International exchange program. In 2018 to 2019 I was a foreign exchange student in Norway where I completed my senior year of high school.

Public speaking is something I enjoy because it gets me out of my comfort zone and allows me to speak on topics I care about.

Throughout school I have presented information to peers and professors on topics ranging from international agricultural systems to Minnesota's soil health.

I love being in leadership roles. I am currently Captain of the UMN soil judging team. I organize meetings weekly on soil topics such as formation, texturing, and morphology. I organize travel plans for the team to take field trips as well as monthly bonding events.

I have a deep love of Nature and excitement to learn about the natural world. By continuing to immerse myself in Nature I find myself more curious and excited to learn about natural cycles of energy and material.

I am also a strong athlete, I have completed in and won triathlons. I also enjoy cross country skiing and compete annually at the American Birkebeiner, the USA's larges cross country ski race.

We wish Willa and all the applicants success.

All of you give us hope for the future!

The 2023 Scholarship Applications Open on January 15, 2023 Please help us find qualified candidates

Tell friends and neighbors about the scholarship. Four of our recipients did learn about it this way. Feel free to send us contacts to whom we can send information. The scholarship is for \$5,000. The scholarship purpose is to provide financial aid to individuals growing up in southeast Minnesota who are committed to sustainability in the fields of agriculture and forestry, and have demonstrated leadership and communication skills.

Details are available on our website: www.protectourresources.org

Leave a lasting legacy

You can leave the Scholarship as a beneficiary in your will and life insurance policies. Two donors have already left donations in their wills. Mark the beneficiary as Sustainable Agriculture & Forestry Scholarship Fund at the Rochester Area Foundation.

The Importance of Diversity

Tree diversity leads to healthier forests and helps multiple species of wild life thrive by providing a wide range of foods and homes. Healthy forests need tree diversity to fight off disease and insect predation.

You Can Help The Forest

Buy from environmentally friendly companies and read their policies to determine whether they follow sustainable use practices.

Buy furniture and wood that is certified by the Forest stewardship Council.

The Wisdom of Trees

Trees cool the air, but they do more: they preserve moisture and through photosynthesis they add oxygen to the air and clean out pollutants. Trees absorb carbon dioxide, groundlevel ozone, carbon monoxide, sulfur dioxide, and other greenhouse gases. The forests of the world act as our planet's air filter and lessens the impacts of global warming. Don't cut trees. Plant trees.

From a book by by Lita Judge

"A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise." -Aldo Leopold

If you too are concerned about the indiscriminate use of chemicals which are killing our pollinators, polluting our water, and negatively effecting our food supply, then JOIN US by donating today.

100% ofyour donation goes to build this endowment fund!*

Contributions to the Fund are fully tax deductible.

The purpose of this scholarship is to provide financial aid to individuals growing up in southeast Minnesota who are committed to sustainability in the fields of agriculture and forestry, have demonstrated leadership and communication skills, and are interested in pursuing a career in fields related to and advancing practices of sustainable agriculture and/or forestry. Sustainable practices ensure clean water, healthy regenerative soils, and vibrant rural communities for future generations.

The scholarship fund seeks to find the next generation of professionals who will learn how to manage our environment on a completely sustainable basis, provide food, fiber and shelter for people, and in the process protect our precious natural resources for our children and those yet to come.

Methods of contributions are numerous:

- \Rightarrow A check or credit card* is wonderful.
- \checkmark Matching funds from your employer.
- \checkmark Direct tax-free transfers from an IRA.¹
- 😥 Endowments through your Estate Plan, wills or life insurance policies.¹

1) See website for method and be sure to contact your financial advisor, accountant or lawyer for advise.

