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AgrAbility gets farmers back to work worldwide

To Bill Field, professor of agricultural and biological engineering, a man who suffers a head injury falling from a grain bin in Indiana is no different than a woman who loses a foot to snakebite near Bangkok. “They have the same mechanical needs,” he explains — “how to get to where they need to be and do the things they’ve always done.”

Field directs the national AgrAbility Project, a USDA-NIFA-sponsored program that helps farmers, ranchers and other agricultural workers with disabilities meet those needs. His work focuses on three main areas: the health and well-being of farm families; enhancing emergency response in rural communities; and helping farmers rehabilitate after they’ve experienced a disability. The last priority taps Field’s ongoing research on assistive technology in agricultural workplaces.

Through its Purdue-based staff and website offering tools and resources, the program has global reach. In 2019 AgrAbility’s website averaged 10,000 unique visitors a day who downloaded more than 880,000 pages during the year. Eighty hours of online instruction helps farmers and the rehabilitation professionals serving them to adapt to a wide variety of disabling conditions, from amputations and arthritis to cerebral palsy. A translator was recently added to increase the site’s global usefulness.

“The concept is to provide technical assistance through existing Extension networks,” Field says. “We receive inquiries daily from all over the world related to enhancing the performance of agricultural workers with disabilities.” In 2019, the office fielded calls and messages from 118 countries.

“As members of a global agricultural community, we share many things,” says Gerald Shively, director



Photo Provided

Bill Field tries out an assistive device for climbing palm trees in India. Field’s work with adaptive technologies has taken him all around the world.

of International Programs in Agriculture at Purdue. “Among them, unfortunately, are physical disabilities and the obstacles that prevent individuals from leading full and productive lives. Bill’s efforts to address and overcome these challenges through AgrAbility leverages not just technology but also a deep concern for the well-being of farmers, farm families and farming communities everywhere.

“IPIA’s mission is to leverage knowledge, resources and people to achieve positive global impacts. Bill’s work is a shining example of how Purdue Agriculture is working to fulfill that mission.”

AgrAbility has taken Field to China, Thailand, South Korea, India, Norway, Finland, Denmark, Sweden, Austria and Ukraine, among other countries. He has conducted workshops on adaptations in Sicily for people from the Middle East and provided expertise to AgrAbility for Africa and AgrAbility Ireland. Visitors from Japan, Uganda, Kenya, Brazil, Sweden and other nations have come

to Purdue to learn more about the program and adaptive technologies.

Field also has attended international landmine conferences. “Most landmine victims in the world today are farmers,” he says. He points to Laos, where 14,000 rural residents have lost one or both feet to landmines planted during the Vietnam War. AgrAbility has sent related resources to the Philippines, Sri Lanka and Afghanistan.

In developing countries, AgrAbility focuses on making simple aids with indigenous materials. “Our website provides hundreds of solutions for getting work done, but we need more low-cost, locally made solutions,” Field says.

He notes the success of Free Wheelchair Mission, which has distributed more than a million low-cost wheelchairs designed with locally available resources. When the organization gave out 800 wheelchairs in Trivandrum, India, Field was there to speak on the need for disability resources.

“What are all the adaptive aids you can make from a

junked Toyota pickup truck?” he muses. “They’re all over the world. Think of all the parts and the ways you could use them.”

Disabled farmers worldwide share an eagerness to get back to work, Field says. “The farmers I work with don’t want disability benefits; they want to do something. It’s more difficult to sell the concept to bureaucrats, but we could take them to thousands of farms with farmers who are missing an arm or leg.”

Field discussed the needs of disabled farmers at a meeting in Italy in September 2019, which led to productive discussion with representatives from the World Health Organization, World Bank, and other agencies. He has been asked to participate in a workshop in Uganda in April 2020.

After more than 40 years spreading the AgrAbility message, Field hasn’t lost his enthusiasm for what the program has to offer: “I believe we have an incredible resource that could impact farm families around the world.”

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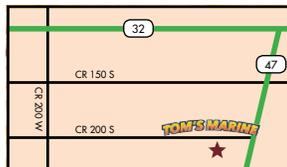
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Food science and entomology collaborate to produce Boiler Bee Honey

EMMA EA AMBROSE

Purdue News Service

WEST LAFAYETTE, Ind. – There are a number of food products produced by groups within the College of Agriculture, from the Department of Food Science’s Boiler Black and Boiler Gold beers to all the proteins supplied at the Boilermaker Butcher Block. Soon, fans of Purdue University consumables will have another item to add to their pantries: honey.

The departments of Food Science and Entomology have collaborated on Boiler Bee Honey, collected from bees in the Purdue apiary and processed and bottled in the food science pilot plant. The product has been minimally processed to allow consumers to see and taste the honey in its purest form. Proceeds from Boiler Bee Honey will support research in food science and entomology.

The honey bees responsible for this nectar fed on wildflowers, which produces a rich and dynamic flavor.

“They take a high level of care with the bees in the apiary, from the quality and type of flowers to the care of the bees,” said Eric Kurdelak, manager of the Pilot Plant. “And, of course, we have taken great care in processing the honey. This is a singular product.”

