Practice: 490 - Tree & Shrub Site Preparation

Scenario # 1 **Mechanical - Heavy, shearing and windrowing**

Scenario Description: **Louisiana**

This practice involves the use of heavy machinery (usually bull dozers & not typical farming equipment) to treat an area in order to improve site conditions for establishing trees and/or shrubs. Usually vegetation and/or debries is sheared and raked or pushed to form piles or windrows. Typical sites include trees and brush cover that is not appropriate to the site or does not provide the desired condition for the landowner. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition and soil quality degredation - soil erosion - sheet and rill. Treatment must be done before planting.

Before Practice Situation:

The site is dominated by undesirable vegetation including herbaceous plants and significant amounts of woody vegetation (trees and brush) occupying the site. There is also a significant component of woody debris on site. Noxious and invasive species may also be present on the site. Adequate planter access is impossible with existing conditions. If left untreated, seedlings can not be planted properly at the proper density. Existing competition will cause poor survival or reduced growth of trees/shrubs to be established on the site.

After Practice Situation:

Undesirable vegetation has been removed using mechanical methods reducing competition for target trees and/or shrubs. Woody debris has been removed to facilitate tree/shrub planting operations. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$285.19

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Equip./Install.	Heavy mechanical site prep, raking	40	Acre	$127.14	$5,085.60
Equip./Install.	Heavy mechanical site prep, shearing, V-blade, K-G blading	40	Acre	$127.14	$5,085.60
Labor	Supervisor or Manager	6	Hour	$36.21	$217.26
Mobilization	Mobilization, large equipment	2	Each	$249.71	$499.42
Mobilization	Mobilization, Heavy Equipment Operator	12	Hour	$25.38	$304.56
Mobilization	Mobilization, Supervisor or Manager	6	Hour	$35.87	$215.22
				Total Cost:	$11,407.66

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 2 Mechanical - Light, Mowing

Scenario Description: **Louisiana**

This practice involves the use of light/moderate machinery(typcially tractors used in normal farming operations) to clear above ground vegetation (disk or bush hog) in order to improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, or agricultural fields. This following resource concerns: soil quality degredation - compaction, soil erosion - sheet and rill, and degraded plant condition - undesirable plant productivity and health and inadequate structure and composition. Treatment can be done before or after planting.

Before Practice Situation:

Undesirable vegetation is present on the site including herbaceous plants and sparse woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Practice Situation:

Undesirable vegetation has been removed using a bush hog and/or disk to cut and/or knock down existing vegetation, thus enhancing the conditions for planting and survival of trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$27.26

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Equip./Install.	Mower, Bush Hog	16	Hour	$38.21	$611.36
Labor	Equipment Operators, Light	16	Hour	$19.22	$307.52
Mobilization	Mobilization, medium equipment	1	Each	$133.51	$133.51
Mobilization	Mobilization, Light Equipment Operator	2	Hour	$19.04	$38.08
				Total Cost:	$1,090.47

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 3 **Chemical - Ground Application on Harvested Forest**

Scenario Description: **Louisiana**

This practice involves the use of various herbicides applied using ground-based machinery (dozers or skidders and NOT typical farm equipment) in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Typical sites include forestland that was recently harvested. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition. Treatment can be done before or after planting.

Before Practice Situation:

Undesirable vegetation is present on the site including herbaceous plants and woody vegetation. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Practice Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$196.20

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Herbicide, Imazapyr	40	Acre	$79.31	$3,172.40
Materials	Herbicide, Glyphosate	40	Acre	$11.04	$441.60
Materials	Herbicide, Surfactant	40	Acre	$1.09	$43.60
Equip./Install.	Chemical, ground application, wildland	40	Acre	$89.00	$3,560.00
Labor	Supervisor or Manager	2	Hour	$36.21	$72.42
Labor	General Labor	8	Hour	$18.57	$148.56
Mobilization	Mobilization, large equipment	1	Each	$249.71	$249.71
Mobilization	Mobilization, General labor	2	Hour	$18.52	$37.04
Mobilization	Mobilization, Heavy Equipment Operator	2	Hour	$25.38	$50.76
Mobilization	Mobilization, Supervisor or Manager	2	Hour	$35.87	$71.74
				Total Cost:	$7,847.83

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 4 **Chemical - Ground Application on Open Field**

Scenario Description: **Louisiana**

This practice involves the use of various herbicides applied using ground-based machinery (farming equipment) in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, or agricultural fields. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition. Treatment can be done before or after planting.

