

Clarifications for Wildlife/Habitat Enhancement Activities and CMT Questions

The purpose of this document is to provide additional information concerning wildlife and/or habitat for the CSP. This document is separated into three: 1) General clarifications, 2) CMT question clarifications, and 3) Enhancement Activity clarifications.

General Clarifications

The "Primary Nesting Season" is defined as May 1 through August 1 of any year (the fawning season is considered to coincide with the nesting season.)

A "Wildlife Management Plan" is a conservation Plan emphasizing wildlife and wildlife habitat management actions.

Conservation Measurement Tool (CMT) Wildlife/Habitat Question Clarifications

Crop and Hayland Benchmark Ranking Questions

- Q #5** Most likely not applicable in South Dakota.
- Q #6** No clarification required.
- Q #7** For 7.1, introduced plant species are any nonnative plants not limited to those on the A and B lists.
- Q #8** No clarification required.

Pastureland Benchmark Ranking Questions

- Q #4** No clarification required.
- Q #5** For 5.1, introduced plant species are any nonnative plants not limited to those on the A and B lists.

Rangeland Benchmark Ranking Questions

- Q #4** Refer to "Water for Wildlife: A Handbook for Ranchers and Range Managers," Bat Conservation International – mailed to FO's in December 2008.
- Q #5** No clarification required.
- Q #6** Refer to enhancement activity ANM19 (below) for wildlife Conservation Plant fencing.

Water Bodies/Water Courses Benchmark Ranking Questions

- Q #1** Natural vegetation includes any vegetation (native or tame).
- Q #2** Vegetated buffer ncludes any vegetation (native or tame).
- Q #3** No clarification required.
- Q #4** No clarification required.
- Q #5** Natural vegetation includes any vegetation (native or tame).
- Q #6** Natural vegetation includes any vegetation (native or tame).

Enhancement Activity Supplement

For all enhancement activities involving planting/seeding refer to Range Technical Note Number 4 for "Seeding Dates" and "Seeding Rates".

AIR02 Nitrogen Stabilizers for Air Emissions Control

Note: Examples of these products are N-serve, Instinct or Agrotain. Label information will be required to properly identify trade name products.

AIR04 Use drift reducing nozzles, low pressures, lower boom height, and adjuvants to reduce pesticide drift

Note: Examples of nozzles are: Raindrop, DriftGuard, Turbo Tee Jet, Turbo Flood, Turbo Drop and Air Induction (AI Tee Jet). Drift . Label information for all drift reduction adjuvants will be required to properly identify trade name products.

ANM01 Drainage water management for seasonal wildlife habitat

CP 554 - During the noncropped season, the elevation of the drainage outlet shall be managed in a manner consistent with a habitat evaluation procedure that addresses targeted species (e.g waterfowl or shorebirds)

ANM02 Defer crop production on temporary and seasonal wetlands

Spring migratory bird season is April 15 through June 15

ANM03 Incorporate native grasses and/or legumes into 15% or more of the forage base

This enhancement applies to pastureland only. Use only native grasses and/or legumes (native legumes, introduced legumes, or a combination of native and introduced legumes) from List A (the Wildlife Conservation Plant List).

Native grass option:

Seed 100 percent native grasses (or a combination of cool-season native grasses combined with legumes at a rate of up to 50 percent of the full seeding rate for the legume species) as a reseeded on 15 percent of the acreage in the system. Follow current South Dakota (SD) technical guidance (Conservation Practice Standard (CPS) Pasture and Hayland Planting (512) and Range Technical Note No. 4) for establishing a new stand.

Legume option:

Interseed 50 percent of a full seeding rate for the legume(s) following the Stand Enhancement (Section 3 of Range Technical Note No. 4) guidance in the current SD technical guidance (CPS Pasture and Hayland Planting (512) and Range Technical Note No. 4) on 15 percent of the acreage in the system.

In addition, follow the CPS Prescribed Grazing (528) for management of the fields in the system.

