News From CCE

By Barb Neal, CCE Tioga

Sometimes, farming and gardening feels like you are conducting a science experiment on your own property. If I plant this new variety, will it produce a better tomato? Should I feed my animals grain or raise them entirely on pasture? If I plant a native plant in my garden, will the pollinators come? We farmers and gardeners are natural scientists—testing theories of how best to raise our crops, ornamentals and livestock.

Two thoughts come to mind. First, we older gardeners and farmers could pass on this “scientific mind” to younger generations—maybe it will rub off and we will be raising the next super scientist. Or perhaps we will simply be raising another gardener or farmer, and that is no small feat in itself.

Secondly, the science of farming and gardening is always advancing. Two articles in this issue deal with understanding genetic codes to advance human understanding. Even with the ability of most folks to answer a dizzying array of questions thanks to the internet, CCE staff play an important role as the “translators” of scientific research to farmers and gardeners. Our role is to bridge the gap between the farmer and gardener and the scientist in the lab. And it is a role we relish.

Coffee Grounds Perk up Compost Pile With Nitrogen

By Oregon State Extension

Coffee grounds can be an excellent addition to a compost pile. The grounds are relatively rich in nitrogen, providing bacteria the energy they need to turn organic matter into compost.

About 2 percent nitrogen by volume, used coffee grounds can be a safe substitute for nitrogen-rich manure in the compost pile, explained Cindy Wise, coordinator of the compost specialist program at the Lane County office of the Oregon State University Extension Service.

"A lot of people don't want to use manure because of concerns about pathogens," said Wise.

Contrary to popular belief, coffee grounds are not acidic. After brewing, the grounds are close to pH neutral, between 6.5 and 6.8. The acid in the beans is mostly water-soluble, so it leaches into the coffee we drink.

Since 2001, Wise has trained and coordinated OSU compost specialist volunteers. They have collected and composted nearly 200 tons of coffee grounds from 13 coffee shops and kiosks in Eugene, Springfield, Florence, Cottage Grove and Veneta. That's the equivalent of about 25 large dump trucks full of coffee grounds.

Lane County alone is estimated to generate a million pounds of used coffee grounds per year, said Wise. "Recycling this valuable soil amendment and compost ingredient makes sense both economically and environmentally," she said.

Wise is encouraging gardeners and those that compost in other communities to arrange to collect coffee shop
grounds for composting. But be sure to make prior arrange-
ments with a coffee shop to collect grounds. Then, take a
clean five-gallon bucket with a lid, label it with your name
and telephone number on the bucket and lid and leave it at
the shop and then pick it up at the shop's convenience.

Here are some suggestions for using composted grounds in
the yard and garden from the OSU Extension compost spe-
cialists:

• Mix grounds into soil as an amendment. Make sure to
keep them damp. Add some nitrogen fertilizer if you do
this, as coffee grounds encourage the growth of microbes
in the soil, which use up nitrogen. While microbes are
breaking down the grounds, the nitrogen will provide a
source of nutrients for your plants.

• Spread grounds on the soil surface, then cover them
with leaves or bark mulch.

• Add grounds to your compost pile, layering one part
leaves to one part fresh grass clippings to one part coffee
grounds, by volume. Turn once a week. This will be ready
in three to six months.

• Or, put them in an existing unturned pile. Just make
sure to add a high carbon source, such as leaves to balance
it.

• Grounds may be stored for future use. They may devel-
op molds but these appear to be consumed during the com-
posting process. Or a large plastic bag works for storage as
well.

• Paper coffee filters may be composted with the grounds.

Keep in mind that uncomposted coffee grounds are NOT a
nitrogen fertilizer. Coffee grounds have a carbon-to-
nitrogen ration of about 20 to 1, in the same range as ani-
mal manure.

Germination tests in Eugene showed that uncomposted cof-
fee grounds, added to soil as about one-fourth the volume,
showed poor germination and stunted growth in lettuce
seed. Therefore, they need to be composted before using
near plants.

Wise and her composting protégés have been conducting
informal research on composting coffee grounds. So far,
they have observed that coffee grounds help to sustain high
temperatures in compost piles. High temperatures reduce
potentially dangerous pathogens and kill seeds from weeds
and vegetables that were added to the piles. They have no-
ticed that coffee grounds seem to improve soil structure,
plus attract earthworms.

When coffee grounds made up 25 percent of the volume of
their compost piles, temperatures in the piles stayed be-
 tween 135 degrees and 155 degrees for at least two weeks,
known time to have killed a "significant portion" of the
pathogens and seeds. In contrast, the manure in the trials
didn't sustain the heat as long.

"We were amazed at the results we got with coffee grounds
when we did the trial," said Wise.

Jack Hannigan, an Extension-trained compost specialist, is
pleased with the results he gets from the coffee grounds he
collects from the Fast Lane Coffee Company in Springfield
to use on his farm in Pleasant Hill.

"I make hotbeds that run about 150 degrees," Hannigan said.
"It kills the weeds. I can get the piles hotter and break down
the compost better with coffee grounds than I can with ma-
nure. It works great."

Coffee grounds also can be added directly to soil but the
grounds need a few months to break down, Wise said. "We're
not certain about how coffee grounds act with the soil, but
anecdotally people say they do dig it into the soil," she said.

An additional benefit of diverting coffee grounds from the
landfill is that it helps cut greenhouse gas emissions, said Dan
Hurley, waste management engineer for Lane County's Short
Mountain Landfill.