Before Practice Situation:

Undesirable vegetation is present on the site including herbaceous plants and woody vegetation. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Practice Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$85.82

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Herbicide, Glyphosate	40	Acre	$11.04	$441.60
Materials	Herbicide, Triclopyor	40	Acre	$61.01	$2,440.40
Materials	Herbicide, Surfactant	40	Acre	$1.09	$43.60
Equip./Install.	Chemical, ground application	40	Acre	$3.93	$157.20
Labor	Supervisor or Manager	4	Hour	$36.21	$144.84
Mobilization	Mobilization, medium equipment	1	Each	$133.51	$133.51
Mobilization	Mobilization, Supervisor or Manager	2	Hour	$35.87	$71.74
				Total Cost:	$3,432.89

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 5 Chemical - Ground Band Spray

Scenario Description: **Louisiana**

This practice involves the use of various herbicides applied using ground-based machinery (farming equipment & ATV's) in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs by spraying strips and not the whole tract. (Whole field is counted, but approximately one third of the fiield is treated). Typical sites include abandoned fields, pastures, rangelands, or agricultural fields. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition. Treatment can be done before or after planting.

Before Practice Situation:

Undesirable vegetation is present on the site including herbaceous plants and woody vegetation. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Practice Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs in strips (usually 2 ft on each side of planted row). Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$50.01

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Herbicide, Sulfometuron & metsulfuron	13	Acre	$22.78	$296.14
Materials	Herbicide, Imazapyr	13	Acre	$79.31	$1,031.03
Equip./Install.	Chemical, precision application	40	Acre	$8.08	$323.20
Labor	Supervisor or Manager	4	Hour	$36.21	$144.84
Mobilization	Mobilization, medium equipment	1	Each	$133.51	$133.51
Mobilization	Mobilization, Supervisor or Manager	2	Hour	$35.87	$71.74
				Total Cost:	$2,000.46

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 6 Chemical - Aerial Application

Scenario Description: **Louisiana**

This practice involves the use of herbicides applied by helicoptor in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. This typical scenraio includes open land such as abandoned fields, pastures or forestlands that were recently harvested. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition. Treatment can be done before or after planting.

Before Practice Situation:

Undesirable vegetation is present on the site including herbaceous plants and woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Practice Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$134.70

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Herbicide, Imazapyr	40	Acre	$79.31	$3,172.40
Materials	Herbicide, Glyphosate	40	Acre	$11.04	$441.60
Materials	Herbicide, Surfactant	40	Acre	$1.09	$43.60
Equip./Install.	Chemical, aerial application, helicopter	40	Acre	$29.58	$1,183.20
Labor	Supervisor or Manager	8	Hour	$36.21	$289.68
Labor	General Labor	8	Hour	$18.57	$148.56
Mobilization	Mobilization, General labor	2	Hour	$18.52	$37.04
Mobilization	Mobilization, Supervisor or Manager	2	Hour	$35.87	$71.74
				Total Cost:	$5,387.82

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 7 Chemical - Hand Application

Scenario Description: **Louisiana**

This practice involves the use of various herbicides applied using backpack sprayer or similar equipment, and hack-n-squirt for tree control, in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Typical sites include lands such as old fields, pastures, rangelands, agricultural fields, previous forestlands that have been abandoned and are now covered with a mixture of grasses, forbs, shrubs and some remnant trees. Resource concerns are: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition. Treatment can be done before or after planting.

Before Practice Situation:

Undesirable vegetation, including woody and herbaceous plants, occupy 100 % of the on the site. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Practice Situation:

Undesirable vegetation has been treated using appropriate herbicides, reducing competition for target trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

area of treatment

Scenario Typical Size:	10	Acre	Unit Cost	$195.43

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Herbicide, 2,4-D + Dica	10	Acre	$5.89	$58.90
Materials	Herbicide, Surfactant	10	Acre	$1.09	$10.90
Equip./Install.	Chemical, spot treatment, single stem application	24	Hour	$55.87	$1,340.88
Labor	Supervisor or Manager	6	Hour	$36.21	$217.26
Mobilization	Mobilization, General labor	6	Hour	$18.52	$111.12
Mobilization	Mobilization, Supervisor or Manager	6	Hour	$35.87	$215.22
				Total Cost:	$1,954.28

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 8 **Mechanical-Ripping/chopping**

Scenario Description: **Louisiana**

This practice involves the use of heavy machinery (usually bull dozers & not typical farming equipment) to rip/cut/lift underground root systems to improve site conditions for establishing trees and/or shrubs. Typical sites include trees and brush cover that is not appropriate to the site or does not provide the desired condition for the landowner. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition and soil quality degredation - soil erosion - sheet and rill. Treatment must be done before planting.