The Scholarship Endowment Fund is structured such that only earnings from the invested capital are used to pay for scholarship(s) and Fund operating expenses. This rule assures that the Fund will operate in perpetuity. The Rochester Area Foundation (RAF) is the steward of the Fund. RAF's administrative fees are 1.25% of the annual fund balance and are amply covered by RAF's investment performance. Neither scholarships nor fees are reducing the endowment equity! * There is a cost for credit card donation



To access the website with all its references, current and past newsletters, scholarship information, donor list and more, use your smart phone to scan the OR code.

For more details and references related to articles in this newsletter, visit our website:

www.protectourresources.org



Printed on at least 30% post consumer recycled paper. Forest Stewardship and Rainforest Alliance Certified. Envelope made from 100% recycled fibers.

Issue 15

Introducing Willa Nagel, Recipient of the 2022 Sustainable Agriculture & Forestry Scholarship



I am passionate about the topic of sustainable agriculture. I know that changes to improve soil conservation can lead to a better and healthier agricultural system.

Educational focus

Here is her answer in response to our question: What is your educational focus.

"I am majoring in Plant Science in the track of Agroecology, but I am most interested in the field of Soil Science. I think that soil science is an incredibly important field of study. Soil is a type of resource we as Midwesterners have taken for granted far too long. Our practices of soil conservation and restoration are growing but not as quickly as we are depleting this invaluable resource. I am getting a minor in Soil Science and it is something that I would like to pursue in my future studies. I will be taking a few more Soil Science courses during my final semester. This May I will be taking a field course on the soils of Minnesota. I will be meeting farmers, forest managers and peat harvesters, as I learn how they manage the land and understand the relationship of those management actions to the soil resource. I also will be taking more technical courses this fall including Soil Contaminant Hydrology where I will be learning about principles of contaminant transport in percolate solution and in overland flow. I think that the most important course work I will be taking

this Fall is my internship class. I will get to reflect on my time this Summer as a Soil Conservationist in Kalispell, Montana. This class helps students to reflect on their future work in conservation and how they can work most effectively in their line of work.

Future Plans

Her answer in response to our question: Where do you see yourself in the future.

"I want to work for the conservation of soil in the USA's agricultural industry. This work will include both research and consulting. I am currently an intern working for the Natural Resource Conservation Service. Programs set up by the USDA assist farmers in conservation techniques and help them financially achieve better soil and water conservation. My work is in the field with farmers discussing their options and choosing financial programs that best suit their needs. My skills are best suited to work with farmers and hear their needs, then create a conservation plan that will fit the land's needs as well as the farmer's. I believe that doing this work will improve farming sustainability in the USA even if it is in a small way. Sustainability in agriculture can not come from the top down; it has to happen on an interpersonal level. Scientists have to be able to communicate with farmers and meet the needs of the farmer. Farmers want the best for their land and are the 'front line' workers for agricultural sustainability. I have found by talking to farmers that they know what works best for them, but are usually willing to try small scale changes that can boost their farms longevity and prosperity. Giving farmers options and access toward more sustainable practices can be highly effective, but takes time and trust on the part of the scientist.

Involvements and activities

I volunteer with my hometown's (Red Wing, MN) YMCA camp, the Red Wing High School Nordic Team and the Red Wing's Environmental Learning Center. I am a team captain for the University of Minnesota's soil judging team and member of the Rotary Club's Continued on next page



Worldwide Efforts to Advance Agroecology is Stymied by the US

"Civil society groups from around the world have been working together to lift up agroecology in the U.N. Committee on World Food Security (CFS). One such effort was to advocate that the CFS seek evidence on the ways agroecological approaches can simultaneously help address the multiple ecological - biodiversity, climate, water — and socioeconomic crises that the current food and agriculture systems seem to precipitate.

