, three trends collided and, combined with the above signs of vitality, brought the eyes of the federal government to rest upon the organic movement.

First was the complexity of the organic marketplace. Natural foods retailers were building chains and brand products now and wanted consistency between the various certification programs. The biggest outlier was California Certified Organic Farmers (CCOF), which allowed transition to organic after only one year as opposed to the NOFAs and most other certifiers that required three years. Certifiers in Nebraska would not permit processors to use strawberries from Golden State soil just one year out of chemicals in tarts made with their 3-year Cornhusker wheat and call them ‘organic’.

Second was the growing possibility of fraud upsetting the organic applecart. According to one report, at the end of the 1970s only 20 percent of organic growers were receiving a price premium for organic products. That changed in the 1980s, however, and success in getting better prices was attracting some unscrupulous actors. By 1989 almost 30 state governments had passed various organic legislation, but most other certifiers that required three years.

Finally, food scares were driving people to demand more organic food. The 1989 scare involving a plant growth regulator Alar, used to control apple trees, was a huge blow to the industry. The 1989 scare involving a food scare involving a plant growth regulator Alar, used to control apple trees, was a huge blow to the industry. The 1989 scare involving a food scare involving a plant growth regulator Alar, used to control apple trees, was a huge blow to the industry. The 1989 scare involving a food scare involving a plant growth regulator Alar, used to control apple trees, was a huge blow to the industry.

The deep anger about these 3 clearly unacceptable proposals united the organic movement and resulted in one big political victory. Over 275,000 comments from opponents flooded the USDA – the most ever received by a government agency on a proposed regulation to that point – and it was withdrawn. The deep anger about these 3 clearly unacceptable proposals united the organic movement and resulted in one big political victory. Over 275,000 comments from opponents flooded the USDA – the most ever received by a government agency on a proposed regulation to that point – and it was withdrawn. Obach continues the story up to the present, discussing the division among the two fundamentally different constituencies in the organic movement, which he calls the ‘spreaders’ and the ‘tillers’. By ‘spreader’ he means someone who sees organic agriculture as a more benign system and wants the supply of organic food to grow in the existing market. ‘Tillers’, on the other hand, hope to do more than replace a conventional commodity with an organic one. Spreaders tend to support lowering hard-to-meet standards so that there is a plentiful supply of organic food. Tillers tend to want to keep the standards high and pure and are willing to require consumers to meet them halfway – forgoing “organic pop tarts”, if necessary, because certain coloring agents simply are not organic and should not be allowed.

He writes of the various bumps in the road, including the Harvey case, Nathan Deal’s amendment, and various NOP and NOOSB minutiae. I was surprised that he left out what was, to me, one of the most upsetting early developments – the case of the Organic Hen, the Massachusetts egg producer denied certification in 2002 by NOFA/Mass for not providing outdoor access for its birds, which immediately appealed to the NOP and won a legal case establishing that certifiers are agents of the federal government and thus subject to its decisions.

For someone interested in a good history of the organic movement, and particularly the history of organic certification in the US, this will be a satisfying book. Many names familiar to NOFA members will be featured, particularly those in Obach’s stomping grounds of eastern New York and Vermont. He also touches on the growth of the Organic Consumers Association, the Agricultural Justice Project, the Domestic Fair Trade Association, the National Organic Coalition, the Organic Trade Association, the Farmer’s Pledge, Certified Naturally Grown, and of course several NOFA chapters.

I myself hope he is not yet tired of delving into the organic movement. I am sure there is a sequel here which will be as full of hope and struggle as the period he has already covered. Sunset Policy, Organic Hydroponics, Social Justice, and Carbon Farming are just a few of the issues of our day which I am sure will find themselves fought out, at least partly, in this venue!
review by Brian Obach

Grace Gershuney has been deeply embedded in the organic movement for four decades. She has seen the development of organic from every angle, as a farmer, as the coordinator of an organic farming association, as an author and commentator, and as an organic inspector. Most significantly she was one of the principle authors of the controversial organic rule that she was recruited to develop for the National Organic Program. This was a vital role at a time when organic was transitioning from a grassroots endeavor carried out by a decentralized network of independent farmer groups to a USDA administered government program.

Organic Revolutionary is a personal memoir that includes many details of the author’s fascinating life story and the philosophy that she developed along the way. Her path winds through New York City, rural Vermont, Jamaica and Washington DC and includes a number of joyful and at times troubled relationships. Along the way she learns and develops a life philosophy rooted in biological science, social ecology and Buddhism.

