Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	430 - Irrigation Pipeline
Scenario ID	3
Scenario Name	Pipe System <=8 Diameter, <= 50 installation
Scenario Description	Description: Below ground installation of plastic pipeline installed underground between the location of the water pump and the area of irrigation to serve an irrigation system. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included as 10% of pipe material. Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.
Before Practice Situation	Pipeline needed to replace or supplement inefficient irrigation conveyance systems.
After Practice Situation	Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.
Scenario Feature Measure	Ft of pipe
Scenario Unit	Foot
Scenario Typical Size	50

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$400.32	$8.01
Equipment/Installation	$141.00	$2.82
Labor	$159.36	$3.19
Mobilization	$406.10	$8.12
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,106.78	$22.14

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	288	$400.32
Equipment/Installation	54	Trenching, Earth, loam, 24" x 48"	Trenching, earth, loam, 24" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$2.82	50	$141.00
Labor	231	General Labor	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	$19.92	8	$159.36
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	430 - Irrigation Pipeline
Scenario ID	2
Scenario Name	Pipe System <=8 Diameter, >50 ft installation
Scenario Description	Description: Below ground installation of plastic pipeline installed underground between the location of the water pump and the area of irrigation to serve an irrigation system. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included as 10% of pipe material. Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.
Before Practice Situation	Pipeline needed to replace or supplement inefficient irrigation conveyance systems.
After Practice Situation	Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.
Scenario Feature Measure	Ft of pipe
Scenario Unit	Foot
Scenario Typical Size	1,500

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$12,031.84	$8.02
Equipment/Installation	$4,230.00	$2.82
Labor	$318.72	$0.21
Mobilization	$406.10	$0.27
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$16,986.66	$11.32

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	8656	$12,031.84
Equipment/Installation	54	Trenching, Earth, loam, 24" x 48"	Trenching, earth, loam, 24" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$2.82	1500	$4,230.00
Labor	231	General Labor	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	$19.92	16	$318.72
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	430 - Irrigation Pipeline
Scenario ID	5
Scenario Name	Pipe System 10-12 Diameter; <=50ft Installation
Scenario Description	Description: Below ground installation of plastic pipeline installed underground between the location of the water pump and the area of irrigation to serve an irrigaion system. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included as 10% of pipe material. Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.
Before Practice Situation	Pipeline needed to replace or supplement inefficient irrigation conveyance systems.
After Practice Situation	Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.
Scenario Feature Measure	Ft of pipe
Scenario Unit	Foot
Scenario Typical Size	50

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$568.51	$11.37
Equipment/Installation	$141.00	$2.82
Labor	$199.20	$3.98
Mobilization	$406.10	$8.12
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,314.81	$26.30

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	409	$568.51
Equipment/Installation	54	Trenching, Earth, loam, 24" x 48"	Trenching, earth, loam, 24" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$2.82	50	$141.00
Labor	231	General Labor	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	$19.92	10	$199.20
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	430 - Irrigation Pipeline
Scenario ID	7
Scenario Name	Pipe System >=15, <=50 foot Installation
Scenario Description	Description: Below ground installation of plastic pipeline installed underground between the location of the water pump and the area of irrigation to serve an irrigaion system. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included as 10% of pipe material. Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.
Before Practice Situation	Pipeline needed to replace or supplement inefficient irrigation conveyance systems.
After Practice Situation	Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.
Scenario Feature Measure	Ft of pipe
Scenario Unit	Foot
Scenario Typical Size	50

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$917.40	$18.35
Equipment/Installation	$141.00	$2.82
Labor	$478.08	$9.56
Mobilization	$406.10	$8.12
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,942.58	$38.85

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	660	$917.40
Equipment/Installation	54	Trenching, Earth, loam, 24" x 48"	Trenching, earth, loam, 24" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$2.82	50	$141.00
Labor	231	General Labor	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	$19.92	24	$478.08
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	430 - Irrigation Pipeline
Scenario ID	1
Scenario Name	Micro Irrigation Pipeline
Scenario Description	Description: Below ground installation of plastic pipeline installed underground between the location of the water pump and the area of irrigation to serve a micro irrigaion system. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included as 10% of pipe material. Cost of appurtenances does not include flow meters or backflow preventers. Typical installation applies to soils with no special bedding requirements. Resource Concerns: Inefficient Use of Irrigation Water; Inefficient Energy Use. Associated Practices: 436 - Irrigation Reservoir; 441 - Irrigation System, Microirrigation; 442 - Irrigation System, Sprinkler; 443 - Irrigation System, Surface & Subsurface; 447 - Irrigation System, Tailwater Recovery; 533 - Pumping Plant; 634 - Waste Transfer.
Before Practice Situation	Pipeline needed to replace or supplement inefficient irrigation conveyance systems.
After Practice Situation	Pipeline installed to convey and/or distribute water to irrigation systems or reservoirs, minimizing non-beneficial water use, reducing soil erosion, and/or reducing energy use.
Scenario Feature Measure	Ft of pipe
Scenario Unit	Foot
Scenario Typical Size	1,500

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,541.51	$1.03
Equipment/Installation	$1,860.00	$1.24
Labor	$318.72	$0.21
Mobilization	$406.10	$0.27
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$4,126.33	$2.75

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	1109	$1,541.51
Equipment/Installation	53	Trenching, Earth, 12" x 48"	Trenching, earth, 12" wide x 48" depth, includes equipment and labor for trenching and backfilling	Foot	$1.24	1500	$1,860.00
Labor	231	General Labor	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	$19.92	16	$318.72
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	441 - Irrigation System, Microirrigation
Scenario ID	2
Scenario Name	Seasonal High Tunnel Micro Irrigation System
Scenario Description	An irrigation system for vegetable & other specialty crops, irrigating inside of a high tunnel poly house. Water delivery to the plants by surface lines and/or subsurface applicators. Spacing of the plants will vary, w/ delivery lines spaced 60". Area in question is being converted from other means of less efficient irrigation. Payment includes on-ground mainline and drip tape, fittings, and apurtenances. Pump & supply line is not included in this payment and may be offered through associated practices 533 Pumping plant and 430 Irrigation Pipeline, or existing pump & supply lines will be used. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 433 - Irrigation Flow Measrement, 610 - Salinity & Sodic Soil Management, 434 - Soil Moisture Measurement, 328-Conservation Crop Rotation, and 590 Nutrient Management.
Before Practice Situation	A high tunnel has an inefficient surface irrigation system causing irrigation water loss that impacts water quality and water quantity.
After Practice Situation	A microirrigation system is utilized to provide highly efficient irrigation to crops grown in a high tunnel. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.
Scenario Feature Measure	Sq ft
Scenario Unit	Square Foot
Scenario Typical Size	2178

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$168.09	$0.08
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$168.09	$0.08

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1617	Micro Irrigation, screen filter, < 100 gpm	Screen filter for Micro Irrigation used in small systems. Includes filter. No controls are included or needed.	Each	$39.85	1	$39.85
Materials	1488	Micro Irrigation, surface drip tubing or tape	Tubing or Tape is installed above ground for surface drip irrigation, includes installation, and connections to the supply and flushing laterals. Tubing has emitters built in.	Foot	$0.28	458	$128.24

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	441 - Irrigation System, Microirrigation
Scenario ID	2
Scenario Name	Specialty Crop Microirrigation System
Scenario Description	An irrigation system for specialty crops typically of small acreage (2 acre). Water delivery to the plants by surface lines and/or substrate applicators. Spacing of the plants will vary, w/ delivery lines spaced 60". Area in question is being converted from other means of less efficient irrigation. Payment includes on-ground mainline and drip tape, fittings, and apurtenances. Pump & supply line is not included in this payment and may be offered through associated practices 533 Pumping plant and 430 Irrigation Pipeline, or existing pump & supply lines will be used. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 433 - Irrigation Flow Measrement, 610 - Salinity & Sodic Soil Management, 434 - Soil Moisture Measurement, 328-Conservation Crop Rotation, and 590 Nutrient Management.
Before Practice Situation	A production field has an inefficient surface flood irrigation system causing irrigation water loss that impacts water quality and water quantity.
After Practice Situation	A surface placed microirrigation system is utilized to provide highly efficient irrigation to an field. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.
Scenario Feature Measure	Acres in System
Scenario Unit	Acre
Scenario Typical Size	2

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$5,202.58	$2,601.29
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$5,202.58	$2,601.29

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1617	Micro Irrigation, screen filter, < 100 gpm	Screen filter for Micro Irrigation used in small systems. Includes filter. No controls are included or needed.	Each	$39.85	2	$79.70
Materials	1488	Micro Irrigation, surface drip tubing or tape	Tubing or Tape is installed above ground for surface drip irrigation, includes installation, and connections to the supply and flushing laterals. Tubing has emitters built in.	Foot	$0.28	18296	$5,122.88

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	441 - Irrigation System, Microirrigation
Scenario ID	2
Scenario Name	Trees and Shrubs Microirrigation System
Scenario Description	Irrigation system for trees and shrubs such as in establishing a windbreak. Water delivery to the plants by surface lines and/or subsurface applicators. Spacing of the plants will vary, w/ delivery lines spaced 60". Area in question is being converted from other means of less efficient irrigation. Payment includes on-ground mainline and drip tape, fittings, and apurtenances. Pump & supply line is not included in this payment and may be offered through associated practices 533 Pumping plant and 430 Irrigation Pipeline, or existing pump & supply lines will be used. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 433 - Irrigation Flow Measrement, 610 - Salinity & Sodic Soil Management, 434 - Soil Moisture Measurement, 328-Conservation Crop Rotation, and 590 Nutrient Management.
Before Practice Situation	A windbreak has an inefficient irrigation system causing irrigation water loss that impacts water quality and water quantity.
After Practice Situation	A surface placed microirrigation system is utilized to provide highly efficient irrigation to the trees. System is for 5 rows of trees each 600 ft in length for a total irrigated area of 36,000 sq ft (600' x 60' - 5 rows with 15' between rows). Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.
Scenario Feature Measure	Square Foot
Scenario Unit	Square Foot
Scenario Typical Size	36000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$921.85	$0.03
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$921.85	$0.03

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1617	Micro Irrigation, screen filter, < 100 gpm	Screen filter for Micro Irrigation used in small systems. Includes filter. No controls are included or needed.	Each	$39.85	1	$39.85
Materials	1488	Micro Irrigation, surface drip tubing or tape	Tubing or Tape is installed above ground for surface drip irrigation, includes installation, and connections to the supply and flushing laterals. Tubing has emitters built in.	Foot	$0.28	3150	$882.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	441 - Irrigation System, Microirrigation
Scenario ID	2
Scenario Name	Potted Plant or Nursery Microirrigation System
Scenario Description	Series of drip spaced 3-4' apart, pots placed along each delivery line at 3' intervals. Irrigation is for 2010 pots. Field in question is being converted from existing system of overhead irrigation. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Payment includes on-ground mainline and drip tape, fittings, and apurtenances. Pump & supply line is not included in this payment and may be offered through associated practices 533 Pumping plant and 430 Irrigation Pipeline, or existing pump & supply lines will be used. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, Degraded Plant Condition - Undesirable plant productivity and health, Water Quality Degradation - Excessive sediment in surface waters, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 533-Pumping Plant, 449- Irrigation Water Management, 430 - Irrigation Pipeline, 433 - Irrigation Flow Measrement, 610 - Salinity & Sodic Soil Management, 434 - Soil Moisture Measurement, 328-Conservation Crop Rotation, and 590 Nutrient Management.
Before Practice Situation	A production field has an inefficient surface flood irrigation system causing irrigation water loss that impacts water quality and water quantity.
After Practice Situation	A surface placed microirrigation system is utilized to provide highly efficient irrigation to an field. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on site water use is reduced.
Scenario Feature Measure	Sq Ft
Scenario Unit	Square Foot
Scenario Typical Size	12000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$512.35	$0.04
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$512.35	$0.04

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1489	Micro Irrigation, emitters or sprays and tubing	Emitters or sprays that are installed above ground for micro or drip irrigation, includes installation, and connections to the supply and flushing laterals. Tubing for the has emitters is included in this item.	Foot	$0.15	3150	$472.50
Materials	1617	Micro Irrigation, screen filter, < 100 gpm	Screen filter for Micro Irrigation used in small systems. Includes filter. No controls are included or needed.	Each	$39.85	1	$39.85

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	449 - Irrigation Water Management
Scenario ID	1
Scenario Name	IWM for row crops
Scenario Description	Implementation of a water management plan for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). Payment applies to irrgation water management on a row crop operation. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 442-Irrigation System Sprinkler, 443-Irrigation System Surface and Subsurface, 433-Irrigation Water Measurement, 434-Soil Moisture Measurement, 433- Irrigation Flow Measurement.
Before Practice Situation	The irrigator decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success. The typical irrigated field is a 125 acre corn field with a sprinkler irrigation system.
After Practice Situation	Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.
Scenario Feature Measure	Irrigated Area Managed
Scenario Unit	Acre
Scenario Typical Size	125

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$0.00	$0.00
Labor	$1,328.00	$10.62
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,328.00	$10.62

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Labor	231	General Labor	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	$19.92	8	$159.36
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$36.52	32	$1,168.64

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	449 - Irrigation Water Management
Scenario ID	2
Scenario Name	IWM for microirrgation systems and specialty crops
Scenario Description	Implementation of a water management plan for producers using a checkbook method (crop grown, soil moisture conditions prior to irrigation, dates of irrigation start and stop, depths of irrigation applied, duration of irrigations, and amount of rainfall). Payment applies to irrgation water management on a specialty crop operation, or an operation utilizing microirrgation. Resource Concerns: Insufficient Water Supply-Inefficient use of irrigation water; Degraded Plant Condition-Undesirable plant productivity and health, and Inefficient Energy Use-Equipment and facilities. Associated Practices: 441-Irrigation System Microirrigation, 433-Irrigation Water Measurement, 434-Soil Moisture Measurement, 433- Irrigation Flow Measurement.
Before Practice Situation	The farmer decides when to irrigate based on general crop or soil appearance or limited soil moisture monitoring. System run times are based on past apparent success. The typical irrigated field is a 30 acre corn field with a surface irrigation system.
After Practice Situation	Irrigations are scheduled based on measured crop water requirements. Records are used to evaluate results of past irrigation events and influence future irrigations. The irrigator keeps records of soil moisture, crop water use, rainfall amounts and irrigation timing and amounts. At the end of the irrigation season all the data has been reviewed and evaluated. Improvements planned for the next season have been determined.
Scenario Feature Measure	Irrigated Area Managed
Scenario Unit	Acre
Scenario Typical Size	30

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$0.00	$0.00
Labor	$1,460.80	$48.69
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,460.80	$48.69

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$36.52	40	$1,460.80

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	449 - Irrigation Water Management
Scenario ID	3
Scenario Name	Soil Moisture Sensors
Scenario Description	This practice includes the installation of soil moisture sensors such as tensiometers, gyp blocks, capacitance sensors etc, that are installed and read to determine point in time soil moisture by depth. The installation includes the purchase of soil moisture meters and sensors, installation equipment, and labor to install and read sensors or meter. Typical Scenario involves installation of resistance sensor blocks in a 80 acre field of irrigated cropland. Producer periodically monitors soil moisture sensors during the growing season to schedule irrigation and improve irrigation water managment. Meters used to read sensors may be portable. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, and Degraded Plant Condition - Undesirable plant productivity and health, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 449- Irrigation Water Management, 587-Structure for water Control, 328-Conservation Crop Rotation, and 590-Nutrient Management.
Before Practice Situation	Producer uses feel method to estimate soil moisture for scheduling irrigation.
After Practice Situation	Producer has installed four sensors at each monitoring site to a depth of four feet with one sensor representing each foot of depth. Producer uses periodic soil moisture measurements to schedule irrigation resulting in improved irrigation water managment and reduced energy use.
Scenario Feature Measure	Number of Measuring Sites
Scenario Unit	Each
Scenario Typical Size	2

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$691.90	$345.95
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$112.44	$56.22
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$804.34	$402.17

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1456	Soil Moisture Sensor	Soil moisture resistance sensor W/10' cables. Equipment only.	Each	$44.80	8	$358.40
Materials	1455	Soil Moisture Meter	Soil Moisture Sensor Reader. Equipment only.	Each	$333.50	1	$333.50
Mobilization	1137	Mobilization, very small equipment	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	$56.22	2	$112.44

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	449 - Irrigation Water Management
Scenario ID	4
Scenario Name	Soil Moisture Sensors with Data Recorder
Scenario Description	This practice includes the installation of electrical soil moisture sensors such as capacitance or resistance sensors that are monitored to determine soil moisture. The installation includes the purchase of soil moisture sensors, installation equipment (probe or auger), and a data logger to log continuous soil moisture data that can be downloaded to a personal computer and associated graphing software. Typical Scenario involves installation of resistance sensor blocks in a 120 acre field of sprinkler irrigated cropland. Producer periodically monitors soil moisture sensors during the growing season to schedule irrigation and improve irrigation water managment. Resource Concerns: Insufficient Water - Inefficient use of irrigation water, and Degraded Plant Condition - Undesirable plant productivity and health, and Inefficient Energy Use - Equipment and facilities. Associated Practices: 449- Irrigation Water Management, 587-Structure for water Control, 328-Conservation Crop Rotation, and 590-Nutrient Management.
Before Practice Situation	Producer uses feel method to estimate soil moisture for scheduling irrigation in the field.
After Practice Situation	Producer has installed four sensors at each monitoring site to a depth of four feet with one sensor representing each foot of depth. Producer periodically downloads continuously recorded soil moisture measurements that are used to schedule irrigation more effectively resulting in improved irrigation water managment and reduced energy use.
Scenario Feature Measure	Number of Measuring Sites
Scenario Unit	Each
Scenario Typical Size	2

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,259.15	$629.58
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$112.44	$56.22
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,371.59	$685.80

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1456	Soil Moisture Sensor	Soil moisture resistance sensor W/10' cables. Equipment only.	Each	$44.80	8	$358.40
Materials	1455	Soil Moisture Meter	Soil Moisture Sensor Reader. Equipment only.	Each	$333.50	1	$333.50
Materials	1453	Data Logger	Data Logger W/Graphic Output for water management. Materials only.	Each	$567.25	1	$567.25
Mobilization	1137	Mobilization, very small equipment	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	$56.22	2	$112.44

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agricultural Engineering
Practice Code/Name	468 - Lined Waterway or Outlet
Scenario ID	2
Scenario Name	Rock Lined - 12"
Scenario Description	Install 300 ' long by 15' wide by 1.5' deep trapezoidal or parabolic shaped waterway lined with riprap. Half (1/2) the channel is excavated, before excavation for riprap. Excess excavation is spoiled in the immediate area. Riprap is installed over 100% of the width of the waterway to prevent scour. Cost include excavation, spoiling of excess material, geotextile underlayment and installing 9" Rock Riprap. Lined waterway width is measured from top of bank to top of bank.
Before Practice Situation	Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.
After Practice Situation	Rock lined waterway is 300 ' long by 15' wide by 1.5' deep. Waterway is excavated and rock is placed using a hydraulic excavator. Geotextile underlayment is installed by laborers. Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).
Scenario Feature Measure	Square Foot of Waterway
Scenario Unit	Square Feet
Scenario Typical Size	4500

