

Ohio Soil Health and Water Quality System

This Conservation Management System (CMS) combines practices that work together to improve soil health, improve water quality and reduce energy consumption. They are to be planned and contracted together as listed below.

The Soil Health and Water Quality System payments are NOT to be used in combination with any other federal program such as CSP or CRP for the same practice on the same land. If manure is going to be applied to the contracted acres, one of the Nutrient Management (Basic with Manure or Enhanced with Manure) options must be used.

Base Level Activities:

To qualify for any of these payments, the participant must have:

- 1) All gully erosion controlled.
- 2) All tile breaks repaired within a year of the signed contract

Payment Considerations:

(See the "Definitions and Payment Considerations" section for more specific payment considerations.)

- 1) Fertilizer / manure application records must be available to the District Conservationist (DC) for review.
- 2) Soil test records must be presented to the DC for review.
- 3) If the Controlled Traffic Farming option is selected, a geo-referenced traffic map will be submitted to the DC for review prior to this payment being issued.
- 4) For Nutrient Management - Enhanced, Nutrient Management - Enhanced with Manure, or Nutrient Management - Enhanced with Deep Placement, a copy of the Precision Nutrient Management Plan or the Comprehensive Nutrient Management Plan must be developed by a Certified Crop Advisor (CCA) or a Technical Service Provider (TSP) utilizing the Purdue MMP program and Ohio Templates and submitted to the DC (including yield maps, grid or zone maps and soil reports) prior to issuing the 590 Nutrient Management payment. The Ohio Templates are required for all nutrient management plans but the use of MMP is not required for Nutrient Management Plans developed for fertilizer only.

Prior to payment being issued for any practice(s) the ToolKit Cons-68 (conservation plan) form showing the completion date of the practice(s) must be signed by the participant indicating the 590 Nutrient Management practice standard and the Tri-State Fertility Guide for Phosphorus and Potassium were followed on all contracted acres. Nitrogen rates will be based on the economic threshold models developed by Purdue University or The Ohio State University.



Base Level Activities:

To qualify for any of these payments, the participant must have:

- 1) All gully erosion controlled.
- 2) All tile breaks repaired within a year of the signed contract

Basic Nutrient Management

Practice Code	Option Number	Supporting Practice Name	Payment Unit
328	Option 1*	Conservation Crop Rotation (no back to back low residue crops)	AC
328	Option 2**	Conservation Crop Rotation (adds small grain to rotation)	AC
328	Option 3***	Conservation Crop Rotation (adds 1 yr of perennials to rotation)	AC
328	Option 4****	Conservation Crop Rotation (adds 2 yrs of perennials to rotation)	AC
<p>Option 1* Producer can participate in this system as long as there are no back to back low residue crops grown in rotation No payment for this practice under this option Wheat with stubble removed (<8 inches) constitutes a low residue crop</p> <p>Option 2** Producer adds small grain to the rotation. Payment is only for the year(s) that small grain is grown</p> <p>Option 3*** Producer adds 1 yr of perennials to the rotation. Payment is only for the year that perennials are grown</p> <p>Option 4**** Producer adds min 2 yrs of perennials to the rotation. Payment is only for the years that perennials are grown</p> <p style="color: red;">This practice does not apply to, and is not needed for pastureland, hayland, orchards, vineyards or other land uses where crops are grown occasionally only to facilitate renovation or re-establishment of perennial vegetation.</p>			
329	Option 1*	Residue and Tillage Management, NoTill/StripTill	AC
345	Option 2**	Residue and Tillage Management, Reduced Till	AC
<p>Option 1* Utilizes NoTill or StripTill every year of the contract (no full width tillage allowed)</p> <p>Option 2** Utilizes a non-inversion tillage practice that maintains the needed residue cover to result in a soil loss of less than T, positive SCI, and a STIR of 80 or less. No payment for this practice under this option.</p> <p style="color: red;">The producer must make a significant change from a more intensive tillage system to receive this payment. Fertility, pH and weed control should be conducive to No-Till. As a management practice in EQIP this payment can be contracted for up to 3 years.</p>			
590		Nutrient Management System, Basic	AC
<ol style="list-style-type: none"> 1) The OH 590 Nutrient Management practice standard must be followed. 2) A basic nutrient management plan will be developed by a consultant or co-op that will clearly address the 4R's. 3) Continue to soil test through the life of the contract (1 composite sample per 25ac. every 2 yrs.) 4) Urease Inhibitors will be applied with UAN or Urea that is surface applied in the spring 5) Phosphorus and potassium application will not exceed Tri-State Fertility Guide (Ext. Bulletin E-2567) recommendations 6) Nitrogen rates will be based on the economic threshold models developed by Purdue or The Ohio State University. 7) No commercial nitrogen will be fall applied (except incidental N in fertilizer blends) 8) Fertilizer must be banded, injected, strip tilled, incorporated, or applied to a growing crop or cover crop 9) No nutrients will be applied on frozen or snow covered ground 10) Maintains accurate nutrient application records per field <p style="color: red;">As a management practice in EQIP this payment can be contracted for up to 3 years.</p>			

Base Level Activities:

To qualify for any of these payments, the participant must have:

- 1) All gully erosion controlled.
- 2) All tile breaks repaired within a year of the signed contract

