

ARS and Your Holiday Season



The holiday season is a time for social gatherings and feasts that feature family recipes handed down from generation to generation as well as new foods and products derived from agricultural science. The Agricultural Research Service's scientific programs have had a hand in holiday products from the current form of the turkey to the table linens to the festive poinsettia.

U.S. consumers benefit from the work of ARS scientists all across the country. For instance, the Henry A. Wallace Beltsville (Maryland) Agricultural Research Center (BARC) is where the precursor to the modern turkey was developed.

The holiday turkey that graces millions of tables between Thanksgiving and New Year's Day owes its lineage to BARC poultry scientists. In the 1930s, in response to a call for smaller, meatier birds, they bred a new turkey—called the Beltsville Small White—which averaged 8-10 pounds, yielded a high percentage of breast meat, and had white feather quills. White feathers meant that any quills not totally removed during processing did not detract from the turkey's appearance. Today, that BARC turkey line is part of the pedigree of nearly every turkey sold in the United States.

ARS also conducts research that serves the needs of crop producers as well as consumers. Key factors that consumers consider when they buy produce are appearance, taste, and nutrition. ARS research addresses all these factors, one of which is determining which nutrients are in fruits and vegetables.

At the Vegetable and Forage Crops Research Unit in Prosser, Washington, scientists found that some potato varieties are packed with health-promoting compounds called "phytochemicals." Using a new analytical method, 60 different kinds of phytochemicals and vitamins, such as vitamin C and folic acid, were identified in the skins and flesh of 100 wild and commercially grown potatoes.

ARS is also heavily involved in developing southernpeas that are more attractive and tasty—as well as nutritious. Whipper-Snapper and GreenPac-DG were developed by ARS scientists at the U.S. Vegetable Laboratory in Charleston, South Carolina. These two new varieties boast attractive colors, pleasing textures and flavors, plus nutrients like protein and folate, a B vitamin. Southernpeas—also called "black-eyed peas"—are not peas at all, but are actually beans. They're often used in traditional southern cuisine.

A true pea, the Green Pixie, was released in 1999 in response to a need in the frozen food industry for a pea that retains its fresh, green color. Though developed for freezing, Green Pixie can also be grown and picked fresh by home gardeners.

Ornamental plants add beauty to our lives. The U.S. National Arboretum, an ARS laboratory and public garden in Washington, D.C., has certainly provided notable plants associated with the holiday season. Arboretum scientists have developed and

introduced at least 26 varieties of hollies and 3 of poinsettias. Poinsettias are America's No. 1 holiday plant, with more than 80 million sold during the 6-week season. In its native Mexico, poinsettias grow up to 8 feet tall. BARC scientists found that a phytoplasma—a bacterial-like organism—acts as a dwarfing agent, allowing the holiday plant to stay at a compact 18 inches. This phytoplasma triggers a hormonal imbalance that instructs the plant to grow outward, rather than up like a tree.

Three poinsettia varieties have been developed and introduced by Arboretum scientists—Ruff and Reddy, Truly Pink, and Winter Sunshine. These varieties have leaves with a wide range of colors, from traditional deep red to pink to creamy white.

Poinsettias don't naturally produce brightly colored leaves, however. BARC scientists found that the plants require a specific balance of daylight and darkness to induce flowering. When a poinsettia flowers, the upper leaves—or bracts—turn bright red, and small yellow flowers form at the center of the plant.

Even the tablecloth the holiday feast sits on was touched by ARS research. Scientists at the Southern Regional Research Center, in New Orleans, Louisiana, developed durable-press cotton fabric, which stays smooth after washing and drying. No need to iron that tablecloth anymore!

To ensure that these items and other agricultural products will be available to us in the future, the USDA-ARS National Plant Germplasm System (NPGS), a cooperative effort by USDA and state and private organizations, preserves the genetic diversity of plants. Starting in 1898, USDA scientists began to collect and introduce useful plants into the United States. After World War II, this effort expanded to include plant conservation and distribution through regional plant introduction stations and via long-term storage in the USDA-ARS National Center for Genetic Resources Conservation in Fort Collins, Colorado. During the 1980s and 1990s, additional genebanks for vegetatively propagated plants were founded, and a common database system (the Germplasm Resources Information Network—GRIN) was developed. The result is NPGS, a coordinated, national network of crop genebanks. NPGS scientists acquire, characterize, preserve, document, and distribute agriculturally important crop germplasm in the form of seeds, cuttings, pollen, or living tissue samples. By maintaining the genetic diversity of agriculturally important plants, our food supply and economy have an insurance policy, of sorts, against emerging diseases, pests, or the environmental changes crops inevitably encounter.

ARS researchers, over the years, have contributed many innovations and products to consumers across the globe and will continue to provide solutions to agricultural problems as well as new products for your holiday dinner table.

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