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$12,988.80	$2.89
Equipment/Installation	$625.40	$0.14
Labor	$112.88	$0.03
Mobilization	$203.05	$0.05
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$38.91	$0.01
Total	$13,969.04	$3.10

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	44	Rock Riprap, Placed with geotextile	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	$63.36	205	$12,988.80
Equipment/Installation	48	Excavation, Common Earth, side cast, small equipment	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.12	295	$625.40
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$36.52	2	$73.04
Labor	231	General Labor	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	$19.92	2	$39.84
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05
Foregone Income	1959	FI, Corn Dryland	Dryland Corn is Primary Crop	Acre	$392.59	0.05	$19.63
Foregone Income	1961	FI, Soybeans Dryland	Dryland Soybeans is Primary Crop	Acre	$385.53	0.05	$19.28

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agricultural Engineering
Practice Code/Name	468 - Lined Waterway or Outlet
Scenario ID	3
Scenario Name	Rock Lined - 24"
Scenario Description	Install 300 ' long by 15' wide by 1.5' deep trapezoidal or parabolic shaped waterway lined with riprap. Half (1/2) the channel is excavated, before excavation for riprap. Excess excavation is spoiled in the immediate area. Riprap is installed over 100% of the width of the waterway to prevent scour. Cost include excavation, spoiling of excess material, geotextile underlayment and installing 18" Rock Riprap. Lined waterway width is measured from top of bank to top of bank.
Before Practice Situation	Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.
After Practice Situation	Rock lined waterway is 300 ' long by 15' wide by 1.5' deep. Waterway is excavated and rock is placed using a hydraulic excavator. Geotextile underlayment is installed by laborers. Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).
Scenario Feature Measure	Square Foot of Waterway
Scenario Unit	Square Feet
Scenario Typical Size	4500

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$29,462.40	$6.55
Equipment/Installation	$1,176.60	$0.26
Labor	$112.88	$0.03
Mobilization	$203.05	$0.05
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$38.91	$0.01
Total	$30,993.84	$6.89

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	44	Rock Riprap, Placed with geotextile	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	$63.36	465	$29,462.40
Equipment/Installation	48	Excavation, Common Earth, side cast, small equipment	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.12	555	$1,176.60
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$36.52	2	$73.04
Labor	231	General Labor	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	$19.92	2	$39.84
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05
Foregone Income	1959	FI, Corn Dryland	Dryland Corn is Primary Crop	Acre	$392.59	0.05	$19.63
Foregone Income	1961	FI, Soybeans Dryland	Dryland Soybeans is Primary Crop	Acre	$385.53	0.05	$19.28

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agricultural Engineering
Practice Code/Name	468 - Lined Waterway or Outlet
Scenario ID	1
Scenario Name	Turf Reinforced Matting
Scenario Description	Install 300 ' long by 15' wide by 1.5' deep trapezoidal or parabolic shaped waterway lined with Turf Reinforced Matting (TRM). 1/2 the channel is excavated. Excess excavation is spoiled in the immediate area. TRM is installed over 100% of the width of the waterway to prevent scour and aid in waterway establishment. Cost include excavation, spoiling of excess material, and furnishing and installing TRM. Lined waterway width is measured from top of bank to top of bank.
Before Practice Situation	Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.
After Practice Situation	TRM lined waterway is 300 ' long by 15' wide by 1.5' deep. The practice is installed using a hydraulic excavator. TRM is installed by laborers. Associated practices are Subsurface Drain (606), Underground Outlet (620), Structure for Water Control (587), and Critical Area Seeding (342).
Scenario Feature Measure	Square Foot of Waterway
Scenario Unit	Square Feet
Scenario Typical Size	4500

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$5,360.70	$1.19
Equipment/Installation	$190.80	$0.04
Labor	$73.04	$0.02
Mobilization	$203.05	$0.05
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$38.91	$0.01
Total	$5,866.50	$1.30

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1212	Turf reinforcement mat	Synthetic turf reinforcement mat with staple anchoring. Includes materials, equipment and labor.	Square Yard	$10.02	535	$5,360.70
Equipment/Installation	48	Excavation, Common Earth, side cast, small equipment	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	$2.12	90	$190.80
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	$36.52	2	$73.04
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05
Foregone Income	1959	FI, Corn Dryland	Dryland Corn is Primary Crop	Acre	$392.59	0.05	$19.63
Foregone Income	1961	FI, Soybeans Dryland	Dryland Soybeans is Primary Crop	Acre	$385.53	0.05	$19.28

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Forestry
Practice Code/Name	472 - Access Control
Scenario ID	2
Scenario Name	Animal exclusion from sensitive areas
Scenario Description	Excluding animals from an area in order to address identified resource concerns. This is for facilitating exclusion of animals to protect or enhance natural resource values. Control will be by temporary electric fencing. Any need for permanent fencing will be planned and installed using the Fence practice (382). Clearing of brush and trees is not necessary. Resource concerns include Wildlife Habitat degradation, Undesirable plant productivity and health, and/or Excessive sediment in surface waters.
Before Practice Situation	Sensitive areas are threatened by the adverse actions of domestic and/or wild animals. The importance of the sensitive areas can include (but are not limited to): wildlife habitat, plant species composition, newly established trees and/or plants, stream bank stability, and/or water quality.
After Practice Situation	Sensitive areas are protected from the adverse actions of domestic and/or wild animals by excluding them from the area. Consists of installing a single strand polywire/polytape fence with step in/fiberglass posts on 50' centers, solar energizer, and all appurtenances and forgone income. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated Practices: Prescribed Grazing, Pipeline, Water Well, Spring Development, Heavy Use Area, Pumping Plant, Watering Facility, Forage and Biomass Planting, Critical Area Planting, Access Control
Scenario Feature Measure	Acres exluded
Scenario Unit	Acre
Scenario Typical Size	10

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$397.54	$39.75
Total	$397.54	$39.75

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Foregone Income	2079	FI, Grazing AUMs	Grazing is the Primary Land Use	AUM	$15.29	26	$397.54

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Forestry
Practice Code/Name	472 - Access Control
Scenario ID	3
Scenario Name	Animal exclusion from sensitive areas by temporary fence.
Scenario Description	Excluding animals from an area in order to address identified resource concerns. This is for facilitating exclusion of animals to protect or enhance natural resource values. Control will be by temporary electric fencing. Any need for permanent fencing will be planned and installed using the Fence practice (382). Clearing of brush and trees is not necessary. Resource concerns include Wildlife Habitat degradation, Undesirable plant productivity and health, and/or Excessive sediment in surface waters.
Before Practice Situation	Sensitive areas are threatened by the adverse actions of domestic and/or wild animals. The importance of the sensitive areas can include (but are not limited to): wildlife habitat, plant species composition, newly established trees and/or plants, stream bank stability, and/or water quality.
After Practice Situation	Sensitive areas are protected from the adverse actions of domestic and/or wild animals by excluding them from the area. Consists of installing a single strand polywire/polytape fence with step in/fiberglass posts on 50' centers, solar energizer, and all appurtenances and forgone income. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated Practices: Prescribed Grazing, Pipeline, Water Well, Spring Development, Heavy Use Area, Pumping Plant, Watering Facility, Forage and Biomass Planting, Critical Area Planting, Access Control
Scenario Feature Measure	Arces excluded
Scenario Unit	Acre
Scenario Typical Size	10

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$672.82	$67.28
Equipment/Installation	$25.51	$2.55
Labor	$19.92	$1.99
Mobilization	$19.90	$1.99
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$397.54	$39.75
Total	$1,135.69	$113.57

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	26	Electric, Tester	Electric, Tester for electric fence	Each	$34.60	1	$34.60
Materials	8	Wire, Polywire	Wire, Polywire for electric fence - 1,300 roll.	Each	$56.18	2	$112.36
Materials	21	Electric, Ground Rod Clamps	Electric, Ground Rod Clamps for electric fence	Each	$2.39	3	$7.17
Materials	27	Electric, Energizer, Solar	Electric, Energizer, Solar for electric fence	Each	$315.85	1	$315.85
Materials	19	Post, Fiberglass, 11/16" X 6'	Fiberglass line post, 11/16" diameter X 6' length	Each	$6.32	26	$164.32
Materials	20	Electric, Ground Rods	Electric, Ground Rod for electric fence	Each	$12.84	3	$38.52
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	1	$25.51
Labor	231	General Labor	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	$19.92	1	$19.92
Mobilization	1142	Mobilization, General labor	Mobilization of general labor: Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$19.90	1	$19.90
Foregone Income	2079	FI, Grazing AUMs	Grazing is the Primary Land Use	AUM	$15.29	26	$397.54

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agronomy
Practice Code/Name	484 - Mulching
Scenario ID	3
Scenario Name	Erosion Control Blanket - Vegetation Establishment
Scenario Description	Installation of erosion control blanket on critical areas with steep slopes, grassed waterways or diversions.. Blanket is typically made of coconut coir, wood fiber, or straw and is typically covered on both sides with polypropylene netting. Used to help control erosion and establish vegetative cover on a disturbed site around a newly constructed structural practices and is generally used with criticial area planting.
Before Practice Situation	There are areas of concentrated flow and a grassed waterway is being installed. Soil erosion is a concern and there is little to no vegetation.
After Practice Situation	The erosion control blanket is placed on concentrated flow areas and secured with ground stables. Soil erosion is minimized and vegetative cover is established.
Scenario Feature Measure	Area Covered by Mulch
Scenario Unit	Acre
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$7,066.40	$7,066.40
Equipment/Installation	$204.08	$204.08
Labor	$637.44	$637.44
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$7,907.92	$7,907.92

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1213	Erosion Control Blanket, biodegradable	Biodegradable erosion control blanket, typically a composite of natural fibers with reinforcing polymer netting. Materials only.	Square Yard	$1.46	4840	$7,066.40
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	8	$204.08
Labor	231	General Labor	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	$19.92	32	$637.44

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agronomy
Practice Code/Name	484 - Mulching
Scenario ID	1
Scenario Name	Natural Material - Vegetation Establishment
Scenario Description	Application of straw mulch or other other state approved natural material to reduce erosion and facilitate the establishment of vegetative cover. Mulch provides a minimum of 70% ground coverage onn a distrurbed site around a newly constructed structural practice and is generally used with critical area planting.
Before Practice Situation	Typical scenario ranges from a 0.1 to 1.0 acre disturbed site around a newly constructed structural practice. The potential for soil erosion is high and mulch is needed to stabilize the soil and facilitate the establishment of vegetative cover.
After Practice Situation	Straw mulch has been applied to areas needing mulch. Erosion and sedimentation is reduced, water and soil quality is protected, and vegetative cover is established.
Scenario Feature Measure	Area Covered by Mulch
Scenario Unit	Acre
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$216.00	$216.00
Equipment/Installation	$57.39	$57.39
Labor	$22.67	$22.67
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$296.06	$296.06

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1237	Straw	Small grain straw (non organic and certified organic). Materials and shipping only.	Ton	$120.00	1.8	$216.00
Equipment/Installation	963	Tractor, agricultural, 60 HP	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	$19.28	1	$19.28
Equipment/Installation	1305	Mulcher, straw blower	Straw bale mulcher/blower to mechanically spread small or large straw bales. Labor not included.	Hour	$38.11	1	$38.11
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.67	1	$22.67

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agronomy
Practice Code/Name	484 - Mulching
Scenario ID	2
Scenario Name	Natural Material - Weed Control
Scenario Description	Application of straw mulch or other other state approved natural material (such as wood chips, compost, or hay) to reduce erosion, moderate soil temperature and suppress weeds. Typically used to provide partial coverage (either in-row or between rows) to suppress weeds competing with tree/shrub plantings, irrigated orchards or vineyards, or annual and perennial specialty crops. Mulches applied around growing plants or prior to weed seedling development shall have 100 % ground cover. Thickness of the mulch shall be adequate to prevent emergence of targeted weeds. Payment based on total acres mulched, assuming 3-5 ft. swatch and 10-12 ft. row spacing.
Before Practice Situation	Site conditions vary. Typical conditions include mechanical and/or chemical weed control resulting in excessive erosion, increased soil temperature and reduced soil moisture.
After Practice Situation	Straw or other natural mulch is applied in rows by hand or by mechanized means. Soil moisture is conserved, energy use associated with irrigation is decreased, and weed growth is suppressed.
Scenario Feature Measure	Area Covered by Mulch
Scenario Unit	Acre
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$300.00	$300.00
Equipment/Installation	$12.76	$12.76
Labor	$83.66	$83.66
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$396.42	$396.42

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1237	Straw	Small grain straw (non organic and certified organic). Materials and shipping only.	Ton	$120.00	2.5	$300.00
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	0.5	$12.76
Labor	231	General Labor	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	$19.92	4.2	$83.66

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agronomy
Practice Code/Name	484 - Mulching
Scenario ID	4
Scenario Name	Synthetic Material - Weed Control
Scenario Description	Installation of geotextile, biodegradable plastic, polyethylene plastic, or other state approved synthetic mulch to conserve soil moisture, moderate soil temperature, suppress weed growth and provide erosion control. Typically used in-row with tree/shrub plantings, irrigated orchards or vineyards, or annual and perennial specialty crops. Payment based on actual area covered by mulching material.
Before Practice Situation	Site conditions vary. Typical conditions include mechanical and/or chemical weed control resulting in excessive erosion, increased soil temperature and reduced soil moisture.
After Practice Situation	Synthetic mulch is applied in rows with a mulch layer or by other mechanized means. Soil moisture is conserved, energy use associated with irrigation is decreased, and weed growth is suppressed.
Scenario Feature Measure	Area Covered by Mulch
Scenario Unit	Acre
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$11,374.00	$11,374.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$11,374.00	$11,374.00

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	4840	$11,374.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agronomy
Practice Code/Name	484 - Mulching
Scenario ID	5
Scenario Name	Tree and Shrub - Weed Control
Scenario Description	Weed barrier fabric or other suitable natural or synthetic mulch is installed with a new tree and shrub planting where trees. Planting material may not be planted in rows, thus requiring each tree or shrub to be treated individually. Typically used to prevent weed competition during the installation of conservation practices. Rate is per tree/shrub and assumes 1 square yard of weed barrier fabric and 5 staples/tree. Typical scenario is an installation of 100 native trees and shrubs to enhance wildlife habitat.
Before Practice Situation	Site conditions vary. Sites are often remote and trees may not be planted in rows, requiring each tree to be treated individually. The lack of weed control causes direct competition to the newly planted trees and shrubs, resulting in poor growth and/or survival.
After Practice Situation	Weed barrier fabric squares are installed with 5 sod staples each, around individual trees and shrubs to control weed competition. Weeds are controlled and tree/shrub growth is minimally influenced by weed competition.
Scenario Feature Measure	Number of Trees Mulched
Scenario Unit	Each
Scenario Typical Size	100

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$235.00	$2.35
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$235.00	$2.35

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	100	$235.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Forestry
Practice Code/Name	490 - Tree & Shrub Site Preparation
Scenario ID	1
Scenario Name	Chemical Application
Scenario Description	This practice involves the use of various herbicides applied using ground-based machinery in order to remove undesirable vegetation and improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, agricultural fields or 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. Additional associated practices may include: 612 Tree and Shrub Establishment, 315 Herbaceous Weed Control, 660 Tree/Shrub Pruning, 484 Mulching
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. The typical size of the practice is 40 acres.
Scenario Feature Measure	Area of Treatment
Scenario Unit	Acre
Scenario Typical Size	40

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,396.40	$34.91
Equipment/Installation	$260.00	$6.50
Labor	$0.00	$0.00
Mobilization	$406.10	$10.15
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,062.50	$51.56

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	334	Herbicide, Glyphosate	A broad-spectrum, non-selective systemic herbicide. Product is typically used in these practices 340, 645, 314, 666, and 512. Product Name: Roundup, Accord XRT, and Accord SP.	Acre	$11.04	40	$441.60
Materials	344	Herbicide, Sulfometuron & metsulfuron	Product is typically used in this practice 666. Product Name: Oust Extra	Acre	$22.78	40	$911.20
Materials	1095	Herbicide, Surfactant	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant; Examples: Red River Forestry Oil, Alligare Forestry Oil, Rebound, and Li700.	Acre	$1.09	40	$43.60
Equipment/Installation	948	Chemical, ground application	Chemical application performed by ground equipment. Equipment and labor costs included.	Acre	$6.50	40	$260.00
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Forestry
Practice Code/Name	490 - Tree & Shrub Site Preparation
Scenario ID	2
Scenario Name	Light Mechanical
Scenario Description	This practice involves the use of light/moderate machinery to clear above ground vegetation and to also rip/cut/lift underground root systems in order to improve site conditions for establishing trees and/or shrubs. Typical sites include abandoned fields, pastures, rangelands, agricultural fields or forestlands that have been harvested. 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. Additional associated practices may include: 612 Tree and Shrub Establishment, 315 Herbaceous Weed Control, 660 Tree/Shrub Pruning, 484 Mulching
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 removed using a bush hog to knock down stand vegetation and heavy tillage equipment is used to breakup and lift root systems, breakup plow pans (<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. The typical size of the practice is 40 acres.
Scenario Feature Measure	Area of Treatment
Scenario Unit	Acre
Scenario Typical Size	40

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$1,242.72	$31.07
Labor	$362.72	$9.07
Mobilization	$857.12	$21.43
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,462.56	$61.56

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	940	Mower, Bush Hog	Equipment and power unit costs. Labor not included.	Hour	$41.52	16	$664.32
Equipment/Installation	946	Tillage, Primary	Includes heavy disking (offset) or chisel plow, Equipment and power unit costs. Labor is included.	Acre	$14.46	40	$578.40
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.67	16	$362.72
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	4	$812.20
Mobilization	1143	Mobilization, Light Equipment Operator	Mobilization of light equipment operators: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.46	2	$44.92

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Forestry
Practice Code/Name	490 - Tree & Shrub Site Preparation
Scenario ID	3
Scenario Name	Light Mechanical with Chemical
Scenario Description	This practice involves the use of light/moderate machinery to clear above ground vegetation and to also rip/cut/lift underground root systems followed by appropriate herbicide application in order to improve site conditions for establishing trees and/or shrubs. Typical sites include small trees (<2" dbh) and brush cover on less than 60% of area that is not appropriate to the site or providing the desired condition for the landowner.Typical sites include abandoned fields, pastures, rangelands, agricultural fields or forestlands that have been harvested. 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. Additional associated practices may include: 612 Tree and Shrub Establishment, 315 Herbaceous Weed Control, 660 Tree/Shrub Pruning, 484 Mulching
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 removed using a bush hog to knock down stand vegetation and heavy tillage equipment is used to breakup and lift root systems, breakup plow pans (<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. The typical size of the practice is 40 acres.
Scenario Feature Measure	Area of Treatment
Scenario Unit	Acre
Scenario Typical Size	40