A key facet of this project is that it’s a student-driven initiative, Kurdelak added. Alyson McGovern, a sophomore in food science,



Photo Provided

Alyson McGovern, a sophomore in the Department of Food Science, works on filling bottles with honey in the Pilot Lab.

has led the project from the honey’s extraction to its bottling. She has navigated every phase and challenge of the process, taking the honey from a raw ingredient to a shelf-ready product.

“The experience has been invaluable in terms of knowledge gained and in building my portfolio,” McGovern said. “When I’m applying for jobs, I’m going to have a physical product I can point to that I made happen. I might even take it to my interviews and put it on the table.”

Brock Harpur, assistant

professor of entomology and project collaborator, said McGovern came in with very little knowledge of bees or honey, but she is now a bona fide expert.

“This is a wonderful way to demonstrate the collaborative work that can take place every day at Purdue and the opportunities we offer students,” Harpur said.

This isn’t a one-time event, Kurdelak added. The hope is to repeat this project every year and have the same project leader, in this case McGovern, training other undergraduates to take over

after she leaves. With the proceeds, they will be able to support these students and improve the operation each year.

The inaugural batch processed this year produced roughly 3,000 bottles, taken from nearly 24,000 ounces of honey. The product is available at the Boilermaker Butcher Block on campus for \$5 a bottle.

“I don’t know any place else where I could have this kind of hands-on experience,” McGovern said. “This is why I came to Purdue.”

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Long-term study will offer more data on cover crop benefits

By **BRIAN WALLHEIMER**
Purdue News Service

The popularity of cover crops has reemerged in recent years with farmers looking to a variety of grasses, brassicas and legumes to improve soil health. Cover crops can also improve water holding capacity, reduce erosion and weed pressure, reduce nitrogen leaching, increase soil organic matter, and potentially decrease nitrogen fertilizer application rates over the long term.

Still, only about 10 percent of Indiana farmers use cover crops, although that's double the national average. One reason is that there are few long-term studies of the benefits of cover crops, both for understanding their ability to improve soil health and to reduce on-farm costs.

"We see positive cover crop effects anecdotally, but we want to be able to quantify those effects over time," said Shalamar Armstrong, a Purdue assistant professor of agronomy. "We are trying to reduce the questions surrounding the proper management of cover crop for sustainable and profitable crop production."

Shalamar Armstrong

Armstrong is leading a team of Purdue scientists hoping to connect data with the anecdotal evidence. Purdue is receiving about \$1 million of a \$10 million U.S. Department of Agriculture National Institute of Food and Agriculture grant awarded to North Carolina State University through the Agriculture and



Photo Provided

Researchers will study the long-term potential of cover crops, such as crimson clover and rye seen here. (Photo courtesy Ankita Raturi)

Food Research Initiative. Armstrong, Eileen Kladviko, professor of agronomy, Ankita Raturi, assistant professor of agricultural and biological engineering, Linda Prokopy, professor of forestry and natural resources, and Anna Morrow, Midwest Cover Crops Council program manager, are part of a team of researchers throughout the eastern part of the country who will examine the benefits of cover crops in corn, soybeans and cotton.

"The effort here is bringing together scientists to advance our knowledge of cover crops and to provide data that enables farmers to adapt management in their own operations for profitable production," Armstrong said. "We're studying all aspects of cropping systems that include cover crops to enhance profitability, sustainability and resilience."

In particular, Purdue scientists are interested in the amount of nitrogen cover crops might add to the soil, reducing the amount that must be applied through synthetic fertilizers. These nitrogen credits will be key to cover crops' profitability. Armstrong said field trials will include testing different types of cover crops, evaluating the relative nitrogen contributions of the above-ground and below-ground portions of the cover crops when planting commodity crops in the spring, various nitrogen application rates and other tests.

The researchers will also use sensing equipment to monitor the impact of cover crops on water movement through soil, soil temperature, soil moisture and other factors that can affect soil organic matter, nutrient losses and the need for irrigation.

Raturi will focus on the design and development of information tools for sustainable agricultural applications. She will be working with researchers to develop data flow tools for use in their experiments and cyberinfrastructure for management of data in large-scale collaborative agricultural research. She will also conduct human-centered design research and co-development of decision-support tools for farmers to manage cover crops, assess their environmental outcomes and adopt sustainable agricultural practices.

"We want to develop a suite of decision-support tools based on the findings that come out of the on-farm cover crop research activities," Raturi said. "We will use this data to provide site-specific knowledge for the management of cover crops, nitrogen, weeds, pests and much more."

Kladviko said having a five-year study will be especially helpful because it will answer fundamental questions about how soil and nutrients are affected over longer periods of time.

"Indiana is ahead of the average on cover crop adoption, which we're really proud of. But there are good reasons some people are reluctant to adopt them," Kladviko said. "We know a lot in general about cover crops. But in order for more people to actually use them on their farms, there are specific questions they'll need answered. This study should go a long way toward answering them."

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Photo Provided
Darcy Telenko talks to a crowd.

New field crops pathologist hits the ground running

By **CHAD CAMPBELL**
Purdue News Service

“The hardest part for me,” said Darcy Telenko, “is being from a farm and knowing the impact. Knowing what it feels like when a farmer had a great crop, and a new disease emerges that impacts the final harvest and their bottom line. When talking about tar spot, I am honest with our Indiana farmers there are currently more questions than we have answers. I want to give them good, research-backed information, but we just don’t have it yet. Hopefully, we will soon.”