"In 2017 the CFS asked its scientific arm, the High-Level Panel of Experts (HLPE) to elaborate on agroecological and other innovative approaches. The HLPE was guided in its efforts by the input it received from all stakeholders through extensive consultations. By identifying salient features, the HLPE categorized all innovative approaches in two groups:

- 1. Agroecological (which foregrounded rights-based approaches, while paying attention to both socioeconomic-cultural and equity aspects, as well as to holistic ecological - biodiversity, water, soil health, climate — concerns);
- 2. Sustainable Intensification approaches that focused at least on one dimension of sustainability - be it water conservation, carbon sequestration or reduction of pesticide use - while also foregrounding economic productivity.

"In addition, the HLPE developed 13 agroecological principles to help guide agroecological transitions. The HLPE report highlighted that for agroecological approaches to thrive, they need a level playing field. The report also emphasized that irrespective of the kind of food systems you are part of, from traditional agriculture to industrial monocultures, one can always be part of agroecological transitions. The five levels of agroecological transitions offer a pathway towards transforming the current global food and agricultural systems to bring about fair, healthy and sustainable food, farm and trade systems that help build revitalized rural communities, a healthier planet and fairer societies.

"We were hopeful that member states would be open to this comprehensive approach to agroecological principles but were disappointed to see the U.S. negotiator leading the effort to thwart policy recommendations on agroecological approaches. In Continued on next page

UN Tries to Develop Pathways to Sustainable Ag & Forestry Worldwide-But US Stands in the Way

Continued from page 1.

one instance, the U.S. negotiator (joined by Russia) blocked the inclusion of a text acknowledging the rights of farmers and farmworkers not to use or be exposed to hazardous substances or toxic chemicals including agrochemicals.

Source: From Institute for Agriculture and Trade Policy (https:// www.iatp.org article by Shiney Varghese Jul 14, 2021). Headquartered in Minneapolis, IATP's mission "is to work locally and globally at the intersection of policy and practice to ensure fair and sustainable food, farm and trade systems."

Opposition to Sustainable Agriculture & Forestry is Powerful

66In the lead up to this Pre-Summit, the U.N. Committee on World Food Security (CFS) rushed through the approval of a set of watered down policy recommendations on 'agroecology and other innovations for sustainable food systems.

"These negotiations were fraught from the beginning, with delegates from industrialized countries like the United States seeking to defend large-scale, chemical-intensive, corporate-led agriculture.

"In the end, the CFS recommendations are a mixed bag. On the one hand, they add to a rising chorus of support for agroecology as an alternative to business-as-usual approaches. On the other hand, they undermine'd some key tenets of agroecological practices."

https://www.resilience.org/stories/2021-08-20/qathe-united-nations-agroecology-negotiations-andfood-systems-summit/

Change is Possible With the Right Approach

Here are excerpts from the article in our newsletter issue 12, November 2020 (Copy available on our website)

in 2017 Brian DeVore, author of Wildly Successful Farming, traveled in Indiana to learn how a public private partnership called the Conservation Cropping System Initiative (CCSI, formed in 2009) had helped get around 1 million acres of the Hoosier' State's crop fields blanketed in rye and other soil-

Agroecology

The application of ecology to agriculture, as in the conservation of soil and water resources, the minimization of pollution, and the use of natural fertilizers and pesticides.

friendly plants throughout the fall, winter, and early spring-times when corn and soybean fields are normally bare. Indiana's success has farmers, soil scientists, and environmentalists across the country excited about the potential CCSI holds as a national model for bringing our agricultural landscape back to life.

First: Team up with the players with whom the farmers interact

CCSI has made progress in getting people to stop viewing soil as merely a plant stand and temporary holder of chemical fertility. Farmers now say, "feed the soil, not the plant." But to make the changes permanent the CCSI members realized they had to team up with the players with which the farmers are comfortable working on a daily basis: fertilizer suppliers, seed dealers, co-ops, crop advisers, and implement companies. At first it was a bit of a hard sell to get input suppliers on board with promoting cover cropping, since it's a technique that can eventually result in reduced demand for fertilizer, chemicals, and other products they are in the business of supplying.

