United States Department of Agriculture

Urban Agriculture Practice Scenarios

USDA – Natural Resources Conservation Service Pennsylvania, FY 2022

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New Urban Practice Scenarios for FY22

- 317 Composting Facility: Urban pad + bins ($54.99/SF, HU-$65.99/SF)
- 325 High Tunnel System: Small high tunnel, low snow and wind ($6.11/SF, HU-$7.33/SF)
- 327 Conservation Cover: Pollinator Mix on urban sites ($92.74/ 1000SF, HU-$111.29/ 1000SF)
- 328 Conservation Crop Rotation: Specialty crop rotations urban or small scale ($27.24/ 1000SF, HU-$32.69/ 1000SF)
- 329 No Till: Urban small scale no till dig with residue or cover ($30.78/ 1000SF, HU-$36.94/ 1000 SF)
- 340 Cover Crop: Mechanical termination per 1000 SF ($19.95/ 1000 SF, HU-$23.94/ 1000 SF)
- 340 Cover Crop: Multi species per 1000 SF ($44.85/ 1000 SF, HU-$53.82/ 1000 SF)
- 342 Critical Area Planting: Small scale or urban field permanent cover ($12.37/ 1000 SF, HU-$14.84/ 1000SF)
- 386 Field Border: Small scale urban field border ($56.15/ 1000 SF, HU-$67.38/ 1000 SF)
- 430 Irrigation Pipeline: PVC pipe 4” small scale ($4.67/FT, HU-$5.60/FT)
- 436 Irrigation Reservoir: Plastic Tank < 1000 gallons ($3.10/GAL, HU-$3.72/GAL)
- 441 Irrigation System, Micro irrigation: Small Scale Micro irrigation ($0.61/SF, HU-$0.73/ SF)
- 449 Irrigation Water Management: Basic IWM <1 acre ($0.55/SF, HU-$0.66/SF)
- 449 Irrigation Water Management: Intermediate IWM < 1 acre ($0.73/SF, HU-$0.88/SF)
- 558 Roof Runoff Structure: Urban High Tunnel Roof Runoff Trench ($37.45/FT, HU-$44.95/FT)
- 558 Roof Runoff Structure: Roof Gutter with runoff storage tank ($1.27/GAL, HU-$1.52/GAL)
- 590 Nutrient Management: Small scale urban basic nutrient management ($53.59/ 1000SF, HU-$64.31/ 1000 SF)

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Practice: 317 - Composting Facility

Scenario- Urban-Small Farm Pad + Bins

Scenario Description:

The composting facility is installed on a small, urban or organic farm to address water quality concerns, pest/rodent concerns, and disease vectors resulting from improper vegetative waste disposal by providing a dedicated facility for storage and treatment, and by creating a compost product that can be used in multiple ways including land application for enrichment of crop ground. The typical facility size is 6 feet by 9 feet and is comprised of a two bin system. Screening is provided to limit access by vermin. Cost may be higher per unit than traditional compost facilities due to construction access limitations.

Practice: 317 - Composting Facility

Scenario- Urban-Small Farm Pad + Bins

Before Situation:

Manure and other vegetative waste are not being utilized or controlled in an environmentally safe manner. The wastes are either accumulating at the source, or other location, or are being transported but not properly utilized or disposed. This situation poses an environmental threat of excessive nutrients, organics, and pathogens being transported into surface and groundwaters.

After Situation:

Manure and other agricultural by-products are being controlled by collection at the source and properly stored at an environmentally suitable location, until such time that they are utilized in a proper manner, typically in accordance with a nutrient management plan. This scenario consists of installing a composting structure on a concrete pad. Concrete pad is 6'x9' on a compacted gravel surface. Include sufficient area for accessing compost structure.

Practice: 325 - High Tunnel System

What is a high tunnel system?

Quonset Style

Gothic Style

- High Tunnel is also called a “hoop house”
- Typical size ranges of 6 feet high (minimum), 14 – 30 feet wide and 30 – 96 feet long
- Ventilation needed – typically roll-up side walls and end wall openings

Are there any requirements for an NRCS high tunnel?