"To keep organics out of the landfill is a good thing for reduc-
ing greenhouse gas emissions because organics decompose
and produce methane. Methane is about 25 times as bad as
carbon dioxide, a greenhouse gas," said Hurley.

Recycling coffee shop grounds also fosters interactions be-
tween community residents and local businesses. The coffee
grounds stay in their communities, meaning that fuel isn't be-
ing used to truck them from far-flung areas of the county to
landfills.
Worms Gone Crazy

By Paul Hetzler, Natural Resource and Horticulture Educator, CCE St. Lawrence

Raise your hand if you’re tired of hearing about new invasive species. I’m right there with you. Aside from the fact that there’s too much bad news around as it is, we’re still working on a cure for those good old-fashioned pests that rival the common cold in terms of eluding conquest. Japanese beetles, European chafer, buckthorn, wild parsnip, Japanese knotweed -- enough already. We don’t need a new invasive species every year, but try convincing them, right? I half-expect to get a bulletin one of these days on some tropical soil-shark that stowed away in a shipload of potting mix. Probably it’ll feed on moles, voles and woodchucks, but will also burst up out of lawns to swallow small pets, and gardeners might lose a finger while weeding. That would kind of put lily-leaf beetles in perspective, wouldn’t it?

So I’d be a lot more hesitant to tell you about a new and significant threat to forests, landscapes and gardens if it wasn’t for the fact that you can make a real difference in preventing its spread. The new pest is *Amynthas agrestis*, a super-size (eight-inch long) earthworm known as the Asian jumping worm, Alabama (or Georgia) jumper, snake worm or crazy worm. It’s sold as bait, and unfortunately is also hawked as a substitute for the harmless red wiggler used in worm compost bins. Its name comes from the fact that it moves rapidly on top of the soil, resembling a snake more than a worm. Lively and strong, it can flip out of your hand, assuming you want to touch it. Other than its impressive squirm factor (in every sense), what’s the problem with *Amynthas agrestis*?

Worms are good for the soil, aren’t they? Not so, my friend; crazy worms are an exception. These are not your grandparents’ worms. OK, that didn’t come out quite right. Let me rephrase it.

Here in the Northeast where glaciers scrubbed our bedrock bare a few years back we have no native earthworms. There’s debate, especially in the forestry world, over just how much of a mixed blessing our common earthworm species are, but I won’t get into that. Let’s just assume earthworms are good. A native of Japan and Korea, *Amynthas agrestis* is a very different animal. Their reproduction, for example. Other earthworms are hermaphroditic, that is, they possess both male and female organs, but they still need to go out on a date with another of the same kind. Crazy worms, however, are parthenogenic, meaning they’re all females who spew out cocoons teeming with baby female worms by the hundreds without needing to mate. Ever. All it takes is one to make an infestation. They also mature twice as fast as European earthworms, completing two generations per season instead of just one. And their population density gets higher than other worms. And remember they’re big. That adds up to an unprecedented worm biomass that will essentially consume all organic matter. This includes your lawn and the roots of annuals, perennials and shrubs. In the woods, crazy worms destroy native wildflowers, wiping out trillium, bloodroot, Jack-in-the-pulpit, ladyslipper and other understory plants. Ground-nesting songbirds like the oven bird disappear.

When an *Amynthas agrestis* infestation removes organics from soil, it becomes clumpy and granular and prone to compaction and erosion. Forest soils actually subside, exposing tree roots. Wisconsin Department of Natural Resources invasive species specialist Bernie Williams stated “Their intro-
duction into our state poses a huge threat to the future of our forests.” *Amynthas agrestis* can be distin-
guished from other worms by their darker color (in
general), and by the band near their middle called a
clitellum. In most worms it’s puffy, and similar in col-
or. In crazy worms it’s even with the body, and milky
white to gray. Mature size and behavior also set them
apart. Crazy worms are transplants, and that’s how
they often spread. Whether in a potted plant from a
garden center or a gift from a South Carolina relative,
these monsters hitchhike long distances with trans-
plants. They also move from infested areas, mostly in
southern states, in shipments of mulch.

There are two ways of telling if your potted plant har-
bors dangerous fugitives. One is to turn it upside-
down and gently remove the root ball. If crazy worms
are present, the roots, as well as some potting soil,
may be missing. The thing is, there may only be
young crazy worms present, or very few, so damage
might not be evident. A better solution is a mustard
solution. Mix a gallon of water with one-
third cup of
ground yellow mustard seed, and pour this slowly into
the soil. It won’t hurt the plant, but worms (even
“good” ones) will come to the surface and you can
check for miscreants. Because of their acrobatics, cra-
y worms are valued as fishing bait. This is illegal in
most places, but it does happen. To be safe, anglers
should securely cover bait containers, and destroy all
unused bait by placing it on bare concrete and step-
ing on it. If you have a household worm bin, only
use European red wigglers, *Eisenia fetida*, which
won’t survive outdoors over the winter.

With a presence in Wisconsin and Minnesota, *Amyn-
thas agrestis* is hardy to USDA Zone 4 and possibly
colder. Right now there are a few known crazy worm
infestations in Chemung, Broome, and Tompkins
Counties, NY, and it’s likely there are plenty more
throughout NY State. If you suspect you may have
found crazy worms, please call your local Cornell Co-
operative Extension office or NYS Department of En-
vironmental Conservation office. If you think it’s an
invasive soil shark, though, I don’t want to know
about it.

