Overview of Current Resources and Assistance for Silvopastoralists

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What's out there now…

Technical Assistance

- NRCS Conservation Practice Standard – Silvopasture Establishment (381)
  - Some states (SE mostly) have Job Sheets, tech notes
- National Agroforestry Center (NAC)

Financial Assistance

- Conservation Stewardship Program Enhancement – **ANM20 – Silvopasture for Wildlife Habitat**
- **Environmental Quality Incentives Program (EQIP)**

NATURAL RESOURCES CONSERVATION SERVICE
KENTUCKY CONSERVATION PRACTICE STANDARD

SILVOPASTURE ESTABLISHMENT

(Ac.)

CODE 381

DEFINITION

An agroforestry application establishing a combination of trees or shrubs and compatible forages on the same acreage.

PURPOSE

- Provide forage for livestock and the production of wood products.
- Reduce erosion.
- Enhance wildlife habitat.
- Provide shade for livestock.

CONDITIONS WHERE PRACTICE APPLIES

Situations where silvopasture establishment applies includes: 1) pasture where trees or shrubs can be added; 2) forest where forages can be added; 3) Land on which neither the desired trees nor forages exist in sufficient quantity to meet the land user's objectives.

This practice may be applied on any area that is suitable for the desired plants.

CRITERIA

General Criteria Applicable to All Purposes

Tree species must be adapted to the site and compatible with planned livestock management. White pine, Loblolly pine, Black walnut, Black Locust, and Pecan typically have "open" crowns that are more conducive to productive understory than other species that are adapted in Kentucky.

Forage species must be adapted to the site and compatible with the planned management of the site.

Where trees will be added to existing pasture, site preparation should be based on existing vegetation and soil conditions. (See Forest Site Preparation Standard 490.) When using pesticides follow label recommendations and Pest Management Standard 595.

Only viable, high quality, and adapted planting stock will be used.

The planting shall be done at a time and manner to insure survival and growth of selected species. Spring plantings for bare-root seedlings can begin when the ground is no longer frozen and as soon as planting stock is available. Spring planting usually terminates in western Kentucky by April 15 and in eastern Kentucky by May 1. Fall planting may be done after hardwoods have lost their leaves and on into winter as weather and ground conditions permit. Fall and winter planted stock is subject to frost heaving and winter kill.

Additional Criteria to Provide Forage for Livestock and the Production of Forest.

The forage species must be identified as suitable for the targeted livestock.

Livestock grazing shall be deferred until the average height and diameter of the trees is sufficient to resist breakage or until suitable use exclusion measures for the protection of the woody plants are established. Hay or silage may be harvested during this period.

Tree density at planting should be approximately 200 to 400 per acre for conifers, or 100 per acre for Black walnut, Black locust, or Pecan. The tree species must be adapted for the site on which Silvopasture is being established. Throughout the rotation, trees will be thinned in order to maintain understory/overstory balance

Silvopasture Job Sheet

NRCS

Silvopasture Establishment

for a typical southern pine system

Alabama Job Sheet No. AL381A

Definition

Silvopasture - An agroforestry application establishing a combination of trees or shrubs and compatible grasses or legumes on the same acreage to provide forage for livestock, produce wood products, increase carbon sequestration, improve water quality, improve soil quality, reduce erosion, enhance wildlife habitat, and provide shade for livestock.

Establishment

Land where silvopasture establishment applies includes: 1) pasture where trees or shrubs can be added; 2) forests where forages can be added; 3) land on which neither the desired trees nor forages exist in sufficient quantity or quality to meet the land user's objectives.

- Where trees will be added to existing pasture, site preparation should be based on existing vegetation and soil conditions.

  Refer to the Forest Site Preparation and Tree Planting job sheets for more specific information. Trees should be planted at the recommended spacing and density shown in (Table 1).

- For existing forests being converted to silvopasture, thin and/or prune, if needed, existing trees to reduce canopy cover sufficient for forage establishment and adequate growth. Generally, canopy cover of about 25-50 percent

percent increases over time the high end of the range can be an indicator that it is time to thin again. This is a good basic recommendation but because tree and forage species vary adjustments will need to be made for optimum tree and forage production. Consult with NRCS, Alabama Forestry Commission foresters, or private consulting foresters for further assistance.

