Kentucky State University Pawpaw Grafting Update

Sheri Crabtree and Dr. Kirk Pomper

KSU Land Grant Program

- Pawpaw has great potential as a new alternative fruit crop for limited resource farmers

- Pawpaw cultivars are generally propagated by chip-budding the desired variety onto a seedling rootstock

- Leaving 6-8 leaves on the rootstock seedling when chip-budding pawpaw may increase bud take and scion growth

- The remaining rootstock leaves will provide energy for the developing scion bud, until the bud has initiated leaves and is able to photosynthesize and support its own growth

- After approximately 6 weeks, the rootstock's leaves would be pruned away, leaving the new scion shoot

- The objective of this study was to determine if leaving 6-8 leaves on pawpaw seedling rootstocks for 6 weeks will enhance scion bud break and growth

- The experiment consisted of:
  - 2 pawpaw scions (Sunflower and Susquehanna)
  - 2 seedling rootstocks (Sunflower and K8-2)
  - 2 leaf treatments (removing all leaves at time of grafting vs leaving 6-8 leaves on the grafted tree)

- Dormant budwood was grafted onto actively growing 1 year old seedlings in the greenhouse in June 2006
- Data was collected weekly on scion budbreak and leaf number
- Rootstock shoots were removed after 6 weeks

Pawpaw graft take percentage before being cut back - 8/25/06		Pawpaw graft take percentage after being cut back - 9/22/06	
Scion		**Scion**	
Sun	59%	Sun	65%
Sus	70%	Sus	79%
sig.	NS	sig.	NS
RS		**RS**	
8-2	73% a	8-2	81% a
Sun	56% b	Sun	63% b
sig.	**	sig.	**
Leaves		**Leaves**	
L	75% a	L	88% a
NL	53% b	NL	55% b
sig.	***	sig.	***
Blocks (date grafted)		**Blocks (date grafted)**	
21-Jun	53.0%	21-Jun	64% cd
22-Jun	69.0%	22-Jun	69% bcd
23-Jun	67.0%	23-Jun	69% bcd
26-Jun	64.0%	26-Jun	83% ab
27-Jun	56.0%	27-Jun	58% d
28-Jun	78.0%	28-Jun	81% abc
2-Jul	67.0%	2-Jul	100% a
sig	NS	sig	*

Number of leaves on chip budded pawpaw scions 8/22/06		*Number of leaves on chip budded pawpaw scions 9/25/06*	
Scion		**Scion**	
Sun	6.6	Sun	7.2
Sus	6.0	Sus	7.2
sig.	NS	sig.	NS
RS		**RS**	
8-2	6.1	8-2	7.4
Sun	6.5	Sun	6.9
sig.	NS	sig.	NS
Leaves		**Leaves**	
L	5.3 b	L	6.1 b
NL	7.8 a	NL	8.9 a
sig.	***	sig.	***
Blocks (date grafted)		**Blocks (date grafted)**	
21-Jun	7.2 a	21-Jun	6.1 bc
22-Jun	6.7 a	22-Jun	7.8 ab
23-Jun	7.0 a	23-Jun	8.0 a
26-Jun	6.5 a	26-Jun	6.9 ab
27-Jun	6.2 ab	27-Jun	7.8 ab
28-Jun	5.3 b	28-Jun	7.4 ab
2-Jul	2.8 c	2-Jul	4.1 c
sig.	**	sig.	**

- Scion cultivar did not affect chip bud take or scion leaf number

- Chip buds on K8-2 rootstock had a higher percentage take than those budded onto Sunflower rootstock. There was not a significant difference in scion leaf number between rootstocks

- Chip-budded pawpaws with leaves remaining on the rootstock seedling had a higher percentage bud take than chip-budded pawpaws on which the rootstock's leaves had been removed when budded

- Budded pawpaw trees which had the rootstock's leaves removed when grafted had more scion leaves than trees on which rootstock leaves were retained for 6 weeks after grafting

Conclusions

- While rootstock leaf retention was beneficial for graft union development, the resulting scions actually had fewer leaves.
- Pawpaw chip-bud emergence improves by leaving 6-8 leaves on the rootstock to support the scion budbreak and growth.
- These leaves should be removed after 6 weeks to encourage scion growth.

Take-home message

- When chip-budding pawpaw, leave 6-8 leaves on the rootstock shoot to support scion growth
- Remove these leaves 6 weeks after scion bud emerges to improve scion growth

Questions?

- Sheri Crabtree (502) 597-6375
  sheri.crabtree@kysu.edu
- Dr. Kirk Pomper: (502) 597-5942
  kirk.pomper@kysu.edu
- Pawpaw Information Website:
  www.pawpaw.kysu.edu