

Propagation of selected Kentucky natives[©]

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INTRODUCTION

The University of Kentucky (UK) Native Plants Program at the UK Research and Education Center in Princeton, Kentucky was started when a stunning plant, *Spigelia marilandica*, of native provenance was found to be relatively easy to propagate in spite of being described in literature as difficult to propagate. The program has been continued in support of the Kentucky native plant production economics (Ingram et al., 2015) that indicate there has been an increase in native plant production since 2003.

Propagating Kentucky native plants from known provenances has been investigated. This presentation will discuss the successes and those yet to be successfully propagated. The propagation methods were to increase numbers of plants of a given provenance for distribution and landscape evaluation; therefore, they may not be efficient production protocols.

HERBACEOUS PERENNIALS AND BIENNIALS

***Amsonia tabernaemontana* Walt. eastern bluestar**

It has early-season blue flowers, clear green summer foliage, and an upright habit. The golden-yellow late-summer/autumn is not as pronounced as the non-Kentucky native *A. hubrichtii*. Plants at the edge of a west Kentucky wooded area were divided.

1. Seed.

The fruits are paired tan cylindrical pods borne upright within the foliage. The brown cylinder-shaped seed was broken out of the pods. The seed were planted in a germination medium. Germination was irregular and can take several weeks requiring waiting to transplant if broadcast in mass. Commercially it is recommended two to three seeds be placed directly in individual pots or cells (Pilon, 2011).

2. Division.

Division of the woody crown is relatively easy with small plants, but can be quite difficult with large long-term established plants.

3. Cuttings.

Cutting propagation has been successful with *A. tabernaemontana* 'Big Jon', a selection of the late University of Arkansas Professor Jon Lindstrom. June taken two-three inch cuttings were stuck in perlite without hormone in an outdoor mist bed; 100% rooted.

***Arisaema* species L.**

Arisaema dracontium, green dragon, and *A. triphyllum*, Jack-in-the-pulpit, are attractive shade plants. The west Kentucky provenance plants are green leaved and green flowered. Green dragon has a unique semi-circle leaf of 7-15 leaflets depending on the vigor of the plant and environment. Green dragon gets its name from the flower; a long narrow spadix that exceeds the leaf in height. We have propagated green dragon and Jack-in-the-pulpit by seed and division. The seed were collected in west Kentucky, placed in a plastic bag, crushed to separate the fruit from the seed and washed. The seed was stored in a plastic storage bag in moist perlite and stored at 40°F. The seed was planted in 1-qt containers when radicals were observed in cold storage.

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Division is recommended for fall after the plants dry down in order to collect the seed and corms that develop over the course of the growing season. We have performed division at or after bloom. The plants were washed to separate the large corms from the parent plant and immediately potted. In this way viable seed was still produced. At this time the newly developing corms are not mature enough to harvest.

***Asarum canadense* L., Canadian wild ginger**

Wild ginger is a ground cover that grows in shade environs. Initial plantings will seem thin as wild ginger puts out just one flush of growth per season. Then it will spread by rhizomes creating a dense cover. In the wild and in landscapes near natural areas rodents dig up rhizomes and help spread the plant to neighboring areas.

We have used division as the sole means of propagation. Seed can be collected, cleaned and direct sown (Cullina, 2000).

***Cunila origanoides* (L.) Britt., dittany**

Dittany an obscure infrequent Kentucky native with a wide north central southeastern United States native range that has potential as a full sun landscape plant. In the wild it is a woody-stemmed, thin, late-summer blooming plant frequently mixed in with *Eupatorium capillifolium*, *Conoclinium coelestinum* (syn. *E. coelestinum*), *Spigelia marilandica*, and *Desmodium cuspidatum* that is not noticeable. Once placed in full sun it makes a rounded ground cover 12-18 in. tall by equal width. The many small blue-lavender flowers invisible in the wild, densely cover the plants in full-sun landscape sites. A member of the mint family the foliage has a pleasant aroma and is not known to be a preferred food of rodents or deer.

Little literature is available on propagation of this plant. Division has been the primary method of propagation to increase numbers of west Kentucky provenance plants. The seed is a very small brown nutlet covered with short thin hairs. The nutlet width is about the size of a line on a ruled piece of paper with slightly greater length. The seed heads remain green until mid-late fall. For easier seed cleaning wait until the heads have turned black.

***Echinacea tennesseensis* (Beadle) Small, Tennessee coneflower**

A wonderful native once endangered makes a great landscape plant. The purple-lavender petals are very attractive and once planted this plant will slowly spread filling in an area. Deadheading following bloom can lead to repeat fall blooms in Kentucky. Seed is collected from the dried seed heads in September-late fall. Small birds do eat the seeds so it is best to not wait too long to harvest seed once the heads turn black. The light tan-beige seed are broadly flat on one end tapering to a point on the opposite end. They readily germinate following dry storage and have been grown in a well-drained germination media.