Species allowed for use with this enhancement include: Species allowed for use with this enhancement include: Alfalfa, alkali sacaton, alsike clover, American vetch, basin wildrye, beardless wildrye, big bluestem, blue grama, Canada milkvetch, Canada wildrye, green needlegrass, hairy vetch, Illinois bundleflower, Indiangrass, little bluestem, mountain brome, Nuttall's alkaligrass, prairie cordgrass, prairie sandreed, purple prairie clover, red clover, sand bluestem, sand lovegrass, sainfoin, sideoats grama, slender wheatgrass (including bearded wheatgrass), strawberry clover, sweetclover, switchgrass, thickspike wheatgrass, Virginia wildrye, western wheatgrass, white clover, and white prairie clover.

ANM04 Extend existing filter strips for water quality protection and wildlife habitat

Existing buffer (meeting NRCS standards) must be at least 20 feet wide.

The total buffer width (existing plus extended) shall not exceed 60 feet.

The following species are a list of acceptable RHIZOMATOUS grass species:

Indiangrass; bluestem (big and sand); prairie sandreed; switchgrass; western wheatgrass; thickspike wheatgrass; prairie cordgrass; and intermediate wheatgrass [inland saltgrass and bluejoint reedgrass may be used but availability is extremely limited].

The following species are list of acceptable BUNCH grass species:
wildrye (Canada and Virginia); Needleandthread; green needlegrass; little bluestem; tall wheatgrass; and alkali sacaton.[porcupine grass may be used but availability is extremely limited].

The mix must contain at least 5 species of which 2 species be grasses (a minimum of 10% to constitute a species).

The mix must contain at least 90% rhizomatous grass species from the list above.

The mix may contain 10% or less bunch grass species from the list above.

The mix may contain 10% or less native legumes from the "A-List" plant species.

No shrubs or trees are allowed.

No plants from the "B-List" are allowed.

The buffer can be widened on one or both sides of the filter strip if the participant controls both sides.

After establishment, filter areas should be mowed or grazed periodically (every two to five years) to maintain plant vigor. Mowing or grazing should be done outside of the primary nesting season. If livestock have access to the filter area, it must be fenced to control grazing. Where grazing is used for maintenance, grazing will be done with high animal densities for a short period of time, i.e., five to six animal units/acre, for three to five days.

ANM05 Extending riparian forest buffers for water quality protection and wildlife habitat

The minimum buffer width shall be measured horizontally on a line perpendicular to the water body beginning at the normal water line, bank-full elevation, or the top of the bank as determined locally.

If the floodplain is greater than 333 feet wide then the minimum buffer width is 100 feet. If the floodplain is less than 116 feet then the minimum buffer width is 35 feet. If the floodplain is between 116 feet and 333 feet then the minimum buffer width is 30 percent of the floodplain.

Majority is defined as greater than 50 percent. 60 percent canopy closure is defined as sunlight "speckles the ground."

Within South Dakota, no fruit/nut bearing trees are capable of reaching 60 feet in height therefore this criteria does not apply to South Dakota.

Native woody species from the "Wildlife Conservation Plant" List excluding conifers.

The buffer can be widened on one or both sides of the filter strip if the participant controls both sides.

ANM06 Extending existing riparian herbaceous cover for water quality protection and wildlife habitat

Existing buffer (meeting NRCS standards) must be at least 20 feet wide.

The total buffer width (existing plus extended) shall not exceed 60 feet.

Use any grass and forb/legume species off of the "Wildlife Conservation Plant" List". This activity is not applicable on

The mix must contain at least 5 species of which 3 species must be native grass or sedge species and at least 1 native forb species (a minimum of 10% to constitute a species).

At least 50% of each planting mix shall be rhizomatous or moderately rhizomatous grass or sedge species.

The following species are a list of accpetable RHIZOMATOUS grass species:
Indiangrass; bluestem (big and sand); prairie sandreed; switchgrass; western wheatgrass; thickspike wheatgrass; prairie cordgrass; and intermediate wheatgrass [inland saltgrass and bluejoint reedgrass may be used but availability is extremely limited].

No shrubs or trees are allowed.
No plants from the "B-List" are allowed.

The buffer can be widened on one or both sides of the filter strip if the participant controls both sides.
Minimum width per side shall be at least 35 feet and include the first bench of the floodplain or at least 2.5 times the stream width (based on the horizontal distance between bankfull elevations. The minimum width for other water bodies shall be 35 feet.

ANM07 Extending existing field borders for water quality protection and wildlife habitat

Existing buffer (meeting NRCS standards) must be at least 20 feet wide.