Basic Nutrient Management with Manure

Practice Code	Option Number	Supporting Practice Name	Payment Unit
328	Option 1*	Conservation Crop Rotation (no back to back low residue crops)	AC
328	Option 2**	Conservation Crop Rotation (adds small grain to rotation)	AC
328	Option 3***	Conservation Crop Rotation (adds 1 yr of perennials to rotation)	AC
328	Option 4****	Conservation Crop Rotation (adds 2 yrs of perennials to rotation)	AC
<p>Option 1* Producer can participate in this system as long as there are no back to back low residue crops grown in rotation No payment for this practice under this option. Wheat with stubble removed (<8 inches) constitutes a low residue crop</p> <p>Option 2** Producer adds small grain to the rotation. Payment is only for the year(s) that small grain is grown</p> <p>Option 3*** Producer adds 1 yr of perennials to the rotation. Payment is only for the year that perennials are grown</p> <p>Option 4**** Producer adds min 2 yrs of perennials to the rotation. Payment is only for the years that perennials are grown</p> <p style="color: red;">This practice does not apply to, and is not needed for pastureland, hayland, orchards, vineyards or other land uses where crops are grown occasionally only to facilitate renovation or re-establishment of perennial vegetation.</p>			
329	Option 1*	Residue and Tillage Management, NoTill/StripTill	AC
345	Option 2**	Residue and Tillage Management, Reduced Till	AC
<p>Option 1* Utilizes NoTill or StripTill every year of the contract (no full width tillage allowed)</p> <p>Option 2** Utilizes a non-inversion tillage practice to disrupt macropores (and prevent preferential flow) prior to manure application or to incorporate manure once applied (full width tillage allowed if cover crops are established after fall tillage). Utilizes a non-inversion tillage practice that maintains the needed residue cover to result in a soil loss of less than T, positive SCI, and a STIR of 80 or less. No payment for this practice under this option.</p> <p style="color: red;">The producer must make a significant change from a more intensive tillage system to receive this payment. Fertility, pH and weed control should be conducive to No-Till. As a management practice in EQIP this payment can be contracted for up to 3 years.</p>			
590		Nutrient Management System, Basic with Manure	AC
<p>1) The OH 590 Nutrient Management practice standard must be followed.</p> <p>2) A basic nutrient management plan will be developed by a consultant or co-op that will clearly address the 4R's.</p> <p>3) *All appropriate setback distances and proper risk assessments results will be included and observed.</p> <p>4) No additional phosphorous (manure or commercial fertilizer) will be applied on fields with **STP > 200 lbs/Ac (100 ppm)</p> <p>5) Commercial phosphorus and potassium application will not exceed Tri-State Fertility Guide (Ext. Bulletin E-2567) recommendations</p> <p>6) Manure samples will be taken and analyzed with each emptying cycle of a storage facility.</p> <p>7) Soil samples will be taken and analyzed for each contracted field prior to receiving manure (1 composite sample per 25ac)</p> <p>8) No manure or fertilizer will be applied on frozen or snow covered ground</p> <p>9) Manure may be applied to a growing crop (includes cover crops) or may be injected. As an alternative, paths of preferential flow are required to be disrupted prior to liquid manure application with shallow tillage. Cover crops would then need to be planted to be able to maintain 30% residue cover, reduce erosion and recycle nutrients.</p> <p>10) Maintains accurate application records per field on all contracted acres</p> <p style="color: red;">As a management practice in EQIP this payment can be contracted for up to 3 years . *NRCS will provide the participant with an aerial photo delineating all setbacks for fields receiving manure.</p>			
634	Option 1	Manure Transfer (solid manure hauled < 2miles)*	TON
634	Option 2	Manure Transfer (solid manure hauled 2 - 4.9 miles)*	TON
634	Option 3	Manure Transfer (solid manure hauled 5 - 10 miles)*	TON
634	Option 4	Manure Transfer (solid manure hauled > 10 miles)*	TON
635	Option 5	Manure Transfer (liquid manure hauled > 2 miles)	GAL
<p>1) Applicable where soil test phosphorous levels are above 200 lbs per acre (100ppm) manure will be transported to fields that have a soil test value below 100 lbs/ac (50ppm).</p> <p style="color: red;">*If stockpiling dry manure, Ohio (634) Waste Transfer Manure Stockpiling Job Sheet must be followed.</p>			

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Enhanced Nutrient Management

Practice Code	Option Number	Supporting Practice Name	Payment Unit
328	Option 1*	Conservation Crop Rotation (no back to back low residue crops)	AC
328	Option 2**	Conservation Crop Rotation (adds small grain to rotation) Conservation Crop	AC
328	Option 3***	Rotation (adds 1 yr of perennials to rotation) Conservation Crop Rotation (adds	AC
328	Option 4****	2 yrs of perennials to rotation)	AC
<p>Option 1* Producer can participate in this system as long as there are no back to back low residue crops grown in rotation No payment for this practice under this option Wheat with stubble removed (<8 inches) constitutes a low residue crop</p> <p>Option 2** Producer adds small grain to the rotation. Payment is only for the year(s) that small grain is grown</p> <p>Option 3*** Producer adds 1 yr of perennials to the rotation. Payment is only for the year that perennials are grown</p> <p>Option 4**** Producer adds min 2 yrs of perennials to the rotation. Payment is only for the years that perennials are grown This practice does not apply to, and is not needed for pastureland, hayland, orchards, vineyards or other land uses where crops are grown occasionally only to facilitate renovation or re-establishment of perennial vegetation.</p>			
329	Option 1*	Residue and Tillage Management, NoTill/StripTill	AC
345	Option 2**	Residue and Tillage Management, Reduced Till (with cover crops)	AC
<p>Option 1* Utilizes NoTill or StripTill every year of the contract (no full width tillage allowed)</p> <p>Option 2** Utilizes a light non-inversion tillage practice to incorporate fertilizer (full width tillage allowed if cover crops are established after fall tillage). Utilizes a non-inversion tillage practice that maintains the needed residue cover to result in a soil loss of less than T, positive SCI, and a STIR of 80 or less. No payment for this practice under this option. The producer must make a significant change from a more intensive tillage system to receive this payment. Fertility, pH and weed control should be conducive to No-Till As a management practice in EQIP this payment can be contracted for up to 3 years.</p>			
*720	Option 1	Controlled Traffic Farming (<=25% Traffic)	AC
*720	Option 2	Controlled Traffic Farming (26%-35% Traffic)	AC
*720	Option 3	Controlled Traffic Farming (36%-50% Traffic)	AC
<p>1) Utilizes Residue and Tillage Management , NoTill /Strip Till every year of the contract 2) The OH Interim Controlled Traffic Farming practice standard must be followed 3) Utilizes RTK automatic steering technology for high load field traffic *This practice is optional and as such is not necessary in order to participate in this conservation system. For 2014 this practice may be contracted for one year as it has a five year life span.</p>			
340		Cover Crops	AC
<p>1) Must follow the Cover Crop (340) Practice Standard and Job Sheet 2) Utilizes Cover Crops (340) on a minimum of 50% of the contracted acres over the life of the contract Payment is based on the type of cover crop utilized As the cover crop practice in EQIP this payment can be contracted for up to 5 years.</p>			
386 - 390 - 393		Field Border / Riparian Herbaceous Cover / Filter Strip	AC
<p>1) A herbaceous buffer will be established along all perennial streams, ponds, lakes, wetlands in the contracted acres. A buffer is required where applicable. Payment is based on the acres established. This is a one-time payment for newly established buffers. If contracting for buffers use appropriate practice code, practice standard and payment. *Payment will vary depending on the size and type of practice utilized Participants with existing buffers are automatically credited for this practice but will not receive a payment</p>			

