

Update on 1) Organic Mulching and 2) Conventional vs. Organic Experiments

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Need for this Research

- Previous study at Alapaha showed benefits of mulching organic rabbiteye blueberries
- Although four mulches were evaluated in this study, many other potential mulches have yet to be tested
- No study has been conducted on rabbiteye blueberry to compare growth and yield of conventionally vs. organically grown plants

Materials and Methods

- 'Brightwell' rabbiteye blueberry
- Eight treatments with four replications of seven plants each
- Spodic soil-Sapelo- very good series
- pH about 4.5
- Organic matter very good- 3%
- 200 pounds per acre of bone meal applied to bed at planting
- Fertilized three times a year with Nature Safe (8-5-5)

Organic Mulching Study. UGA Bacon Co. Blueberry Farm

Location



2006 UGA-Bacon Co. Organic Mulching Study

Treatments (8)

- Control
- Pine bark
- Pine straw
- Wheat straw
- Peanut shells
- Landscape fabric (non-woven)
- Ground cover (plastic woven)
- White plastic



Mulches

Wheat straw



Landscape fabric
(non woven)



Ground cover
(synthetic)



Peanut shells



Mulches & control



Pine straw

A photograph showing a young tree in a field with a thick layer of dry, brown pine straw mulch around its base. A small white identification tag is visible in the foreground.



White plastic

A photograph showing a young tree in a field with a layer of white plastic mulch around its base. A small white identification tag is visible in the foreground.



Pine bark

A photograph showing a young tree in a field with a layer of dark brown pine bark mulch around its base. A small white identification tag is visible in the foreground.



Unmulch control

A photograph showing a young tree in a field with no mulch around its base. The ground is sandy and covered with sparse green grass. A small white identification tag is visible in the foreground.

Bed Shoulder management

- Hill side cultivator purchased to till sides of bed
- Worked fairly well
- Only a small strip then has to be hand weeded
- Gap between plastic mulches and tilled area was a problem.
- Cost about \$2000



Weed control, July 2007, Temperature 98 degree F, Humidity 92%, the thin Green Line



Weed Control Collection Data

- Heavy, wide hoes have worked best
- Be careful to not damage young plants when weeds near plant
- Time motion data
- Man-hours in 2007, 2008 and 2009



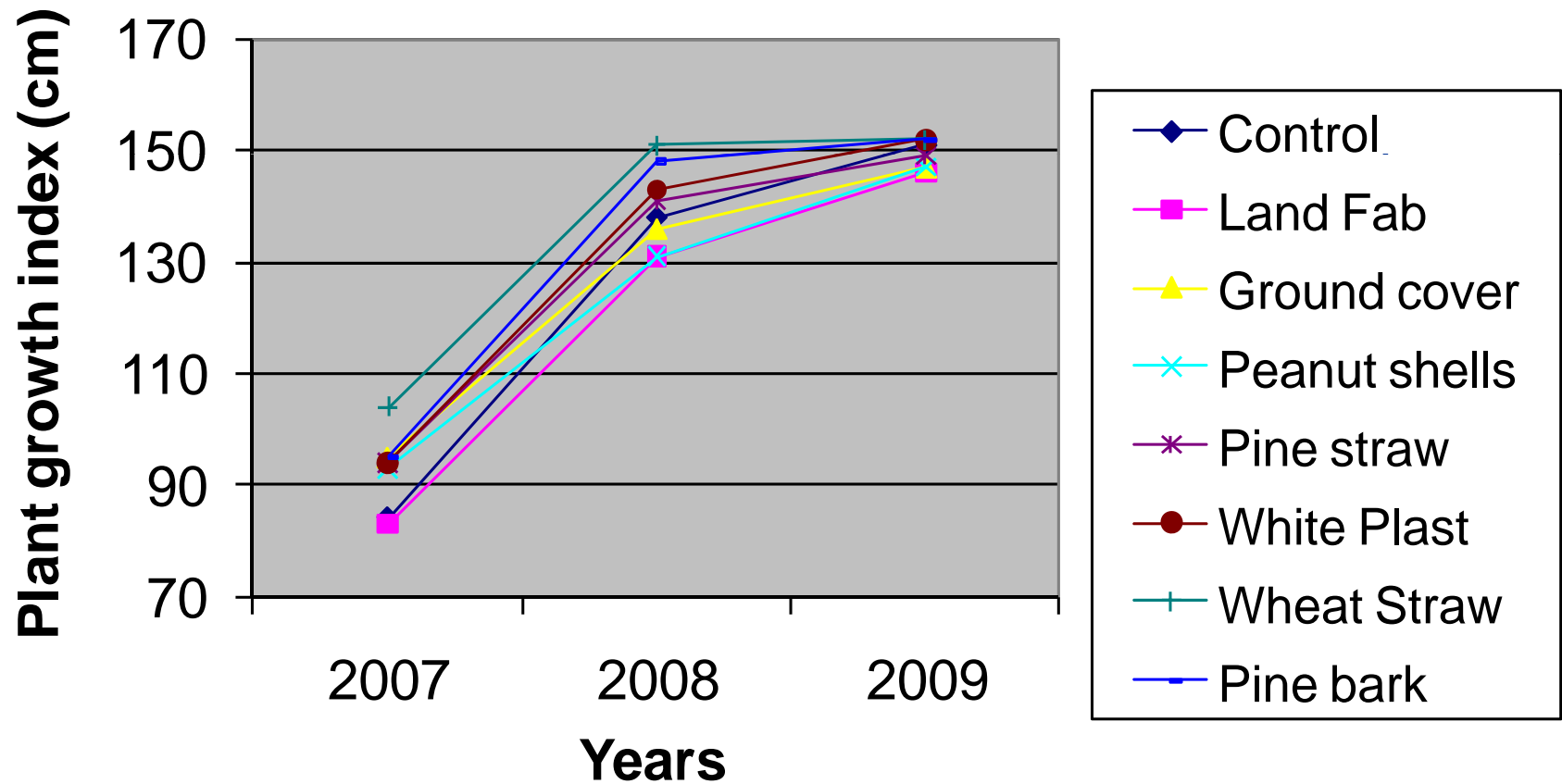
Time spend (min) per year for weed control per plot (35 linear feet)