- Refer to the Pasture Planting Guide (AL 512) sheet for more specific information on forage establishment.

Considerations

Tree spacing should exceed the maximum width of equipment to be used in management.

Use only viable, high quality, and adapted seedlings, and plant at a time and manner to insure survival and growth. Select the forage species best suited for the site and for the targeted livestock.

Livestock grazing should be deferred until the average height of the trees' terminal bud exceeds the browsing height of the livestock and the trees are of sufficient size to resist breakage. Hay or silage can be harvested during this period.

Place tree rows on or near the contour when water erosion is a concern, and use other supporting practices as needed for erosion control.

Locate facilities for water, minerals, or supplemental feed to encourage uniform grazing.

Rows should be oriented in an east-west orientation

Silvopasture Establishment – Work Sheet

Landowner_____ Field number_____

Purpose (check all that apply)	
☐ Forage for livestock	☐ Provide shade for livestock
☐ Produce high quality sawtimber	☐ Enhance wildlife habitat
☐ Increase carbon sequestration	☐ Reduce erosion
☐ Improve water quality	☐ Improve aesthetics on the property

Layout – Existing Pasture

Even Distribution System	Alley System
Plant to plant spacing (ft):	Alley width (ft):
	Number of rows per set:
	Row and plant to plant spacing (ft):
	Cultivated strip width – around new planting (ft):
	Tree/shrub set orientations: ___Contour; ___North/South, East/West, ___Other (specify _____)

Layout – Existing Forest

Even Distribution System	Alley System
Spacing between existing trees (ft):	Alley width (ft):
Desired spacing between trees (ft):	Number of rows of trees between alleys:
Basal Area of residual stand (ft²):	Basal Area of residual stand (ft²):
Forage – species to establish:	Forage – species to establish:

Woody Plant Materials Information –Even Distribution System

Planting Date:					
Species of trees:	Kind of stock[1]:	Average distance between trees (ft)	Total number of trees per acre:	Total number of acres:	Total number of trees needed for practice:
1					
2					
3					
4					
5					

[1]BAreroot, COntainer,; include size, caliper, height, and age as applicable. [2]Adjusted for width of maintenance equipment.

Woody Plant Materials Information – Alley System

Planting Date:					
Species of trees:	Kind of stock[1]:	Distance between Plants within row (ft)	Row width (ft):	Alley width (ft):	Total number of trees needed for practice:
1					
2					
3					

Silvopasture Tree Planting Calculator

Silvopasture planting options and trees per acre*

Alley Width	No. of rows per set	Tree Row spacing	Tree-to-Tree In row spacing	Tree per Acre	Total Acres Planned	Total** Seedlings Needed
40	2	10	6	290	12.0	3485

*Field shape and planting design may cause some variation in trees per acre.

**Number of seedlings is an estimate. Round up to the nearest thousand (at a minimum) to account for error, and defective or damaged seedlings.

Instructions: Fill in each "blue" block with desired number to calculate trees per acre. Enter Total Acres to calculate total seedlings.

Silvopasture Tech Note

Silvopasture Establishment and Management

Conservation Practice Information Sheet **(IS-MO381)**

Silvopasture: Integrating Trees, Forages and Livestock

What is Silvopasture?

Silvopasture is an agroforestry practice that is specifically designed and managed for the production of trees, tree products, forage and livestock. Silvopasture results when forage crops are deliberately introduced or enhanced in a timber production system, or timber crops are deliberately introduced or enhanced in a forage production system. As a silvopasture practice, timber and pasture are managed as a single integrated system.

Silvopasture practices are designed to produce a high-value timber component, while providing short-term cash flow from the livestock component. The interactions among timber, forage, and livestock are intensively managed to simultaneously produce useful timber products, quality forages and profitable livestock operations. Overall, silvopastures can provide cost-effective economic returns while creating a sustainable system with many environmental benefits. Well-managed silvopastures also offer a diversified marketing opportunity that can help stimulate rural economic development.