Enhanced Nutrient Management (continued)

Practice Code	Option Number	Supporting Practice Name	Payment Unit
CAP 104	Optional*	Precision Nutrient Management Plan	EACH
<p>1) A geo-referenced Variable Rate Technology grid or zone precision nutrient management plan will be developed by a TSP using the Ohio Templates. The supporting practices must be a component of the NMP.</p> <p style="color: red;">*A Precision Nutrient Management Plan must be developed but it does not have to be a CAP 104 (See 590 bullet 1 below)</p>			
590	Option 1*	Nutrient Management System, Enhanced	AC
590	Option 2**	Nutrient Management System, Enhanced w/ Deep Placement	AC
<p>Options 1* & 2**</p> <p>1) The OH 590 Nutrient Management practice standard must be followed.</p> <p>2) A geo-referenced Variable Rate Technology grid or zone precision nutrient management plan will be developed by a CCA or a TSP using the Ohio Templates. This plan will clearly address the 4R's. Supporting practices must be a component of the NMP.</p> <p>3) Continue to soil test through the life of the contract (Biennial geo-referenced soil tests).</p> <p>4) Urease Inhibitors will be applied with UAN or Urea that is surface applied in the spring.</p> <p>5) Phosphorus and potassium application will not exceed Tri-State Fertility Guide (Ext. Bulletin E-2567) recommendations.</p> <p>6) Nitrogen rates will be based on the economic threshold models developed by Purdue or The Ohio State University.</p> <p>7) No commercial nitrogen will be fall applied (except incidental N in fertilizer blends)</p> <p>8) Fertilizer must be banded, injected, strip tilled, incorporated, or applied to a growing crop or cover crop.</p> <p>9) No nutrients will be applied on frozen or snow covered ground.</p> <p>10) Lime, phosphorus and potassium are applied according to the VRT nutrient management plan developed above</p> <p>11) Maintains accurate nutrient application records per field.</p> <p>12) Phosphorus must be applied to a growing crop or cover crop. As an alternative it can be banded, injected, or strip tilled</p> <p>Option 2** Fertilizer must be banded 4-7 " deep using a strip till or similar unit</p> <p style="color: red;">As a management practice in EQIP this payment can be contracted for up to 3 years.</p>			
587 - 656 - 795		Structure for Water Control / Constructed Wetland / Bioreactor	EACH
<p>1) Highly recommended (where technically feasible as determined by an NRCS or DNR engineer) on all tile outlets</p> <p>2) Blind Inlets should be installed under 587 to replace tile riser surface inlets thereby reducing nutrient loading</p> <p>3) A Constructed Wetland standard (656) or Bio Reactor (747) can be used as an alternative to (587)</p> <p style="color: red;">*These are mandatory if there is a documented history of nutrient discharge through the tile (otherwise optional)</p> <p style="color: red;">**Payment will vary depending on the size and type of structure needed.</p> <p style="color: red;">This is a one-time payment for installing the structure.</p>			
554		Drainage Water Management	AC
<p>1) Must follow the Drainage Water Management (554) practice standard.</p> <p>2) For stop log type structures, follow the guidance of the Purdue University publication WQ-44 "Questions and Answers - Drainage Water Management for the Mid-West"</p> <p style="color: red;">This practice is required if a 587 stop log type structure is installed above</p> <p style="color: red;">As a management practice in EQIP this payment can be contracted for up to 3 years.</p>			
801	Optional	Amending Soil Properties with Gypsiferous Products	AC
<p>1) Applications of gypsiferous products should be considered on fields that have poor structure and a high Mg in proportion to Ca (as a percent of base saturation). Application rate will be determined by percent base saturation, concentration of Mg and Ca, and the cation exchange capacity (CEC) of a current soil sample. Use 801 job sheet to document correct rate.</p> <p>2) Applications should not be considered on sandy soils with a low CEC or fields that the soil sample is giving a liming recommendation.</p> <p style="color: red;">Payment is only for the year of application; additional applications can only be made after new soil samples are taken during the next sample cycle and meet the application criteria.</p>			

Base Level Activities:

To qualify for any of these payments, the participant must have:

- 1) All gully erosion controlled.
- 2) All tile breaks repaired within a year of the signed contract

