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The Greatest Challenge Facing Agriculture over the Next 5 Years

In 1900, 41% of the US workforce was involved in agriculture (Dimitri et al., 2005). In 2014, less than 2% of Americans are farmers or ranchers. In the last 100 years, consumers migrated to urban areas, increasing their social and physical distance from farming communities. As a result, the average consumer knows less than ever about agricultural practices. To compensate for this change, there has been a recent focus on consumer education among 'advocacy' organizations. Concurrently, anti-agriculture groups launch expertly crafted media campaigns that further consumer's distrust of modern farming practices. Agriculture outreach professionals are doing their best to provide clear and accurate information, but we are already one step behind.

There are several long-term challenges that face agriculture over the next 50 years. The population is growing, especially in developing countries, and global food demand is increasing as a result. Climate change challenges agricultural practices and urbanization increases the distance that food travels to reach the kitchen table. Water quality and availability threaten current agricultural standards. These long-term challenges cannot be overcome until agriculture regains the trust of the American consumer. The greatest challenge facing agriculture in the next five years is improving the consumer's perception of modern agriculture.

Wachenheim and Lesch (2002) surveyed Illinois residents about their perception of agriculture as an important part of the state's economy. The response varied based on the distance of the respondent from a major population center (defined as 100,000 people or more). In counties containing, or adjacent to, major population centers, agriculture was ranked in the bottom half of industries. However, respondents who are involved in production agriculture ranked it as more important. Although there are several economically important organizations in the urban areas of Illinois, the results of this study reiterate the disconnect between urban consumers and rural producers. Consumer perceptions commonly reported by the media include animal welfare issues, environmental degradation, and danger associated with genetically engineered (GE) crops. Most negative perceptions are based on a distrust of technologies that improve agricultural efficiency. In order to overcome the long-term challenges facing agriculture, it is imperative that consumers become more confident in modern agricultural practices.

Research shows that 56% of consumers do not report a primary informational source when they have animal welfare concerns (McKendree et al., 2014). Of the 44% who do, the top sources included the Humane Society for the United States (HSUS) and People for the Ethical Treatment of Animals (PETA). Information providers from the animal industry in question were the least used public sources of information.

Consumers often believe that modern agriculture has a more negative environmental impact than traditional agricultural practices of the mid-1900s. In reality, virtually all agricultural practices have decreased their environmental footprint on a per product basis. The US beef industry in 2007 used 70% of animals, 81% of feed, 88% of water, and 67% of the land than what was used to produce the same amount of product in 1977 (Capper, 2011). In addition, the industry's carbon footprint was reduced by 16.3%. These efficiencies are necessary to feed a growing population with less land, and must be perceived as positive by consumers.

Genetically engineered crops are not only environmentally beneficial, due to a shift in herbicide use and reduction in pesticide use, but also have future applications in drought tolerance and nutritional enrichment. Frewer et al. (2011) reported that consumers are more resistant to technologies that involve bioactive compounds, like GE crops, and least resistant to unnaturalness alone. Linnhoff et al. (2014) found in a survey of millennial generation business school students that there was an overall negative attitude towards GE foods in terms of health, safety, environment, and authenticity. The authors suggest that the student's skepticism is based on nonscientific information, and communicating scientific information in a way that millennials relate to may improve their willingness to purchase GE foods. The millennial generation will be critical in policy making in the next 50 years. Educating this unique demographic in the immediate future about the benefits of progressive agriculture will make the long-term challenges easier to face.

Agriculture will not overcome the challenges of climate change, a growing population, and urbanization in developing countries without technology. As a graduate student studying food systems, it is clear to me that the use of technology in agriculture will be critical in the decades to come. However, consumer disapproval may heavily limit use of technology if agriculture does not invest in improving consumer perception in the next five years. All too often, agriculture is reactive to consumer resistance, instead of proactive. My professional goals are to promote progressive animal agriculture through consumer education. The opportunity to attend the USDA annual outlook forum would allow me to learn more about the future of agricultural science and policy in the US. What I learn at the USDA annual outlook forum will help me become a better advocate for agriculture in the next five years and beyond.

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