Production of broccoli on East Coast proves viable

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Sarah Durkee, a research technician at the New York State Agricultural Research Station in Geneva, works in a field of broccoli.

Picked by hand on West Coast farms, chilled to 32 degrees within five hours and packed on ice for a road trip east, broccoli is a finicky crop to

provide fresh to East Coast consumers.

A recent study from the Charles H. Dyson School of Applied Economics shows that new regional production of broccoli in the eastern United States – as a supplement to the West Coast supply – is not only economically viable, it would have no negative affect on the prices consumers pay.

The economic analysis in the December issue of *Food Policy* put a regional supply to the test as part of a $3.2 million grant from the U.S. Department of Agriculture under the Specialty Crops Research Initiative. The analysis accounted for the entire food network that delivers broccoli to consumers: supplies from California and Arizona, where most U.S. broccoli is grown, as well as East Coast locations that could contribute to the supply from spring through fall, including Florida, South Carolina, Virginia, New York, New Jersey and Maine. Researchers factored in the cost of production in each location, the metropolitan areas that create demand, per-capita consumption in each season and the flow of supply from farms to consumers through packers and grocery stores.

"Even though costs of production are higher in the east, the transportation costs – which are 15 percent of the retail value of broccoli – go down," said Miguel Gómez, associate professor in the Dyson School and lead author of the study. "So from an economic perspective, without increasing costs to consumers, it will be good for the broccoli sector, and increasing broccoli production in the east will complement the California production and increase efficiency."

Transportation costs are relatively high for broccoli because half of the total weight can be ice and it requires special boxes that are waxed to withstand melting during transit. That need for ice has another cost: Gomez noted diversification of vegetable production across the United

States can help address concerns about limited water resources in the west.

"While broccoli is typical of many horticultural crops, it's also more delicate, so it's a good test case for the economics of regional supply chains in the east for other crops," said Gómez.

According to Gómez, the remaining challenge for the industry is a biological one: East Coast growers will need new broccoli varieties with high yield and reliable quality. In particular, they need varieties selected for tolerance to the eastern heat and humidity that can push a floret from fresh to frazzled.

With the project now it its fourth year, project collaborators, including associate professor of horticulture Phillip Griffiths, have tested more than 100 breeding lines of broccoli at locations up and down the East Coast for enough summers to see the seeds of success.

"I expected we would find a higher level of regional adaptability, but some breeding lines are showing broad adaptability across the sites, which is really the ideal," said Griffiths. "Those that do well under stress seem to do well in all locations."

This summer also will see two firsts for the project: commercial-scale plantings of the leading varieties and the first tests of new hybrids made from university breeding programs and private companies.

"There is so much interest in food hubs and local foods. It's only getting bigger," said co-author and project leader Thomas Bjorkman, associate professor of horticulture in the School of Integrative Plant Science. "A lot of the qualities that make people choose to buy organic also drive them to buy local: a social connection, supporting the local economy and the environmental load."

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