**Too Many Leaves?**

*By Peg Weidemann, Chemung County Master Gar-
dener*

Fall in the Northeast means lots of leaves to remove
from lawns. Many municipalities no longer provide
leaf pickup, and burning is prohibited in most urban
and suburban areas. What to do with all those
leaves?!

This year put them to good use by creating leaf
mold. While it doesn’t sound very appetizing, leaf
mold is just the end result of composting leaves. It is
the very easiest type of composting, and the end re-
sult is rich moist crumbly soil that you can use to
replenish your garden beds.

Methods depend on your space and tolerance for leaf
piles.

A very simple method for those who have large
lawns and small amounts of leaves is to simply dou-
mow to chop your leaf litter finely and let the
leaves provide valuable organic matter for your
lawn.

Those who have more leaves can use their lawn
mower’s bagging feature to collect the chopped
leaves, and either put them in a pile, in bags, or use
wire cages (maybe your now vacant tomato cages?)
to corral them. If you use plastic bags, cut slits in
the sides for airflow.

My favorite method involves the vacuum feature on
my leaf blower. I use it to chop the leaves, and then I
put them on my various garden beds as a winter
mulch. It looks good and it provides protection for
my perennials, as well as for the soil in my raised
vegetable beds. Any leaves that I have left go into
my compost pile.

Whatever your pile style, the leaves should be kept
damp. As long as there is enough air and moisture
the leaves will decompose into leaf mold. Since
these piles are basically all carbon, the process will
take longer than a more active style of composting. It
can take up to 1 year for all of the leaves to break
down, but within 6 months you can pull out finished
leaf mold from the bottom of your pile.

Because it is created entirely from “brown matter”,
leaf mold has little nutrient value. However, it is a
valuable soil conditioner; consider it an alternative to
peat moss and it provides better water retention. It
also encourages healthy soil bacteria to thrive.

Once you have seen how happy leaf mold makes
your plants and how easy it is to create, I predict that
you too will be sneaking leaf bags from the curb
throughout your neighborhood!

For further reference:

https://lee.ces.ncsu.edu/2011/12/making-and-using-
leaf-mold/

http://www.finegardening.com/making-leaf-mold
Basics of Vegetable Production in High Tunnels

November 1, 2017 6 - 8pm

4-H Building, Chemung County Fairgrounds
171 Fairview Road, Horseheads, NY 14845

Would you like to learn more about producing vegetables out of season or in a more controlled environment? If you would, please join us for this upcoming workshop. Judson Reid, Vegetable Specialist with The Cornell Vegetable and Harvest NY Programs, will cover the basics you need to know to get started in growing vegetables in high tunnels. Topics to be covered include long term soil fertility, disease and pest management, choosing the right variety, crop alternatives and more.

Cost to attend this workshop is $10 per person. Pre-registration is required by 10/27/17. To register, please visit https://reg.cce.cornell.edu/HighTunnelWorkshop1_207. For more information, please contact Shona Ort at 607-734-4453 ext. 227 or sbo6@cornell.edu.
Fresh insights into the genetic code of sheep could aid breeding programs to improve their health and productivity. Scientists have mapped which genes are turned on and off in the different tissues and organs in a sheep's body. Their findings shed new light on the animal's complex biology, including insight into the function of genes linked to immunity and meat quality.

Researchers say the insights could eventually inform animal breeding programs aimed at improving farmers' stocks. Sheep have more than 20,000 different genes but not all of these are expressed in each tissue type in the body.

The team focused on genetic material called RNA, which is produced as an intermediate step when DNA code is translated into the proteins and molecules that make up cells and tissues. RNA serves as a functional read-out of exactly which genes are expressed in which tissues at any one time.

Researchers at the University of Edinburgh’s Roslin Institute analyzed the total RNA produced in each tissue of the sheep's body. Their results represent a major step towards understanding how the sheep's genetic information influences its physical traits.

The findings also shed light on the function of hundreds of genes whose role was previously unknown.

An online database has been created from the results, which is freely accessible to scientists working anywhere in the world. The researchers hope this resource will help to further understanding of the sheep's genetic make-up.

The project is a major contribution to the global Functional Annotation of Animal Genomes (FAANG) initiative. The study, published in PLOS Genetics, was supported by the Biotechnology and Biological Research Council (BBSRC). The Roslin Institute also receives strategic funding from the BBSRC.

Professor David Hume, of the University of Edinburgh's Roslin Institute, who initiated the project, said: "This is largest resource of its kind. Ongoing comparative analysis will provide insights to help us understand gene function across all large animal species, including humans."

Dr. Emily Clark, of the University of Edinburgh’s Roslin Institute, who coordinated the project, said: "Sheep are a central part of the rural economy in the UK and are essential to sustainable agriculture across the globe. The new resource represents a major step towards understanding how the sheep's genetic information influences its physical traits, and provides a foundation to use this information to generate sustainable improvements in the productivity of livestock animals."

Genomic insights reveal the surprising journey of the apple

By Alexa M. Schmitz, Cornell Cornicle, August 15, 2017

Centuries ago, ancient networks of the Silk Road facilitated political and economic openness between nations of Eurasia. This network also opened pathways for genetic exchange that shaped one of the world’s most popular fruits: the apple.

Silk Road travelers, trading their goods and ideas, brought with them hitchhiking apple seeds, discarded from the choicest fruit pulled from wild trees. This early selection would eventually lead to the 7,500 varieties of apple that exist today.

