

House Committee on Small Business Committee, Subcommittee Agriculture, Energy and Trade

Remarks by Sam Fiorello, Chief Operating Officer, Donald Danforth Plant Science Center and President, BRDG Park

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Good morning Chairman Blum, Ranking Member Schneider, and members of the subcommittee. My name is Sam Fiorello and I am the Chief Operating Officer of the not-for-profit Donald Danforth Plant Science Center in St. Louis, Missouri. Since I began working with Dr. Danforth to establish the Center 20 years ago, we have grown to the world's largest institute of its kind with over 240 scientists and staff working to improve the human condition. I am also President of the BioResearch and Development Growth Park a research park on our campus that is home to 14 for profit enterprises and a bioscience workforce training program. Thank you for the invitation to discuss the importance of agricultural research and innovation, a key driver in strengthening family farms and growing the small business sector of our economy.

Fifteen years ago, a farmer would proudly tell me that he could fix anything with a handful of baling wire and a blowtorch. Today, the three quarter of a million-dollar tractor he drives has more computing power than the Apollo 11 that went to the moon and back. That's progress. But that progress has also come with challenges. The average farmer is 58 years old. Tech savvy young people are leaving rural communities for urban centers where 21st century jobs are more readily available.

Our economy has changed. Big business, manufacturing and the like are not the economic engines they once were. According to the Kauffman Foundation in Kansas City, MO, "Without startups there would be no net job growth in the U.S. economy." Entrepreneurs who are now household names like Steve Jobs, Bill Gates and Jeff Bezos, developed ideas and produced new products and services that improved the quality of life for people around the world. In the process, they improved our position in the global economy by creating employment opportunities for communities and served as engines of wealth creation. Newly created wealth, in turn, is re-invested in new economic enterprises that further enrich our communities.

Why is someone who helped establish a plant science research institute, research park and an ag investor conference here to talk to the small business committee you might ask? I am here because plant science and ag innovation are impacting both of the trends I just described.

According to the Report to the President of the United States from the *Task Force on Agriculture and Rural Prosperity*, prospects for innovation in agricultural and food industries are evidenced by their attractiveness to private-sector venture capital. Recent years have seen a sharp increase in venture capital directed at these sectors, especially for information technology and biotechnology innovations. According to AgFunder, during 2014-15, venture capital funds invested at least \$6.9 billion in a range of agriculture-related innovations, including precision agriculture and e-commerce food marketing. Most of these venture capital

investments have been directed at U.S. firms, but some have involved major investments with firms located in Europe, Israel, China, and elsewhere. Last year that figure approached \$9 Billion. To give you context, when I started the Ag Innovation Showcase in 2009, that figure was less than half a billion dollars.

Federal and state research institutes use a variety of means to collaborate with the private sector as does the Danforth Plant Science Center. Some of the venture capital startups are spinoffs from innovations developed in these laboratories or through joint research efforts with private firms. Other major contributors are the more than 100 federally-funded U.S. Land Grant Colleges and Universities, which are key providers of STEM training as well as innovators across many sectors, and have contributed to U.S. world leadership in many high-technology fields. Innovations emanating from these institutions find their way into industries through scientific publications, patents, direct university-industry partnerships, and STEM-trained graduates. Furthermore, these institutions help create internationally-competitive firms and industries.

Now I would like to tell you more about how the Danforth Center has contributed to the creation of a vibrant innovation ecosystem which is anchored by some of the best and brightest scientists in the field, world class facilities; greenhouses, growth rooms, tissue transformation, computational genomics and more. In the last 20 years, we have established networks of individuals and organizations that help strengthen the ecosystem; inventors, investors, business development experts, key industry players who become acquirers of technologies and/or companies, thought leaders, and more.

A sub point of our mission statement is to, strengthen the economy of the St. Louis region. This seems a noble goal, but again, why should we, a research institute, care so much about building an ecosystem that supports innovation and entrepreneurship?

In addition to addressing the need to feed and fuel 10 Billion people by 2050 without choking our planet, what is really special about the agtech and food tech innovation is that it is one of the few undertakings today that help bridge our nation's urban vs rural divide. Our discoveries are the basis for creating products and services that meet critical needs of farmers and ranchers, food processors, food manufacturers, distributors and grocers. Young people who are tech savvy now have an outlet to put that love and understanding of technology to use in their communities. Imagine a kind of "Geek Squad" in rural communities across America that can be deployed to help get a tech heavy piece of equipment up and running again in minutes or hours rather than days.

Let me share briefly some of the measurable outcomes that we have achieved. In 2008 the Danforth Center partnered with a leading real estate developer to build the first leg of our research park; The BioResearch & Development Growth Park, BRDG Park for short. Although still in its early phase of development, we can point to some tangible results. Today the BRDG Park is home to 14 companies that employ nearly three hundred people. Of these 14 companies, six are from our region and eight are transplants from; Germany, Israel, India, and across the U.S. Furthermore, BRDG Park companies and Danforth Center spinoffs account for

close to \$200 million dollars of investment capital drawn to our region. Since 2013 two of our BRDG Park companies have been sold, offering financial rewards to their investors.

When we built BRDG park we partnered with the Saint Louis Community College to create a workforce training program to provide skilled hands at the bench, a key element of any bioscience talent pool. This two year post high school training program boasts a 95 percent placement rate and graduates have been hired to work in institutions like the Danforth Center, Monsanto, Washington University and companies throughout our region at salaries upwards of \$45,000 per year. The majority of trainees are young people who come from disadvantaged neighborhoods or are older workers who have retooled to start completely new careers. One example of such a trainee is a gentleman named Dave Busby. Dave worked for more than 15 years making truck seats for the Chrysler plant in St. Louis. When the plant closed Dave, who was in his mid-thirties, needed to start a new chapter in his working life. He typed the words auto plant technician into a job search program on his computer and stumbled upon the community college's "Plant and Life Science Technician Training Program." He had not taken a math or biology class since his sophomore year in high school and wondered if this training program was really for him. But he took a chance and enrolled, graduated in two years and was hired by the Danforth Center. Dave has been with the Center for over five years and today he is the assistant director of our tissue transformation core facility.

For the last ten years the Danforth Center has partnered with the Larta Institute to host an annual investor conference, the Ag Innovation Showcase. This event brings the agtech community from more than 25 countries together to create synergy between the multitude of products and projects that are contributing to the explosive growth of the industry. Central to the event is the "Voice of the Farmer" featuring farmers from across the U.S. who share their challenges with innovators who can address them in cost effective, environmentally sustainable ways. Since inception, these entrepreneurs have raised more than half a billion dollars in investment capital. Several of the companies have chosen to locate in our region.

In 2016, with the help of an EDA planning grant, we launched a 600-acre innovation district called 39 North, home to the Danforth Center, BRDG Park, Helix Center Incubator, Yield Lab accelerator and Monsanto Company. The district is designed to attract talent, ideas and capital. Today St. Louis is home to nearly 1000 plant science Ph.D.s, and nearly 45 companies have formed as startups or migrated from other regions because the ecosystem enables the path from discovery to commercial product with remarkable speed. Current operations of the Danforth Center, BRDG Park and Helix Center are estimated to generate a total annual output impact of more than \$250 million on the St. Louis regional economy.

That's Agtech, and that's real progress.

Thank you for inviting these comments, I am happy to answer any questions.