Planning Considerations

Before a new silvopasture practice is established, implications of merging forestry and livestock systems should be explored thoroughly for economic and environmental considerations. In addition, local land use, zoning, cost-share programs and tax regulations should be investigated. Forest and agricultural land may have separate zoning and land-use regulations accompanied by divergent tax assessments. Environmental requirements (e.g., planting trees, stream-side protection, wildlife habitat maintenance) may also vary with land use.

Plants

When making tree and forage crop selections, consider potential markets, soil types, climatic conditions, equipment needs, and species compatibility. On marginally productive lands, conifer trees are well-suited for silvopastures because they can adapt to diverse growing sites, respond rapidly to intensive management and may permit more light to reach the forest floor than hardwood trees. Select and use trees and planting/harvesting patterns that are suitable for the site, compatible with planned practices and provide desired economic and environmental returns. Clovers or other pasture legumes are often seeded into grass pastures to provide highly nutritious food for livestock and to convert atmospheric nitrogen into an organic form which plants and animals can use. Competition between trees and pasture is reduced by selecting pasture plants which either grow at a different time of year, or are more shallowly rooted than trees. For example, cool season grasses (such as orchard grass or timothy) and legumes (such as ladino or

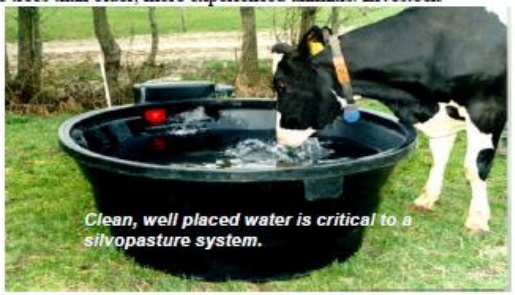
Silvopasture Establishment and Management
Conservation Practice Information Sheet **(IS-MO381)**

Table 2. Examples of grasses and legumes suitable for use in silvopasture

Grasses			
Native			
Big bluestem	*Andropogon gerardii*	**Canada wildrye**	*Elymus canadensis*
Little bluestem	*Schizachyrium scoparium*	**Eastern gamagrass**	*Tripsacum dactyloides*
Switchgrass	*Panicum virgatum*	**Virginia wildrye**	*Elymus virginicus*
Indiagrass	*Sorghastrum nutans*	**Canada wildrye**	*Elymus canadensis*
Introduced			
Tall fescue	*Festuca aruninacea*	**Orchardgrass**	*Dacthlis glomerata*
Kentucky bluegrass	*Poa pratensis*	**Timothy**	*Phleum pretense*
Smooth bromegrass	*Bromus inermis*	**Ryegrass**	*Lolium perenne*
Legumes:			
Native			
White prairie clover	*Petalostemon candidum*	**Roundhead lespedeza**	*Lespedeza capitata*
Leadplant	*Amorpha canescens*	**Showy tick trefoil**	*Desmodium canadense*
Introduced			
Kobe lespedeza	*Kummerowia striata*	**White clover**	*Trifolium repens*
Cody alfalfa	*Medicago sativa*	**Red clover**	*Trifolium pratense*

Livestock

Potential livestock choices include cattle, sheep, goats, horses, or large game animals such as bison, deer, and elk. The selected livestock system must be compatible with tree, forage, and environmental requirements. In general, browsing animals such as sheep, goats or deer are more likely to eat trees; whereas, large grazing animals such as cattle or elk are more likely to physically break young trees. Younger livestock are more prone to damage trees than older, more experienced animals. Livestock activity is more likely to impact hardwood trees than conifers. Conifers, although not really palatable to livestock, are most likely to be browsed after spring bud break when foliage is still light green in color. Livestock like variety in their diet. They will often consume a small amount of tree foliage each day. This small amount of browsing may accumulate to unacceptable levels when animals are in the silvopasture for prolonged periods. Browsing damage can sometimes be eliminated by removing a few problem animals. Trampling of very young seedlings and livestock rubbing on tree saplings may be a problem, particularly with cattle. Where livestock damage must be avoided, young silvopastures may be hayed, or trees protected from livestock by chemical repellents, electric fences, individual tree shelters or rigid mesh tubes. Once the top branches of trees grow above the reach of livestock and a thick layer of bark has developed, potential for tree damage by livestock browsing is minimal and silvopastures may be managed similar to pastures.



