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MSU SCIENTISTS LAND $14.4 MILLION TO IMPROVE QUALITY OF FRUIT

EAST LANSING, Mich. -- Hungry to make fruit better for longer, Michigan State University scientists will lead a four-year, $14.4 million grant-funded research project. The grant is the largest ever awarded by the U.S. Department of Agriculture's Specialty Crop Research Initiative since its inception in 2007.

Michigan Agricultural Experiment Station scientist Amy Iezzoni heads the RosBREED project, aiming to combine emerging DNA sequence and research findings to improve the quality of apples, peaches, cherries and strawberries – key species in the globally important botanical family Rosaceae.

The project involves scientists from 11 U.S. institutions, including several land-grant universities such as MSU, Washington State University and University of Minnesota; USDA labs; and six international partners from the Netherlands, South Africa, New Zealand, Chile, France and the United Kingdom.

Selective breeding has led to the improvement of most rosaceous species during the last 6,000 years, scientists say, making today's varieties bigger and juicier than their wild cousins. Worldwide consumption is increasing, but producers remain under pressure from international competition, costs, pests and disease.

"This is a watershed year for Rosaceae with the peach, apple and strawberry genomes being sequenced," Iezzoni said. "Yet a huge gap exists because this DNA-based information is rarely applied to improve plant breeding for the development of new fruit cultivars. These crops provide vital contributions to human health and well-being, and the associated production and processing industries collectively make up the economic backbone of many U.S. rural communities."

"Imagine ultra-crisp, tasty apples, sweet peaches that don't get mealy, and aromatic and flavorful strawberries consistently available from your local grocery store, said Cameron Peace, Washington State University horticulturist and RosBREED co-director. "These are the kinds of fruit that consumers want, industry needs and that we can help develop using new genetics and genomics technologies."

"This is the sort of project we have long dreamed about," added Phil Korson, Cherry Marketing Institute president and RosBREED stakeholder advisory panel

member. “It addresses critical needs with enough financial resources to make a real difference. The top researchers in the United States and abroad have come together with industry stakeholders to leverage federal dollars and matching contributions for the benefit of all.”

The project is part of the USDA’s National Institute of Food and Agriculture program, which funds multiyear, multi-institutional collaborative projects. RosBREED follows earlier genomic, genetic and breeding programs focused on rice, wheat, barley, conifers, potatoes and tomatoes.

“RosBREED is rooted in our vision that the common ancestral origin of this diverse plant family can be harnessed to leverage knowledge and resources across commodity boundaries,” Iezzoni said. “This project exploits similarities among the genomes of three fruit-bearing species of Rosaceae – Malus (apple), Prunus (peach and cherry) and Fragaria (strawberry) to develop practical applications. Collectively, these three lineages represent the majority of the fruits produced and consumed in the United States.”

Iezzoni will work with MSU colleague Cholani Weebadde, who will lead RosBREED extension and outreach activities. The project team will offer workshops and practical training for plant breeders and create online networking resources for plant breeders, industry professionals, extension specialists and practitioners.

“As a member of the Senate Agriculture Committee, I was pleased to lead the effort and secure this important specialty crops funding in the farm bill,” said U.S. Sen. Debbie Stabenow. “Now MSU, which has become the expert on agricultural research and innovation, will be able to improve food quality and strengthen our agricultural industry – Michigan’s second largest.”

"It is extremely gratifying to see this innovative and important research be acknowledged and supported by the USDA," Michigan Agricultural Experiment Station Director Steve Pueppke said. "Research funding at this level is essential to improving agricultural efficiency and sustainability for specialty crop production. Collaboration and having the necessary state dollars to leverage these types of funding opportunities is critical to the economic future of Michigan and to addressing critical and emerging national priorities and needs.”

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