Before Practice Situation:

Undesirable vegetation is present on the site including herbaceous plants and sparse woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs. Soils are compacted as a result of harvesting heavy equipment activities or other land uses.

After Practice Situation:

Undesirable vegetation has been knocked down with heavy tillage equipment used to breakup and lift root systems, breakup compaction (<18" deep), thus enhancing the conditions for planting and survival of trees and/or shrubs. Soil compaction has been alleviated, allowing penetration of moisture and allowing roots to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$140.62

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Equip./Install.	Heavy mechanical site prep, drum chopping	40	Acre	$127.14	$5,085.60
Labor	Supervisor or Manager	8	Hour	$36.21	$289.68
Mobilization	Mobilization, large equipment	1	Each	$249.71	$249.71
				Total Cost:	$5,624.99

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 9 Mechanical-Dragging

Scenario Description: **Louisiana**

This practice involves the use of heavy machinery (usually bull dozers or log skidders with a heavy drag) to knock down existing vegetation to improve site conditions for establishing trees and/or shrubs. Typical sites include trees and brush cover that is not appropriate to the site or does not provide the desired condition for the landowner. This practice is typically used to address the following resource concerns: degraded plant condition - undesirable plant productivity and health and inadequate structure and composition and soil quality degredation - soil erosion - sheet and rill. Treatment must be done before planting.

Before Practice Situation:

Undesirable vegetation is present on the site including herbaceous plants and sparse woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs.

After Practice Situation:

Undesirable vegetation has been knocked down, thus enhancing the conditions for planting and survival of trees and/or shrubs. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$74.50

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Equip./Install.	Site Preparation, Mechanical	40	Acre	$53.64	$2,145.60
Labor	Supervisor or Manager	6	Hour	$36.21	$217.26
Mobilization	Mobilization, large equipment	1	Each	$249.71	$249.71
Mobilization	Mobilization, Heavy Equipment Operator	6	Hour	$25.38	$152.28
Mobilization	Mobilization, Supervisor or Manager	6	Hour	$35.87	$215.22
				Total Cost:	$2,980.07

Practice: 490 - Tree & Shrub Site Preparation

Scenario # 10 Mechanical - Light ripping

Scenario Description: **Louisiana**

This practice involves the use of light/moderate machinery(typcially tractors used in normal farming operations) to subsoil (open field rip) in order to improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, or agricultural fields. This following resource concerns: soil quality degredation - compaction, soil erosion - sheet and rill, and degraded plant condition - undesirable plant productivity and health and inadequate structure and composition. Treatment must be done before planting.

Before Practice Situation:

Undesirable vegetation is present on the site including herbaceous plants and sparse woody competition. Noxious and invasive species may also be present on the site. If left uncontrolled, undesirable vegetation will inhibit successful establishment of target species of trees and/or shrubs. Soils are compacted as a result of harvesting heavy equipment activities or other land uses.

After Practice Situation:

Soil compaction has been alleviated by using a farm tractor pulling ripper to breakup plow pans (<18" deep), thus enhancing the conditions for planting and survival of trees and/or shrubs by allowing penetration of moisture and roots to grow properly. Site conditions are favorable for successful establishment of trees and/or shrubs.

Scenario Feature Measure:

Area of Treatment

Scenario Typical Size:	40	Acre	Unit Cost	$21.53

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Equip./Install.	Ripper or subsoiler, 16 to 36 inch depth	40	Acre	$17.24	$689.60
Mobilization	Mobilization, medium equipment	1	Each	$133.51	$133.51
Mobilization	Mobilization, Light Equipment Operator	2	Hour	$19.04	$38.08
				Total Cost:	$861.19