Cornell-affiliated Boyce Thompson Institute (BTI) researchers have been excavating mysteries of the apple’s evolutionary history, and an Aug. 15 publication in Nature Communications reveals insights into the genetic exchange that brought us today’s domesticated apple, *Malus domestica*.

In collaboration with scientists from Cornell University and Shandong Agricultural University in China, the researchers sequenced and compared the genomes of 117 diverse apple accessions representing 24 species, from North America, Europe, and East and Central Asia.

A tale of two roads

Previous studies have shown that the common apple, *Malus domestica*, arose from the Central Asian wild apple, *Malus sieversii*, with contributions from crabapples along the Silk Road as it was brought west to Europe.

The results of this new study have provided a much more comprehensive map of apple’s evolutionary history. “We
Harvest Share Free Veggie Stand
Still Accepting Your Excess Produce and Fruit

Inundated by apples? Over-run with squash? Gob-smacked by zucchini?

Donate your excess produce to one of the two Harvest Share stands in Tioga County. One stand is on the grounds of the Spencer Lions Club Community Gardens on East Tioga Street in Spencer, and the other is at Tioga Rural Ministry in Owego at the end of South Depot Street.

narrowed down the origin of domesticated apple from very broad Central Asia to Kazakhstan area west of Tian Shan Mountain,” said Zhangjun Fei, BTI professor and lead author of this study.

Additionally, the authors discovered the first domesticated apple had also traveled east, hybridizing with wild apples to yield the ancestors of soft, dessert apples cultivated in China today.

“We pointed out two major evolutionary routes, west and east, along the Silk Road, revealing fruit quality changes in every step along the way,” Fei said.

The sour (but firm) side of the story

As the apple traveled west along the Silk Road in the hands of travelers, trees grew from dropped seeds and crossed with sour wild crabapples. The authors found that the European crabapple, Malus sylvestris contributed so extensively to the apple’s genome that the modern apple is more similar to this sour crabapple than to the Kazakhstani ancestor, M. sieversii.

“The [Malus sieversii] fruits are generally much larger than other wild apples. They are also soft and have a very plain flavor that people don’t like much,” said Yang Bai, a postdoctoral scientist at BTI.

The hybridization between ancient cultivated apples and M. sylvestris, followed by extensive human selection, produced larger apples that are fuller in flavor, crispier and firmer, giving them a longer shelf life.

Bai explained, “The modern domesticated apples have higher and well-balanced sugar and organic acid contents. That is how the apple started to become a popular and favored fruit.”

A sizeable discovery with big potential

In most cases of fruit domestication, the wild ancestor has tiny fruit that was shaped into its large, nutritious cultivated counterpart through centuries of selection. For example, the domesticated tomato is at least 100 times larger than its wild relatives.

“This is not quite the case for apple,” Bai said. “Its domestication started with a medium to large-sized fruit.”

Comparing the different apple genomes, the researchers found evidence supporting two evolutionary steps contributing to apple’s size increase—one before and one after domestication.

The large size of wild M. sieversii gave it an advantage. Having already evolved to a suitable size before cultivation, it was more attractive to growers who would not need to spend much effort selecting for larger fruits.

Such a lack of size selection also means that the genes responsible for size increase still retain variability with potential for future selection. The researchers identified several size-associated genetic markers, which is great news for breeders who want to further increase the apple’s girth.

“The genomic regions and candidate genes under human selection for a certain trait identified in this study will be very helpful and inspiring to breeders working on the same trait,” said Fei, who expects the results from this study will, “improve speed and accuracy of ‘marker-assisted selection’ in apple.”

By analyzing a diverse collection of representative apple genomes, Fei’s group has distinguished important genetic markers that will aid breeders in their quest for better apples—be it for disease resistance, shelf-life, taste or even size.

The research was supported by the National Natural Science Foundation of China, the Special Fund for Agro-Scientific Research in the Public Interest of China, and the U.S. National Science Foundation.

Alexa M. Schmitz is a communications associate at the Boyce Thompson Institute.
Riparian Buffers—Consider Installing a Buffer to help the Environment

By Laura Grant, Upper Susquehanna Coalition

Since the colonization of the United States, our landscape has been divided up into easily managed parcels. This has caused a significant decrease in habitat continuity and therefore sustainable wildlife populations that previously inhabited the region. Now realizing the effects of our unmanaged growth, there has been a recent surge to reduce habitat fragmentation by creating corridors. One effective method of reducing habitat fragmentation is the implementation and conservation of forested riparian buffers.

A riparian buffer is any vegetated land, ideally forested, along waterways and wetlands. Forested riparian buffers have numerous benefits to both humans and wildlife including reduced erosion, improved water quality, and habitat for a variety of terrestrial and aquatic organisms. A riparian buffer can be divided into three zones: forested, mixed forest and shrubland, and grassland. Within each zone an array of microhabitats is present supporting numerous different species. One group of wildlife we often overlook are pollinators. In the United States pollinators are responsible for supplying about one third of the produce we consume. Although disease, and certain types of insecticides have been linked to declining pollinator populations, habitat loss is another significant factor. Implementation of forested riparian buffers can help create a safe haven for these struggling pollinators.