The total buffer width (existing plus extended) shall not exceed 60 feet.

The following species are a list of acceptable RHIZOMATOUS grass species:
Indiangrass; bluestem (big and sand); prairie sandreed; switchgrass; western wheatgrass; thickspike wheatgrass; prairie cordgrass; and intermediate wheatgrass [inland saltgrass and bluejoint reedgrass may be used but availability is extremely limited].

The following species are list of acceptable BUNCH grass species:
wildrye (Canada and Virginia); Needleandthread; green needlegrass; little bluestem; tall wheatgrass; and alkali sacaton.[porcupine grass may be used but availability is extremely limited].

The mix must contain at least 5 species of which 2 species be grasses (a minimum of 10% to constitute a species).

The mix must contain at least 90% rhizomatous grass species from the list above.

The mix may contain 10% or less bunch grass species from the list above.

The mix may contain 10% or less native legumes from the "A-List" plant species.

No shrubs or trees are allowed.

No plants from the "B-List" are allowed.

The buffer can be widened on one or both sides of the filter strip if the participant controls both sides.

ANM08 Improve the plant diversity and structure of noncropped areas for wildlife food and habitat

Use only native "Wildlife Conservation Plant" List grass and forb species.

Woody species from the "Wildlife Conservation Plant" List may be used provided they are native to the ecological site.

No plants from the "B-List" are allowed.

Invasive and exotic speices must be conrolled.

ANM09 Grazing management to improve wildlife habitat

Minimum vegetation heights in the grazing management plan will be according to the SD NRCS Prescribed Grazing (528) Standard, Table 3.0. May need to follow the 528 CPS in full.

Defering 1/3 of grazing land each year CAN occur on the same field every year.

ANM10 Harvest hay in a manner that allows wildlife to flush and escape

The producer has to at least select Optioon A (Defer haying). If the producer is not going to hay during the nesting season then they do not need to select any choice under Option B.

Hay and/or grass are cut before May 1 and/or after August 1.

If flushing bar is proposed then see "Flushing Bar Design" document for further details.

ANM11 Patch-burning to enhance wildlife habitat

Follow CPS 528 and 338.

ANM12 Shallow water habitat

Late winter through early summer water retention period varies due to weather/climate patterns and site conditions/location. Surface water shall be present during the period of March 1 thru June 30.

Shallow Water Deveolpment and Management (CP 646) is not available in SD -- National Standard only.

ANM13 Non-forested riparian zone enhancement for fish and wildlife

Use only native "Wildlife Conservation Plant" List species.

A "well-vegetated" riparian zone includes a diverse mix of native speices of which at least 2 grasses and 2 forbs; 2 native shrubs may be included if the shrubs are native to the ecological site.

Minimum vegetation heights in the grazing management plan will be according to the SD NRCS Prescribed Grazing (528) Standard, Table 3.0.

Refer to ANM19 for wildlife Conservation Plant fencing options.

ANM14 Riparian forest buffer, terrestrial and aquatic wildlife habitat

Use only native "Wildlife Conservation Plant" List species.

Maintain a "diversity" of tree, shrub and herbaceous species means a mix of native speices of which at least 1 tree, 2 shrubs, 2 grasses and 2 forbs native to the ecological site.

Minimum vegetation heights in the grazing management plan will be according to the SD NRCS Prescribed Grazing (528) Standard, Table 3.0.

Refer to ANM19 for wildlife Conservation Plant fencing options.

Wildlife artificial nesting structure (bat boxes, duck boxes, bird boxes, etc.) design criteria can be found in:

1. "Artificial Nesting Structures, Fish and Wildlife Habitat Management Leaflet Number 20 (NRCS Wildlife Habitat Management Institute 2004) – attached.
2. "Water for Wildlife: A Handbook for Ranchers and Range Managers," Bat Conservation International – mailed to FO's in December 2008.

ANM15 Forest stand improvement for habitat and soil quality

This enhancement is only applicable to true forest stands on forestland.

For SD forests the following is required:

The minimum number of snags greater than 10 inches diameter at breast height is 2 to 5 per acre.

The minimum number of snags 4 to 10 inches diameter at breast height is 5 per acre.

The minimum number of dead and down logs is 5 per acre and these logs must be greater than 10 inches diamter at breast height.