Clean, well placed water is critical to a silvopasture system.

National Agroforestry Center

USDA National Agroforestry Center

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Working Trees: Silvopasture

Various planning, establishment, and management considerations are detailed with examples from the Southeastern United States. (6 pages)

PDF Order

Silvopasture

Silvopasture combines trees with forage and livestock production. The trees are managed for high-value sawlogs and, at the same time, provide shade and shelter for livestock and forage, reducing stress and sometimes increasing forage production. In plantations of conifers or hardwoods for timber or Christmas trees, managed grazing provides added products and income. Some nut and fruit orchards may also be grazed.

Related Publications

Get Adobe Reader

To view PDFs (Portable Document Format), please download Adobe's free Reader software if you do not already have it.

- *Working Trees*
  - Working Trees For Agriculture PDF Order
  - Working Trees For Water Quality PDF Order
  - Working Trees For Wildlife PDF Order
  - Working Trees For Livestock PDF Order
  - Working Trees: Silvopasture PDF Order
  - Working Trees For 2002 Farm Bill PDF
  - Working Trees For Carbon Cycle Balance PDF
- Inside Agroforestry

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WELCOME!

Silvopasture is an agroforestry practice that integrates livestock, forage production, and forestry on the same land-management unit. Silvopasture systems are deliberately designed and managed to produce a high-value timber product in the long term while providing short-term annual economic benefit from a livestock component through the management of forage or an annual crop component.

This website is a companion resource to the technical handbook, *Silvopasture: Establishment & management principles for pine forests in the Southeastern United States*. (click here to download handbook). The site is designed as an online course and a resource to enable natural resource professionals and landowners to understand and apply the economic and ecological principals of Silvopasture.

LOGIN OR REGISTER FOR THIS COURSE

Once you complete all Modules and Quizes, you will be receive 3.0 CFE Credit Hours in Category 1-CF from the Society of American Foresters.

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A Strategy for Increasing NRCS Silvopasture Assistance

