

Conservation Activity Plan (CAP) 138 and Organic System Plan Supplements

CAP 138

The CAP 138 is an NRCS Conservation Activity Plan that helps farmers who are interested in transitioning from conventional farming practices to organic production by addressing the natural resource concerns on their operation. To receive financial and technical assistance from NRCS for the completion of a CAP, it must be prepared by NRCS-certified technical service providers (TSPs). CAPs must meet the technical planning requirements established by the agency and are used by NRCS employees to draft a final certified conservation plan, if requested by the producer.

The CAP 138 consists of three sections:

1. Resource Inventory
2. Erosion Control inventory
3. Summary Record of Planned NRCS Conservation Practices

Organic System Plan Supplements

The Resource Inventory, section one of the CAP 138, may serve as a portion of an Organic System Plan (OSP), but it is not a replacement for one. The information included in the resource inventory can be relevant and useful in applying for organic certification; however, the producer is responsible for completing all of the OSP requirements not addressed by the Resource Inventory. The National Organic Program (NOP) worked closely with NRCS to develop the attached updated Resource Inventory. The Resource Inventory, when submitted with the supplemental companion document Resource Inventory Supplement, contains all of the required components of an OSP. Current NOP regulations do not require the use of a specific OSP. The use of the Resource Inventory and the Resource Inventory Supplement document is completely optional.

Instructions for use:

1. To receive technical assistance in filling out the CAP 138, producers should contact their local NRCS service center. NRCS can help locate a TSP or provide conservation planning services outside of the CAP 138 requirements.
2. TSPs must develop all three sections required by the CAP 138. In some cases, more information will be provided by your TSP or NRCS than what is necessary for the CAP 138 or the OSP.
3. The NOP does not require the submission of the erosion control inventory (Section Two of the Cap 138), RUSLE2 or WEPS printouts, record of planned NRCS conservation practices (Section 3 of the CAP 138) or NRCS Implementation Requirements. You are not required to submit these to your certifier. Anything submitted as part of your OSP will undergo a rigorous review and audit.
4. To meet all of the requirements for an OSP both the Resource Inventory and the Resource Inventory Supplement must be completed.



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CAP 138 Section One

NOP § 205.401

Producer(s)		
Farm, ranch or business name		
Mailing address		
Physical address		
City	State	Zip code
Primary phone number	Alternate phone number	Fax number (optional)
Email address		
County (or counties) where farm/ranch is located		
Name and number of Technical Service Provider:		
Signature of TSP:		
Date:		
Signature of applicant(s)		Date



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Land Requirements

NOP § 205.103, § 205.202

1. Land Management (§ 205.202(a) and (b))

1.1 When did you begin managing this land?	(MM/DD/YY)
1.2 What is your estimated harvest date of a certified organic crop from this land?	
1.3 Describe, in general terms, how this land has been managed for the past 3 years: crops grown, fallow, pasture, etc.; organic or non-organic management; farming practices used:	



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Maps **§ 205.202(c)**

2.1 Attach Field Map(s). Provide an accurate conservation plan map that shows each field included on the farm listed above.

Show boundaries and area to be certified organic. The map should be 8 ½ x 11". This may be a Farm Service Agency map, or aerial photograph, as long as it is clearly readable when photocopied. This map must be current and dated. An updated (revised or new) map must be submitted whenever information on the map changes (field numbers, acres, buffers, adjoining land use, etc.) USDA – NRCS Soils Map of the Farming Operation with soils descriptions for the planned land uses.

The map attached includes the following:

field name(s)/number(s) with land use	north arrow
adjoining land use(s)	landmarks such as buildings, farm or public roads, railroad tracks
area (acres)	slope(s)
buffers (if applicable)	windbreaks, hedgerows or woodlands
location of planned structural conservation practices	<u>Required for ruminant livestock producers:</u>
	location, size and identification of pastures
	location and types of permanent fences
	feeding area(s) (to feed without crowding)
	location and source of water and shade

2.2 Attach a Farm Overview Map that shows the location of this farm and all other farm locations in your operation.

Attached	Not applicable; one farm location
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Boundaries, Adjacent Land Use and Buffer Areas **(§ 205.202(c))**

3.1 Describe your farm borders and adjacent land use (organic farms, fallow fields, CRP land, wild lands, non-organic crop or livestock production, residential use, etc.)

3.2 Describe the measures you take (management practices, communications and/or physical barriers) to prevent contamination by prohibited materials that are or may be applied to adjacent or nearby land (neighboring parcels or fields in split operations).
 No areas of concern

3.3 Describe buffer areas for each field/pasture that you maintain on your organic land to protect crops from contamination. Please specify whether you grow crops in the buffer area, and whether you plan to sell or represent them as organic. If you need more space, please attach a separate page.
 Buffer description attached



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Natural Resource Management
 NOP § 205.2 Organic production, Natural Resources of the Operation § 205.200, § 205.203, § 205.239, § 205.240

Key NOP standards related to natural resource management:

§ 205.2 Definitions:

Organic production. A production system that is managed in accordance with the Act and regulations in this part to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity.

Natural resources of the operation. The physical, hydrological, and biological features of a production operation, including soil, water, wetlands, woodlands, and wildlife.

§ 205.200: Production practices implemented in accordance with this subpart must maintain or improve the natural resources of the operation, including soil and water quality.

§ 205.203(a): The producer must select and implement tillage and cultivation practices that maintain or improve the physical, chemical, and biological condition of soil and minimize soil erosion.

§ 205.203(c): The producer must manage plant and animal materials to maintain or improve soil organic matter content in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, pathogenic organisms, heavy metals, or residues of prohibited substances.

§ 205.206(b)(2): Pest problems may be controlled through mechanical or physical methods including but not limited to the development of habitat for natural enemies of pests. [See also § 205.206(a)(2)]

§ 205.239(b)(4): The producer of an organic livestock operation may provide temporary confinement for an animal because of risk to soil or water quality. [See also § 205.239(a)(3)]

§ 205.239(e): The producer of an organic livestock operation must manage manure in a manner that does not contribute to contamination of crops, soil, or water by plant nutrients, heavy metals, or pathogenic organisms and optimizes recycling of nutrients and must manage pastures and other outdoor access areas in a manner that does not put soil or water quality at risk.

§ 205.240(c)(8): The pasture plan shall include a description of the erosion control and protection of natural wetlands and riparian areas practices.

Organic standards specifically address soil (conservation and health) and water (conservation and quality; contamination prevention). As quoted above, the standards also include a general requirement to maintain or improve natural resources (soil, water, wetlands, woodlands and wildlife) by integrating cultural, biological and mechanical practices to foster cycling of resources, promote ecological balance, and conserve biodiversity. Organic production practices must maintain or improve their natural resources.

