

Climate change, throughout the world, has been viewed as a negative term. When I think of those words, I think of different ways we can adapt and innovate to create a better environment for farming, ranching or people in agriculture. We can do this by connecting improved agricultural practices, increased use of technology and informing consumers with real information. What I mean is that when a climate is changing, change it for the better, change to better agriculture.

Climate change can make conditions better or worse for growing crops and livestock in different regions. For example, changes in temperature and rainfall are leading to longer growing seasons in almost every state and county throughout America. A longer growing season can have both positive and negative impacts for raising food. Some farmers may be able to plant longer-maturing crops or more crop cycles altogether, while others may need to provide more irrigation over a longer, hotter growing season. Farmers across the country are trying different strategies to create more adaptive ways to farm, to get higher yields and lower operating costs.

So how do we fix this seemingly endless list of climate problems agriculture is facing? Incorporate climate-smart farming methods connected with technology. Farmers can use climate forecasting tools, plant cover crops and use crop rotation. Technology can play a big role in changing the future of farming for the better. It allows farmers a variety of new and innovative ways to do simple and complex tasks because technology is so vast. There are tools to provide clearer information of the weather. Examples of these are irrigation systems and soil probes to inform farmers of moisture levels. Another way is cover crop planting which can help with soil erosion and overall soil improvement. Some cover crops known to thrive in Kansas are soybeans and sorghum. Crop rotation aids the soil by alternating different crops each year. This can

improve the soil and result in a larger crop yield. The list could go on with other tools such as temperature and moisture sensors, aerial images, and GPS technology.

Technology doesn't just help raise the food that we eat everyday, but it also drives the habitats of consumers buying that food. It is one of the things that will keep farming and ranching progressively getting more modern and adaptive. When climate change is one of the main things affecting agriculture, technology will connect agriculture with the consumer.

The consumer demands more information about the food they eat which in turn will improve their health. "The pattern of consumer attention to health and wellness shows increasing awareness and adaptation across the board," said Darren Seifer, food and beverage industry analyst at Port Washington, N.Y.-based NPD and author of the report. He also states "This means consumers no longer think of health and wellness as an add-on, but as an integrated part of how they live their lives; that, in turn, opens opportunities for brands to become more streamlined to market. With consumers more settled and accustomed to preparing more meals in their homes, their focus is now on diets, nutrient intake and functional foods. The need for wellness grew throughout the pandemic and now directly affects 21% of all eating occasions, which amounts to billions of occasions annually". This is done with consumers having more access to information through digital resources. (harvard.edu)

The way food gets to the dinner table of consumers is changing due to technology and the marketing strategies of the product. It is changing the typical network of stakeholders involved in growing, processing, and selling food from the farm to table. This system has involved producers who grow food, the processors who manufacture and market products, the distributors who sell the food such as the wholesalers and retailers and the consumers who purchase the food. In some ways it is taking out parts of the middle in this chain. Consumers are contacting the farmers and

ranchers directly with social media connecting these groups. For example, you may see a friend on Facebook sending their livestock's produce to the locker and asking friends if they want to buy a portion. During the pandemic I had extended family drive several hours to fill their coolers with a family member's meat supply to take back to the city where this type of product was sold out in stores.

Retail chains affect consumers' decisions by the way retailers are marketing their products. For example, when you go to the store and shop for steaks what is on the packaging of those steaks? You may see "Farm Raised" or "100% Angus Beef". When I hear those words I'm influenced to buy that meat, yet when I hear "Lab grown Meat" or "Additives" that doesn't sound appetizing to me. The food chain gets the food to those consumers, but the marketing and technology they use influences them on what to buy.

Another form of technology connected with food is when consumers customize their eating habits with different tools. Some examples of those include social media platforms, influencers, personalized eating and fitness plans from health care providers, trainers, apps and more.

Technology doesn't just connect the consumer and the agriculture industry, it does so to also help battle climate change. Today's farmers are trying more sophisticated technologies. These advanced devices and digital systems allow farmers to be more profitable, efficient, safer, and more environmentally friendly.

In order to battle climate change, we can't just use the tools and technology we are used to using, we need to expand and use new technology to improve farming practices and use technology to connect with and inform the consumer. New farming practices can combat climate change over time. When we use digital communication to connect with different people and

organizations in agriculture, especially the consumer, we are using technology to modernize and improve agriculture. That is how we can adapt and innovate to create a better environment for farmers, ranchers and consumers in agriculture.

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