

THE OUTSIDER

Illinois Extension Horticulture serving Henry, Mercer, Rock Island, and Stark



NATIVE CULTIVARS, ARE THEY THE SAME?

In 1962, Rachel Carson authored *Silent Spring*, a book that is now regarded as a pivotal text of the conservation movement. In the sixty years that have passed since the first print edition was made available, many things have changed and yet, many have remained the same. One of the constants, unfortunately, is the continued decline of pollinator populations. What hasn't changed is our dependency on these tiny critters. As cornerstone species in any ecosystem, insects perform a myriad of critical functions not least of which is pollination.

As we have become more aware of the benefit of pollinators and the decline in populations, many of us have tried to take action in our home landscapes to provide forage and habitat for pollinators. One of the easiest and, arguably, most fun ways to do this is by planting more plants in our landscape. Native plants have been long touted as the best way to meet the needs of pollinators, but this group of plants comes with challenges.

WHAT ARE NATIVE PLANTS?

For starters, native plants are a loosely defined group of plants. Generally speaking, native plants are those that have developed in a specific region or ecosystem prior to European settlement and the species is genetically unaltered by humans. These plants evolved in settings far removed from our maintained home landscape, often in high competition with neighboring plants. Resources, including space, water access and nutrients, were limited in these systems so plants evolved to take advantage of any available resource. Move these plant species from the rough and tumble life in a prairie, wetland, or woodland, to our well-watered, nutrient rich, and space abundant landscapes and some of these species will grow crazy. However, not all will misbehave and some have proven extremely adaptable.



NATIVE CULTIVARS

As people have made a more concerted effort to bring native plants into our landscape, plant breeders and people in the nursery industry have noticed. Today, a multitude of native cultivars are available. These plants are relatives of the wild genotypes but have been bred or selected for specific characteristics not typically found in the straight species. These characteristics include but are not limited to flower color, flower form (i.e. single verse double), foliage color, overall plant size, and more.

Native plants have evolved over thousands of years alongside other plants, animals, fungi, and bacteria. Throughout this evolution, approximately seventy five percent of plants developed mutually beneficial relationships with animal species for the purpose of pollination.



POLLINATORS

Two groups of insects are primarily responsible for pollination in Illinois, hymenoptera (bees, sawflies, wasps and ants) and lepidoptera (butterflies and moths). Attracting these species to a flower is the name of the game and plants have developed clever methods for doing this. For example, bees do not see red wavelengths but do see ultraviolet light so flowers needing to be pollinated by bees are not red in color but may have ultraviolet indicators pointing bees to the nectar and pollen source. Butterflies are capable of seeing bright reds and purple hues. and Similarly, flower form is well adapted to make the nectar rewards available to the pollinator species. Bees lap up nectar with their tongue, so the depth of the flower corolla is no deeper than the length of the bee tongue. Butterflies need narrow, tube shaped flowers that offer a wide landing pad to feed. Moths are attracted to strong, sweet fragrances more than bees and butterflies are and can feed from tubular flowers without a lip.

COMPARING NATIVE TO CULTIVAR

The convergence of what pollinators need from the flowers in our landscape and what we want from our plants begs the question: are cultivars of native plants adequate substitutes for straight species natives if we are trying to provide nutrients for pollinators?

The research on this topic is limited and many of the published studies thus far compare native species to non-native species. Others compare frequency of floral visits at the higher taxonomic level of family. One study does begin to compare native species to cultivars of the same species. More research needs to be completed on this subject before any conclusions can be drawn, although results of these studies provide clues of how plant breeding may impact pollinator appeal.



Preliminary research indicates that there are categories of changes that can help predict maintenance of pollinator appeal or loss of attractiveness. Changes to floral display color have significant impact on pollinator visits if the color change is extreme. A change from white to red, as in the case of *Achillea millefolium* 'Strawberry Seduction', revealed a significant preference of the straight species. It is hypothesized that the red flower of 'Strawberry Seduction' became nearly invisible to bees. Conversely, when flora color change was less dramatic, results were more diverse. For example, no significant preference was observed in a comparison of a yellow form of *Asclepias tuberosa* to the orange hue of the straight species. Changes to floral morphology can impact the appeal and availability of nectar and pollen resource to pollinators. Some *Echinacea* cultivars display double flowers and recent studies indicate a significant decline in pollinator visits to these floral displays when compared to single flower cultivars.

Finally, changes to foliage color or plant form did not have a significant impact on the visitation rates of cultivars as compared to straight species when the floral form and color remained similar. *Rudbeckia fulgida* var. *sullivantii* 'Goldstrum' is a selection of Black-eyed Susan that was selected for its more compact size. The floral display did not change in a significant way and there was no strong preference observed among pollinators between the species and the cultivar. *Penstemon digitalis* 'Husker Red' was selected for shades of red in the foliage. No significant flora changes were cultivated, and results also indicate no strong preference for either species or cultivar.

While preliminary, these results hint at ways we could better balance pollinator needs with people preferences when it comes to landscape plants. Selecting cultivars that have been selected for characteristics other than modified floral display and avoiding cultivars that have significantly altered the flowers, especially color or form, seems better able to attract beneficial insects. With a little care and attention, our landscapes can look beautiful for us and remain delicious for beneficial insects.



OUTSIDER ACTION

Try these activities to be more of an Outsider

- Enjoy this look into the lives of bees in this PBS documentary: *The Power of Pollinators*: go.illinois.edu/PowerofPollinatorsVideo
- Take a trip to a local prairie and observe the variety of insects visiting flowers.

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