Enhanced Nutrient Management with Manure

Practice Code	Option Number	Supporting Practice Name	Payment Unit
328	Option 1*	Conservation Crop Rotation (no back to back low residue crops)	AC
328	Option 2**	Conservation Crop Rotation (adds small grain to rotation)	AC
328	Option 3***	Conservation Crop Rotation (adds 1 yr of perennials to rotation)	AC
328	Option 4****	Conservation Crop Rotation (adds 2 yrs of perennials to rotation)	AC
<p>Option 1* Producer can participate in this system as long as there are no back to back low residue crops grown in rotation No payment for this practice under this option Wheat with stubble removed (<8 inches) constitutes a low residue crop</p> <p>Option 2** Producer adds small grain to the rotation. Payment is only for the year(s) that small grain is grown</p> <p>Option 3*** Producer adds 1 yr of perennials to the rotation. Payment is only for the year that perennials are grown</p> <p>Option 4**** Producer adds min 2 yrs of perennials to the rotation. Payment is only for the years that perennials are grown</p> <p style="color: red;">This practice does not apply to, and is not needed for pastureland, hayland, orchards, vineyards or other land uses where crops are grown occasionally only to facilitate renovation or re-establishment of perennial vegetation.</p>			
329	Option 1*	Residue and Tillage Management, NoTill/StripTill	AC
345	Option 2**	Residue and Tillage Management, Reduced Till (with cover crops)	AC
<p>Option 1* Utilizes NoTill or StripTill every year of the contract (no full width tillage allowed)</p> <p>Option 2** Utilizes a non-inversion tillage practice to disrupt macropores (and prevent preferential flow) prior to manure application or to incorporate manure once applied (full width tillage allowed if cover crops are established after fall tillage). Utilizes a non-inversion tillage practice that maintains the needed residue cover to result in a soil loss of less than T, positive SCI, and a STIR of 80 or less. No payment for this practice under this option.</p> <p style="color: red;">The producer must make a significant change from a more intensive tillage system to receive this payment. Fertility, pH and weed control should be conducive to No-Till</p>			
*720	Option 1	Controlled Traffic Farming (<=25% Traffic)	AC
*720	Option 2	Controlled Traffic Farming (26%-35% Traffic)	AC
*720	Option 3	Controlled Traffic Farming (36%-50% Traffic)	AC
<p>1) Utilizes Residue and Tillage Management ,NoTill /Strip Till /Reduced Till every year of the contract</p> <p>2) The OH Interim Controlled Traffic Farming practice standard must be followed</p> <p>3) Utilizes RTK automatic steering technology for high load field traffic</p> <p style="color: red;">*This practice is optional and as such is not necessary in order to participate in this conservation system.</p>			
340		Cover Crops	AC
<p>1) Must follow the Cover Crop (340) Practice Standard and Job Sheet</p> <p>2) Utilizes Cover Crops (340) on a minimum of 50% of the contracted acres over the life of the contract</p> <p style="color: red;">*Payment is based on the type of cover crop utilized As the cover crop practice in EQIP this payment can be contracted for up to 5 years.</p>			
386 - 390 - 393		Field Border / Riparian Herbaceous Cover / Filter Strip	AC
<p>1) A herbaceous buffer will be established along all perennial streams, ponds, lakes, wetlands in the contracted acres A buffer is required where applicable.</p> <p style="color: red;">Payment is based on the acres established. This is a one-time payment for newly established buffers. If contracting for buffers use appropriate practice code, practice standard and payment *Payment will vary depending on the size and type of practice utilized Participants with existing buffers are automatically credited for this practice but will not receive a payment.</p>			

Enhanced Nutrient Management with Manure (continued)

Practice Code	Option Number	Supporting Practice Name	Payment Unit
CAP 102	Optional	Comprehensive Nutrient Management Plan	EACH
<p>1) A Comprehensive Nutrient Management Plan (CNMP) will be developed by a TSP for entire operation receiving manure using the Ohio templates. The supporting practices must be a component of the CNMP.</p> <p style="color: red;">*This one-time payment is based on the number of Animal Units (AU) for which the plan is being developed</p>			
590	Option 1*	Nutrient Management System, Enhanced	AC
590	Option 2**	Nutrient Management System, Enhanced w/ Deep Placement	AC
<p>Options 1* & 2**</p> <p>1) The OH 590 Nutrient Management practice standard must be followed.</p> <p>2) A geo-referenced Variable Rate Technology grid or zone Comprehensive nutrient management plan (CNMP) will be developed by a Certified CNMP Specialist or a TSP using the Ohio Templates. This plan will clearly address the 4R's.</p> <p>3) All appropriate setback distances and proper risk assessments results will be included and observed.</p> <p>4) No additional phosphorous (manure or commercial fertilizer) will be applied on fields that have phosphorous soil test levels higher than 200 pounds per acre (100 ppm)</p> <p>5) Commercial phosphorus and potassium application will not exceed Tri-State Fertility Guide (Ext. Bulletin E-2567) recommendations.</p> <p>6) Manure samples will be taken and analyzed with each emptying cycle of a storage facility.</p> <p>7) Geo-referenced soil samples will be taken and analyzed for each contracted field prior to receiving manure (1 composite sample per 25ac).</p> <p>8) No manure or fertilizer will be applied on frozen or snow covered ground</p> <p>9) Manure may be applied to a growing crop (includes cover crops) or may be injected. As an alternative, paths of preferential flow are required to be disrupted prior to liquid manure application with shallow tillage. Cover crops would then need to be planted to be able to maintain 30% residue cover, reduce erosion and recycle nutrients.</p> <p>10) Maintains accurate application records per field on all contracted acres</p> <p>Option 2** Manure must be banded 4-7 inches deep</p>			
*587 - 656 - 795		Structure for Water Control / Constructed Wetland / Bioreactor	EACH
<p>1) Highly recommended (where technically feasible as determined by an NRCS or DNR engineer) on all tile outlets</p> <p>2) Blind Inlets should be installed under 587 to replace tile riser surface inlets thereby reducing nutrient loading</p> <p>3) A Constructed Wetland standard (656) or Bio Reactor (747) can be used as an alternative to (587)</p> <p style="color: red;">*These are mandatory if there is a documented history of nutrient discharge through the tile (otherwise optional)</p> <p style="color: red;">**Payment will vary depending on the size and type of structure needed.</p> <p style="color: red;">This is a one-time payment for installing the structure.</p>			
554	Optional	Drainage Water Management	AC
<p>1) Must follow the Drainage Water Management (554) practice standard.</p> <p>2) For stop log type structures, follow the guidance of the Purdue University publication WQ-44 "Questions and Answers – Drainage Water Management for the Mid-West"</p> <p style="color: red;">This practice is required if a 587 stop log type structure is installed above</p> <p style="color: red;">As a management practice in EQIP this payment can be contracted for up to 3 years.</p>			
634	Option 1	Manure Transfer (solid manure hauled < 2miles)*	TON
634	Option 2	Manure Transfer (solid manure hauled 2 - 4.9	TON
634	Option 3	miles)* Manure Transfer (solid manure hauled 5 - 10	TON
634	Option 4	miles)* Manure Transfer (solid manure hauled > 10	TON
635	Option 5	miles)* Manure Transfer (liquid manure hauled > 2	GAL
<p>1) Applicable where soil test phosphorous levels are above 200 lbs per acre (100ppm) manure will be transported to fields that have a soil test value below 100 lbs/ac (50ppm).</p> <p style="color: red;">*If stockpiling dry manure, Ohio (634) Waste Transfer Manure Stockpiling Job Sheet must be followed.</p>			

