

Rotating Pigs onto Pasture, into the Woods and onto Next Year's Garden Plot



C. W. Talbott, N. Heckett, N. Perry, J. Denham
Black Oak Holler Farm & Woodlands Pork
Our Farms, Our Future Conference

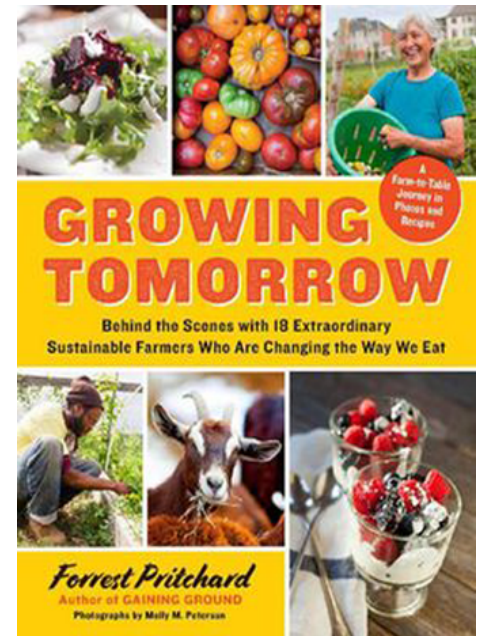
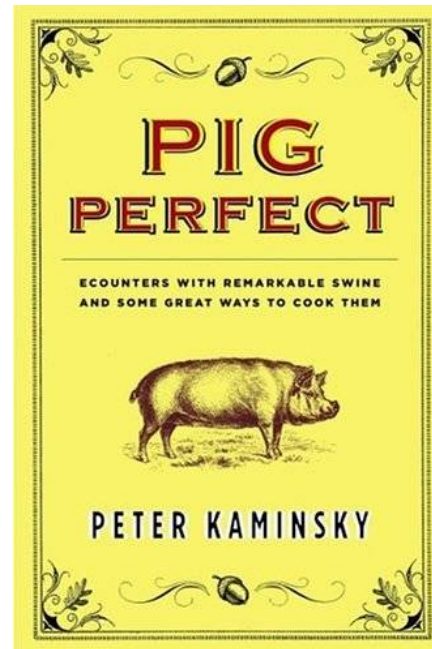
Presentation Overview

- What parameters equate w/ meat quality
- Swine characteristics for outdoor production
- Developing a seasonal foraging strategy
- Producing a “Pork of the Season”



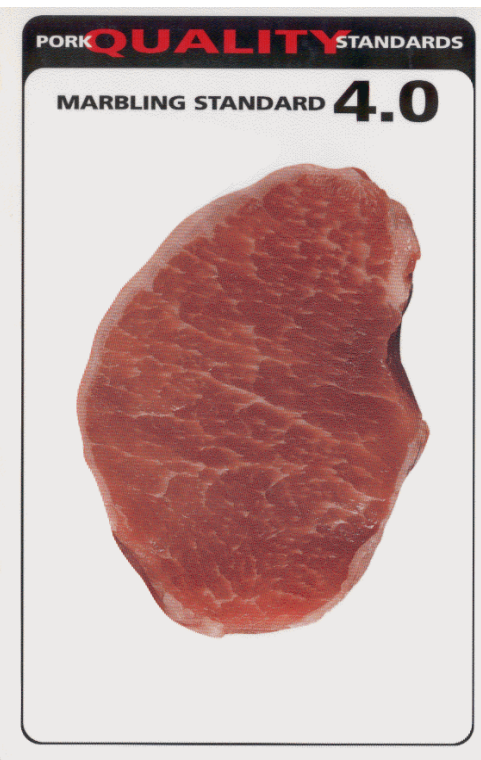
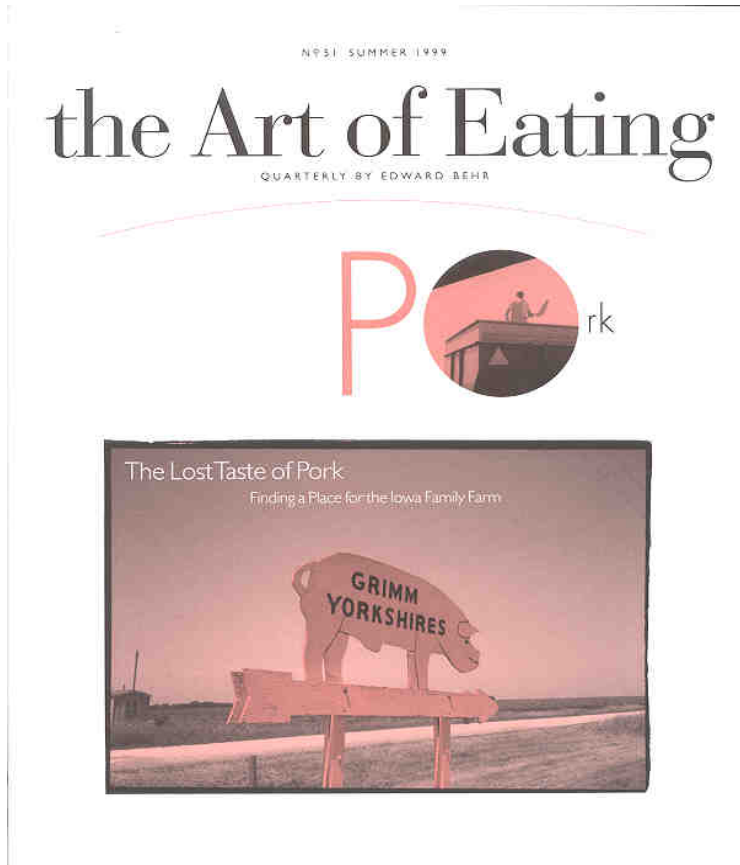
From “The Other White Meat” to Charcuterie.....the NC and WV journey