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,396.40	$34.91
Equipment/Installation	$1,502.72	$37.57
Labor	$362.72	$9.07
Mobilization	$1,263.22	$31.58
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$4,525.06	$113.13

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	334	Herbicide, Glyphosate	A broad-spectrum, non-selective systemic herbicide. Product is typically used in these practices 340, 645, 314, 666, and 512. Product Name: Roundup, Accord XRT, and Accord SP.	Acre	$11.04	40	$441.60
Materials	344	Herbicide, Sulfometuron & metsulfuron	Product is typically used in this practice 666. Product Name: Oust Extra	Acre	$22.78	40	$911.20
Materials	1095	Herbicide, Surfactant	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant; Examples: Red River Forestry Oil, Alligare Forestry Oil, Rebound, and Li700.	Acre	$1.09	40	$43.60
Equipment/Installation	948	Chemical, ground application	Chemical application performed by ground equipment. Equipment and labor costs included.	Acre	$6.50	40	$260.00
Equipment/Installation	940	Mower, Bush Hog	Equipment and power unit costs. Labor not included.	Hour	$41.52	16	$664.32
Equipment/Installation	946	Tillage, Primary	Includes heavy disking (offset) or chisel plow, Equipment and power unit costs. Labor is included.	Acre	$14.46	40	$578.40
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.67	16	$362.72
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	6	$1,218.30
Mobilization	1143	Mobilization, Light Equipment Operator	Mobilization of light equipment operators: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.46	2	$44.92

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	511 - Forage Harvest Management
Scenario ID	1
Scenario Name	Improved Forage Quality
Scenario Description	Improved cultural practices and recordkeeping result in better forage quality and better livestock performance.
Before Practice Situation	Forage cutting heights are as close to the ground as equipment will allow resulting in very low stubble height. Plant regrowth is very slow. Forage quality tests are not regularly done. Records of forage quality components, cutting heights, moisture content, and harvest schedule are not regularly kept.
After Practice Situation	Forage cutting heights are raised to leave at least 3-4" stubble height for cool season grasses and 6" for warm season grasses. Increased residual forage results in much faster plant regrowth. Forage quality tests are submitted to an accredited lab for analysis. Records of forage quality components, cutting heights, moisture content, and harvest schedule are regularly kept to track increased forage quality and improved livestock performance.
Scenario Feature Measure	Improved Relative Feed Value
Scenario Unit	Acre
Scenario Typical Size	30

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$49.22	$1.64
Equipment/Installation	$0.00	$0.00
Labor	$31.31	$1.04
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$348.92	$11.63
Foregone Income	$0.00	$0.00
Total	$429.45	$14.32

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	301	Test, Plant Tissue Test	Tissue analysis for crops	Each	$24.61	2	$49.22
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	1	$31.31
Acquisition of Technical Knowledge	294	Training, Workshops	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	$116.67	1	$116.67
Acquisition of Technical Knowledge	297	Transportation	Mileage to attend a training conference, workshop, or TSP travel associated with developing Conservation Activity Plan.	Mile	$0.56	100	$56.00
Acquisition of Technical Knowledge	296	Training, Registration Costs	Conference Registration Fees	Each	$176.25	1	$176.25

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	511 - Forage Harvest Management
Scenario ID	3
Scenario Name	Perennial Crops - Delayed Mowing
Scenario Description	In perennial forage crops, delaying the harvest of the first cutting to promote the reproduction of ground nesting birds. The delayed harvest results in a decrease in overall forage quality (33% reduction assumed), making the forage crop less palatable and lower in relative feed value. The selected fields should be large enough to promote ground nesting birds. After young have fledged the field will be harvested for dry forages.
Before Practice Situation	Perennial forage crops are produced and harvested; ground nesting birds are disturbed and/or fledgling birds are killed in the process.
After Practice Situation	Perennial crops are harvested with a delayed mowing; forage quality is compromised, however, the survival of ground nesting birds is promoted.
Scenario Feature Measure	Increased grassland bird populations.
Scenario Unit	Acre
Scenario Typical Size	30

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$49.22	$1.64
Equipment/Installation	$0.00	$0.00
Labor	$31.31	$1.04
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$348.92	$11.63
Foregone Income	$22.94	$0.76
Total	$452.39	$15.08

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	301	Test, Plant Tissue Test	Tissue analysis for crops	Each	$24.61	2	$49.22
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	1	$31.31
Acquisition of Technical Knowledge	296	Training, Registration Costs	Conference Registration Fees	Each	$176.25	1	$176.25
Acquisition of Technical Knowledge	294	Training, Workshops	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	$116.67	1	$116.67
Acquisition of Technical Knowledge	297	Transportation	Mileage to attend a training conference, workshop, or TSP travel associated with developing Conservation Activity Plan.	Mile	$0.56	100	$56.00
Foregone Income	2079	FI, Grazing AUMs	Grazing is the Primary Land Use	AUM	$15.29	1.5	$22.94

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	11
Scenario Name	Endophyte Infected Fescue Renovation
Scenario Description	Rennovation of an existing stand of endophyte infected fescue to non-endophyte grasses (stand may be renovated to either an inroduced or native stand) using the spray - smother - spray technique (spray existing grass before heading in early spring, plant a smother crop, spray smother crop in the fall, plant new grass stand into the stubble). Payment includes chemical operations, smother crop establishment and termination, and seeding of new renovated grass stand, including fertilizer and lime needed for a succesful establishment.
Before Practice Situation	Existing grass stand is primarly endophyte infected fescue resulting in decreased animal health and productivity.
After Practice Situation	Endophyte infected grass stand is renovated to a non-endophyte introduced grass/legume stand using the spray-smother-spray technique.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$3,869.30	$193.47
Equipment/Installation	$1,141.00	$57.05
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$820.00	$41.00
Total	$5,830.30	$291.52

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	97	Timothy (Phleum pratense)	Introduced Perennial Grasses and shipping.	Pound	$2.46	40	$98.40
Materials	179	Pearl Millet (Pennisetum glaucum)	Annual Grasses, Cover Crops and shipping.	Pound	$1.86	300	$558.00
Materials	334	Herbicide, Glyphosate	A broad-spectrum, non-selective systemic herbicide. Product is typically used in these practices 340, 645, 314, 666, and 512. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$11.04	40	$441.60
Materials	92	Orchard Grass (Dactylis glomerata)	Introduced Perennial Grasses and shipping.	Pound	$2.04	80	$163.20
Materials	73	Phosphorus, P2O5	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.65	860	$559.00
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	40	$959.20
Materials	74	Potassium, K2O	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.52	1660	$863.20
Materials	109	Ladino Clover (Trifolium repens)	Introduced Legumes and shipping.	Pound	$3.74	5	$18.70
Materials	112	Red Clover (Trifolium pratense)	Introduced Legumes and shipping.	Pound	$2.60	80	$208.00
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	40	$763.20
Equipment/Installation	948	Chemical, ground application	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.50	40	$260.00
Equipment/Installation	950	Fertilizer, ground application, dry bulk	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.89	20	$117.80
Foregone Income	2122	FI, Hay, General Grass	General Grass Hay is Primary Land Use	Acre	$41.00	20	$820.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	1
Scenario Name	Interseeding Legumes and/or forbs
Scenario Description	Interseed legumes and/or forbs into an existing grass stand for the purpose of increasing plant diversity, soil quality and fertility, and plant health and enhancing the quality of forage. Scenario is appropriate for conventional production. Payment includes seed, seeding and fertility for interseeding establishment.
Before Practice Situation	Existing grass stand that needs additional species diversity.
After Practice Situation	A more diverse grass stand provides improved forage quality and availability, and improved soil condition. Payment scenario is based on red and ladino clover interseeded into a 20 acre cool season grass stand. Inputs are based on medium to low existing fertility.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,680.90	$134.05
Equipment/Installation	$499.40	$24.97
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,180.30	$159.02

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	73	Phosphorus, P2O5	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.65	700	$455.00
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	40	$959.20
Materials	74	Potassium, K2O	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.52	2000	$1,040.00
Materials	109	Ladino Clover (Trifolium repens)	Introduced Legumes and shipping.	Pound	$3.74	5	$18.70
Materials	112	Red Clover (Trifolium pratense)	Introduced Legumes and shipping.	Pound	$2.60	80	$208.00
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	20	$381.60
Equipment/Installation	950	Fertilizer, ground application, dry bulk	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.89	20	$117.80

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	2
Scenario Name	Interseed Legumes and/or forbs Organic
Scenario Description	Interseed legumes and/or forbs into an existing grass stand for the purpose of increasing plant diversity, soil quality and fertility, and plant health and enhancing the quality of forage. Scenario is appropriate for organic production. Payment includes seed, seeding and fertility for interseeding establishment.
Before Practice Situation	Existing grass stand that needs additional species diversity.
After Practice Situation	A more diverse grass stand provides improved forage quality and availability, and improved soil condition. Payment scenario is based on red and ladino clover interseeded into a 20 acre cool season grass stand. Inputs are based on medium to low existing fertility.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$3,020.40	$151.02
Equipment/Installation	$745.72	$37.29
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,766.12	$188.31

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	40	$959.20
Materials	265	Compost	A mixture of decaying organic matter, as from leaves and manure, used to improve soil structure and provide nutrients.	Ton	$45.55	30	$1,366.50
Materials	116	Certified Organic, Ladino Clover (Trifolium repens)	Introduced Legumes and shipping.	Pound	$3.58	5	$17.90
Materials	117	Certified Organic, Red Clover (Trifolium pratense)	Introduced Legumes and shipping.	Pound	$8.46	80	$676.80
Equipment/Installation	955	Manure, compost, application	Loading, hauling and spreading manure/compost by ground equipment. Includes equipment, power unit and labor costs.	Hour	$91.03	4	$364.12
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	20	$381.60

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	3
Scenario Name	Introduced Grass Establishment or Renovation
Scenario Description	Establishing a new stand or renovating a poor stand to introduced grass, or grass with legumes and/or forbs to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Scenario is appropriate for conventional production. Payment includes site preparation, seed, seeding fertilizer, lime, and foregone income for loss of production during establishment/renovation
Before Practice Situation	Existing grass stand does not meet the forage demands, particularly during during periods of low forage production. Resource concerns may include undesireable plant productivity and health, inadequate feed and forage for livestock, soil erosion, and soil quality.
After Practice Situation	Establish introduced grass and legume mix stand to improve livestock nutrition through improved forage quality and availability, and improved soil condition. Payment scenario is based on converting an existing poor condition sod to introduced grass/legume/forb mix using mechanical or chemical activities.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$3,090.50	$154.53
Equipment/Installation	$629.40	$31.47
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$820.00	$41.00
Total	$4,539.90	$227.00

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	97	Timothy (Phleum pratense)	Introduced Perennial Grasses and shipping.	Pound	$2.46	40	$98.40
Materials	334	Herbicide, Glyphosate	A broad-spectrum, non-selective systemic herbicide. Product is typically used in these practices 340, 645, 314, 666, and 512. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$11.04	20	$220.80
Materials	92	Orchard Grass (Dactylis glomerata)	Introduced Perennial Grasses and shipping.	Pound	$2.04	80	$163.20
Materials	73	Phosphorus, P2O5	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.65	860	$559.00
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	40	$959.20
Materials	74	Potassium, K2O	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.52	1660	$863.20
Materials	109	Ladino Clover (Trifolium repens)	Introduced Legumes and shipping.	Pound	$3.74	5	$18.70
Materials	112	Red Clover (Trifolium pratense)	Introduced Legumes and shipping.	Pound	$2.60	80	$208.00
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	20	$381.60
Equipment/Installation	948	Chemical, ground application	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.50	20	$130.00
Equipment/Installation	950	Fertilizer, ground application, dry bulk	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$5.89	20	$117.80
Foregone Income	2122	FI, Hay, General Grass	General Grass Hay is Primary Land Use	Acre	$41.00	20	$820.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	4
Scenario Name	Introduced Grass Establishment or Renovation Organic
Scenario Description	Establishing a new stand or renovating a poor stand to introduced grass, or grass with legumes and/or forbs to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Scenario is appropriate for organic production. Payment includes site preparation, seed, seeding fertilizer, lime, and foregone income for loss of production during establishment/renovation
Before Practice Situation	Existing grass stand does not meet the forage demands, particularly during during periods of low forage production. Resource concerns may include undesireable plant productivity and health, inadequate feed and forage for livestock, soil erosion, and soil quality.
After Practice Situation	Establish introduced grass and legume mix stand to improve livestock nutrition through improved forage quality and availability, and improved soil condition. Payment scenario is based on converting an existing poor condition sod to introduced grass/legume/forb mix using mechanical or chemical activities.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$3,542.00	$177.10
Equipment/Installation	$1,094.32	$54.72
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$940.00	$47.00
Total	$5,576.32	$278.82

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	100	Certified Organic, Orchard Grass (Dactylis glomerata)	Introduced Perennial Grasses and shipping.	Pound	$5.02	80	$401.60
Materials	103	Certified Organic, Timothy (Phleum pratense)	Introduced Perennial Grasses and shipping.	Pound	$3.00	40	$120.00
Materials	265	Compost	A mixture of decaying organic matter, as from leaves and manure, used to improve soil structure and provide nutrients.	Ton	$45.55	30	$1,366.50
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	40	$959.20
Materials	117	Certified Organic, Red Clover (Trifolium pratense)	Introduced Legumes and shipping.	Pound	$8.46	80	$676.80
Materials	116	Certified Organic, Ladino Clover (Trifolium repens)	Introduced Legumes and shipping.	Pound	$3.58	5	$17.90
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	20	$381.60
Equipment/Installation	957	Mechanical weed control, Vegetation termination	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	$17.43	20	$348.60
Equipment/Installation	955	Manure, compost, application	Loading, hauling and spreading manure/compost by ground equipment. Includes equipment, power unit and labor costs.	Hour	$91.03	4	$364.12
Foregone Income	2200	FI, Hay, General Grass, Organic	Organic general Grass Hay is Primary Land Use	Ton	$47.00	20	$940.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	5
Scenario Name	Native Grass Establishment or Renovation - no fertility
Scenario Description	Establishing a new stand or renovating a poor stand to native grass, or grass with legumes and/or forbs to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Scenario is appropriate for conventional production on sites where fertility for establishment is adequate or it is determined that lime is all that is needed to enhance available nutrients. Payment includes site preparation, seed, seeding, lime, and foregone income for loss of production during establishment/renovation
Before Practice Situation	Existing grass stand does not meet the forage demands, particularly during during periods of low forage production. Resource concerns may include undesireable plant productivity and health, inadequate feed and forage for livestock, soil erosion, and soil quality.
After Practice Situation	Establish native grass and legume and/or forbs mix stand to improve livestock nutrition through improved forage quality and availability, and improved soil condition. Payment scenario is based on converting an existing poor condition sod to native grass/legume/forb mix using mechanical or chemical activities.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$4,708.70	$235.44
Equipment/Installation	$511.60	$25.58
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$1,640.00	$82.00
Total	$6,860.30	$343.02

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	84	Wild Rye, Virginia (Elymus virginicus)	Native Grasses and shipping.	Pound	$9.81	40	$392.40
Materials	334	Herbicide, Glyphosate	A broad-spectrum, non-selective systemic herbicide. Product is typically used in these practices 340, 645, 314, 666, and 512. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$11.04	20	$220.80
Materials	335	Herbicide, Imazapic	Product is typically used in these practices 512 and 666. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$11.45	20	$229.00
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	80	$1,918.40
Materials	78	Indian Grass, Tomahawk (Sorghastrum nutans)	Native Grasses and shipping.	Pound	$12.63	20	$252.60
Materials	79	Little Blue Stem (Schizachyrium scoparium)	Native Grasses and shipping.	Pound	$15.43	80	$1,234.40
Materials	81	Side Oats Grama (Bouteloua curtipendula)	Native Grasses and shipping.	Pound	$14.86	20	$297.20
Materials	136	Purple Coneflower (Echinacea purpurea)	Native Forbs and shipping.	Pound	$32.78	5	$163.90
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	20	$381.60
Equipment/Installation	948	Chemical, ground application	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.50	20	$130.00
Foregone Income	2122	FI, Hay, General Grass	General Grass Hay is Primary Land Use	Acre	$41.00	40	$1,640.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	7
Scenario Name	Native Grass Establishment or Renovation - with fertility
Scenario Description	Establishing a new stand or renovating a poor stand to native grass, or grass with legumes and/or forbs to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Scenario is appropriate for conventional production on sites where fertilzer is needed for establishment. Payment includes site preparation, seed, seeding, fertilizer, lime and foregone income for loss of production during establishment/renovation
Before Practice Situation	Existing grass stand does not meet the forage demands, particularly during during periods of low forage production. Resource concerns may include undesireable plant productivity and health, inadequate feed and forage for livestock, soil erosion, and soil quality.
After Practice Situation	Establish native grass and legume and/or forbs mix stand to improve livestock nutrition through improved forage quality and availability, and improved soil condition. Payment scenario is based on converting an existing poor condition sod to native grass/legume/forb mix using mechanical or chemical activities.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$6,130.90	$306.55
Equipment/Installation	$511.60	$25.58
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$1,640.00	$82.00
Total	$8,282.50	$414.13