Minimum of 6 feet in height at peak of structure

Covers – Polyethylene minimum 6-mil greenhouse grade, UV-resistant material, polycarbonate, plastic, or fabric covered structure

Plants grown in ground

Site level or less than 5% slope

Manufactured kit

- **Designed and managed for wind and snow load**

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Practice: 325 - High Tunnel System

Scenario - High Tunnel, Low Snow and Wind Load

Scenario Description:

Use in areas with low expected snow and wind loads. Quonset-style (round) manufactured frame of tubular steel covered with 4-year 6 mil plastic. Costs are based on purchase of manufactured kit and landowner installation of structure. Structure must be installed to manufacturer's specifications.

Scenario - Small High Tunnel, Low Snow and Wind

Scenario Description:

Use in areas with low expected snow and wind loads on sites less than 1 acre. Quonset-style (round) manufactured frame of tubular steel (less than or equal to 600 SF ft.) covered with 4-year warrantee, 6 mil UV resistant plastic. Costs are based on purchase of manufactured kit and landowner installation of structure. Structure must be installed to manufacturer's specifications.

Before Situation:

Cropland where extension of the growing season is needed. Primary resource concern addressed will be plant health and vigor.

After Situation:

High Tunnel structure has been installed and the growing season has been extended for 1-4 months on average. Plant health and vigor is improved.

High Tunnel- Payment Rates

2022 payment rates based on a flat rate, per square foot

High Tunnel, Low Snow and Wind Load

- **Regular: $3.15/SF**
- **Historically Underserved: $3.79/SF**

Small High Tunnel, Low Snow and Wind (600 SF or less + only in area designated Urban Agriculture)

- **Regular: $6.11/SF**
- **Historically Underserved: $7.33/SF**

$7,000 maximum payment per operating unit

Practice: 327 - Conservation Cover Pollinator Mix on Urban Sites

Pollinator Mix on Urban Sites--- Purpose

-"To provide a nectar source (food) throughout all growing seasons, to maximize the pollination potential for agronomic crops."

-Have blooming plants available in the spring, summer and fall, to attract and keep pollinators in areas where they can pollinate crops…

Practice: 327 - Conservation Cover

Scenario - Pollinator Mix on Urban Sites

Scenario Description:

Permanent vegetation, including a mix of grasses, legumes and forbs established on any land needing permanent vegetative cover that provides habitat, cover, and food for pollinators. Typical size varies depending on the site feasibility for length and width. Urban sites typical size is 2000 square feet (20x100 ft) and the scenario unit is 1000 square feet. This scenario included mechanical site preparation.

Before Situation:

Crop rotation include specialty crops such as vegetable and fruit/berry production that benefit from pollinator activity. Urban agricultural sites do not provide for pollinator habitat at this time. Planting operations include mechanical removal of weeds. Land adjacent to the planting beds is not managed for resource concerns.

After Situation:

The 327 implementation requirements have been developed for the site and applied. Land is in permanent vegetative cover reducing erosion and sediment delivery to water. Pollinator habitat has successfully established providing habitat and cover for pollinators and beneficial insects.

Practice: 328 - Conservation Crop Rotation

Scenario - Specialty Crop Rotations Urban or Small Scale

Scenario Description:

Scenario applies to Urban sites less than a 1/2 acre with a rotation of organic or non-organic specialty crops (fruits and vegetable) are produced as part of a conservation management system to treat one or more of the following resource concerns:

1) **Reduce sheet, rill and wind erosion**
2) **2) Maintain or increase soil health and organic matter content**
3) **3) Reduce water quality degradation due to excess nutrients**
4) **4) Improve soil moisture efficiency**
5) **5) Reduce the concentration of salts and other chemicals from saline seeps**
6) **6) Reduce plant pest pressures**
7) **7) Provide feed and forage for domestic livestock**
8) **8) Provide food and cover habitat for wildlife, including pollinator forage, and nesting.**

This practice payment is provided to acquire the technical knowledge and skills necessary to effectively implement a conservation crop rotation on a typical urban specialty crop farm. Cost represents typical situations for organic and non-organic producers.