Telenko grew up on a dairy farm in New York but was

never interested in the cows. She preferred tending to the vegetables that her family grew for their farm market. “That’s how I knew I wanted to do plant science research, even before I went to college.”

Telenko served as the Extension vegetable specialist at Cornell University before joining Purdue as an assistant professor of botany and plant pathology in August 2018. Soon after she arrived, tar spot emerged as a serious threat to corn in the American Midwest.

“There’s nothing like starting a new job in field crop pathology right as a new disease hits corn,” said Telenko. “I definitely wasn’t expecting that. I didn’t know anything about tar spot when I first started, but it gave me a

unique opportunity to take the lead on something right away.”

Tar spot has a long history in agriculture but was new to Indiana. For over 100 years, a tar spot complex had significant impact in Latin America, some areas losing over half their corn in a season. Tar spot had not been identified in the United States until 2015 when it was first found in Indiana and Illinois.

“Initially tar spot wasn’t of concern because only one of the two pathogens associated with the tar spot complex in Latin America was identified,” said Telenko. “It was also found later in the season as the corn was already reaching maturity resulting in little to no yield impact, but 2018 proved us all wrong.”

She quickly gathered preliminary data to measure the disease’s effect on yields. “Unfortunately, it’s easy to see the impact when some growers are losing 20 to 60 bushels an acre,” Telenko said.

Telenko has just finished harvesting corn from the 2019 field season where she had various research trials out to evaluate management options for tar spot. This includes fungicides for efficacy.

“Making a timely and effective fungicide application is going to be important since most fungicides available are only active for 14 to 21 days, meaning farmers must detect tar spot early and time the application precisely.”

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USDA reminds producers of deadline for Conservation Reserve Program general signup

FOR THE JOURNAL REVIEW
WASHINGTON, D.C.—The U.S. Department of Agriculture reminds agricultural producers interested in the Conservation Reserve Program 2020 general signup to enroll by Feb. 28. This signup is available to farmers and private landowners who are either enrolling for the first time or re-enrolling for another 10- to 15-year term.

“This is the first opportunity for general sign up since 2016, and we want producers and private landowners to know that we have just one month remaining,” FSA Administrator Richard Fordyce said. “It is critical that they make their final determinations and submit offers very soon to take advantage of this popular conservation program.”

Farmers and ranchers who enroll in CRP receive yearly rental payments for voluntarily establishing long-term, resource-conserving plant species, such as approved grasses or trees (known as “covers”), which can control soil erosion, improve water quality and develop wildlife habitat on marginally productive agricultural lands.

CRP has 22 million acres enrolled, but the 2018 Farm Bill lifted the cap to 27 million acres.

Signed into law in 1985, CRP is one of the largest private-lands conservation programs in the U.S. It was originally intended to primarily control soil erosion and potentially stabilize commodity prices

by taking marginal lands out of production. The program has evolved over the years, providing many conservation and economic benefits. Marking its 35th anniversary in 2020, CRP has had many successes, including:

- Preventing more than 9 billion tons of soil from eroding, enough soil to fill 600 million dump trucks;
- Reducing nitrogen and phosphorous runoff relative to annually tilled cropland by 95 and 85 percent respectively;
- Sequestering an annual average of 49 million tons of greenhouse gases, equal to taking 9 million cars off the road;
- Creating more than 3 million acres of restored wetlands while protecting more than 175,000 stream miles with riparian forest and grass buffers, enough to go around the world 7 times; and
- Benefiting bees and other pollinators and increased populations of ducks, pheasants, turkey, bobwhite quail, prairie chickens, grasshopper sparrows and many other birds.

The CRP continuous signup is ongoing, which enables producers to enroll for certain practices. FSA plans to open the Soil Health and Income Protection Program, a CRP pilot program, in early 2020, and the 2020 CRP Grasslands signup runs from March 16, 2020 to May 15, 2020.

To enroll in CRP, contact your local FSA county office or visit fsa.usda.gov/crp. To locate your local FSA office, visit farmers.gov/service-locator.

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Photo Illustration

Purdue scientist working to remove persistent chemicals from drinking water

BY BRIAN WALLHEIMER
Purdue News Service

Anyone who has enjoyed the ease of sliding a fried egg out of a Teflon-coated frying pan, not had to think twice about the grease from a cheeseburger soaking through the fast-food container, or watched rain water bead on a jacket rather than soak through can thank per- and poly-fluoroalkyl substances (PFAS).

Linda Lee

For all the good they do, however, this wide range of uses leads to people regularly ingesting these chemicals. One U.S. Centers for Disease Control and Prevention study shows that PFAS are present in 98 percent of Americans' blood. That's a problem because PFAS have been linked to increased levels of cholesterol, low infant birth weights, thyroid and

immune system problems, and cancer.

"We're getting them in our foods through food packaging, in our homes from our furniture and carpet, and we get it from our drinking water," said Linda Lee, a Purdue professor in the Department of Agronomy.