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	84	Wild Rye, Virginia (Elymus virginicus)	Native Grasses and shipping.	Pound	$9.81	40	$392.40
Materials	334	Herbicide, Glyphosate	A broad-spectrum, non-selective systemic herbicide. Product is typically used in these practices 340, 645, 314, 666, and 512. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$11.04	20	$220.80
Materials	335	Herbicide, Imazapic	Product is typically used in these practices 512 and 666. Refer to WIN-PST for product names and active ingredients. Materials only.	Acre	$11.45	20	$229.00
Materials	73	Phosphorus, P2O5	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.65	860	$559.00
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	80	$1,918.40
Materials	78	Indian Grass, Tomahawk (Sorghastrum nutans)	Native Grasses and shipping.	Pound	$12.63	20	$252.60
Materials	79	Little Blue Stem (Schizachyrium scoparium)	Native Grasses and shipping.	Pound	$15.43	80	$1,234.40
Materials	81	Side Oats Grama (Bouteloua curtipendula)	Native Grasses and shipping.	Pound	$14.86	20	$297.20
Materials	74	Potassium, K2O	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.52	1660	$863.20
Materials	136	Purple Coneflower (Echinacea purpurea)	Native Forbs and shipping.	Pound	$32.78	5	$163.90
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	20	$381.60
Equipment/Installation	948	Chemical, ground application	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.50	20	$130.00
Foregone Income	2122	FI, Hay, General Grass	General Grass Hay is Primary Land Use	Acre	$41.00	40	$1,640.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	8
Scenario Name	Native Grass Establishment or Renovation - no fertility
Scenario Description	Establishing a new stand or renovating a poor stand to native grass, or grass with legumes and/orforbs to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Scenario is appropriate for organic production on sites where fertilzer is needed for establishment. Payment includes site preparation, seed, seeding, fertilizer, lime and foregone income for loss of production during establishment/renovation
Before Practice Situation	Existing grass stand does not meet the forage demands, particularly during during periods of low forage production. Resource concerns may include undesireable plant productivity and health, inadequate feed and forage for livestock, soil erosion, and soil quality.
After Practice Situation	Establish native grass and legume and/or forbs mix stand to improve livestock nutrition through improved forage quality and availability, and improved soil condition. Payment scenario is based on converting an existing poor condition sod to native grass/legume/forb mix using mechanical or chemical activities.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$5,625.40	$281.27
Equipment/Installation	$1,094.32	$54.72
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$1,880.00	$94.00
Total	$8,599.72	$429.99

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	84	Wild Rye, Virginia (Elymus virginicus)	Native Grasses and shipping.	Pound	$9.81	40	$392.40
Materials	265	Compost	A mixture of decaying organic matter, as from leaves and manure, used to improve soil structure and provide nutrients.	Ton	$45.55	30	$1,366.50
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	80	$1,918.40
Materials	78	Indian Grass, Tomahawk (Sorghastrum nutans)	Native Grasses and shipping.	Pound	$12.63	20	$252.60
Materials	79	Little Blue Stem (Schizachyrium scoparium)	Native Grasses and shipping.	Pound	$15.43	80	$1,234.40
Materials	81	Side Oats Grama (Bouteloua curtipendula)	Native Grasses and shipping.	Pound	$14.86	20	$297.20
Materials	136	Purple Coneflower (Echinacea purpurea)	Native Forbs and shipping.	Pound	$32.78	5	$163.90
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	20	$381.60
Equipment/Installation	957	Mechanical weed control, Vegetation termination	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	$17.43	20	$348.60
Equipment/Installation	955	Manure, compost, application	Loading, hauling and spreading manure/compost by ground equipment. Includes equipment, power unit and labor costs.	Hour	$91.03	4	$364.12
Foregone Income	2200	FI, Hay, General Grass, Organic	Organic general Grass Hay is Primary Land Use	Ton	$47.00	40	$1,880.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	512 - Forage and Biomass Planting
Scenario ID	6
Scenario Name	Native Grass Establishment or Renovation - no fertility
Scenario Description	Establishing a new stand or renovating a poor stand to native grass, or grass with legumes and/or forbs to improve or maintain livestock/wildlife nutrition and health, extend the length of the grazing season, and provide soil cover to reduce erosion. Scenario is appropriate for organic production on sites where fertility for establishment is adequate or it is determined that lime is all that is needed to enhance available nutrients. Payment includes site preparation, seed, seeding, lime and foregone income for loss of production during establishment/renovation
Before Practice Situation	Existing grass stand does not meet the forage demands, particularly during during periods of low forage production. Resource concerns may include undesireable plant productivity and health, inadequate feed and forage for livestock, soil erosion, and soil quality.
After Practice Situation	Establish native grass and legume and/or forbs mix stand to improve livestock nutrition through improved forage quality and availability, and improved soil condition. Payment scenario is based on converting an existing poor condition sod to native grass/legume/forb mix using mechanical or chemical activities.
Scenario Feature Measure	Acres of Forgage and Biomass Planting
Scenario Unit	Acre
Scenario Typical Size	20

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$4,258.90	$212.95
Equipment/Installation	$730.20	$36.51
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$1,880.00	$94.00
Total	$6,869.10	$343.46

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	84	Wild Rye, Virginia (Elymus virginicus)	Native Grasses and shipping.	Pound	$9.81	40	$392.40
Materials	75	Lime, ENM	Fertilizer: Limestone Spread on field.	Ton	$23.98	80	$1,918.40
Materials	78	Indian Grass, Tomahawk (Sorghastrum nutans)	Native Grasses and shipping.	Pound	$12.63	20	$252.60
Materials	79	Little Blue Stem (Schizachyrium scoparium)	Native Grasses and shipping.	Pound	$15.43	80	$1,234.40
Materials	81	Side Oats Grama (Bouteloua curtipendula)	Native Grasses and shipping.	Pound	$14.86	20	$297.20
Materials	136	Purple Coneflower (Echinacea purpurea)	Native Forbs and shipping.	Pound	$32.78	5	$163.90
Equipment/Installation	960	Seeding Operation, No Till/Grass Drill	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	$19.08	20	$381.60
Equipment/Installation	957	Mechanical weed control, Vegetation termination	Mechanical operations, Includes: Roller/crimper, mower, shredder, etc. Includes equipment, power unit and labor costs.	Acre	$17.43	20	$348.60
Foregone Income	2200	FI, Hay, General Grass, Organic	Organic general Grass Hay is Primary Land Use	Ton	$47.00	40	$1,880.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	1
Scenario Name	Above Ground Pipeline
Scenario Description	An above ground plastic pipeline is installed to convey water from a source of supply to points of use for livestock in a prescribed grazing system or wildlife for temporary watering locations.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Water locations are temporary and occur during non-freezing times of the year.
After Practice Situation	An above ground plastic pipeline is installed to convey water from a water source to point of use for temporary watering. Payment incorporates pipe and quick connect coupler and fittings. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. The pipeline is to be protected from UV radiation damage, as well as damage from vehicles, animals, people, and fire. The landowner is responsible for repair or replacement of the pipeline as necessary under O&M during the specified life span of the practice. Cost data is applicable to organic and conventional agricultural production systems. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	2000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,133.54	$1.07
Equipment/Installation	$0.00	$0.00
Labor	$199.20	$0.10
Mobilization	$112.44	$0.06
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,445.18	$1.22

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1379	Pipe, HDPE, smooth wall, weight priced	High Density Polyethylene (HDPE) compound manufactured into smooth wall pipe. Materials only.	Pound	$2.43	878	$2,133.54
Labor	231	General Labor	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	$19.92	10	$199.20
Mobilization	1137	Mobilization, very small equipment	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	$56.22	2	$112.44

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	6
Scenario Name	Backhoe, Bedded, < 2"
Scenario Description	Installation of a gravel-bedded plastic pipeline, less than 2" diameter, by backhoe across a stream or other locations where installation of the pipeline by trenching or plowing is not feasible due to rock or other obstructions. Gravel bedding is necessary as part of the pipeline installation due to excessively rocky or otherwise unstable soil conditions so that the pipeline is evenly supported and protected from damage due to excessively rocky backfill material throughout the length of the trench. The purpose of the pipeline installation is to convey water from a water supply source to points of use for livestock in a prescribed grazing system or wildlife.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Soil conditions (excessively stoney soil, unstable soil or frequent crossing by heavy equipment) requires the pipe to be protected by gravel backfill.
After Practice Situation	800 feet of 1 1/2", Schedule 40 PVC plastic pipeline is installed in gravel bedding by backhoe in pastureland as part of a livestock water delivery system. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	800

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,398.32	$1.75
Equipment/Installation	$395.82	$0.49
Labor	$400.47	$0.50
Mobilization	$406.10	$0.51
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,600.71	$3.25

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	975	Pipe, PVC, 1 ½", SCH 40	Materials: - 1 1/2" - PVC - SCH 40 - ASTM D1785	Foot	$0.76	800	$608.00
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$26.70	29.6	$790.32
Equipment/Installation	926	Backhoe, 80 HP	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$43.98	9	$395.82
Labor	231	General Labor	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	$19.92	8	$159.36
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$26.79	9	$241.11
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	8
Scenario Name	Backhoe, Bedded, 2" - 3"
Scenario Description	Installation of a bedded, 2"-3" diameter, plastic pipeline, by backhoe across a stream or other locations where installation of the pipeline by trenching or plowing is not feasible due to rock or other obstructions. Gravel bedding is necessary as part of the pipeline installation due to excessively rocky or otherwise unstable soil conditions so that the pipeline is evenly supported and protected from damage due to excessively rocky backfill material throughout the length of the trench. The purpose of the pipeline installation is to convey water from a water supply source to points of use for livestock in a prescribed grazing system or wildlife.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Soil conditions (excessively stoney soil, unstable soil or frequent crossing by heavy equipment) requires the pipe to be protected by gravel backfill.
After Practice Situation	800 feet of 2 1/2", Schedule 40 PVC plastic pipeline is installed in gravel bedding by backhoe in pastureland as part of a livestock water delivery system. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	800

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,089.97	$2.61
Equipment/Installation	$395.82	$0.49
Labor	$400.47	$0.50
Mobilization	$406.10	$0.51
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,292.36	$4.12

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	935	$1,299.65
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$26.70	29.6	$790.32
Equipment/Installation	926	Backhoe, 80 HP	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$43.98	9	$395.82
Labor	231	General Labor	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	$19.92	8	$159.36
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$26.79	9	$241.11
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	5
Scenario Name	Backhoe, Nonbedded, < 2"
Scenario Description	Installation of a non-bedded plastic pipeline, less than 2" diameter, by backhoe across a stream or other locations where installation of the pipeline by trenching or plowing is not feasible for the purpose of conveying water from a water supply source to points of use for livestock in a prescribed grazing system or wildlife.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture.
After Practice Situation	800 feet of 1 1/2", Schedule 40 PVC plastic pipeline, installed in pastureland as part of a livestock water delivery system. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	800

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$608.00	$0.76
Equipment/Installation	$395.82	$0.49
Labor	$400.47	$0.50
Mobilization	$406.10	$0.51
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,810.39	$2.26

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	975	Pipe, PVC, 1 ½", SCH 40	Materials: - 1 1/2" - PVC - SCH 40 - ASTM D1785	Foot	$0.76	800	$608.00
Equipment/Installation	926	Backhoe, 80 HP	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$43.98	9	$395.82
Labor	231	General Labor	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	$19.92	8	$159.36
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$26.79	9	$241.11
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	7
Scenario Name	Backhoe, Nonbedded, 2" - 3"
Scenario Description	Installation of a non-bedded, 2"- 3" diameter, plastic pipeline by backhoe across a stream or other locations where installation of the pipeline by trenching or plowing is not feasible for the purpose of conveying water from a water supply source to points of use for livestock in a prescribed grazing system or wildlife.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture.
After Practice Situation	800 feet of 2 1/2", Schedule 40 PVC plastic pipeline, installed in pastureland as part of a livestock water delivery system. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	800

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,299.65	$1.62
Equipment/Installation	$395.82	$0.49
Labor	$400.47	$0.50
Mobilization	$406.10	$0.51
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,502.04	$3.13

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	935	$1,299.65
Equipment/Installation	926	Backhoe, 80 HP	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$43.98	9	$395.82
Labor	231	General Labor	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	$19.92	8	$159.36
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$26.79	9	$241.11
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	9
Scenario Name	Buried Large Diameter
Scenario Description	Installation of a large diameter plastic pipeline to convey livestock water from a spring development to a watering facility to service a prescribed grazing system.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source such as a spring by piping to a watering facility. Soil conditions are suitable for pipe installation without bedding.
After Practice Situation	A delivery pipe (typically 4" diameter, Schedule 40 PVC Plastic) from a spring development to a watering facility, or from water source to watering facility for gravity flow systems. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	800

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,421.38	$3.03
Equipment/Installation	$1,520.00	$1.90
Labor	$218.45	$0.27
Mobilization	$406.10	$0.51
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$4,565.93	$5.71

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	1742	$2,421.38
Equipment/Installation	2044	Trenching, Earth, 12" x 70"	Trenching, earth, 12" wide x 70" depth, includes equipment and labor for trenching, laying 3"-6" CPP drain line with envelope, and backfilling.	Foot	$1.90	800	$1,520.00
Labor	231	General Labor	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	$19.92	3	$59.76
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.67	7	$158.69
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	4
Scenario Name	Cased Pipeline with Boring
Scenario Description	Installation of a 2"- 3" plastic pipeline within an outer casing, bored under a road or other obstruction to convey water from a source of supply to points of use for livestock in a prescribed grazing system or wildlife.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Soil conditions or location require boring to facilitate pipe installation.
After Practice Situation	The typical installation consists of installing 60 feet of a 2.5 inch, Schedule 40 PVC plastic pipe with a 4 inch outer casing under a roadbed. Pipeline boring includes all pipe under roadbed and labor and equipment involved during installation of pipe. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	60

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$503.50	$8.39
Equipment/Installation	$2,904.78	$48.41
Labor	$66.63	$1.11
Mobilization	$812.20	$13.54
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$4,287.11	$71.45

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	70	$97.30
Materials	1002	Pipe, PE, 4", SiDR 9	Materials: - 4" - PE - SiDR 9 160 psi - ASTM D3035	Foot	$6.77	60	$406.20
Equipment/Installation	1132	Horizontal Boring, > 3" diameter	Includes equipment, labor and setup.	Foot	$47.68	60	$2,860.80
Equipment/Installation	926	Backhoe, 80 HP	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$43.98	1	$43.98
Labor	231	General Labor	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	$19.92	2	$39.84
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$26.79	1	$26.79
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	4	$812.20

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	2
Scenario Name	Trenched, < 2" Plastic
Scenario Description	Trenching Installation of a non-bedded plastic pipeline, less than 2" diameter, to convey water from a source of supply to points of use for livestock in a prescribed grazing system or wildlife.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Soil conditions are suitable for pipe installation without bedding.
After Practice Situation	A 1½ inch diameter, Schedule 40 PVC plastic pipeline for stockwatering, 3365 ft long is installed for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment includes couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	3365

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,557.40	$0.76
Equipment/Installation	$2,447.32	$0.73
Labor	$1,448.06	$0.43
Mobilization	$112.44	$0.03
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$6,565.22	$1.95

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	975	Pipe, PVC, 1 ½", SCH 40	Materials: - 1 1/2" - PVC - SCH 40 - ASTM D1785	Foot	$0.76	3365	$2,557.40
Equipment/Installation	936	Trencher, 8"	Equipment and power unit costs. Labor not included.	Hour	$71.98	34	$2,447.32
Labor	231	General Labor	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	$19.92	34	$677.28
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.67	34	$770.78
Mobilization	1137	Mobilization, very small equipment	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	$56.22	2	$112.44

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	516 - Pipeline
Scenario ID	3
Scenario Name	Trenched, 2" - 3" Plastic
Scenario Description	Trenching Installation of a non-bedded, 2"-3" diameter, plastic pipeline, to convey water from a source of supply to points of use for livestock in a prescribed grazing system or wildlife.
Before Practice Situation	Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Soil conditions are suitable for pipe installation without bedding.
After Practice Situation	A 2½ inch diameter, Schedule 40 PVC plastic pipeline for stockwatering, 2500 ft long is installed for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).
Scenario Feature Measure	Foot
Scenario Unit	Linear Foot
Scenario Typical Size	2500

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$4,058.80	$1.62
Equipment/Installation	$1,799.50	$0.72
Labor	$1,064.75	$0.43
Mobilization	$112.44	$0.04
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$7,035.49	$2.81

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1323	Pipe, PVC, dia. < 18", weight priced	Polyvinyl Chloride (PVC) pressure rated pipe priced by the weight of the pipe materials for pipes with diameters less than 18". Materials only.	Pound	$1.39	2920	$4,058.80
Equipment/Installation	936	Trencher, 8"	Equipment and power unit costs. Labor not included.	Hour	$71.98	25	$1,799.50
Labor	231	General Labor	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	$19.92	25	$498.00
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.67	25	$566.75
Mobilization	1137	Mobilization, very small equipment	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	$56.22	2	$112.44

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Engineering General
Practice Code/Name	521A - Pond Sealing or Lining, Flexible Membrane
Scenario ID	4
Scenario Name	Flexible Membrane - Covered with liner drainage or venting
Scenario Description	Installation of a flexible geosynthetic membrane liner to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes 1 foot of soil cover for liner protection, a geotextile or soil cushion to protect liner from subgrade damage, and liner drainage or venting. Associated practices include PS378 Pond, PS313 Waste Storage Facility.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits.
After Practice Situation	Water conservation and enviromental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Surface area of Liner Material (including anchorage)
Scenario Unit	Square Yard
Scenario Typical Size	2420

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$22,336.60	$9.23
Equipment/Installation	$8,850.44	$3.66
Labor	$3,654.32	$1.51
Mobilization	$108.77	$0.04
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$34,950.13	$14.44

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1387	Synthetic Liner, 40 mil	Synthetic 40 mil HDPE, LLDPE, EPDM, etc membrane liner material. Materials only.	Square Yard	$6.48	2420	$15,681.60
Materials	1778	Geonet	Geosynthetic drainage liner, typically HDPE of 300 mil thickness. Materials only.	Square Yard	$2.75	2420	$6,655.00
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.92	807	$3,163.44
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	2420	$5,687.00
Labor	235	Specialist Labor	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	$75.06	32	$2,401.92
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	40	$1,252.40
Mobilization	1141	Mobilization, Skilled labor	Mobilization of skilled labor: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$30.48	1	$30.48
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.29	1	$77.29
Mobilization	1043	Mobilization, Material, distance > 50 miles	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	$1.00	1	$1.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Engineering General
Practice Code/Name	521A - Pond Sealing or Lining, Flexible Membrane
Scenario ID	3
Scenario Name	Flexible Membrane - Covered without liner drainage or venting
Scenario Description	Installation of a flexible geosynthetic membrane liner to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes 1 foot of soil cover for liner protection, and a geotextile or soil cushion to protect liner from subgrade damage. Associated practices include PS378 Pond, PS313 Waste Storage Facility.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits.
After Practice Situation	Water conservation and enviromental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Surface area of Liner Material (including anchorage)
Scenario Unit	Square Yard
Scenario Typical Size	2420

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$15,681.60	$6.48
Equipment/Installation	$8,850.44	$3.66
Labor	$3,654.32	$1.51
Mobilization	$108.77	$0.04
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$28,295.13	$11.69

