



## **Selection and Evaluation of Improved Big Bluestem for Use as Forage for Livestock**

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Five big bluestem accessions were subjected to recurrent selection.

### **ABSTRACT**

Warm-season forage grasses such as big bluestem (*Andropogon gerardii* Vitman) are being integrated into grazing systems to increase beef production during the summer months when cool-season forage production declines. Five big bluestem accessions from native stands in Indiana and Michigan were identified as having superior forage characteristics. These were crossed and subjected to recurrent selection. Because other forage big bluestems are already available a release of big bluestem from this study is not expected. Seed collected from the crossing block has been stored and the planting will be maintained until the space is needed for another purpose.

### **INTRODUCTION**

Big bluestem is a perennial, warm-season grass reaching heights of 10 ft at maturity. Prior to European settlement it was a major constituent of the tall grass prairies and savannas across the Great Plains, Midwest, and northeastern United States (Gleason and Conquist, 1991; Reznicek et al., 2011; USDA, NRCS, 2014).

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Big bluestem and other forage grasses are being integrated into grazing systems to increase beef production during the summer months when cool-season forage production declines (Mitchell and Anderson, 2008). Unlike cool-season grasses that have their greatest growth during cooler temperatures, warm-season grass production peaks at higher temperatures. Utilizing these contrasting patterns of yield distribution helps to ensure adequate feed throughout the summer months and enhance cool-season forage production in the late summer and fall.

## MATERIALS AND METHODS

Five big bluestem accessions as shown in Table 1 were identified as having superior forage characteristics through a previous Rose Lake Plant Materials Center study. Potted plants of these five accessions were placed in the Rose Lake Plant Materials Center shade house in 2008 and allowed to cross pollinate. Seeds were harvested, stratified, and planted in greenhouse flats in December 2008. From these seedlings approximately 200 plants were visually selected by the Michigan Plant Materials Specialist and Michigan Grazing Lands Specialist for forage characteristics and used to establish an isolated poly-cross block.

Approximately 25% of plants in the poly-cross block were rogued for non-uniformity, apparently lower quality or quantity of forage production, unacceptable disease levels, and/or flowering that was not synchronous with most other plants in the block. Roguing was done by Rose Lake Plant Materials Center staff in consultation with the Michigan Grazing Lands Specialist and the Michigan State University Forage Research Assistant.

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Table 1. Parent lines of (discontinued) big bluestem for forages. Rose Lake Plant Materials Center.

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<u>Accession</u>	<u>Origin</u>
9070139	Porter County, Indiana
9070149	Jasper County, Indiana
9070162	Porter County, Indiana
9070163	Jasper County, Indiana
9070197	Washtenaw County, Michigan

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## RESULTS AND DISCUSSION

Small quantities of seed were hand harvested from the poly-cross block in 2011 and 2012 and placed in storage.

## CONCLUSION

Because other forage big bluestems are already available, a release of big bluestem from this study is not expected. Seed collected from the crossing block will remain in storage and plants will be maintained in the block until the space is needed for another purpose.

## LITERATURE CITED

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