There is no "den" trees in SD; however, snag trees can be used by cavity nesting critters (birds; bobcats; squirrels and other small mammals).

ANM 17 Monitoring nutritional status of livestock using the NUTBAL PRO System

Forage analysis must be fecal analysis from GANLAB, or wet chemistry analysis of forage from an accredited labratory (e.g., SDSU). NUTBAL PRO analysis and report must be developed with use of NUTBAL PRO software with assistance of a person trained in the use of NUTBAL PRO.

ANM18 Retrofit watering facility for wildlife escape

Refer to "Water for Wildlife: A Handbook for Ranchers and Range Managers," Bat Conservation International – mailed to FO's in December 2008.

ANM19 Wildlife corridors

"B-List" species and all other invasive exotic vegetation must be controlled.

The following parameters are considered wildlife Conservation Plant to deer (white-tailed or mule), antelope and elk:

The top wire height above flat ground should be no more than 38 inches to 42 inches (deer and antelope).

The distance between top two strands of wire is at least 10 inches but preferably 12 inches (deer and antelope).

The top one or two wire strands of the fence are moveable (deer and antelope).

For antelope range, the following additional conditions apply: the bottom wire is smooth, movable and 10 inches to 18 inches above ground.

For elk range, the following additional conditions apply: attach a wooden rail, in lieu of top wire in select fence sections, no more than 38 inches high; bottom wire is no less than 16 inches above the ground (smooth or barbed wire); provide "let-down" f

All wooden post and rail fencing is wildlife Conservation Plant.

If the fence is electric then the bottom wire should provide at least 10 inches from the ground to the wire (e.g. 22-32-42 spacing) and the top wire should be no more than 38 inches (elk) to 42 inches (deer and antelope) high.

ANM20 Silvopasture for wildlife habitat

Not applicable in South Dakota

ANM21 Prairie Restoration for Grazing and Wildlife Habitat

Follow 550 CPS and Range Tech. Note 4. Use Tables 6A and 6B and Range Tech. Note 4 for adapted species, but the minimum number of plant species must follow ANM21.

ANM22 Restoration and Management of Rare or Declining Habitats

The plant communities to be addressed using this enhancement are tall grass prairie and mixed grass prairie. The tall grass prairie ecoregion includes Major Land Resource Areas (MLRA's) 102A, 102B, 102C, and 56. The mixed grass prairie ecoregion covers all of the remaining MLRA's except 62.

Follow 643 CPS and Range Technical Note 4.

ANM23 Multi-species Native Perennials for Biomass/Wildlife Habitat

A sample of Species of Greatest Conservation Need from the State Wildlife Action Plan are noted below:

Grassland birds of prey: Northern goshawk, ferruginous hawk, and burrowing owl.

Grassland gamebirds: greater sage-grouse and greater prairie-chicken.

Grassland nesting songbirds: Sprague's pipit, lark bunting, Baird's sparrow, Le Conte's sparrow, chestnut-collared longspur, and white-winged junco.

willet, long-billed curlew, whooping crane, marbled godwit, and Wilson's phalarope

Example species suitable for biomass production include but are not limited to: prairie sandreed, big bluestem, switchgrass, and prairie cordgrass.

PLT01 Establish pollinator habitat

Use only native "Wildlife Conservation Plant" List species.

Refer to Range Technical Note 4, Table 3, for bloom periods for "A-List" forb and shrub species.

April through October is the general growing season/bloom period. Site conditions and location will dictate whether or not flowering species bloom in April.

Acceptable pollinator tree species and bloom periods:

Boxelder -Early (April)
Silver Maple -Early (April)
Common Hackberry -Early (May)
Downy Hawthorn -Early (May)
Green Ash -Early (April)
Honeylocust -Mid (June)
Black Walnut -Early (May)
Prairie Crab Apple -Early (May)
Plains Cottonwood -Early (April)
Bur Oak -Early (May)
Peachleaf Willow -Early (April-May)
Missouri River willow -Early (April-May)

PLT02 Monitor key grazing areas to improve grazing management

Follow 528 CPS, and refer to Range Technical Note 8.

PLT06 Renovate a windbreak or shelterbelt for wildlife habitat

Use only "Wildlife Conservation Plant" List shrub and/or tree species (with the exception of Hardy apricot and Siberian crabapple which may be used).