While Organic Revolutionary is an interesting personal memoir, much of the book focuses on the disputes that surrounded the development of the federal organic standards and the issues that continue to plague the organic movement. As the only member of the grassroots organic community who was recruited to hammer out the details of organic policy in the bowels of the USDA bureaucracy, Gershuney was in a difficult position. Many in the grassroots movement were already wary of federal involvement in organic affairs, fearing that USDA control would undermine organic standards and usher in a full-scale takeover by conventional agribusiness.

Following the passage of the 1990 Organic Foods Production Act, the legislation that created the National Organic Program, the initial draft of the organic rules was crafted by the National Organic Standards Board. The NOSB is a body composed of farmers, environmentalists, certifiers and others broadly representative of the organic community. Many saw hope for the organic program given that the NOSB was granted real statutory authority, thus providing some safeguards against corporate influence. Gershuney was given the unenviable job of converting the rules proposed by the NOSB into enforceable regulatory language, a task for which she had little experience and was given meager support at the USDA where leaders were still resistant to administering a program they had opposed from the start.

The author details her trials and tribulations while drafting standards language that would pass federal muster. Although the NOSB proposal was supposed to serve as the basis for the federal rules, Gershuney found that those did not eas-
Organic activists had many concerns with the draft proposal, but mobilization centered around three particularly egregious issues; provisions that could have allowed genetic modification, food irradiation and the use of sewage sludge, or what came to be known as “The Big Three.” The USDA was bombarded with a record number of public comments critiquing the proposed rule. In the face of this outpouring of protest should have been welcomed, “when necessary.” While such flexibility may work among ideologically committed organic farmers, it is easy to imagine corporate agribusiness claiming “necessary” exceptions that would render the whole organic designation meaningless. Critics wanted to make rules as clear and as strict as possible to prevent such abuse.

In Gershuny’s telling, her detractors were too focused on ingredients and inputs distinguished on the basis of ambiguous “natural” versus “synthetic” definitions. She derides her critics as “purists,” at times likening them to fascists or other extremist ideologues obsessed with all manner of purity. Those who took a hard line on materials were simply “pandering” to consumers who, in ignorance, demanded standards on the basis of ingredient characteristics that were not biologically meaningful. While Gershuny raises some valid points and articulates the logic for her approach, it is clear there was more going on than simple misunderstanding. Criticism of the proposed rule came not only from those she brands intentionally deceptive and “self serving” activists, but even from Gershuny’s friends in the Organic Trade Association, already dominated by big organic business enterprises.

Looking back, Gershuny laments the fact that almost 15 years since the NOP went into effect, less than one percent of farmland is under certified organic. She clearly has opinions to express about the organic movement, what she calls “agronomic responsibility” versus the nature of the ingredients and inputs used in organic production. This is not an either-or dichotomy, and all organic proponents pay significant attention to both process and materials. But in her draft of the proposed organic rule there was an emphasis on farmers developing plans for continuously improving their practices, as opposed to a more rigid focus on the use of particular inputs. She raises some valid issues about synthetic substances that are equivalent to or, in some cases, more ecologically benign than allowable natural products. Through her approach to the proposed rules, Gershuny believed that farmers would be able to transition to organic, thus growing the sector. But such an approach also allows for flexibility when conditions warrant deviations from the best organic practices. That opens the door for abuse. This became even more of a risk when federal officials removed some of the safeguards Gershuny wanted in the original proposal and inserted language that allowed for deviations “when necessary.”

Grace Gershuny has played a significant role in the evolution of the organic standards, which is the conclusion I have reached in my own work on this subject. It is not the rigor of the organic rules that limit organic’s market share, nor is it due to corporate abuse or the alarmist cries of activists. It’s the market approach itself. Gershuny insightfully states that “Market incentives alone can not bring about…revolutionary…change.”

Organic standards are important and worthy of attention, but true revolutionary change in the food and agriculture system will not come about through market forces. The organic movement has achieved great things by raising public consciousness about the devastation caused by industrial agriculture and by demonstrating that an alternative is possible. But market-based certification and labeling programs face inherent limits if practiced without corresponding political efforts to challenge the laws and policies that prop up the conventional food and agriculture system. We cannot, as consumers, purchase our way to sustainability. Grace Gershuny has played a significant role in the organic movement and she has the scars to prove it. While some may disagree with her views and actions, there should be no doubt about her commitment to the cause. She clearly has opinions to
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share and, in some cases, axes to grind. But Gershuny’s story is fascinating and her perspective is valuable. While it should be recognized as just one perspective on the tumultuous history of the organic movement, Gershuny’s central role in some of the most important developments in that history make Organic Revolutionary a must read for anyone interested in this subject.