While natural resource management is a core organic standard, producer strategies will be specific to each site and type of production. Each operation’s practices are adapted to the features of the land and local conditions, especially related to: soil (soil types, slope, risks of erosion, and overall health); water (position in the watershed, presence of water courses and riparian areas, and water availability or scarcity); and wetlands, woodlands and wildlife (ecosystem type, biological diversity and habitat on and around the farm).

Organic farming practices can conserve soil, increase soil health, protect water and contribute to biological diversity within—and often beyond—its boundaries. On-farm practices may include: soil building to increase organic matter, humus, biological activity and diversity of soil organisms; water conservation to benefit domestic/native species and riparian ecosystems; inclusion of a diversity of flowering plants, habitat or shelter for pollinators, insects, other arthropods, spiders, bats, raptors and other pest predators; planting diverse pastures; non-lethal livestock predator control; wildlife friendly fencing; monitoring and control of specific non-native invasive species; establishment of grassed waterways, hedgerows or other plantings to check erosion and foster habitat; wetland and riparian area protection; native habitat restoration; or efforts to promote wildlife migration corridors and conservation.



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As you describe your natural resource management practices, please note that some of your answers to questions about natural resource management may be relevant to other sections of this OSP as they relate to crop rotation, nutrient and manure management. The following questions are intended to address general, whole-farm goals and approaches to organic natural resource management.

3.1 Please describe how your farming or ranching practices—crop and/or livestock production practices—maintain or improve natural resources, foster cycling of nutrients, promote ecological balance, and conserve biodiversity. Please list the specific strategies or NRCS practices you use that contribute to each general goal listed below, as applicable. Use the space below or note in charts for questions 4.1a. – 4.1e.



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4.1a Conserve, soil, improve soil condition, prevent soil erosion. TSPs or planners will use the attached national and State resource concerns and planning criteria document to identify resource concerns.

Resource Concerns	Concern (Yes or No) List by field (1,2,3, etc.)	Planned NRCS Conservation Practices to address. Specify which fields will have these practices.
SOIL EROSION Sheet, rill & wind erosion Concentrated flow erosion Excessive bank erosion		



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Resource Concerns	Concern (Yes or No) List by field (1,2,3, etc.)	Planned NRCS Conservation Practices to address. Specify which fields will have these practices.
Soil Quality Degradation Subsidence Compaction Organic matter depletion Concentration of salts or chemicals		



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4.1b Prevent water contamination by plant nutrients; protect water quality.

Resource Concerns	Concern (Yes or No) List by field (1,2,3, etc.)	Planned NRCS Conservation Practices to address. Specify which fields will have these practices.
<p>Water Quality Degradation</p> <p>Excess nutrients in water</p> <p>Pesticides transported to water</p> <p>Excess pathogens and chemicals</p> <p>Excessive salts in waters</p> <p>Petroleum, heavy metals and other pollutants</p> <p>Excessive sediment</p> <p>Elevated water temp</p>		



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4.1c Conserve water

Resource Concerns	Concern (Yes or No) List by field (1,2,3, etc.)	Existing NRCS Conservation Practices to address. Specify which fields have these practices.
<p>Insufficient Water</p> <p>Inefficient moisture mgmt Inefficient use of irrigation water</p>		
<p>Excess Water</p> <p>Ponding Flooding Seasonal high water table Seeps and drifted snow</p>		



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4.1d Conserve biodiversity (soil organisms, pollinators, natural enemies of pests, predators, native habitat, vegetation, and wildlife)

Resource Concerns	Concern (Yes or No) List by field (1,2,3, etc.)	Existing NRCS Conservation Practices to address. Specify which fields have these practices.
<p>Degraded Plant Condition</p> <p>Undesirable plant productivity/health Inadequate structure and composition Excessive plant pest pressure Wildfire hazard</p>		



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Resource Concerns	Concern (Yes or No) List by field (1,2,3, etc.)	Existing NRCS Conservation Practices to address. Specify which fields have these practices.
<p>Inadequate Habitat for Fish & Wildlife</p> <p>Habitat degradation</p>		



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4.1e Livestock

Resource Concerns	Concern (Yes or No) List by field (1,2,3, etc.)	Existing NRCS Conservation Practices to address. Specify which fields have these practices.
<p>Livestock Production Limitation</p> <p>Inadequate feed and storage Inadequate livestock shelter Inadequate livestock water</p>		



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4.1 Other practices that maintain or improve natural resources (soil, water, wetlands, woodlands and wildlife), foster cycling of nutrients, promote ecological balance, and conserve biodiversity.



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Soil Management and Crop Rotation	NOP § 205.2 Crop Rotation, § 205.203, § 205.205
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5.1 What are the major practice components of your soil-building/crop nutrient management plan? Check all that will be used.			
crop rotation	incorporation of crop residue	mulch	
cover crops	manure	biodynamic preparations	
compost	soil inoculants	green manures	
fertilizer materials or blends	mined lime		
other (describe):			

5.2 List all materials used or planned for use on your Materials List.		
All materials used or planned for use are listed on my Materials List.	No materials are used.	

Describe your crop rotation plan(s), in general terms, including its main goals (soil organic matter; weed and pest management, nutrient management; erosion; biological diversity). List the sequence and frequency of crops/plant families, cover crops, green manures or sod. If you use more than one basic rotation sequence, please describe each rotation you use. For perennial crops, describe management of ground cover, alley cropping, intercropping or hedgerows.

Please note: Records documenting crop rotation on each field will be verified at your inspection. Please be prepared to show documentation. Examples:

- Vegetable and Small Fruit Rotation: Brassica family vegetables—fall-planted strawberries (1-2 years’ harvest, depending on weather and condition of plants)—winter cover crop—warm season vegetables—winter cover crop—cut flowers— cover crop. Break disease cycles of Phytophthora and Botrytis in strawberries.
- Spring grain—legume green manure—winter grain—oilseed. Manage soil moisture, control weeds, cycle nutrients and provide nitrogen for grain crops.
- Apple orchard and vineyard—winter cover crops between rows; grass in apples; legume blend in vineyard, hedgerow of native shrubs along north farm roads. Increase organic matter, prevent nutrient leaching, provide habitat for songbirds and natural enemies of pests.



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5.3 continued

5.4 Describe and indicate, as applicable, the issues you address with your crop rotation and soil management practices.
a. Organic matter increase:
b. Soil compaction or crusting:
c. Wind erosion:
d. Water Erosion:
e. Salinity:
f. Pest management:
g. Water availability:
h. Water Infiltration



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i. Soil structure:
j. Deficient nutrients:
k. Excess Nutrients
l. pH:
m. Disease management:
n. Water availability:
o. Soil structure:
p. Deficient or excess nutrients:
q. Disease management:
r. Weed Management:
s. Feed for Livestock:
t. Overall Farm Biodiversity:
u. Other (describe):

5.5 Describe, and indicate, as applicable, how you monitor the effectiveness of your rotation and soil management plan?
a. Soil observation:
b. Crop observation:
c. Plant tissue tests:



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d. Soil (nutrient) tests:
e. Crop yield comparison:
f. Microbiological tests:
g. Soil organic matter content:
h. Crop quality tests:
i. other:

5.6 When and how often (daily, weekly, monthly, yearly, as needed) do you do each type of monitoring? What monitoring records do you keep?