- NC 2nd in pigs (1970-2017).
- “Get big or get out”
- How do small producers compete w/Murphy’s/Smithfield /Tyson’s?



Black Oak Holler and Woodlands Pork

They don't.....
they produce the
“other red meat” again...
with emphasis on meat quality



Review of Palatability and Meat Cookery

Factors affecting palatability:

1. What influences

Tenderness.....

- Age, muscle fibers (white vs. red), H₂O holding capacity, IMF, sex, and breed
- Quantify by sensory panel (softness to tongue, resistance to tooth pressure, ease of fragmentation, etc.) and shear pressure



Review of Palatability and Meat Cookery

Factors affecting palatability with cooked meat

2. **Juiciness** (amt of water remaining after cooking)

- Juices contain flavor components, lipids and water (broth) which are released upon chewing
- **Lipids** and proteins take up flavors of the diets i.e. acorns, garlic, etc.
- Marbling prevents escape of water vapors



The Catalyst :

Peter Kaminsky, writer for The NY Times



A Model of Healthy Pork: Producing the Four-Legged Olive tree!

The Iberian Ham \$40/lb



Pigs Are What They Eat!

Producing Healthy Pork:



Iberian Ham UFAs: 55% oleic, 20% linoleic acid



The Dehesa is a ecosystem created by human action from the Mediterranean forest with original oaks. It is a direct consequence of the agricultural and ranching activity

Value Added USDA Grant to Produce Appalachian Charcuterie









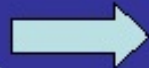
EL JAMÓN

Salazón

Sal: 1 día/kg

Temperatura: 1-5 °C

Humedad: 80-90%



Asentamiento



Lavado con agua caliente



Secado y Maduración

6 y 9 meses

15° y 30°C.



Envejecimiento en bodega

18-24 meses

15° y 20° C





Importation of Farmer's Hybrid from IA and utilization of "heirloom" lines

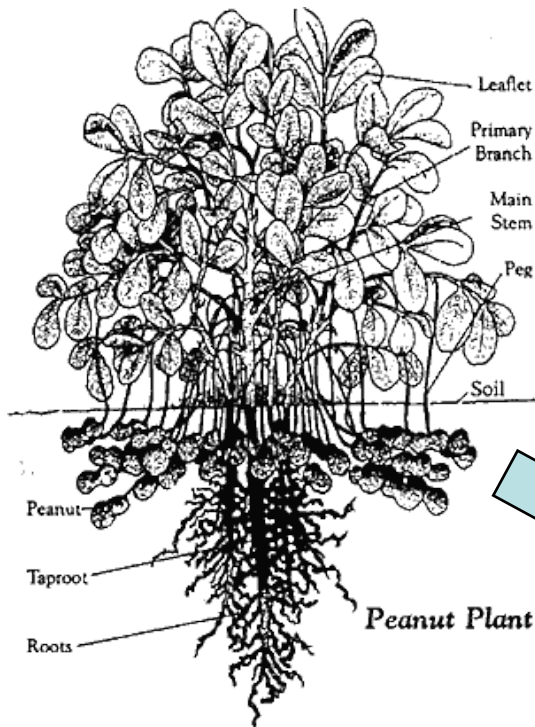
1. Improvement of IMF scores by 80%
2. Alternative diets influence pork flavor



