GEORGIA

PRODUCTION & MANAGEMENT SYSTEMS

The Floridan Aquifer Collaborative Engagement for Sustainability (FACETS) project is a Coordinated Agricultural Project funded by USDA National Institute of Food and Agriculture award number 2017-68007-26319.

These results represent work in progress and are not suitable for public distribution.

Current Production Systems

CROPS
Cotton-cotton-peanut
Corn-cotton-peanut

FORESTS
Longleaf
Loblolly
Slash pine

Management System Summaries

	Crop	Forests
MS1	• Most Efficient irrigation • Lowest fertilization • Cover crops • Strip tillage	• No thinning • No fertilization • Longer rotation age • Lower initial planting density
MS2	• Efficient irrigation • Medium N rate • No cover crops • Conventional tillage	• Thinning • Medium N rate • Medium rotation age
MS3	• Least efficient irrigation • Highest fertilization • No cover crops • Conventional tillage	• Thinning • Highest N rate • Shortest rotation age

Management Systems for Cotton, GA

	Management System 1	Management System 2	Management System 3
Tillage	Strip Tillage	Conventional Tillage	Conventional Tillage
Irrigation Equipment	Soil moisture sensor (SMS)	None	None
Irrigation Management	Monitor SMS	UGA Checkbook	Minimum 1 ac-in every week
Irrigation Efficiency	85% efficient	80% efficient	70% efficient
Fertilizer Equipment	Custom Spread Lime, P&K Side Dress N	Custom Spread Lime, P&K Side Dress N	Custom Spread Lime; Disc P & K Side Dress N
Custom Spreading	Grid Sample + Variable Lime, P & K	Lime, P & K	Lime
Soil Fertility Management	Soil + Tissue Test	Soil Test	None
Fertilizer	$^1/_3$ ton Lime 30 lb N Starter Fertilizer 70 lb N Side Dress	$^1/_3$ ton Lime 2 ton Chicken Litter 70 lb N Side Dress	$^1/_3$ ton Lime 2 ton Chicken Litter 30 lb N After Planting, 90 lb N Side Dress
Fertilizer Application	Custom Spread Lime, P & K Side Dress N	Custom Spread Lime, P & K Side Dress N	Custom Spread Lime; Disc, P & K Side Dress N
Cover Crops	Rye, no baling	None	None

Management Systems for Cotton, GA

	Management System 1	Management System 2	Management System 3
Tillage	Strip Tillage	Conventional Tillage	Conventional Tillage
Irrigation Equipment	Soil moisture sensor (SMS)	None	None
Irrigation Management	Monitor SMS	UGA Checkbook	Minimum 1 ac-in every week
Irrigation Efficiency	85% efficient	80% efficient	70% efficient
Fertilizer Equipment	Custom Spread Lime, P&K Side Dress N	Custom Spread Lime, P&K Side Dress N	Custom Spread Lime; Disc P & K Side Dress N
Custom Spreading	Grid Sample + Variable Lime, P & K	Lime, P & K	Lime
Soil Fertility Management	Soil + Tissue Test	Soil Test	None
Fertilizer	$^1/_3$ ton Lime 20 lb N Starter Fertilizer 90 lb N Side Dress (applied over 3 applications)	$^1/_3$ ton Lime 2 ton Chicken Litter 70 lb N Side Dress (Side Dress applied in one application)	$^1/_3$ ton Lime 2 ton Chicken Litter 30 lb N After Planting, 90 lb N Side Dress (Side Dress applied in one application)
Fertilizer Application	Custom Spread Lime, P & K Side Dress N	Custom Spread Lime, P & K Side Dress N	Custom Spread Lime; Disc, P & K Side Dress N
Cover Crops	Rye, no baling	None	None

Management Systems for Peanut, GA

	Management System 1	Management System 2	Management System 3
Tillage	Strip Tillage	Conventional Tillage	Conventional Tillage
Vine Residue	Leave on Field	Leave on Field	Leave on Field
Irrigation Equipment	Soil moisture sensor (SMS)	None	None
Irrigation Management	Monitor SMS	UGA checkbook	Minimum 1 ac-in inch per week
Irrigation Efficiency	85% efficient	80% efficient	70% efficient
Fertilizer Equipment	Custom Spread Lime and Gypsum	Custom Spread Lime and Gypsum	Custom Spread Lime and Gypsum, Disk Chicken Litter
Soil Fertility Management	Soil + Tissue Test	None	None
Fertilizer	½ ton Lime, ½ ton Gypsum	½ ton Lime, ½ ton Gypsum	½ ton Lime, ½ ton Gypsum 2 ton Chicken Litter, prior to plant
Cover Crops	Rye no baling	None	None