The third zone of the riparian buffer, the grassland strip, provides the nectar pollinators consume. Over thousands of years, flowers have coevolved with pollinators to develop specialized flowers; as result, only specific pollinators can access nectar from specific flower shapes. For example, the cardinal flower (Lobelia cardinalis) has an elongated flower that hummingbirds are able to easily access. Insects with shorter tongues like a honeybee cannot access the nectar. Similarly, the short-tongued honeybee can easily acquire nectar from a sunflower that a long-tongued bumblebee cannot. When creating a grassland buffer zone it is important to incorporate a diversity of native flowers to feed greater diversity of pollinators.

Although many of us imagine all bees as being social creatures living in a hive with honeycombs, most native bee species are solitary nesters. Solitary wood nesting bees and ground nesting bees seek refuge in zones one and two in a riparian buffer. Some species of solitary ground nesting beetles build their nests along riverbanks. Trees on zone one help to stabilize banks, keeping the abodes of these ground dwellers out of the water. Elderberry, a common shrub found in zone two of a riparian buffer often provides a home for the solitary wood nesting bees. In addition to elderberry, buttonbush, nannyberry, and many other shrubs provide nectar to various pollinators in zone two. The trees comprising zones one and two also provide an important role for pollinators in early development. Hundreds of caterpillars of moths and butterflies depend on tree leaves to eat; in fact, willows alone support over 400 different species of moth and butterfly caterpillars alone. The eastern swallowtail caterpillar consumes several species found in riparian areas including green ash, basswood, birch, and cottonwood.

If you own property with a waterbody and are looking to enhance a riparian zone or install a forested riparian buffer feel free to contact the Upper Susquehanna Coalition. Any questions can be directed to Tioga County Soil and Water at (607) 687-3553 or GrantL@co.tioga.ny.us.
Tiger Farm, a project of Tioga Central School District Kicks off Thursdays in NY

Harvesting a thousand pounds of potatoes, tasting fresh roasted corn on the cob, hosting the NYS Commissioner of Agriculture, State Senator Akshar and State Assemblyman Chris Friend—and hundreds of smiling children: This was Thursday, September 23rd at Tioga Central School District.

Thursdays in NY is a program to serve local food in the cafeterias of NYS schools, and Tioga Central School is leading the way. Stay tuned for more information on this ground breaking farm-at-school program.
Improved Meat Marketing for Small Scale and Direct Marketing Farms in the Northeast

PART I

Understand the customer and their needs: Developing marketing strategy

For small-scale farms, the need for marketing skills has increased as the local food marketplace has become crowded with more competition. Perhaps 15 years ago the supply of local meat was smaller than the demand, allowing farms to simply “show up and sell out” in their markets. However, here in the Northeast we have seen many farms, both old and new, respond to market demand for local meat and enter the marketplace. In addition, national corporations responded to consumer demands for noncommodity meat, putting many “look alike” products on to grocery store shelves, where they are easy for consumers to grab during their regular food shopping. These pressures of supply and demand require the savvy farm marketer to step up their game.

The good news is that, even in an increasingly competitive market, applying a few standard marketing techniques will show results. One such technique is to choose a target market and focus your marketing resources on it. Some thoughtful discussion among your farm’s team paired with basic market research should reveal the best target market for your business. Some questions that can help you determine a viable target market are:

• What is the quintessential customer of my farm now?

• How would I describe an exaggerated caricature of my stereotypical customer?

It is tempting to think, “I sell meat to everybody, everybody has to eat” but with target markets, specificity counts. In fact, the more specifically you can describe your target customer, the easier marketing to them will become. A specific description of your customer should reveal details about their needs, preferences, and the reasons they are more likely to purchase your product.

Each target customer has characteristics that you should explore and discuss with your farm’s marketing team (your team may simply be your family, employees and/or friends). The more you can understand about the customer, the better you can communicate to and serve them.

A handy method for work-
By the way, that strategy sentence, it’s not for your brochures or Facebook page! It is a sentence for the farm to use to guide marketing decisions and not made for the public. A well-developed sentence with specific details enables the farm to understand their customers’ needs, preferences, and buying habits. This understanding allows the farm to better serve the customer, building a positive and distinct image for the farm.

A strategy sentence can be written for any target customer, including wholesale customers. If you typically sell feeders or breeding stock, you can tailor your sentence to your buyers. The sentence helps you define what the buyer prefers and thus, how to serve them better. Marketing strategy benefits your customers in this way and improves the payoff of every investment you make in marketing!

This article is Part 1 of a 4-part series. This material is based upon work supported by USDA/NIFA under Award Number 2015-49200-24225.


Farmers—Join the Meat Suite!

It is free and allows customers to learn about you and your products.

Not a whiz at computers? Let the CCE extension staff help you. We can work with you to enter in the information about your farm (products, location, etc.) into the program.

Beneficial soil bacteria face a weed-killing threat from above

By Blaine Friedlander, Cornell Chronicle  September 21, 2017

As farmers battle in their above-ground war on weeds, they may inadvertently create underground casualties—unintentionally attacking the beneficial bacteria that help crops guard against enemy fungus.

Cornell researchers have found an agricultural conflict: negative consequences of the weed-killing herbicide glyphosate on Pseudomonas, a soil-friendly bacteria.

“Beneficial Pseudomonas in the soil can help crops thrive. They can produce plant-stimulating hormones to promote plant growth and antifungals to defeat problematic fungi—such as Pythium and Fusarium—found in agricultural soil, but previous studies reported that the abundance of beneficial bacteria decreased when the herbicide glyphosate seeps underground,” said Ludmilla Aristilde, assistant professor of biological and environmental engineering. “Our study seeks to understand why this happens.”

