

# KSU-Benson™: A New Pawpaw Variety from the Kentucky State University

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## Introduction

- The North American pawpaw [*Asimina triloba* (L.) Dunal] is a native tree-fruit that is in the early stages of a commercial industry (Pomper and Layne, 2005).
- Pawpaw fruit also have processing potential for the orange-yellow pulp, which can be used as an ingredient in gourmet items such as ice cream, wine, and pies (Duffrin and Pomper, 2006; Crabtree et al., 2014).
- Kentucky State University (KSU) serves as the National Clonal Germplasm Repository for Pawpaw. Two goals of the Repository research efforts are germplasm acquisition and evaluation. The repository contains over 2000 accessions from 17 different states. The repository also contains over 45 cultivars that are currently available from nurseries.
- As part of KSU pawpaw breeding and selection efforts, the KSU Horticulture Program released its first pawpaw variety, 'KSU-Atwood™', in 2010. However, new high yielding cultivars with excellent fruit fresh market or processing quality would support the development of a pawpaw industry worldwide. (Pomper et al., 2008, 2011, 2014).
- The newest release (KSU-Benson™) is named in honor of Dr. Harold R. Benson who served as director of the KSU Land Grant Program for more than 36 years (Fig. 1).
- Dr. Benson supported the KSU pawpaw research program from its founding by Dr. Brett Callaway in 1990 to its expansion under Dr. Desmond Layne from 1993 to 1998. The program has since undergone rapid expansion under the leadership of Dr. Kirk Pomper, Director of the Land Grant Program and professor of horticulture at KSU, since 1998.

## Objective

- To develop new pawpaw cultivars with excellent fresh market and processing potential for the emerging commercial industry.

## Materials and Methods

- The National Clonal Germplasm Repository for Pawpaw was initiated in 1994 and contains over 2000 accessions from 17 different states. Most accessions were collected from wild pawpaw stands by enthusiasts. Some trees in the collection are the result of direct crosses whereas other trees have unknown genetic backgrounds.
- KSU-Benson™, also know as Hi7-5, was identified through observations of cultivars in the Repository collection with unique fruit characteristics and are promising as new potential cultivars. This genotype was selected based on cultivars having fruit weights over 120 g per fruit, which is considered to have a large enough fruit size for commercial sale and processing.
- The original tree Hi7-5 has unknown genetic background. Hi7-5 is from mixed seed collected for rootstock from the KSU orchards.



Figure 1. Pawpaw fruit cluster of KSU-Benson™.

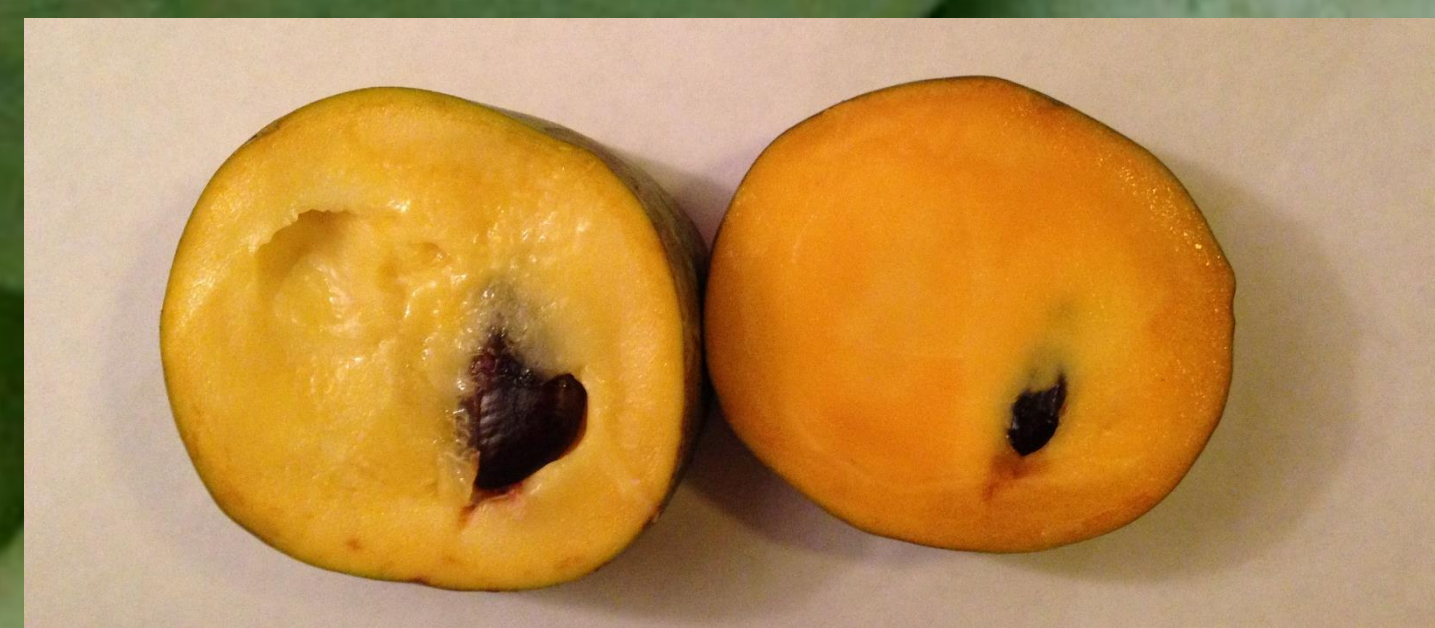


Figure 2. Cut pawpaw fruit Sunflower on the left and KSU-Benson™ on the right.

Table 1. Fruit Weight and Percent Seed for the Pawpaw Varieties Sunflower and KSU-Benson™ for 2013 and 2015

Selection	2013		
	Fruit Weight	Percent Seed	Brix
Sunflower	176.7 a	8.8% a	21.0 a
KSU Benson™	167.3 a	6.2% b	17.4 b
Selection	2015		
	Fruit Weight	Percent Seed	Brix
Sunflower	158.0 a	8.6% a	23.7 a
KSU Benson™	180.6 a	6.6% b	19.7 b



Figure 3. Kirk Pomper and Harold R. Benson at the 4<sup>th</sup> International Pawpaw Festival with the release of the KSU-Benson™ variety.

## Results and Discussion

- Fruit of KSU-Benson™ averages about 160-180 g per fruit, which is similar to the industry standard cultivar Sunflower (Table 1).
- However, the percentage of seed for fruit of KSU-Benson™ averages only 6.4%, whereas the percent seed of Sunflower averages 8.7% seed by weight (Table 1).
- The selection has a large fruit size and a pleasing yellow-orange flesh (Fig. 2).
- The fruit of this selection tended to have unblemished skin, suggesting that this selection may have some resistance to the fungus *Phyllosticta*, which causes lesions on the epidermis of the fruit of many cultivars (Pomper et al., 2014).
- At the Fourth International Pawpaw Conference, held at KSU from September 1-3, 2016, the KSU Land Grant Program announced the North American release of the pawpaw variety 'KSU-Benson™' to the public.
- This selection should be popular with both commercial production by small farmers and homeowners.

## Conclusion

- The new pawpaw release KSU-Benson™ is a high yielding variety with excellent fruit quality for commercial and homeowner production.

## Literature Cited

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