

## Pinch or Spray? Timing Branching in Spring Crops



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*As spring growth accelerates, early and well-timed decisions to promote branching can determine whether a crop finishes full and uniform or requires action later.*

As spring production progresses, crops enter a phase where growth is more rapid and less forgiving of delayed management decisions. Increasing light, longer days, and warmer temperatures create conditions that favor active development, allowing plant structure to be established quickly and often earlier than expected. During this period, decisions related to branching and growth control have a greater influence on final crop quality and uniformity (Fig. 1). Small delays in intervention can lead to noticeable differences in plant form across a crop. Managing plant structure early allows growers to guide development rather than react to unwanted growth later in production.



Figure 1. Example of a lantana hanging basket crop where a decision will need to be made to promote branching. Photo by: W.G. Owen, OSU.

### Why Promoting Branching Matters

During early spring, crops transition into rapid growth as light and temperature increase. Under these conditions, plants naturally prioritize upward growth through apical dominance, where auxin produced in the shoot tip suppresses lateral bud development. If left unmanaged, this results in taller plants with fewer branches and reduced fullness. Promoting branching early in the crop cycle shifts growth away from vertical stem elongation and toward lateral shoot development, improving plant structure, enhancing uniformity, and supporting overall crop quality at finish (Fig. 2). Early branching control can also reduce the need for multiple plant growth regulator (PGR) applications and limit labor required to correct uneven crops later in production.

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## Why Timing Matters

The effectiveness of any branching strategy depends heavily on timing. Early intervention allows lateral buds to develop under optimal environmental conditions, resulting in stronger and more uniform branching. Delayed action allows the apical meristem to maintain control for longer, reducing the responsiveness of lower nodes and limiting the number of viable lateral shoots (Fig. 3). After a certain stage of elongation, lower nodes become less responsive and branching potential is reduced, making plant form increasingly difficult to correct. Once elongation progresses beyond this point, even corrective measures may not fully restore plant form. Acting early during this rapid growth phase is critical to maintaining control over plant architecture.

## When Pinching Works Best

Pinching is most effective when performed before excessive elongation occurs and while lateral buds remain highly responsive (Fig. 4). By removing the shoot tip, pinching immediately disrupts apical dominance and allows lateral shoots to develop more uniformly. This approach is particularly valuable for crops where fullness, symmetry, and branching are essential for marketability. However, timing and consistency are critical. Pinching too late can delay crop timing, while uneven pinching can introduce variability that persists through finishing.

## When a PGR Makes Sense

Some PGRs (ethephon and benzyladenine) can be used to promote branching, encouraging lateral branching (Fig. 5) Under spring conditions, where growth rates are increasing, PGRs can help maintain compactness and improve overall plant form (Fig. 6). They are particularly useful when labor is limited or when large numbers of plants must be treated uniformly. However, responses are closely tied to environmental conditions, and plants are often more sensitive to PGRs under higher light and temperature. As a result, rates and timing used during winter may not translate directly to spring production and should be adjusted accordingly. Applying PGRs too late, after significant elongation has already occurred, often results in height control without improving plant fullness or branching.

## When to Use Pinching, PGRs, or Both

In many production systems, the most effective



Figure 2. Verbena sprayed with ethephon to promote branching early in the crop cycle. Photo by: W.G. Owen, OSU.



Figure 3. Delayed pinching in petunia which limited the number of viable lateral shoots. Photo by: W.G. Owen, OSU.

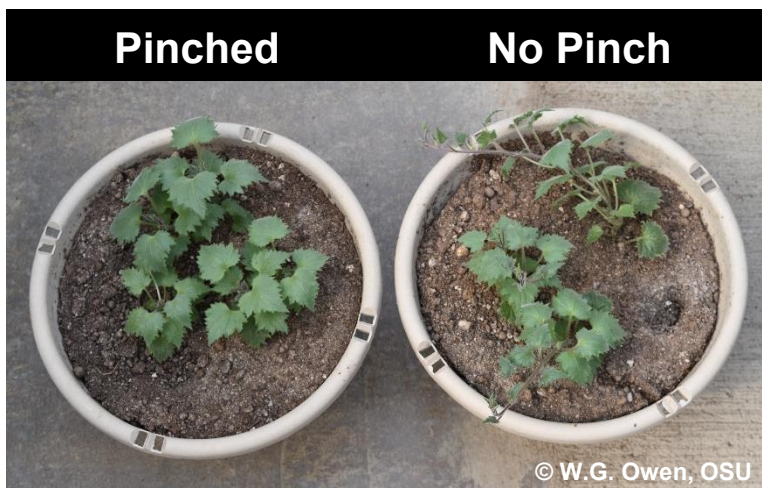


Figure 4. Example of a Lophospermum hanging basket crop where young plants were pinched (left) or received no pinch (right). Plants that were pinched exhibited more lateral shoot development, giving the hanging baskets a fuller appearance. Photo by: W.G. Owen, OSU.

approach is not choosing between pinching and PGRs, but integrating both strategies. An early pinch can establish plant structure by promoting uniform branching, while subsequent PGR applications can be used to control elongation and refine plant form (Fig. 7). This combined approach allows growers to guide plant development proactively rather than relying on corrective measures after undesirable growth has occurred. The appropriate strategy will depend on crop type, production goals, and available labor.

### The Environment Affects the Outcome

Spring environmental conditions strongly influence how crops respond to both pinching and PGR applications. Increased daily light integral enhances the potential for lateral branching following a pinch, while warmer temperatures accelerate regrowth. At the same time, these conditions can increase plant sensitivity to PGRs, meaning that applications may have stronger or longer-lasting effects than expected. Environmental variability across the greenhouse can also lead to differences in response within the same crop. Monitoring conditions and adjusting practices accordingly is essential for maintaining uniform results.

### Common Mistakes to Avoid

Many challenges associated with branching and plant structure arise from delayed intervention or misalignment between management practices and environmental conditions. Waiting too long to pinch or apply PGRs often results in excessive elongation that is difficult to correct. Applying PGRs based on winter rates without accounting for increased light and temperature can lead to overregulation. Inconsistent pinching or uneven application can also introduce variability that persists through finishing. Recognizing these common pitfalls helps improve consistency and reduces the need for corrective actions later in production.

### What Growers Should Remember

Promoting branching early is essential for producing full, uniform crops in spring. Whether using pinching, PGRs, or a combination of both, success depends on acting before elongation becomes difficult to control. Aligning timing with environmental conditions allows growers to manage plant structure proactively, improve crop uniformity, and reduce reliance on corrective inputs later in production.

#### No PGR



#### Ethephon



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Figure 5. Benzyladenine and ethephon are plant growth regulators that can help promote branching. The petunia plants on the left were not treated while plants on the right received a 500 ppm ethephon foliar spray. Photo by: W.G. Owen, OSU.

#### No PGR



#### Paclobutrazol



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Figure 6. Plant growth regulators can help control and maintain plant compactness and improve overall plant as exhibited in the petunia. Plants on the left were not treated while plants on the right received a 4 ppm paclobutrazol foliar spray. Photo by: W.G. Owen, OSU.



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Figure 7. Example of a petunia hanging basket crop where plants were pinched early in the crop cycle and ethephon foliar sprays were applied to promote branching, control growth, and abort premature flowering. Photo by: W.G. Owen, OSU.

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