Brian Obach is a Professor of Sociology and Director of Environmental Studies at the State University of New York at New Paltz. He specializes in the study of social movements, environmental sociology, and political economy. He is the author of Organic Struggle (MIT Press 2015), an examination of the sustainable agriculture movement, and Labor and the Environmental Movement (MIT Press 2004), an analysis of cooperation and conflict between labor unions and environmentalists.

Horse-Powered Farming for the 21st Century: A Complete Guide to Equipment, Methods, and Management for Organic Growers
by Stephen Leslie
published by Chelsea Green Publishing
$45.00 Hardcover, 416 pages
Illustrated with photographs & Ink & color pencil drawings by the author

review by Louis H. Battalen

At the close of the past century, the revitalized draft animal power movement was proceeding steadily with its initial plowing, cutting a fresh regenerative swath nationwide into the stagnant and wearisome, mono-cultured agribusiness that has dominated that landscape since mid-century. The degraded petro-chemical approach to farming is “going by the wayside,” replaced by the single- and multi-hitch plow alike and the sweet scent and “invigorative natural processes” of the closed-farm fertility.

The dawn of the 21st century finds teamsters, their animals—horses, oxen, donkeys, and mules in par-
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Tim and wife Emily are in partnership with his parents Jon and Lisa at Zweber Farms — home to 120 milk cows, along with dry cows and youngstock near Elko, Minnesota. Tim and Jon share the management of this Century Farm. Tim’s brother Steve and sisters Sarah and Sam also help out when they can.

“Udder Comfort is certainly easy to use, and it’s fast. It doesn’t take any time out of the milking. By aiding blood flow to the area, the cow can help herself,” says Tim.

“Quality milk is important, and we get a real high premium for having low somatic cell counts (SCC). Our approach has always been more about prevention and encouraging a cow’s own healthy immune system than to be putting out fires. Organic or not, Udder Comfort has always fit that proactive mindset.”

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ticular—and innovative equipment manufacturers collaborating in a groundswell of mutual activity, naturally lending itself to other forms of regenerative farming, including organics, crop rotation, and small-scale farming. The clock is not being turned back to some halcyon isolated moment in time and history and place; rather, in the turn to the next furrow, these practitioners are promoting an agroecological mindset capable of long-term sustenance that should carry us into good stead through this century.

And, as Stephen Leslie who farms Cedar Mountain Farm, a Fjord-horse-powered CSA and Jersey cow dairy at Cobb Hill Co-Housing in Hartland, Vermont, ably demonstrates in his new book Horse-Powered Farming for the 21st Century, at once complementing and expanding on his 2013 book, The New Horse-Powered Farm, already reviewed in these pages and readable at www.thenaturalfarmer.org, he has become the leading chronicler of this movement.

The earlier book served as an introduction to the requirements of operating a successful market garden with animal power and included an overview of horsemanship skills and training. In this new book Leslie focuses his attention on the tools and methods necessary to manage a horse-powered market garden, examining the function and use of various implements as they uniquely apply to such topics as managing fertility and cover crops, seeding, transplanting, irrigation, cultivation and harvesting. Leslie draws on more than applying the experiences of his own twenty plus years of farming.

In keeping with the spirit of this movement—witness the formation and continued growth of DAP-NET, the Draft Animal Power Network based here in the Northeast, (which is) committed to supporting a network of draft animal-power enthusiasts where the sense of community runs deep and which has partnered on several occasions with its Draft Animal-Power Field Days at NOFA Summer Conference and which Leslie acknowledges—Leslie augments his own observations and analysis by taking us across the increasingly vast diaspora of teamsters—across the pond, in fact —“visiting with farmers of diverse backgrounds and approaches, some of whom speak a different language, but all of whom have in common a love and respect for draft animals and an abiding confidence in their utility for managing their lands ecologically and profitably in the 21st century.”

And in this second volume he does more than just provide farm profiles as is the first work; here, he celebrates these like-minded practitioners by giving them added space to share their stories, analyzing the equipment they utilize, explaining how their systems and techniques work, and where and when they work best. “This assemblage of seasoned voices is no mere historical archive,” he contends; they “hold treasures of experience and knowledge that we need now and may need even more tomorrow.” No argument there. A humble farmer, Leslie is also the humble compiler: “rather than placing protective earmuffs on our heads to shut out the roar and din of the tractor, we are invited to open our senses more fully to the experience of the here and now.” Such attunement, he adds, “is essential to good farming,” and, this homesteader and fair trade advocate might add, to being a good reader and enlightened shopper.