Practice: 328 - Conservation Crop Rotation

Scenario - Specialty Crop Rotations Urban or Small Scale

Before Situation:

This rotation consisted of growing specialty crops. Fields range from nearly flat to B and C slopes. Erosion, soil quality, and pest management are the primary concern. Removal of residue from the planted area is common leaving bare soil-residue amounts average 10% or less. Full width tillage is performed prior to planting . Weed control typically cultivation.

After Situation:

The implementation requirements are written following CPS 329 Residue and Tillage Management to treat one or more of the following resource concerns on organic and non- organic farms: reduce sheet, rill and wind erosion, maintain or increase soil health and organic matter content, improve soil moisture efficiency or reduce plant pest pressure. Soil disturbance is minimized with no-till drill or planter use. May include single slot opener and seedling or plugs follow. When pest management requires the removal of crop residue then planting beds are covered with cover crop using the 340 Cover Crop conservation practice. Runoff and erosion are reduced below T. No observed rills. Wind erosion reduced by maintaining surface cover. They system meets the soil condition index and STIR requirements.

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Practice: 329 - Residue and Tillage Management, No Till

Scenario- Urban Small Scale No Till No Dig with Residue or Cover

Scenario Description:

Scenario applies to Urban sites less than a 1/2 acre with a rotation of organic or non-organic specialty crops (fruits and vegetable) are produced as part of a conservation management system. This practice payment is provided to effectively implement no-till or strip-till management on a typical urban specialty crop farm. Cost represents typical situations for organic and non-organic producers.

Before Situation:

This rotation consisted of growing specialty crops. Fields range from nearly flat to B and C slopes. Erosion, soil quality, and pest management are the primary concern. Removal of residue from the planted area is common leaving bare soil-residue amounts average 10% or less. Full width tillage is performed prior to planting . Weed control typically cultivation.

After Situation:

The implementation requirements are written following CPS 329. Soil disturbance is minimized with no-till drill or planter use. May include single slot opener and seedling or plugs follow. When pest management requires the removal of crop residue then planting beds are covered with cover crop using the 340 Cover Crop conservation practice. Runoff and erosion are reduced below T. No observed rills. Wind erosion reduced by maintaining surface cover. The system meets the soil condition index and STIR requirements.

Practice: 340 - Cover Crop

Scenario - Mechanical Termination of Cover Crop per 1000 square feet

Scenario Description:

Typical cover crop is more than one plant species, planted immediately after harvest of a crop and will be followed by a new crop. Cover crops are planted in the production bed typically 4000 square feet. Implementation is mostly hand labor or labor intensive. Cover crop is mechanically terminated in urban agricultural sites with State and local laws, ordinance and zoning restrictions on use of agrichemicals.

Before Situation:

Crop rotation include specialty crops such sweet corn, vegetables, or root crops are grown and harvested through out growing season and into mid-late fall. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Erosion exceeds soil loss tolerances. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue crops, and long periods of bare soil.

After Situation:

Implementation Requirements according to Cover Crop (340) are prepared and implemented. The cover crop is seeded by hand. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover at the critical period when cover is needed usually late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced. Wind erosion is reduced by standing residues. The cover crop is mechanically terminated as late as feasible to maximize cover crop biomass production and meet the planting date needs of the next crop. Over time, soil health is improved due to additions of biomass, improvement of aggregate stability and infiltration/aeration.

Practice: 340 - Cover Crop

Scenario - Multi-species Cover Crop per 1000 square feet

Scenario Description:

Typical cover crop is more than one plant species, planted immediately after harvest of a crop and will be followed by a new crop. Cover crops are planted in the production bed. Implementation is mostly hand labor or labor intensive. Cover crop is mechanically terminated in urban agricultural sites with State and local laws, ordinance and zoning restrictions on use of agrichemicals.