Definitions and Payment Considerations

328 - Conservation Crop Rotation

Definition: Growing crops in a recurring sequence on the same field.

In order to receive a payment for this supporting practice, there needs to be a significant change from the rotation the producer is currently using. There are four options under this practice.

Option 1: Producer can participate in this system without making a change in rotation as long as there are no back to back low residue crops grown in rotation (cover crops can be utilized to compensate for low residue crops). Wheat with stubble removed (<8 inches) constitutes a low residue crop.

Option 2: Producer adds small grain to the rotation. Payment is only for the year(s) that small grain is grown. This option can be utilized if the producer is already growing small grain in the rotation but adds an additional small grain. For example adding oats to a Corn-Soybean-Wheat rotation.

Option 3 & 4: Producer adds a minimum of 1 or 2 years of perennials to the rotation. Payment is only for the years that perennials are grown.



329 - Residue and Tillage Management, NoTill, StripTill

Definition: Managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round while limiting soil-disturbing activities to only those necessary to place nutrients, condition residue and plant crops.

Option 1 NoTill/StripTill: The producer must utilize NoTill or StripTill for the life of the contract. No full width tillage is allowed. The combination of crop rotation and conservation tillage utilized must keep soil loss at or below T (tolerable soil loss). In order to receive a payment for this supporting practice, there needs to be a significant change from the type of tillage the producer is currently using. Examples would be 1) converting from a chisel / disk system to NoTill or 2) converting from rotational NoTill to continuous NoTill.

To qualify for payment under this practice, the tillage system must be NoTill or StripTill every year for the life of the contract. As a management practice in EQIP, payment can be made for up to 3 years if needed to adopt the practice. Document all ground disturbing tillage operations for the entire crop year.

Option 2 Reduced Till:

Utilizes a non-inversion tillage practice to disrupt macropores (and prevent preferential flow) prior to manure application or to incorporate manure or fertilizer once applied (full width tillage allowed if cover crops are established after fall tillage). **There is no practice payment authorized under Nutrient Management - Enhanced for this practice option.**

Definitions and Payment Considerations (continued)



340 - Cover Crops

Definition: Crops including grasses, legumes and brassicas for seasonal cover and other conservation purposes.

As a management practice in EQIP, payment can be made for up to 3 years if needed to adopt the practice. Cover Crops must be utilized on a minimum of 50% of the contracted acres over the life of the contract. Additional acres may be contracted.

Payment is based on the type of cover crop utilized and the acres of cover crops established. The producer is responsible for making sure the cover crop is successfully established. Each year document the extent of the practice units applied, the actual materials used and certification that the application meets NRCS standard and specification as documented in the job sheet.

386 / 390 / 393 - Field Border / Riparian Herbaceous Cover / Filter Strip

In order to receive payment for this supporting practice, a herbaceous buffer must be newly established as per the 386, 390 or 393 practice standards along all perennial streams, ponds, lakes, wetlands in the contracted acres.

Consult appropriate standard for width requirements. Payments cannot be made for existing buffers. This is a one-time payment to establish the practice. As an alternative, these buffers can be enrolled in CRP; however the producer cannot receive payment under both CRP and EQIP for the same practice on the same land. Existing buffers are credited but cannot receive a payment for establishment.



656 - Constructed Wetland

Definition: An artificial ecosystem with hydrophytic vegetation for water treatment.

This practice is intended to be an alternative to the practice 587 Structure for Water Control described above. Once installed, this practice does not require the routine management that practice 587 requires.

In order to receive a payment for this supporting practice, a 656 Constructed Wetland must have been newly installed as part of this contract. If no wetland was installed then payment is not authorized. This is a one-time payment for constructing the wetland.

Definitions and Payment Considerations (continued)

587 - Structure for Water Control

Definition: A structure in a water management system that conveys water, controls the direction or rate of flow, maintains a desired water surface elevation or measures water.

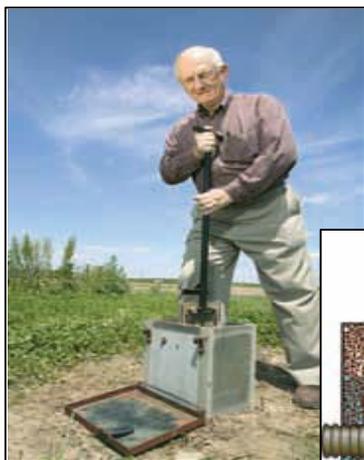
Stop log structures (below) can be utilized to manage the water discharge of a tile system. Another type of structure, called a blind inlet (right) can be utilized to replace tile riser surface inlets that allow direct entry of surface water into subsurface drainage systems. Blind inlets will dramatically reduce the nutrients entering the tile system. Consult the Blind Inlet Fact Sheet for details.

These are highly recommended if feasible as determined by an NRCS or DNR engineer. Payment will vary depending on the size and type of the structure needed. This is a one-time payment for installing the structure.