Management Systems for Corn, GA

	Management System 1	Management System 2	Management System 3
Tillage	Strip Tillage	Conventional Tillage	Conventional Tillage
Irrigation Equipment	Soil Moisture Sensor (SMS)	None	None
Irrigation Management	Monitor SMS	UGA Checkbook	Minimum 1 ac-in every week (up to week 6) Minimum 2 ac-in every week (7^{th} week to harvest)
Irrigation Efficiency	85% efficient	80% efficient	70% efficient
Soil Fertility Management	Soil + Tissue Test	Soil test	None
Fertilizer	Lime – ½ ton P – 100 lb K – 240 lb N – 240 lb (N – 60 lbs at planting; rest applied over 5 applications every two weeks beginning 5 weeks after planting)	Lime – ½ ton P – 100 lb K – 240 lb Poultry litter – 2 tons/acre N – 240 lb (N – 60 lbs at planting; rest applied over 3 applications every two weeks beginning 8 weeks after planting)	Lime – ½ ton P – 100 lb K – 240 lb Poultry litter – 2 tons/acre N – 240 lb (N – 60 lbs at planting; rest applied over 1 applications 12 weeks after planting)
Custom Spreading	Grid Sample + Variable Lime, P & K	None	None
Cover Crops	Rye, no baling	None	None

FORESTS

SLASH PINE

Slash	Management System 1	Management System 2 Wood	Management System 2 Pine Straw	Management System 3
Nutrient Management	No fertilizer application	1 fertilizer application Year 13: 200 lbs/ac Urea, 75 lbs/acre DAP (March 15th)	1 fertilizer application Year 13: 200 lbs/ac Urea, 75 lbs/acre DAP (March 15th)	2 fertilizer applications Year 3: 125 lbs/acre of DAP (March 15th) Year 13: 200 lbs/ac Urea, 75 lbs/acre DAP (March 15th)
Initial Planting Density	500 trees per acre	550 trees per acre	550 trees per acre	550 trees per acre
Rotation Length	36 years – 35 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow	27 years – 26 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow	27 years – 26 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow	23 years – 22 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow
Thinning	No thinning	1 thinning (Dec 31th of year 12) to 65 ft^2/acre	No thinning	1 thinning (Dec 31st of year 12) to 65 ft^2/acre
Pine Straw Raking	No raking	No raking	90% removed yearly (December 1st) (years 8 to 26)	No raking
Hunting Leases (economic model only)	revenue of $10 per acre per year	revenue of $10 per acre per year	revenue of $10 per acre per year	revenue of $10 per acre per year
Understory Management (economic model only)	initial weed control and prescribed fire starting at year 10 and every 4 years thereafter	initial weed control only	initial weed control only	initial weed control only

FORESTS

LOBLOLLY PINE

Loblolly	Management System 1	Management System 2	Management System 3
Nutrient Management	No fertilizer application	1 fertilizer application Year 13: 200 lbs/ac Urea, 75 lbs/acre DAP (March 15th)	2 fertilizer applications Year 3: 125 lbs/acre of DAP (March 15th) Year 13: 200 lbs/ac Urea, 75 lbs/acre DAP (March 15th)
Initial Planting Density	500 trees per acre	550 trees per acre	550 trees per acre
Rotation Length	31 years – 30 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow	27 years – 26 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow	23 years – 22 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow
Thinning	No thinning	1 thinning (Dec 31st of year 12) to 70 ft2/acre	1 thinning (Dec 31st of year 12) to 70 ft2/acre
Pine Straw Raking	No raking	No raking	No raking
Hunting Leases (economic model only)	revenue of $10 per acre per year	revenue of $10 per acre per year	revenue of $10 per acre per year
Understory Management (economic model only)	initial weed control and prescribed fire starting at year 10 and every 4 years thereafter	initial weed control only	initial weed control only

FORESTS

LONGLEAF PINE

Longleaf	Management System 1	Management System 2
Nutrient Management	No fertilizer application	1 fertilizer application Year 20: 150 lbs/ac Urea. 50 lbs/acre DAP (March 15th)
Initial Planting Density	500 trees per acre	525 trees per acre
Rotation Length	41 years – 40 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow	39 years – 38 years growth (plant-Jan 1st harvest-Dec 31st) 1 year fallow
Thinning	No thinning	No thinning
Pine Straw Raking	No raking	90% removed yearly (December 1st) (years 10 to 38)
Hunting Leases (economic model only)	revenue of $10 per acre per year	revenue of $10 per acre per year
Understory Management (economic model only)	initial weed control and prescribed fire at year 10 and every 4 years thereafter	initial weed control and mid-rotation herbicide application