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1387	Synthetic Liner, 40 mil	Synthetic 40 mil HDPE, LLDPE, EPDM, etc membrane liner material. Materials only.	Square Yard	$6.48	2420	$15,681.60
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.92	807	$3,163.44
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	2420	$5,687.00
Labor	235	Specialist Labor	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	$75.06	32	$2,401.92
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	40	$1,252.40
Mobilization	1141	Mobilization, Skilled labor	Mobilization of skilled labor: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$30.48	1	$30.48
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.29	1	$77.29
Mobilization	1043	Mobilization, Material, distance > 50 miles	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	$1.00	1	$1.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Engineering General
Practice Code/Name	521A - Pond Sealing or Lining, Flexible Membrane
Scenario ID	2
Scenario Name	Flexible Membrane - Uncovered with liner drainage or venting
Scenario Description	Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes a geotextile or soil cushion to protect the liner from subgrade damage, and liner drainage or venting. Associated practices include PS378 Pond, PS313 Waste Storage Facility.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits.
After Practice Situation	Water conservation and enviromental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Surface area of Liner Material (including anchorage)
Scenario Unit	Square Yard
Scenario Typical Size	2420

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$22,336.60	$9.23
Equipment/Installation	$5,687.00	$2.35
Labor	$3,654.32	$1.51
Mobilization	$108.77	$0.04
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$31,786.69	$13.13

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1387	Synthetic Liner, 40 mil	Synthetic 40 mil HDPE, LLDPE, EPDM, etc membrane liner material. Materials only.	Square Yard	$6.48	2420	$15,681.60
Materials	1778	Geonet	Geosynthetic drainage liner, typically HDPE of 300 mil thickness. Materials only.	Square Yard	$2.75	2420	$6,655.00
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	2420	$5,687.00
Labor	235	Specialist Labor	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	$75.06	32	$2,401.92
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	40	$1,252.40
Mobilization	1141	Mobilization, Skilled labor	Mobilization of skilled labor: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$30.48	1	$30.48
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.29	1	$77.29
Mobilization	1043	Mobilization, Material, distance > 50 miles	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	$1.00	1	$1.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Engineering General
Practice Code/Name	521A - Pond Sealing or Lining, Flexible Membrane
Scenario ID	1
Scenario Name	Flexible Membrane - Uncovered without liner drainage or venting
Scenario Description	Installation of a flexible geosynthetic membrane liner, uncovered, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes a geotextile or soil cushion to protect the liner from subgrade damage. Associated practices include PS378 Pond, PS313 Waste Storage Facility.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits.
After Practice Situation	Water conservation and enviromental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Surface area of Liner Material (including anchorage)
Scenario Unit	Square Yard
Scenario Typical Size	2420 =0.5 acre in size

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$15,681.60	$6.48
Equipment/Installation	$5,687.00	$2.35
Labor	$3,654.32	$1.51
Mobilization	$108.77	$0.04
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$25,131.69	$10.38

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1387	Synthetic Liner, 40 mil	Synthetic 40 mil HDPE, LLDPE, EPDM, etc membrane liner material. Materials only.	Square Yard	$6.48	2420	$15,681.60
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	2420	$5,687.00
Labor	235	Specialist Labor	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	$75.06	32	$2,401.92
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	40	$1,252.40
Mobilization	1141	Mobilization, Skilled labor	Mobilization of skilled labor: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$30.48	1	$30.48
Mobilization	1146	Mobilization, Specialist Labor	Mobilization of Specialist Labor. Includes Agronomists, Foresters, Biologists, etc.	Hour	$77.29	1	$77.29
Mobilization	1043	Mobilization, Material, distance > 50 miles	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	$1.00	1	$1.00

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Indiana
Discipline Group	Engineering General
Practice Code/Name	521B - Pond Sealing or Lining, Soil Dispersant
Scenario ID	2
Scenario Name	Soil Dispersant - Covered
Scenario Description	Construction of a compacted soil liner, treated with a soil dispersant, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the dispersant with the soil liner under proper moisture conditions, compaction to the designed liner thickness, and placement of soil cover over the treated liner. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile). Associated practice PS378, PS313.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits. Soils are suitable for treatment with dispersants.
After Practice Situation	Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Volume of Liner Material including Soil Cover over Liner
Scenario Unit	Cubic Yard
Scenario Typical Size	1613 Typical pond liner: 1 foot thick with 1 foot soil cover x 1 acre in area

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$12,895.71	$7.99
Equipment/Installation	$12,347.60	$7.66
Labor	$587.00	$0.36
Mobilization	$297.47	$0.18
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$26,127.78	$16.20

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1490	Soil Dispersant	Soil Amendment (tetrasodium pyrophosphate (TSPP), sodium tripolyphosphate (STPP), or soda ash or approved equivalent)	Ton	$1,974.84	6.53	$12,895.71
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.74	3226	$12,065.24
Equipment/Installation	962	Tractor, agricultural, 120 HP	Agricultural tractor with horsepower range of 90 to 140. Equipment and power unit costs. Labor not included.	Hours	$47.06	6	$282.36
Labor	235	Consultant Services	Consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hours	$81.63	2	$163.26
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hours	$36.58	8	$292.64
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hours	$21.85	6	$131.10
Mobilization	1143	Mobilization, Light Equipment Operator	Mobilization of light equipment operators: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$24.89	1	$24.89
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$187.52	1	$187.52
Mobilization	1043	Mobilization, Material, distance > 50 miles	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	$1.00	1	$1.00
Mobilization	1146	Mobilization, Consultant Services	Management of consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hour	$84.06	1	$84.06

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Missouri
Discipline Group	Engineering General
Practice Code/Name	521B - Pond Sealing or Lining, Soil Dispersant
Scenario ID	1
Scenario Name	Soil Dispersant - Uncovered
Scenario Description	Construction of a compacted soil liner, treated with a soil dispersant, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the dispersant with the soil liner under proper moisture conditions and compaction to the designed liner thickness. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile). Associated practice PS378, PS313.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits. Soils are suitable for treatment with dispersants.
After Practice Situation	Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Volume of Liner Material
Scenario Unit	Cubic Yard
Scenario Typical Size	1613 Typical pond liner: 12" thick x 1 acre in area

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$13,350.98	$8.28
Equipment/Installation	$6,105.29	$3.79
Labor	$586.98	$0.36
Mobilization	$308.10	$0.19
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$20,351.35	$12.62

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1490	Soil Dispersant	Soil Amendment (tetrasodium pyrophosphate (TSPP), sodium tripolyphosphate (STPP), or soda ash or approved equivalent)	Ton	$2,044.56	6.53	$13,350.98
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.61	1613	$5,822.93
Equipment/Installation	962	Tractor, agricultural, 120 HP	Agricultural tractor with horsepower range of 90 to 140. Equipment and power unit costs. Labor not included.	Hours	$47.06	6	$282.36
Labor	235	Consultant Services	Consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hours	$79.60	2	$159.20
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hours	$37.61	8	$300.88
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hours	$21.15	6	$126.90
Mobilization	1143	Mobilization, Light Equipment Operator	Mobilization of light equipment operators: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$24.70	1	$24.70
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$200.43	1	$200.43
Mobilization	1043	Mobilization, Material, distance > 50 miles	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	$1.00	1	$1.00
Mobilization	1146	Mobilization, Consultant Services	Management of consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hour	$81.97	1	$81.97

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Engineering General
Practice Code/Name	521C - Pond Sealing or Lining, Bentonite Sealant
Scenario ID	2
Scenario Name	Bentonite Treatment - Covered
Scenario Description	Construction of a compacted soil liner, treated with bentonite, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the bentonite with the soil under proper moisture conditions, compaction to the designed liner thickness, and placement of soil cover over the treated liner. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile). Associated practice PS378, PS313.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits. Soils are suitable for treatment with bentonite.
After Practice Situation	Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Volume of Liner Material (includes 1 foot of soil cover over liner)
Scenario Unit	Cubic Yard
Scenario Typical Size	1613 Typical pond liner: 1 ft. thick with 1 ft. soil cover x 1 acre in area

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$56,503.87	$35.03
Equipment/Installation	$12,835.39	$7.96
Labor	$361.40	$0.22
Mobilization	$306.73	$0.19
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$70,007.39	$43.40

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	41	Bentonite	Bentonite, includes materials (50# bag)	Each	$10.81	5227	$56,503.87
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.89	3227	$12,553.03
Equipment/Installation	962	Tractor, agricultural, 120 HP	Agricultural tractor with horsepower range of 90 to 140. Equipment and power unit costs. Labor not included.	Hours	$47.06	6	$282.36
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hours	$22.91	6	$137.46
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hours	$36.91	2	$73.82
Labor	235	Consultant Services	Consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hours	$75.06	2	$150.12
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05
Mobilization	1043	Mobilization, Material, distance > 50 miles	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	$1.00	1	$1.00
Mobilization	1143	Mobilization, Light Equipment Operator	Mobilization of light equipment operators: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$25.39	1	$25.39
Mobilization	1146	Mobilization, Consultant Services	Management of consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hour	$77.29	1	$77.29

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data	
Region	Corn Belt	
State	Ohio	
Discipline Group	Engineering General	
Practice Code/Name	521C - Pond Sealing or Lining, Bentonite Sealant	
Scenario ID	1	
Scenario Name	Bentonite Treatment - Uncovered	
Scenario Description	Construction of a compacted soil liner, treated with bentonite, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes incorporation of the bentonite with the soil under proper moisture conditions, compaction to the designed liner thickness. Practice implementation may require filter compatibility with the subgrade (graded filter or geotextile). Associated practice PS378, PS313.	
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits. Soils are suitable for treatment with dispersants.	
After Practice Situation	Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.	
Scenario Feature Measure	Volume of Liner Material	
Scenario Unit	Cubic Yard	
Scenario Typical Size	1613	Typical pond liner: 1 ft. thick x 1 acre in area

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$56,503.87	$35.03
Equipment/Installation	$6,556.93	$4.07
Labor	$361.40	$0.22
Mobilization	$306.73	$0.19
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$63,728.93	$39.51

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	41	Bentonite	Bentonite, includes materials (50# bag)	Each	$10.81	5227	$56,503.87
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.89	1613	$6,274.57
Equipment/Installation	962	Tractor, agricultural, 120 HP	Agricultural tractor with horsepower range of 90 to 140. Equipment and power unit costs. Labor not included.	Hours	$47.06	6	$282.36
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hours	$22.91	6	$137.46
Labor	234	Supervisor or Manager	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hours	$36.91	2	$73.82
Labor	235	Consultant Services	Consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hours	$75.06	2	$150.12
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05
Mobilization	1043	Mobilization, Material, distance > 50 miles	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	$1.00	1	$1.00
Mobilization	1143	Mobilization, Light Equipment Operator	Mobilization of light equipment operators: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$25.39	1	$25.39
Mobilization	1146	Mobilization, Consultant Services	Management of consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hour	$77.29	1	$77.29

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Engineering General
Practice Code/Name	521D - Pond Sealing or Lining, Compacted Clay Treatment
Scenario ID	1
Scenario Name	Compacted Earth Liner with Soil Cover
Scenario Description	Construction of a compacted soil liner, treated with compacted clay, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes compaction of the soil liner under proper moisture conditions to the designed liner thickness, and soil cover to protect the finished liner. Scenario includes a 12" compacted clay liner with 6" of soil cover covering an area 1 acre in size. Material haul < 1 mile. Associated practices include PS378, PS313, & other waste water impoundments.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits. An adequate quantity of soil suitable for constructing a clay liner without amendments is available at an econical haul distance. Material haul < 1 mile.
After Practice Situation	Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Volume of Liner Material including soil cover over liner
Scenario Unit	Cubic Yard
Scenario Typical Size	1613 Typical pond liner 12" thick with 6" thick soil cover x 1 acre in area

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$12,156.23	$7.54
Labor	$1,125.90	$0.70
Mobilization	$1,046.57	$0.65
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$14,328.70	$8.88

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.89	1613	$6,274.57
Equipment/Installation	51	Earthfill, Dumped and Spread	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic yard	$3.18	807	$2,566.26
Equipment/Installation	1222	Excavation, common earth, large equipment, 50 ft	Bulk excavation of common earth including sand and gravel with dozer >100 HP with average push distance of 50 feet. Includes equipment and labor.	Cubic Yard	$1.37	2420	$3,315.40
Labor	235	Consultant Services	Consultant services to assist in resource inventory, plan development, site surveys, site monitoring, installation of practices, etc.	Hour	$75.06	15	$1,125.90
Mobilization	1140	Mobilization, large equipment	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	$379.78	1	$379.78
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05
Mobilization	1146	Mobilization, Consultant Services	Management of consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hour	$77.29	6	$463.74

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Engineering General
Practice Code/Name	521D - Pond Sealing or Lining, Compacted Clay Treatment
Scenario ID	2
Scenario Name	Compacted Earth Liner
Scenario Description	Construction of a compacted soil liner, treated with compacted clay, to reduce seepage from ponds or waste storage impoundment structures. Practice implementation includes compaction of the soil liner under proper moisture conditions to the designed liner thickness, and soil cover to protect the finished liner. Scenario includes a 12" compacted clay liner covering an area 1 acre in size. Material haul < 1 mile. Associated practices include PS378, PS313, & other waste water impoundments.
Before Practice Situation	In-place soils at site exhibit seepage rates in excess of acceptable limits. An adequate quantity of soil suitable for constructing a clay liner without amendments is available at an econical haul distance. Material haul < 1 mile.
After Practice Situation	Water conservation and environmental protection provided by limiting seepage losses from ponds or waste storage impoundments.
Scenario Feature Measure	Volume of Liner Material
Scenario Unit	Cubic Yard
Scenario Typical Size	1613

Typical pond liner: 12" thick x 1 acre in area

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$8,484.38	$5.26
Labor	$1,125.90	$0.70
Mobilization	$1,046.57	$0.65
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$10,656.85	$6.61

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.89	1613	$6,274.57
Equipment/Installation	1222	Excavation, common earth, large equipment, 50 ft	Bulk excavation of common earth including sand and gravel with dozer >100 HP with average push distance of 50 feet. Includes equipment and labor.	Cubic Yard	$1.37	1613	$2,209.81
Labor	235	Consultant Services	Consultant services to assist in resource inventory, plan development, site surveys, site monitoring, installation of practices, etc.	Hour	$75.06	15	$1,125.90
Mobilization	1140	Mobilization, large equipment	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	$379.78	1	$379.78
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05
Mobilization	1146	Mobilization, Consultant Services	Management of consultant services to assist in resource inventory, plan development, site surveys, site monitoring, etc.	Hour	$77.29	6	$463.74

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	528 - Prescribed Grazing
Scenario ID	4
Scenario Name	Enhanced - Soil Quality
Scenario Description	Design and implementation of a grazing system that will enhance pasture condition and ecosystem function as well as optimize efficiency and economic return through monitoring (ex:photo points, stubble height after grazing, etc) & record keeping. Livestock graze each pature/paddock from no more than three (3) days in rotation. Includes utilization of management techniques such as strockpiling/stripgrazing to assist in extending the grazing season and improve animal demand and supply efficiency and improvement of soil health by maintaining and/or improving ideal cover, plant diversity, organic matter and soil temperatures favorable for sustained microbial life.
Before Practice Situation	Current grazing system exhibits undesirable and inefficient use of forage plants and such use has a negative impact on pasture condition, as well as soil and water resources. Inefficient use results in overgrazing, spot grazing, livestock trailing, concentration areas, uncontrolled access to streams and ponds, ephemeral erosion, gully erosion, streambank erosion. Stocking rates are higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.
After Practice Situation	Typical scenario based on a grazing system consisting of a 30 animal unit cow/calf operation (including bull(s), calves and replacement females) on 80 acres for a 200 to 290 day grazing season. Scenario results in an increase (above the Standard option) in labor required to complete the following activities: farm labor to mow or clip pastures; monitor and measure forage growth; complete record keeping; analyze plant growth and animal performance; and make decisions or other management techniques. Management techniques reduce the use of supplemental feed, control weeds, and reduce energy requirements. Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through protection of sensitive areas and efficient harvest of forage resources. Runoff, sediment and nutrient loss are reduced by improving plant density, diversity and percent cover. Grazing system success is evaluated through short term monitoring. Acquisition of technical knowledge needed to effectively implement prescribed grazing. Consultant or TSP used to develop detailed grazing plan. Costs and activities are typical for conventional and organic producers. Associated Practices: (511) Forage Harvest Management, (512) Forage and Biomass Planting, (590) Nutrient Management, (595) Integrated Pest Management, (561) Heavy Use Area Protection,
Scenario Feature Measure	
Scenario Unit	Acre
Scenario Typical Size	80

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$187.84	$2.35
Equipment/Installation	$836.70	$10.46
Labor	$4,001.43	$50.02
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$1,073.51	$13.42
Foregone Income	$0.00	$0.00
Total	$6,099.48	$76.24

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	967	Miscellaneous (Camera, clippers, plot frame, scale, tape measure).	Range field kit	Each	$44.24	1	$44.24
Materials	1127	Nutritional Balance Analyzer, fecal sample analysis only	NIRS fecal analysis, animal performance report	Each	$35.90	4	$143.60
Equipment/Installation	965	All terrain vehicles, ATV	Includes equipment and labor costs.	Hour	$27.89	30	$836.70
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	45	$1,408.95
Labor	231	General Labor	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	$19.92	100	$1,992.00
Labor	235	Specialist Labor	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	$75.06	8	$600.48
Acquisition of Technical Knowledge	297	Transportation	Mileage to attend a training conference, workshop, or TSP travel associated with developing Conservation Activity Plan.	Mile	$0.56	250	$140.00
Acquisition of Technical Knowledge	296	Training, Registration Costs	Conference Registration Fees	Each	$176.25	2	$352.50
Acquisition of Technical Knowledge	295	Lodging	Hotel Accommodations	Each	$77.00	3	$231.00
Acquisition of Technical Knowledge	294	Training, Workshops	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	$116.67	3	$350.01

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	528 - Prescribed Grazing
Scenario ID	5
Scenario Name	High Density Grazing
Scenario Description	An improved grazing management system where livestock are grazed on pasture for at least 300 days per calendar year and managed at a stock density of at least 50,000 lbs for 75% of the grazing days. Pastures will be managed for a livestock utilization rate of 60% or less per grazing event.
Before Practice Situation	Current grazing system exhibits undesirable and inefficient use of forage plants and such use has a negative impact on pasture condition, as well as soil and water resources. Inefficient use results in overgrazing, spot grazing, livestock trailing, concentration areas, uncontrolled access to streams and ponds, ephemeral erosion, gully erosion, streambank erosion. Stocking rates are higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.
After Practice Situation	A grazing system for a 30 animal unit cow-calf operation (includes bull(s), calves and replacement females) on 80 acres and designed for a 300 day grazing season. The grazing system has a stock density of at least 50,000 pounds for 75% of the grazing days. Pastures will be monitored and measure pasture growth to ensure a livestock utilization rate of 60% or less per grazing event. Acquisition of technical knowledge needed to effectively implement prescribed grazing is included. Management techniques will improve soil condition, reduce soil compaction, reduce the use of supplemental feed, reduce the need for weed control, and reduce energy requirements. Consultant or TSP used to develop detailed grazing plan. Costs and activities are typical for conventional and organic producers. Associated Practices: (511) Forage Harvest Management, (512) Forage and Biomass Planting, (590) Nutrient Management, (595) Integrated Pest Management, (561) Heavy Use Area Protection, (382) Fence, (614) Watering Facility, (378) Pond, (642) Water Well, (314) Brush Management, (315) Herbaceous Weed Control, (338) Prescribed Burning.
Scenario Feature Measure	
Scenario Unit	Acre
Scenario Typical Size	80