Before Situation:

Crop rotation include specialty crops such sweet corn, vegetables, or root crops are grown and harvested through out growing season and into mid-late fall. Residue amounts after harvest average 30% or less, resulting in bare soil being exposed to wind erosion and/or intense rainfall during the fall, winter, and early spring. Over the winter residue degrades and sediment/nutrient runoff from fields increases. Erosion exceeds soil loss tolerances. Runoff from the fields flows into streams, water courses or other water bodies causing degradation to the receiving waters. Soil health (soil organic matter) declines over time as a result of tillage practices, low residue crops, and long periods of bare soil.

After Situation:

Implementation Requirements according to Cover Crop (340) are prepared and implemented. The cover crop is seeded by hand. No additional fertilizer is applied with the cover crop. The cover crop provides soil cover at the critical period when cover is needed usually late fall, throughout the winter, and into the early spring. Runoff and erosion are reduced. Wind erosion is reduced by standing residues. The cover crop is mechanically terminated as late as feasible to maximize cover crop biomass production and meet the planting date needs of the next crop. Over time, soil health is improved due to additions of biomass, improvement of aggregate stability and infiltration/aeration.

Practice: 342 - Critical Area Planting

Scenario- Small Scale or Urban Field Permanent Cover

Scenario Description:

Establishment of permanent vegetation on a site that is void of vegetation or needs to improve the vegetation to adequately cover the existing site soil to reduce particulate matter dust emissions. Costs include seedbed prep with light tillage, seed, fertilizer and lime. Small Scale fields and urban sites have soil conditions limiting vegetation growth or sensitive areas that need protection.

Before Situation:

Fields are bare or sparsely vegetated exposed to wind and water erosion. Soil physical of chemical properties limit vegetative growth. Urban site soils contain heavy metal contaminants at risk of emissions as particulate dust from field activities.

After Situation:

The Implementation Requirement with site specific instruction is prepared for each treatment site. The establishment of permanent vegetation will stabilize the soil.

Sensitive areas are protected. Particulate dust is reduced. Wind and water erosion loss is within tolerance levels (T).

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Practice: 362 - Diversion

Scenario - Diversion, small, less than or equal to 300 feet

Scenario Description:

An earthen channel constructed across long slopes with supporting ridge on lower side, to divert runoff away from farmsteads, agricultural waste systems, gullies, critical erosion areas, construction areas or other sensitive areas. Outlet may be waterway, underground outlet or another suitable outlet.

Before Situation:

Excessive sedimentation and soil erosion as a result of gully, rill or sheet erosion which exceeds "T" from farm fields and other locations. Also, roof runoff or surface runoff that becomes contaminated with agricultural wastes that significantly contributes to the amount of runoff that has to be stored or treated.

After Situation:

Diversion is installed . Field system meets "T" or "clean" storm water runoff is diverted away from an agricultural waste management system to minimize the volume of runoff that is contaminated by agricultural waste.

Practice: 380 - Windbreak/Shelterbelt Establishment and Renovation

Scenario - 2-row windbreak, conifers

Scenario Description:

Two rows of conifer tree seedlings for wind protection, energy conservation, wildlife habitat, air quality, snow management or to provide a visual screen.

Before Situation:

Agricultural field, livestock paddock, feedlot or farmstead needing protection from wind, additional wildlife food and cover, odor mitigation, visual screen or management of snow deposition

After Situation:

Wind velocity suitably reduced to reduce soil erosion, energy loss or to manage snow deposition. Additional wildlife food and cover, mixing of odor plumes and visual screening.

Practice: 386 - Field Border

Scenario - Small Scale Urban Field Border

Scenario Description:

A strip of permanent vegetation established at the edge or around the perimeter of an agricultural field. Practice includes seedbed prep and planting of introduced plant species.

Before Situation:

Before practice conditions may vary based on farm size and location. Fields may have erosion by wind or water. Site provides little wildlife food or cover or pollinator habitat. Site soil organic matter is depleting. Particulate matter as dust is generated by field activity.