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Pest, Disease and Weed Management & Monitoring
NOP §205.206, § 205.600-602, § 205.103

6.1 Check the management practices you use to prevent crop pests, weeds, and diseases. Add the name of your significant (recurring or potentially problematic) diseases (fungus, bacteria, virus) and all pest types: insects, mites, birds, rodents, birds, deer, etc. There is no need to name weeds individually.

Pest prevention practice	Weeds	Pests	Diseases
Crop rotation			
Soil and crop nutrient management			
Cover crops/green manures/smother crops			
Diversified plantings / planting arrangements			
Sanitation measures to remove disease vectors, weed seeds, and pest habitat			
Selection of suitable species/growing location			
Disease/pest/weed resistant varieties			
Timing of planting			



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Pest prevention practice	Weeds	Pests	Diseases
Water / Irrigation management			
Mechanical or physical means (hoeing, pruning, picking, vacuuming, etc.)			
Augment pest predators/ parasites/beneficials			
Develop habitat for natural enemies			
Construct habitat for predators (raptor perches, owl or bat boxes, frog ponds, etc.)			
Mechanical cultivation/tillage or hand weeding			
Mulching with biodegradable materials			
Mowing or Livestock grazing			
Flaming, heat, steam, or electrical			
Plastic or synthetic mulch / solarization			



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Pest prevention practice	Weeds	Pests	Diseases
Burning crop residue (see item 5 next page)			
Others (describe):			

6.2 List any pest, disease or weed problems and practices not addressed in the table above.

Problem Weed, Disease or Pest (insect, mite, nematode, rodent, deer, etc.)
Describe specific preventative practices (or materials) you use to control these pests.

6.3 If you use materials to manage pests (including natural botanical, mineral or allowed synthetics), please list all of these on your Materials List.

No pest management materials used

Listed Pesticides:
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6.4 Describe the conditions under which you would use a material for pest management:

6.5 Describe how and when you monitor the effectiveness of your pest management program, and whether you keep any monitoring records. Please have any records available for inspection:

6.5 Do you burn crop residues? No Yes / de the crop, purpose, iŽĐĂiŝŽŹ and timing of burning.



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Greenhouse Crop Production	NOP § 205.2, § 205.201(a)(5), § 205.202(c)
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8. Complete this Greenhouse Crop Production form along with your other applicable Crop forms if you produce organic seedlings, transplants, or crops in a greenhouse, high tunnel, hoophouse or coldframe.
8.1 Indicate the scope of your greenhouse operations.
Greenhouse crop production is part of my farming operation and located on certified organic land. Please show your greenhouse location and size on your farm map. Shown on map
This operation consists primarily or exclusively of greenhouse production. Please submit a separate Land Requirements form for your greenhouse operation, with a Map showing the production area, location and size of greenhouses, shade or lath houses, outdoor areas, material storage area, irrigation system, soil mixing and seeding equipment, product staging, packing, cooling and loading areas, as applicable.
Land Requirements Form *r ci g"4"qh"j ki" f qewo gpv+
8.2 Describe your greenhouse structure type(s). Check all that apply.
Hoop house(s)
Greenhouse(s)
Cold frame(s)
Other (describe
8.3 Describe your greenhouse crops. Check all that apply.
Annual transplants or starts:
Harvested crops (e.g. fruits, vegetables, cut flowers, herbs:
Perennials—planting or sale of whole plants as organic:
Other (describe):



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8.4 Are greenhouse crops grown in soil? No Yes
8.5 Are crops grown in planting medium? No Yes
If yes, include all components of the potting soil or planting medium mixture on your Materials list.
8.6 Do you produce both organic and non-organic greenhouse crops? No, organic only Yes
8.7 Is your organic greenhouse adjacent to non-organic greenhouse production areas? No Yes
8.8 If Yes, to question 6 or 7, please address each potential risk listed below by describing the management practices and physical barriers you use to prevent commingling or contamination:
8.9 Planting Medium (including soil mix materials, wetting agents and fertilizer materials) storage areas, soil mixing, container/tray filling and seeding equipment:
8.10 Production or Growing Areas—separation and identification:
8.11 Plant and Container Identification—labels and tags:



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8.12 Irrigation system: Identify your water source. Describe your use of water with respect to fertilizer materials and equipment. If water lines are shared, attach a diagram of piping, pumps, valves and backflow preventers, as applicable.

Diagram attached	Not Applicable; separate equipment and water lines, dedicated to organic.
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8.13 Ventilation system—prevention of drift of prohibited materials.

8.14 Planting Containers—identification, cleaning, and cleaning materials.

Please be prepared to show documentation of all systems and practices described above.



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Compost and Manure Use and/or Production	NOP § 205.203
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9. Manure

<p>9.1 Do you use uncomposted, raw, or aged manure? Yes No</p> <p>If yes, check or describe how your use of raw manure is compliant with NOP standards. Manure is:</p> <p>Applied to land producing a crop not intended for human consumption (pasture, hay, cover crops, etc.).</p> <p>Incorporated at least 120 days before harvest of a crop whose edible portion may contact the soil surface or soil particles.</p> <p>Incorporated at least 90 days before harvest of a crop whose edible portion does not directly contact the soil surface or soil particles</p> <p>A pelletized manure product listed or documented to meet NOP requirements of heating at 150° F for one hour or 165° F with <12% moisture content, or other procedure compliant with NOP Guidance 5006 on processed manure.</p> <p>Please be prepared to show records of manure use (locations used, crops grown, application and harvest dates).</p> <p>9.2 If you use off-farm manure, describe its source(s) and livestock type and production practices (e.g. from caged layers, dairy barn cleanout and bedding, etc.):</p>
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Wild Crop Harvest	NOP § 205.207, 5022
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11. For use if you harvest wild crops for sale as organic.

<p>11.1 List the wild crops you harvest or plan to harvest.</p>
<p>11.2 Complete a Land Requirements form (page 2 of this document) for each wild crop harvest area, including map(s) and prior land use or materials use"documentation.</p> <ul style="list-style-type: none"> • Designate on your map(s) the area to be harvested, boundaries, borders, buffer zones, point and non-point sources of contaminants and prohibited materials, and crops to be harvested. • For land-based wild crop harvest areas, attach documentation that no prohibited materials have been applied to the land within the last three years. • For aquatic-based wild crop harvest areas, attach documentation that no prohibited materials have been applied or contaminated the harvest area within the last three years.
<p>All features listed above.</p> <p>Attached is a Land Requirements form + map + documentation of prior materials use specific to the wild crop harvest area.</p>
<p>11.3 Please describe the natural environment of the harvest area (e.g., scrub steppe, oak woodland, etc).</p>
<p>11.4 List any rare, endangered or threatened terrestrial or aquatic plants or animals that occur in the harvest area.</p>



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11.5 Describe methods used to prevent negative impact, and monitoring procedures used to verify lack of impact.

