

**Practice: 554 - Drainage Water Management**

**Scenario: #1 - >10 Acres per Structure**

**Scenario Description:**

This scenario describes the management of a drainage water 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. Drainage conditions consist of gentle slopes with few variations in drainage characteristics and surface slopes. Subsurface drainage pattern consists of fewer secondary main lines. 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 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 Situation:**

Typical systems consist of a 75 acre field with existing drainage tile lines and 5 installed water control structures. The operator walks 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. Scenario includes the cost of participant attending a workshop to gain knowledge about implementing the practice.

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:** Acres of Managed Drainage

**Scenario Unit:** Acre

**Scenario Typical Size:** 75

**Scenario Cost:** \$447.60

**Scenario Cost/Unit:** \$5.97

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<i>Labor</i>						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$29.84	15	\$447.60

**Practice: 554 - Drainage Water Management**

**Scenario: #2 - >10 acres per Structure with Training**

**Scenario Description:**

This scenario describes the management of a drainage water 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. Drainage conditions consist of gentle slopes with few variations in drainage characteristics and surface slopes. Subsurface drainage pattern consists of fewer secondary main lines. 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 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 Situation:**

Typical systems consist of a 75 acre field with existing drainage tile lines and 5 installed water control structures. The operator walks 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. Scenario includes the cost of participant attending a workshop to gain knowledge about implementing the practice.

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: Acres of Managed Drainage**

**Scenario Unit: Acre**

**Scenario Typical Size: 75**

**Scenario Cost: \$491.78**

**Scenario Cost/Unit: \$6.56**

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Acquisition of Technical Knowledge</b>						
Training, Workshops	294	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	\$44.18	1	\$44.18
<b>Labor</b>						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$29.84	15	\$447.60

**Practice: 554 - Drainage Water Management**

**Scenario: #3 - <=10 Acres per Structure**

**Scenario Description:**

This scenario describes the management of a drainage water 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. Drainage conditions consist of gentle to moderately slopes with many variations in drainage characteristics and surface slopes. Subsurface drainage pattern consists of many secondary main lines due to changes in drainage patterns. 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 Situation:**

In this scenario the gently to moderately 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 Situation:**

Typical systems consist of a 50 acre field with existing drainage tile lines and 5 installed water control structures. The operator walks 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:** Acres of Managed Drainage

**Scenario Unit:** Acre

**Scenario Typical Size:** 50

**Scenario Cost:** \$447.60

**Scenario Cost/Unit:** \$8.95

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<i>Labor</i>						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$29.84	15	\$447.60

**Practice: 554 - Drainage Water Management**

**Scenario: #4 - <=10 acres per Structure with Training**

**Scenario Description:**

This scenario describes the management of a drainage water 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. Drainage conditions consist of gentle to moderately slopes with many variations in drainage characteristics and surface slopes. Subsurface drainage pattern consists of many secondary main lines due to changes in drainage patterns. 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 Situation:**

In this scenario the gently to moderately 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 Situation:**

Typical systems consist of a 50 acre field with existing drainage tile lines and 5 installed water control structures. The operator walks 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:** Acres of Managed Drainage

**Scenario Unit:** Acre

**Scenario Typical Size:** 50

**Scenario Cost:** \$491.78

**Scenario Cost/Unit:** \$9.84

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Acquisition of Technical Knowledge</b>						
Training, Workshops	294	Educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants.	Each	\$44.18	1	\$44.18
<b>Labor</b>						
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$29.84	15	\$447.60