Existing windbreak/shelterbelt must be three rows or greater to be considered. However single or multiple rows of Siberian elm and/or Russian olive may be removed and replaced with "A-List" trees or shrubs to minimum of three rows.

Windbreaks less than three rows may be expanded to 3 rows or greater

Leeward row must contain native shrub suckering species. Fabric can not be used on suckering shrubs (see Shrub Clump Wildlife Plantings Fact Sheet for list of suckering shrubs).

Existing windbreaks adjacent (within 150 ft) to wetlands are not eligible to be renovated except to remove trees with a height expectancy of greater than 20ft.

Existing windbreaks within native grassland are not eligible to be renovated but can be removed

Existing windbreaks adjacent to native grassland are not eligible unless one of the follow enhancements is completed:

All tall trees greater than 20 ft height expectancy are removed from the existing planting **or**

A grassland buffer (min 150 ft.) is installed between the native grassland and the first row of the shelterbelt (may require relocation of trees/shrubs to accomplish, native grass can not be destroyed to create buffer)

Wildlife species benefited include: white-tailed deer, pheasant; turkey; mourning dove.

Grasland nesting songbirds will only benefit when existing windbreaks/shelterbelts are removed from grasslands.

PLT10 Intensive Management of Rotational Grazing

Pastures will be grazed two or more times, and no occupation period will exceed 14 consecutive days. Follow 528 CPS.

SOE01 Continuous No Till with High residue

High Residue Crops include: Barley, Corn, Millet, Oats, Rye, Grain Sorghum, Wheat (All)

Low Residue Crops include: Buckwheat Canola, Corn Silage, Dry Beans, Peas, Flax, Lentil, Potatoes, Rape, Safflower, Sorghum silage, Soybean, Sunflower

Note: Further definition - All annually planted crops that are hayed, grazed or ensiled will be considered low residue crops.

SOE03 Continuous No Till Organic system

High Residue Crops include: Barley, Corn, Millet, Oats, Rye, Grain Sorghum, Wheat (All)

Low Residue Crops include: Buckwheat, Canola, Corn Silage, Dry Beans, Peas, Flax, Lentil, Potatoes, Rape, Safflower, Sorghum silage, Soybean, Sunflower

Note: Further definition - All annually planted crops that are hayed, grazed or ensiled will be considered low residue crops.

SQL02 Continuous Cover Crops

Refer to the SD Standard 340 - Table 1 for species recommendations. Specific NRCS cover crop recommendations will be based on the identified purposes and resource needs as discussed with the client. Rotations that include crops that are typically harvested after October 10th will be ineligible for this enhancement.

SQL04 Use of Cover Crop Mixes

Refer to the SD Standard 340 - Table 1 for species recommendations. Specific NRCS cover crop mixture recommendations will be based on the identified purposes and resource needs as discussed with the client.

Resource Concerns	Mix	Percent
Grazing	Lentil	30%
	Turnip	30%
	Oat	30%
	Radish	10%
Salinity	Sugar Beet	50%
	Barley	50%
Salinity	Canola/Rape	40%
	Sugar Beet	60%
Salinity	Canola/Rape	30%
	Sugar Beet	30%
	Barley	40%
Compaction	Canola/Rape	10%
	Lentil	30%
	Radish	60%
Warm season grazing	Millet	60%
	Cowpeas	40%
Grazing/Compaction	Cowpeas	20%
	Pearl Millet	20%
	Sorghum-Sudan	20%
	Turnip	20%
	Radish	20%
Grazing	Rape	30%
	Turnip	30%
	Lentil	40%
Residue Cycling	Canola/Rape	50%
	Lentil	50%
Residue Cycling/Compaction	Canola/Rape	30%
	Radish	40%
	Lentil	30%
Spring moisture utilization / N fixation	Rye	50%
	Hairy Vetch	50%
Spring moisture utilization / N fixation	Triticale	50%
	Hairy Vetch	50%
Spring moisture utilization	Rye	50%
	Canola/Rape	50%

SQL05 Use of Deep-Rooted Crops to Breakup Soil Compaction

Alfalfa, Canola, Radish (oils seed or forage), Safflower, Sugarbeet, Sunflower, Sweet Clover, Turnips

SQL06 Conversion of cropped land to grass-based agriculture

Use Seeding Tool and follow 512 or 550 CPS, and Range Tech Note 4.

