

# 4-H and the Science of Agriculture Challenge

Minnesota youth conduct research to address complex issues



The first program of its kind in the country, the 4-H Science of Agriculture Challenge aims to ignite excitement about agriculture, increase ag science literacy and expand the pipeline of youth pursuing agriculture-related careers.

Youth teams conduct research on areas of interest, from bees to biodiesel to breeding standards, as part of the 4-H Science of Agriculture Challenge. One team studied their passion: bees, with the help of their team coach. Pictured: Kristen (left), Justin and Sophie Weeldreyer.



Sixteen-year-old Justin Weeldreyer always thought bees were the coolest miracles of nature, living off the honey they make and

building intricate hives. He put his interest to work by conducting research with four other Washington County 4-H youth as part of the new 4-H Science of Agriculture Challenge.

“Overwintering is a big problem for Minnesota beekeepers,” says Justin. “Big producers pack up and send their hives someplace warm, but smaller businesses and hobbyists can’t afford that and just hope their bees survive.”

## Ag experts mentor 4-H’ers

Twenty 4-H Science of Agriculture Challenge teams across the state are working with local experts to identify ag-related issues in their communities and develop science-based solutions. Justin’s team works with Dustin Vanasse, a Twin Cities beekeeper who sells honey through his business, Bare Honey. Dustin, who studied at the University of Minnesota College of Food, Agriculture and Natural Resource Sciences, breeds honeybees that are better adapted to Minnesota winters. The team studied Dustin’s hives and hives belonging to members of the Minnesota

Hobby Beekeepers Association. They researched the amount of honey the bees need, hive design and species, and studied how these factors affected bee survival and productivity after winter.

“It’s so important that young people get involved, and understand and connect with where their food comes from,” says Vanasse. “From crops of fruits and veggies, to the alfalfa needed by cows to produce the milk in their ice cream—bees are critical to our food production system.”

“There’s not a lot of data about what we’re studying,” Justin says. “Our 4-H project is going to mean something to people.”

## Youth researchers today; ag leaders tomorrow

The new 4-H Science of Agriculture Challenge provides a hands-on learning experience to inspire the next generation of agriculture leaders in Minnesota.

“This challenge is designed to let youth drive the research, exploring and building on what piques their interest,” says Josh Rice, Extension science of agriculture specialist. For example, teams can use remote-control helicopters to scout weeds, develop business plans for community food gardens or design aquatic robots to research invasive species.

Areas teams are exploring include

environment, animal science, technology and biotechnology, economic issues, food, fiber, and energy. A sampling of current projects includes:

- Soil management and groundwater (Dakota County)
- Food waste from farm to table (Meeker County)
- Breeding standards for sheep (Otter Tail County - West)
- Uses for methane from dairy cows (Nicollet County)

Teams will present their results at a two-day event June 17-19 on the University of Minnesota St. Paul campus. An awards

celebration and challenge fair will showcase their work and connect them with agribusiness community representatives who are eager to meet the next generation of ag leaders. The event will also include judging presentations, career workshops and campus tours.

“It’s so gratifying to witness these young people’s eyes light up with curiosity and discovery,” says Dorothy Freeman, Extension associate dean for youth development and state 4-H director. “As the University’s youth development program, the 4-H Science of Agriculture Challenge is a cutting-edge learning experience.”

**To learn more, visit:**  
[z.umn.edu/4Hscienceofagriculture](http://z.umn.edu/4Hscienceofagriculture)



## MEETING THE NEED

### ISSUE: SHORTAGE OF AG LEADERS

- The U.S. faces a shortage of scientists and professionals that are “ag literate.” There currently aren’t enough graduates to meet needs. (USDA survey)
- 25,700 new jobs for management and business, and 14,600 new jobs in agriculture and science engineering, are created annually. (Bureau of Labor Statistics)

### SOLUTION: 4-H

- Youth who participate in 4-H excel in school and science, and are more likely to pursue a career in science, engineering or computer technology than their peers. (Tufts University)
- 4-H participants take more sciences courses in high school than other youth, and at a higher level. (Heck, Carlos, Barnett & Smith, 2012)
- 4-H’s new Science of Agriculture Challenge gets youth excited about pursuing agriculture education and careers.

## Help grow the next generation of agricultural leaders

Extension needs the generous support of businesses and individuals that care deeply about the future of Minnesota agriculture and the development of our next generation of ag leaders.

**DONATE:** Financial contributions will ensure that the 4-H Science of Agriculture Challenge continues and grows for years to come. Donations will fund staff positions and provide support for youth teams to do research and participate in events.

**VOLUNTEER:** Knowledgeable adults who can guide the curiosity and creativity of youth are crucial to this program. Volunteers can serve as local team coaches or as expert mentors.

Visit [www.extension.umn.edu/youth/give](http://www.extension.umn.edu/youth/give) to learn about giving opportunities.