

Stevia Production in North Carolina

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1. What is stevia?

Stevia (*Stevia rebaundia*) is an herbaceous perennial native to Paraguay. Stevia is a rapidly emerging crop in the US as more and more companies look to find improved sugar substitutes. Stevia leaves contain glycosides up to 300 times sweeter than sugar that can be extracted for use as a nonnutritive sweetener. The United States banned use of stevia in the early 1990s unless labeled as a dietary supplement, but in 2008 the USDA approved Stevia for use as a food additive. The plant has been used in other countries for many years as an all natural, no calorie sweetener. In the US, multiple products are made with stevia extracts, including Truvia, Zevia, Sweet Leaf, and Stevia in the Raw. The US is the largest single market for high purity stevia extracts at approximately 300 metric tons of finished product annually. This was approximately 65% of the global market for high purity Stevia extracts in 2011



2) How is stevia grown?

Stevia begins as a seed, is seeded into float trays, and then grown in float bays that are also used for production of tobacco transplants. Cuttings can also be used to start plants. Plants are grown for 10-12 weeks before transplanting to the field similar to transplanting tobacco seedlings.



3) How many plants are there per acre and how do I obtain plants.

Based on research conducted to date in NC, we have steadily reduced the recommended plants per acre down from about 44,000 plants per acre to 28,000 to 32,000 plants per acre. Typical row spacing is 30", so plant spacing is about 6 to 7". A stevia crop is grown for 3 to 5 years before replanting. At present, the only source of stevia seed and transplants in NC is from Sweet Green Fields, a leading company in stevia production in the US.

4) How is stevia harvested and prepared for market?

In the year of establishment, the crop is harvested once in September (sometimes twice). After the first year, it is usually harvested twice per growing season, July and September, with a combine. The crop has to be dried after harvest, with current methods being bulk tobacco barns and peanut trailers. The dried leaf is baled for shipment to extraction facilities.



5) What is the status of stevia production in NC?

Stevia production in NC began in 2011 with a few acres in Bertie County. Acreage has increased each year since this time and will be approximately 350 to 400 acres in 2014. This acreage includes both conventional and organic production, with a rapidly expanding market for each crop. Production locations include the eastern NC counties, Bertie, Halifax, Nash, Johnston, Chatham, Harnett, Hoke, Robeson, Moore and Randolph.

6) What problems have been identified in establishing and growing stevia?

Weeds – There are currently no herbicides labeled for use on stevia, except roundup prior to emergence of established crops. We are pursuing labels for use in NC.

Diseases – To date, two stem rot diseases have been identified as potential limiting factors in production. These pathogens are well known to growers in the state as they also cause diseases of many row and vegetable crops. Germplasm of stevia is being screened for resistance to these diseases as well as other known pathogens of field crops in NC. Fungicides and biocontrols are also being investigated. Images are of seedling and late first year plants with stem rot.

Other areas of research – Best production practices include investigations into planting density, fertilization, harvesting, and drying.