WQL01 Biological suppression and other non-chemical techniques to manage brush

No acceptable/feasible biological control methods for brush have been identified.

- WQL02 Biological suppression and other non-chemical techniques to suppress herbaceous weeds**
Flea beetles can be used for leafy spurge. Sheep can be used for leafy spurge and other weedy forbs. Follow 528 CPS when sheep are used.
- WQL03 Rotation of supplement and feeding areas**
- WQL04 Plant tissue tests and analysis to improve nitrogen management**
The corn stalk test procedure and recommendations will be consistent with Iowa State guidance and the Corn leaf tissue testing procedure will be consistent with the University of Nebraska published guidance.
- WQL06 Apply controlled release nitrogen fertilizer**
Note: Products used in this application will be polymer or sulfur urea products. Label information will be required to properly identify trade name products.
- WQL08 Apply split applications of nitrogen based on a pre-sidedress nitrogen test on cropland**
Note: PSNT testing and recommendations will be consistent with guidance available from Iowa State.
- WQL10 Plant an annual grass-type cover crop that will scavenge residual nitrogen**
Refer to the SD Standard 340 – Table 1 for species recommendations.
Acceptable species include: Annual Ryegrass, Barley, Canola, Millet, Oat, Rye, Sorghum-sudan, Wheat (All)
- WQL11 Precision application technology to apply nutrients**
- Guidance: Item 3 under the Criteria Section of the Enhancement states:**
3) Base nitrogen application rates on a real time analysis of crop nitrogen needs. Examples include in season aerial photography and in field equipment based chlorophyll sensors. '
- Further guidance from the national office would allow spring soil sampling 0-24 inch as an acceptable real time analysis of crop nitrogen needs for this enhancement in South Dakota.
- WQL12 Managing livestock access to water bodies/courses**
This enhancement applies to pastureland, rangeland, and forest land.
- Water Bodies/Courses: Ponds, lakes, dugouts, permanent wetlands, and streams (blue-line streams on topographic maps if water is generally present in the water course) would all qualify.
- Management options:
Any one (or a combination of two or more) of the structures or management activities listed under number 3 of the criteria in the enhancement would be sufficient as long as the planner considers what is "necessary" in the particular situation to address the concern. This enhancement would not require all the items mentioned, but whatever it would take to protect or enhance the water bodies. For the purposes of this enhancement, criteria 3, d), "riparian grazing management strategies" will be those pastures that include deferment from July 1 through September 30 in all years of the contract.
- Documentation:
Since a written grazing management plan is required by the enhancement, the Prescribed Grazing (528) Practice Standard must be followed, at a minimum of Management Intensity Level I.
- Units:
This is a system based enhancement, and the units are the acres of the field(s) that contains the water body/course.
- WQL13 High Level Integrated Pest Management to Reduce Pesticide Environmental Risk**
(Note: the documentation required for this enhancement requires scouting reports as well as an environment risk

WQL16 Use of Legume Cover Crops as a Nitrogen Source

Refer to the SD Standard 340 – Table 1 for species recommendations.

Acceptable legume species include: Alfalfa, Alsike Clover, Red Clover, White Clover, Sweet Clover, Edible Beans, Peas, Lentil, Common Vetch, Chickling Vetch, Hairy Vetch, Soybean, Cowpea.

WQL18 Non-Chemical Pest Control for Livestock

Rotational grazing has been shown to help reduce internal parasites. Fecal analysis of calves (young livestock) will be required to insure that pest load is being diminished.

WQL19 Transition to Organic Grazing Systems

WQL21 Integrated Pest Management for Organic Farming

(Note: the documentation required for this enhancement requires scouting reports as well as an environment risk assessment for water quality if pesticides are applied (PSS or WINPST).

FPP02 On Farm Pilot Project

Projects that provide demonstration of any one of the following topics:

Plant Material Center plant releases that provide good pollinator habitat.

Proven but not widely adopted techniques that conserve energy while sustaining agricultural production.

Pilot proven but not widely adopted cover crops that scavenge and recycle nutrients.

Applicants &/or partners will publicize the field day events using local media sources including newspaper and radio.