Second: Show opposing entities how they can benefit

One CCSI member visited businesses throughout Indiana and talked about how helping farmers build healthy soils can open up new markets-they need to purchase cover crop seed from someone, for example, and chemical application equipment can be modified to spread seed, he suggested.

It worked. Here are some examples.

A company offering agronomic, grain handling, fuel and crop insurance services got into offering an array of cover cropping services, from soil tests and species selection advice to planting and termination of the plants in the spring. The owner stated that they now keep their applicator drivers busy at a time when they would normally be idle or underutilized.

Another key player in CCSI's success has been implement companies, which not only sell the planters to put on cover crop seed, but can offer custom field work or modify equipment for seeding. One equipment dealer mentioned that the interest in modifying tillage equipment so that it could plant cover crops "exploded." This new custom enterprise made up 30 to 40 percent of his firms business. As farmers were reporting back major benefits from planting cover crops he could see his business expanding further to become half of his business. He was excited about the development.

And...The Farmers Gained Significantly

One farmer explained that he had doubled his organic matter to 4 percent which meant that the resultant nitrogen from increased

activity is basically a source of fertility he now does not have to purchase, amounting to a savings of \$40.00 per acre. He also pointed out that each percent of organic matter in the top 12 inches of the soil profile is worth an inch of water storage. And all this results in increased yields and reduced input costs which translates into increased dollars. \$120.00 an acre for him.

One farmer reported that his use of cover cropping and other methods that build soil health have resulted in a net per-acre value of around eighty dollars, a return on investment of over 320 percent.

The 5 Levels of Transition Towards Sustainable Food Systems Show How Far We Have to Go

INCREMENTAL TRANSITION

LEVEL one

transition pathway focuses on improving resource efficiency through practices that reduce or eliminate the use of costly, non-renewable, scarce or environmentally damaging inputs.

LEVEL two offer alternatives to chemical inputs and are envisaged with the view to relying more on ecological processes, taking advantage, for instance, of coexisting biota (such as the plant microbiome or natural enemies) or genetics characteristics (such as cultivars that are resistant/tolerant to biotic stresses) to improve plant nutrient uptake, stress tolerance and defenses against pests and diseases.

LEVEL three aims at redesigning the farming system to strengthen its resilience, including through diversification, recycling, improved soil management, self-sufficiency and reduced dependency on purchased inputs. An example is the enhancement of diversity in farm structure and management with diversified rotations, multiple cropping, agroforestry and the (re-)integration of animals and crops. At this level, there is a strong focus on managing interactions among components of the agroecosystem (animals, crops, trees, soil and water) – for example through the strategic use of crop residues as mulch or animal feed - and on increasing synergies at farm and landscape scales

Levels 1, 2 and 3 represent steps farmers can actually take converting from industrial or conventional agroecosystems

Minnesota is barely dabbling at level I where only an estimated 2 to 4% of farm land has been converted to some form of regenerative agricultural practices even after a large amount of money and effort from multiple organizations

Sources: Gliessman (2007) and HLPE (Report 2019 - Agroecological and other innovative approaches). HLPE (High Level of Experts) is a subset of an Agriculture Organization of the United Nations. #14 is the latest in a sequence of HLPE reports addressing issues in agriculture and forestry (https://www.fao.org/family-farming/detail/en/c/1238860/).

TRANSFORMATIONAL TRANSITION

Transition levels 4 and 5 broaden the focus to encompass the whole food system.

LEVEL four

aims at reconnecting producers and consumers through alternative food distribution networks such as farmers' markets, communitysupported agriculture, or fair trade in food products, contributing to secure social equity/ responsibility.

LEVEL five

involves building a new global food system that is not only sustainable but also helps restore and protect Earth's lifesupport systems. The ultimate goal is to design food systems that ensure FSN for all, now and in the future in a sustainable way.

Levels 4 and 5 represent steps taken beyond the farm to the broader food system and the societies in which they are embedded.

