Ultra-Niche Crops Series: Mixed Cut Flowers for Small Farms

Fact Sheet FS1275







Cooperative Extension

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Ultra-Niche Crops are defined as exceptionally high-value crops that can provide a significant source of income to the farmer while using minimal land area. Not only are cut flowers one of the most profitable field crops you can grow, but their bright colors and showy blooms can attract customers to your farm or stand.

Marketing

Who will buy the crop?

Retail: For small acreage (1/4- to 1/2-acre) production of cut flowers, direct retail outlets may include: community farmers markets, CSAs (Community Supported Agriculture), your own farm stand, and PYO (Pick-Your-Own). Many times customers will see a field of flowers and request to PYO. Cut flowers will sell in high volume anywhere that local produce is sought out by customers, such as urban or suburban areas with a high concentration of "locavores"—individuals who purchase primarily locally grown or produced food. Chose the crop that blooms when your business is open! As an example, tulips and daffodils are attractive and may serve as great advertising, but will not bring any financial return unless the market is open in early spring.

Wholesale: For larger acreage production, cut flowers may be sold wholesale. Tips from a wholesale buyer are given in the video on cut flowers on the Ultra-Niche Crops website: njaes.rutgers.edu/ultra-niche-crops.

How suitable is this crop for agritourism? Agritourism visitors will find fresh-cut flowers very appealing if they are grown, priced, displayed, and handled properly. PYO customers should be educated on how to properly harvest flowers without damaging plants. One way to avoid customers damaging your plants is to keep a separate PYO cut flower field away from others that you will harvest yourself for sale. In the PYO area, beds should be a maximum of 3' wide x 25' long to provide for easy reach by customers. Walkways should be grassed and mowed. Customers should be given clean, water-filled buckets and harvesting tools. Any PYO area, if established, should be located within easy walking distance from the market, or field cash-register, since the buckets will be heavy. Hand-drawn wagons to hold the buckets may also enhance the customer experience.

To bunch or not to bunch? Creating a mixed bunch of flowers adds value to the product. Finishing touches, such as wrapping them in a sleeve with a farm logo sticker and packet of floral preservative, can dramatically increase sales volume, versus offering a bunch of the same type of flower or single stems. Determine whether your target market would prefer clear, plastic sleeves which reveal more of the bouquet, or paper ones which are more environmentally sustainable. A mixed bunch is more appealing to the eye and often well worth the labor cost if done efficiently and correctly.

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What are cut flower customers looking for? Most consumer purchases are emotional rather than logical decisions. As a result, customers want to feel a certain way about their flower purchase. They are not only purchasing the crop but they are purchasing the experience of choosing and buying for their own enjoyment or giving the product as a gift. Another way to increase perceived value is to create large, full displays. Give the customer the experience they are looking for, which should include a high level of customer service, attractive presentation, and appropriate pricing for the value of both the product and experience that they are purchasing.

How well does this crop withstand shipping? Cut flowers are extremely susceptible to many types of damage including crushing, breaking, wilting, drying out (desiccation), and bacterial contamination of the water they are in. Shipping will characteristically lead to product "shrinkage," or loss of inventory, even when handled properly. Optimal packaging and shipping practices will depend mostly on 1) the wholesale customer's preference; 2) the fragility of the crop and, 3) shipping cost. If the crop is leafy, it will likely not withstand desiccation or dry shipping well. It may be best to ship it standing in water. If the crop has sturdy stems and can withstand dry shipping and wet shipping would be too costly, it may be shipped in boxes with ice. For direct-to-retail sales, our recommendation is to ship the crop in water buckets and a refrigerated vehicle.

What packaging should be used? This varies by crop. There are no requirements, but the crop must be protected from heat, light, bacteria, and crushing. Safeguards to prevent shrinkage such as adequate refrigeration, proper hydration, and protective containers should be used in order to protect the profit margin. Each species has specific post-harvest requirements. More detail can be found in the fact sheet referenced below on postharvest handling.