<u>Treatments</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Total</u>
■ Control	27 a	30 ab	14 ab	71
■ Landscape Fabric	14.2 bc	33 cd	18 ab	65
■ Ground Cover	12.5 cd	21.7 bc	4 b	38
■ Peanut Shells	7.3 de	25.7 abc	29 a	62
■ <u>Pine Straw</u>	5.9 de	21.7 bc	3 b	30
■ White Plastic	14 abc	26.2 abc	11 ab	51
■ Wheat Straw	9.3 de	26.3 a	6 b	41
■ <u>Pine bark</u>	5.0 de	17.5 c	2 b	24

Weed Coverage on bed (%)

<u>Treatment</u>	<u>April</u>	<u>June</u>	<u>Average</u>
■ Control	48 a	37 a	42.5
■ Landscape Fabric	36 b	29 a	33
■ Peanut Shells	4 c	15 b	9.5
■ White Plastic	7 c	13 b	10
■ Pine Straw	2 c	12 b	7
■ Wheat Straw	3 c	8 bc	5.5
■ Pine bark	1 c	7 bc	4
■ Ground Cover	1 c	1 c	1

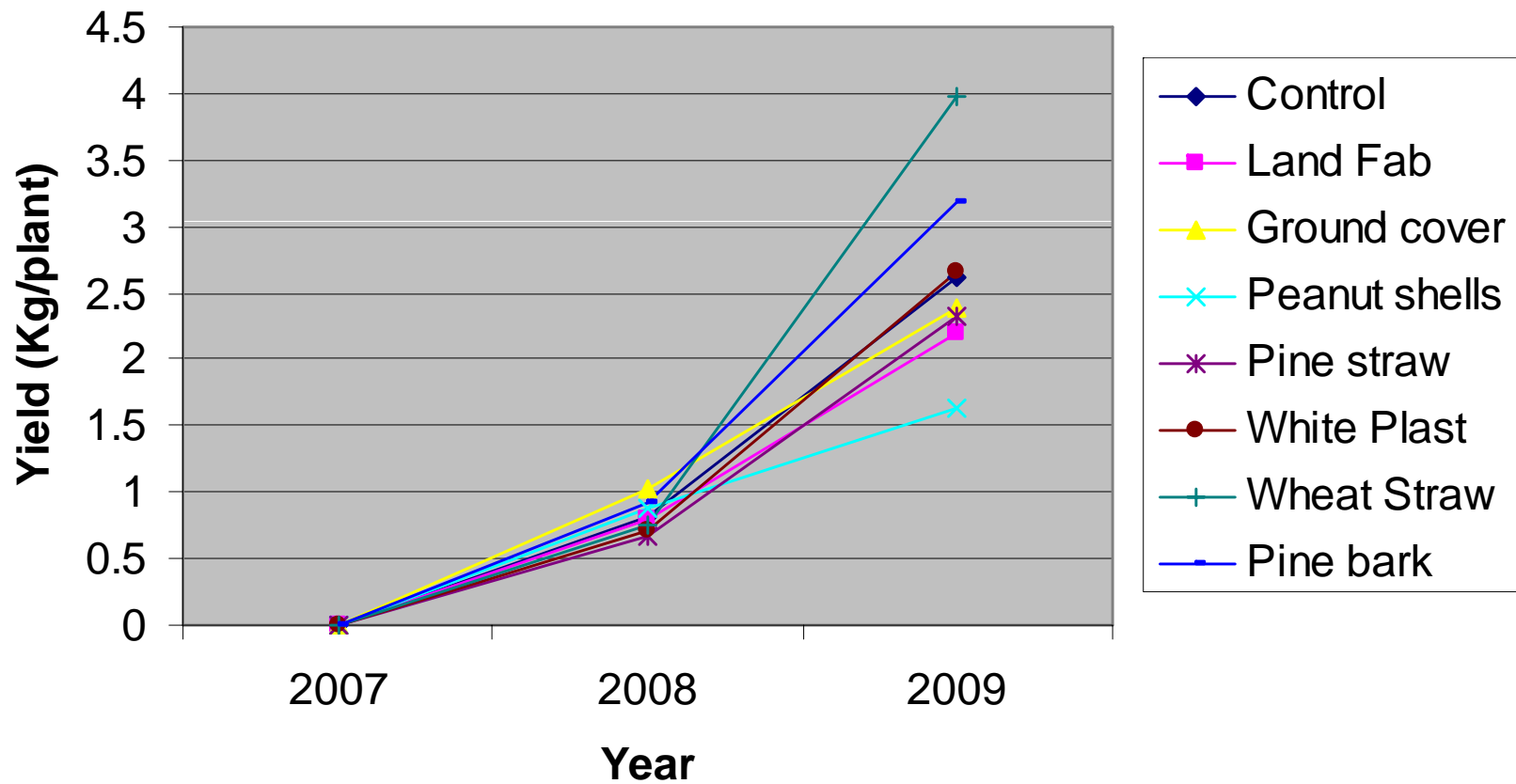
Organic 'Brightwell' Blueberry Plant Growth Index



Machine-Harvest Second Year



Organic blueberry mulch response



Total yield in pounds /plant 2009

■ Treatments	Lbs/bush
■ Pine Bark	5.81 a
■ Wheat Straw	5.02 ab
■ Landscape fabric	4.90 ab
■ Control	4.79 ab
■ Groundcover (woven)	4.72 ab
■ Pine Straw	4.70 ab
■ White Plastic	4.63 ab
■ Peanut Hulls	3.63 b

Summary

- Pine bark and wheat straw had best growth and yield.
- Pine bark and pine straw had lowest weed control times

Mulch Observations