11.6 Describe your wild crop harvest plan for each wild crop.

11.7 How do your harvest practices ensure the health, sustained growth, and long-term viability of the wild crop(s), and protect the environment in which it grows? Describe your system (methods and frequency) of monitoring the health of the wild crop population and the condition of natural resources in the harvest environment, including soil and water quality.

11.8 Approximately what percentage of the wild crop is harvested at each harvest?



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Livestock Living Conditions	NOP § 205.239, § 205.240
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12.1 Describe the locations and living conditions for each class of organic livestock, including pastures or range, outdoor and indoor feeding yards, feeding pads, feedlots, housing and/or shelter.

12.2 Describe how you manage yards, feeding areas and lanes to keep them well-drained and clean, and to prevent runoff of wastes and contamination of water, or drainage across property boundaries.

12.3 Describe the locations and sources of shade within outdoor access areas.



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12.4 Describe the source(s) of clean drinking water, water delivery systems or equipment, and location(s) of drinking water for livestock in housing, outdoor areas and on pasture (as applicable).

12.5 Identify all water sources within or adjacent to the property. Describe how you prevent erosion around water sources, damage to natural wetlands and riparian areas, and risks of contamination of water.

12.6 List the types of bedding used for each class of livestock. Indicate whether they were produced on-farm or purchased, the source (if purchased), and the certifier (if applicable). Roughages used as bedding must be certified organic.



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Pasture for Ruminant Livestock	NOP § 205.201, § 205.237, § 205.240
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13.1 Describe your grazing season in general terms: approximate start and end dates; precipitation patterns and climatic conditions that define the grazing season in your region.

13.2 Describe the types of pasture you provide to ensure ruminant feeding requirements are met. This may include a description of your pasture resources in terms of predominant species (grasses/forbs, annual/perennial, native/ improved), management, and terrain (hilly/flat/floodplain, etc.).



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13.3 Describe the types of grazing methods to be used. This may include general grazing management practices (i.e. continuous or extensive, rotational or management intensive grazing (MIG), or multi-species grazing) and the factors that influence your decision-making about animal density or stocking rate, frequency of livestock movement, and length of grazing / resting periods on each location.

13.4 Describe the location and type(s) of fencing used. Fencing is clearly shown on pasture maps.



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13.5 Describe the pasture management strategies and cultural practices to be used to ensure that your pastures can provide sufficient quality and quantity of forage throughout the grazing season (i.e., irrigation, fertilization, re-seeding, crop rotation, clipping, growing forage crops, use of residual forage, etc.) to provide at least 30% dry matter intake (DMI) for at least 120 days per year. Include any practices to be used to extend the grazing season.

13.6 Is irrigation available for use on any of your pastures?	Yes	No
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13.7 Describe irrigation use and/or limitations



CAP 138 Section Two

Crop Rotation and Tillage Information

Client Name:	Address:
Farm No./Tract No.:	Total Acres:
Evaluator:	Date:

Use a separate sheet for each crop rotation

Field(s) _____

Describe the typical crop rotation for these field(s):

Describe the Planting System for this crop rotation: (Conventional, No-till, Mulch-till)

Describe the Tillage Operations for this crop rotation: (No-till, Moldboard Plow, Chisel Plow, Disking, Ripping) Include the number of trips and operation time (spring/fall) per operation

Do you utilize manure in your rotation? If so, indicate type, amount and time applied		
Yes _____ No _____	Type: _____ Amount: _____	Time(s) Applied: _____

List the average yield for each crop during the last 2 (two) years of the rotation:		
Crop _____	Yield (year 1) _____	Yield (year2) _____
Crop _____	Yield (year 1) _____	Yield (year2) _____
Crop _____	Yield (year 1) _____	Yield (year2) _____
Crop _____	Yield (year 1) _____	Yield (year2) _____

Describe supporting practices (if any) for each field in this rotation: (Contouring, Strips/Barriers, Diversion/Terrace)	
Field No. _____	Practice: _____
Field No. _____	Practice: _____
Field No. _____	Practice: _____

Crop Rotation and Tillage Information

Client Name: Example Farmer	Address: 123 Cedar Lane
Farm No./Tract No.: Farm 101, Tract 1103	Total Acres: 70.0
Evaluator: Conservation Planner	Date: 06/20/2008

Use a separate sheet for each crop rotation

EXAMPLE

Field(s) 1, 2 and 4

Describe the typical crop rotation for these field(s):

Fields 1, 2 and 4 – Corn/FS Soybeans (Wheat cover crop follows all Corn)

Describe the Planting System for this crop rotation: (Conventional, No-till, Mulch-till)

Corn – Conv-till Wheat – Mulch-till Soybeans – Mulch-till

Describe the Tillage Operations for this crop rotation: (No-till, Moldboard Plow, Chisel Plow, Disking, Ripping) Include the number of trips and operation time (spring/fall) per operation

Corn – Chisel Plow 1 (spring), Disk 2 (spring) Wheat – Disk 1 (fall) Soybeans – Disk

Do you utilize manure in your rotation? If so, indicate type, amount and time applied

Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Type: Dairy Amount: 4000 gal./Acre	Time(s) Applied: Before Corn Spring (field 1) Fall (field 4)
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List the average yield for each crop during the last 2 (two) years of the rotation:

Crop: Corn	Yield (year 1) 150 bu/ac	Yield (year 2) 170 bu/ac
Crop: Wheat(cover)	Yield (year 1) cover	Yield (year 2) cover
Crop: Soybeans	Yield (year 1) 40 bu/ac	Yield (year 2) 40 bu/ac
Crop: _____	Yield (year 1) _____	Yield (year 2) _____

Describe supporting practices (if any) for each field in this rotation: (Contouring, Strips/Barriers, Diversion/Terrace)

Producer manages these fields along contour a @ 2% grade. Uses Wheat Cover crops for all Corn fields. Cover cops are broadcast spread w/light disk. Applies manure to all corn ground in either spring or fall. Chisel plow has straight point. First disking is heavy, second is light/finish.

