

NUTRIENT & WASTE MANAGEMENT (CSP Enhancements) January 2006

Enhancement Activity Task Sheet UT-CSP-ENM



Enhancement Activities

Enhancements activities are actions that provide resource benefits beyond the level prescribed by NRCS Conservation Practice Standards. Once implemented, Enhancement Activities result in an observable or measurable improvement to the condition of one or more of the soil, water, air, plant, or animal resources, or provide for more efficient resource utilization and/or energy conservation.

Enhancement Activity Benefits

Enhancement activities associated with Nutrient & Waste Management such as applying manure only on land that isn't frozen or snow covered, not applying manure on fields with soil test phosphorus (STP) greater than 50 ppm, using manure on land that hasn't been used for manure application before, including alfalfa in a dry land rotation, or using split applications of nitrogen, can result in the following benefits to the producer and the environment:

- Improved soil health

- Cleaner ground and surface water
- Fewer complaints about odors
- Improved yields over more acres
- Less reliance on commercial fertilizer
- Reduced costs

CSP Payments

You can earn payments by participating in any of the following activities:

- Prevent runoff of nutrients by composting animal manure and utilizing it as bedding
- Prevent runoff of nutrients by properly applying animal manure or compost as a nutrient source on fields with Soil Test Phosphorus (STP) < 15 ppm
- Increase accuracy of animal manure applications through the use of manure testing twice yearly within 45 days of application
- Prevent runoff of nutrients and build up of nutrients by not applying manure on fields with Soil Test Phosphorus (STP) > 50 ppm
- Reduce odors, runoff of nutrients, and volatilization of nitrogen by incorporating manure within 24 hours of application (based on actual acres applied to)
- Increase accuracy of nutrient application or forage balance by collecting accurate yield and/or quality data (cropland & pastureland only)
- Improve precision of nutrient applications by performing additional soil testing beyond that required by the standard



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- Improve nutrient cycling by including alfalfa in dryland rotations
- Reduce nitrogen volatilization, nitrate leaching and better match crop uptake by using split nitrogen or controlled release nitrogen applications
- Manage runoff of pollutants by widening and managing field borders or filter strips

CSP Enhancement earnings are subject to payment caps. Your actual payment will depend on your CSP Tier level and the number of acres enrolled.

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Client's Acknowledgement Statement:

I have elected to use the following Nutrient Management activities and understand the requirements of the selected activities (Check all that apply):

- Prevent runoff of nutrients by composting animal manure and utilizing it as bedding (Worksheet 1)
- Prevent runoff of nutrients by properly applying animal manure or compost as a nutrient source on fields with Soil Test Phosphorus (STP) < 15 ppm (Worksheet 2)
- Increase accuracy of animal manure applications through the use of manure testing twice yearly within 45 days of application (Worksheet 3)
- Prevent runoff of nutrients and build up of nutrients by not applying manure on fields with Soil Test Phosphorus (STP) > 50 ppm (Worksheet 4)
- Reduce odors, runoff of nutrients, and volatilization of nitrogen by incorporating manure within 24 hours of application (based on actual acres applied to) (Worksheet 5)
- Increase accuracy of nutrient application or forage balance by collecting accurate yield and/or quality data (cropland & pastureland only) (Worksheet 6)
- Improve precision of nutrient applications by performing additional soil testing beyond that required by the standard (Worksheet 7)
- Improve nutrient cycling by including alfalfa in dryland rotations (Worksheet 8)
- Reduce nitrogen volatilization, nitrate leaching and better match crop uptake by using split nitrogen or controlled release nitrogen applications (Worksheet 9)
- Manage runoff of pollutants by widening and managing filter strips (Worksheet 10)

I agree that the following information will be provided to NRCS upon request:

- Written documentation of the activity performed (use attached worksheets or equivalent).
- Copies of dated weigh slips or receipts for equipment or services purchased.

I understand that CSP Enhancements earnings are subject to payment caps and that my actual payments will depend on my CSP Tier level and the number of acres enrolled.

I understand that it is my responsibility to obtain all necessary permits and to comply with all ordinances and laws pertaining to the application of these activities.