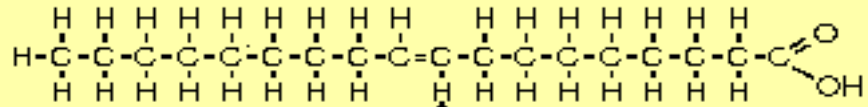
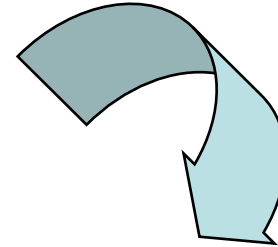
A Model of Healthy Pork: Producing the Four-Legged Olive tree in **The Carolinas!**



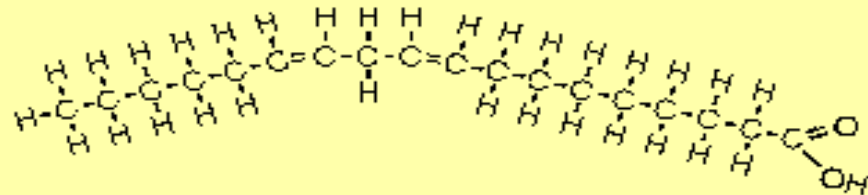
Producing Healthy Pork: Start with Peanuts and Acorns



62% oleic, 16% linoleic acid



This Hydrogen atom shifted from top to bottom



44% oleic, 32% linoleic acid

Emile's farm: Ossabaws in wooded lots vs. pastured lots

- Eight gilts fed peanuts, alfalfa pellets and mast or corn-soy



Table 3. Percent Fatty Acids (%FA) in loin or adipose tissue of Ossabaws Fed Corn-Soy (CS) or Peanut/Alfalfa/Mast (PAM) diets fed in Trial 1.

Fatty Acid	% FA from loin			% inc/dec PAA vs. CS	% FA from adipose			% inc/dec PAA vs. CS
	CS	PAM	(SE)		CS	PAM	(SE)	
C14,16,18,20:0 Total SFA	36.0%	33.9%	(.78)	-6%	39.3% ^c	28.1% ^d	(1.75)	-28%
C16,18,22:1 Total MUFA	47.1%	49.3%	(1.70)	5%	44.6% ^c	50.2% ^d	(.68)	13%
C18:2,3; C20:2,3 Total PUFA	13.1%	16.9%	(1.48)	29%	16.0% ^a	21.8% ^b	(1.42)	36%
Unsaturated : Saturated Ratio	1.7	2.0	(.07)	18%	1.6 ^c	2.6 ^d	(.21)	63%

^{ab} Estimates with different superscripts are significantly different (P<0.05)

^{cd} Estimates with different superscripts are significantly different (P<0.01)

Producing a “Pork of the Season” with Mast Fed Hogs

Sustainable Options for Small-Scale Farmers



**C. W. Talbott, N. Heckett, T. McConnell, R. Wallbrown,
D. McGill, S. Eggerud, B. Kenny, J. McDougal, J. Rentch**

Black Oak Holl’r Farm, Frazier’s Bottom WV

USDA SARE Farmer/Grower Grant

Initial thoughts on producing a “Pork of the Season”: Farrowing

- Time your farrowings so that hogs are 350 lbs when feed is available (Aug-Sept) hogs
- Farrow in Nov-Dec for 10-12 mo. mkt hogs
- Flavor of diet is incorporated into the fat (backfat and marbling)
- Flavor influence requires six weeks on diet



Pork of the Season (cont.) **Farrowing**

- provide plenty of straw....don't skimp
- cull aggressive sows
- select sows for good maternal ability/# pigs weaned



Farrowing in a Waste Management Shed (NRCS)

- Manage tight farrowing season for cross fostering
- Separate into groups (w/ gates) to prohibit milk robbing
- Deep bedded system provides warmth