Pine straw and wheat straw required recharging in year 2

Landscape fabric (Tympar type material) broke down in year 2

Pine bark, ground cover, white plastic performed well

Peanut shells initially performed well, but in year 3 yields were lower and weeds more severe than with other mulches

Organic vs Conventional Blueberry Experiment



Organic vs. Conventional

- Growth and yield comparison, side by side using two mulches. Established in 2004.
- Chicken litter broadcast in the beds.
- Organic plants mulched with pine bark and conventional plants maintained with herbicides.
- Severe weed problem occurred in organic section in year 1.



Conventional Plants 2009



Organic Plants 2009



Organic vs. Conventional Yields 'Brightwell' rabbiteye blueberry (kg/plant)

Treatment	2 nd leaf	3 rd leaf	4 th leaf	5 th leaf	6 th leaf
Conventional	0.13a	1.58a	2.44a	6.43	8.2
Organic	0.003b	0.53b	1.26b	4.66	6.0

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QUESTIONS ?



Star, means leaf beetle damage (0 to 4 (0=no damage and 4=severe damage))

Trtments	Means	std error	nber obs	stat
Control	1.22	0.12	9	a
Orgcide	1	0.16	11	ab
Omgrow	0.89	0.12	9	abc
Orggerm	0.82	0.12	11	abc
Seacid	0.68	0.16	11	bc
Sermax	0.46	0.16	12	c
Sporan	0.45	0.15	11	c