



By Erik Runkle



Brushing Plants for Height Control

“Brushing” plants is proving to be a promising, albeit unconventional, technique. When touched or moved, plants release ethylene, which can inhibit elongation.

The most common way to control plant height is to apply a plant growth retardant (PGR) that inhibits stem elongation. Fortunately, we have a variety of products from which to choose for use on ornamental crops. However, PGRs cannot legally be applied to crops intended to be eaten, such as herbs and vegetables.

There are several nonchemical ways to control plant height, including use of a cooler day than night temperature (a negative DIF), water deprivation (allowing plants to wilt between waterings) and nutrient deficiencies (usually limiting nitrogen and/or phosphorus). Another, less commonly used strategy is plant brushing, sometimes called plant touching or mechanical conditioning. The concept may seem strange, but research on plant brushing has been validated by growers who have implemented this strategy.

How It Works

Theoretically, plants release a small amount of the plant hormone ethylene when they are touched or

moved (by people, the wind, etc.). With repeated and frequent plant movement, plants release enough ethylene to inhibit elongation. Research has shown that plants generally respond in a quantitative manner to the number of times they are brushed: The more frequent the brushing, the more suppression of stem elongation. This suggests that brushing plants is similar to repeatedly providing a very low concentration of Florel (ethephon) to plants.

The goal with plant brushing is to make the plants bend without breaking leaves or stems or causing any other damage. A variety of objects has been used manually to brush plants, including a two-by-four piece of wood or a metal pipe. However, this takes time and can be challenging to perform on a commercial scale. A more practical strategy for commercial growers is to use a boom draped with some sort of material, and then program the boom to run back and forth. A common suggestion is to brush plants at least 10 times a day, although even more brushes could increase the response.

I have observed growers effectively use a solid sheet of plastic or plastic strips hanging down from a boom. The plastic should not be too rigid, as that may cause plant damage. In addition, the height of the plastic should be such that it makes good contact with the plants without dragging too much. I suggest that brushing occur when plants are dry (but not wilted) to reduce the possibility of the spread of pathogens and prevent the plastic from sticking to leaves.

Brushing Backed by University Studies

Many brushing studies, including those at the University of Georgia and Cornell University, have focused on tomatoes, cucumbers and other aggressive vegetable crops. Research also has shown that brushing can be effective on a wide range of bedding plants and potted plants, including chrysanthemum. If you have booms already in place, consider trying the brushing technique. Just be careful that you don't brush plants with too much force, and if possible, keep some plants unbrushed so that you can observe the response. [GPN](#)

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Figure 1.
Brushing of a tomato crop as a method to control plant height.