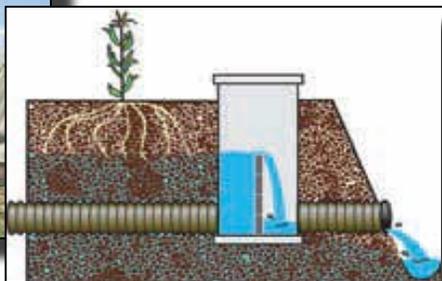
A tile riser surface inlet is being replaced by a blind inlet to reduce nutrient loading into the subsurface drainage

554 - Drainage Water Management



Definition: The process of managing water discharges from subsurface agricultural drainage systems.

In order to receive a payment for this supporting practice, a 587 Structure for Water Control must have been newly installed as part of this same contract. If no structure was installed then payment is not authorized.



As a management practice in EQIP, payment can be made for up to 3 years if needed to adopt the practice. Management will be recorded on the 554 Drainage Water Management job sheet following the guidance of the Purdue University publication WQ-44 "Questions and Answers - Drainage Water Management for the Mid-West".

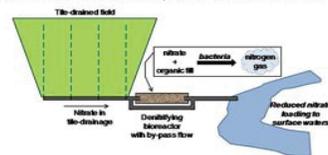
795 - Bio Reactor / Tile Discharge Filter

Definition: A structure containing a carbon source and/or phosphorus sorbent installed to intercept subsurface drain (tile) flow or ground water, and reduce the concentration of nitrate-nitrogen and soluble phosphorus.

This practice is intended to be an alternative to the practice 587 Structure for Water Control described above. In order to receive a payment for this supporting practice, a 795 Bio Reactor must have been newly installed as part of this same contract. If no bio reactor was installed then payment is not authorized.

Denitrification Bioreactors

- Biologically mediated reduction reaction
- $\text{NO}_3^- \rightarrow \text{NO}_2^- \rightarrow \text{NO} \rightarrow \text{N}_2\text{O} \rightarrow \text{N}_2$ gas
- Denitrifiers: anaerobic, need carbon and nitrate



Definitions and Payment Considerations (continued)



CAP 102 / CAP 104 - Nutrient Management Plan

Definition: A plan that documents the right source, the right rate, the right timing and the right placement of nutrients and soil amendments.

A Comprehensive Nutrient Management Plan (CNMP) is a conservation plan for livestock operations with confined feeding. In addition to the land application of all nutrients (manures and commercial fertilizers) CNMPs address the collection, storage and transport of manures in a way to protect the resources.

The 590 Nutrient Management practice standard and the CAP plan criteria (section III of Ohio eFOTG) are the guidance to be used in developing the plan. Technical Service Providers (TSPs) must meet the criteria, Ohio plan templates and the Purdue Manure Management Planner (MMP) can be used to facilitate meeting these requirements.

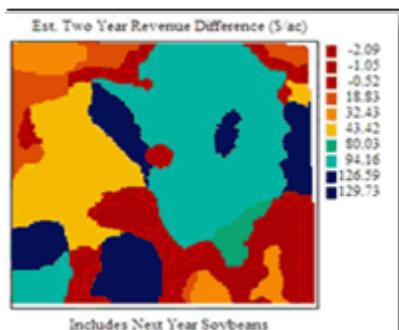
The purposes of a nutrient management plan are:

- 1) To adequately supply nutrients for plant production
- 2) To properly utilize manure or organic by-products as a plant nutrient source
- 3) To minimize agricultural nonpoint source pollution of surface and ground water resources
- 4) To improve chemical and biological condition of soil.

NOTE: The nutrient management plan should incorporate the supporting practices of this conservation system. Payments for Conservation Activity Plans (CAP 102 and 104) are one time payments for the development of the plan. Payments are based on Acres (Ac -CAP 104) or Animal Units (AU-CAP 102).

Precision Nutrient Management Plan using Variable Rate Technology (VRT) Definition: A nutrient management plan which utilizes GPS satellite technology or soil samples that were collected using a grid or zone sampling system.

Grid Sampling divides the field into square grids representing 2 - 6 acres. Several soil samples are pulled from each square in the grid and combined to form a composite sample representing that square. Lime, phosphorus and potassium can then be varied across the grid applying just the nutrients needed in each square. The grids cannot represent more than 6 acres.



Management Zones is a system which groups similar soil characteristics in a field as well as other factors of interest. For example, a common system of management zones overlays soils maps with crop yield maps. Polygons are then drawn around areas of the field that have similar soils and crop yield characteristics. Several soil samples are pulled from each zone and combined to form a composite sample representing that zone. Each zone must represent 12 acres or less. These zones are located using GPS technology. Lime, phosphorus and potassium can then be varied across the zones applying just the nutrients needed in each zone.

If a management zone method of sampling is utilized, the Precision Nutrient Management Plan, as well as GIS maps with geo-referenced biennial soil test reports must be submitted to the DC prior to the 590 Nutrient Management payment being issued.

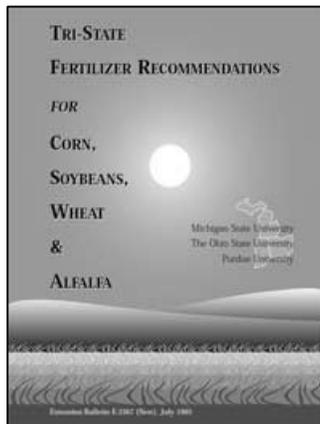
Definitions and Payment Considerations (continued)

590 - Nutrient Management

Definition: Managing the amount (rate), source, placement (method of application), and timing of plant nutrients and soil amendments (4R's of nutrient management). In order to receive a payment for this practice, the 590 Nutrient Management practice standard must be followed. In addition, there are other requirements under each level of nutrient management that must be followed as listed below:

Nutrient Management - Basic	Nutrient Management - Basic with Manure
<p>1) The OH 590 Nutrient Management practice standard must be followed.</p> <p>2) A basic nutrient management plan will be developed by a consultant or co-op that will clearly address the 4R's.</p> <p>3) Continue to soil test through the life of the contract (1 composite sample per 25ac. every 2 yrs.)</p> <p>4) Urease Inhibitors will be applied with UAN or Urea that is surface applied in the spring.</p> <p>5) Phosphorus and potassium application will not exceed Tri-State Fertility Guide (Ext. Bulletin E-2567) recommendations.</p> <p>6) Nitrogen rates will be based on the economic threshold models developed by Purdue or The Ohio State University.</p> <p>7) No commercial nitrogen will be fall applied (except incidental N in fertilizer blends)</p> <p>8) Fertilizer must be banded, injected, strip tilled, incorporated, or applied to a growing crop or cover crop.</p> <p>9) No nutrients will be applied on frozen or snow covered ground.</p> <p>10) Maintains accurate nutrient application records per field.</p> <p style="color: red; font-weight: bold;">As a management practice in EQIP this payment can be contracted for up to 3 years.</p>	<p>1) The OH 590 Nutrient Management practice standard must be followed.</p> <p>2) A basic nutrient management plan will be developed by a consultant or co-op that will clearly address the 4R's.</p> <p>3) *All appropriate setback distances and proper risk assessments results will be included and observed.</p> <p>4) No additional phosphorous (manure or commercial fertilizer) will be applied on fields with **STP > 200 lbs/Ac (100 ppm)</p> <p>5) Commercial phosphorus and potassium application will not exceed Tri-State Fertility Guide (Ext. Bulletin E-2567) recommendations</p> <p>6) Manure samples will be taken and analyzed with each emptying cycle of a storage facility.</p> <p>7) Soil samples will be taken and analyzed for each contracted field prior to receiving manure (1 composite sample per 25ac)</p> <p>8) No manure or fertilizer will be applied on frozen or snow covered ground</p> <p>9) Manure may be applied to a growing crop (includes cover crops) or may be injected. As an alternative, paths of preferential flow are required to be disrupted prior to liquid manure application with shallow tillage. Cover crops would then need to be planted to be able to maintain 30% residue cover, reduce erosion and recycle nutrients.</p> <p>10) Maintains accurate application records per field on all contracted acres</p> <p style="color: red; font-weight: bold;">As a management practice in EQIP this payment can be contracted for up to 3 years. *NRCS will provide the participant with an aerial photo delineating all setbacks for fields receiving manure.</p>
Nutrient Management - Enhanced	Nutrient Management - Enhanced with Manure
<p>Options 1* & 2**</p> <p>1) The OH 590 Nutrient Management practice standard must be followed.</p> <p>2) A geo-referenced Variable Rate Technology grid or zone precision nutrient management plan will be developed by a CCA or a TSP using the Ohio Templates. This plan will clearly address the 4R's. Supporting practices must be a component of the NMP.</p> <p>3) Continue to soil test through the life of the contract (Biennial geo-referenced soil tests).</p> <p>4) Urease Inhibitors will be applied with UAN or Urea that is surface applied in the spring.</p> <p>5) Phosphorus and potassium application will not exceed Tri-State Fertility Guide (Ext. Bulletin E-2567) recommendations.</p> <p>6) Nitrogen rates will be based on the economic threshold models developed by Purdue or The Ohio State University.</p> <p>7) No commercial nitrogen will be fall applied (except incidental N in fertilizer blends)</p> <p>8) Fertilizer must be banded, injected, strip tilled, incorporated, or applied to a growing crop or cover crop.</p> <p>9) No nutrients will be applied on frozen or snow covered ground.</p> <p>10) Lime, phosphorus and potassium are applied according to the VRT nutrient management plan developed above</p> <p>11) Maintains accurate nutrient application records per field.</p> <p>12) Phosphorus must be applied to a growing crop or cover crop. As an alternative it can be banded, injected, or strip tilled</p> <p>Option 2** Fertilizer must be banded 4-7 " deep using a strip till or similar unit</p> <p style="color: red; font-weight: bold;">As a management practice in EQIP this payment can be contracted for up to 3 years. This payment can be contracted for up to 3 years .</p>	<p>Options 1* & 2**</p> <p>1) The OH 590 Nutrient Management practice standard must be followed.</p> <p>2) A geo-referenced Variable Rate Technology grid or zone comprehensive nutrient management plan (CNMP) will be developed by a Certified CNMP Specialist or a TSP using the Ohio Templates. This plan will clearly address the 4R's.</p> <p>3) All appropriate setback distances and proper risk assessments results will be included and observed.</p> <p>4) No additional phosphorous (manure or commercial fertilizer) will be applied on fields that have phosphorous soil test levels higher than 200 pounds per acre (100 ppm)</p> <p>5) Commercial phosphorus and potassium application will not exceed Tri-State Fertility Guide (Ext. Bulletin E-2567) recommendations.</p> <p>6) Manure samples will be taken and analyzed with each emptying cycle of a storage facility.</p> <p>7) Geo-referenced soil samples will be taken and analyzed for each contracted field prior to receiving manure (1 composite sample per 25ac).</p> <p>8) No manure or fertilizer will be applied on frozen or snow covered ground</p> <p>9) Manure may be applied to a growing crop (includes cover crops) or may be injected. As an alternative, paths of preferential flow are required to be disrupted prior to liquid manure application with shallow tillage. Cover crops would then need to be planted to be able to maintain 30% residue cover, reduce erosion and recycle nutrients.</p> <p>10) Maintains accurate application records per field on all contracted acres</p> <p>Option 2** Manure must be banded 4-7 inches deep</p> <p style="color: red; font-weight: bold;">This payment can be contracted for up to 3 years *NRCS will provide the participant with an aerial photo delineating all setbacks for fields</p>

Definitions and Payment Considerations (continued)



Tri-State Fertility Guide:

Definition: The Tri-State Fertility Guide (Extension Bulletin E-2567) is a publication developed by Ohio, Indiana, and Michigan. Among other things, it provides lime, phosphorus and potassium nutrient recommendations for corn, soybean, small grain, and meadow crops. The Tri-State Fertility Guide should be used to set the maximum rate of phosphorus and potassium based on soil test values and crop removal rates. Nitrogen rates should be based on current economic threshold models from Purdue University and The Ohio State University.