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$187.84	$2.35
Equipment/Installation	$836.70	$10.46
Labor	$4,601.91	$57.52
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$1,073.51	$13.42
Foregone Income	$0.00	$0.00
Total	$6,699.96	$83.75

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	967	Miscellaneous (Camera, clippers, plot frame, scale, tape measure).	Range field kit	Each	$44.24	1	$44.24
Materials	1127	Nutritional Balance Analyzer, fecal sample analysis only	NIRS fecal analysis, animal performance report	Each	$35.90	4	$143.60
Equipment/Installation	965	All terrain vehicles, ATV	Includes equipment and labor costs.	Hour	$27.89	30	$836.70
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	45	$1,408.95
Labor	231	General Labor	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	$19.92	100	$1,992.00
Labor	235	Specialist Labor	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	$75.06	16	$1,200.96
Acquisition of Technical Knowledge	297	Transportation	Mileage to attend a training conference, workshop, or TSP travel associated with developing Conservation Activity Plan.	Mile	$0.56	250	$140.00
Acquisition of Technical Knowledge	296	Training, Registration Costs	Conference Registration Fees	Each	$176.25	2	$352.50
Acquisition of Technical Knowledge	295	Lodging	Hotel Accommodations	Each	$77.00	3	$231.00
Acquisition of Technical Knowledge	294	Training, Workshops	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	$116.67	3	$350.01

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	528 - Prescribed Grazing
Scenario ID	3
Scenario Name	High Intensity <3 Day Rotation Frequency
Scenario Description	Design and implementation of a grazing system that will enhance pasture condition and ecosystem function as well as optimize efficiency and economic return through monitoring (ex:photo points, stubble height after grazing, etc) & record keeping. Livestock graze each pature/paddock from no more than three (3) days in rotation. Rotation is based on monitoring livestock demand and supply.
Before Practice Situation	Current grazing system exhibits undesirable and inefficient use of forage plants and such use has a negative impact on pasture condition, as well as soil and water resources. Inefficient use results in overgrazing, spot grazing, livestock trailing, concentration areas, uncontrolled access to streams and ponds, ephemeral erosion, gully erosion, streambank erosion. Stocking rates are higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.
After Practice Situation	Typical scenario based on a grazing system consisting of a 30 animal unit cow/calf operation (including bull(s), calves and replacement females) on 80 acres. Scenario results in an increase (above the medium intensity option) in labor required to complete the following activities: farm labor to mow or clip pastures; monitor stop grazing heights and measure forage growth; complete record keeping; analyze plant growth and animal performance; and make decisions or other management techniques. Management techniques reduce the use of supplemental feed, control weeds, and reduce energy requirements. Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through protection of sensitive areas and efficient harvest of forage resources. Runoff, sediment and nutrient loss are reduced by improving plant density, diversity and percent cover. Grazing system success is evaluated through short term monitoring and maintaining grazing stop height requirements. Acquisition of technical knowledge needed to effectively implement prescribed grazing. Costs and activities are typical for conventional and organic producers. Associated Practices: (511)
Scenario Feature Measure	
Scenario Unit	Acre
Scenario Typical Size	80

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$44.24	$0.55
Equipment/Installation	$836.70	$10.46
Labor	$3,400.95	$42.51
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$1,073.51	$13.42
Foregone Income	$0.00	$0.00
Total	$5,355.40	$66.94

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	967	Miscellaneous (Camera, clippers, plot frame, scale, tape measure).	Range field kit	Each	$44.24	1	$44.24
Equipment/Installation	965	All terrain vehicles, ATV	Includes equipment and labor costs.	Hour	$27.89	30	$836.70
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	45	$1,408.95
Labor	231	General Labor	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	$19.92	100	$1,992.00
Acquisition of Technical Knowledge	297	Transportation	Mileage to attend a training conference, workshop, or TSP travel associated with developing Conservation Activity Plan.	Mile	$0.56	250	$140.00
Acquisition of Technical Knowledge	296	Training, Registration Costs	Conference Registration Fees	Each	$176.25	2	$352.50
Acquisition of Technical Knowledge	295	Lodging	Hotel Accommodations	Each	$77.00	3	$231.00
Acquisition of Technical Knowledge	294	Training, Workshops	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	$116.67	3	$350.01

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	528 - Prescribed Grazing
Scenario ID	7
Scenario Name	Long Term Deferment
Scenario Description	Defer the pasture for 210 days and up to a growing season to manage for invasive weeds when necessary, to improve the health of the plants and/or provide nesting habitat for wildlife species. Keep records of dates out and monitor to determine when desired objectives of deferment are met. Does not include the purpose of deferment for the establishment of forages.
Before Practice Situation	Current grazing system exhibits undesirable and inefficient use of forage plants and such use has a negative impact on pasture condition, as well as soil and water resources. Inefficient use results in overgrazing, spot grazing, livestock trailing, concentration areas, uncontrolled access to streams and ponds, ephemeral erosion, gully erosion, streambank erosion. Stocking rates are higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.
After Practice Situation	Scenario describes activities completed to restrict grazing for a defined period during the normal grazing period to provide benefits for invasive weed control, improvement in the health of the forage plants or providing cover for wildlife species. Activities include moving livestock to alternate locations, sampling and analyzing pasture condition, recordkeeping. Forgone Income used represents the acreage of usable forage not utilized during the deferment period as a proportion of the grazing season. Typical size of 80 acre pasture operation with 30 animal units where 75% of the acreage (or 60 acres) is defered from grazing for 210 days. Costs and activities are typical for conventional and organic producers. Associated Practices: (511) Forage Harvest Management, (512) Forage and Biomass Planting, (590) Nutrient Management, (595) Integrated Pest Management, (561) Heavy Use Area Protection, (382) Fence, (614) Watering Facility, (378) Pond, (642) Water Well, (314) Brush Management, (315) Herbaceous Weed Control, (338) Prescribed Burning.
Scenario Feature Measure	
Scenario Unit	Acre
Scenario Typical Size	60

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$44.24	$0.74
Equipment/Installation	$330.58	$5.51
Labor	$819.68	$13.66
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$3,210.90	$53.52
Total	$4,405.40	$73.42

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	967	Miscellaneous (Camera, clippers, plot frame, scale, tape measure).	Range field kit	Each	$44.24	1	$44.24
Equipment/Installation	961	Trucking, moving livestock to new paddock	Livestock transportation costs to implement a grazing rotation using a gooseneck trailer 6'8" x 24'. Equipment and labor costs included.	Mile	$2.53	50	$126.50
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	8	$204.08
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	16	$500.96
Labor	231	General Labor	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	$19.92	16	$318.72
Foregone Income	2079	FI, Grazing AUMs	Grazing is the Primary Land Use	AUM	$15.29	210	$3,210.90

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	528 - Prescribed Grazing
Scenario ID	1
Scenario Name	Low Intensity or > 7 Day Rotation Frequency
Scenario Description	Design and implementation of a grazing system that will enhance pasture condition and ecosystem function as well as optimize efficiency and economic return through monitoring (ex:photo points, stubble height after grazing, etc) & record keeping. Livestock graze each pasture for more than seven (7) days in rotation and adequate rest is provided for the forages.
Before Practice Situation	Current grazing system exhibits undesirable and inefficient use of forage plants and such use has a negative impact on pasture condition as well as soil and water resources. Inefficient use results in overgrazing, spot grazing, livestock trailing, concentration areas, uncontrolled access to streams and ponds, ephemeral erosion, gully erosion, streambank erosion. Stocking rates are higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.
After Practice Situation	Typical scenario based on a grazing system consisting of a 30 animal unit cow/calf operation (including bull(s), calves and replacement females) on 80 acres. Activities include farm labor to mow or clip pastures; monitor and measure forage growth; complete record keeping; analyze plant growth and animal performance; and make decisions or other management techniques. Management techniques reduce the use of supplemental feed, control weeds, and reduce energy requirements. Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through protection of sensitive areas and efficient harvest of forage resources. Runoff, sediment and nutrient loss are reduced by improving plant density, diversity and percent cover. Grazing system success is evaluated through short term monitoring and maintaining grazing stop height requirements. Acquisition of technical knowledge needed to effectively implement prescribed grazing. Costs and activities are typical for conventional and organic producers. Associated Practices: (511) Forage Harvest Management, (512) Forage and Biomass Planting, (590) Nutrient Management, (595) Integrated Pest
Scenario Feature Measure	
Scenario Unit	Acre
Scenario Typical Size	80

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$44.24	$0.55
Equipment/Installation	$278.90	$3.49
Labor	$1,664.85	$20.81
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$172.67	$2.16
Foregone Income	$0.00	$0.00
Total	$2,160.66	$27.01

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	967	Miscellaneous (Camera, clippers, plot frame, scale, tape measure).	Range field kit	Each	$44.24	1	$44.24
Equipment/Installation	965	All terrain vehicles, ATV	Includes equipment and labor costs.	Hour	$27.89	10	$278.90
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	15	$469.65
Labor	231	General Labor	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	$19.92	60	$1,195.20
Acquisition of Technical Knowledge	297	Transportation	Mileage to attend a training conference, workshop, or TSP travel associated with developing Conservation Activity Plan.	Mile	$0.56	100	$56.00
Acquisition of Technical Knowledge	294	Training, Workshops	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	$116.67	1	$116.67

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	528 - Prescribed Grazing
Scenario ID	2
Scenario Name	Medium Intensity 7-3 Days Rotation Frequency
Scenario Description	Design and implementation of a grazing system that will enhance pasture condition and ecosystem function as well as optimize efficiency and economic return through monitoring (ex:photo points, stubble height after grazing, etc) & record keeping. Livestock graze each pasture from three (3) to seven (7) days in rotation. Rotation is based on monitoring livestock demand and supply.
Before Practice Situation	Current grazing system exhibits undesirable and inefficient use of forage plants and such use has a negative impact on pasture condition, as well as soil and water resources. Inefficient use results in overgrazing, spot grazing, livestock trailing, concentration areas, uncontrolled access to streams and ponds, ephemeral erosion, gully erosion, streambank erosion. Stocking rates are higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.
After Practice Situation	Typical scenario based on a grazing system consisting of a 30 animal unit cow/calf operation (including bull(s), calves and replacement females) on 80 acres. Scenario results in an increase (above the low intensity option) in labor required to complete the following activities: farm labor to mow or clip pastures; monitor and measure forage growth; complete record keeping; analyze plant growth and animal performance; and make decisions or other management techniques. Management techniques reduce the use of supplemental feed, control weeds, and reduce energy requirements. Prescribed grazing system is designed to protect the health and vigor of the plant communities that are in place. Livestock are managed in a way that enhances pasture condition and function through protection of sensitive areas and efficient harvest of forage resources. Runoff, sediment and nutrient loss are reduced by improving plant density, diversity and percent cover. Grazing system success is evaluated through short term monitoring and maintaining grazing stop height requirements. Acquisition of technical knowledge needed to effectively implement prescribed grazing. Costs and activities are typical for conventional and organic producers. Associated Practices: (511) Forage Harvest Management, (512) Forage and Biomass Planting, (590) Nutrient Management, (595) Integrated Pest Management, (561) Heavy Use Area Protection, (382) Fence, (614) Watering Facility,
Scenario Feature Measure	
Scenario Unit	Acre
Scenario Typical Size	80

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$44.24	$0.55
Equipment/Installation	$557.80	$6.97
Labor	$2,532.90	$31.66
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$464.50	$5.81
Foregone Income	$0.00	$0.00
Total	$3,599.44	$44.99

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	967	Miscellaneous (Camera, clippers, plot frame, scale, tape measure).	Range field kit	Each	$44.24	1	$44.24
Equipment/Installation	965	All terrain vehicles, ATV	Includes equipment and labor costs.	Hour	$27.89	20	$557.80
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	30	$939.30
Labor	231	General Labor	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	$19.92	80	$1,593.60
Acquisition of Technical Knowledge	297	Transportation	Mileage to attend a training conference, workshop, or TSP travel associated with developing Conservation Activity Plan.	Mile	$0.56	200	$112.00
Acquisition of Technical Knowledge	296	Training, Registration Costs	Conference Registration Fees	Each	$176.25	2	$352.50

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Range/Pasture Grazing
Practice Code/Name	528 - Prescribed Grazing
Scenario ID	6
Scenario Name	Deferment for Wildlife
Scenario Description	Defer grazing of the pasture for a minimum of 90 days to manage for any of the following purposes: invasive weed control; improve the health of the forage plants; or provide cover for wildlife species. Keep records of dates out and monitor to determine when desired objectives of deferment are met. Does not include the purpose of deferment for the establishment of forages.
Before Practice Situation	Current grazing system exhibits undesirable and inefficient use of forage plants and such use has a negative impact on pasture condition, as well as soil and water resources. Inefficient use results in overgrazing, spot grazing, livestock trailing, concentration areas, uncontrolled access to streams and ponds, ephemeral erosion, gully erosion, streambank erosion. Stocking rates are higher than the current level of production and efficiency of use can support without management changes. There is currently no monitoring plan in place to evaluate change on the landscape.
After Practice Situation	Scenario describes activities completed to restrict grazing for a defined period during the normal grazing period to provide benefits for invasive weed control, improvement in the health of the forage plants or providing cover for wildlife species. Activities include moving livestock to alternate locations, sampling and analyzing pasture condition, recordkeeping. Forgone Income used represents the acreage of usable forage not utilized during the deferment period as a proportion of the grazing season. Typical size of 80 acre pasture operation with 30 animal units where 50% of the acreage (or 40 acres) is defered from grazing for 90 days. Costs and activities are typical for conventional and organic producers. Associated Practices: (511) Forage Harvest Management, (512) Forage and Biomass Planting, (590) Nutrient Management, (595) Integrated Pest Management, (561) Heavy Use Area Protection, (382) Fence, (614) Watering Facility, (378) Pond, (642) Water Well, (314) Brush Management, (315) Herbaceous Weed Control, (338) Prescribed Burning.
Scenario Feature Measure	
Scenario Unit	Acre
Scenario Typical Size	40

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$44.24	$1.11
Equipment/Installation	$330.58	$8.26
Labor	$409.84	$10.25
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$1,376.10	$34.40
Total	$2,160.76	$54.02

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	967	Miscellaneous (Camera, clippers, plot frame, scale, tape measure).	Range field kit	Each	$44.24	1	$44.24
Equipment/Installation	961	Trucking, moving livestock to new paddock	Livestock transportation costs to implement a grazing rotation using a gooseneck trailer 6'8" x 24'. Equipment and labor costs included.	Mile	$2.53	50	$126.50
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	8	$204.08
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	8	$250.48
Labor	231	General Labor	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	$19.92	8	$159.36
Foregone Income	2079	FI, Grazing AUMs	Grazing is the Primary Land Use	AUM	$15.29	90	$1,376.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	7
Scenario Name	Irrigation Pump
Scenario Description	The practice is installed to pump irrigation water from the source to a final destination. Payment includes the pump and controls, installation and concrete pad. Associated Practices: 430 Irrigation Pipeline, 442 Irrigation System - Sprinkler, 449 Irrigation Water Management, 590 nutrient management, 595 integrated pest management; 374-Farmstead Energy Improvement
Before Practice Situation	Practice to be installed for management of irrigation water. Conditions include inefficent energy use due to age and type of irrigation pump, poor plant condition, and poor plant health. The resource concerns to be addressed are for inefficient energy use - equipment and facilities, water quality, water quantity, plant condition, and plant health.
After Practice Situation	Practice typically installed for transfer of irrigation water to a final destination using 50 HP pump. Conservation benefits of the installation are improved efficiency for the delivery of irrigation water. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$10,250.00	$10,250.00
Equipment/Installation	$63.94	$63.94
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$10,313.94	$10,313.94

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1027	Pump, < 50 HP, Pump & ICE power unit	Materials, labor, controls: < 50 HP Pump & ICE power unit	Horsepower	$205.00	50	$10,250.00
Equipment/Installation	37	Concrete, CIP, slab on grade, reinforced	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	$255.77	0.25	$63.94

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	12
Scenario Name	Livestock Water, Deep Well Pump (>25 ft deep)
Scenario Description	The scenario is for the installation of a pump and pressure tank in a deep well (> 25 feet) or sump for supplying water to livestock. Associated practices: 528 Prescribed Grazing, 516 Pipeline, 614 Watering Facility, 642 Water Well
Before Practice Situation	Practice to be installed on grazing land. Current conditions include inadequate water supply, poor water quality, degraded site condtions leading to erosion concerns, poor grazing distribution, and poor livestock health. The resource concerns to be addressed are Inadequate supply of water, grazing distribution, and degraded site conditions leading to poor animal health.
After Practice Situation	Practice typically installed for 30 animal units and consists of installing a jet or submersible pump, pressure tank, and appurtenances for a watering system. When utilizing a pond or stream a sump will be installed and used rather than a well. Conservation benefits of the installation is proper grazing distribution, which will allow a degraded site to be restored. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,379.20	$1,379.20
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,379.20	$1,379.20

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1039	Pressure Tank, 80 gallon	0	Each	$859.00	1	$859.00
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	1.5	$344.60
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	13
Scenario Name	Livestock Water, Deep Well Pump (≤ 25ft deep) with Small Pump House
Scenario Description	The scenario is for the installation of a pump and pressure tank in a deep well (> 25 feet) or sump for supplying water to livestock. Payment also includes a pump house installed either above ground or buried for situations where there is not an existing sheltered location for the pump to be installed. Scenario is for pump houses of ≤ 140 cu ft volume. Associated practices: 528 Prescribed Grazing, 516 Pipeline, 614 Watering Facility, 642 Water Well
Before Practice Situation	Practice to be installed on grazing land. Current conditions include inadequate water supply, poor water quality, degraded site condtions leading to erosion concerns, poor grazing distribution, and poor livestock health. The resource concerns to be addressed are Inadequate supply of water, grazing distribution, and degraded site conditions leading to poor animal health.
After Practice Situation	Practice typically installed for 30 animal units and consists of installing a jet or submersible pump, pressure tank, and appurtenances for a watering system. A 5' x 4' x 5' (100 cu ft) concrete pump house is installed above ground on a 8' x 8' x 1' gravel pad. Conservation benefits of the installation is proper grazing distribution, which will allow a degraded site to be restored. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,220.61	$2,220.61
Equipment/Installation	$51.02	$51.02
Labor	$79.68	$79.68
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,351.31	$2,351.31

