



New Potato Varieties Might Breed Savings

By Kym Pokorny



Lynn Ketchum photo

Top: Two new potatoes – Castle Russet and Echo Russet – are in the hands of growers to determine if they live up to their promise of disease resistance, yield and processing qualities.

Above: OSU potato breeder Sagar Sathuvalli works to develop better potatoes, a process that can take up to 15 years. Two diseases on his radar are verticillium wilt and root-knot nematode, two of the most serious to hit potato crops.

Two new potatoes could save growers in Oregon, Idaho and Washington millions of dollars by curtailing several serious diseases and improving processing quality.

The potatoes — Echo Russet and Castle Russet — are in the hands of growers for trials thanks to the breeding efforts of Oregon State University and partners in the Tri-State Potato Breeding Program.

In Hermiston, where potato fields reach far and wide, Sagar Sathuvalli, an assistant professor of potato breeding and genetics in OSU's College of Agricultural Sciences, works to develop potatoes resistant to diseases for an industry that was Oregon's sixth highest producing agricultural commodity in 2016 at \$187 million.

Sathuvalli says Castle Russet was bred mainly for disease resistance, while breeding work on Echo Russet focused on high-yield, good agronomic performance and good processing qualities. Most of the Oregon crop heads to processors to be turned into French fries and other potato products.

Both Castle Russet and Echo Russet show tolerance to diseases that include potato mop-top virus, which is spread by the problematic powdery scab fungus, according to Sathuvalli. They also are tolerant to soft rot and somewhat to verticillium wilt.

Echo Russet is noted for requiring less fertilizer, reducing the need for it by 30 to 40 percent — to 250 parts of nitrogen per acre instead of 400.

The Castle Russet variety is also resistant to all strains of potato virus Y and to corky ring spot, which is caused by tobacco rattle virus and vectored by stubby root nematodes, according to Sathuvalli. Resistance to diseases allows growers to use less fumigant, an important consideration as farmers deal with increasing restrictions.

Castle Russet also has the ability to cleanse a field infested with stubby root nematodes carrying tobacco rattle virus.

"That means you have a good crop to sell, and it cleanses the field to grow other crops," he says.

Getting to the point of releasing a new potato is a long process, Sathuvalli says. From the time breeding begins to when the potatoes are approved for release, it usually takes 12 to 15 years of exacting field trials.

Sathuvalli continues breeding to find the Holy Grail of potatoes, one that will be highly resistant to verticillium wilt and root-knot nematode, the two most serious problems to hit potato crops.

"They are egregious in our region," he says. "You have to fumigate to grow potatoes. If we ever got resistance to those in potatoes, we could basically grow them without fumigation. That would reduce the cost by \$300 to \$400 an acre."

OSU worked with the U.S. Department of Agriculture Agricultural Research Service in Idaho and Washington, as well as the University of Idaho, Washington State University and the potato commissions of the three states. | **OAP**