Accepted by: /s/ _____ Date: _____



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Name: _____

Worksheet 1 - Prevent runoff of nutrients by composting animal manure and utilizing it as bedding

Payment = \$1000/year for composting animal manure and utilizing it as bedding.

- Volume reduction of manure (40% – 65%)
- Reduce moisture content of manure by 30% (less transportation costs)
- Compost is a slow release fertilizer (more stable form of organic fertilizer)
- Reduces or eliminates cost of purchasing bedding material
- Concentrates nutrients, less material to apply per acre
- Drier product reduces chance of nutrient runoff
- Value added product

Use this table to document composting and percent utilization.

Number of Animals Operation	Animal Units	Cubic Yards or/ Tons Produced	Cubic Yards or Tons Composted	Percent Compost Used for Bedding
50,000 turkeys	1,000	7,000	200	0%
700 dairy cows	980	17,000	17,000	40%

Example

Utilizing Composted Animal Manure as Bedding Certification

I certify that I have used composted manure for bedding as listed in the table above.

Name: _____ Date: _____



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Worksheet 2 - Prevent runoff of nutrients by applying animal manure or compost as a nutrient source on fields with Soil Test Phosphorus (STP) < 15 ppm

Payment = \$15/acre to properly apply animal manure or compost on fields with soil test phosphorus less than 15 ppm

- Improved utilization of manures and compost provided many positive attributes: Reducing potential environmental contamination, increasing organic matter, provides a stable form of nutrients, stabilizing soil aggregates, increasing diversity of microbial activity, addition of micronutrients.
- Properly applying means to apply manure at a rate within 75% -100% of the amount required to meet the phosphorus needs of the crop being grown.
- To determine your application rate you will need to visit the NRCS office and ask for an Animal Manure Nutrient Balance Spread Sheet Analysis tailored to your farm. (soil test, animal units, crops acreage, yield, crop rotation, and crop nutrient utilization will be needed)
- Attach soil test for each field.

Use this table to document field location, soil test, and application information.

Tract & Field # or Name	Acres	STP ppm	Type of Manure	Tons / Acre Applied
T 980 -1	20	12	Poultry	5
Brown 20	36	8	Dairy Cow	25

Applying Animal Manure on fields < STP 15 ppm Certification

I certify that I properly applied animal manure on field(s) that were less than 15 ppm phosphorus as listed in the table above.

Name: _____ Date: _____



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Worksheet 3 - Increase accuracy of animal manure applications through the use of manure testing twice yearly within 45 days of application

Payment = \$200/year for testing of animal manure twice yearly within 45 days of application

- Testing manure increases accuracy of nutrients being applied to the field
- Obtaining real and accurate data rather than book or average values.
- Testing manure at different times of the year will reflect the effect of the climate on stored manure. Summer stored manure has less nitrogen, lower water content, and lower carbon content than winter stored manure.
- Attach lab test to worksheet
- Use a testing lab that meets the requirements of the North American Proficiency Testing-Performance Assessment Program (NAPT-PAP). The list of NAPT-PAP labs can be found at the following website: <http://www.NAPT-PAP.org>

Use this table to document dates, manure testing lab used, and manure type.

Sampling Date	Application Date	Soil Testing Lab	Manure Type
3/15	4/15	Utah State University	Dairy
10/12	11/25	Western Labs	Dairy

Example

Manure Testing Twice Annually Certification

I certify that I tested animal manure twice yearly within 45 days of application as listed in the table above.

Name: _____ Date: _____



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Worksheet 4 - Prevent runoff of nutrients and build up of nutrients by not applying manure on fields with Soil Test Phosphorus (STP) > 50 ppm

Payment = \$10/acre to not apply manure on fields that have soil test phosphorus levels greater than 50 ppm phosphorus

- When soil test phosphorus levels are above 50 ppm there is a high risk of nutrients leaving the field in the surface water. Nutrients attached to eroding soil particles constitute the highest risk of potential contamination.
- If fields with lower soil test phosphorus are not available, find alternative use such as selling or applying manure to off-site fields, utilizing manure as feed or bedding, or composting manure and selling off-site.
- Properly applying means to apply manure at a rate within 75% -100% of the amount required to meet the phosphorus needs of the crop being grown.
- To determine your application rate you will need to visit the NRCS office and ask for an Animal Manure Nutrient Balance Spread Sheet Analysis tailored to your farm. (soil test, animal units, crops acreage, yield, crop rotation, and crop nutrient utilization will be needed)
- Attach soil test for each field.