Some of the more than 60 contributors — a score or more from NOFA nation, including some who have presented at various NOFA conferences — have moved on from being just farmers and growers to becoming skilled mechanics and artisans, keen on designing, modifying, and restoring implements and attachments that work on a scale suitable for this level of farming, yet another indication of how the growth of draft animal power is also transforming the agricultural landscape and marketplace from the centralized corporate paradigm to the creation of cottage industries, intent on open sourcing and sharing of knowledge and equipment. “For many of us small farmers,” Leslie writes, “farming is not a job per se; it is a direct form of social action, maybe the most important ‘grassroot’ activism possible.”

In his chapter on Plows and Plowing, for example, he includes anecdotes from those who favor both the tractor, we are invited to open our senses more fully to the experience of the here and now.” Such attunement, he adds, “is essential to good farming,” and, this homesteader and fair trade advocate might add, to being a good reader and enlightened shopper.

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In his chapter on Plows and Plowing, for example, he includes anecdotes from those who favor both the walking plow and the sulky; his explanation for this is representative of his inclusive approach generally. Although I have written my own positive review of this model of plow, I thought it best to seek out another experienced horse farmer/market gardener to give us his take on the merits of this plow…to provide a balanced picture and to suggest that although a book like this one can provide road maps you will likely have to try out some different plows to your own unique situation to discern which plow is right for you, your soil, and your horses. Who is the ‘expert’ in this situation? And try employing such a strategy with tractors!

This book, then, is more than just an edited compilation-like best practices manual. In conjunction with its companion volume, Leslie’s new volume, in the story that it tells and in the way it is told, serves as a testament, adding the strength of their voices and shoulders, maximizing the potential of a growing world-wide struggle that honors right livelihood, incorporating old and new tactics and strategies, “fomenting a new agricultural revolution—one grounded in the wisdom of our ancestors but also employing exciting new tools and methods…” requiring our horses to help us restore our land, to respect the fabric of our local communities, and to heal our human spirits. Those of us who have taken up driving lines to manage our fields and forests have the power within our hands to help steer the course toward a new cultural evolution.”

Eliza the Pig
By Alexandra McClanahan, illustrations by Julie Lemons
Available on Amazon.com or from author: shtuh.farm@gmail.com or 402-394-5616
125 pages, paperback, $9.99
review by Jack Kittredge

When I saw the ad for “Eliza the Pig” that Alexander sent to promote her book in this issue, I asked if she would send a copy to me. I wanted to try reading it to our 7 and 9 year-old grandkids, Sammy and Anya, to see if they liked it.

The story is that of a typical Nebraska farm town which experiences the introduction of a CAFO

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(confined animal feeding operation) for hogs. The smells, wind blown sprays of liquid manure which spatter passing cars, and traffic, versus the lure of jobs and taxes come to divide the previously contented town.

While using a traditional 3rd party narrator, McClanahan focuses on telling the story as it is seen by the livestock living on the family farm of Angela and Joel, particularly by a somewhat empathic sow name Eliza. Doings among the people are filtered to the barn by Tommy, the housecat and only animal allowed into the farmhouse. There are some interesting thoughts about people that go through the animals’ heads, and discussions by them of the realities they face as livestock.

McClanahan clearly shows her love of farming in traditional Nebraska style – large mechanized family farms still keeping livestock and centered around family events in a town full of similar farmers. There is the expected criticism of CAFOs and corporate agriculture, but tempered by discussion of the reasons some townspeople support them and showing the pain all felt by being divided on the issue as the result of a court case brought by some townspeople against the CAFO. Fortunately the suit brings some relief from the CAFO’s excesses and people find their way back to being neighborly again.

To my surprise, Sammy and Anya loved this book despite having no kids in it (Angela and Joel’s children are grown now) and no pitched battles of good versus evil. They asked for it before any of the other books we were reading. Perhaps the animal perspective appealed to them. Perhaps the simple doings of a farm family (daily chores, weekly rituals, seasonal work) resonated with their own farming experiences.

In any case, if you want a birthday present to read to a kid who likes farms, this might be a winner. Besides, the chapters are very short so you can succumb to cries for “another chapter, Pleeeeze!” without much to lose!

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Grassroots Democracy at Work: Building Congressional Relations

by Steve Gilman, Interstate NOFA Policy Coordinator

Thanks to back-to-back grants from the good folks at Farm Aid, the seven NOFA Chapters, working in concert through the Interstate Council (NOFA-IC) Policy Committee, are taking a giant step forward to increase our regional and national policy capacity. The projects are centered around building more effective working relationships with our Members of Congress – and we’ve got district access to quite a few: here in the populous Northeast, “NOFA Nation” is represented by 14 Senators (14% of the Senate) and 52 Representatives (12% of the House).