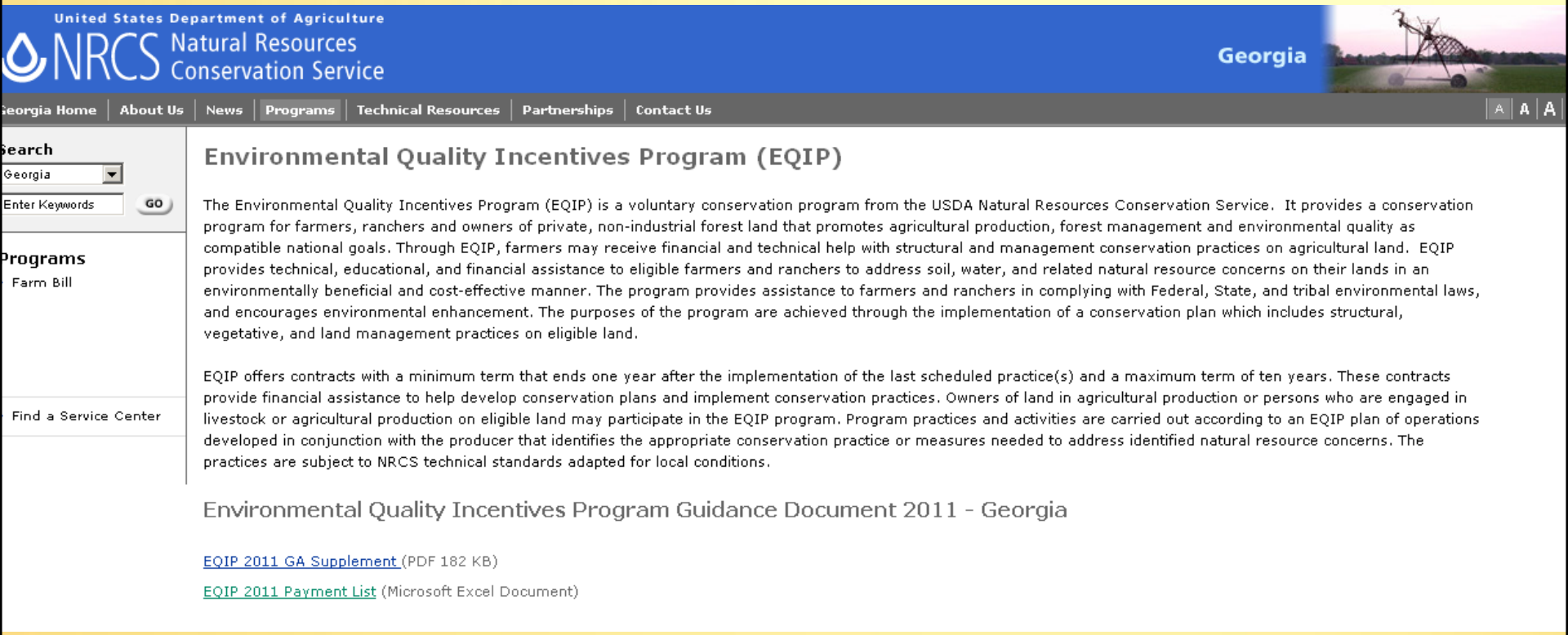
Technical

- Get on the State Tech. Committee agenda
- Get 381 into FOTG
- Consider using existing practices
  - Tree/Shrub Est. 612
  - Pasture/Hayland Est. 512
  - Forest Stand Improv. 666
- Promote 381 training and Demonstration Areas (CIG?).

Financial

- Once 381 is available, add to EQIP practices
- Alternatively, make sure 612, 512, and 666 are EQIP eligible

From the GA NRCS Website:



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Environmental Quality Incentives Program (EQIP)

The Environmental Quality Incentives Program (EQIP) is a voluntary conservation program from the USDA Natural Resources Conservation Service. It provides a conservation program for farmers, ranchers and owners of private, non-industrial forest land that promotes agricultural production, forest management and environmental quality as compatible national goals. Through EQIP, farmers may receive financial and technical help with structural and management conservation practices on agricultural land. EQIP provides technical, educational, and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with Federal, State, and tribal environmental laws, and encourages environmental enhancement. The purposes of the program are achieved through the implementation of a conservation plan which includes structural, vegetative, and land management practices on eligible land.

EQIP offers contracts with a minimum term that ends one year after the implementation of the last scheduled practice(s) and a maximum term of ten years. These contracts provide financial assistance to help develop conservation plans and implement conservation practices. Owners of land in agricultural production or persons who are engaged in livestock or agricultural production on eligible land may participate in the EQIP program. Program practices and activities are carried out according to an EQIP plan of operations developed in conjunction with the producer that identifies the appropriate conservation practice or measures needed to address identified natural resource concerns. The practices are subject to NRCS technical standards adapted for local conditions.

Environmental Quality Incentives Program Guidance Document 2011 - Georgia

EQIP 2011 GA Supplement (PDF 182 KB)

EQIP 2011 Payment List (Microsoft Excel Document)

Friday, October 15, 2010

DRAFT GA NRCS PROGRAM (EQIP) PAYMENT LIST FY 2011

All practices listed below will be installed to NRCS Section IV Field Office Technical Guide Standards and Specifications. Where special instructions and/or limitations are enforced, notes are listed to the right of the Practice Components
Program Police. All Practices are paid to an "as installed basis" based on cost rates listed.

