SciTech IDEAS IN ACTION

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Gwyn F. Riddick, Executive Advisor for Strategic Development and Agricultural Biotechnology Consultant for the North Carolina Biotechnology Center, opened the first SciTech lecture of the 2014 Spring Semester with a very engaging, enlightening and memorable lecture on "*A Race Against Time: How Biotechnology is Transforming Our Largest Critical Industry".* To an audience of students, faculty, horticultural enthusiasts, environmental supporters, and community leaders, he addressed the subject of the intersection of biotechnology and agriculture. He introduced these resources as the AgBiotech Initiative which is a project to find ways and means for new crops, new uses for these crops and new techniques for their uses.

In his topic of "*A Race Against Time . . .*" Mr. Riddick addressed the fact that by the year of 2050 the world's population will have exploded to 9 billion. The ever-arching question among scientists and environmentalists is: "How will we feed a growing population of this magnitude?" It stands to reason that the resource needs for food and water will grow to incredible limits which renders the dilemma of identifying food resources to meet the demands when we are running out of land on which to grow the food needed. This leads to the conclusion that we must explore the possibilities of other alternatives as those being researched and promoted by the North Carolina Biotechnology Center.

Mr. Riddick then posed the question, "How can biotechnology applications in agriculture make life better, now and in the future?" One of the answers he shared was through the use of improved crops from genetically engineered/genetically modified organisms or GMOs; another one was the use of field trials to find genetic traits that will allow plants a much shorter growing time, lending multiple planting cycles per year. He also emphasized the urgency for research to find crops that produce higher yields and are much more drought tolerant. More experiments are imperative to find new disease traits which would reduce the demand for insecticides. There is also an urgent need for rotation of crop cycles to enrich and preserve the planting fields which we have lost due to the exhaustion of land caused by urban expansion and loss of farmland.

He then introduced the names of several North Carolina companies which are in their infancy on the biotechnology scene. These companies are producing a variety of products such as the technology derived from sea sponge to attack bacteria and fungus; the use of plants to identify DNA fragments that control regulation of genes useful for agronomic productivity; and another one which implements the extraction from soybean seeds to produce an oral vaccine. Even more surprising is the utilization of North Carolina's ever-popular tobacco plant to grow protein for H1N1 flu and other vaccines without eggs— which can be produced in 30 days, not six months— and would benefit those individuals who are allergic to eggs. His comments confirmed that the possibilities for the interfacing of agriculture and biotechnology are endless.

To summarize his lecture, Mr. Riddick focused on the importance of promoting and strengthening biotechnology projects throughout the state. It is a "Win-Win" situation for everyone by creating more jobs, the growing of more new companies, attracting and recruiting other industries to our state, retaining the companies that are now a part of our AgBio state, and educating the workforce to the new methods of BioAgriculture.

In the future, it would be reassuring to think we have a bio-based economy, not petroleum based, which produces products from plant factories. This "race against time" can be won with careful planning and the use of resources we have at hand. By embracing the possibilities for the future, we can be in a position to proclaim, as Mr. Riddick emphasized, "Plants are our future and are an integral platform for agricultural biotechnology development." Let's use our resources and "tap the resources harbored in plants that will benefit mankind."