

2016



About the 4-H Ag Innovators Experience

- The *4-H Ag Innovators Experience (4-H AIE)* presents an annual interactive activity that challenges young people to **apply critical thinking and STEM skills to a real-world agriculture challenge**.
- The program was **developed by National 4-H Council and Monsanto** to help develop critical workforce skills in young people, and **show that agriculture can be relevant and fun**.

About the 2016 Activity

- This year's activity is the **Honey Bee Challenge**. It was created by **The Ohio State University**.
- More than 10,000 youth across eight states will be challenged to **connect honey bees to the foods they eat**, as well as learning best management practices and foraging behaviors.
- The collaborative, hands-on challenge will help youth:
 - Explore honey bee habitats in **various ecosystems**
 - Understand the important **role of honeybees in agriculture and food production**
 - Learn the **threats to honey bee habitats** and how threats are **being addressed**
 - Explore **best practices for preserving and maintaining honey bee habitats**
- Working in groups, youth will **model honey bees and their foraging behaviors** using bristle-bot platforms and modeling materials to gain a better understanding of the **importance of maintaining and preserving the natural foraging habits of honey bees**.
- Groups are evaluated on the **accuracy of their bee models**, efficient use of foraging route materials, **collection of pollen** and **time spent completing**.

Why This Matters

- There's a great need for **more young professionals to drive innovation in agriculture** in order to feed a growing world population that will add 2 billion people in the next 40 years.
- About **one in every three bites we eat is the result of pollinators, including honey bees**. Apples, pumpkins, alfalfa, sunflowers and almonds are just some of the crops that rely on honey bee pollination.
- Young people play a critical role as **future farmers and ag leaders to help address these challenges**.

Message to the Community

- We are **inviting young people to join us** and participate in the Honey Bee Challenge. It's free and it's fun!
- It will take place from **April – July 2016** at various sites, including traditional 4-H clubs, 4-H camps, school enrichment and 4-H Afterschool settings.
- Participating youth will compete in a **social media marketing challenge** for a chance to win cash prizes for themselves, their state 4-H program and their local 4-H club.
- To learn more about the *4-H Ag Innovators Experience*, visit <http://www.4-h.org/about/partners/monsanto/>

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About the 4-H Ag Innovators Experience

- The *4-H Ag Innovators Experience (4-H AIE)* is an annual interactive activity that challenges young people to **apply critical thinking and STEM skills to a real-world agriculture challenge.**
- **Developed by National 4-H Council and Monsanto**, the program helps develop critical workforce skills in young people, and **demonstrates how agriculture can be fun!**
- This year's activity will help youth learn about the **importance of soil health**: keeping carbon in the soil and reducing the release of carbon in the air to help **reduce carbon in the environment.**
- **Soil is alive** with five billion microbials in just one tablespoon and food nourishment is derived from the soil.
- It's important to preserve and improve soil health through a variety of different methods to help create a sustainable ecosystem responsible for our food and fiber needs, environmental quality, and human health.

About the 2017 Activity

- This year's activity is the **Healthy Soils Carbon Soil Investigation Challenge**, created by **The Ohio State University.**
- More than 5,000 youth across five states will be challenged to **learn about soil, environmental practices, and the need to be good stewards of the land.**
- The collaborative, hands-on challenge will help youth:
 - Learn about the living elements of the soil, including microbials, **during the hands-on Slake Test**
 - Explore the **composition of soil**
 - Understand the **impact of over-tilling soil**
 - Discuss soil conservation methods
 - Learn **new ways to farm without disrupting the soil ecosystem**
 - Know the importance of **reducing carbon emissions**
- Working in groups, students will **analyze soil samples using a water infiltration test to see the effects of tilling**; and will **become agricultural engineers** as they use tools and resources to create a system that will ensure plant and soil health by monitoring the impacts of reducing tillage.

Why This Matters

- The world's cultivated **soils have lost 50% to 70% of their original carbon stock**, which is the basis for soil fertility.¹
- **Properly maintained soil can help reduce the intensity of agriculture's carbon footprint** by increasing soil's carbon pool through soil restoration, nutrient management and a variety of other methods.
- **Human activities can impact soil health.** Recent studies show that sustainable practices including reducing tillage, properly applying and precisely managing nutrients, enable plants to assist in the soil's recovery by allowing the soil to absorb carbon, keeping it arable for years to come.
- **As the agriculture industry looks for innovative approaches to today's real-world challenges**, there's a great need to **spark young people's interests in science and agriculture.**
- **Young people will play a critical role as the next generation of leaders in agriculture as we prepare to feed a world population that will be more than 9 billion people by 2050.**

¹ Rattan Lal, director of Ohio State University's **Carbon Management and Sequestration Center**