

## UPDATE ON EASTERN US BROCCOLI INDUSTRY, FEATURING PLANT POPULATION DYNAMICS AND THE BOTTOM LINE IN NEW YORK

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The Eastern Broccoli project has been investigating some of the production practices that can make the crop economically attractive in New York.

*Crop budgets.* Miguel Gómez and Shadi Atallah, the economists on the project, created current crop budgets for six states, including market-leading California. The components of the costs varied a great deal, but the final production cost was remarkably close in all the production areas.

The component that varied the most, from \$1 to \$3.4, was cooling the crop. This step is essential for quality product, and high quality is essential for obtaining a profitable return. The cost is lowest when the cooling technology matches the production scale. If that is done, the economy of scale is relatively small. The most expensive technologies were those requiring large amounts of ice. Cooling with water, refrigeration and modest amounts of ice was cheaper. Ice is traditional and has low startup cost, making it a common starting technology.

We conclude that New York producers can be competitive with other regions, especially if they take advantage of their potentially low transportation cost by using efficient distribution logistics.

*Population.* New York's productive soils and temperate climate are capable of remarkable cabbage yields. We needed an estimate of what broccoli yields New York might produce if soils and management were pushed to the maximum. A common Eastern yield is 400 boxes per acre, but 600 boxes of crown cut would be more attractive.

The trial was planted on the best field at the Geneva research farm, with abundant fertilizer and water. We varied the plant population to find the optimum for those conditions. Harvest was based on crown-cut criteria (4½" to 5¼" head diameter).

The best population (31,000 plants/ac) gave 650 boxes in three cuts, and had minimal hollow stem. We found that dropping below the optimum population resulted in more hollow stem and a lower yield. Higher populations resulted in smaller heads and more unharvested plants, and therefore a lower yield.

Growers can optimize their population by using hollow stem as a sign that the field can support a higher population, and stragglers as a sign the population is too high. The actual population will depend on the inherent productivity of the field as well as the variety, fertilizer application and irrigation practices.