After Situation:

The 386 Implementation Requirements have been developed and applied for the site. Field border widths are based on NRCS local design criteria specific to the purpose for installing the practices. Species selected shall be adapted to site and not host disease or pests of the adjacent field crop. Species have physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

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Practice: 412 - Grassed Waterway

Practice: 412 - Grassed Waterway

Scenario - Waterway, small, 0.2 Acres or less

Scenario Description:

Typical practice is 200 ' long by 35' wide by 1.2' deep parabolic channel. The waterway is a shaped or graded channel and is established with suitable vegetation to carry surface water at a non-erosive velocity to a stable outlet. Establishment of vegetation is included. This practice addresses Concentrated Flow Erosion (Classic Gully & Ephemeral Erosion) and Excessive Sediment in surface waters.

Before Situation:

The field has a small gulley which is cutting deeper into the field as time goes on, so it needs to be stopped or controlled. Excessive sedimentation and soil erosion as a result from ephemeral or classic gully erosion. Gully has formed in field as a result of excessive runoff and poor cropping techniques. Grassed waterway is also commonly

installed to covey runoff from concentrated flows, terraces, diversions, or water control structures or similar practices to a suitable, stable outlet.

After Situation:

Installed grassed waterway is a parabolic earthen channel. The practice is installed using a dozer. Topsoil stripped and replaced. Included is seed bed preparation, seeding, lime, fertilizer etc. for establishment of vegetation.

Irrigation

Practice: 430 - Irrigation Pipeline

Scenario - PVC (Iron Pipe Size), less than or equal to 4 inch, Small Scale System

Scenario Description:

Below ground installation of PVC (Iron Pipe Size) pipeline. PVC (IPS) is manufactured in sizes (nominal diameter) from ½-inch to 36- inch; typical practice sizes range from 2- inch to 24-inch; and typical scenario size is 3-inch. Construct 260 feet of 3-inch, Class 125 (SDR-32.5), PVC pipeline with appurtenances, installed below ground with a minimum of 2 feet of ground cover. The unit is weight of pipe material in pounds. 260 feet of 3-inch, Class 125 (SDR-32.5) PVC pipe weighs 0.730 lb/ft, or a total of 189.8 pounds. Appurtenances include: couplings, fittings, air vents, pressure relief valves, thrust blocks, risers, and inline valves, and are included in the cost of pipe material (additional 10% of pipe material quantity). 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.

Before Situation:

Pipeline needed to replace or supplement inefficient irrigation conveyance systems.

After 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.

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Practice: 436 - Irrigation Reservoir

Scenario - Plastic tank, less than or equal to 1,000 gallons

Scenario Description:

A 1,000 Gallon, above-ground, High Density Polyethylene plastic enclosed tank, is installed on 6" of well-compacted drain rock or a 4" thick reinforced concrete support pad, to store water from a reliable source for irrigation of an area less than one acre. The scenario assumes the typical dimensions of the tank are 72" in diameter and 66“ tall. The scenario also assumes a 96" diameter gravel base or concrete pad to extend a minimum of 12" past the base of tank for adequate foundation support. This cost estimate scenario is for cost of the tank and pad only and does not include estimate for pumps, pipe, or connecting fittings. Resource Concern: Insufficient Water - Inefficient use of irrigation water.

Before Situation:

Insufficient volume of water to complete an irrigation cycle at the required flow rate.

After Situation:

An above-ground plastic tank, constructed to withstand the elements, is used to accumulate and store water between irrigation cycles for a very small irrigation system. This allows for an improved flow rate and timing of water application. Sources of water could be a well, a domestic water system, a large roof area, a water ram , or a pump drawing water from a stream.

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Practice: 441 - Irrigation System, Microirrigation

Scenario - Seasonal High Tunnel Micro Irrigation System

Scenario Description:

An irrigation system for vegetables or 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.

Before Situation:

A high tunnel has an inefficient surface irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation: A microirrigation system is utilized to provide highly efficient irrigation

Practice: 441 - Irrigation System, Microirrigation

Scenario - Small Microirrigation System

Scenario Description:

A small scale surface microirrigation system using drip tape or similar type micro-irrigation material placed on the soil surface to irrigate vegetables or field crops. Typically applied on a 40' by 40' plot, with 24" spaced rows, and emitters on a 12" spacing. Submains break plot into several smaller zones. System includes disk filter and chemical injection for chemigation. Water meter is not included. Natural Resource Concern(s): 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.