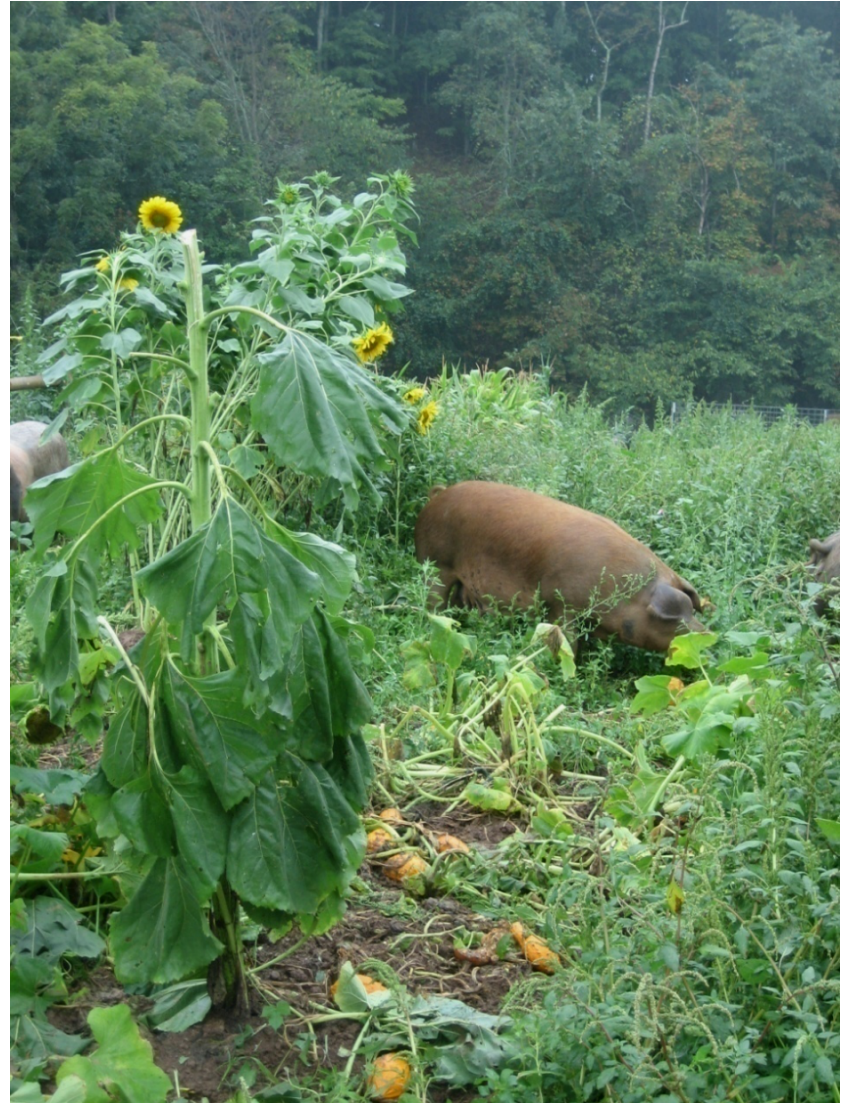


Pork of the Season (cont.) Farrowing

- **plant barley/ rape in fall for lactating sows and weaned pigs to graze in spring**



