Don Jenkins/Capital Press

Washington State University plant pathologist Gary Chastagner researches Christmas trees at the school's research center in Puyallup.

Seeking a better Christmas tree

By DON JENKINS
Capital Press

PUYALLUP, Wash. — As befits a scientist who studies Christmas trees, Gary Chastagner discusses his research with good cheer.

Not that the job is a holiday. The Washington State University plant pathologist tackles problems that would make a pre-reformed Grinch smile.

Slugs and yellowjackets lurk in firs, and no one wants that under the tree.

Like other crops, Christmas trees are threatened by pests and pathogens. Unlike other crops, Christmas trees compete with artificial facsimiles. An organization called the American Tree Christmas Association touts the purported ecological benefits of faux over fir.

"Everyone knows the environmental value of trees, and here we are, selling trees! That have been cut off!" Chastagner said. "I don't know of any other agricultural crop marketed as a tree — that's been harvested. Even though it's grown as a crop and replanted."

Chastagner, 68, has studied Christmas trees over a nearly 40-year career at WSU's research center in Puyallup.

The research has been wide-ranging. He evaluated tree stands to see which ones hold enough water to slake a cut fir's thirst (very few). He set up a Christmas tree lot in Tempe, Ariz., to test how Pacific Northwest firs weather desert heat. The lot was not profitable, but the venture yielded information to help other retailers, Chastagner said.

The American Phytopathological Society awarded him the Excellence in Extension Award in 2011 for his research. A university profile called him "Mr. Christmas Tree."

"Boy, as an industry, did we get lucky when he decided to do research in our industry," said Philomath, Ore., Christmas tree grower Betty Malone, chairwoman of the national Christmas Tree Promotion Board.

"You can trust what he says because he is so precise about his research," she said.

Chastagner said he's not sure when he will retire. But until he does, he will continue working on a career-long project: Keeping Christmas trees from making a mess.

"If we can eliminate needle shedding, that would be a major improvement in the overall quality of trees," Chastagner said.

It was needles that got Chastagner into Christmas tree research.

Chastagner was hired in 1978 by WSU to research ornamental bulbs and turf grass.

At the time, however, the plant disease Swiss needle cast was rampant among Douglas firs in the Pacific Northwest. Needles turned yellow and fell off. Some 84 percent of the Douglas firs on Oregon and Washington Christmas tree plantations were infected in 1981, according to a USDA publication.

The Legislature gave WSU money to study the problem, but the school needed a researcher.

"I was the new kid on the block. The dean came into my office — it's probably the only time the dean has been in my office — and wanted to know if I would be willing to work on Christmas trees," Chastagner said.

Research and solutions followed, namely the application of an inexpensive fungicide. Only 13 percent of thousands of trees surveyed between 1987 and 2007 had the disease, according to the same USDA publication.

"We got a clear path to solving the problem, thanks to Gary," Malone said.

This story was first published Oct. 1, 2016.

Western Innovator

Gary Chastagner

Age: 68

Position: Washington State University professor of plant pathology at Puyallup research center

Education: Bachelor's degree, 1971 California State University-Fresno; master's degree 1973 and Ph.D. 1976 University of California-Davis.

Favorite Christmas tree: Noble fir

Making harvests more efficient

By DAN WHEAT
Capital Press

MOSES LAKE, Wash. — J.J. Dagorret doesn't make detailed drawings. When he gets an idea he mulls it over in his mind.

"I get irritable. I need my concentration. I can be like a mad scientist," he says.

When he's ready, he tells his workers what he needs. What to cut. What to weld. What goes here. What goes there. How long that needs to be. No, it needs to go like that.

"It's all wrapped up in my head and I can see it. It takes me eight weeks to build a prototype. I like the nuts and bolts side of things," he says.

Dagorret, 41, is an innovator who is beginning to make his mark on the tree fruit industry. His self-propelled harvest assist platform, the Bandit Xpress, which he designed in 2012, has become a hot item for picking and thinning apples and pruning and training trees.

Automated Ag Systems, Dagorret's Moses Lake company, has built and sold about 450 Bandit Xpress platforms from 2013 through 2016.

Most of them went to growers in Washington, but others also went to Oregon, California, New York, Michigan, New Zealand, Australia, South America and South Africa.

About 70 of the 275 on order this year have already been built, and production capacity will double next year when the company gains full use of a 60,000-square-foot facility it bought in January.

Dagorret says he needs the space to keep up with demand.

"We have guys screaming for machines. It's hard to grow with demand," he said.