<p>Resource Concern Cause</p> <p>A resource concern (RC) is an expected degradation of the soil, water, air, plant, or animal resource base to an extent that the sustainability or intended use of the resource is impaired. Because NRCS quantifies or describes resource concerns as part of a comprehensive conservation planning process that includes client objectives, human and energy resources are considered components of the resource base. The "Cause" is the specific reason or threat to the resource that results in the resource concern.</p>	<p>Description of Concern</p>	<p>Land Use * Required Assessment</p>	<p>Resource Concern Component</p> <p>For planning purposes, some resource concerns are divided into components where there is a clear distinction in the causal factors, the mitigating actions, and the anticipated environmental effect.</p>	<p>Planning Criteria</p> <p>A planning criterion is a quantitative or qualitative method to assess the existing condition of the natural resources on a site to determine whether additional treatment is needed to address a specific potential resource concern.</p> <p>Planning Consideration</p> <p>A planning consideration is a description of potential actions or activities that should be considered to help address an identified resource concern and/or to address unintended consequences of an action. Planning considerations are identified for resource concerns when it is not appropriate or technologically feasible to identify specific criteria or a</p> <table border="1" data-bbox="982 565 1606 1058"> <tr> <td data-bbox="982 565 1203 1058"> <p>Screening Level</p> <p>Screening level criteria are defined, when appropriate, to identify sites with conditions that have little or no probability of needing additional treatment to address the specific resource concern. If the site meets the screening level criteria, then no other assessment is needed to document that planning criteria are met on this site. States can delete or edit nationally identified</p> </td> <td data-bbox="1203 565 1606 1058"> <p>Basic Assessment Level</p> <p>Basic assessment level criteria are used when a site does not meet screening level criteria, or when no screening level criteria are defined. Assessment levels are also used when formulating and evaluating alternatives. National criteria establish the minimum for all sites. States may add state-specific criteria to address local conditions.</p> </td> </tr> </table>	<p>Screening Level</p> <p>Screening level criteria are defined, when appropriate, to identify sites with conditions that have little or no probability of needing additional treatment to address the specific resource concern. If the site meets the screening level criteria, then no other assessment is needed to document that planning criteria are met on this site. States can delete or edit nationally identified</p>	<p>Basic Assessment Level</p> <p>Basic assessment level criteria are used when a site does not meet screening level criteria, or when no screening level criteria are defined. Assessment levels are also used when formulating and evaluating alternatives. National criteria establish the minimum for all sites. States may add state-specific criteria to address local conditions.</p>	<p>Measurement & Assessment Tools</p> <p>Description of the technology or process for determining if assessment criteria are met.</p>
<p>Screening Level</p> <p>Screening level criteria are defined, when appropriate, to identify sites with conditions that have little or no probability of needing additional treatment to address the specific resource concern. If the site meets the screening level criteria, then no other assessment is needed to document that planning criteria are met on this site. States can delete or edit nationally identified</p>	<p>Basic Assessment Level</p> <p>Basic assessment level criteria are used when a site does not meet screening level criteria, or when no screening level criteria are defined. Assessment levels are also used when formulating and evaluating alternatives. National criteria establish the minimum for all sites. States may add state-specific criteria to address local conditions.</p>						

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools	
				Screening Level	Basic Assessment Level		
SOIL							
1 - SOIL EROSION - Sheet and Rill, Wind, Irrigation Induced	Detachment and transportation of soil particles caused by rainfall, irrigation runoff or wind, that degrades soil quality	- Crop* - Developed Land* - Farmsteads* - Associated Ag Land* - Designated Protected Area* - Other Rural Land*	Sheet and Rill	Permanent ground cover > 90%, and slope < 10%	Water erosion rate ≤ T	RUSLE2 - Revised Universal Soil Loss Equation	
			Wind		Wind erosion rate ≤ T	WEPS - Wind Erosion Prediction System	
			Irrigation -induced		Irrigation-induced erosion rate ≤ T	SISL - Surface Irrigation Soil Loss OR Soil loss volume x bulk density calculation	
		- Pasture*	Sheet and Rill		Water erosion rate ≤ T, OR PCS - Mean erosion element score ≥ 4	RUSLE2 - Revised Universal Soil Loss Equation OR PCS - Pasture Condition Score	
		- Pasture*	Wind		Wind erosion rate ≤ T, OR PCS - Mean erosion element score ≥ 4	WEPS - Wind Erosion Prediction System OR PCS - Pasture Condition Score	
		- Pasture*	Irrigation -induced		Irrigation-induced erosion rate ≤ T, OR PCS - Mean erosion element score ≥ 4	(SISL - Surface Irrigation Soil Loss OR Soil loss volume x bulk density calculation) OR PCS - Pasture Condition Score	
		- Forest*	Sheet and Rill, Wind		Soil surface organic residue cover > 80%	Site is stable and without visible signs of erosion	Visual Inspection
		- Range*	Sheet and Rill, Wind		State established criteria.	RHA - soil site stability - slight to moderate or less	RHA - Rangeland Health Assessment
2 - SOIL EROSION – Concentrated flow	Untreated classic gullies may enlarge progressively by head cutting and/or lateral widening. Ephemeral gullies occur in the same flow area and are obscured by tillage. This includes concentrated flow erosion caused by runoff from rainfall or snowmelt	- Crop*	Ephemeral gullies	Ephemeral gullies are not occurring	Conservation practices and managements are in place to prevent or control ephemeral gullies	In-Field measurement/observation	
			Classic gullies	Classic gullies are not present	Classic gully management is adequate to stop the progression of head cutting and widening and offsite impacts are minimized by vegetation and/or structures		
		- Forest* - Farmsteads* - Pasture* - Range* - Developed Land* - Associated Ag Land* - Designated Protected Area* - Other Rural Land*	Classic gullies	Classic gullies are not present	Classic gully management is adequate to stop the progression of head cutting and widening and are offsite impacts are minimized by vegetation and/or structures		

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
3 - SOIL EROSION– Excessive bank erosion from streams shorelines or water conveyance channels	Sediment from banks or shorelines threatens to degrade water quality and limit use for intended purposes	- Crop* - Forest* - Range* - Developed Land* - Associated Ag Land* - Designated Protected Area* - Water* - Other Rural Land* - Farmsteads*		Streams, shoreline or channels are not adjacent to site	For shorelines and water conveyance channels; banks are stable or commensurate with normal geomorphological processes AND If bank erosion is present, it is beyond the client’s control or commensurate with normal geomorphological processes AND For streambanks; SVAP2 bank condition element score ≥ 5 OR PFC functional rating = Proper Functioning	SVAP2 - Stream Visual Assessment Protocol OR PFC - Proper Functioning Condition
		- Pasture*			PCS - streambank / shoreline erosion element score ≥ 4 AND For shorelines and water conveyance channels; Banks are stable or commensurate with normal geomorphological processes AND If bank erosion is present, it is beyond the client’s control or commensurate with normal geomorphological processes OR PFC functional rating = Proper Functioning	(SVAP2 - Stream Visual Assessment Protocol AND PCS - Pasture Condition Score) OR PFC - Proper Functioning Condition
4 - SOIL QUALITY DEGRADATION - Subsidence	Loss of volume and depth of organic soils due to oxidation caused by above normal microbial activity resulting from excessive water drainage, soil disturbance, or extended drought. This excludes karst / sinkholes issues or depressions caused by underground activities.	- Crop - Forest - Associated Ag Land - Designated Protected Area - Pasture		Histisol soils are not present OR Histisol soils are not exhibiting subsidence	Subsidence is adequately managed to meet client’s objectives	Client input / planner observation