Building organic soils with swine



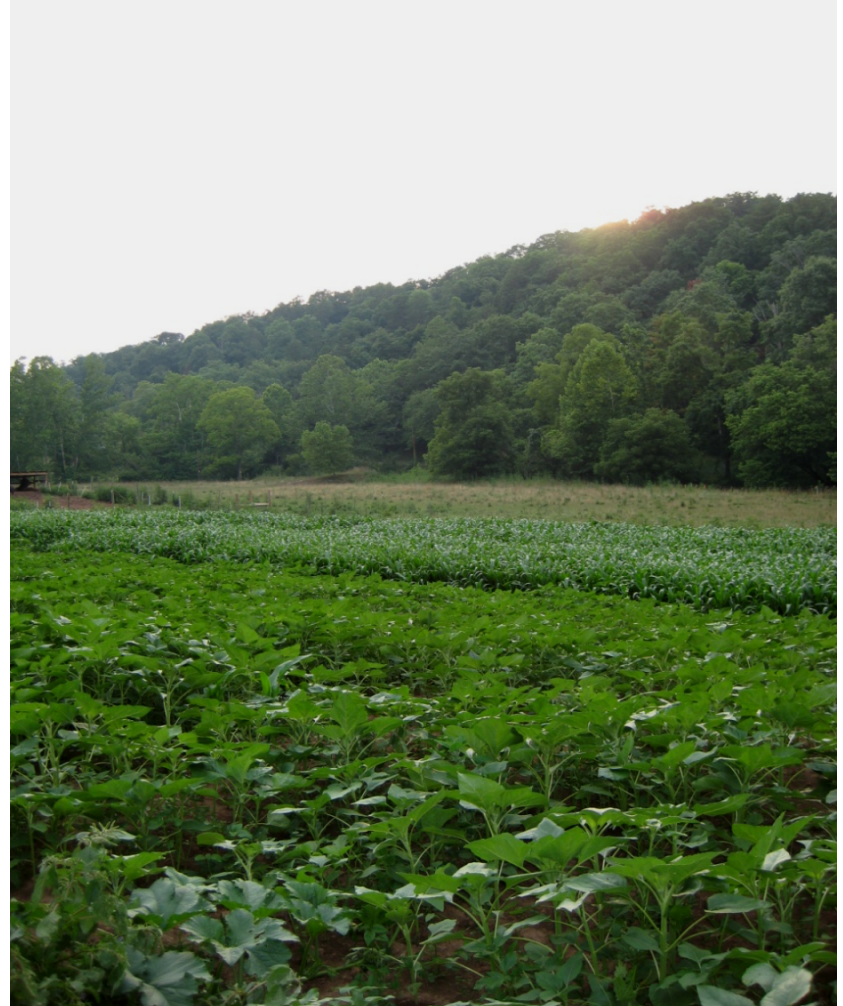
Pork of the Season (cont.) Weaned pigs

- de-worm at 60-90 lbs
- feed 16% barley/soy *ad-lib*



Integrated Systems at Black Oak Holler

Observation...rotation...observation...



Problems to Avoid

- Don't purchase cheap hay for bedding if you plan to grow annuals
- Use straw and wood chips in nursery and boar pens
- Consider using sorghum sudan-grass to outcompete weed infestation







Root Crop Considerations: forage radishes, beets? turnips?



