

## Grapevine Research Extends Vigorous New Tendrils

Grapes help us by improving our health. Now we're doing more to help grapes—grapevines, that is.

Agricultural Research Service scientists and their university and industry co-investigators are redoubling their efforts to tackle some of the most formidable challenges affecting grapes and grape growers. They're doing that in both well-established and newly emerging grape-growing regions across America. Articles in the next few pages highlight not only the long-running grape investigations in parts of the country already well known for their vineyards, such as New York and California, but also in places that might come as a surprise—like Parma, Idaho, or Prosser, Washington, for example.

The feature beginning on page 4 gives you a look at some of the newest table grapes from ARS's ongoing grape-breeding research at Parlier, in central California. We are proud to offer delicious new seedless grape varieties that give growers, shoppers, and backyard gardeners options that extend the season for U.S.-grown grapes. In this same article, you'll get an inside look at interesting grape investigations at Fort Collins, Colorado, and Poplarville, Mississippi, as well as at Parma.

The Parma program, one of ARS's newest, addresses the region's premier production problem: how to help vines prosper in a high-elevation ecosystem that can at times be too dry and too cold. Indoors, our laboratory studies of grape chemistry focus on ways to keep grapes' healthful compounds—the ones that have captured the attention of nutrition and medical researchers worldwide—from lessening once we begin to process the grapes into juices, wines, or other products.

The Parma projects are now just a few years old. Contrast that to ARS's grape research at Davis, in northern California, where our work on grape pests dates back decades. Within the past several years, vineyard investigations there have expanded into several new and intriguing avenues of inquiry.

For example, we are now scrutinizing the blue-green sharpshooter, a leafhopper cousin of the infamous glassy-winged sharpshooter. Both of these insects carry the *Xylella fastidiosa* bacterium that causes Pierce's disease of grapes—for which there is no cure. Because the blue-green sharpshooter favors creek, stream, and river environments, we're determining what riparian plants serve as natural reservoirs of the bacteria, and thus pose the greatest threat to neighboring vineyards. Such findings will help growers control costs by targeting only the most problematic plants.

With university colleagues, we're probing what's become known as "Syrah disorder," after the *Vitis vinifera* wine grape variety of the same name.

There's even more new research at Davis. We're trying to solve the puzzle of how to clobber *Armillaria* root rot, with its telltale mushrooms and perturbing ability to defy conventional soil-cleansing tactics.

And what viticulture research program would be complete without a new look at an old enemy: weeds. In particular, we're investigating plants used to suppress weeds. In research that's just getting under way, we want to uncover details of how cover crops—like triticale, the grass-family member used in some whole-grain breads—affect beneficial or harmful microorganisms living on, in, or near vine roots.

On the East Coast, our Geneva, New York, researchers are now pinpointing rootstocks resistant to a new, aggressive strain of microscopic worms known as root-knot nematodes. And their explorations of the genetic basis of grape color (see story that begins on page 9) may open the door to breeding new grapes that offer higher levels of natural compounds that impart not only rich, appealing color, but properties that benefit our health, as well.

We've evaluated priorities for research at these locales and elsewhere after exchanging ideas with growers, juice processors, vintners, academicians, and others whose professions are in some way entwined with the fruit of the vine.

We continue to seek relevant, real-world input to shape our current and future research. To that end, we are an invited partner in the development of the industry's National Wine and Grape Initiative, a concentrated effort to select and implement research priorities.

In addition, last year we presented our first-ever national workshop on ARS grape research, a lively, thought-provoking forum that we hope to make a regular occurrence in the future. More information about research presented at the workshop is available on the World Wide Web at [www.ars.usda.gov/research/docs.htm?docid=12440](http://www.ars.usda.gov/research/docs.htm?docid=12440).

By visiting this website and enjoying the grape articles presented on the following pages, you'll get the full flavor of this invigorating research.

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