

# The technology race

**On July 20, the nation will commemorate the 50<sup>th</sup> anniversary of the moon landing.**

Apollo 11, led by Commander Neil Armstrong, Command Module Pilot Michael Collins and Lunar Module Pilot Edwin “Buzz” Aldrin, set in motion a technology era with their successful mission in 1969. Less than eight years earlier, President John F. Kennedy had challenged the nation and its scientists to achieve what seemed impossible: “landing a man on the Moon and returning him safely to the Earth.”

Advancements in science are critical for adapting to an ever-changing market. We can learn many lessons from the moon landing — lessons we will need to meet the challenges of the iPhone age and beyond.

## Technology as compared to today

Today's simple pocket calculator has more computing power than the state-of-the-art computers that existed in the 1960s.

The iPhone is more than a million times faster than the Apollo Guidance Computer (AGC). Even a simple USB stick or Wi-Fi router dwarfs the AGC in terms of storing or moving data. The comparison may not seem fair — it's akin to placing the first Wright Brothers airplane alongside an F-18 fighter jet. There is no comparison.

At the time however, the National Aeronautics and Space Administration (NASA) responded to Kennedy's call to beat the Russians to a manned mission to the moon. From a technological perspective, they were at least 10 years ahead of their time. The moon landing accelerated the pace of technology development. Nary a decade later, the Apple II computer brought the computer home and made it personal.

This ambition is something the nursery industry, and production agriculture in general, both need to push harder. There will be challenges. The Apollo 1 mission out of the gate was a disaster. A fire killed Roger Chaffee as well as astronauts Virgil “Gus” Grissom and Ed White II two years before the immortal words “the Eagle has landed” were dramatically announced.

## Technology advances to agriculture

Oregon nurseries have long been inno-

vators. Practical and intuitive, they push the envelope, as the NASA Apollo missions did, by crafting innovative solutions with irrigation, automation and much more. With the rising cost of inputs and production, today's growers have good reason to innovate as much as possible. The rewards are there. By moving from single poly to double poly greenhouse plastic, one can save up to 40 percent in energy consumption.

Woodburn Nursery & Azaleas Inc. and Fall Creek Farm & Nursery are two industry leaders who deserve particular credit. They serve as laboratories for the nursery industry, where new ideas are incubated. Their advancements over the last two decades are a positive indicator for what is needed to compete on a national and global market.

At Woodburn, Tom Fessler is our own version of the 1980s television show, MacGyver. By implementing rolling benches inside, Woodburn saved about 20 percent of its greenhouse space. Outside, Tom connected a spray controller from one piece of equipment to an air blast sprayer from another piece of equipment. He was told it would never work, but guess what? It works great. The operator can adjust spray volume based on the desired speed and/or rate.

Tom was also an earlier adopter of pot-in-pot production in the late 1990s, which was a game changer for many nurseries.

As for Fall Creek, they are simply the gold standard — or one could say “blue” standard — when it comes to research and development of new blueberry varieties.

On the irrigation side, Oregon is well known for its advancements in recycling water using the bed system that Monrovia devised for best runoff collection. Micro emitters put water in the exact place it needs to be and sensor for soil moisture leads to reducing water use and waste.

Don't forget about the innovative use of GPS systems, drones and computerized sensors. Growers are using GPS to steer tractors and position plants. They're using drones to save labor when inspecting plant health.

Perhaps the biggest breakthrough is the Smart Sprayer, which can reduce pesticide use by 47 to 70 percent while still maintaining the same efficacy, thereby saving growers \$140–280 in pesticide cost per acre annually. This technology is now on the market,



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following years of research by Oregon State University, The Ohio State University and the University of Tennessee in tandem with USDA National Institute of Food and Agriculture through the Specialty Crop Research Initiative (Washington, D.C.). It even helps beneficial insects in the area.

The technology also reduces airborne drift by up to 87 percent, and drift on the ground by up to 93 percent. Although the technology was initially tested outdoors, efforts are ongoing to adapt it to greenhouse operations as well.

As we have seen, the best pathway to producing plants in greater quality and quantity is precision in all aspects of the operation. Fewer culls will result in more salable product and of course, less waste.

Oregon is growing higher quality products with increased safety while making more efficient use of space than ever. Bring on the population growth in China and other parts of the world — we are ready to provide the environmental, food and fiber needs of the world, and we will keep improving.

## What is our moonshot effort?

With ever-mounting challenges of water, labor and environmental regulations, we need to renew the call to use technology to change the very landscape of production agriculture. We need to come together, researchers and industry, to chart the future.

It could take many forms. Research opens the doorway to opportunities. It seems like smart trucks and infrastructure on the nation's highway system are the next horizon. Let's go out and meet it. We need the urgency and vision of the 21st century moon shot — together, we can achieve anything! ☺