

Urban Ag Education Programs Laying Key Groundwork for Region's Prosperity

By Tom Purcell

St. Louis is one of the fastest-growing life sciences markets in the U.S., thanks to our top-ranked education and research institutions and the more than 400 biotech-related firms that have put down roots here in recent years. Bayer CEO Bill Anderson said on September 15 that his company is investing \$100 million in new R&D facilities, labs and greenhouses at its St. Louis operations because their core plant technology scientists are located here. While this is great news, how does our region generate the homegrown innovators, entrepreneurs, and life science workforce to continue building on this momentum?

One solution showing promise is urban agriculture education programs that expose high school age students to science in fun ways and nurture their interest in becoming scientists. Three such programs have been started in St. Louis this year alone, including two at public high schools in St. Louis County and one at the Urban League's new greenhouse and hydroponics farm at its north St. Louis headquarters. While it is too early to know if these programs will succeed, a fourth program targeting St. Louis elementary school students since 2016 is finding that many of its earliest students are now in high school and actively planning for careers in science related fields in St. Louis.

The nonprofit Green House Venture's innovative STEM educational program has introduced hundreds of 4th – 6th grade students at four public, charter, parochial and Christian elementary schools in a St. Louis urban neighborhood to plant science through hands-on experiences studying, cultivating and harvesting a variety of food crops throughout the school year on a volunteer basis. The key differentiator from the other urban ag education programs now underway in St. Louis is that Green House Venture starts working with students at a much younger age. The earliest students now in high school credit the way they were first introduced to plant science for their plans to pursue science careers.

Urban agriculture is also a dynamic teaching method that offers all students a unique perspective on food nutrition, where food comes from and how sustainable practices can be integrated into daily life. A study published in the Journal of Environmental Education concludes that integrating gardening and farming into school curriculums significantly boosts students' understanding of natural systems and food production processes. And a study from the American Journal of Agricultural Education underscores how students engaged in school farming projects exhibit improved problem-solving and analytical skills directly applicable to STEM subjects.

Best of all, the Green House Venture's educational model of public, charter, parochial and Christian elementary schools working together as an alliance is succeeding in a city experiencing significant educational system challenges due to declining student populations and increasing school financial difficulties. And the communal aspect of cultivating a garden helps

build a sense of community and cooperation among students and teachers from the different participating schools.

Earlier this year, the Missouri Botanical Garden, United States Department of Agriculture, Danforth Plant Science Center, St. Louis Zoo and St. Louis Community College joined the Green House Venture's network of volunteer curriculum providers. This makes perfect sense, because these are the some of the very organizations that will enjoy the long-term economic benefits of a homegrown pipeline of plant scientists. And the St. Louis economy will enjoy the broader benefits for many years to come.

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