Lee believes the key to lowering PFAS levels in drinking water is to reduce their use on products and to capture or remediate them before they leave wastewater treatment plants. The U.S. Environmental Protection Agency recently awarded her nearly \$900,000 to decrease PFAS that exit the plants through effluent and sludge.

Wastewater treatment plants return liquid effluent to rivers, lakes and the ocean. Solid sludge is often turned into fertilizer or soil amendment products for use on farms. These both contain PFAS that get into the water that many

Americans drink every day.

Linda Lee is targeting PFAS at wastewater treatment plants. Her work would remove the compounds from effluent and sludge that finds its way into drinking water.

"It's a significant problem because these compounds don't degrade naturally," Lee said. "We don't want to see these biosolids wind up in landfills or incinerators. These approaches are not sustainable solutions and would eliminate an incredible source of carbon and nutrients that can improve soil and plant health. So, we need to do research to find ways to remove them in the wastewater plants."

With colleagues at the University of Illinois-Chicago and the University of Florida, Lee is designing methods that use electrochemical reactions to degrade PFAS from liquid effluent into harmless carbon and fluorine. They're also

developing and evaluating processes that can trap or change the structure of PFAS in solid waste to keep the chemicals from being released into soil and water.

Companies have begun phasing PFAS out of items such as carpet and cookware, and several states have proposed bans on the chemicals in some products. But since PFAS do not naturally degrade and have a half-life of several years, it's key to remove the ones already in the environment, too.

"All of us have them in our blood. They are in our homes, in our cars, in a ton of products. They're persistent and they don't go away," Lee said.

In addition to her wastewater work, Lee's lab is focused on removing PFAS chemicals from ground water supplies, as well as evaluating the PFAS toxicity in humans and wildlife.

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Young woman looks forward to growing family farm

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Purdue News Service

Abby Holstine always thought she would return to the family farm. Her fondest memories are full of farm moments. She remembers riding the tractor with her father around their property and her mother preparing early-morning breakfasts.

But most of all, she remembers the conversations her family would have at the dinner table about the farm. The family business, Produce Patch Farm Market, was more than just a business. It was a way of life.

“I grew passionate about the family business, because it was something I was good at and that came natural to me,” said Holstine, a junior agribusiness: agribusiness

management major from Plainville, Indiana. “That’s why I want to go back to the farm because I know it can be something I will succeed in.”

Holstine said she wants to find ways to bring innovative agricultural practices to her family’s business and hopes that her education at Purdue will do that. One of her classes was aimed at students who plan to return to the family farm. Holstine created a six-year plan for the Produce Patch that included how she would implement her return to the farm.

She said the class helped her envision different product lines, including organic produce, which consumers are demanding in growing numbers.

“You just can’t keep doing the same thing that you’ve always done,” Holstine said. “The whole organic side of things is definitely a market I could see

us entering.”

She said she knows it will take a lot of work to make the changes at the Produce Patch, but Holstine said the business plan focuses on the future and helps ensure the farm’s longevity.

After all, the farm’s future is tied to her family. Both of Holstine’s parents grew up on farms, and they started the Produce Patch so their children could have the same experiences while growing up. Holstine’s parents also wanted to introduce her to the same work ethic, problem-solving skills, and appreciation for the land they learned as kids.

“To be a part of the family, you have to work,” Holstine said. “I learned that by watching the example my parents set for me and my brother.”

Holstine said her parents’ dawn-to-dusk work mentality inspired her and is a part of who she is. Holstine has applied that work ethic here at Purdue. But she also describes how her Purdue experiences changed the way she views the world and the family farm.

“Stepping back and having a life away from the farm has allowed me to grow and learn something new by getting to hear someone else’s opinion,” Holstine said.

Those opinions gave Holstine a new perspective on the family farm. She learned to be open-minded to suggestions from trusted peers and mentors because they might provide a different take that could be beneficial in the long-run. It’s a perspective that her family wants Holstine to discover. But Holstine’s family also wants her to broaden her horizons even after college.



Photo Provided

For Abby Holstine, farming is more than just the family business: It is a way of life. The junior agribusiness: agribusiness management major says she plans to bring what she learns at Purdue back to the family business.

Holstine’s mother encouraged her to be open-minded about taking a job at another business for a couple of years after graduation. Such a job, Holstine said, will broaden her professional experiences, including understanding how businesses operate and ways to handle communication with others.

Even so, Holstine said the pull of the family farm remains strong. Holstine said she

definitely plans to return to the farm but understands that it will be like starting fresh once she returns from her outside business experience.

“My time at Purdue has validated my feelings toward returning to the Produce Patch,” Holstine said. “I feel enthusiastic about the opportunities there are to expand and better the business that my parents started.”

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Purdue website provides information on Indiana water resources

WEST LAFAYETTE, Ind. - The Indiana Water Resources Center officially launched the State of Indiana Waters website. The website provides a single source of information for the general public regarding the status of Indiana's water resources including ground and surface waters.

"Water resources in Indiana are used by everyone including agriculture, industry, residents and also provide important ecosystem services. Unfortunately, there has not been a regular evaluation of these resources for the entire state, nor is

there one place to find this information in a user-friendly format for the public. This website provides up-to-date information for the current water year," said Linda Prokopy, professor of natural resources social science in the Department of Forestry and Natural Resources at Purdue University and director of the IWRRRC.