Which varieties and species should be grown? Even experienced growers may spend a lot of time asking themselves this question before ordering seed or stock. It is important to continue to participate in professional development opportunities in order to know what is available and what the trends are. No other industry has a wider diversity of species and varieties emerging every year, than the ornamental industry. Common species grown for cut flower production in the northeast can be found on Penn State's Ag Alternatives Cut Flower webpage (the link is below in the References section).

There is no such thing as a perfect crop or variety. So just choose the best options after first considering these factors:

- What is your target market looking for? More information on how to do this can be found for multiple types of crops in the presentation "Identifying and Reaching Your Target Market" which is referenced below.
- What are their local, cultural preferences for different types of flowers and colors?
- Competition – avoid selling what everyone else is selling or at least have something that you specialize in. Steer clear of anything that is imported cheaper than you can grow it.
- Income potential – some species bring a high price, but at a high cost. How much will you really be making in net profit?
- Growing methods – choose species that are well-suited to your farm's soil, light, and climate conditions.
- Choose disease-resistant varieties whenever available. Blemishes will make the crop unmarketable; disease will also reduce crop vase-life.
- Pollenless varieties help keep the product clean, especially after it arrives at the consumers' location and continues to bloom. Shedding pollen will cause the flowers to look dirty and make a mess when the customer displays the bouquet.
- Be sure to always have one of your products at home or in the shop to see how long they last, and if there are any pest problems after a week to ten days that you should be aware of.
- Sterile varieties may not produce seed, which prolongs the life of the flower. A flower's only biological function is to produce seed and as soon as a seed begins to form, the flower will begin to decline. Some sterile varieties are incapable of producing seed so may have a longer vase-life.
- Harvesting techniques – cut flowers are labor intensive. Is this a crop that you will physically be able to harvest every day for 6–8 weeks?
- Longer flowering period – prepping land takes time and money; make your land work for you by planting species and varieties that will produce early, and over an extended period of time.
- High tunnels can extend the season and some flowers are worth the extra cost.

Annuals vs. Perennials

Annuals: From a business management perspective, beginner farmers should start by planting annuals. If there is a crop failure, you can always start over the next year using the new information you have learned. Perennials cost more to install. A poor management year can affect the crop quality or plant survival in subsequent years, particularly with woody crops, leading to greater financial loss. Perennial crops often take a year or so to grow mature enough to produce enough flowers for

harvest, while an annual crop will flower the first year. It is always easy to grow the same annuals, and just as easy to add new annuals for variety each new year while a perennial crop will be in the ground for at least 3–5 years. Keep in mind that once a perennial crop is planted, you are stuck with the variety, and the expense. Variety selection of perennials has larger long-term impact on the business.

Purchase varieties that are designed for cut flower production, not for garden or landscape purposes. Cut flower varieties are developed for flower shape and quality, with long and straight stems, whereas landscape varieties are often developed to be compact and slow growing.

Different species do better with different seed-starting systems. Determine whether it would be more beneficial to direct-seed into the soil after frost, or if transplants would help increase your profit margin. This may depend on your current facilities and access to capital. Factors to consider include species selection, access to greenhouse or high tunnels, propagation mats, and the cost of seed versus transplants. Always purchase clean and certified stock. Do not save seed or get some from a friend. The impact on a new farm could be disastrous.

Perennials: These crops are useful for more experienced growers because once a market is established, the crop will continue to produce year after year with less economic input than annuals. The high initial investment and high risk factor make perennials a good choice from a business management perspective for growers who are better able to fund the initial investment costs, own their land, and have experience maintaining perennial plants over an extended period of time.

Of all of these factors, the most important one is to first identify what the customer is looking for, then grow a crop that matches their wants. Before choosing any crop, first research which market niche you can fill. Explore all opportunities such as local shops, restaurants, retail businesses, and agritourism opportunities. Also, keep current with the magazines that highlight cut flowers or decorating, and many of the TV shows. You may not be a fan of the actor, but they may be introducing new varieties that your customers will hear about and will want you to grow!

