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Favorable weather, new technologies open season for United Apple

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Being in the agriculture business for over four generations, the [United Apple Sales](#) team, with orchards and growing partners in western New York, learned a long time ago that Mother Nature is the great equalizer and ultimately drives the program.



“We emerged from the winter season in a really strong, healthy position relative to the overall condition of the orchards after last fall’s harvest,” said United Apple President Brett Baker. “The volume of the eastern regional crop was relatively modest last season but we had great quality. The trees were not stressed and we had plentiful rain, which keeps the soil and ground water table in a strong position. Also, we did not have excessive heat that took its toll on the size and quality of the Northwest apple crop last season.”

Justin Whipple, United Apple’s procurement and operations manager, indicated they have not seen any significant winter damage. “With relatively moderate conditions this winter and no harsh temperatures or frost in the spring, we are seeing trees full of buds that are ready to go into all out bloom in a few weeks.

“This is always an exciting time as the season unfolds and renews excitement for a strong crop from our growers across the Northeast and Midwest, who help us deliver a comprehensive program of regional favorites and club varieties for our retail partners. We believe this year’s crop will rebound with a larger volume of fruit and provide another season of high quality and flavorful varieties,” said Whipple.

United Apple anticipates traditional eastern varieties of Cortland and MacIntosh as well as mainline varieties of Fuji, Gala, Honeycrisp, Pink Lady and Red Delicious will be in good supply. Club varieties — EverCrisp, RubyFrost and SnapDragon — will see a larger volume this season as young trees are maturing and producing more fruit.

Investment in New Technology

While Mother Nature plays a significant role each season, entrepreneurial growers are investing in education and technology to improve efficiencies and enhance returns for growers. Baker mentioned that there have been significant improvements in post-harvest operations with technological advancements in packing equipment and storage capabilities. “This is necessary to keep up with the increasing specificity that retailers are demanding for their branded programs and the ability to respond to changing consumer preferences.”

Pre-harvest operations have not advanced as much and this is where growers have the greatest ability to reduce the input costs for bringing a crop to market.

“We are actively involved with several pilot programs to bring in technology and gain more control over the fluctuations in a crop, improve the health of the trees, and enhance the overall crop production. Our objective is to utilize software and technology-supported equipment to assess growth rates and develop more accurate yield predictions,” said Baker.

United Apple is one of the growers in a beta test with Vivid Machines, an 18-month-old start up firm that has developed vision system technology to precisely monitor orchards. Jenny Lemieux, who has a master’s degree in artificial intelligence management, is co-developer of the software and imaging sensor that gathers digital data for precision crop management. The specialized camera called Vivid X-Vision functions like an X-ray for plants. It uses groundbreaking machine vision to capture chemical and physical profiles of every plant it encounters across an entire orchard.

“One of the challenges expressed by growers is that there still is a lot of manual time measuring and counting blossoms, fruitlets, and apples, which is not only time consuming but it is subject to inconsistencies and different views depending on the staff input. The current Vivid Machine system includes a mountable camera that can move at tractor speed, examine trees, review blossom clusters, and measure apples. Growers can see this information and filter the data by variety, block, date and other factors to get a very granular view of their orchards and how they may change over time,” said Lemieux.

She indicated that one of the most advantageous features of the Vivid Machine system is the ability to present data real time. “Our program includes a system that feeds images and interprets photos and data, which are immediately available in an app, and provide for further analysis in an online dashboard. The operator can make decisions in the field and integrate the assessments as they are performing regular activities.”

Baker said that ultimately this system will enable them to accurately manage the crop’s progress, project the harvest yield, size of fruit, and grade quality. “This offers great intel to help plan picking schedules, manage controlled atmosphere room utilization, and discuss comprehensive account planning with retail partners.”

United Apple is taking its investment in technology one step further by upgrading from conventional sprayers that blanket the entire spray zone to investing in smart spraying equipment that uses LIDAR (Light Detection and Ranging) technology. The Smart-Apply Intelligent Sprayer system utilizes lasers that sense every inch of the tree canopy, and directs up to 120,000 pulse points per second to specific areas of the tree. The system has density-based spraying technology and uses multiple nozzles that start and stop based on the canopy map the LIDAR system creates.

United started using the new spraying system, and already has three applications in this season. Early indications show that there has been a 40 percent savings in chemicals and water alone. This

spraying technology along with the digital vision system is being phased into operations and will be used in 75 percent of United's total acreage this season.

"We are always looking for ways to blend the experience and knowledge of our growers who have generations of experience in traditional farming," said Baker. "These new investments allow us to leverage that background and enhance efficiencies in overall production to maximize yields and enhance fruit quality.

"As we dig deeper into the combined capabilities of these systems, we are also seeing real benefits in supporting our commitment to sustainable farming practices. It affects our cost of production but also reduces use of materials, saves water, lessens soil compaction, and cuts back on fuel use and emissions. It also reduces time for staff in working with sprays, and allows us to focus on other areas of managing orchards and new varieties," said Baker.

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