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1922	Pumping Plant Pit, Concrete, 1200 Gallon	Precast concrete septic tank structure, 1200 gal capacity, with access port and ladder. Materials only.	Each	$1,295.56	0.6	$777.34
Materials	1039	Pressure Tank, 80 gallon	0	Each	$859.00	1	$859.00
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	1.5	$344.60
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$26.70	2.4	$64.08
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	2	$51.02
Labor	231	General Labor	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	$19.92	4	$79.68

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	14
Scenario Name	Livestock Water, Deep Well Pump (> 25 ft deep) with Large Pump House
Scenario Description	The scenario is for the installation of a pump and pressure tank in a deep well (> 25 feet) or sump for supplying water to livestock. Payment also includes pump house installed either above ground or buried for situations where there is not an existing sheltered location for the pump to be installed. Scenario is for pump houses of > 140 cu ft volume. Associated practices: 528 Prescribed Grazing, 516 Pipeline, 614 Watering Facility, 642 Water Well
Before Practice Situation	Practice to be installed on grazing land. Current conditions include inadequate water supply, poor water quality, degraded site condtions leading to erosion concerns, poor grazing distribution, and poor livestock health. The resource concerns to be addressed are Inadequate supply of water, grazing distribution, and degraded site conditions leading to poor animal health.
After Practice Situation	Practice typically installed for 30 animal units and consists of installing a jet or submersible pump, pressure tank, and appurtenances for a watering system. A 160 cu ft concrete well house is buried. Conservation benefits of the installation is proper grazing distribution, which will allow a degraded site to be restored. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,693.98	$2,693.98
Equipment/Installation	$322.52	$322.52
Labor	$160.05	$160.05
Mobilization	$203.05	$203.05
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,379.60	$3,379.60

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1922	Pumping Plant Pit, Concrete, 1200 Gallon	Precast concrete septic tank structure, 1200 gal capacity, with access port and ladder. Materials only.	Each	$1,295.56	1	$1,295.56
Materials	1099	Aggregate, Gravel, Ungraded, Quarry Run	Includes materials, equipment and labor	Cubic yard	$19.22	1	$19.22
Materials	1039	Pressure Tank, 80 gallon	0	Each	$859.00	1	$859.00
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	1.5	$344.60
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	2	$51.02
Equipment/Installation	931	Hydraulic Excavator, 1 CY	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	$90.50	3	$271.50
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$26.79	3	$80.37
Labor	231	General Labor	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	$19.92	4	$79.68
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	9
Scenario Name	Livestock Water, Shallow Well Pump (≤ 25 ft deep)
Scenario Description	The scenario is for the installation of a pump and pressure tank in a shallow well (≤ 25 feet deep) or collection for supplying water to livestock. Associated practices: 528 Prescribed Grazing, 516 Pipeline, 614 Watering Facility, 642 Water Well; 574 Spring Development
Before Practice Situation	Practice to be installed on grazing land. Current conditions include inadequate water supply, poor water quality, degraded site condtions leading to erosion concerns, poor grazing distribution, and poor livestock health. The resource concerns to be addressed are Inadequate supply of water, grazing distribution, and degraded site conditions leading to poor animal health.
After Practice Situation	Practice typically installed for 30 animal units and consists of installing a centrifigal pump, pressure tank, and appurtenances for a shallow draw watering system. Conservation benefits of the installation is proper grazing distribution, which will allow a degraded site to be restored. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$669.33	$669.33
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$669.33	$669.33

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60
Materials	1038	Pressure Tank, 40 gallon	0	Each	$264.00	1	$264.00
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	1	$229.73

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	11
Scenario Name	Livestock Water, Shallow Well Pump (≤ 25 ft deep) with Large Pump House
Scenario Description	The scenario is for the installation of a pump and pressure tank in a shallow well (≤ 25 feet deep) or collection for supplying water to livestock. Payment also includes pump house installed either above ground or buried for situations where there is not an existing sheltered location for the pump to be installed. Scenario is for pump houses of > 140 cu ft volume. Associated practices: 528 Prescribed Grazing, 516 Pipeline, 614 Watering Facility, 642 Water Well; 574 Spring Development.
Before Practice Situation	Practice to be installed on grazing land. Current conditions include inadequate water supply, poor water quality, degraded site condtions leading to erosion concerns, poor grazing distribution, and poor livestock health. The resource concerns to be addressed are Inadequate supply of water, grazing distribution, and degraded site conditions leading to poor animal health.
After Practice Situation	Practice typically installed for 30 animal units and consists of installing a centrifigal pump, pressure tank, and appurtenances for a shallow draw watering system. A 160 cu ft concrete well house is buried. Conservation benefits of the installation is proper grazing distribution, which will allow a degraded site to be restored. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,991.59	$1,991.59
Equipment/Installation	$322.52	$322.52
Labor	$160.05	$160.05
Mobilization	$203.05	$203.05
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,677.21	$2,677.21

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1922	Pumping Plant Pit, Concrete, 1200 Gallon	Precast concrete septic tank structure, 1200 gal capacity, with access port and ladder. Materials only.	Each	$1,295.56	1	$1,295.56
Materials	1038	Pressure Tank, 40 gallon	0	Each	$264.00	1	$264.00
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	1	$229.73
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$26.70	1	$26.70
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	2	$51.02
Equipment/Installation	931	Hydraulic Excavator, 1 CY	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	$90.50	3	$271.50
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$26.79	3	$80.37
Labor	231	General Labor	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	$19.92	4	$79.68
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	1	$203.05

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	10
Scenario Name	Livestock Water, Shallow Well Pump (≤ 25ft deep) with Small Pump House
Scenario Description	The scenario is for the installation of a pump and pressure tank in a shallow well (≤25 feet deep) or collection for supplying water to livestock. Payment also includes a pump house installed either above ground or buried for situations where there is not an existing sheltered location for the pump to be installed. Scenario is for pump houses of ≤ 140 cu ft volume. Associated practices: 528 Prescribed Grazing, 516 Pipeline, 614 Watering Facility, 642 Water Well; 574 Spring Development.
Before Practice Situation	Practice to be installed on grazing land. Current conditions include inadequate water supply, poor water quality, degraded site condtions leading to erosion concerns, poor grazing distribution, and poor livestock health. The resource concerns to be addressed are Inadequate supply of water, grazing distribution, and degraded site conditions leading to poor animal health.
After Practice Situation	Practice typically installed for 30 animal units and consists of installing a centrifigal pump, pressure tank, and appurtenances for a shallow draw watering system. A 5' x 4' x 5' (100 cu ft) concrete pump house is installed above ground on a 8' x 8' x 1' gravel pad. Conservation benefits of the installation is proper grazing distribution, which will allow a degraded site to be restored. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,510.75	$1,510.75
Equipment/Installation	$51.02	$51.02
Labor	$79.68	$79.68
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,641.45	$1,641.45

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1922	Pumping Plant Pit, Concrete, 1200 Gallon	Precast concrete septic tank structure, 1200 gal capacity, with access port and ladder. Materials only.	Each	$1,295.56	0.6	$777.34
Materials	1038	Pressure Tank, 40 gallon	0	Each	$264.00	1	$264.00
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	1	$229.73
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$26.70	2.4	$64.08
Equipment/Installation	939	Truck, Pickup	Equipment and power unit costs. Labor not included.	Hour	$25.51	2	$51.02
Labor	231	General Labor	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	$19.92	4	$79.68

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	3
Scenario Name	Manure Pump >5 Hp
Scenario Description	Scenario is for the implentation of a electric chopper screw pump of >5 horsepower to pump manure from the source to a storage facility. Implementation examples include, but are not limited to, situations where a dairy or swine operation is pumping manure to an above ground storage facility. Payment includes the pump and controls, installation and concrete pad. Associated Practices include: 374 - Farmstead Energy Improvement; 313 - Waste Storage Facility; 634 - Waste Transfer; 633 Waste Utilization; 632 Solid/liquid Waste Separation Facility; 635 Vegetated Treatment Area
Before Practice Situation	Manure is not managed properly, or feedlot runoff enters a nearby stream, causing water quality concerns through excessive nutrients, organics, and pathogen. The resource concerns to be addressed are for water quality, air quality, and domestic animal health.
After Practice Situation	Practice typically installed for transfer of manure to a storage facility using 10 HP chopper/screw pump. Manure is directed to a waste storage facility, or feedlot runoff is directed to a solid/liquid settling basin, and supernatant is pumped from the sump of the settling basin to a Vegetated Treatment Area. Contaminated water no longer enters the stream. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	Per Pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$7,000.00	$7,000.00
Equipment/Installation	$63.94	$63.94
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$7,063.94	$7,063.94

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1026	Pump, Chopper, Screw, >7 to 15 HP, includes pump & motor	Materials, labor, controls: Chopper/ Screw >7 to 15 HP includes pump & motor	Horsepower	$700.00	10	$7,000.00
Equipment/Installation	37	Concrete, CIP, slab on grade, reinforced	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	$255.77	0.25	$63.94

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	8
Scenario Name	Micro Irrigation Pump
Scenario Description	The practice is installed to pump irrigation water from the source to a final destination for a micro irrigation system. Payment includes the pump and controls, installation and concrete pad. Associated Practices: 430 Irrigation Pipeline, 442 Irrigation System - Sprinkler, 449 Irrigation Water Management, 590 nutrient management, 595 integrated pest management; 374-Farmstead Energy Improvement
Before Practice Situation	Practice to be installed for management of irrigation water. Conditions include inefficency of irrigation pump due to age and type, poor plant condition, and poor plant health. The resource concerns to be addressed are for water quality, water quantity, plant condition, and plant health.
After Practice Situation	Practice typically installed for transfer of irrigation water to a final destination using 1 HP pump. Conservation benefits of the installation are improved efficiency for the delivery of irrigation water. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$669.33	$669.33
Equipment/Installation	$63.94	$63.94
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$733.27	$733.27

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1038	Pressure Tank, 40 gallon	0	Each	$264.00	1	$264.00
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	1	$229.73
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60
Equipment/Installation	37	Concrete, CIP, slab on grade, reinforced	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	$255.77	0.25	$63.94

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	6
Scenario Name	Solar
Scenario Description	The scenario is for the installation of a solar panel array, pump, pressure tank, and appurtenances in a well for supplying water to livestock in situations where standard electric power is inaccessible The installation includes the pump, wiring, drop pipe, solar panels, mounts, inverter, and all appurtenances. Payment does not include battery backup. Associated Practices include: 516 - Livestock Pipeline; 642 Water Well, 528 Prescribed Grazing and, 614 - Watering Facility.
Before Practice Situation	Practice to be installed on grazing land. Current conditions include inadequate water supply, poor water quality, degraded site condtions leading to erosion concerns, poor grazing distribution, and poor livestock health. The resource concerns to be addressed are Inadequate supply of water, grazing distribution, and degraded site conditions leading to poor animal health.
After Practice Situation	The typical scenario assumes installation of a 200-watt photovoltaic (PV) panel. The installation includes the pump, wiring, pipeline in the well, solar panels, frame mounts, inverter, and all appurtenances. Water will be pumped to an existing storage tank at a higher elevation from which it will be used to pressurize the Livestock Pipeline (516) or Irrigation Pipeline (430). Grazing - Livestock exclusion from surface water will result in improved surface water quality and reduced erosion.
Scenario Feature Measure	Pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$3,320.27	$3,320.27
Equipment/Installation	$0.00	$0.00
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,320.27	$3,320.27

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1038	Pressure Tank, 40 gallon	0	Each	$264.00	1	$264.00
Materials	1031	Solar Panels, fixed cost portion	Fixed cost portion of the Solar Panels. This portion is a base cost for all Solar Panels and is not dependant on KiloWatt. The total cost of any Solar Panels will include this fixed cost plus a variable cost portion. The completed Solar Panels will include all materials (electrical, controllers, service drops and etc). This cost will include material, labor and equipment.	Each	$2,155.70	1	$2,155.70
Materials	1135	Solar Panels, variable cost portion	Variable cost portion of the Solar Panels. This portion IS dependent on the total Kilowatt for the Solar Panels. The total cost of any Solar Panels will include this variable cost plus the fixed cost portion. The completed Solar Panels will include all materials (electrical, controllers, and service drop, etc). This cost will include material, labor and equipment.	Kilowatt	$3,337.70	0.2	$667.54
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	0.25	$57.43
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	15
Scenario Name	Pump with Sump
Scenario Description	The scenario is for the installation of a pump, pressure tank, and sump that supplies a dependable water supply to livestock from a pond, stream, or spring development. Associated Practices: 528 Prescribed Grazing, 516 Pipeline, 614 Watering Facility, 642 Water Well
Before Practice Situation	Practice to be installed on grazing land. Current conditions include inadequate water supply, poor water quality, degraded site condtions leading to erosion concerns, poor grazing distribution, and poor livestock health. The resource concerns to be addressed are Inadequate supply of water, grazing distribution, and degraded site conditions leading to poor animal health.
After Practice Situation	Practice typically installed for 30 animal units and consists of installing a pump, pressure tank, sump, and appurtenances for a watering system from a pond or stream or spring development. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	per pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,654.59	$2,654.59
Equipment/Installation	$219.90	$219.90
Labor	$215.92	$215.92
Mobilization	$406.10	$406.10
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,496.51	$3,496.51

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1922	Pumping Plant Pit, Concrete, 1200 Gallon	Precast concrete septic tank structure, 1200 gal capacity, with access port and ladder. Materials only.	Each	$1,295.56	1	$1,295.56
Materials	1009	Pump, < 5 HP - Pump and motor, fixed cost portion	Fixed cost portion of the Pump: < 5 HP - Pump and motor. This portion is a base cost for all Pump: < 5 HP and is not dependant on horsepower. The total cost of any Pump: < 5 HP will include this fixed cost plus a variable cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment	Each	$175.60	1	$175.60
Materials	1039	Pressure Tank, 80 gallon	0	Each	$859.00	1	$859.00
Equipment/Installation	926	Backhoe, 80 HP	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$43.98	5	$219.90
Labor	232	Equipment Operators, Light	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	$22.67	4	$90.68
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	4	$125.24
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$26.70	10	$267.00
Materials	1010	Pump, < 5 HP - Pump and motor, variable cost portion	Variable cost portion of the Pump: < 5 HP - Pump and motor. This portion IS dependent on the total horsepower for the Pump: < 5 HP. The total cost of any Pump: < 5 HP will include this variable cost plus the fixed cost portion. The completed Pump: < 5 HP - Pump and motor will include the motor and controls. This cost will include material, labor and equipment.	Horsepower	$229.73	0.25	$57.43

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	1
Scenario Name	Wastewater Pump < 1 Hp
Scenario Description	Scenario is for the implentation of a electric chopper screw pump of less than 1 horsepower. Implementation examples include, but are not limited to, pumping wastewater from the source to a storage facility such as in a dairy milk parlor, or pumping supernatant from the sump of a settling basin to a level spreader device upstream of a Vegetated Treatment Area, in flat topography where gravity flow from the settling basin is not feasible. Payment includes the pump and controls, installation and concrete pad base for the pump. Dairy milk parlor wastewater. Associated Practices include: 374 - Farmstead Energy Improvement; 313 - Waste Storage Facility; 634 - Waste Transfer; 633 Waste Utilization; 632 Solid/liquid Waste Separation Facility; 635 Vegetated Treatment Area
Before Practice Situation	Dairy milk parlor wastewater is not managed properly, or feedlot runoff enters a nearby stream, causing water quality concerns through excessive nutrients, organics, and pathogen. The resource concerns to be addressed are for water quality, air quality, and domestic animal health.
After Practice Situation	Practice typically installed for transfer of wastewater to a storage facility using 3/4 HP chopper/screw pump. Dairy milk parlor wastewater is directed to a waste storage facility, or feedlot runoff is directed to a solid/liquid settling basin, and supernatant is pumped from the sump of the settling basin to a Vegetated Treatment Area. Contaminated water no longer enters the stream. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	Per Pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$954.75	$954.75
Equipment/Installation	$63.94	$63.94
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,018.69	$1,018.69

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation	37	Concrete, CIP, slab on grade, reinforced	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	$255.77	0.25	$63.94
Materials	1023	Pump, Chopper, Screw, ≤ 1 HP, includes pump & motor	Materials, labor, controls: Chopper/ Screw <=1 HP includes pump & motor	Horsepower	$1,273.00	0.75	$954.75

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	2
Scenario Name	Wastewater Pump 1-5 Hp
Scenario Description	Scenario is for the implentation of a electric chopper screw pump of 1-5 horsepower. Implementation examples include, but are not limited to, pumping wastewater from the source to a storage facility such as in a dairy milk parlor, or pumping supernatant from the sump of a settling basin to a level spreader device upstream of a Vegetated Treatment Area, in flat topography where gravity flow from the settling basin is not feasible. Payment includes the pump and controls, installation and concrete pad base for the pump. Dairy milk parlor wastewater. Associated Practices include: 374 - Farmstead Energy Improvement; 313 - Waste Storage Facility; 634 - Waste Transfer; 633 Waste Utilization; 632 Solid/liquid Waste Separation Facility; 635 Vegetated Treatment Area
Before Practice Situation	Dairy milk parlor wastewater is not managed properly, or feedlot runoff enters a nearby stream, causing water quality concerns through excessive nutrients, organics, and pathogen. The resource concerns to be addressed are for water quality, air quality, and domestic animal health.
After Practice Situation	Practice typically installed for transfer of wastewater to a storage facility using 3 HP chopper/screw pump. Dairy milk parlor wastewater is directed to a waste storage facility, or feedlot runoff is directed to a solid/liquid settling basin, and supernatant is pumped from the sump of the settling basin to a Vegetated Treatment Area. Contaminated water no longer enters the stream. Cost represents typical situations for conventional, organic, and transitioning to organic producers.
Scenario Feature Measure	Per Pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$2,895.00	$2,895.00
Equipment/Installation	$63.94	$63.94
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$2,958.94	$2,958.94

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1024	Pump, Chopper, Screw, >1 to 3 HP, includes pump & motor	Materials, labor, controls: Chopper/ Screw >1 to 3 HP includes pump & motor	Horsepower	$965.00	3	$2,895.00
Equipment/Installation	37	Concrete, CIP, slab on grade, reinforced	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	$255.77	0.25	$63.94