RCCR RCCR – Resource Conserving Crop Rotations

Criteria for Resource Conserving Crop Rotation (i.e., Option 1, 2, or 3)

1. Perennial grass, legume, or grass/legume grown for use as forage, seed for planting or green manure.

(A minimum of two crops if one of the crops is a perennial lasting at least two years - Again the perennial must be grown for two years or more.)

2. Cover Crops following annual crop.

(A minimum of two crops, if no perennial, with a cover crop (not harvested) following one of the crop years (no silage or crop residue removed from the system).

3. A High Residue Producing Crop

(A minimum of three crops in rotation, if no perennial, where at least half the rotation consists of high residue crops.)

Aftermath grazing of a high residue crop is allowable in accordance with Range Tech Note No. 6. Residue removal after grazing will be managed to leave a minimum of 2700 pounds of corn residue or 1600 of small grain residue.

Example of aftermath Grazing: Corn yield of 100 bu./ac. produces 5600 pounds of stover. According to Range Tech Note No. 6 the appropriate utilization value for corn stalks is 20 percent. So, with an overwinter loss of 15 percent and a 10 percent no-till planting lost we should still have approximately 3400 pounds of corn residue or approximately 65-70 percent spring residue cover. Fields without carryover residues and corn yields below 60 bu will not be able to maintain the designed residue levels.

FRD01 On Farm Research and Demonstration

(See Attached file)

SDSU Research Projects

Evaluation of the N Replacement Value of an Oat/Pea/Chickling Vetch Cover Crop

Research Contact - Dr. Peter Sexton

Precision Cover Crops for Improved Soil Health

Research Contact - Kurt Reitsma

USDA-ARS Research Projects

Use of Cover Crops to Improve No-Till Management for a Corn/Soybean/Wheat Rotation

Hypothesis: Combination of cover crops can increase soil trafficability by utilizing excess spring soil moisture which can increase adoption of no-till soil management in the northern Great Plains.

Objectives: To evaluate the potential use of different cover crop specie combinations to alleviate excess moisture and increase trafficability ensuring timely planting and proper crop establishment, to determine the impact on crop yield and quality and to increase the adoption and efficiency of no-till management.

Contact: Shannon Osborne, Research Agronomist, USDA-ARS 2923 Medary Ave, Brookings SD

Improving Phosphorus Uptake through Cover Crops

Hypothesis: Incorporating mycorrhizal friendly cover crops into the current crop rotation will increase plant phosphorus uptake, decreasing the need for additional fertilizer phosphorus inputs.

Objectives: The research objective is to evaluate different types of cover crops grown follow a small grain to promote soil mycorrhizal fungi thus increasing corn (following crop) phosphorus uptake, decreasing need for fertilizer phosphorus.

Contact: Shannon Osborne, Research Agronomist, USDA-ARS 2923 Medary Ave, Brookings SD

Increase Wheat Straw Decomposition with Cover Crops

Hypothesis: Planting corn in to wheat stubble under no-till soil management can be problematic, due to decrease soil temperatures, and substantial amount of plant residue. Cover crops have the potential to increase residue decomposition and help to reduce the amount of wheat residue remaining on the soil surface increasing soil temperature at the time of corn planting.

Objectives: The research objective is to evaluate different types of cover crops grown follow a small grain to promote residue decomposition.

Contact: Shannon Osborne, Research Agronomist, USDA-ARS, 2923 Medary Ave, Brookings SD

Using Cover Crops to Sustain Soil Quality on Residue Removal for Biofuel Production

Hypothesis: Removal of corn residue for biofuels production will negatively impact the following crop yield and decrease soil quality.

Objectives: Evaluate the use of cover crops to maintain or improve soil quality and crop yield and quality.

Contact: Shannon Osborne, Research Agronomist, USDA-ARS, 2923 Medary Ave, Brookings SD

Increasing Soybean Performance Through the Use of Cover Crops

Hypothesis: Soybean performance (growth and yield) can be improved by improving soil quality.

Objectives: Evaluate the use of cover crops to increase soil quality parameters (nutrient cycling, water holding capacity, decrease compaction) to improve soybean growth, yield and quality.

Contact: Shannon Osborne, Research Agronomist, USDA-ARS 2923 Medary Ave, Brookings SD

Footnote: Projects in Red –indicates that these projects are approved as a CSP enhancement.
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