Crop Requirements

Soil: pH typically around 6.2; should be fertile and well drained.

Water: About one inch per week.

Light: Cut flowers require full sun exposure.

Is frost damage a common threat? Definitely, avoid locations with early or late frosts.

Site considerations:

- Low wind—location must have a windbreak.
- Access to irrigation.
- Low potential for wildlife damage.
- No perennial weeds.
- Next to the farm market if applicable—will attract people to come in to the market.

Growing the Crop

How is this crop typically planted? Direct seeding into the soil is suitable for some crops, but transplants are better for others, requiring a longer growing season or to get an earlier harvest to enhance sales and price. Perennial crops may be purchased as nursery stock or bulbs, corms, or rhizomes. Each species will have different requirements.

How is the field prepared for planting? After amending the soil based on the results of a soil test, cultivate

Farmer's Tool Box

Essential Equipment/Supplies

- ❒ Soil cultivator/rototiller if no tractor is available
- ❒ Planting tools
- ❒ Refrigeration if not PYO
- ❒ Hand hoes for weed control between beds
- ❒ Clean 5-gallon harvest buckets
- ❒ Cooler buckets or display buckets
- ❒ Black plastic mulch
- ❒ Trickle tape/Drip tape and Lay flat
- ❒ Irrigation filtration system
- ❒ Sprayer (type depends on number of acres grown) for pesticide use
- ❒ Floral preservative
- ❒ Scissors for paper/bows
- ❒ Hand pruners
- ❒ Floral knife
- ❒ Flower bands
- ❒ Signage to ID the flowers, possibly give cutting tips if PYO

Optional Items

- ❒ Tractor (30–50 horsepower)
- ❒ Bed maker
- ❒ Plastic layer
- ❒ Transplanter
- ❒ Row cover
- ❒ Greenhouse to start transplants
- ❒ Flower stakes, netting, trellising
- ❒ Floral wrap
- ❒ Hydration solution
- ❒ Van
- ❒ Wildlife exclusion fencing

the soil at least 6–8 inches deep. Disc or break any remaining clods before preparing the beds according to the necessary walkway and drive-row widths. A pre-emergent herbicide application is optimal to repress and prevent weed seed germination. This will buy some time for the transplants to grow and establish ahead of the weeds. Be sure to use only herbicides labeled for this purpose and crop[1]. The addition of compost or a green manure will improve most soils.

What is the optimal number of plants/acre? Spacing has many variables: seed producer recommendations, severity of weed pressure, plant size at maturity, number of years between replanting, disease sensitivity, typical humidity of the region, method of harvest, staking practices, and farm equipment size. All of these factors should be taken into consideration when determining optimal spacing. What may work for one grower, may not work for another.

What is the general care and maintenance of the crop during the growing season? Careful hand-weeding, dead-heading or removal of un-harvested flowers, fertilizing, and pest prevention and control. There is a limited number of crop protection materials labeled for cut flowers, therefore, it is necessary to look for disease or insect pests and act quickly to reduce the chance of spread. Organic practices can be used in the production of cut flowers. There is a market for organically produced cut flowers! Exclusion methods can be an effective way to reduce flower and foliar damage from aphids, Japanese beetles, and other insects. Floating row covers made of spun polypropylene can protect the floral crop from insect pests. Keep in mind that the row cover will restrict airflow and create an environment conducive to foliar diseases such as mildews and molds.

What is the general care and maintenance of the crop during the dormant season? For some sensitive biennials or perennials, removing the rhizomes or bulbs and housing them in a protected area for the winter may be necessary. Other times, protecting the plants from winter desiccation with windbreaks, mulches, or covers may be required.

Harvest and Post-Harvest

How is harvesting performed? By hand with sharp tools and clean buckets of clean water. Plants should be cut and placed in water immediately. The water should cover the stems as high as possible, without covering the flowers.

When are cut flowers harvested? Knowing the optimal harvest stage is critical in cut flower production. Each species will have its own optimal stage, and buyers may also have specific stages they require the crop to be harvested in. See the Kansas State post-harvest fact sheet cited below for more information.