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	4
Scenario Name	Small Wastewater Fuel Driven Pump ≤ 50 Hp
Scenario Description	Scenario is for the implentation of a fuel or PTO-driven pump of ≤ 50 horsepower for transferring manure or wastewater. Implementation examples include, but are not limited to, pumping wastewater from a storage facility to an end use such as a field, or transferring manure and wastewater from a shallow pit under a hog confinement building to a deep pit manure storage on the headquarters site. Payment includes all controls and appurtenances needed to mount the pump and connect the pump to the piping system. The piping system and any associated reception tank is specified under 634 - Waste Transfer. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters; Associated Practices include: 374 - Farmstead Energy Improvement; 313 - Waste Storage Facility; 634 - Waste Transfer
Before Practice Situation	Various types of semi-solid or liquid waste at the headquarters is uncollected causing surface and ground water issues.
After Practice Situation	For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.
Scenario Feature Measure	Per Pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$8,200.00	$8,200.00
Equipment/Installation	$63.94	$63.94
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$8,263.94	$8,263.94

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1027	Pump, < 50 HP, Pump & ICE power unit	Materials, labor, controls: < 50 HP Pump & ICE power unit	Horsepower	$205.00	40	$8,200.00
Equipment/Installation	37	Concrete, CIP, slab on grade, reinforced	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	$255.77	0.25	$63.94

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	533 - Pumping Plant
Scenario ID	5
Scenario Name	Large Wastewater Fuel Driven Pump > 50 Hp
Scenario Description	Scenario is for the implentation of a fuel or PTO-driven pump of >50 horsepower for transferring manure or wastewater. Implementation examples include, but are not limited to, moving wastewater from a waste holding pond to a dragline field application system, supplying wastewater to a sprinkler irrigation system, or any other transfer of wasterwater from a storage facility to an end use. Includes all controls and appurtenances needed to mount the pump and connect the pump to the piping system. The piping system and any associated reception tank is specified under 634 - Waste Transfer. Resource Concerns: Water Quality degradation - Excess nutrients in surface and ground waters Associated Practices include: 374 - Farmstead Energy Improvement; 313 - Waste Storage Facility; 634 - Waste Transfer
Before Practice Situation	Various types of semi-solid or liquid waste at the headquarters is uncollected causing surface and ground water issues.
After Practice Situation	For semi-solid or liquid waste, wastes that have been collected through a waste transfer system are now efficiently transferred to appropriate treatment or storage facilities or crop application. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.
Scenario Feature Measure	Per Pump
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$12,070.00	$12,070.00
Equipment/Installation	$63.94	$63.94
Labor	$0.00	$0.00
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$12,133.94	$12,133.94

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1029	Pump, > 70 HP, Pump & ICE power unit	Materials, labor, controls: > 70 HP Pump & ICE power unit	Horsepower	$142.00	85	$12,070.00
Equipment/Installation	37	Concrete, CIP, slab on grade, reinforced	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	$255.77	0.25	$63.94

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Water Management Engineering
Practice Code/Name	554 - Drainage Water Management
Scenario ID	2
Scenario Name	Drainage Water Management without Training
Scenario Description	This scenario describes the management of a drainage water management system in a row crop field with subsurface drainage system already installed or planned to be installed with control structures, or a surface water management system with berms or levees around the field and control structures. Implementation of DWM results in improved water quality by reducing nutrient losses from the soil through ground or surface water outside of the growing season. Management of the water table results in more ground water available for crops during the growing season while lowering the water table prior to crop planting and crop harvest to avoid causing compaction.
Before Practice Situation	In this scenario the gently sloping cropland is drained with pattern subsurface drainage (typically perforated corrugated plastic tubing). The purpose of the drainage system is to decrease soil moisture conditions during planting and harvesting of crop. Subsurface drainage is not restricted at anytime during the year resulting in a permanently lowered water table which is typically 3-4 feet below the surface and well below the crop root zone. Excess ground water is discharged directly to adjacent receiving streams. Excess subsurface drainage contributes to degraded water quality from excessive nutrient discharge; less vigorous crop growth from lowered water table.
After Practice Situation	Typical systems consist of a 50 acre field with existing drainage tile lines and 5 installed water control structures. The operator goes to the field in order to adjust water control structures (riser boards). While on site the date and adjustment information is recorded/logged. The number of yearly adjustments is based on 6 trips to a field 5 miles from headquarters. The field time to make and record each adjustment is 0.5 hours per structure (including travel time). The typical field will contain 5 water control structures. Resource Concern: Water Quality - Excess Nutrients in surface and ground waters. Insufficient Water - Insufficient Moisture Management. Associated Practices: 329:Residue Management - No Till/Strip Till; 606-Subsurface Drain; 607-Surface Drain, Field Ditch; 608-Surface Drain, Main or Lateral; 587-Structure for Water Control; 590-Nutrient Management.
Scenario Feature Measure	Number of Control Structures
Scenario Unit	Each
Scenario Typical Size	5

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$0.00	$0.00
Equipment/Installation	$0.00	$0.00
Labor	$469.65	$93.93
Mobilization	$0.00	$0.00
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$469.65	$93.93

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	15	$469.65

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Environmental Engineering
Practice Code/Name	558 - Roof Runoff Structure
Scenario ID	4
Scenario Name	RockTrenchDrain
Scenario Description	An aggregate-filled infiltration trench lined with geotextile, 3 ft wide by 2 ft deep, is placed on each side of a 40' x 100' hoop structure storing feedstock at the headquarters site of a confined livestock operation, to exclude roof runoff from contaminated lot surfaces. Facilitates waste management and protects environment by minimizing clean water additions to waste systems and addresses water quality concerns. This scenario is to be used where environmental/design considerations, for example – snow loads, or a building without proper structural support needed for gutters- dictate the use of the trench drain. May be used to prevent roof runoff from causing erosion or ponding of water adjacent to a seasonal high tunnel, benefitting water quality, water quantity, and soil erosion. In situations where the roof runoff will not properly infiltrate the soil, a subsurface drain system will be installed using 606 - Subsurface Drain. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Seasonal High Tunnel (798), Subsurface Drain (606), and Diversion (362).
Before Practice Situation	Runoff water from the roof of the hoop structure enters the lot. The addition of extra water to the contaminated surface creates additional contaminated wastewater which runs off into nearby surface waters, increasing the magnitude of the existing water quality resource concern and increasing the volume of material that would need to be collected, stored, treated and land applied in a waste management system.
After Practice Situation	An aggregate-filled infiltration trench lined with geotextile is placed on each side of the hoop structure. Runoff from the roof of the structure enters the infiltration trench and drains off site to a stable outlet through a subsurface drain. The volume of contaminated water at the confinement site is reduced.
Scenario Feature Measure	Linear Length of Roof to be Drained
Scenario Unit	Linear Feet
Scenario Typical Size	200

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$1,201.50	$6.01
Equipment/Installation	$466.25	$2.33
Labor	$0.00	$0.00
Mobilization	$277.16	$1.39
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$1,944.91	$9.72

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	46	Aggregate, Gravel, Graded	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$26.70	45	$1,201.50

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Environmental Engineering
Practice Code/Name	558 - Roof Runoff Structure
Scenario ID	3
Scenario Name	RoofGutter_Large
Scenario Description	A gutter-downspout system for the side of a 180 x220' livestock confinement building, to exclude clean water from the loafing area adjacent to the building. Roof area served by the 220' long gutter is 17,600 square feet. The gutter is 11", with two 12' downspouts to convey the roof runoff to ground level. Underground outlets (CPS 620) are then utilized to safely outlet the water from the downspouts. Facilitates waste management and protects environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Underground Outlet (620), and/or Diversion (362) to capture flow from downspouts and route away from contaminated areas as needed.
Before Practice Situation	Runoff water from the roof of the livestock confinement building falls onto the loafing area. The addition of extra water to the contaminated surface creates additional contaminated wastewater which runs off into nearby surface waters, increasing the magnitude of the existing water quality resource concern and increasing the volume of material that would need to be collected, stored, treated and land applied in a waste management system.
After Practice Situation	A gutter-downspout system has been installed on the side of the building adjacent to the loafing area, routing the clean water away from the contaminated surface, and reducing the volume of contaminated runoff from the loafing area.
Scenario Feature Measure	Linear Length of Roof to be Drained
Scenario Unit	Linear Foot
Scenario Typical Size	220

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$5,096.20	$23.16
Equipment/Installation	$0.00	$0.00
Labor	$219.12	$1.00
Mobilization	$277.16	$1.26
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$5,592.48	$25.42

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1701	Downspout, Aluminum, Medium	Aluminum downspout (6" to 8") in width with hangers. Materials only.	Foot	$48.40	24	$1,161.60
Materials	1691	Gutter, Aluminum, Large	Aluminum gutter (10" to 12") in width with hangers. Materials only.	Foot	$17.31	220	$3,808.20
Materials	981	Pipe, PVC, 8", SCH 40	Materials: - 8" - PVC - SCH 40 - ASTM D1785	Foot	$7.90	16	$126.40
Labor	231	General Labor	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	$19.92	11	$219.12
Mobilization	1138	Mobilization, small equipment	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$138.58	2	$277.16

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Environmental Engineering
Practice Code/Name	558 - Roof Runoff Structure
Scenario ID	2
Scenario Name	RoofGutter_Med
Scenario Description	A gutter-downspout system for the side of a 70 x140' livestock confinement building, to exclude clean water from the loafing area adjacent to the building. Roof area served by the 140' long gutter is 4,900 square feet. The gutter is a 7" K-type, with two 12' downspouts to convey the roof runoff to ground level. Underground outlets (CPS 620) are then utilized to safely outlet the water from the downspouts. Facilitates waste management and protects environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Underground Outlet (620), and/or Diversion (362) to capture flow from downspouts and route away from contaminated areas as needed.
Before Practice Situation	Runoff water from the roof of the livestock confinement building falls onto the loafing area. The addition of extra water to the contaminated surface creates additional contaminated wastewater which runs off into nearby surface waters, increasing the magnitude of the existing water quality resource concern and increasing the volume of material that would need to be collected, stored, treated and land applied in a waste management system.
After Practice Situation	A gutter-downspout system has been installed on the side of the building adjacent to the loafing area, routing the clean water away from the contaminated surface, and reducing the volume of contaminated runoff from the loafing area.
Scenario Feature Measure	Linear Length of Roof to be Drained
Scenario Unit	Linear Foot
Scenario Typical Size	140

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$3,318.00	$23.70
Equipment/Installation	$0.00	$0.00
Labor	$139.44	$1.00
Mobilization	$277.16	$1.98
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$3,734.60	$26.68

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1701	Downspout, Aluminum, Medium	Aluminum downspout (6" to 8") in width with hangers. Materials only.	Foot	$48.40	24	$1,161.60
Materials	1690	Gutter, Aluminum, Medium	Aluminum gutter (7" to 9") in width with hangers. Materials only.	Foot	$14.50	140	$2,030.00
Materials	981	Pipe, PVC, 8", SCH 40	Materials: - 8" - PVC - SCH 40 - ASTM D1785	Foot	$7.90	16	$126.40
Labor	231	General Labor	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	$19.92	7	$139.44
Mobilization	1138	Mobilization, small equipment	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$138.58	2	$277.16

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Environmental Engineering
Practice Code/Name	558 - Roof Runoff Structure
Scenario ID	1
Scenario Name	RoofGutter_Small
Scenario Description	A gutter-downspout system for the side of a 30 x70' livestock confinement building, to exclude clean water from the loafing area adjacent to the building. Roof area served by the 70' long gutter is 1,050 square feet. The gutter is a 5" K-type, with two 12' downspouts to convey the roof runoff to ground level. Underground outlets (CPS 620) are then utilized to safely outlet the water from the downspouts. Facilitates waste management and protects environment by minimizing clean water additions to waste systems and addresses water quality concerns. Associated practices include Waste Storage Facility (313), Composting Facility (317), Heavy Use Area Protection (561), Underground Outlet (620), and/or Diversion (362) to capture flow from downspouts and route away from contaminated areas as needed.
Before Practice Situation	Runoff water from the roof of the livestock confinement building falls onto the loafing area. The addition of extra water to the contaminated surface creates additional contaminated wastewater which runs off into nearby surface waters, increasing the magnitude of the existing water quality resource concern and increasing the volume of material that would need to be collected, stored, treated and land applied in a waste management system.
After Practice Situation	A gutter-downspout system has been installed on the side of the building adjacent to the loafing area, routing the clean water away from the contaminated surface, and reducing the volume of contaminated runoff from the loafing area.
Scenario Feature Measure	Linear Length of Roof to be Drained
Scenario Unit	Linear Foot
Scenario Typical Size	70

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$324.12	$4.63
Equipment/Installation	$0.00	$0.00
Labor	$92.96	$1.33
Mobilization	$277.16	$3.96
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$694.24	$9.92

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1689	Gutter, Aluminum, Small	Aluminum gutter (4" to 6") in width with hangers. Materials only.	Foot	$2.54	70	$177.80
Materials	1700	Downspout, Aluminum, Small	Aluminum downspout (3" to 5") in width with hangers. Materials only.	Foot	$2.61	24	$62.64
Materials	980	Pipe, PVC, 6", SCH 40	Materials: - 6" - PVC - SCH 40 - ASTM D1785	Foot	$5.23	16	$83.68
Labor	231	General Labor	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	$19.92	4.67	$92.96
Mobilization	1138	Mobilization, small equipment	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$138.58	2	$277.16

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agricultural Engineering
Practice Code/Name	560 - Access Road
Scenario ID	3
Scenario Name	New 8 in x 10 ft gravel road in wet, level terrain
Scenario Description	Newly Constructed 10 foot wide gravel road with min. 8 inch thick compacted gravel surface in relatively level ground in wet areas. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, and all equipment, labor and incidental materials necessary to install the practice.
Before Practice Situation	An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compaction, excessive sediment and turbidity in surface water, reduced visibility, and emissions of fugitive dust. This scenario is applicable where the resource activity areas consist of relatively wet and swampy but level terrain lands.
After Practice Situation	The single lane road will be graveled to a width of 10 feet, plus 2 foot shoulders for a total width of 14 feet wide. Gravel will be a minimum of 8 inches, underlain with geotextile fabric. It is mostly in embankment less than 3 feet in height, (average 1.5 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). When seeding or revegetation is required, use Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).
Scenario Feature Measure	Length of Roadway
Scenario Unit	Foot
Scenario Typical Size	1000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$4,916.60	$4.92
Equipment/Installation	$6,789.15	$6.79
Labor	$313.10	$0.31
Mobilization	$406.10	$0.41
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$12,424.95	$12.42

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1099	Aggregate, Gravel, Ungraded, Quarry Run	Includes materials, equipment and labor	Cubic yard	$18.91	260	$4,916.60
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.89	940	$3,656.60
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	1333	$3,132.55
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	10	$313.10
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agricultural Engineering
Practice Code/Name	560 - Access Road
Scenario ID	4
Scenario Name	New 8 in x 12 ft gravel road in wet, level terrain
Scenario Description	Newly Constructed 12 foot wide gravel road with min. 8 inch thick compacted gravel surface in relatively level ground in wet areas. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, and all equipment, labor and incidental materials necessary to install the practice.
Before Practice Situation	An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compaction, excessive sediment and turbidity in surface water, reduced visibility, and emissions of fugitive dust. This scenario is applicable where the resource activity areas consist of relatively wet and swampy but level terrain lands.
After Practice Situation	The single lane road will be graveled to a width of 12 feet, plus 2 foot shoulders for a total width of 16 feet wide. Gravel will be a minimum of 8 inches, underlain with geotextile fabric. It is mostly in embankment less than 3 feet in height, (average 1.5 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). When seeding or revegetation is required, use Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).
Scenario Feature Measure	Length of Roadway
Scenario Unit	Foot
Scenario Typical Size	1000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$5,918.83	$5.92
Equipment/Installation	$7,780.00	$7.78
Labor	$375.72	$0.38
Mobilization	$406.10	$0.41
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$14,480.65	$14.48

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1099	Aggregate, Gravel, Ungraded, Quarry Run	Includes materials, equipment and labor	Cubic yard	$18.91	313	$5,918.83
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.89	1060	$4,123.40
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	1556	$3,656.60
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	12	$375.72
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Corn Belt
State	Ohio
Discipline Group	Agricultural Engineering
Practice Code/Name	560 - Access Road
Scenario ID	5
Scenario Name	New 8 in x 15 ft gravel road in wet, level terrain
Scenario Description	Newly Constructed 15 foot wide gravel road with min. 8 inch thick compacted gravel surface in relatively level ground in wet areas. A properly constructed, well defined access road will address resource concerns related with compaction, emissions of fugitive dust, and excessive sediment in surface water. It also improves the plant productivity, vigor and health and substantially reduces the chance of wild fire hazards. Short term air quality deterioration may result if proper dust control measures are not implemented during the practice installation. Costs include excavation, shaping, grading, and all equipment, labor and incidental materials necessary to install the practice.
Before Practice Situation	An agricultural enterprise which requires, but does not have, a fixed travel way for equipment and vehicles for various resource activities and where use of equipment and vehicles within the enterprise without a defined access road would result in compaction, excessive sediment and turbidity in surface water, reduced visibility, and emissions of fugitive dust. This scenario is applicable where the resource activity areas consist of relatively wet and swampy but level terrain lands.
After Practice Situation	The single lane road will be graveled to a width of 15 feet , plus 2 foot shoulders for a total width of 19 feet wide. Gravel will be a minimum of 8 inches, underlain with geotextile fabric. It is mostly in embankment less than 3 feet in height, (average 1.5 ft) typical side slopes 2:1. A properly constructed, well defined access road will greatly reduce sheet, rill and wind erosion, eliminate compaction in land use areas where it is harmful, reduce emissions of particulate matter (PM) and PM precursors and also reduce excessive sediment in surface water by reducing uncontrolled sediment transport. Planned grades will include all dips and water bars. If clearing and grubbing of land in the alignment area is required, use Land Clearing (460). Pipe culverts installed as part of access road should be covered by either Structures for Water Control (587) or Stream Crossings (578) depending on the type of structure. Earthfill embankment above the culvert structure would still be covered by this Practice. Diversions constructed as part of access road should be covered by Diversion (362). When seeding or revegetation is required, use Critical Area Planting (342). Dust control must be addressed under Dust Control on Unpaved Roads and Surfaces (373).
Scenario Feature Measure	Length of Roadway
Scenario Unit	Foot
Scenario Typical Size	1000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	$7,374.90	$7.37
Equipment/Installation	$9,554.50	$9.55
Labor	$469.65	$0.47
Mobilization	$406.10	$0.41
Acquisition of Technical Knowledge	$0.00	$0.00
Foregone Income	$0.00	$0.00
Total	$17,805.15	$17.81

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price ($/unit)	Quantity	Cost
Materials	1099	Aggregate, Gravel, Ungraded, Quarry Run	Includes materials, equipment and labor	Cubic yard	$18.91	390	$7,374.90
Equipment/Installation	49	Earthfill, Roller Compacted	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	$3.89	1080	$4,201.20
Equipment/Installation	42	Geotextile, woven	Woven Geotextile Fabric. Includes materials, equipment and labor	Square Yard	$2.35	2278	$5,353.30
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	$31.31	15	$469.65
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$203.05	2	$406.10