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
5 - SOIL QUALITY DEGRADATION - Compaction	Management induced soil compaction resulting in decreased rooting depth that reduces plant growth, animal habitat and soil biological activity	- Crop - Forest - Associated Ag Land - Designated Protected Area - Other Rural Land		Soil compaction is not a problem AND Activities do not cause soil compaction problems	Compaction is managed to meet Client's production and management objectives	Client input / planner observation AND Observation of soil and/or plant condition
		- Pasture			PCS – compaction element score ≥ 4	PCS - Pasture Condition Score
		- Range			RHA - soil site stability - slight to moderate or less OR Compaction is managed to meet Client's production and management objectives	RHA - Rangeland Health Assessment OR Observation of soil and/or plant condition
6 - SOIL QUALITY DEGRADATION – Organic matter depletion	Soil organic matter is not adequate to provide a suitable medium for plant growth, animal habitat, and soil biological activity	- Crop*		Permanent ground cover > 80%	SCI - Soil Conditioning Index > 0	RUSLE2 - Revised Universal Soil Loss Equation OR WEPS - Wind Erosion Prediction System
		- Pasture			SCI - Soil Conditioning Index > 0 OR PCS - plant cover element score ≥ 4 AND PCS - plant residue element score ≥ 4	RUSLE2 - Revised Universal Soil Loss Equation OR PCS - Pasture Condition Score
		- Range			RHA - soil site stability - slight to moderate or less AND RHA – biotic integrity attribute rating - slight to moderate departure or less	RHA - Rangeland Health Assessment
		- Forest			Ground cover meets state criteria specific to ecological site OR Soil organic matter is managed to meet Client objectives	Client input / planner observation
7 - SOIL QUALITY DEGRADATION - Concentration of salts or other chemicals	Concentration of salts leading to salinity and/or sodicity reducing productivity or limiting desired use. Concentrations of other chemicals impacting productivity or limiting desired use	- Crop - Pasture - Range - Associated Ag Land - Farmsteads		Activities do not cause salinity/sodicity problems	Conservation practices and managements are in place to mitigate on-site effects	Soil diagnostic evaluations

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
WATER						
8 - EXCESS WATER - Ponding, flooding, seasonal high water table, seeps, and drifted snow	Surface water or poor subsurface drainage restricts land use and management goals. Wind-blown snow accumulates around and over surface structures, restricting access to humans and animals.	<ul style="list-style-type: none"> - Crop - Forest - Farmsteads - Pasture - Range - Developed Land - Associated Ag Land - Designated Protected Area - Other Rural Land 	Ponding and Flooding	Ponding or flooding is not a problem AND Activities do not cause ponding and flooding problems	Excess water is managed to meet Client's objectives	Client input / planner observation
			Seasonal High Water Table	Seasonal high water table does not cause a problem		
			Seeps	Excess water from seeps does not cause a problem		
			Drifted Snow	Drifted snow does not cause a problem		
9 - INSUFFICIENT WATER - Inefficient moisture management	Natural precipitation is not optimally managed to support desired land use goals or ecological processes	<ul style="list-style-type: none"> - Crop - Developed Land - Forest - Associated Ag Land - Designated Protected Area 		Moisture Management is not a problem AND Activities do not cause inefficient moisture management problems	Runoff and evapotranspiration levels are minimized to meet Client's management objectives	Client input / planner observation
					RHA - hydrologic function attributes slight to moderate or less	RHA - Rangeland Health Assessment
					PCS - compaction element score ≥ 4 AND PCS - plant cover element score ≥ 4	PCS - Pasture Condition Score
10 - INSUFFICIENT WATER - Inefficient use of irrigation water	Irrigation water is not stored, delivered, scheduled and/or applied efficiently. Aquifer or surface water withdrawals threaten sustained availability of ground or surface water. Available irrigation water supplies have been reduced due to aquifer depletion, competition, regulation and/or drought	- All*		PLU is not irrigated	FIRI - The Colorado Modified Farm Irrigation Rating for the planned irrigation system is a minimum of 75 percent of the total potential index for that irrigation system	FIRI - Colorado Modified Farm Irrigation Rating Index (CO IWM 449, Job Sheet 2)

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
11 - WATER QUALITY DEGRADATION - Excess nutrients in surface and groundwaters	Nutrients - organic and inorganic - are transported to receiving waters through surface runoff and/or leaching into shallow ground waters in quantities that degrade water quality and limit use for intended purposes	- Crop*	Excess nutrients in surface water	Organic or inorganic nutrients are not applied AND PLU is not grazed	Nutrient and amendment applications are based on soil or tissue tests and nutrient budgets for realistic yields AND Conservation practices and managements are in place to minimize surface water impacts	Client input / planner observation AND Nutrient budget AND Colorado Phosphorus Index
			Excess nutrients in groundwater		Nutrient and amendment applications are based on soil or tissue tests and nutrient budgets for realistic yields AND Conservation practices and managements are in place to minimize groundwater impacts	Client input / planner observation AND Nutrient budget AND Colorado Nitrogen Leaching Index
		- Pasture*	Excess nutrients in surface and or groundwater	PCS - streambank / shoreline erosion element score ≥ 4 AND PCS - livestock concentration areas element score ≥ 4 AND Nutrient applications are based on a current soil test, CSU fertility recommendations, and nutrient budget based on realistic yield goals	PCS – Pasture Condition Score AND Nutrient budget	
		- Developed Land - Other Rural Land - Associated Ag Land - Designated Protected Area - Water - Forest - Range - Farmsteads*		Organic or inorganic nutrients are not applied AND PLU is not grazed AND There are no confined livestock areas	Nutrients if applied, are based on a soil test, tissue tests or nutrient budget AND Conservation practices and managements are in place to minimize surface and or groundwater impacts	Client input / planner observation AND Nutrient budget
12 - WATER QUALITY DEGRADATION - Pesticides transported to surface and groundwaters	Pest control chemicals are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes	- All*	Pesticides transported to surface and or groundwater	Pest control chemicals are not applied	Pesticides are stored, handled, disposed and managed to prevent runoff, spills, leaks and leaching AND Conservation practices and managements are in place to minimize surface and or groundwater impacts	Client input / planner observation AND WIN-PST / Colorado Pesticide Mitigation Worksheet (CO-PMW)

