



Hanging Baskets

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Introduction

Numerous tropical and annual bedding plants can be grown successfully in hanging baskets. Hanging basket production enables greenhouse growers to generate income by utilizing space above production benches or floor space and walkways. Hanging baskets can fetch a higher price (on a per plant basis) than small containers or flats and can, therefore, enhance the profitability of greenhouse bedding plant operations. In some instances, growers may devote whole or sections of greenhouses to hanging basket production.

Marketing

Potential retail markets include farmers markets and direct sales from the greenhouse or farm. Wholesale markets include local garden centers, landscape contractors, discount, grocery, or farm supply stores, and roadside direct-to-consumer farm stands. Hanging baskets are also frequently available at Kentucky's produce auctions.

Market Outlook

The value of hanging baskets sold by horticultural producers increased from \$370 million in 2009 to nearly \$430 million in 2014, according to USDA. Hanging baskets have grown in popularity with consumers, translating into an important category for plant retailers. Nationally, hanging basket sales have accounted for 10% to 15% of total retail garden center sales. Hanging baskets continue to be a discretionary consumer expense, with more potential likely for increasing category sales to consumers in upper income demographics. From 2013 forward, consumers showed some preference for larger hanging baskets incorporating diverse



plants in unique containers.

Petunia and geranium lead hanging basket sales, by value. The next most valuable single plant species in hanging baskets are begonia, calibrachoa and New Guinea impatiens, according to the 2014 Census of Horticultural Specialties. Producer sales value of hanging baskets with petunias, begonias and calibrachoa increased between 2007 and 2014, while the sales value of geraniums and impatiens remained about the same.

Production Considerations

Plant selection

The number of seedlings or rooted cuttings transplanted to a hanging basket depends on the container size, the plant species and cultivar selected, plant vigor, as well as plant quality (branching habit or trailing) and cost. The amount of production time available can also be a factor. Plant vigor and height need to be coordinated so



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that plants grow together well. Each container can be planted to one species (monoculture) or multiple species (mixed). It is important that all plant material in a single container have similar cultural requirements for light, temperature, nutritional, and watering needs. Flower colors in mixed baskets should complement not clash with each other. For growers beginning mixed species hanging basket production, there are many online resources available offering basket ‘recipes’ that have been tested and demonstrated to work well. An artfully arranged mixed hanging basket is highly marketable and can bring a premium price, especially at independent retailers.



Commonly grown hanging plants include ferns (various genera), fuchsia (*Fuchsia* spp.), impatiens (*Impatiens* spp.), New Guinea impatiens (*Impatiens hawkerii*), geranium (*Pelargonium* spp.), petunia (*Petunia x hybrida*), verbena (*Verbena* spp.), bacopa (*Sutera* spp.), lantana (*Lantana* spp.), and many more. Plants should be selected for the available market but also for their compatibility to a defined greenhouse environment. Detailed production information for most of these crops can be found in the Ball Redbook referenced below.

Site selection and planting

A heated greenhouse structure is necessary for producing hanging baskets for the important spring market. Unheated greenhouses or cold frames can be utilized for spring hanging basket production but flowering of cold-tolerant bedding plant species will be delayed. Cold sensitive species should not be grown in unheated structures.

Plants are propagated from seeds or cuttings and can either be grower-grown or purchased. Growers who purchase transplants, rather than starting them in-house, are referred to as “finishers,” an option many small to medium growers choose. Growers who purchase rooted cuttings or plugs may still opt to produce some of the more easily grown crops from seeds or cuttings. Selecting the right size of plug can be vital to profitability. Growers should compare the cost of heating the greenhouse early in colder spring months versus buying larger plugs later in the spring. The USDA has developed free software to allow growers

to predict greenhouse heating costs and crop growth at various temperatures. The software is called ‘Virtual Grower’ and can be downloaded from the USDA website (refer to Selected Resources at the end of this profile).

Many soilless mixes have proved successful for growing quality hanging plants. The choice of mix can depend on a number of factors, including grower preference, cost and type of irrigation. There are many commercially formulated mixes available that are recommended specifically for hanging basket production. Some growers, usually the larger established ones, choose to create their own custom mixes on-site. However, this requires expensive, specialized equipment.

The number of cuttings or seedlings planted in a basket can vary from one to eight, depending on hanging basket size, plant quality, growth rate and cost. Many growers choose to use green or white 10- to 12-inch plastic containers with either wire or plastic hangers. Wire baskets lined with peat moss or coir (coconut fiber) are valued by some consumers. Other basket types, such as wicker, galvanized metal, or specialty containers such as watering cans are sold at a premium price point.

A drip irrigation system is the most efficient means for water and nutrient delivery; however, it is essential to control the duration of each irrigation so that little to no leaching or dripping from the baskets affects plants below grown on benches or the floor. Some plants

grown on benches are not compatible with hanging baskets grown above. In some situations, is it best to grow hanging baskets directly on a bench or floor.

