

FIRE BLIGHT TOLERANT ASIAN PEAR CULTIVARS FOR ALABAMA

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INTRODUCTION

Asian pear trees are quite precocious and productive. Nine Asian pear cultivars namely 'Hosui', 'Ishiiwase', 'Kosui', 'Olympic', 'Shinko', 'Ya Li', 'Yoinashi', 'Atago', 'Shinsui', and two European pear cultivars 'Golden Russett', and 'Bartlett', were planted at the Chilton Research and Extension Center (CREC) near Clanton in the spring of 2010 to field-test currently available fire blight tolerant Asian pear cultivars for their adaptation to Alabama conditions. The experiment is part of a multi-state replicated trial set in eight locations across the eastern United States to assess Asian pear cultivars potential for growers focused on producing sustainable fruit crops for local and regional markets. Trees began flowering and fruiting in their second leaf and measurements of fruit quality began in the third leaf. Fire blight infection was accountable for the dead of the 'Bartlett' trees used as a control in our experiment.



MATERIALS AND METHODS

- Selected Asian pear cultivars, with 'Bartlett' and 'Golden Russett' (European pears) as controls
- Planted in 2010 at the Chilton Research and Extension Center, Clanton, AL
- RCBD with 5 replications

RESULTS

- Differences found in Julian day of bloom for selected Asian pear cultivars (Table 1) with 'Ya Li' flowering early season.

Table 1. Julian day of 90% open flowers for selected Fire blight tolerant Asian pear cultivars grown at the Chilton REC, Clanton, AL, 2014-2015.

Cultivar	Julian day of 90% bloom	
	2014	2015
Golden Russett	98.7 a	86.8 ab
Atago	90.3 c	82.3 de
Ishiiwase	97.6 a	88.0 a
Kosui	93.6 b	85.6 bc
Olympic	91.4 bc	83.4 de
Shinko	92.0 bc	83.8 de
Shinsu	90.0 c	82.0 e
Ya Li	83.0 d	75.8 f
Yonashi	93.6 b	84.3 dc
Hosui	.	81.5 e
Significance	**	***

- Cultivars differ in trunk growth. 'Shinko' and 'Ya Li' had the largest trunk cross sectional area (TCSA), while 'Atago' had the smallest (Figure 1).

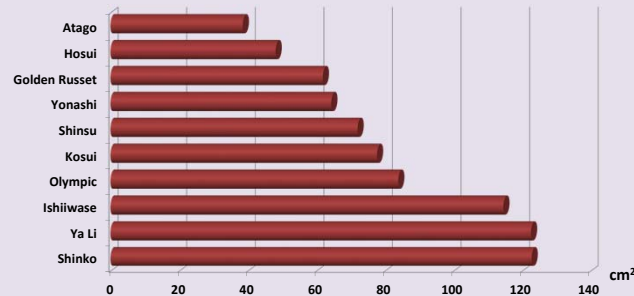


Figure 1. Trunk cross sectional area of selected Asian pear cultivars grown at the Chilton REC, Clanton, 2015.

- 'Ishiiwase' had the largest 3-yr average fruit size, followed by 'Kosui' and 'Olympic' (Table 2).

Table 2. Mean fruit size of selected Fire blight tolerant Asian pear cultivars grown at the Chilton REC, Clanton, AL, 2013-2015.

Cultivar	Mean fruit size, (g)			3-yr-average
	2013	2014	2015	
Ishiiwase	296.7	229.66	247.1	235.5
Kosui	208.92	174.47	320.7	223.2
Olympic	177.93	250.46	.	214.2
Shinko	156.5	216.28	217.1	196.6
Yonashi	154.84	268.4	235.8	219.7
Ya Li	150.24	184.57	217.2	184.0
Atago	.	211.28	196.5	203.9
Golden Russett	99.3	.	234.2	166.8

- 'Yonashi' and 'Olympic' had the highest 3-yr cumulative yield/tree, (Figure 2).

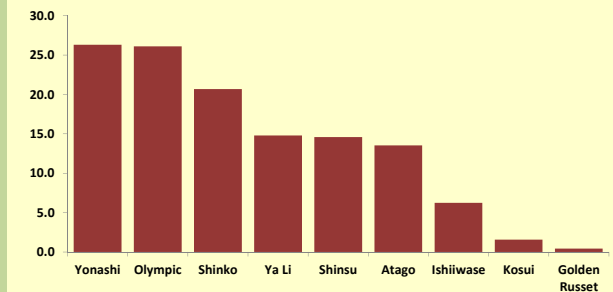


Figure 2. Yield/tree, (kg) of fire blight tolerant Asian pear cultivars grown at the Chilton REC, Clanton, 2013-2014.

- 'Kosui' had the sweetest fruit in two of the three study years (Table 3).

Table 3. Fruit quality characteristics of selected Fire blight tolerant Asian pear cultivars grown at the Chilton REC, Clanton, AL, 2013-2015.

Cultivar	2013		2014		2015	
	Firmness	Brix %	Firmness	Brix %	Firmness	Brix %
Ishiiwase	2.8 bc	10.4 ab	7.1	12.9	7.1 cd	12.8 a
Kosui	2.3 c	10.9 a	5.3	13.9	10.5 a	12.7 ab
Olympic	3.9 b	9.8 ab	8.4	12.5	.	.
Shinko	3.3 bc	8.6 b	7	11.8	7.2 cd	10.4 c
Yonashi	2.9 bc	9.4 ab	7.3	12.8	8.7 bc	11.5 abc
Atago	.	.	9	11.7	6.2 d	10.8 bc
Ya Li	3.8 b	9.1 ab	9.2	11.9	9.2 ab	10.2 c
Golden Russett	6.0 a	9.5 ab	.	.	9.6 ab	11.6 abc
Significance	***	***	n.s.	n.s.	***	***

SUMMARY



- Among the fire blight tolerant Asian pear cultivars tested, 'Olympic' had large fruit size, high cumulative yield, and moderately vigorous tree growth.