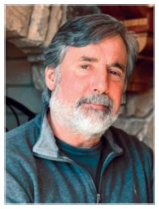
Eat Your View



By ROBERT TURNER

From Satellites to Robot Tractors: Cool New Tech Down on the Farm

As you may be aware, England had to ration vegetables this spring. While that may not have concerned many children in the UK, with some probably quite joyful at the news, many adults were caught off guard. Some panicked.

The largest supermarkets in the UK had to ration the sale of fruits and vegetables in February and into March. Extreme weather in key growing regions were the main reason for shortages. Blazing hot temperatures in Spain and Morocco last fall, and then a cold snap in more recent weeks, took a heavy toll on production there. The UK is dependent on these regions for vegetable production, just as the US is dependent on California, Mexico and Central and South America for ours.

Early morning in the hoop house at Maypop Farm

The UK's biggest supermarket chain, Tesco, along with other major supermarkets, temporarily capped the number of tomatoes, peppers, cucumbers and lettuce to three packs per customer. Aldi, the German discount grocery chain with a large presence also in the US, introduced a per-person limit on peppers, cucumbers and tomatoes in its UK stores. Other grocery store chains expanded the rationing to include prepared salad bags, broccoli, cauliflower and raspberries.

It is unclear if weather events in the Mediterranean's growing region can be tied to climate change, but scientists have been warning about the risk of more frequent weather events that have the potential to disrupt the food supply.

To make matters worse, UK farmers were hit with higher fertilizer costs that further contributed to shortages of fruits and vegetables. Farmers in the US are also struggling with fertilizer costs, which tripled after Russia's invasion of Ukraine.

Growing tomatoes in greenhouses, as they do in the UK and the Netherlands, is now more expensive because of the cost of energy to heat the greenhouses, but fortunately most greenhouses did continue to produce for the UK markets. Increasing energy from renewable sources will only help the UK and other countries, including the US, expand greenhouse production and improve food security and food sovereignty at home.

Technology and Localization

The USDA has been working to shore up the food system here in the US, a direct result of food shortages experienced during COVID. There is a major push by the USDA toward localization, or more local and regional food production centers, which can reduce risks from long-distance supply chains and dependence on foreign nations.

One of the reasons the UK and the US have become dependent on imported vegetables is because of cheaper labor costs in other countries. Any technology that improves yields and reduces labor can make local and regional food production more competitive.

Farmers, big and small, are willing to adopt new technologies if they are profitable and reduce labor.

Most large commodity farms in the US now have tractors with GPS and data driven auto-steer technology that makes them hands-free. That auto guidance system is now connecting to new precision agriculture data from satellites, drones and field sensors.

As a member of the National Association of Science Writers, I attended a recent conference in San Francisco called the World Agri-Tech Innovation Summit to find out what else is on the farm horizon. The summit brought together more than 2,500 scientists, inventors, start-up companies and investors to discuss and network about the newest break-through technologies in agriculture.

Double wheel cuts down weeding time

Even for a farm-tech nerd like myself, it was eye-opening: from robotic, self-driving, autonomous tractors to large, flying drones that can carry 200 pounds and precision spray trouble spots in a field while the farmer sits on his porch with an iPad. Scientists at start-up companies were discussing newly discovered microbial inoculants, biologics and seed DNA technologies they claim can improve plant health and climate resilience. Several companies were displaying satellites no bigger than a mailbox and solar-powered that can identify moisture, fungal or pest problems before a farmer sees it. What I didn't see at the summit was a lot of technology for smaller and mid-sized farms. The drone was very cool, but not many small farmers can afford its $85,000 price tag. And I'm still waiting for someone to invent a Volkswagen-sized combine that can harvest five acres of wheat and then be parked in a garage.

But companies are inventing some useful tools for small farmers. While greenhouse and indoor technology on a large scale is advancing and becoming fully automated, hoop houses are becoming more indispensable in extending the growing season and protecting young transplants from weather.

Ayrton Webb from Maypop Farms in Arden grows some crops year-round in a hoop house. He's also proud to show off his new Terrateck double wheel hoe made specifically for market garden farmers. It may not be as high-tech as a robotic tractor, but it's a huge time saver. "It normally takes me 20-30 minutes to weed a bed with a scuffle hoe and with this tool I can get it done in about two minutes," says Webb.

For two years, Webb has also been using a paper pot planter distributed by Johnny's Seeds that the company claims can transplant "264 plants in under a minute." The grower loads seedlings grown in small paper pots into the machine and pulls it along the row. The planter automatically loads and transplants the biodegradable pots in perfect rows, saving not only time but backs as well.

Additional technological innovations at Maypop Farms include a new Iconoclast Pro Tilther for better soil texture and a smooth bed and a BCS walk-behind tractor. These technological innovations help farmers and improve local and regional food security.

A farm drone that can spot spray a large field

Last year, 80 percent of the US experienced drought conditions, according to the USDA. Hotter, drier weather, like that expected in a future threatened by climate change, will likely affect the food supply chain in some regions. Innovation and localization are the key to climate resilience in the food system.

Robert Turner is a farmer and author of Lewis Mumford and the Food Fighters: A Food Revolution in America. *Learn more at EatYourView.com.*