CODE	PRACTICE	ITEM	UNIT	UNIT COST	50% PR	75% PR	90% PR	CAP	NOTES
309	Ag Chemical Handling Facility		EA	$20,000.00	$10,000.00	$15,000.00	$18,000.00		Agricultural chemical storage, wash-off, handling facility (with safety features). Min 25 ft. by 25 ft building.
591	Amendments for Agricultural Waste	Litter Treatment	Ton	$600.00	$300.00	$450.00	$540.00		Program payments are limited to two houses per producer (@ 2-tons/house) for one application.
316	Animal Mortality Facility (Type 1)	Incinerator < 300 lbs/day capacity	EA	$6,250.00	$3,125.00	$4,687.50	$5,625.00		Includes 4" concrete pad extending 2ft from incinerator on all sides. Also includes freight and Secondary Burners
316	Animal Mortality Facility (Type 2)	Incinerator 300-750 lbs/day capacity	EA	$8,000.00	$4,000.00	$6,000.00	$7,200.00		capacity.
316	Animal Mortality Facility (Type 3)	Incinerator >750 lbs/day capacity	EA	$12,250.00	$6,125.00	$9,187.50	$11,025.00		
360	Closure of Waste Impoundments (Type 1)	Dewatering (pump out ≤40,000 cu. ft.)	EA	$2,000.00	$1,000.00	$1,500.00	$1,800.00		If state permitted must provide N.O.T. to state and certification that closure was to NRCS Standards a
360	Closure of Waste Impoundments (Type 2)	Dewatering (pump out 40,000 cu. Ft. or greater)	CF	$0.02	$0.01	$0.02	$0.02		
360	Closure of Waste Impoundments (Type 3)	Earthwork (includes seeding)	CY	$4.25	$2.13	$3.19	$3.83		
372	Combustion System Improvement (Type 1)	Conversion from combustible to Electric; less than 15 HP	EA	$10,000.00	$5,000.00	$7,500.00	$9,000.00		Documentation requirements include; picture of the pumping unit being replaced that shows the pump model and the dealer to determine the required size of the new pump and/or motor; picture of the new pumping unit showing r
372	Combustion System Improvement (Type 2)	Conversion from combustible to Electric; greater than or equal to 15 HP	EA	$20,000.00	$10,000.00	$15,000.00	$18,000.00		installed on concrete pad. Must be tied with IWM (449) as a contracted item and submitted by Certified Irrigation D Documentation that engine has been replaced and evidence (i.e .picture, that original engine is destroyed)
317	Composter	Wood or Steel Frame	SF	$15.75	$7.88	$11.81	$14.18		Includes side sheds, stand alone, and inside stackhouse;includes mobilization, vegetation and apron cost; square
102	Comprehensive Nut. Management Plan (Type 1)	Comprehensive NMP TSP	EA	$1,000.00	$500.00	$750.00	$900.00		1Time Payment, Reimbursement is for development of a Complete Nutrient Management Plan completed by TSI
102	Comprehensive Nut. Management Plan (Type 2)	Comprehensive NMP NRCS	EA	$265.00	$132.50	$198.75	$238.50		1 Time Payment, Plan developed by NRCS (for Data collection)
381	Silvopasture Establishment (Type 1)	Forest to Pasture	AC	$1,200.00	$600.00	$900.00	$1,080.00		Don't need to meet cropping History. Do not combine with other practices. Cutover forestland NOT eligible.
381	Silvopasture Establishment (Type 2)	Pasture to Forest	AC	$400.00	$200.00	$300.00	$360.00		
632	Solid/Liquid Waste Separation. (Type 1)	Solid Seperator	CF	$6.00	$3.00	$4.50	$5.40		Includes solid manure volume plus flushwater; CF based on volume to be stored
632	Solid/Liquid Waste Separation. (Type 2)	Sandtrap	SF	$4.50	$2.25	$3.38	$4.05		
574	Spring Development	System Cost	EA	$2,000.00	$1,000.00	$1,500.00	$1,800.00		Includes concrete pipe or collection box, gravel, earthwork, and mobilization.
580	Steambank and Shoreline Protection (Type 1)	Low level of protection	LF	$20.00	$10.00	$15.00	$18.00		Includes shaping bank, critical area vegetation and erosion control fabric.
580	Steambank and Shoreline Protection (Type 2)	Medium level of protection	LF	$45.00	$22.50	$33.75	$40.50		Includes shaping bank, critical area vegetation, livestake, rootwads and revetments.
580	Steambank and Shoreline Protection (Type 3)	High level of protection	LF	$90.00	$45.00	$67.50	$81.00		Includes shaping bank and installing riprap, gabions,etc.
578	Stream Crossing (Type 1)	Ford Crossing using GAB	SF	$5.00	$2.50	$3.75	$4.50		Includes earthwork, GAB, geotextile, mobilization and vegetation.
578	Stream Crossing (Type 2)	Ford Crossing using Surge Stone	SF	$6.90	$3.45	$5.18	$6.21		Includes earthwork, Surge Stone, GAB topping, geotextile, mobilization and vegetation.
578	Stream Crossing (Type 3)	Ford Crossing using Rip Rap or Concrete	SF	$10.00	$5.00	$7.50	$9.00		Includes earthwork, Rip Rap, GAB topping, geotextile, or concrete plus mobilization and vegetation.
578	Stream Crossing (Type 4)	Pipe Crossing (≤24" pipe)	EA	$6,400.00	$3,200.00	$4,800.00	$5,760.00		
578	Stream Crossing (Type 5)	Pipe Crossing (30" to 36")	EA	$10,100.00	$5,050.00	$7,575.00	$9,090.00		Includes earthwork, pipe, GAB, geotextile, mobilization and vegetation.
578	Stream Crossing (Type 6)	Pipe Crossing (42" or greater)	EA	$18,900.00	$9,450.00	$14,175.00	$17,010.00		
600	Terrace		LF	$0.50	$0.25	$0.38	$0.45		Maintenance required for life of practice; payment assistance not available if assisted within last 9 years.
612	Tree and Shrub Establishment (Type 1)	Longleaf	AC	$300.00	$150.00	$225.00	$270.00		Planting. Cut over acres eligible for planting requires a minimum of 10 acres.. May be used in combination with sit
612	Tree and Shrub Establishment (Type 2)	Loblolly/Slash	AC	$90.00	$45.00	$67.50	$81.00		
612	Tree and Shrub Establishment (Type 3)	Hardwood	AC	$130.00	$65.00	$97.50	$117.00		
490	Tree and Shrub Preparation (Type 1)	Heavy Site Preparation	AC	$300.00	$150.00	$225.00	$270.00		Includes chemical, mechanical and burning
490	Tree and Shrub Preparation (Type 2)	Light Site Preparation	AC	$150.00	$75.00	$112.50	$135.00		Includes chemical, mechanical and burning
490	Tree and Shrub Preparation (Type 3)	Post Plant Herbaceous Weed control	AC	$50.00	$25.00	$37.50	$45.00		