Soil bacteria require their proteins—composed of amino acids—and their metabolism to support cellular growth and the production of important metabolites to sustain their underground fight. But glyphosate applied to crops can drain into the soil and disrupt the molecular factories in the bacterial cells in some species, interfering with their metabolic and amino acid machinery.

The new findings show that glyphosate does not target the amino acid production and metabolic gadgetry equally among the Pseudomonas species. For example, when *Pseudomonas protegens*, a bacteria used as a biocontrol agent for cereal crops, and *Pseudomonas fluorescens*, used as a fungus biocontrol for fruit trees, were exposed to varying glyphosate concentrations, the researchers noted no ill effects. However, in two species of *Pseudomonas putida*, used in soil fungus control for corn and other crops, the bacteria had notably stunted growth, said Aristilde, who is a faculty fellow at Cornell’s Atkinson Center for a Sustainable Future.

“Thus, if a farmer is using *Pseudomonas fluorescens* as a biocontrol, then it is probably okay to use glyphosate,” Aristilde said. “But if the farmer uses *Pseudomonas putida* to control the fungus in the soil, then glyphosate is more likely to prevent the bacteria from doing its job.”

The study offers molecular details for why glyphosate adverse effects on Pseudomonas are species-specific. “That’s actually good news because—as a society—we will likely not stop using herbicide completely,” said Aristilde. “If that is the case, farmers need to know which beneficial soil biocontrol they’re using can be susceptible. If they’re using a strain that is susceptible and conflicting with their herbicide application, then it is a problem. That’s the bottom line.”
**Countdown to Census: What You Need To Know**

Only eight weeks until producers start to receive the 2017 Census of Agriculture

WASHINGTON – Sept. 25, 2017 – In just a couple months, farmers and ranchers across the nation will start receiving the 2017 Census of Agriculture. Producers can mail in their completed census form, or respond online via the improved web questionnaire. The U.S. Department of Agriculture’s National Agricultural Statistics Service has extensively revised the online questionnaire to make it more convenient for producers.

“The updated online questionnaire is very user-friendly – it can now be used on any electronic device, and can be saved and revisited as the producer’s schedule allows,” said NASS Census and Survey Division Director Barbara Rater. “Responding online saves time and protects data quality. That’s our mission at NASS – to provide timely, accurate, and useful statistics in service to U.S. agriculture. Better data mean informed decisions, and that’s why it is so important that every producer respond and be represented.”

New time-saving features of the online questionnaire include automatically calculating totals, skipping sections that do not pertain to the operation, and providing drop-down menus of frequent responses. Producers still have one week to try the online questionnaire demo on the census of agriculture website (www.agcensus.usda.gov).

The census website will continue to be updated with new information through the census response deadline of February 5, 2018. One recently added feature is a new video from Secretary of Agriculture Sonny Perdue reminding all producers to respond when they receive their 2017 Census of Agriculture in the mail later this year.

Revisions and additions to the 2017 Census of Agriculture aim to capture a more detailed account of the industry. Producers will see a new question about military veteran status, expanded questions about food marketing practices, and questions about on-farm decision-making to better capture the roles and contributions of beginning farmers, women farmers, and others involved in running the business.

Response to the census of agriculture is required by law under Title 7 USC 2204(g) Public Law 105-113. The same law requires NASS to keep all information confidential, to use the data only for statistical purposes, and only in aggregate form to prevent disclosing the identity of any producer. The time required to complete the questionnaire is estimated at 50 minutes. In October, NASS will make a census preparation checklist available on the census website to help producers gather necessary information in advance.

Conducted once every five years, the census of agriculture is a complete count of all U.S. farms, ranches, and those who operate them; it is the only source of uniform, comprehensive, and impartial agriculture data for every state and county in the country. Farmers and ranchers, trade associations, government, extension educators, researchers, and many others rely on census of agriculture data when making decisions that shape American agriculture – from creating and funding farm programs to boosting services for communities and the industry. The census of agriculture is a producer’s voice, future, and opportunity.

For more information about the 2017 Census of Agriculture, visit www.agcensus.usda.gov or call (800) 727-9540.

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**Growing Black Locust as a Timber Cash Crop**

Friday, October 20th from 9:30 am – 4:30 pm at the USDA NRCS Plant Materials Center in Big Flats, NY (3266 State Route 352) for a special day conference on “Growing Black Locust as a Timber Cash Crop”. Black Locust (Robinia pseudoacacia) is an Appalachian native with many positive attributes that merit consideration for any tree planting project. To name a few: locust has very strong, highly decay-resistant lumber that is an excellent alternative to pressure treated lumber and posts; it is a nitrogen-fixing Legume; and the fragrant, attractive flowers that appear in early June are excellent bee fodder. But one of the best reasons for considering Locust is that it can be grown as a profitable timber cash crop throughout much of the Northeast! This intensive one-day conference will be an invaluable networking and learning opportunity for those interested in growing Black Locust successfully and profitably. For full agenda and to register by Monday, October 16th please visit: (https://docs.google.com/forms/d/e/1FAIpQLSeVZAVfIRORQ-cAl1kR1K6paFedO1Pr_Hm1lw4OBuZ3KXYGw/viewform). Cost is $20 (pay at the door) and includes a hot lunch and a Black Locust seedling grown from improved seed orchard seed. Please dress for the weather for an afternoon tour. Hosted by the USDA NRCS Big Flats Plant Materials Center (https://www.nrcs.usda.gov/wps/portal/nrcs/main/plantmaterials/PMC/northeast/NYPMC) with support from Cornell Cooperative Extension and the Cornell Small Farms Program (http://smallfarms.cornell.edu). For more information, please contact Brett Chedzoy at Cornell Cooperative Extension of Schuyler County by phone: (607) 535-7161 or email: bjc226@cornell.edu
Ornamentals Greenhouse Education Day

