

Space Spring Crops Before Stretch Starts

As spring light and temperature increase, crop growth can shift from uniform to uneven quickly, and spacing decisions made too late often lead to reduced aesthetic quality and increased inputs.

With spring underway and many operations continuing to transplant plugs and liners, production conditions can quickly change across the greenhouse. Increasing light, longer days, and warmer temperatures shift crops into a more active growth phase, where small management decisions can have larger and more immediate effects on plant development. During this transition, maintaining crop uniformity becomes more challenging, particularly as plants respond differently depending on location, vigor, and timing of cultural practices. Plant spacing is one of the earliest and most important decisions influencing how uniformly a crop develops through the remainder of production. Taking a proactive approach during this period helps prevent issues that are difficult to correct later.



Figure 1. Example of a geranium crop spaced pot tight and the leaves are beginning to touch between pots. Photo by: W.G. Owen, OSU.



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Why Plant Spacing Matters

As greenhouse production transitions into spring, increasing daily light integral (DLI) and temperature accelerate plant growth and canopy expansion. Crops that appeared properly spaced just days earlier can quickly begin competing for light as plants grow and leaves expand (Fig. 1). This rapid shift in growth means that spacing is no longer a static decision but a dynamic management tool that must keep pace with environmental conditions. When spacing or re-spacing is delayed, reduced light within the canopy shifts plant growth from branching to stem elongation, often before growers recognize visible crowding.



Figure 2. Nemesia hanging baskets where plants are competing for light and space. Photo by: W.G. Owen, OSU.



Figure 3. Leucanthemum crop exhibiting stem elongation because the crops were spaced pot tight too long causing competition. Photo by: W.G. Owen, OSU.



Figure 4. Dense canopies restrict airflow, increasing humidity and the potential for foliar disease infection. Photo by: W.G. Owen, OSU.



Figure 5. Lower leaf yellowing in celosia caused by low light conditions due to tight crop spacing. Photo by: W.G. Owen, OSU.

The Crop Feels Tight Before It Looks Tight

One of the most important concepts during floriculture production is that plant competition begins before plants physically touch (Fig. 2). As leaves expand and begin to overlap, even slightly, lower portions of the canopy receive less light. In response, plant growth shifts toward stem elongation (Fig. 3). This change is subtle at first and often goes unnoticed until differences in height and fullness become obvious. By the time plants appear crowded, they have already been responding to competition for several days.

Why Delayed Spacing Creates Uneven Crops

When crops remain spaced too tight, plant-to-plant competition leads to uneven growth across the greenhouse bench or bay. More vigorous plants intercept more light and continue to grow more rapidly, while less competitive plants fall behind. At the same time, lower leaf retention declines due to shading, reducing overall photosynthetic capacity. Dense canopies also restrict airflow, increasing humidity and the potential for foliar disease (Fig. 4). These combined effects result in crops that are less uniform, more difficult to manage, and often require additional inputs to maintain or correct before finishing.



Figure 6. Lower leaf yellowing (chlorosis) and drop (necrosis) in lily caused by low light and close crop spacing (left) compared to a properly spaced crop (right). Photo by: W.G. Owen, OSU.



Figure 7. Example of a geranium crop that was proactively spaced to maximize light interception and produce high-quality plants. Photo by: W.G. Owen, OSU.



Figure 8. Example of a greenhouse spacing plan. Photo by: W.G. Owen, OSU.

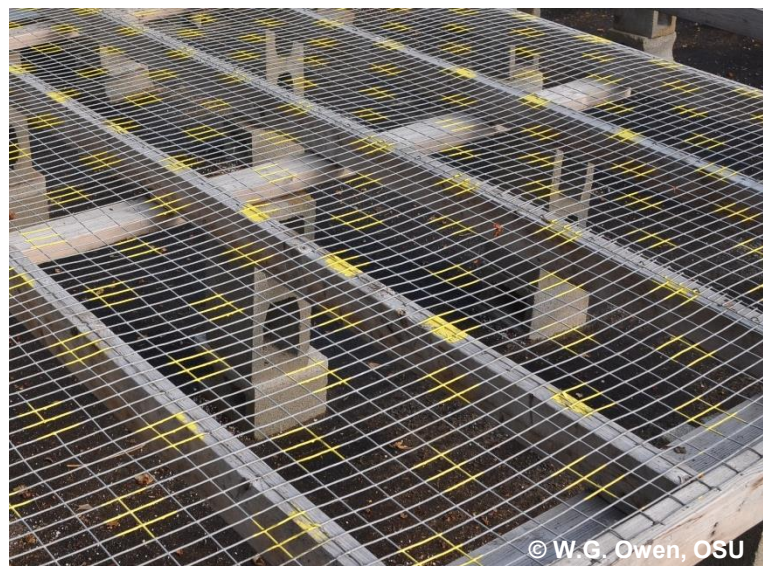


Figure 9. Example of a greenhouse bench with spray paint dots to denote plant spacing. Photo by: W.G. Owen, OSU.

Early Signs You Need More Space

Spacing decisions should be based on early indicators rather than waiting for visible crowding. Subtle leaf overlap between adjacent containers is often the first sign that plants are beginning to compete. Reduced light reaching the substrate surface and slight variability in plant size across a bench or bay are also important signs. In addition, changes in irrigation behavior, such as slower dry-down, can indicate reduced airflow and increasing canopy density. Lower leaf yellowing (chlorosis; (Fig. 5) or drop (death; (Fig. 6) due to shading can also signal that the canopy is becoming too dense. Recognizing these signs early allows growers to act before crop quality is affected.

Practical Spacing Tips for Spring

Successful spacing in spring requires a proactive approach (Fig. 7). Growers can create plant spacing plans (Fig. 8) or spray paint dots on greenhouse benches (Fig. 9) or across bay floors (Fig. 10) for efficient spacing. Crops should be spaced earlier than visual cues might suggest, particularly during periods of increasing light and temperature. Staging spacing events can help maintain uniform canopy development rather than waiting



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Figure 10. Example of a greenhouse floor with spray paint dots to denote plant spacing. Photo by: W.G. Owen, OSU.



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Figure 11. A perennial crop inadequately spaced showing stem elongation, leaf drop, and variability at shipping. Photo by: W.G. Owen, OSU.

for a single large adjustment. High-vigor crops should be prioritized, as they respond most quickly to improved growing conditions. Environmental conditions should guide decisions, with higher light and warmer temperatures requiring more aggressive spacing to maintain control over plant growth. While labor availability can influence timing, delaying spacing often increases total labor and inputs later in production.

Why Early Spacing Saves Time and Trouble

Although delaying spacing may appear to save labor in the short term, it often increases total production costs. Crops that become uneven or stretched frequently require additional plant growth regulator (PGR) applications, increased labor for sorting and grading at shipping (Fig. 11), and may have reduced aesthetic value or marketability. Variability within a crop also complicates scheduling and shipping during peak spring sales. Addressing spacing early reduces the need for corrective actions and improves overall production efficiency.

What Growers Should Remember

Spacing is one of the most effective cultural tools for managing plant growth, improving air movement, and maintaining crop uniformity during spring production. Waiting too long to space allows plants to compete for light, encourages stretch, and increases the likelihood of uneven growth across the crop. Early spacing helps maintain plant structure, supports more uniform development, and reduces the need for corrective inputs later. In short, spacing crops before stretch starts can improve both crop quality and production efficiency.

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