Georgia ELIGIBLE EQIP PRACTICE LIST

"NRCS-Georgia, with input from the State Technical Committee, has identified the following State Resource Issues for fiscal year 2011:"

- Forestry
- Grazing Land
- Soil Erosion
- Water Conservation
- Water Conservation - B
- Water Quality

"NRCS-Georgia, with input from the State Technical Committee, has identified the following practices to be eligible for payments during fiscal year 2011 based on the listed State Resource Issues."

Forestry

- 647 - Early Successional Habitat
- 666 - Forest Stand Improvement
- 590 - Nutrient Management
- 655 - Forest Trails
- 595 - Pest Management
- 338 - Prescribed Burning
- 391 - Riparian Forest Buffer-(ac.)
- 578 - Stream Crossing
- 612 - Tree/Shrub Establishment-(ac.)
- 490 - Tree/Shrub Site Preparation

Grazing Lands

- 102 - Comprehensive Nutrient Management Plan
- 340 - Cover Crop
- 342 - Critical Area Planting
- 382 - Fence
- 561 - Heavy Use Area Protection
- 590 - Nutrient Management
- 512 - Pasture & Hayland Planting
- 595 - Pest Management
- 338 - Prescribed Burning
- 528 - Prescribed Grazing
- 516 - Pipeline
- 533 - Pumping Plant
- 391 - Riparian Forest Buffer
- **381 – Silvopasture Establishment**