Tuesday October 24th

Cornell Cooperative Extension of Broome County

9am: Welcome

9:15am: Nematodes: Nice not Naughty (John Sanderson, Cornell University)
Not all nematodes are plant pests. Some are good guys that attack and kill insect pests. Many growers have been using these nematodes against fungus gnats and thrips with good success. This talk will introduce you to insect-pathogenic nematodes, including when, where, and how they work, their compatibility with pesticides, and compatibility with other beneficial insects and mites. Practical advice on how to apply them, pitfalls to avoid, and associated costs will also be covered.

9:45am: Greenhouse lighting: Costs and Benefits and is it time to upgrade to LEDs? (Neil Mattson, Cornell University)
Neil will discuss the main reasons for greenhouse lighting: photoperiodic lighting of floriculture crops and photosynthetic lighting of flowers and vegetables. Based on recent research at Cornell on the electrical efficiency and performance of several LED fixtures for lighting leafy greens will be discussed, and example cost/benefit analysis of lighting will be presented.

10:15am: Getting to the Root of the Problem (Brian Eshenaur, Cornell University)
In this session we’ll look at important root and crown diseases on greenhouse plants including black root rot. We’ll discuss how root diseases can arrive in your greenhouse and then spread. An integrated approach of management will be presented, employing cultural techniques and fungicide drenches.

10:45am: Break

11am: Nitrogen, Aphids and Wasps: How plant nutrition interacts with biocontrol (Betsy Lamb, Cornell University)
Over fertilization wastes money and can affect insect populations, too. Does it affect how well biocontrol works? We will cover the results of a research project at Cornell that looked at the plant-aphid-beneficial wasp system as it is affected by plant nutrition.

11:45am: Respirator Update (TBD)
Some parts of the revised USDA worker protection rules and protocols went into effect January 2, 2017. The presenter will cover the differences between the old and new regulations and how you can stay in compliance, including the new respirator and training requirements.

12:15pm: Updates on latest developments in greenhouse structures TBD

12:45pm: Evaluation & Go Home!

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Trees for Tributaries Seeks Landowners in Tioga County

Trees for Tributaries is seeking new projects in Tioga County! Trees for Tributaries is a planting program, coordinated by the Upper Susquehanna Coalition, that works to reforest tributary streams throughout New York State, in order to reduce negative impacts upon riparian ecosystems, as well as, reduce the negative effects a riparian ecosystem can have on society.

Since the colonization of the Susquehanna River watershed in the 17th century, the Southern Tier has experienced a significant loss of forested habitat, specifically forested riparian buffers. A riparian buffer is any vegetated land, ideally forested, that border waterbodies and wetlands. These forest edges provide many services both to its human and organismal residents.

Implementation of buffers has been shown to maintain and even increase the property values of those located in riparian zones. Trees, and other vegetation that comprise a buffer, hold the soil together in the roots slowing the erosional processes; keeping waterfront property from rapidly shrinking. Plant roots also help prevent nutrient rich soil from floating away downstream, which decreases eutrophication in natural ecosystems, and prevents farmers from losing the fertile soil their crops require.

In addition to personal gains, installation of riparian buffers can also aid in economic growth of a town by increasing recreational opportunities. Buffers enhance the species diversity of an area by creating microhabitats. These microhabitats host organisms with high sensitivity to environmental conditions known as indicator species. Stoneflies, salamanders, and lichens are all examples of organisms with this type of habitat specificity. Although, stoneflies may not attract masses of tourists; stoneflies are a great lure for brook trout and several other species of game fish. Diversity of game fish is not the only draw of riparian buffers; these wetland ecosystems are also host to an array of bird species. Wood ducks, kingfishers, great blue herons and even bald eagles find refuge in riparian ecosystems.

Whether you are a farmer, fisherman, or aspiring ornithologist, if you own or manage property along a stream you may qualify for assistance. Trees for Tributaries will provide the native trees, and shrubs necessary for streamside planting projects, and regional staff will be available throughout the process for technical aid. Public and private sites qualify for assistance, although projects led by environmental organizations, or sites located in high-profile, highly visible areas will receive precedence. Since there is greater success in establishment of trees in spring and fall this is when buffers will be installed.

To learn more and apply visit our webpage: http://www.dec.ny.gov/animals/77710.html or Contact: Tioga County Soil and Water Conservation District at (607) 687-3553 or email: Laura Grant at GrantL@Co.Tioga.ny.us.

Basic Cheesemaking

October 28th 9am to noon at the Human Services Complex in Montour Falls, NY 14865. Join Carmella Hoffman of Sunset View Creamery and learn all about the basics of cheese making in this hands-on workshop. Held in Montour Falls. The fee includes the cost of the Mozzarella cheese making kit. The deadline for registration is October 6th. To register please visit: https://reg.cce.cornell.edu/BasicCheesemaking_244

The Art of Fruit Spirits "Eau de Vie"

November 15th - SAVE THE DATE- held at the Finger Lakes Distilling. Call Roger Ort at 607-535-7161 or email rlo28@cornell.edu.