Integrated Systems at Black Oak Holler

Plant aggressive annuals: Sorghum-sudan



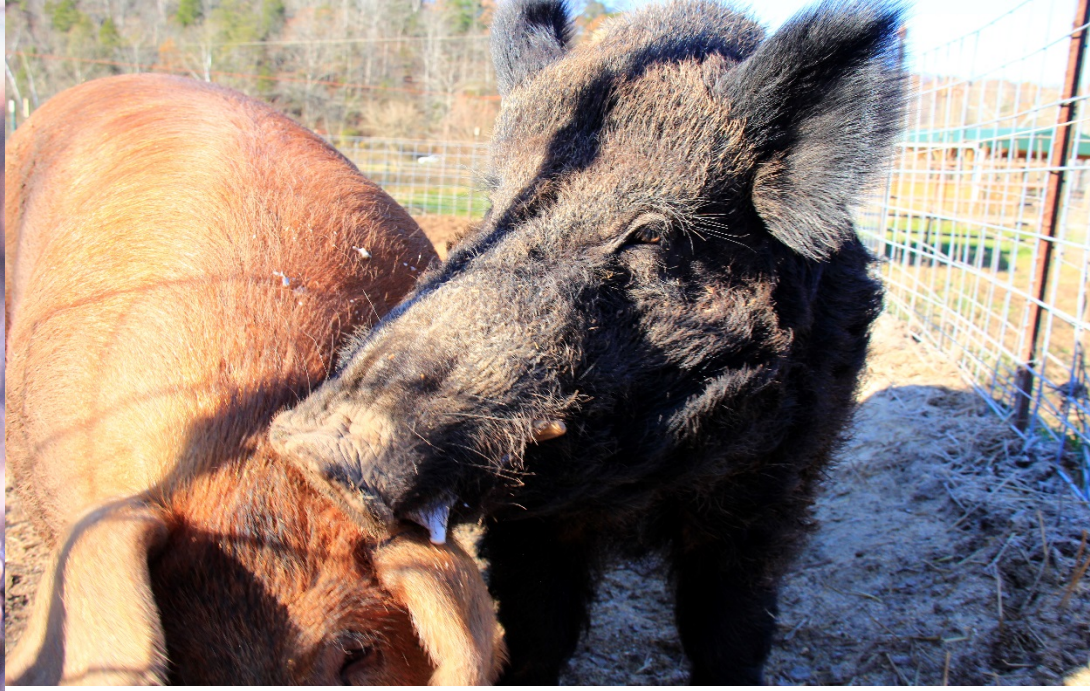




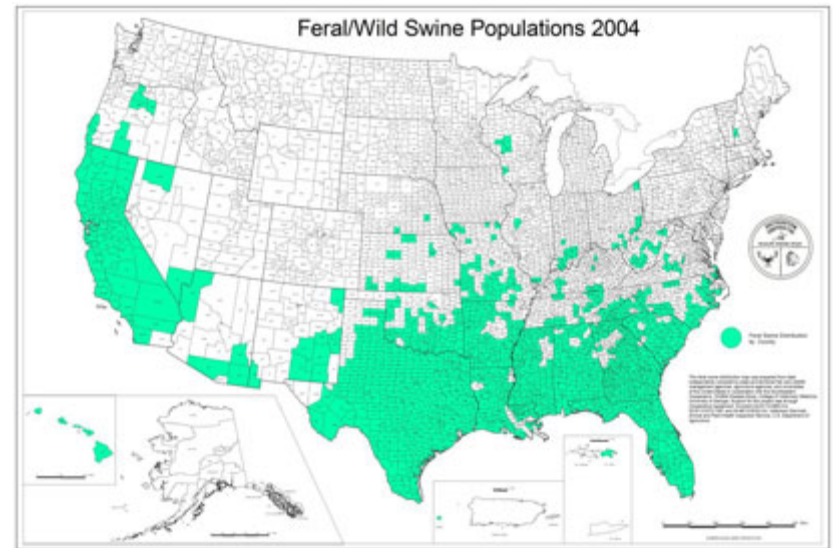
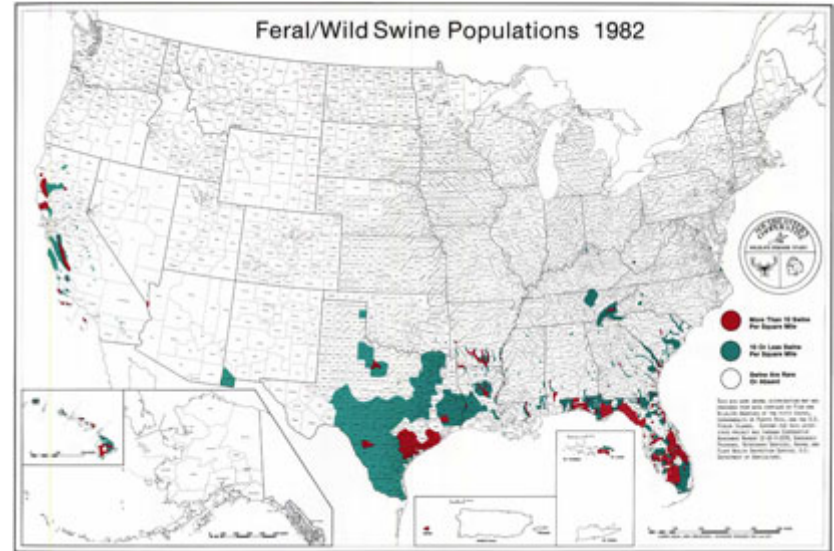
Meat Characteristics Required for Aged, Dry-cured Pork

- **1.5 inches back-fat, seem fat, marbling**
- **Fat picks up flavors and fat characteristics of the diet, SFA vs. USFA**
- **Feral genes promote “feast or famine” fat deposition**
- **Issues with feral pigs**





Issues with feral/outdoor pigs



Measuring woodland impact

- **Dave McGill and Jim Roush of WVU Forestry set up 11 test plots on 9/6 to assess animal impact 11/10**
- **Scott Eggerud and Valerie Howard use GPS to determine acreage and stocking rate**





October observations





November observations



Harvest 11/8/16



Initial thoughts on producing a mast-fed “Pork of the Season”

- **Adjust stocking density to mast availability and duration 1 per 1A or 2A**
- **Observe condition of animals and feeding behavior: “cruching” “ignore vs. clingy”**
- **Feed according to behavior, but twice/day**
- **Start with older, heavier animals (300+ lbs) to incorporate mast flavor into fat**



Thoughts on producing a mast-fed “Pork of the Season”

- 4000 volts from solar charger kept hogs generally in plots
- 1 or 2-strand electric fence at 12” and 20” with orange tape