Providing this information to the public as a single source in an easy to understand manner was a need for Indiana and fell within the goals of the IWRRRC. The website was funded through their small grants (104B) program.

"Indiana is a state with generally abundant water resources, but that doesn't mean that water is always available when and where it is needed," said Keith Cherkauer, a professor in the Department of Agricultural and Biological Engineering at Purdue. "The State of Indiana Waters website takes publicly available data on streamflow, groundwater, and reservoirs and puts the data into context relative to the most recent 30 years of observations."

The IWRRRC was established under the authority of the Water Resources Research Act of 1964 and is one of 54 centers

nationwide. The centers are housed at their respective land-grant universities to support water research and disseminate information to the public. Each of the 54 centers are awarded an annual base grant (104B) to help support applied and peer-reviewed research, education, and outreach activities on local or regional water resource issues.

The website is at <https://iwrrc.org/indiana-water/>. Find links for upcoming webinars and recordings of past webinars at <https://iwrrc.org/webinars/>.



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Don't blame U.S. biofuels for Indonesia and Malaysia deforestation, study shows

BRIAN WALLHEIMER
Purdue News Service

WEST LAFAYETTE, Ind. – Since 1990, the United States has ramped up its production of biofuels — to about 16 billion gallons of ethanol and 1.6 billion gallons of biodiesel in 2017. At the same time, production of palm oil has increased nearly sixfold, mainly for food production, and with it significant deforestation in Indonesia and Malaysia.

That overlap has led some analysts to blame the United States for deforestation in Indonesia and Malaysia, suggesting that the expansion in palm oil production is driven by biofuel production in U.S. But a Purdue University study shows that only a scant fraction of the deforestation in those countries can be pinned on U.S. biofuel production and policy.

“Our analysis shows that less than 1 percent of the land cleared in Indonesia and Malaysia can be tied to U.S. biofuel production,” said Farzad Taheripour, a research associate professor of agricultural economics at Purdue. “The amount is not significant. We’re talking about thousands of hectares amidst the millions that have been cleared for oil palm plantations and production of other commodities in Malaysia and Indonesia.”

Taheripour and the late Wally Tyner, who was the James and Lois Ackerman Chair in Purdue’s Department of Agricultural Economics, published their results in the journal *Biotechnology for Biofuels* based on analysis

from the GTAP-BIO model, a Purdue-led economic model of the global economy available to researchers around the world for quantitative analysis of international economic-environmental-energy issues. The model included a more comprehensive look at demand for all types of vegetable oils and fats impacted by U.S. biofuel policies rather than focusing on only soy and palm as past studies have done.

“Those analyses that limit their modeling framework to only palm and soy oils and ignore other types of vegetable oils and fats provide misleading information and exaggerate about the land use implications of the U.S. biofuels for (Malaysia and Indonesia),” the authors wrote.

As the United States uses soybeans and corn to produce biofuels, one could expect less soybeans and corn will remain for other uses, including exports. That could generate some land use changes and deforestation across the world including Malaysia and Indonesia, which clear natural land to plant palm oil trees and other commodities.

“But we’ve not seen that happen. In the U.S, we have lots of unused land available to farmers who can convert it to corn or soybeans. There has been no need to cut forests here,” Taheripour said. “In addition, crop productivity has increased significantly over time, providing more yield on the same amount of land. Because of those, the expected deforestation or conversion of natural land has not had to largely happen to account for U.S. biofuel production.”

Countries that import U.S. corn and soybeans also benefit from yield increases and use of other types of oils, such as canola, sunflower and cottonseed. It’s more likely that growing populations in countries such as India, China, and rest of Asia are mainly fueling the demand for oil palms grown in Malaysia and Indonesia. The U.S. uses little palm oil for food, just under 2 percent of the palm oil produced worldwide.

When considering all those factors, U.S. biofuel production accounts for fewer than 60,000 hectares — or 0.5 percent — of the more than 11.7 million

hectares of natural land cleared in Malaysia and Indonesia between 2000 and 2016.

“Production of biofuels in the U.S. generates some land use effects in Malaysia and Indonesia due to market-mediated responses, in particular through the links between markets for vegetable oils,” the authors wrote. “These effects are minor compared to the magnitude of land use change in Malaysia and Indonesia.”

The U.S. National Biodiesel Board Foundation and the U.S. Federal Aviation Administration funded the research.



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Growing plants about nurturing potential

AUDREY HALSEY

Purdue News Service

If you stepped inside Brittany Weerts' greenhouse, the first thing you would notice is how beautiful, colorful, and organized the plants look. Giving great time and detail to keep the greenhouse looking its best is just another day in the life of Brittany Weerts, who earned a bachelor's degree in horticulture from Purdue in 2018.

"Each tiny plant holds so much potential, and I have a direct role in making that come alive," she explained. "Everything I do affects the growing of nursery stock."

Weerts is an assistant grower at Utopian Plants, the sister company of Brehob Nurseries in Indianapolis. She said she often has her hands full. She is responsible for the plants, pruning, potting, tracking inventory, and monitoring the plants' maturity and health. She grew up in rural Remington, Indiana, which spurred her love for nature and all things green.