Agriculture: Enroll in the Residential Ag. Electric Bill Discount (by Mary Wrege)

It is time to enroll or re-enroll in the Residential Agricultural Discount program offered through National Grid, NYSEG and RG&E. This monthly discount on the electric bill is possible thanks to funding from the New York Power Authority’s (NYPA) ReCharge NY program. You’re eligible to receive the discount if you meet the two conditions. The first is that you have an active residential electric service account with National Grid, NYSEG or RG&E billed under the following service classifications: National Grid: Rates beginning with Electric SC1 or Electric SC1C; refer to page 2 of your bill. NYSEG: 12001, 12008, or 12012 noted after Electricity Rate service classifications; National Grid, NYSEG or RG&E billed under the following forms (supporting documentation) with your most recent federal tax return: IRS Schedule F (associated with Form 1040) - Profit or Loss From Farming or IRS Form 1120, 1120S or 1065 with an eligible Business Activity code. The discount amount will vary each month and will be based on how many people participate, the amount of electricity
used by each participant and available funds from NYPAs. The discount amount is multiplied by your monthly billed kilowatt-hours and your discount will appear as a credit in a separate line item, “Res agricultural discount,” on your utility bill. To apply or re-enroll, just complete a Residential Agricultural Discount application and submit it to your utility company along with your supporting documentation. For more information and the application, contact your utility company.

Links are provided below:
- National Grid: https://www1.nationalgridus.com/AgriculturalDiscount-NY-RES?utm_source=PSC%20article&utm_medium=PSC%20article&utm_campaign=Residential%20Agricultural%20Discount

Mid-Atlantic Women in Agriculture Webinars- Are every Wednesday and FREE! Courses like "What You Need to Know About the Farm Safety Act", Into to Instagram. Click the link to see the full list of courses. https://www.eventbrite.com/e/wednesday-webinars-registration-11452674257

Two Day Cover Crop Workshop
Good Morning Farmers, students, researchers, extension educators, government and industry representatives, and other cover crop enthusiasts,

You are invited to the first annual Northeast Cover Crops Council Meeting hosted by Cornell University and the USDA NRCS Big Flats Plant Materials Center on November 8-9, 2017.

Please click on the link below (or copy and paste) for the event website containing all information and registration:
http://www.event.com/events/northeast-cover-crops-council-annual-meeting/event-summary-926c9a4a2f2b49d7903750daea51249d.aspx

Please note: Each day requires a separate registration which can be accessed directly below.

Wednesday, November 8, 2017:
Presentations will focus on soil health, cover crop practices for no-till, pest management, cover crop mixtures, harvesting cover crops for forage, and more. Participants will also have the opportunity to present their own work in a Poster Reception featuring local and seasonal refreshments and hors d’oeuvres. Location: Cornell University - The Statler Hotel 130 Statler Drive Ithaca, New York 14853

First Day Registration

Thursday, November 9, 2017:
This day will feature a field tour of the cover crop demonstration plots at the USDA-NRCS Big Flats Plant Materials Center in Big Flats, NY. Please dress accordingly. Location: USDA-NRCS Big Flats Plant Materials Center 3266 RT 352 Big Flats, NY 14814

Second Day Registration
This meeting will be a great opportunity to learn about advances and network with cover crop experts from the Northeast. Space is limited, so register now to secure your spot! (Once capacity is reached, a wait list will become available.) Hope to see you then!

Coming Up at Groundswell Center for Local Food and Farming… Agriculture and Climate Change Workshop
With Mike Biltonen and Jay Smith
Saturday October 21st, 10AM - 3PM Just Be Cause Center, Ithaca. Sliding Scale: $25-$50.

No one turned away for lack of funds.

We are currently in the midst of witnessing the devastating impacts of climate change through recent storms Harvey, Irma and Maria. But climate change has been affecting our farms for several decades now. The science and data show that there will continue to be dramatic impacts on every farmer’s ability to grow and distribute food. Agriculture is one of our greatest tools for reducing and even potentially reversing the effects of modern industrial society on our global climate, but it’s also one of the greatest contributors to climate change. Something has to give. Come learn about how we can work together as a community to increase stability and security in local food production!

This course is geared toward participants with some degree of knowledge related to growing food, but is open to all.

It will cover both urban and rural landscapes, and include information on crop production, soil health, water conservation, and farm design, as well as strategies for increased urban food production and the connections between climate change and food justice.

REGISTER HERE

Farming for Justice: A Discussion/Action Group
Wednesday, October 18th, 6PM-8PM Groundswell Center, 225 South Fulton Street, Ithaca NY*

Farming for Justice is a monthly meeting for farmers, food producers, and food system workers interested in digging into the intersection of food, agriculture and social justice. What role do we see ourselves playing in racial/economic justice work? What are the barriers we face and how can we support each other to step further into action? Through dialogue, education and action planning, we’ll begin to explore the answers. RSVP to Kate Cardona at kate@groundswellcenter.org
To Serve And Strengthen Local Farms, Local Food, Members are at the heart of Farm Bureau, a grassroots-driven organization of families and individuals in New York who care.

Chemung County Farm Bureau
Giving farmers and agricultural supporters the opportunity to be part of an organization dedicated to maintaining and enriching the rural way of life.

Join Today!

800.342.4143 NYFB.org

Cornell University Cooperative Extension
Building Strong and Vibrant New York Communities
Cornell Cooperative Extension in Tioga County provides equal program and employment opportunities. Accommodations for persons with special needs may be requested by calling 607-687-4020.