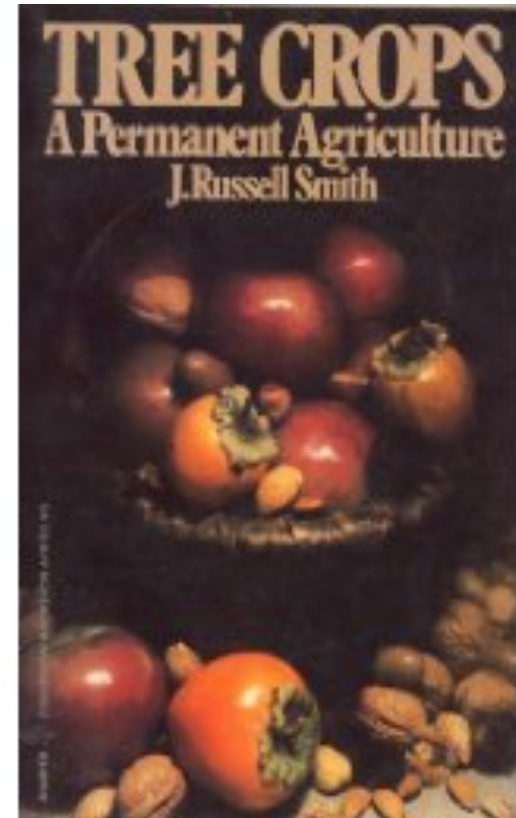
Initial thoughts on maintaining forest stewardship

- Plant shade-tolerant cool season grasses prior to defoliation
- Keep system dynamic
- Work with a processor who is flexible with harvest date
- Predators.....
(hunters?)
- Ring noses (?)

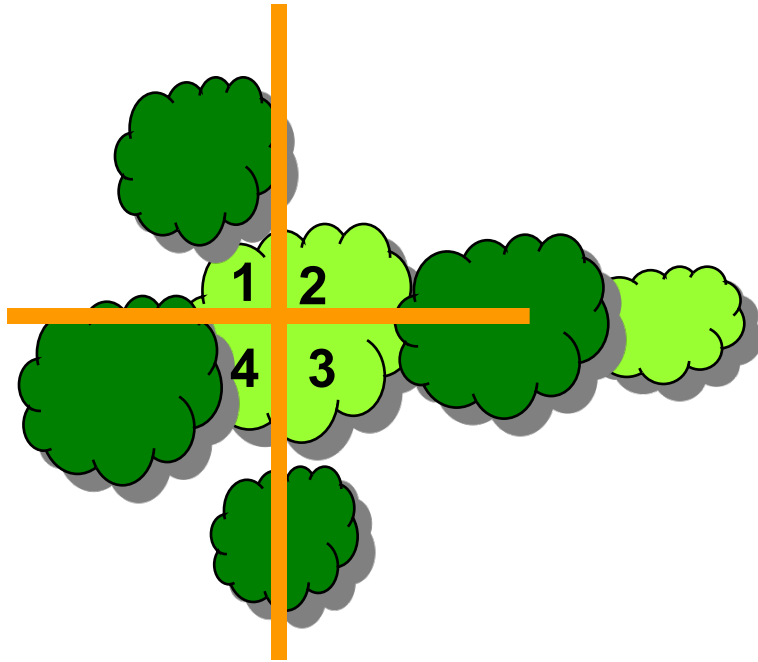


Future considerations: “farm the trees”.... a permanent agriculture

- Plant most producing trees to supplement/replace costly grains
- Produce most seasonally, i.e. mulberries in spring, persimmons, acorns in fall
- Manage “crop trees” to enhance mast production