Before Situation:

A field has an inefficient garden-hose based sprinkler irrigation system causing irrigation water loss that impacts water quality and water quantity.

After Situation:

A surface placed microirrigation system is utilized to provide highly efficient irrigation to a small plot. Water applications are reduced and runoff eliminated. Offsite water quality is improved, and on-site water use is reduced.

Practice: 449 - Irrigation Water Management

Scenario - Intermediate IWM < 1 acre

Scenario Description:

A medium intensity irrigation water management system 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). For a typical scenario, soil moisture is determined by in-field moisture sensors with manual downloads. Irrigation amounts are recorded from a flow meter near the pump. Records are input manually into an irrigation scheduling computer program. 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.

Before 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.

After 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.

Practice: 449 - Irrigation Water Management

Scenario - Basic IWM < 1 acre

Scenario Description:

A low Intensity irrigation water management system 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). For a typical scenario, soil moisture is determined by the feel method, volumes

of irrigation water are based on energy or water district bills, records are kept on paper copies, and calculations are made by hand. 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.

Before 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.

After 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.

Practice: 468 - Lined Waterway or Outlet

Scenario - Rock Lined - 12 inch

Scenario Description:

Rock Riprap is installed over 100% of the width of the waterway to prevent scouring.

Before Situation:

Excessive sedimentation and soil erosion as a result of ephemeral or classic gully erosion. Effective soil stress and velocities are generally too high or saturated soil conditions make it difficult to establish a grassed waterway.

After Situation:

Installed a rock waterway lined with riprap. Completed rock protects channel against future scour and keeps sediment out of the water course and water bodies.

Practice: 484 - Mulching

Scenario - Erosion Control Blanket

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, straw and is typically covered on both sides with polypropylene netting. Used to help control erosion and establish vegetative cover.

Before 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 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.

Practice: 558 - Roof Runoff Structure

Scenario - Roof Gutter with Storage Tank

Scenario Description:

A water catchment and retention system for collecting roof runoff from a livestock, poultry, nursery or similar operation utilizing tanks to store the water. Catch water from the roof is collected in gutters and is transported by downspout and pipe to storage tanks. Water will be stored and subsequently used on-farm. Tanks will have overflow protection. Overflow will be routed to a suitable outlet.

Before Situation:

Erosion, sedimentation and nutrient deposition coming from roof. Large roofs produce excess storm water runoff for the farm. Numerous farms in a watershed result in cumulative excess storm water runoff in the watershed resulting in degradation to receiving streams.

After Situation:

The guttering and downspouts collects the roof runoff and the water is conveyed through a pipe, to a storage tank for reuse . This system is the primary collection component of a Storm water runoff will be reduced. Runoff and erosion control on the farm will be easier handled. Streambank erosion in the watershed will be reduced. Tanks will have overflow protection. Overflow will be routed to a suitable outlet.

Practice: 558 - Roof Runoff Structure

Scenario - Urban high tunnel roof runoff trench drain and storage

Scenario Description:

NOT TO BE USED WHERE CONTAMINATED SOIL EXIST. An urban agricultural producer wishes to address a resource concern such as a need for water or erosion around high tunnel from roof runoff and collect and store roof runoff for reuse as supplemental irrigation/water supply water.

Before Situation:

Producer has resource concern such as erosion caused by roof runoff from an installed high tunnel

After Situation:

A 2' deep by 3' wide by 100' long trench filled with clean stone w/ 4-8 inch perforated PE pipe located on both sides of the high tunnel collect the roof runoff and divert to an underground storage tank. Trench drain typically installed at ground level under the edge of a high tunnel. Outlet from 'Trench Drain' conveys water to a buried storage tank. Typically installed to capture water for reuse or to stop erosion caused by concentrated roof runoff.

Practice: 590 - Nutrient Management

Scenario - Small Scale Urban Basic Nutrient Management

Scenario Description:

This scenario applies to small farms with diversified cropping systems which will improve the current level of management in applying nutrients. Improved level of management will be such to prevent nonpoint source pollution of surface and ground waters. Typical size is less than 0.5 acres.