Depending on the species and variety of plants produced, additional inputs such as pinching, dead-heading or plant growth regulator applications may be necessary. Plant growth regulator applications are useful tools to control plant growth, manipulate architecture (promote branching), or abort or delay flowering.

Timing production properly to have a wide assortment of species ready when the market demands is critical to profitability. The USDA 'Virtual Grower' software can also assist in developing production schedules based on grower location and greenhouse temperatures.

Pest management

Greenhouse conditions that favor plant growth also favor the rapid build-up and spread of insects and diseases. Potential disease problems include damping-off, root rots, powdery mildew, fungal leaf spots and impatiens necrotic spot virus. Thrips, aphids, mites, fungus gnats, shore flies and whiteflies are common insect pests. Caterpillars can also be a problem in greenhouses with open sides. Prevention and careful monitoring are the keys to insect and disease control. Growers should scout for pests at least twice per week to identify infestations before they reach critical levels. Yellow or blue sticky cards are beneficial to identifying pests and populations. A number of greenhouse pests have developed pesticide resistance, so multiple applications of chemicals with different modes of action may be necessary to control many of these problems. Always follow the label instructions for chemical rotation.

Weed control under benches and around the greenhouse will also help reduce insect pests and disease problems; however, herbicides must never be applied in greenhouses when crops are present. Allowing the greenhouse to freeze in the winter will help prevent pests from overwintering. Growers must remember to drain all water lines in the fall to avoid damage to plumbing components. Furthermore, practicing and implementing good sanitation practices will help mitigate pest and disease infestations.

Post-production

Consumers demand uniformly flowering plants that are cascading over the rim of the basket. The foliage

should be dense enough that no potting soil is visible. Proper post-production care is essential to maintaining a quality product up until purchase. Plants ready for sale should be kept cool and shaded from direct sun to extend their shelf life. Ideally, plants should be sold within three to five days after removal from the greenhouse.

Economic Considerations

Producing hanging baskets can be a highly profitable venture; however, it is a high-risk business with significant start-up costs as well as demanding labor and management. Initial investments include greenhouse construction, production system costs, and equipment.

Hanging basket production can be a way to utilize overhead space in the greenhouse and add more value of production per square foot. The greatest expenditures for hanging basket production (aside from greenhouse construction) are usually the cuttings/seedlings and the hanging basket containers. Labor costs usually range from three to five minutes per basket. Some smaller growers maximize their sheltered growing resources by moving hanging baskets from a greenhouse to a high tunnel or other protected shelter as plants mature and outside temperatures become more favorable.

The price of a production-ready greenhouse, excluding land costs, can run from the \$5 per square foot range for a Quonset-style poly house to over \$20 per square foot for glass panel houses. Production costs and returns vary greatly depending on crops grown, greenhouse size, production system and marketing strategy. Producers should develop production cost estimates specific to their situation. Useful sample budgets are available from Rutgers (referenced below).

Selected Resources

In print

- Ball RedBook: Crop Production, Volume 2. Jim Nau, editor. 2011 (18th ed.). Ball Publishing, Inc.: West Chicago, IL. 800 pp. <http://www.ballpublishing.com/BallRedBook>

On the web

- The Greenhouse Business in Kentucky – A Review of Crops and How to Begin a Business (University of Kentucky, 2002) <http://www.uky.edu/hort/sites/www.uky.edu/hort/files/documents/greenhousesinkentucky.pdf>

- Managing Greenhouse and High Tunnel Environments to Reduce Plant Diseases, PPFS-GH-01 (University of Kentucky, 2016) <http://plantpathology.ca.uky.edu/files/ppfs-gh-01.pdf>
- Selected Resources and References for Commercial Greenhouse Operators (University of Kentucky) <http://www.uky.edu/hort/sites/www.uky.edu/hort/files/documents/greenhoureferences.pdf>
- North Carolina State University Floricultural Science <https://horticulture.ces.ncsu.edu/horticulture-ornamentals/floriculture/>
- Controlled Environment Agriculture (CEA) Lab Extension Bulletins (Purdue University) <https://www.purdue.edu/hla/sites/cea/home/extension/extension-publications/>
- Greenhouse Production of Flowering Hanging Baskets, ANR-1147 (Alabama Cooperative Extension, 2007) <https://store.aces.edu/ItemDetail.aspx?ProductID=13550>
- Hanging Baskets (Texas A&M) <http://aggie-horticulture.tamu.edu/floriculture/hanging-basket/growing/index.html>
- Integrated Pest Management for Greenhouse Crops (ATTRA, 1999) <https://attra.ncat.org/attra-pub/summaries/summary.php?pub=48>
- Interactive Greenhouse Crop Budget with Five Crops (Rutgers University, 2008) <http://farmmgmt.rutgers.edu/green-house/greenhouse-index.html>
- Virtual Grower 3 (USDA-Agricultural Research Service, 2011) <http://www.ars.usda.gov/Research/docs.htm?docid=22087>

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