Use this table to document fields with soil test phosphorus levels over 50 ppm where manure was not applied.

Tract & Field # or Name	Acres	Crop Grown	Date of Test	Soil Test Phosphorus
T486 – 2	120	Winter Wheat	9/1/04	85
North 40	30	Oats	3/15/04	102

No Manure Application on Fields with STP > 50 ppm Certification

I certify that I did not apply manure on any field(s) with STP levels over 50 ppm as listed above.

Name: _____ Date: _____



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Worksheet 5 - Reduce odors, runoff of nutrients, and volatilization of nitrogen by incorporating manure within 24 hours of application (based on actual acres applied to)

Payment = \$8/acre to incorporate manure within 24 hours of application to reduce odors, the loss of nitrogen from volatilization, and reduce risk of nutrients being lost in runoff.

- Incorporating manure within 24 hours after it is applied reduces odors
- Manure incorporation reduces the risk of nutrients running off the field during snow melt, rainstorm, or irrigations in either solution or attached to soil particles.
- Immediate manure incorporation, particularly when temperatures are above 50 degrees, reduces nitrogen volatilization.
- Incorporation means with tillage or irrigation

Use this table to document fields, acres, incorporation methods, and dates where manure was incorporated within 24 hours of application.

	Tract & Field # or Name	Acres	Implement Used	Date applied	Date Incorporated
<i>Example</i>	T486 – 1	120	Moldboard Plow	Oct 14,15,16	Oct 15,16,17
	Brown 20	30	Wheel line	April 10-17	April 11-18

Manure Incorporation Within 24 Hours of Application Certification

I certify that I incorporated manure within 24 hours of application on the field(s) and acres listed above.

Name: _____ Date: _____



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Name: _____

Worksheet 6 - Increase accuracy of nutrient application or forage balance by collecting accurate yield and/or quality data (cropland & pastureland only)

Payment = \$500/year for collection of accurate yields and/or quality data on cropland, hayland, and pasture.

- Accurate yield data helps managers understand the effects of fertilizers, irrigation water management, tillage, and other cultural practices. It also helps in making decisions that improve operation efficiency and meet production goals while protecting the environment.
- Weigh slips from commercial scales or representative field sample weights using hand scales and measurement of volumes or counts will be used to determine yield data.
- Records must show yields, bushel weights and/or grain grades for small grains.
- Forages will be analyzed using Near Infrared Reflectance Spectroscopy (NIRS) to determine crude protein, acid detergent fiber, and Relative Feed Value (RFV) for hay. Crude protein, acid detergent fiber and net energy gain information will be determined for silages.
- Pastures will be clipped prior to grazing using a pre-measured plot size to estimate yields. Grazing management records must show the clipping information as well grazing dates, stocking rates, and grazing stubble heights.

Use this table to document crops grown, yield, forage quality, and fertilizer use.

Example

Tract & Field #s or Name	Acres	Crop Grown	Yield (bu/ac or tons/ac)	Bushel weight, RFV, or lbs/ac	Fertilizer Application
T123 Field 3	80	Winter Wheat	85	61 lbs/bu	125 lbs N/A
North 40	50	Alfalfa hay	6	18% CP, 152 RFV	100 lbs P/A, 50 lbs K/A
River pasture	20	Grass / Legume	4	Attach grazing records	Manure 20 T/A

Accurate Yield and/or Quality Data Certification

I certify that I collected accurate yield and/or quality data on the field(s) and acres listed above.

