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Food for Thought on the Future of Our Food Providers

Consumer Packaged Goods Industry (CPG) is ready and able to keep working in the pandemic. Food and beverage manufacturing, delivery and retail is always rolling, regardless of what's going on in the wider world. And the coronavirus threat isn't impacting that aspect.

"No industry is better positioned than a 24/7 industry," Geoff Freeman, president and CEO of the Consumer Brands Association, told Food Dive. "...We're used to that aspect. We're used to periods in time where there's much more demand, whether it's around the Super Bowl, whether it's around March Madness, whether it's around the holidays, you know, we're used to having to ramp things up. So no one was perfectly prepared for this situation, but no one is better positioned than the broader grocery industry."

As per the statistics collected by the United Nations Department of Economic and Social Affairs, by 2050 the world population is going to reach 9.8 billion. According to another study report from the Food and Agriculture Organization of the United Nations, the world's population is going to reach 9.1 billion in 2050 from 7.4 billion in 2016. To meet this increased demand, global farmers must increase food production by 70 percent when compared to 2007 levels across the world.

The food growers in the U.S. are in desperate need to leverage advancements in growing food to reach an impressive level of food production. Population and income are going to be the biggest drivers for food production. The digital transformation and modernization are highly required in the farming industry to provide food for increased population economically. Automated advanced technologies like GPS and robotics are enabling the production of substantial quantities of crops at remarkable decreased labor and costs.

Government regulatory bodies are slow adopters to technology because of historical practices they follow, poor training and lack of knowledge on the technology advancements. It is high time for the Agribusiness to evolve from a regional and local model to a global model. To fill this need of Agribusiness, increased investments and interest must be driven by public agencies, corporations and society at large. They must start using new technologies to help agribusiness increase efficiency and cut costs. All of them collectively should come up with answers for overcoming challenges such as:

- How to attain faster and easier accessibility to the markets
- How to gain more security for the consistent commodity supplies
- How to get ourselves ready for megatrends and handle ambiguity
- Where and how to play along with the value chain
- How to revisit and build organizational and operational capabilities to support technology driven strategies
- How to specialize and diversify different commodities and activities

Evolution of High-Tech Farming Solutions: Farming is looking at cutting down the labor cost and driving the need for outside labor. Robotics with high-tech solutions have come to the rescue. Dairy firms started using robotics as a labor substitute for milking. Whereas, equipment manufacturers in farming are coming up with robotic tractors and sprayers to manage fieldwork with less intervention of human labor.

New advanced machinery is fully equipped with the electronics for controlling and handling operations with very less involvement of humans. However, using technology prototypes for commercial purposes of robotics is still a challenge. Mainly the legal and regulatory issues are being one of the major hindrances for using robotics.

For using Drone technology as we already have regulations in place, the drone's usage is booming in farming. As per the Bank of America Merrill Lynch Global Research report, the drones in the agriculture industry are going to give 1000,000 jobs in the U.S. and generates \$82 billion in the economic activities. By 2050 drones are expected to open more opportunities as their usage is potentially growing from imagery and product application to providing supplies for transportation.

The technology advancements are also helping scientists to edit genes in DNA enabling to create better crop varieties. It would help farmers to select specific crop varieties having defined features like drought tolerance and resistance to different diseases. Gene editing will also provide a greater variety of crops which can grow up by editing traits hampering widespread production.

Crop Management: How much ever technology advances and helps farming, few factors like water scarcity, environmental impacts and soil strength continue to be the challenge growers. But latest R&D on technologies will help them to deal these issues more effectively and efficiently.

Technologies are developed for monitoring plant-growth sensors, microclimate unit and soil-moisture sensors. The data collected by them is accessible through computers and even on mobile devices so that immediate action could be taken in the challenging situations. Technologies are also available for measuring the soil strength is also being developed to reach down the plant level. The usage of cameras, computers, processors, and quarter-inch sprayers even to the thin lettuce plants in the fields is ensuring better harvest. They are also ensuring less chemical usage with lower environmental impact, which is highly needed in 2050.

Advanced technologies should aim at empowering farmers to achieve best harvest during every growing season, foster sustainability and ensure reliable growth for their communities and businesses. Let us see a quick list of innovations in the Crop Science:

- Agri technology driven Research and Development
- Agricultural Biologicals
- Biotechnology & GMOs
- Plant Breeding
- Data Science
- Crop Protection

As every crop, field, and farmer is different from each other, each of them has their own needs, goals and challenges. We need to formulate collective strategies and efforts to give true benefits to the farmers and the consumers. It is everyone's prime responsibility to ensure that our innovations are accessible to everyone across the globe.