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
13 - WATER QUALITY DEGRADATION - Excess pathogens and chemicals from manure, bio-solids or compost applications	Pathogens, pharmaceuticals, and other chemicals carried by land applied soil amendments are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes. This resource concern also includes the off-site transport of leachate and runoff from compost or other organic materials of animal origin.	- Crop* - Pasture* - Farmsteads* - Forest - Developed Land - Associated Ag Land - Other Rural Land - Designated Protected Area - Water - Range	Pathogens and chemicals from manure, biosolids and or compost applications transported to surface and or groundwater	Potential sources of pathogens or pharmaceuticals are not applied on the land	Organic materials are applied, stored, and/or handled to mitigate negative impacts to surface and or groundwater resources	Colorado Nitrogen Leaching Index AND Colorado Phosphorus Runoff Index Client input / planner observation
14 - WATER QUALITY DEGRADATION - Excessive salts in surface and groundwater	Irrigation or rainfall runoff transports salts to receiving water in quantities that degrade water quality and limit use for intended purposes	- All	Excessive salts in surface and or groundwater	Excess salt is not a problem AND Activities do not contribute to excess salt problem	Salt concentrations are managed to mitigate off-site transport to surface and or groundwater	Client input / planner observation
15 - WATER QUALITY DEGRADATION - Petroleum, heavy metals and other pollutants transported to receiving waters	Heavy metals, petroleum and other pollutants are transported to receiving water sources in quantities that degrade water quality and limit use for intended purposes	- All	Petroleum, heavy metals, and other pollutants transported to surface and or groundwater	Activities do not present the potential for contamination by petroleum, heavy metals and other pollutants	Petroleum, heavy metals or other potential pollutants are stored and handled to avoid runoff to surface water or leaching to groundwater	Client input / planner observation

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
16 - WATER QUALITY DEGRADATION – Excessive sediment in surface waters	Off-site transport of sediment from sheet and rill, gully, wind and irrigation-induced erosion into surface water threatens to degrade surface water quality and limit use for intended purposes	- Crop*		Permanent ground cover > 90% and slope < 10% AND	Sheet and rill erosion rate ≤ T AND Wind erosion rate ≤ T AND Irrigation-induced erosion is ≤ T	RUSLE2 - Revised Universal Soil Loss Equation AND WEPS - Wind Erosion Prediction System AND (SISL - Surface Irrigation Soil Loss OR Soil loss volume x bulk density calculation)
		- Developed Land* - Farmsteads* - Other Rural Land - Associated Ag Land - Designated Protected Area - Water - Pasture*		Classic gullies are not present AND Streams or shoreline are not on or adjacent to site	Upslope treatment and buffer practices address concentrated flows to water bodies AND SVAP2 - bank condition ≥ 5 AND Livestock and vehicle water crossings are stable OR PFC functional rating = Proper Functioning	(Client input / planner observation AND SVAP2 - Stream Visual Assessment Protocol) OR PFC - Proper Functioning Condition
		- Forest*		There are no untreated sources of erosion AND Streams or shoreline are not on or adjacent to site	(Upslope treatment and buffer practices address concentrated flows to water bodies AND Heavy use areas are stable AND SVAP2 - bank condition ≥ 5) OR PFC functional rating = Proper Functioning	(Client input / planner observation AND SVAP2 - Stream Visual Assessment Protocol) OR PFC - Proper Functioning Condition
		- Range*			(RHA - hydrologic function attribute - slight to moderate or less AND SVAP2 - bank condition ≥ 5) OR PFC functional rating = Proper Functioning	(RHA - Rangeland Health Assessment AND SVAP2 - Stream Visual Assessment Protocol) OR PFC - Proper Functioning Condition
17 - WATER QUALITY DEGRADATION - Elevated water temperature	Surface water temperatures exceed State/Federal standards and/or limit use for intended purposes	- All		Water courses on or adjacent to the site are not designated by a State Agency as a temperature impairment OR Water course temperature is not a client concern	(SVAP2 - riparian area quality element score ≥ 5 AND SVAP2 - canopy cover element score ≥ 6) OR PFC functional rating = Proper Functioning OR Existing conservation practices are in place to address water temperature	(SVAP2 - Stream Visual Assessment Protocol OR PFC - Proper Functioning Condition) OR Client input / planner observation

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
PLANT						
18 - DEGRADED PLANT CONDITION - Undesirable plant productivity and health	Plant productivity, vigor and/or quality negatively impacts other resources or does not meet yield potential due to improper fertility, management or plants not adapted to site. This includes addressing pollinators and beneficial insects.	- Crop - Farmsteads - Developed Land - Designated Protected Area - Associated Ag Land - Other Rural Land		Plant production and health is not a client concern	Plants are adapted to the site, meet production goals and do not negatively impact other resources AND Plant damage from wind erosion is below Crop Damage Tolerance levels	Client input / planner observation AND National Agronomy Manual, Crop Tolerance to Blowing Soils, Table 502-1
		- Range*			Vegetation meet similarity index of 60 or greater for desired plant community OR RHA – biotic integrity attribute rating - slight to moderate departure or less	Similarity Index Worksheet OR RHA - Rangeland Health Assessment
		- Pasture*			PCS ≥ 30 Plants are adapted to the site, meet production goals and do not negatively impact other resources	PCS - Pasture Condition Score
		- Forest*			Forest species are adapted to site AND Composition and stand density meets the Client's objectives and production goals	Inventory plots and transect analyses
19 - DEGRADED PLANT CONDITION - Inadequate structure and composition	Plant communities have insufficient composition and structure to achieve ecological functions and management objectives. This includes degradation of wetland habitat, targeted ecosystems, or unique plant communities.	- Forest* - Designated Protected Area - Associated Ag Land - Water		Plant communities support the intended land use and desired ecological functions	Plant communities contain adequate diversity, composition and structure to support desired ecological functions	Ecological Site / Range Site Descriptions AND Inventory plots and transect analyses
		- Pasture			Plant communities contain adequate diversity, composition and structure to support desired ecological functions. PCS ≥ 4	PCS - Pasture Condition Score
		- Range*			Plant communities contain adequate diversity, composition and structure to support desired ecological functions OR RHA – biotic integrity attribute rating slight to moderate departure or less OR Vegetation meet similarity index of 60 or greater for desired plant community	Ecological Site / Range Site Descriptions With (Rangeland Health Assessment (RHA) OR Similarity Index Worksheet)

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
20 - DEGRADED PLANT CONDITION - Excessive plant pest pressure	Excessive pest damage to plants including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. This concern addresses invasive plant, animal and insect species.	- Crop - Farmsteads - Developed Land - Associated Ag Land - Designated Protected Area - Water - Other Rural Land			Pest damage to plants are below economic or environmental thresholds or client-identified criteria AND Plant pests, including noxious and invasive species are managed to meet client objectives	Client input / planner observation
		- Forest*				Client input / planner observation AND Inventory plots and transect analyses
		- Range*				Client input / planner observation AND Inventory plots and transect analysis AND Rangeland Health Assessment (RHA)
		- Pasture*				Client input/planner observation And PCS - Pasture Condition Score
21 - DEGRADED PLANT CONDITION - Wildfire hazard, excessive biomass accumulation	The kinds and amounts of fuel loadings - plant biomass - create wildfire hazards that pose risks to human safety, structures, plants, animals, and air resources	- All*			Hazardous fuels are managed and reduced to meet minimum specifications for defensible space irrespective of forest type, or reduce the probability of uncharacteristic fire in forest types that have unprecedented accumulation of fuels	Client input / planner observation AND Inventory plots and transect analyses