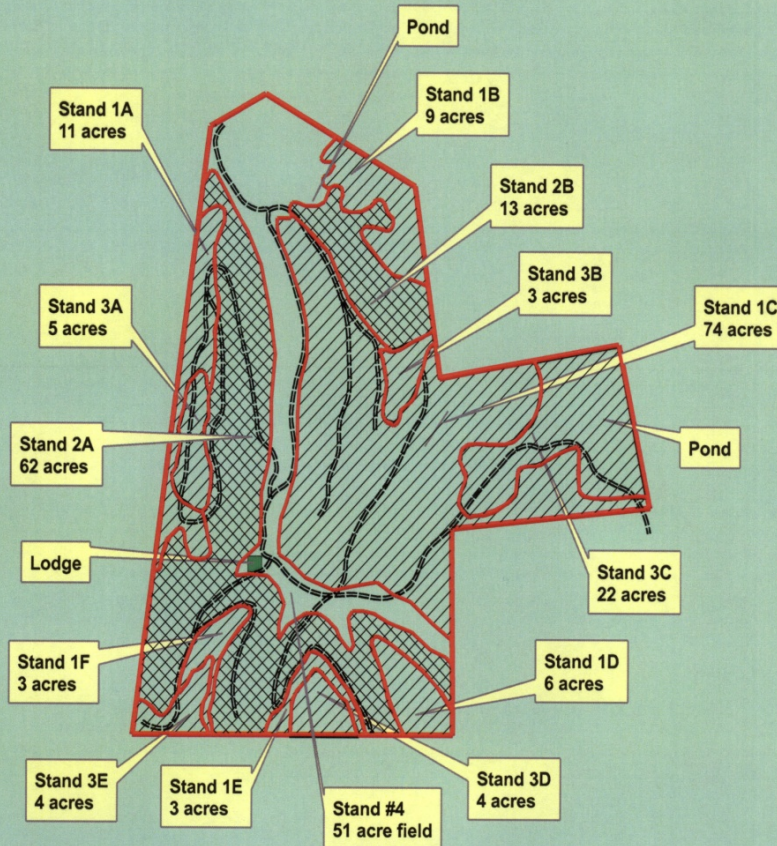
Managing Crop Trees to Promote Mast Production






- Surveyed 70 A oak-hickory forest
- Identified >500 Crop Trees to release



**BLACK OAK HOLLER FARM
FOREST TYPE MAP
Charles W. Talbott, Owner
01/29/09**



FOREST TYPES	ACRES	SYMBOL
Oak Hickory:	144	
Cove Hardwoods	75	
Fields (to be planted)	1	
Total Acreage Planned:	220	



map prepared by S. D. Eggerud
267 acres total
1 inch : approx 1,000 feet
Lodge Location:
Lat. 38 39 53
Lon. -82 0 14
Farm located 3.5 miles northwest
of Pliny, (Mason Co) WV



USDA SARE Farmer/Grower Grant

Crop Trees (CT) Released	#CT	% Total	Avg. DBH/CT	Total Culled	# Culled/CT
White oak	232	45	14	522	2.3
Hickory	140	28	10	327	2.4
Black oak	31	6	14	79	2.5
Red Oak	28	5	14	62	2.2
Chestnut Oak	44	9	13	100	2.3
Persimmon	13	3	9	30	2.3
Walnut	4	1	12	12	3



2009 Observations of Animal Impact on the Woodlands

- Japanese stiltgrass taking over WV woodlands
- Two weeks after pigs released in woods, pigs graze down stiltgrass





Chef's Sworie 10/13



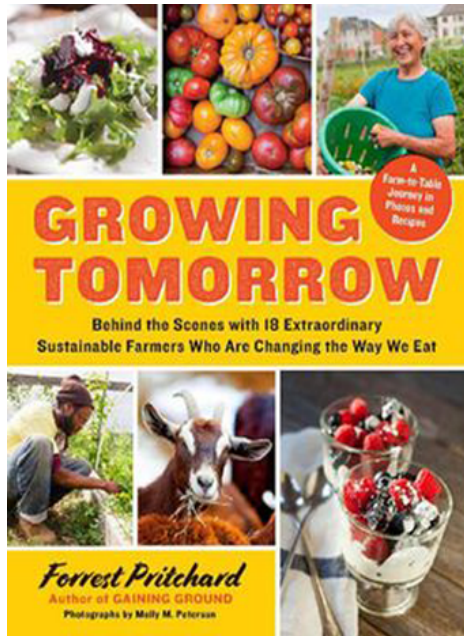
James Beard Dinner, NYC 8/14

- 106 attend 12 course dinner with Woodlands Pork
- 10 chefs prepare their specialty pork dishes
- Woodlands Pork also featured in “Southern Living”, “Whiskey Magazine”; “Gardens and Guns” 2 books.



Pritchard's Book Signing 12/10/15

- “Growing Tomorrow” book signing at Taylor Books
- Two weeks before USDA recall.



WHERE DO WE GO FROM HERE?

- Educate consumers, chefs, farmers to consume locally
- Inspire our youth to embrace agriculture for our own food-security
- Encourage local production with legislation that supports small farm policies (farm to school; cross state inspection)



**WV is # 1 in the US
for Number of Small Farms**

NO FARM

NO FOOD

West Virginia Dept. of Agriculture