***Pachysandra procumbens* Michx., Allegheny spurge**

Allegheny spurge is an attractive ornamental plant that grows well in shade and forms a dense ground cover. The primary landscape characteristic is its dark green foliage. We have yet to collect seed even though the stock plants have flowered. The primary propagation method used is division.

***Sabatia angularis* (L.) Pursh, rose gentian or rose pink**

Rose gentian is a beautiful mid-late summer blooming biennial. The pink petals with the yellow centers separated by a red line are numerous and very attractive. Regrettably, the biennial nature limits its commercial value to specialty markets. Also, seed germination occurs sporadically over time leading to trays with large plants, small plants and seed that has not germinated further limiting its potential profitability.

***Spigelia marilandica* (L.) L, Indian pink**

Indian pink or woodland pinkroot is a very showy native to the entire southeastern USA and Illinois, Indiana, Maryland, and Delaware. The tubular pink-red blooms with yellow-green throat opens to a star-like appearing yellow bloom on the red tube. The blooms

occur on an arching cyme. It was once thought to be hard to propagate based on the difficulty collecting seed. *Spigelia marilandica* seeds can be collected but it requires daily observation to avoid loss of the shiny black seeds to its explosive dehiscing seed dispersal characteristic (Bush, 2015). This characteristic leads to small seedlings in the garden area where the original plant is placed. The seeds form in bi-pods from which the seed can be collected when black on the top and black-green on the bottom. We have found that allowing the seed to dry (loss of shine) reduces germination success. Seed is directly sown or placed in washed moistened perlite in plastic storage bags. It is then stored in 40 °F and constantly observed. Once germination occurs it is planted. The author prepared a review of *Spigelia* propagation for the Eastern Region International Plant Propagator's in 2003 (Dunwell, 2003) that since has been updated and posted online (Dunwell, 2015) with Dr. Amanda Hershberger's (Hershberger, 2012) recent research in which it was reported that *S. marilandica* and *S. gentianoides* (syn. *S. gentianoides* var. *alabamensis*) may be successfully propagated by treating stem cuttings taken in May, June, July, or August with 0.3% IBA. Cuttings of *S. marilandica* × *S. gentianoides* hybrids can be taken through September. These protocols provide a basis for rapid propagation of *Spigelia*. Dr. Sherry Kitto, University of Delaware, developed a tissue culture propagation protocol (Kitto, pers. commun.). We have had AgriStarts III, (<http://www.agristarts.com>), Eustis, Florida, propagate *Spigelia* using Kitto's protocol and the plants from them have been uniform and have grown well.

WOODY PLANTS

***Aesculus pavia* L., red buckeye**

Red buckeye is a beautiful plant with 8-in. panicles made up of 1-1½ in. red tubular flowers. Red buckeye is easy to propagate from seed removed as the capsule starts to split or when the seed falls to the ground and is still smooth without starting to dry and wrinkle. The seed should be planted immediately following collection. The only limitation to propagation is the amount of seed one is able to collect. Red buckeye will flower in the production systems after 2-3 years growth from seed; tailoring growth to sell a flowering plant should be possible.

***Chionanthus virginicus* L., white fringetree**

Fringe tree is a stunning native shrub covered with fine panicles of white blooms in the spring. Followed by attractive foliage and fall dark purple fruit. Fringe tree has been very difficult to propagate. Our attempts at cutting propagation have not produced a single plant. Seed propagation has been equally frustrating with prolonged cycles of warm and cold required to get germination sometimes more than the typically described warm/cold/warm/cold cycles have been required. Bill Hendricks has stated that he places the seed in flats of sand and sets them in the corner of an overwintering house and lets them go through natural cycles of heat and cold until they germinate. It has been reported that the emerald ash borer attacks fringe tree leading to less interest in its use or the need for rapid propagation protocols (Entomological Society of America, 2015).

***Clematis glaucophylla* Small, whiteleaf leather flower**

Clematis glaucophylla is a beautiful vine with petite pink urn-shape flowers. Very few seeds germinated from the first seed collection. In 2014 seed were collected and stored dry or stratified in moist perlite at 40°F or with the seed coat removed and stratified in moist perlite at 40°F. The stratified seed germinated while in cold storage whether the seed coat was removed or not. The germinated seed was planted in 36 cell trays filled with pine bark and peat medium (2:1, v/v). The dry seed was planted in 36-cell trays filled with peat and perlite medium (2:1, v/v). All the stratified germinated seeds grew on to produce usable plants. The dry stored seed did not germinate.

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