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Worksheet 7 - Improve precision of nutrient applications by performing additional soil testing beyond that required by the standard

Payment = \$1/acre for additional soil testing beyond that required by the 590 National standard to improve accuracy of nutrient application to avoid under or excess application of nutrients

- Soil test fields not tested within the last 5 years where nutrients have not been applied.
- Take 2-4 foot deep samples for improved nutrient information.
- Take soil tests to determine micronutrient levels.
- Use Utah State University soil testing procedures as found in the Utah Fertilizer Guide.
- Use a soil testing lab that meets the requirements of the North American Proficiency Testing-Performance Assessment Program (NAPT-PAP). The list of NAPT-PAP labs can be found at the following website: <http://www.NAPT-PAP.org>
- Attach soil test and recommendations for the fields listed below.

Use this table to document additional soil tests.

Tract & Field # or Name	Date of Sample	Acres	Crop Grown	Purpose of Test
T123, Field 3	4/1/05	80	Winter Wheat	2 foot N Sample

Additional Soil Testing Certification

I certify that I have taken additional soil tests on the field(s) listed above.

Name: _____ Date: _____



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Name: _____

Worksheet 9 - Reduce nitrogen volatilization, nitrate leaching and better match crop uptake by using split nitrogen or controlled release nitrogen applications

Payment = \$5/acre on acreage where split applications or controlled-release nitrogen (e.g., fall and spring in winter wheat production) are used

- Split application is the process of matching nitrogen supply with crop uptake during the growth periods. Initial nutrients will be 50% or less of the total projected needs with the remainder applied during at least one other growth period and based on soil and/or plant tissue testing (e.g. fall or spring preplant, side dressing or foliar application with pesticides or fertigation).
- Nitrification inhibitors: (N-Serve) or dicyandiamide inhibits organisms involved in the conversion of ammonium to nitrate.
- Urease inhibitors: Agrotain (NBPT) inhibits the urease enzyme that converts urea to ammonia.
- Polymer-coated Fertilizers, Sulfur-coated urea, etc.

Use this table to document split applications or controlled-release applications.

Tract & Field #s or Names	Acres	Crop	Amount and Date of 1 st application	Amount and Date of 2 nd application
Example T486 – 1	120	Winter Wheat	40 lbs N, 9/5	100 lbs N - 4/1
East 160	160	Winter Wheat	N-Serve, 4 /1	

Split Application/Controlled Release-Nitrogen Certification

I certify that I have used split applications of nitrogen or nitrification inhibitors on the field(s) listed in the table above.

Name: _____ Date: _____

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Worksheet 10 - Manage runoff of pollutants by widening and managing field borders or filter strips

Payment = \$250/acre for each acre of field border or filter strip widened and managed

- Borders or filter strips act as a buffer to intercept contaminants thereby enhancing water quality. They filter out sediment, organic material, fertilizer, pesticides, and other pollutants that may adversely impact water sources, including shallow ground water.
- Seeding rates, selection of species and methods of planting the buffer must be consistent with information contained in the Intermountain Planting Guide.
- The strip or border should be left un-harvested during water flow periods. Grazing or harvesting outside of this time is permitted if one foot of plant height is left and soil moisture condition support livestock or vehicle traffic.
- Locate borders in areas where runoff enters or leaves the fields.
- Filter strip/field borders shall be in permanent (grasses & legumes) vegetation.
- Minimum / maximum strip widths for crop fields:

Slope	Minimum Width	Maximum Width
1-3 %	30 feet	90 feet
4-7 %	40 feet	120 feet
8-10 %	50 feet	150 feet

- Minimum / maximum strip widths adjacent to livestock containment areas:

Slope	Minimum Width	Maximum Width
1-3 %	85 feet	170 feet
4-7 %	110 feet	220 feet
8-10 %	210 feet	300 feet



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Use photos or conservation plan map and this table to document border or filter strip location and management.

Example

Tract & Field # or Name	Acres in filter strip	Slope & Width of Border/Strip	Plant Material Used and Management
T1114 -2	.75	1% - 30 feet	Tall Fescue & Orchardgrass Mix: O&M records, Grazed properly 8/15-9/1

Filter Strip or Border Widening and Maintenance Certification

I certify that I have managed runoff of pollutants by widening and managing field borders or filter strips on the field(s) listed in the table above.

Name: _____ Date: _____