But her love for the horticulture industry started with a part-time job at Markle Farm & Greenhouses in Monon, Indiana. Being able to do hands-on work outdoors, especially work that involved nature, was what hooked her interest and began her passion for plants, Weerts said.

From there, she decided she wanted to make a career of it, so she went to Purdue to study horticulture. She sensed an instant fit within the horticultural programs and loved the enthusiasm of the faculty members.

Weerts describes horticulture as demanding, exciting, and fulfilling, all at once. At Brehob, she is responsible for millions of dollars' worth of plants. Weerts finds the work that she does to be important.



Photo Provided

Brittany Weerts stands in a greenhouse full of plants at Brehob Nurseries in Indianapolis. Weerts earned a bachelor's degree in horticulture from Purdue in 2018 and says that her work is demanding, exciting and fulfilling all at once.

For her, the work is about more than just aesthetics. Weerts said the most crucial contribution of horticulture is that it keeps our world green, shaded, and beautiful. She believes that plants and the greenhouse industry are taken for granted.

"Imagine a neighborhood without trees, or a city without parks, or a home without at least a few flowers. Horticulture helps us live happier, safer lives," Weerts said.

That's why Weerts wants to raise more awareness about horticulture and to inspire others to learn more about it.

She does that by spreading the word about the importance of horticulture. She also encouraged those looking for a career to think about opportunities in horticulture.

"There are not many people currently entering this field. If people present themselves well, they have a chance at having a great career," she said.

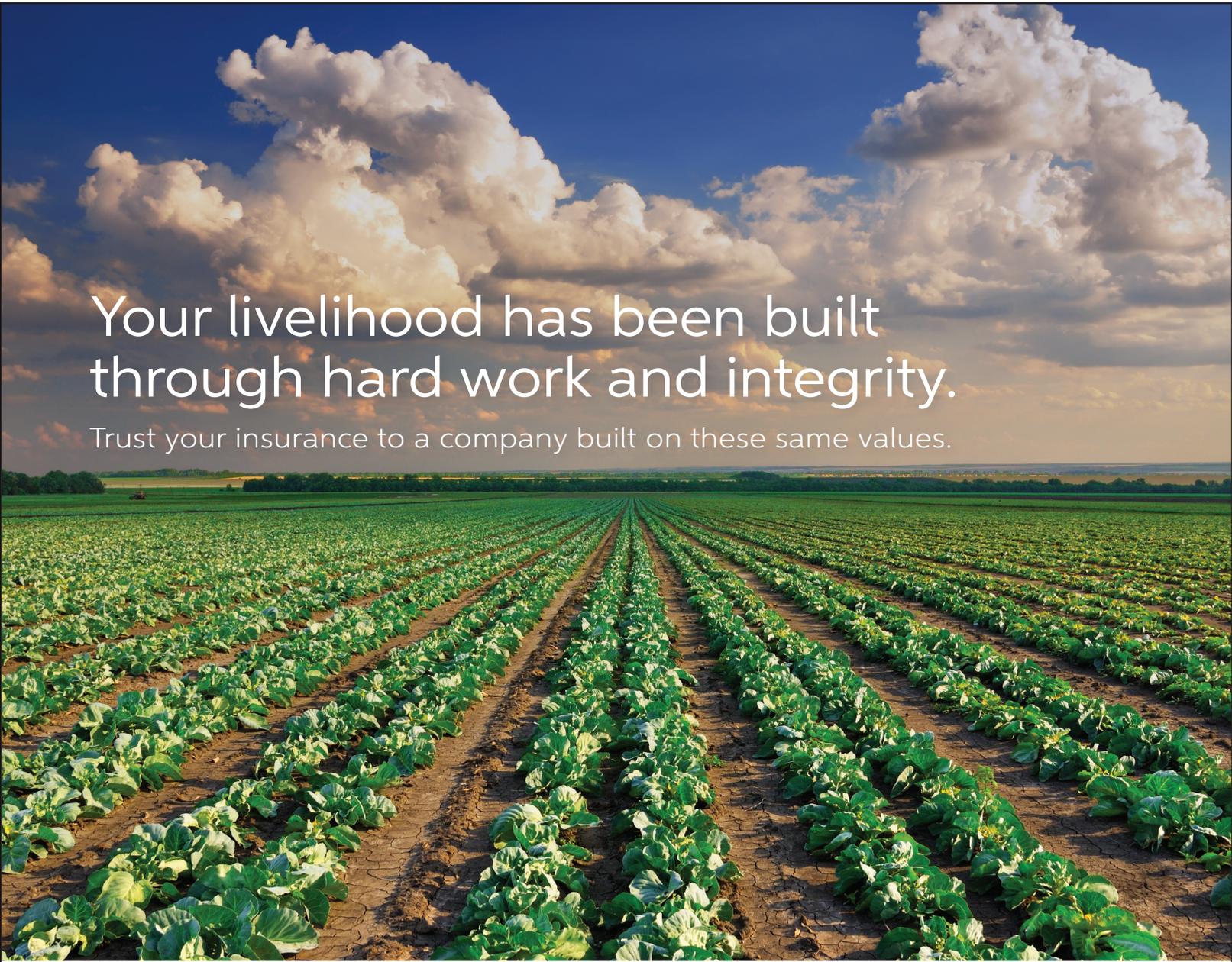
Like the plants she cares for, Weerts sees her current job as a chance to grow.

