

The world population is projected to reach over 9 billion people by 2050. The global demand for food, feed and fiber will nearly double while, the use of crops for bioenergy and other industrial purposes will increase. Agriculture will be forced to compete with growing urban settlements for land, water and other resources. Agriculture will also be challenged with environmental issues, such as water and air pollution, maintaining the world's biodiversity and climate change. It is no secret that the agricultural industry will be faced with many obstacles in the next 30 years.

As a current graduate student in swine nutrition, I find myself engulfed in a world of research that is constantly evolving. Science and technology continue to advance at a rapid rate, developing methods to produce more products using fewer resources. My next 30 years in the industry will be defined by innovations for growth, efficiency, and the ingestion of new sciences, while developing and maintaining partnerships with growers, advisers, suppliers, buyers, retailers, consumers, and everyone in between.

In order to meet the growing demand for food, the agriculture industry is going to have to focus on smarter and more efficient uses of the world's resources. Many would argue now that we are already approaching the carrying capacity of terrestrial land area suitable for crop production. My career formulating diets for livestock will end quickly if access to grain becomes limited or non-existent due to lack of available land for crop production. Although there is adequate unused, arable land available around the world, only a fraction of this is realistically available for agriculture because much of this land is needed to preserve biodiverse ecosystems that provide a host of services that are necessary to sustain human life. Genetically modified crop varieties offer hope to sustain farming in marginal areas and restore degraded lands to production. The use of genetically modified varieties will ultimately depend on acceptance from

the consumer and adequate solutions for food safety and environmental concerns. Again, the agriculture industry must find ways to produce more with fewer resources using science as a tool to seek new methods for improving crop production that are acceptable to the public.

The impact of agriculture on the environment will also be a heavily discussed topic in the future. Environmental pollution, loss of biodiversity, and climate change are all issues the industry needs to be concerned with. I expect that I will be formulating diets in the future to minimize the carbon footprint of the swine industry as well as working with producers and farmers on manure management - but is that enough? Interdisciplinary partnerships with agronomists, biological and agricultural engineers, etc. will allow us to develop a greater knowledge base and provide innovative solutions to challenges in agriculture. However, for many of us, working with others who share very different interests than us is uncomfortable and sometimes we may actually feel that they are working against us. I think that working past these issues will allow us to develop interdisciplinary partnerships that will be essential for the success of our industry.

Instead of looking at the next 30 years as a challenge for the agricultural industry, I think it will be an incredible opportunity for us to drive innovation and acquire partnerships that will allow us to feed the world in 2050. Research will continue to be at the root of agriculture, helping to push the boundary of what we think is possible. Being a swine nutritionist in such an industry is very empowering and inspiring. I plan to push for new methodologies and products to improve the swine industry throughout my career, while also networking and developing lasting relationships with everyone from the farmer to the consumer so that I can make the best decisions possible for the agricultural industry.