



American Floral Endowment:

Laser-Focused On The Floriculture Industry's Research Needs

The floriculture industry faces complex issues that research funded by the American Floral Endowment helps address. See what the current research is telling us about pest management, postharvest handling and more.

by **TERRIL A. NELL**

WITH challenges ranging from pest control to sustainability and social marketing, the American Floral Endowment (AFE) deliberately directs research funds to scientists who are most capable of producing answers for the floriculture industry.

The floriculture industry faces complex issues today that seem unrelated to day-to-day flower production and sales — availability of water and disposal of waste water, environmental sustainability, marketing and increased public interest in organic and low-level pesticide plants. And the need to continually replenish the supply of qualified and trained young people in the floriculture industry cannot be overlooked.



Terril A. Nell

Worldwide production of fresh cut flowers has become a reality, bringing with it the need for improved

shipping and handling procedures and technology to reduce postharvest insect and disease problems. Bedding and potted plant growers, along with plant breeders, seek new and exciting plants for homes, landscapes and offices. The desire to increase flower and plant sales continues, with much of the discussion revolving around how to engage GenX and millennials in flower buying and gardening. Internet and mass-market sales have gained a larger share of the market.

Research projects on many of these topics are currently being funded by the American Floral Endowment. AFE is an industry-supported endowment that supports research at universities throughout the U.S. The AFE Board is committed to focusing



Marigold guardian plant system in a greenhouse.

Thrips are lured to marigold plants and killed by a fungus on the plant.

research where it is most needed by growers, wholesalers, shippers and retailers. Research benefits everyone in the industry.

Latest Findings

Pest Management. Projects have been funded to test the effectiveness of banker plants, biocontrols and pesticides for control of aphids, thrips, downy mildew and powdery mildew on roses, gerbera daisy, coleus and verbena. In the past, use of beneficial insects required repeated releases of insects over time — a costly practice for growers. Now, one banker plant system



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uses flowering marigold plants with predatory mites released on the flowers and foliage; a millet-based granular formulation of an insect-killing fungus, which is mixed into the surface of the potting mix; and a thrips pheromone lure attached to a wire stake. This system is based on the concept that adult thrips are attracted out of the crop to the flowering marigolds, where they will reproduce.

As University of Vermont researcher, Margaret Skinner, says “This is a low cost, easy to use, non-chemical pesticide system that suppresses thrips populations through a holistic ‘ASK’ approach: attract, sustain and kill.”

Postharvest Handling. Care and handling guidelines and shipping techniques have and are continually being refined, and postharvest disorders of some crops, such as gerbera, have been studied. Gerbera stem bending is a postharvest nightmare for wholesalers and retailers. The stem bends about 3 to 4 inches below the flower, and may break. Hydrating the stems in a specialized container where the stems do not touch the bottom of the container eliminated stem bending. Other projects involved solving leaf-yellowing of geraniums, use of calcium and silicon to reduce botrytis on poinsettias and the importance of maintaining flower food solutions with low microbial activity.

Production Technology. Many of the production-oriented projects concentrated on cost savings for growers and environmental sustainability. AFE-supported research provides some of the initial results with LED lighting in greenhouses. LED lighting was successfully substituted for incandescent photoperiodic lighting, thus saving growers 70 to 80 percent of electrical costs. In an effort to conserve water, research demonstrated that root zone moisture sensors effectively controlled soil moisture levels while reducing leaching.

With poinsettias, reduced energy usage resulted when poinsettias were finished under cold greenhouse conditions. Timing, height and bract size were not affected. In addition, the use of cold finishing temperatures reduced use of plant growth regulators and improved postharvest performance.

Consumer Preferences. What do consumers really want when they purchase plants and flowers? Flower longevity and vase life guarantees were shown to be among the highest priorities for people buying cut flowers. And most customers preferred to



Scape bending of ‘Testarrosa’ gerbera was eliminated when stems were supported during hydration (left) compared to hydration without support (right)

have a guarantee tag on the flowers they purchase.

In other projects, color and fragrance preferences of young adult buyers were identified. Of the people participating in the studies, 66 percent had a preference for fragrance while 79 percent had a color preference. Most participants preferred the fragrance characteristic of rose oil.

Special reports providing useful information about the projects mentioned here and more can be found at Bit.ly/AFEReports.

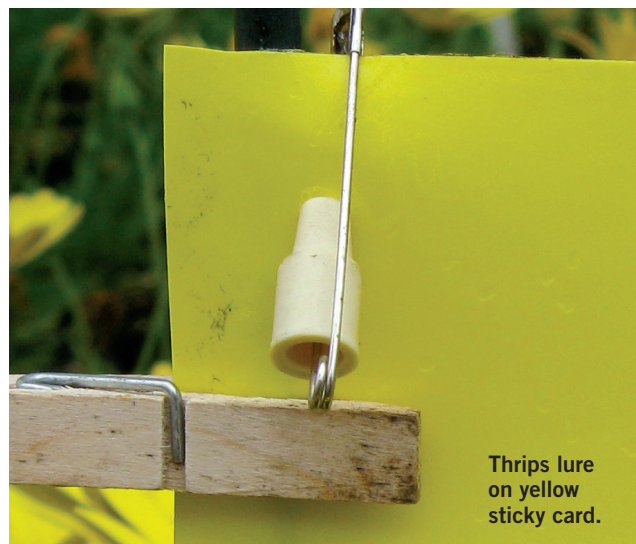
Looking To The Future

For more than 50 years, AFE has funded more than \$14 million in research. Our mission is to continue to support research on the most important issues facing the floriculture industry. Based on feedback from the industry, the following topic areas will be the focus of future research projects.

Biocontrols. Evaluation of effective, commercially feasible

biocontrol practices. Pest management strategies that can combine biocontrol measures with the careful and strategic use of pesticides will highlight ongoing projects. Development of these pest management strategies will help the industry meet consumer and retail interests for reduced pesticide application. Development of these practices may prove to enhance pollinator health.

Breeding. Development of flowers and plants with resistance to production and postharvest diseases and enhanced post-harvest quality, and performance will be beneficial to the industry.



Thrips lure on yellow sticky card.

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New Technology. Innovative techniques and technology may lead to increased flower and plant quality, improved production and postharvest efficiencies and reduced energy consumption.

Pest And Disease. Pest management is always a critical issue for the industry. The goal will be to identify control practices for significant reduction in aphids, leaf miners, thrips



Example of a physical support system for hydration of gerbera.

and whiteflies. Also, controlling *Botrytis* during production and postharvest and downy mildew and powdery mildew will remain a focus for future projects. AFE will remain flexible to support new and emerging insect and disease issues as they arise.

Postharvest. Consumers want high-quality and long lasting flowers and plants. Projects that can reduce postharvest shipping, storage and postharvest losses for the industry while improving postharvest and garden performance for consumers will be a strong area of interest.

Getting Research Results To The Floriculture Industry

In 2015, AFE will launch an electronic newsletter highlighting ongoing projects and research findings from funded projects. This is in addition to the quarterly AFE Bulletin. Additionally, AFE-funded researchers will be asked to publish updates in industry trade magazines. Information on funded projects and final research reports are always available to the industry (free) on the AFE website: Endowment.org.

Future opportunities are exciting for the industry. Researchers throughout the U.S. are ready and willing to address industry needs. AFE welcomes feedback and suggestions from the floriculture industry. Help us identify the key research needs and consider a tax-deductible contribution to the American Floral Endowment as part of your support for our industry. **GG**

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