He sees no end in sight to the growth the next several years as more orchardists see that a $63,000 Bandit Xpress is 35 percent more efficient, and safer, than picking apples with ladders, he said.

That's a savings as labor grows more scarce and expensive. Simplicity, quality and affordability are what growers want, Dagorret said.

Dan Wheat/Capital Press

Kelly and J.J. Dagorret, owners of Automated Ag Systems in Moses Lake, Wash., in front of the assembly line for Bandit Xpress harvest-assist platforms.

Western Innovator

J.J. Dagorret

Occupation: Owner, Automated Ag Systems LLC, Moses Lake, Wash.

Age: 41

Born: Chico, Calif., raised in Corning.

Family: Wife, Kelly, company office manager; son, J.P., 18, also works in the company.

Education: Graduate of Corning High School, 1994; welding certificate, Butte Community College, Chico, 1996.

Work History: Worked for Orchard Carriers, a produce bin carrier manufacturer in Corning, during and after high school; bought the company in 2000; sold the company in 2005; started Automated Ag Systems in Tampa, Fla., 2007; moved the company to Moses Lake, Wash., in 2011.

How it works

Up to four pickers are tethered to the Bandit Xpress platform, two fore and two aft, on areas that are adjustable in height and width. They pick into conventional bags and gently dump apples from bags into a bin that is raised to the platform with a hydraulic scissor lift. Bins are set out by tractors in advance and removed when full.

The 22-foot-long, 7-foot-wide self-propelled platform is powered by a 24-horsepower Honda engine that can go eight hours on 3.5 to 4 gallons of gas.

Dagorret soon will offer the Bandit Xpress .5 that will be four feet shorter and a foot narrower to better fit 10-foot-wide alleys in V-trellis orchard systems.

This story was first published April 17, 2017.

Keeping apples fresh in storage

By DAN WHEAT
Capital Press

WENATCHEE, Wash. — When Jim Mattheis was a boy in Lennox, S.D., he was curious about the orchard his friend's family had: It didn't produce any apples.

It wasn't a commercial orchard. It was just a small, home orchard that had been neglected for years. The trees hadn't been pruned or sprayed. Spring frosts took their toll. Finding an apple was a novelty.

The orchard didn't bear much fruit but it did spawn an interest in horticulture in young Mattheis. Half a century later, Mattheis, now 59, is regarded as a transformative innovator by the apple industry.

As a plant physiologist and research leader at the USDA Agriculture Research Service Tree Fruit Research Laboratory, Mattheis has been the key figure in the testing and development of the synthetic molecule 1-methylcyclopropene — also called 1-MCP — which slows the ripening of apples to keep them fresher longer in storage. Industry packers and shippers worldwide have used it for 12 years, and Mattheis keeps refining best practices for new technologies and apple varieties.

Dan Wheat/Capital Press

Jim Mattheis, plant physiologist at the USDA ARS Tree Fruit Research Laboratory in Wenatchee, Wash., demonstrates removing a sample of ethylene gas from the core of an apple.

Paradigm shift

Extending the quality and shelf life of apples by using 1-MCP has represented a "paradigm shift" as significant to the industry as the development of controlled-atmosphere storage in the 1960s, Jim McFerson, director of the Washington State University Tree Fruit Research and Extension Center, has said.

No one can really pinpoint how much, but it's safe to say 1-MCP has added millions of dollars in grower returns since widespread usage began in 2004. AgroFresh Inc. of Spring House, Pa., released it commercially as SmartFresh in 2002.

"Jim and his program team have not only been world leaders in developing robust approaches to using SmartFresh technology, but have consistently kept our Pacific Northwest tree fruit industry on the cutting edge of technological innovations in fruit handling and storage that enhance our ability to deliver the consumer a consistently superior eating experience," McFerson said.

As the laboratory's leader for 14 years, Mattheis has guided it to a "pre-eminent position in tree fruit physiology and soil-borne diseases," he said.

Mattheis works well with the industry and the "industry would not be the same without his work," McFerson said.

This story was first published Aug. 5, 2016.

Western Innovator

Jim Mattheis

Age: 59

Born: Sioux Falls, S.D.

Raised: Lennox, S.D.

Family: Wife, Darcee, is a social worker. Their son, Carl, 21, is training to become an aircraft mechanic.

Education: Bachelor's degree in biology, Augustana College, Sioux Falls, S.D., 1979; master's degree in public health, University of Minnesota, 1981; doctorate in horticulture, Washington State University, 1987.

Occupation, work history: Plant physiologist, USDA Agriculture Research Service Tree Fruit Research Laboratory, Wenatchee, Wash., since 1988; laboratory research leader since 2002.