

Unique winter-hardy hibiscus has roots with AgriLife Research scientist in Vernon

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Dr. Dariusz Malinowski shows off his wall of hibiscus plants that are producing flowers varying in size, shape and color. Some flowers have reached the size of dinner plates and others are taking on the characteristics of tropical flowers, but remain winter hardy. Credit: Texas AgriLife Research photo by Kay Ledbetter

He may study grasses by profession, but Texas AgriLife Research forage agronomist Dr. Dariusz Malinowski has a passion for flowers, particularly winter hardy hibiscus.

And it is that passion that has created his latest research project - propagating unique winter-hardy hibiscus.

Malinowski said he's very much a grass and forage researcher, but this falls in line with his master's degree in horticulture.

"I like the hardy hibiscus and have been crossing them for four years," he said. "I started getting crosses that were unique in my yard."

A collaboration of Steve Brown, Texas Foundation Seed Service program director, and Malinowski determined commercialization of the flowers would fit in AgriLife Research's effort to work with non-traditional or under-utilized crops that have value because of drought tolerance.

The hardy hibiscus also is a great candidate because it is a carefree plant. It doesn't have to be watered once it gets established, it is low maintenance and has little disease or insect pressure, he said.

To date, Malinowski has produced about 500 crosses. From that number, he has planted about 150 of them around the Vernon area in yards of fellow researchers and at the Texas Foundation Seed facilities.

Only about 25 percent to 30 percent of those have bloomed so far, but 12 have exceptional qualities, Malinowski said.

"The hardy hibiscus found on the market are primarily white, red and pink and are mostly of the same size and shape," he said. "I'm trying to give them diversity, with some spider-type petals, and some new colors, such as lavender, and combinations of colors."

Brown said this research is really another example of how plant-improvement programs at AgriLife Research extend beyond what most think as conventional crops.

The nursery and greenhouse industry in Texas is a \$2 billion industry, Brown said.

The green industry has a \$13.5 billion financial impact on the state,

according to the Texas Nursery and Landscape Association.

"This research touches not only the producers of agricultural products but most homeowners and consumers throughout the state," Brown said. "We'll be working with some of our corporate programs to look at public/private partnerships as we do with other things."

Malinowski said he has gathered many native hibiscus and already-released cultivars, and he is crossing them to accumulate the traits that he prefers in the plants.

He is cross-pollinating the flowers by hand. If successful, a fruit will develop at the bottom of the stem within three days, he said.



This raspberry colored hibiscus was selected for both its unusual spider pedal shape and for its color. Credit: Texas AgriLife Research photo by Dr. Dariusz Malinowski

"Now it depends on how fast we can propagate them," Malinowski said. A new cultivar can't be propagated from a seed. The new, promising lines must be propagated from cuttings.

"That's the only way we are able to multiply each unique plant that we have now," Malinowski said. "It's not an easy task. We are experimenting with different variables."

He said being able to do tissue cultures in a lab, as the commercial industry does, would be much faster.

Brown said vegetative propagation is the only way to make sure the new plant looks exactly like the selection that the cutting comes from rather than having a segregating population or differing plants, which occurs when seed is planted from a cross between two different plants.

The hibiscus can basically be grown from San Antonio north to Canada, as long as the required winter period is long enough for them to go dormant after the first frost, Malinowski said. The plants resprout from the root the following spring.

Malinowski said he believes the new crosses will be sold as potted plants and can be planted in yards. They will begin to bloom when the night is short, around late June, and continue flowering all season long until a frost.

He also is trying to develop dwarf plants with huge flowers for patios and smaller gardens.

Brown said it could be three years from the time commercially acceptable selections are made before Malinowski's propagations could be available in a nursery or retail outlet.

Timing for the market will require some greenhouse work, Brown said. Cuttings must be taken in the fall or early spring and put into a greenhouse to increase the numbers. In early spring, rooted plants will need to be exposed to extended day-lengths and elevated temperatures to

change the timing of the bloom.

"If we get 60 to 100 mother plants, then at that point we would license it to a commercial greenhouse or nursery to expand it from there," he said.

"Then they will do cuttings and greenhouse day-length adjustments and so forth to multiply the variety to the retail strength needed," Brown said.

He said to target the flowering-plant market in retail and garden stores, they will try to get the [plants](#) to bloom in early June, rather than July, "because typically consumers want to see a budding plant, not a picture of what they are buying."

Source: Texas A&M AgriLife Communications

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