The 2015 project grant ($20,000) supported producing and attending an April Retreat training on the ins and outs of effectively interacting directly with Members of Congress and their staff, followed by Chapter policy representatives participating in a June fly-in to Capitol Hill to meet with their Congressional delegations. This year’s Farm Aid project ($18,000) takes things a step further. The face-to-face meeting of the chapter policy representatives at the 2016 Retreat at Shelburne Farms on the shores of Lake Champlain in Vermont provided a great venue. The policy segment of the 3 day gathering featured an in-depth advocacy training on producing successful on-farm events with Member of Congress in their districts to increase their familiarity with family-scale farming and promote their understanding and policy support of organic soil carbon restoration practices.

Our dynamic trainer was organizer Mark Shultz, Associate Director and Policy Program Director at the Minnesota based Land Stewardship Project (LSP) with 6,000 members. Parts of his three-day stay were also utilized by NOFA-VT and NOFA-IC to cover additional subjects from member development to taking on crop insurance subsidies in the Farm Bill.

Organizational Base-building

LSP’s highly effective approach is founded on organizational base-building. Mark maintained that to achieve desired policy outcomes advocacy groups have to build power to make them happen. Specific campaigns not only address issues important to members but also serve to bring new supporters into the organization to further use their energies for the long haul as members, activists and leaders. The campaigns are also used as building blocks to tackle the larger needed changes that are identified by members – including care for the land, taking on corporate farming interests and addressing national issues in the Farm Bill. Articulating core values is key here – if most people think what we want will never happen, then that will become the dominant narrative that keeps people down. This is organized pro-democracy advocacy for what people want.

Nuts and Bolts

Mark then led the NOFA policy committee through the planning process for setting up events with invited Congressional representatives. Starting with the “why” (it’s good practice to write down the desired outcomes right at the start) connecting and building a good relationship with the Congressperson on specific issues may be at the top of the list. But an organizational base-building sub-text is just as important, and empowering participants via role assignments in the meetings is also an essential leadership-building tool.

After some group discussion Mark went on to the “hows” and the need to fully articulate the specific agenda goals at the very beginning. How many members will attend (8 around a kitchen table or 80 to show power)? Who will present each highly scripted section of the narrative? When and where to stage the event? How does it fit the Congressperson’s schedule? What time of day? Will there be food involved? Handouts? Should there be a media presence? Who is responsible for photos? The follow-ups with the Congressperson and staff are just as important as is communicating the event to the membership via newsletters, e-blasts and the website, complete with photos.
For on-farm visits, especially, Mark urged leaving nothing to chance. He said it’s important to visualize the whole of the meeting like a movie: how the participants walk onto the farm; who greets; what they will see if there’s a farm tour and who presents what and when – all the way to the “closing credits” via member communications. These events are also a valuable tool for empowering and developing organizational leadership. All participants have specific roles and scripted messages that are rehearsed at a general meeting ahead of time.

**Asking the Asks**

Just as critical are developing the meeting’s “Asks”. Even though relationship building might be the main purpose, Mark said there should be at least one official request in every meeting and it’s good to get officials used to saying “Yes” to you. Demands need not be big – they may be as simple as asking them to sign onto a letter or getting them to agree to future meetings in their Washington DC office. When there already is agreement on an issue the need may be to develop a Congressperson as a champion, not just a supporter – and to position your organization as a go-to source for pertinent information and expertise. In the staff communications before the event it’s important to set your agenda and not let theirs take over. Sending them materials and presenting background information ahead of time can assist this. And while tough questions can be a part of the proceedings, “gotcha” questions which might embarrass officials should be avoided.

Finally, if scheduling problems prevent the attendance of the Congressperson, then taking the highest-ranking staffer may suffice to create relationship. Explaining the organization’s voter demographics to their office is important, however, and utilizing prominent constituents to urge the Member’s attendance may also be effective. Critical to this whole process is that these direct Member connections are not isolated one-time occurrences, but step by step relationship-building measures designed to move NOFA policy initiatives toward desired changes.

**Coming Next: NOFA Actions**

With IC support the Chapter representatives will be putting Mark’s training to good work later this summer. The Farm Aid project supports a district on-farm event with an invited Congressperson in each of the seven Chapter states. Stay tuned for a follow-up article.

The Interstate NOFA Policy Program works regionally and nationally on organic policy issues important to NOFA members and is wholly dependent on outside funding to do this work. Donations are welcome and are tax-deductible. Please address them to NOFA c/o IC Treasurer Julie Rawson, 411 Sheldon Road, Barre, MA 01005. Thank you!

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