

Practice: 576 - Livestock Shelter Structure

Scenario: #1 - Prefabricated Portable Shade Structure

Scenario Description:

A flexible membrane or fabric-like roof placed on a steel or wood portable frame used to promote animal health where prescribed grazing practices have limited livestock access to shade. Cost estimate is based upon a 10 ft x 20 ft prefab portable structure.

Associated practices include Fence (382), Prescribed Grazing (528), and Watering Facility (614).

Before Situation:

Livestock are being managed using a prescribed grazing plan resulting in a lack of shade during the summer months. The livestock are stressed and eat less frequently.

After Situation:

Livestock shade structures are rotated and sized according to NRCS plans and specifications. Livestock access to water, shade, and forage are dispersed to decrease animal stress and promote a better grazing and nutrient spreading.

Scenario Feature Measure: Area of Roof Frame

Scenario Unit: Square Foot

Scenario Typical Size: 200

Scenario Cost: \$1,199.47

Scenario Cost/Unit: \$6.00

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$35.82	8	\$286.56
Labor						
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	\$20.24	8	\$161.92
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$40.33	3	\$120.99
Materials						
Hoop House, quonset style, base package	1277	Includes the framework complete with all predrilled steel, hardware and instructions. Includes 6 mil 4-year polyethylene film to cover tunnel, and polylock for sides and ends for a quonset style (round top) hoop house. Materials and shipping only, does n	Square Foot	\$3.15	200	\$630.00

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Scenario: #2 - Portable Shade Structure

Scenario Description:

A flexible membrane or fabric-like roof placed on a steel or wood portable frame used to promote animal health where prescribed grazing practices have limited livestock access to shade. Cost estimate is based upon a 25 ft x 40 ft portable structure.

Associated practices include Fence (382), Prescribed Grazing (528), and Watering Facility (614).

Before Situation:

Livestock are being managed using a prescribed grazing plan resulting in a lack of shade during the summer months. The livestock are stressed and eat less frequently.

After Situation:

Livestock shade structures are rotated and sized according to NRCS plans and specifications. Livestock access to water, shade, and forage are dispersed to decrease animal stress and promote a better grazing and nutrient spreading.

Scenario Feature Measure: Area of Roof Frame

Scenario Unit: Square Foot

Scenario Typical Size: 1,000

Scenario Cost: \$3,594.84

Scenario Cost/Unit: \$3.59

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$35.82	8	\$286.56
Portable Welder	1407	Portable field welder. Equipment only. Labor not included.	Hour	\$19.40	16	\$310.40
Labor						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$29.60	16	\$473.60
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	\$20.24	8	\$161.92
Materials						
Pipe, PVC, 2", SCH 40	976	Materials: - 2" - PVC - SCH 40 - ASTM D1785	Foot	\$1.35	25	\$33.75
Pipe, Steel, 1 ¼", SCH 40	1103	Materials: - 1 1/4" - Steel SCH 40	Foot	\$2.95	94	\$277.30
Pipe, Steel, 2", SCH 40	1105	Materials: - 2" - Steel SCH 40	Foot	\$4.75	185	\$878.75
Synthetic Liner, 60 mil	2109	Synthetic 60 mil HDPE, LLDPE, EPDM, etc membrane liner material. Includes materials and shipping only.	Square Foot	\$1.09	1000	\$1,090.00
Steel, Plate, 3/16"	1048	Flat Steel Plate, 3/16" thick, materials only.	Square Foot	\$7.26	2	\$14.52
Mobilization						
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$68.04	1	\$68.04

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Scenario: #3 - Portable Fabricated Wind Shelter, equal to or greater than 8 foot

Scenario Description:

Portable Livestock Fabricated Wind Shelter is installed to provide protection for livestock. The shelter can be moved around the grazing unit in order to prevent heavy use resource concerns at any one location.

Before Situation:

Herds are held and fed in fragile riparian areas in order to reduce stress on domestic animals from harsh winter conditions and provide protection from wind. The concentration of animals in these areas degrades streambanks, cause excessive sedimentation, damage woody vegetation, overgraze herbaceous vegetation, in addition to degrading water quality through manure deposition and erosion. Resource concerns are water quality, animal health, plant productivity, health, and vigor, and inadequate shelter.

After Situation:

Portable fabricated wind shelters are utilized to provide shelter for livestock in upland grazing areas from the riparian zones. The portable shelters are moved in rotation with feeding areas thereby limiting soil disturbance and reducing the impacts of heavy use at any one location. As a result of implementing this practice, the herd can be moved out of the impacted area and water quality and vegetation health resource concerns will be addressed. A typical portable wind shelter involves a series of steel framed panels faced with corrugated metal. Each unit is approximately 9.5 feet tall and 24 feet long. Four panels (96 - feet) would be utilized to provide shelter to a herd size of 125 animals.

Scenario Feature Measure: Length of Wind Shelter

Scenario Unit: Linear Foot

Scenario Typical Size: 96

Scenario Cost: \$4,679.80

Scenario Cost/Unit: \$48.75

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$35.82	16	\$573.12
Labor						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$29.60	24	\$710.40
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	\$20.24	16	\$323.84
Materials						
Corrugated Steel, 21 gauge	224	Corrugated or ribbed, galvanized, 21 gauge, includes fasteners, materials only.	sq ft	\$2.76	864	\$2,384.64
Drill Stem, steel, used	1393	Used drill stem typically 2-3/8" or 2-7/8" diameter. Materials only.	Foot	\$1.81	380	\$687.80

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Scenario: #4 - Permanent Fabricated Wind Shelter, equal to or greater than 8 foot

Scenario Description:

Permanent Livestock Fabricated Wind Shelter is installed to provide protection for livestock.

Before Situation:

Herds are held and fed in fragile riparian areas in order to reduce stress on domestic animals from harsh winter conditions and provide protection from wind. The concentration of animals in these areas degrades streambanks, cause excessive sedimentation, damage woody vegetation, overgraze herbaceous vegetation, in addition to degrading water quality through manure deposition and erosion. Resource concerns are water quality, animal health, plant productivity, health, and vigor, and inadequate shelter.

After Situation:

Permanent fabricated wind shelters are installed in order to provide shelter for livestock in upland grazing areas away from the riparian zones. As a result, animals can be held in an area away from the riparian zone thereby eliminating the impacts to water quality and riparian health. A typical scenario is a Fabricated Wind Shelter installed in association with an animal feeding operation (AFO). The AFO has been moved out of the riparian zone where shelter was previously provided by the surrounding riparian woody vegetation. The AFO has been moved to a location where shelter is not naturally provided and needs to be fabricated. The typical fabrication involves a permanent, wood framed, metal or wood faced, 8.5 - foot high, 200 - foot long, fabricated wind shelter, 80% solid face, secured to the ground with wood posts.

Scenario Feature Measure: Length of Wind Shelter

Scenario Unit: Linear Foot

Scenario Typical Size: 200

Scenario Cost: \$7,598.33

Scenario Cost/Unit: \$37.99

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$35.82	16	\$573.12
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$53.96	16	\$863.36
Labor						
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	\$20.24	16	\$323.84
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	\$27.94	16	\$447.04
Materials						
Post, Wood, CCA treated, 6" x 12-14'	13	Wood Post, Line/End 6" X 12-14', CCA Treated. Includes materials and shipping only.	Each	\$26.73	26	\$694.98
Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.87	800	\$696.00
Corrugated Steel, 21 gauge	224	Corrugated or ribbed, galvanized, 21 gauge, includes fasteners, materials only.	sq ft	\$2.76	1360	\$3,753.60
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$246.39	1	\$246.39