Before Situation:

Little to no soil or manure testing is being conducted and typically lacks a nutrient budget. Application of fertilizers, including manures and amendments, are conducted based upon traditional fertilizer recommendations from LGU or based on historic use rates. Fields are overwintered with little or no erosion protection often times resulting in sheet, rill, and ephemeral erosion. Nutrients runoff into adjacent streams, tile drains, field surface drains, or other water courses is causing degradation to surface waters or leaching to shallow ground water sources.

After Situation:

Implementation Requirements have been developed to manage nutrients according to the criteria found in Nutrient Management (590) Conservation Practice Standard for either organic or non-organic operations as appropriate. A nutrient budget has been developed for each field or management zone. Nutrients are applied according to the 4 R's. (Right rate, Right time, Right place and Right source). Records needed to complete the nutrient budget are provided which may include variety of pre-season, in season, and post-season soil nutrient and plant tissue tests and analysis; compost or manure tests; application timing, method and rate; nutrient sources; and yield data for each field or management zone. Nutrient runoff into adjacent streams is minimized improving water quality and preventing leaching into shallow ground water sources.

Practice: 595 - Pest Management Conservation System

Many Scenarios

A site specific combination of pest prevention, pest avoidance, pest monitoring and pest suppression strategies.

Before Situation:

Before practice conditions vary widely. Conditions range from the client is not using many pest suppression techniques (pesticides, tillage for weed control, burning, etc.) to the client is using many different pest suppression techniques for many different pests, but in all cases at least one planned pest suppression technique has risk to an

identified resource concern (e.g. Water Quality - Impacts to Human Drinking Water AND/OR Wildlife-beneficial insects including pollinators).

After Situation:

An IPM system with planned prevention (Netting to exclude insect or birds, resistant cultivar selection, etc.), Avoidance (change in rotation to avoid problem spots, etc.), and Monitoring (Degree day monitoring, field scouting, etc.) activities among other things.

Practice: 606 - Subsurface Drain

Scenario - Enveloped Corrugated Plastic Pipe

Description:

A conduit, such as corrugated plastic tubing, tile, or pipe, installed beneath the ground surface to collect and/or convey drainage water.

- **Subsurface drainage is not authorized for practice payment as a stand-alone practice and/or components of an existing practice.**
- **May only be included in a contract when used as a companion practice for a primary structural practice such as: Grassed Waterway (412), Diversion (362), Terrace (600), Critical Area Planting (342), Spring Development (574), or Waste Storage Facility (313).**

Before Situation:

Soil conditions are excessively wet in the spring due to poor internal soil drainage. Excess soil water is causing crop stress and delay of field operations.

After Situation:

A perforated HDPE (Corrugated Plastic Pipe) pipeline less than or equal to 6 inches in diameter is installed with a sand-gravel envelope below ground to address excess water (seasonal high water table)

This presentation only covered some of the many conservation practices and scenarios that NRCS has to offer. To see the full list of practice scenarios and/or payment schedules follow the link below:

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/?cid=nrcseprd1328261

Reminder:

Participants should not begin work on a practice proposed for EQIP funding before NRCS has approved a contract to fund that practice(s).

NRCS works with participants to identify practices that will be funded through the EQIP contract, develop technical specifications, implementation schedule and documents payment rates that will apply. Final payment amounts are based on actual practice amounts installed. If fewer units are installed, the payment for that contract item will be reduced. If more units are needed than originally planned, participant should work with NRCS before implementation to determine if additional funds can be added to the contract.

Additional Resources

Find your local NRCS service center:

- https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/contact/local/

USDA – NRCS High Tunnel Website:

– https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/organic/?cid=NRCSEPRD1364702

Capital RC&D High Tunnel Website:

– https://www.capitalrcd.org/high-tunnel.html

Penn State High Tunnel Manual:

– https://extension.psu.edu/high-tunnel-manual

Penn State Extension:

– https://extension.psu.edu/

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