

**Practice:** 381 - Silvopasture Establishment

**Scenario:** #1 - Establish Trees

**Scenario Description:** Establishment of trees into an existing pasture that contains adequate native or introduced forage.

**Before Situation:** Pasture with suitable forage for livestock. There is very little protection from the elements (sun, wind, etc.) available to the livestock. Additionally, there are no long-term wood products being produced. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition, Livestock Production Limitation - Inadequate Livestock Shelter.

**After Situation:** The site will be prepared using Tree/Shrub Site Preparation (490), if needed, and then 200 to 400 pine trees per acre will be planted, providing shade and wind protection to livestock and wildlife, and, in time, producing a viable wood products crop. Per the conservation practice standard, livestock grazing will be deferred until the trees reach adequate height to resist damage, or use exclusion measures are established. All Resource Concerns listed above are addressed.

**Scenario Feature Measure:** Acres of silvopasture established

**Scenario Unit:** Each

**Scenario Typical Size:** 4000

**Total Scenario Cost:** \$813.10

**Scenario Cost/Unit:** \$0.20

**Cost Details**

Component Name	Id	Description	Unit	Cost	Qty	Total
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**Labor**

Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.70	8	\$181.61
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$22.04	8	\$176.35

**Equipment Installation**

Mechanical tree planter	1600	Mechanical tree planter. Requires a pulling unit of either tractor or small dozer depending upon site conditions. Does not include labor.	Hour	\$6.84	8	\$54.69
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$22.04	8	\$176.36

**Materials**

Tree, conifer, seedling, bare root, 1-0	1512	Bare root conifer trees, 1-0 (1 year old). Includes materials and shipping only.	Each	\$0.06	4000	\$224.10
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**Scenario:** #2 - Thin Forest

**Scenario Description:** Reduce density of existing forest stand (pine or hardwood, native or planted) so as to achieve 35 to 45 percent canopy cover followed by establishment of native grasses. Typically, forest sites require thinning and tillage to provide a favorable seedbed for the establishment of forages. Use heavy equipment (usually bull dozers, masticator, or mulcher & not typical farming equipment) to reduce the stocking level of a stand of desirable trees.

**Before Situation:** Forest stand with very little available forage for livestock due to the dense shade of the tree canopy. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition, Wildfire Hazard, Excessive Biomass Accumulation; Livestock Production Limitation - Inadequate Feed and Forage, Inadequate Livestock Shelter, and Forage Quality and Palatability,

**After Situation:** The stand is thinned which will allow adequate sunlight to the forest floor for grass production, yet still provide shade and some protection from the elements for livestock and wildlife. The soil is prepared for planting using chemical and mechanical means. All Resource Concerns listed above are addressed.

**Scenario Feature Measure:** Acres of silvopasture established

**Scenario Unit:** Acre

**Scenario Typical Size:** 10

**Total Scenario Cost:** \$4,007.05

**Scenario Cost/Unit:** \$400.70

**Cost Details**

Component Name	Id	Description	Unit	Cost	Qty	Total
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**Labor**

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$27.99	24	\$671.65
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$107.62	8	\$860.93

**Materials**

Tree Marking Paint	313	Trees to be cut through tree marking are physically identified through the application of paint on the tree. Typically one quart of paint is used to mark one acre of trees. Includes materials and shipping only.	Acre	\$6.66	10	\$66.62
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**Equipment Installation**

Mechanical cutter, chopper	943	Forestry mulcher, flail shredder, hydro axe, brush cutter, etc. Equipment and power unit costs. Labor not included.	Hour	\$84.38	24	\$2,025.12
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$19.39	8	\$155.09

**Mobilization**

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$227.64	1	\$227.64
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**Practice:** 381 - Silvopasture Establishment

**Scenario:** #3 - Establish Native Grass

**Scenario Description:** Establishment of native grasses into an existing or planted stand of trees.

**Before Situation:** Existing forest stand (pine or hardwood, native or planted) with 35 to 45 percent canopy cover or newly planted stand of trees with 200 to 400 trees per acre. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition; Livestock Production Limitation - Inadequate Feed and Forage.

**After Situation:** The soil is prepared for planting using chemical and mechanical means, then a mix of native warm-season grasses will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

**Scenario Feature Measure:** Acres of silvopasture established

**Scenario Unit:** Acre

**Scenario Typical Size:** 10

**Total Scenario Cost:** \$4,456.42

**Scenario Cost/Unit:** \$445.64

**Cost Details**

Component Name	Id	Description	Unit	Cost	Qty	Total
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**Materials**

Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.93	10	\$159.26
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$41.56	20	\$831.21
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.61	500	\$304.95
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.46	500	\$230.89
Three plus Species Mix, Warm Season, Native Perennial	2327	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$220.98	10	\$2,209.75

**Equipment Installation**

Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.46	10	\$54.59
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$7.47	10	\$74.74
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.11	10	\$61.15
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$9.29	10	\$92.93
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$19.00	10	\$190.04
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$9.92	10	\$99.15
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	\$14.78	10	\$147.75

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**Scenario:** #4 - Establish Introduced Grass

**Scenario Description:** Establishment of introduced grasses into an existing stand of trees that is already at an adequate density .

**Before Situation:** Forest stand (pine or hardwood, native or planted) with 35 to 45 percent canopy cover for warm season introduced grasses or 60 percent canopy cover for cool season introduced grasses. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition; Livestock Production Limitation - Inadequate Feed and Forage.

**After Situation:** The soil is prepared for planting using chemical and mechanical means, then a mix of warm season introduced grasses or introduced cool-season grasses and legumes will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

**Scenario Feature Measure:** Acres of silvopasture established

**Scenario Unit:** Acre

**Scenario Typical Size:** 10

**Total Scenario Cost:** \$2,954.67

**Scenario Cost/Unit:** \$295.47

**Cost Details**

Component Name	Id	Description	Unit	Cost	Qty	Total
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**Materials**

Four Species Mix, Cool Season, Introduced Perennial (2 grasses, 2 legumes)	2317	Cool season grass and legume mix. Includes material and shipping only.	Acre	\$49.65	10	\$496.46
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.93	10	\$159.26
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$41.56	20	\$831.21
Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.72	400	\$289.23
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.61	500	\$304.95
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.46	500	\$230.89

**Equipment Installation**

Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.46	10	\$54.59
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$7.47	10	\$74.74
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.11	10	\$61.15
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$9.29	10	\$92.93
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	\$11.23	10	\$112.34
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$9.92	10	\$99.15
Tillage, Primary	946	Includes heavy disking (offset) or chisel plow. Includes equipment, power unit and labor costs.	Acre	\$14.78	10	\$147.75