"There are so many skills and roles that go into this industry," she explains. "Right now, I'm just soaking in all I can about growing, and paying attention to

areas where I naturally excel."

She said she may try working in other areas of the industry, such as communications or marketing, but for now, Weerts said she enjoys the hands-on engagement and challenges that her career offers. She knows that it is making a difference.

"I love knowing that the plants that I'm growing today will eventually be in someone's yard blooming. Care for them well, and we get to watch it mature and blossom into something that will put a smile on somebody's face."



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Program helps home-schoolers learn about agricultural sciences

SHERADAN HILL

Purdue News Service

Twenty students from ages 8 to 14 gathered in a classroom last spring buzzing with excitement. They evaluated the bacteria growing in the petri dishes they prepared at their last session.

“I swabbed the bathroom door handle!” one exclaimed just before their instructor, Jennifer Fishburn, called them to attention.

For several months, Fishburn explored her calling as an agricultural educator by creating a hands-on program for local home-schooled students. The program was led by Purdue students.

“The reason we reached out to home-schooled students was because there aren’t many opportunities available to just them,” said Fishburn, a senior plant science major from Argos, Indiana. “Our goal is to make science easier to learn through hands-on experiences in a structured way.”

The program begins with the basics of plant anatomy and progresses through topics like photosynthesis.

“They’re getting a high-quality education,” said Fishburn. “The ultimate goal would be getting these students interested in majoring in something like plant science.”

Fishburn admitted that she did not always imagine herself in plant science. She credited the influence of her high school FFA adviser. Fishburn

was interested in animals, but her FFA adviser introduced her to more avenues in agriculture and encouraged Fishburn to explore options.

“When I got into high school I had a reality check that being a veterinarian isn’t the only option,” Fishburn said. “Soil judging in FFA is what spun me toward plant science.”

Fishburn said her high school experiences taught her how important it is to try new things, so when she arrived at Purdue, she wanted to try as much as she could. Eventually, that adventurous spirit led to her becoming a teaching assistant for a Purdue botany class. In turn, that led to her experience with the home-school students.

She didn’t limit her curiosity to her major. Like many college freshmen, Fishburn went to various club call-outs, ate pizza, and found an organization that worked for her. Now she is the president of the Rotaract Club of Purdue University, a collegiate version of Rotary International.

Photo by Sheradan Hill
Jennifer Fishburn explains plant sciences to an elementary school student. The senior plant science major helped create a hands-on learning program for home-schooled students near Purdue’s West Lafayette, Indiana, campus.

“In my free time I enjoy doing community service activities,” she said. “I definitely love the Purdue Rotaract Club for that reason.”

Club members select projects in which they want



Photo Provided

Jennifer Fishburn explains plant sciences to an elementary school student. The senior plant science major helped create a hands-on learning program for home-schooled students near Purdue’s West Lafayette, Indiana, campus.

to participate. Fishburn said one of their recent projects was helping members of the community winterize their homes.

Fishburn said she is proud of the outreach program she helped create in the home-schooling community. She hopes the outreach efforts will continue after she graduates. One thing is certain: The experience helped shape her path. After earning her degree, Fishburn will participate in a one-year transitional program to obtain a teaching license.

In the meantime, Fishburn said she is trying to enjoy her

remaining days at Purdue. That includes a variation on a Purdue tradition: running through all the fountains on campus.

“I’m trying to convince people to do a cap and gown fountain run after the graduation ceremony, but I guess you have to return your cap and gown,” Fishburn said. “I’ll definitely miss being constantly surrounded by my peers (especially in the College of Agriculture), but I know I will always have a network of agriculturists.”

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Extension workshops and field days will demonstrate management techniques to landowners (Courtesy Photo)

New publication series to focus on pond and wildlife management

PURDUE NEWS SERVICE

WEST LAFAYETTE, Ind.

- There are more than 40,000 private ponds and lakes in Indiana, many of which are used for fishing and other recreations. Across the United States, people own more than 180 million acres specifically for the purpose of hunting and fishing. Landowners wishing to effectively manage their property for fishing and hunting will find value in a new Purdue Extension publication series that will serve as a comprehensive guide on pond and wildlife management.

Mitchell Zischke, a Purdue assistant professor of forestry and natural resources and Jarred Brooke, a wildlife

Extension specialist, lead a team of Purdue experts who plan on releasing comprehensive publications and guides on pond and wildlife management. The project will consist of two field guides, factsheets, videos and a new website: <https://extension.purdue.edu/pondwildlife/>.

"The need for this project was highlighted by biologists and managers at the Indiana DNR and by Purdue Extension educators," said Zischke. "Project leads decided to join forces on ponds and wildlife, as many private landowners work to manage their lands for both outcomes."

The project's factsheets and videos will focus on key topics

from the field guide, such as pond fish stocking and forest management for deer. The information focuses on Indiana, but it may also be relevant to other Midwestern states.

All information on the series will be available through the project website. Printed copies of publications will be available at Purdue Extension events and sold through the Education Store, along with free downloadable PDFs. Prices will vary depending on the specific publication.