What are the post-harvest and cooling requirements? Field-heat (residual heat on the crop due to field conditions at harvest) should be removed immediately and crop should be placed in a temporary hydration solution (available from commercial florist supply businesses) or at least clean water with flower preservative and placed in the shade. The optimal water temperature is dependent on the species. More on post-harvest treatment can be found in the detailed fact sheet listed below.

How must the cold chain be maintained during storage and transportation of the product? The cold chain should be maintained as consistently as possible to prevent quick and early expiration.

Why do the leaves need to be stripped off the crop for direct retail? Leaves left on the crop after harvest will cause the crop to decline much faster. The stem is still alive and the leaves are still undergoing photosynthesis. When this happens, the leaves release the water in the stem, but the stem no longer has roots connected to it in order to replace the water being lost. Therefore, the stem and flower will dry out more quickly. Removing the leaves will limit transpiration or evaporative loss from the stem, thereby prolonging the life of the flower. It is better to grow or purchase green leafy material such as leather leaf fern or something similar to supplement the bouquets. Leaves should also be removed before placing them into the clean water. If the leaves are left on, they will be underwater and will begin to break down. Bacteria will build in the water very quickly, even if preservative is used.

Why is floral preservative important to use? Floral preservative does three important things for the crop:

1. It lowers the pH of the water to between 3.5–5.0. This inhibits bacterial growth and reduces the threat of infection by post-harvest diseases.
2. It has anti-microbial properties that will kill any bacteria or fungi that are on the stems.
3. It supplies food or carbohydrates to the stem since the stem no longer has roots or leaves to help generate its own food. The crop quality will never increase after cutting, and the only solution is to preserve flower quality as long as possible with a commercially available floral preservative.

The authors of this fact sheet do not recommend the use of non-commercial or homemade floral preservative.

Organic Considerations

Can cut flowers be grown organically? This crop may be grown using organic practices in New Jersey. Sourcing certified organic seed however, may prove challenging, but sources are becoming increasingly available. The grower of organic cut flowers should be prepared for major crop losses in the advent of severe insect or disease

infestation in which there are no acceptable controls available. Overall flower quality may suffer post-harvest if floral preservative is not used. The use of traditional floral preservatives is not approved for organic use, but there are OMRI-approved methods on the market. If you are organically certified or transitioning to organic check with your certifier before using any preservative. Organic cut flowers should be considered if the price earned for organic cut flowers would provide a significant profit margin.

Critical Considerations

1. **Cut flowers are extremely delicate:** Appearance and quality are everything for this crop. Cut flowers are susceptible to many types of damage, including crushing, breaking, wilting, drying-out, and bacterial contamination, if not handled correctly.
2. **Weed control:** Unlike most other crops there are very limited weed control options available for cut flowers because many of the species are closely related to weeds and the fields will have many mixed species in a small area. Staying ahead of the weeds with timely hand-weeding and proper mulching or use of plastic is important. Weeds also harbor pests and diseases which can impact the marketability of the crop.
3. **Labor:** Growing cut flowers is extremely labor-intensive. Other than field preparation, most all of the work is performed by hand. This makes it a good crop for a beginning farmer who does not yet have a lot of land or equipment. But enough labor for tending, weeding, and harvesting must be available for the amount of land planted in cut flowers. Any field worker in cut flowers must first be educated on proper handling and storage, optimal harvesting stages, and methods and species identification during weeding.

Additional Information

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Footnote

1. In New Jersey all pesticide applicators on farms must have a valid pesticide license, even to apply non-restricted pesticides. To obtain a NJ pesticide applicators license go to: www.nj.gov/dep/enforcement/pcp/bpo-appcom.htm or call the NJ Department of Environmental Protection's Pesticide Control Program at 609-984-6507.

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For more information, please visit our website: njaes.rutgers.edu/ultra-niche-crops.

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USDA United States Department of Agriculture National Institute of Food and Agriculture

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