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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)

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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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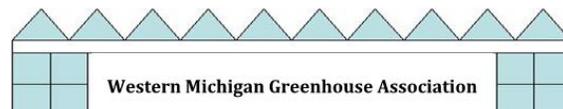
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