Soil Testing

Definition: The analysis of a soil sample to determine nutrient content, composition and other characteristics. Tests are usually performed to measure pH, fertility and indicate deficiencies that need to be remedied.

A regular soil test is a composite of 15-20 soil samples that are combined and mixed thoroughly. A sample is then sent for analysis. The report from the analysis is used to determine the rate of lime and nutrients based on the soil test values and the crop to be grown. The composite sample must represent 25 acres or less. Sampling should be done at the same time of the year (spring or fall) to get more reliable results. Soil tests taken soon after nutrient application may produce high (inaccurate) nutrient results.

634 – Waste Transfer:

Definition: Transferring animal manure from the waste storage facility to outlying fields that have a soil test phosphorus value less than 100 lbs per acre (50ppm). This practice is to be utilized when soil test phosphorus levels are above 200 lbs per acre (100ppm) on fields typically used for manure application. In order to receive a payment for this practice, the OH 634 Manure Transfer practice standard and records must be maintained.

Recordkeeping will include such items as:

- The type, nutrient content, and amount of manure transferred,
- The solids percentage of the manure.
- Whether the manure was transported to a different operation and if so to whom.
- The date of the transfer,
- The type and size of equipment used to haul the manure.
- The number of loads transported.

If the manure being hauled is solid, use Ohio Manure Stockpiling Jobsheet.

NOTE: Under the Nutrient Management - Enhanced with Manure: a Comprehensive Nutrient Management Plan (CNMP) will be developed for the entire operation receiving manure. Manure will be transported and applied according to the CNMP and Nutrient Management Plan. In addition, the producer must maintain and submit to the DC accurate hauling records. As a management practice in EQIP, payment can be made for up to 3 years if needed to adopt the practice.



Definitions and Payment Considerations (continued)

720- Controlled Traffic Farming (CTF):

Definition: Controlled Traffic Farming is confining all high wheel load traffic in the farming system to the same set of wheel tracks year after year. The result limits compaction to the wheel tracks and reduces soil compaction outside of the tracks for improved water infiltration and crop growth. The 720 Interim Controlled Traffic Farming practice standard must be followed keeping traffic lanes to less than 50% of the surface area.

High wheel load traffic is defined as any tire or track that bears a higher load than 6000 pounds at 30 psi (equivalent to 6 tons per axle). Equipment with duals would need to reduce the load to 3000 pounds per tire to maintain the 6 tons per axle.

Keep in mind that compaction is greatly impacted by soil texture and soil moisture. A trip across the field in a pickup truck on a coarse textured soil under dry conditions would suffer very little by compaction. Whereas that same truck across a heavy moist soil can cause a great deal of compaction. It is best to use the permanent wheel tracks for all field operations if you are serious about controlling compaction. Studies have shown that in conventional farming, up to 85% of the field becomes compacted from heavy machinery. Compaction causes a decreased soil infiltration, a decrease in the air and water holding capacity in the soil, higher water runoff and soil erosion, and decreased yields.



Controlled Traffic Farming requires modifying equipment so that tire spacing center to center match, allowing tires to run on the same permanent wheel tracks. Operators must commit to driving down the same tramlines for each field operation year after year. The most effective way is to use a Real Time Kinematic (RTK) auto steer system that ensures accuracy. All high load traffic must utilize the established tramlines. Once the tracks are established and clearly visible, some field operations such as broadcasting fertilizer, won't need the RTK accuracy. Other field operations such as nutrient banding, strip tillage, side dressing, planting, spraying and harvesting will benefit from that accuracy.

NOTE: If the controlled traffic option is chosen as part of this Soil Health and Water Quality System, a GIS map showing the traffic pattern must be presented to the DC before payment will be issued. RTK / GPS auto steer technology must be utilized throughout the life of the contract. RTK systems only will be considered. This is subject to spot checks.

Definitions and Payment Considerations (continued)

801 - Amending Soil Properties with Gypsiferous Products

Definition: Using gypsum (calcium sulfate dihydrate) derived products to change the physical and/or chemical properties of soil. Research has indicated that the application of gypsum on some soils changes the physical/chemical properties of the soils that results in reduced soil erosion rate, increased water infiltration and reduced dissolved reactive phosphorus (DRP) losses over time. With interim conservation practice standard 801 (Amending Soil Properties with Gypsiferous Products) an evaluation of this practice will be made to determine if a permanent conservation practice should be created.



Application rates should be made in accordance with the flow chart (fig. 1). After each application is made additional applications may be needed but should only be made after a reevaluation of the soil test results from the next soil sample in the existing soil test cycle. If the flow chart (fig. 1) indicates that no application is needed an application of gypsum at this time may not be cost effected or increase the risk of other changes that may result in negative effects to crop production.



Management Strategies

Applications of gypsum should be a part of a larger comprehensive management strategy to improve soil health and protect the resources. By implementing a soil health system that maximizes plant diversity (to improve soil biological diversity), keep the soil covered, disturb soil with tillage as little as possible and keep something growing as much as possible by utilizing cover crops should be the first and most effective way to improve soil health. Application of gypsum on soils that meet the requirements in fig 1 that continue to have poor soil health such as surface crusting, poor aggregate stability, lack of pore space and poor water infiltration may benefit from these applications.

Fig 1: Flow chart to be used to determine correct application rate of gypsum on non-sodic soils. Application should be based on a current soil sample, additional applications may be needed but should be based on the next soil sample after application (maintain current soil sample cycle). With additional applications start over with flow chart to determine correct rate.