The first publication, titled "Stocking Fish in Indiana Ponds," is available at the Education Store under product code FNR-569. The first publication for wildlife

management is "Managing your Forest for White-tailed Deer," and is set for publication in mid-August.

The Purdue team working on this project includes Fred Whitford, professor and director of the Purdue Pesticide program, and six county ANR educators: Amy Thompson of Monroe County, Bill Horan of Wells County, Bob Bruner of Clay and Owen counties, Dave Osborne of Ripley County, Jonathan Ferris of Wayne County and Phil Cox of Vermillion County. The project also partners with biologists and managers from a range of state and county agencies.

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Midwest Women in Agriculture Conference to explore farm life issues

ABBY LEEDS

Purdue News Service

WEST LAFAYETTE, Ind. – Attendees at Purdue Extension’s 2020 Midwest Women in Agriculture Conference will explore a variety of personal, family and farm issues that affect their lives and businesses. The conference returns to Muncie at the Horizon Convention Center on Feb. 19-20.

Speakers from Purdue Extension, Farm Credit Mid-America and Indiana

Soybean Alliance will present breakout sessions. Topics include diversified agriculture, hemp, leadership, succession planning, farm life and business management.

The 2019 Purdue Women in Agriculture Award Winners Natasha Cox and Bec Wicker will share their leadership advice during the Feb. 19 keynote address. Jolene Brown, a farmer in Eastern Iowa and contributor to Successful Farming magazine, will address behaviors of successful legacy businesses on Feb. 20. Brown will

continue sharing her life experiences and lessons in the afternoon keynote address, titled “Harvest the Humor: A Celebration of Life on the Farm.”

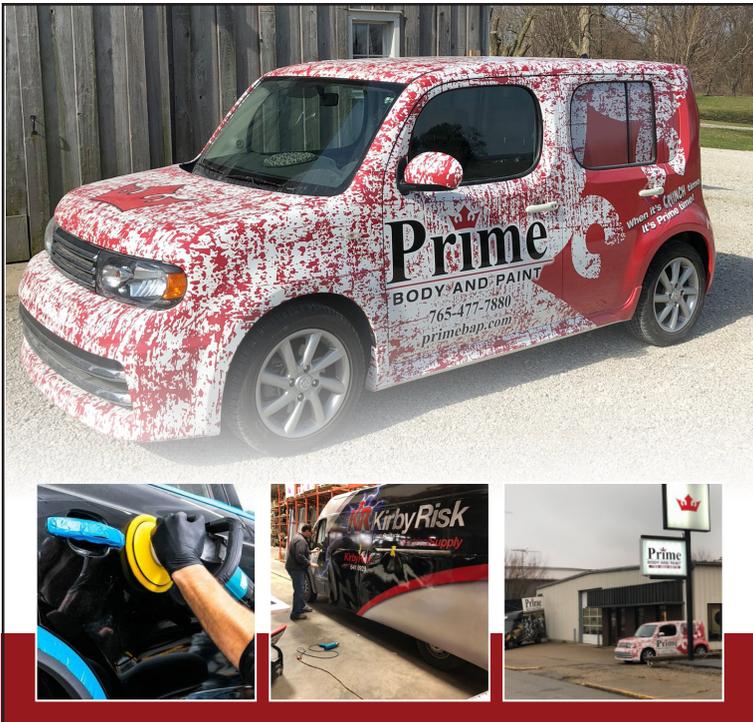
The pre-conference session on Feb. 18, “Becoming the Employer of Choice,” will help current and future farm managers and owners improve their human resource management skills. The session will teach effective leadership styles, hiring best practices and methods for addressing conflict.

Details of the entire Midwest

Women in Agriculture Conference agenda are available in the conference brochure.

The cost for the pre-conference session is \$75 or \$40 with conference registration. Conference registration for a single day is \$90 or \$125 for both days.

A registration discount is available to high school and college students. Conference registration increases after Feb. 7. Visit <https://ag.purdue.edu/extension/WIA/Pages/default.aspx> to register or for more information.



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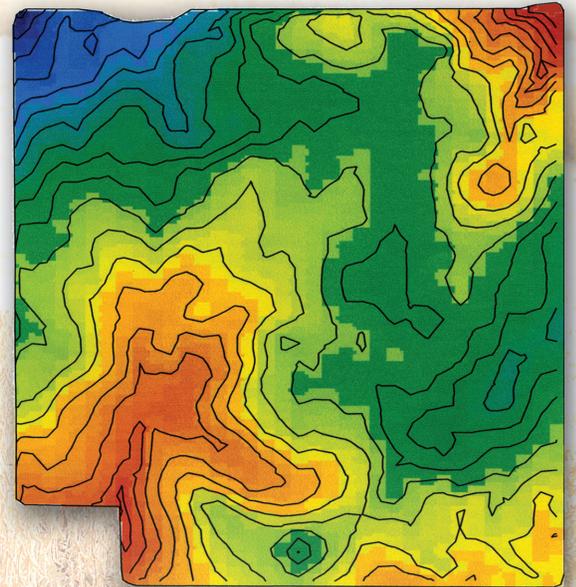
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