



Brian E. Whipker<sup>1</sup>  
bwhipker@ncsu.edu



Patrick Veazie<sup>1</sup>



David Suchoff<sup>2</sup>

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# Stevia:

## *Prevent premature flowering for spring bedding sales*

*Stevia is a popular alternative sweetener and is produced by greenhouse growers as a vegetative plant for garden sales similar as an herb. Stevia is photoperiodic and long day lighting must be provided to avoid premature flowering and plant stall.*

Stevia (*Stevia rebaudiana*) has gained popularity as an alternative sweetener because it contains glycosides that are up to 300 times sweeter than white sugar. In warmer climates (USDA zones 9-11), it is a perennial herb, but it will not overwinter in areas with more severe winters and in those locations it is treated like an annual. A group lead by Dr. David Shew of North Carolina State University has conducted



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Figure 1. Premature flowering of stevia occurs under long night conditions. Flowering plants do not size up adequately for spring sales. Day lengths of >14 hours will keep the plants vegetative. (Photo: Brian Whipker)

<sup>1</sup>NC State University, Dept. of Hort. Science  
bwhipker@ncsu.edu

<sup>2</sup>NC State University, Dept. of Crop and Soil Science



extensive field trials to investigate its use as an alternative crop. NC State also has a plant breeder trying to develop cultivars suitable to the hot and humid summer conditions prevalent in the Southern U.S.

Greenhouse growers have been producing stevia as an herb for spring sales as a garden transplant. It can grow from seed, but there is a wide genetic variation among plants in growth characteristics and overall glycoside concentration. To overcome possible variability, cuttings are also used for commercial plantings.

During grower visits in the spring, the plants have been observed flowering (Fig. 1). With the setting of flower buds, plant growth stalls and the plant fails to size up adequately for garden center sales (Figs. 2-4).

The reason for this plant failure is the photoperiodic nature of the plant. The critical day length is between 12 and 14 hours (Valio and Rocha, 1977; Zaidan et al., 1980). Using Charlotte, NC as the base, 12 hour days do not occur until 16 March, 13 hour days begin on 12 April, and 14 hour days are exceeded on 14 May. Therefore stevia should be treated similar to dahlias to avoid plant stall by providing long days. Supplemental lighting to extended the day length to >14 hours or night interruption lighting should be used. This will keep the plants vegetative and allow them to grow to a suitable size for spring sales and avoid premature flowering and stalled growth.

### Literature Cited

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Figure 2. Close up of flowering plant (right) and a vegetative plant (left). (Photo: Brian Whipker)



Figure 3. Uneven growth response of stevia due to premature flowering. (Photo: Brian Whipker)



Figure 4. Flowering plants of stevia. Plants will revert back to being vegetative under long day conditions of the summer. Cutting the plants back will facilitate regrowth. (Photo: Brian Whipker)

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**CONTRIBUTORS**

Dr. Nora Catlin  
Floriculture Specialist  
Cornell Cooperative Extension  
Suffolk County  
[nora\\_catlin@cornell.edu](mailto:nora_catlin@cornell.edu)

Dr. Chris Currey  
Assistant Professor of Floriculture  
Iowa State University  
[ccurrey@iastate.edu](mailto:ccurrey@iastate.edu)

Dr. Ryan Dickson  
Greenhouse Horticulture and  
Controlled-Environment Agriculture  
University of Arkansas  
[ryand@uark.edu](mailto:ryand@uark.edu)

Nick Flax  
Commercial Horticulture Educator  
Penn State Extension  
[nzf123@psu.edu](mailto:nzf123@psu.edu)

Thomas Ford  
Commercial Horticulture Educator  
Penn State Extension  
[taf2@psu.edu](mailto:taf2@psu.edu)

Dan Gilrein  
Entomology Specialist  
Cornell Cooperative Extension  
Suffolk County  
[dog1@cornell.edu](mailto:dog1@cornell.edu)

Dr. Joyce Latimer  
Floriculture Extension & Research  
Virginia Tech  
[ilatime@vt.edu](mailto:ilatime@vt.edu)

Heidi Lindberg  
Floriculture Extension Educator  
Michigan State University  
[wolleage@anr.msu.edu](mailto:wolleage@anr.msu.edu)

Dr. Roberto Lopez  
Floriculture Extension & Research  
Michigan State University  
[rlopez@msu.edu](mailto:rlopez@msu.edu)

Dr. Neil Mattson  
Greenhouse Research & Extension  
Cornell University  
[neil\\_mattson@cornell.edu](mailto:neil_mattson@cornell.edu)

Dr. W. Garrett Owen  
Floriculture Outreach Specialist  
Michigan State University  
[wgowen@msu.edu](mailto:wgowen@msu.edu)

Dr. Rosa E. Raudales  
Greenhouse Extension Specialist  
University of Connecticut  
[rosa.raudales@uconn.edu](mailto:rosa.raudales@uconn.edu)

Dr. Beth Scheckelhoff  
Extension Educator - Greenhouse Systems  
The Ohio State University  
[scheckelhoff.11@osu.edu](mailto:scheckelhoff.11@osu.edu)

Dr. Ariana Torres-Bravo  
Horticulture/ Ag. Economics  
Purdue University  
[torres2@purdue.edu](mailto:torres2@purdue.edu)

Dr. Brian Whipker  
Floriculture Extension & Research  
NC State University  
[bwhipker@ncsu.edu](mailto:bwhipker@ncsu.edu)

Dr. Jean Williams-Woodward  
Ornamental Extension Plant Pathologist  
University of Georgia  
[jwoodwar@uga.edu](mailto:jwoodwar@uga.edu)

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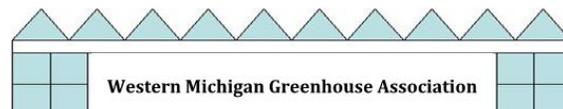
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