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
ANIMAL						
22 - INADEQUATE HABITAT FOR FISH AND WILDLIFE - Habitat degradation	Quantity, quality or connectivity of food, cover, space, shelter and/or water is inadequate to meet requirements of identified fish, wildlife or invertebrate species	- All with "wildlife" modifier (Required when Land Use has a wildlife modifier) - Range*			Species-specific or guild targeted assessment, or habitat assessment rating ≥ 0.5 AND (when surface stream present) SVAP2 score ≥ 7 OR PFC rating is "Proper Functioning" Species-specific or guild targeted assessment OR It is demonstrated that the quality, quantity and connectivity of all life requirements (food, water, cover, space, shelter) are met to support stable populations of the species of interest or guild of interest.	Habitat assessment tools (AREM, HEP, HGM, HSI, WHEG, WSM, etc.) AND SVAP2 - Stream Visual Assessment Protocol OR Proper Functioning Condition (PFC)
23 - LIVESTOCK PRODUCTION LIMITATION - Inadequate feed and forage	Feed and forage quality or quantity is inadequate for nutritional needs and production goals of the kinds and classes of livestock	- All with "grazed" modifier (Applicable when Land Use is grazed)			Livestock forage, roughage and supplemental nutritional requirements are addressed	Client input / planner observation Livestock Forage-Animal Balance Worksheet
24 - LIVESTOCK PRODUCTION LIMITATION - Inadequate livestock shelter	Livestock lack adequate shelter from climatic conditions to maintain health or production goals.	- All with "grazed" modifier (Applicable when Land Use is grazed)			Artificial or natural shelters meets animal health needs and client objectives	Client input / planner observation
25 - LIVESTOCK PRODUCTION LIMITATION - Inadequate livestock water	Quantity, quality and/or distribution of drinking water are insufficient to maintain health or production goals for the kinds and classes of livestock	- All with "grazed" modifier (Applicable when Land Use is grazed)			Water of acceptable quality and quantity is adequately distributed to meet animal needs	Client input / planner observation Water Availability Resource Inventory Worksheet Water Quality Sampling and Analysis

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
ENERGY						
26 - INEFFICIENT ENERGY USE – Equipment and facilities	Inefficient use of energy in the Farm Operation increases dependence on non-renewable energy sources that can be addressed through improved energy efficiency and the use of on-farm renewable energy sources. As an example, this concern addresses inefficient energy use in pumping plants, on-farm processing, drying and storage.	- All		Client is not interested in improving equipment and facilities energy efficiency	A USDA approved energy audit been implemented that address equipment and facilities to meet client objectives OR On-farm renewable energy and/or energy conserving practices have been implemented to meet client objectives	Client input / planner observation USDA approved Energy Audit NRCS Energy Estimator
27 - INEFFICIENT ENERGY USE – Farming/ranching practices and field operations	Inefficient use of energy in field operations increases dependence on non-renewable energy sources that can be addressed through improved efficiency and the use of on-farm renewable energy sources.	- All		Client is not interested in improving energy use in farm and ranch field operations	A USDA approved energy audit been implemented that address field operations to meet client objectives OR On-farm renewable energy and/or energy conserving practices have been implemented to meet client objectives	Client input / planner observation USDA approved Energy Audit NRCS Energy Estimator
AIR						
28 - AIR QUALITY IMPACTS - Emissions of Particulate Matter - PM - and PM Precursors	Direct emissions of particulate matter - dust and smoke -, as well as the formation of fine particulate matter in the atmosphere from other agricultural emissions - ammonia, NOx, and VOCs - cause multiple environmental impacts, such as: - The unintended movement of particulate matter - typically dust or smoke - results in safety or nuisance visibility restriction - The unintended movement of particulate matter and/or chemical droplets results in unwanted deposits on surfaces - Increased atmospheric concentrations of particulate matter can impact human and animal health and degrade regional visibility	- Crop - Pasture - Range - Forest - Other Rural Land - Associated Ag Land - Designated Protected Areas - Developed Land - Farmsteads		Activities are not present that contribute to agricultural source PM or PM precursor emissions. PM Producing Activities: • Prescribed Burn is conducted • Travel ways are unpaved or untreated with binding agents • Engines (combustion source) • Tillage • Pesticides are applied • Fertilization (manure/commercial) • CAFO/manure management) AND Episodes or complaints of emissions of PM (dust, smoke, exhaust, etc.), or chemical drift have not occurred	PM and PM Precursor emissions are managed to meet client objectives	Client input / planner observation

Resource Concern Cause	Description of Concern	Land Use * Required Assessment	Resource Concern Component	Planning Criteria		Measurement & Assessment Tools
				Screening Level	Basic Assessment Level	
29 - AIR QUALITY IMPACTS - Emissions of Greenhouse Gases - GHGs -	Emissions increase atmospheric concentrations of greenhouse gases.	- All		Activities are not present that produce GHGs emissions GHG Producing Activities: • Fertilization (manure/commercial) • CAFO/manure management • Engines (combustion source) • Tillage AND GHGs are not regulated in this planning area	Greenhouse gas emissions are managed to meet client objectives	Client input / planner observation
30 - AIR QUALITY IMPACTS - Emissions of Ozone Precursors	Emissions of ozone precursors - NOx and VOCs - resulting in formation of ground- level ozone that cause negative impacts to plants and animals.	- All		Operations are not present that produce ozone or precursor emissions Ozone Producing Activities: • Engines (combustion source) • Pesticide application • Burning • CAFO/manure management • Fertilization (manure/commercial)	Ozone precursor emissions are managed to meet client objectives	Client input / planner observation
31 - AIR QUALITY IMPACTS - Objectionable odors	Emissions of odorous compounds - VOCs, ammonia and odorous sulfur compounds - cause nuisance conditions	- Crop - Pasture - Farmsteads - Other Rural Land		Activities are not present that contribute to nuisance air quality conditions Nuisance Producing Activities: • Pesticide application • CAFO / manure management • Composting is conducted AND Odor sources are not regulated in this planning area AND Episodes or complaints of emissions of PM (dust, smoke, exhaust, etc.), or chemical drift have not occurred	Odors are managed to meet client objectives	Client input / planner observation

References

Colorado Modified Farm Irrigation Rating Index (FIRI)

USDA, NRCS. 2014. Colorado Field Office Technical Guide, Sec. IV, Standards and Specifications. *Irrigation Water Management 449 Job Sheet 2, CO Modified Farm Irrigation Rating Index (FIRI)*. Denver, CO. http://efotg.sc.egov.usda.gov/references/public/CO/CO449_JS2.xlsx

Colorado Nitrogen Leaching Index

USDA, NRCS. 2012. Colorado Field Office Technical Guide, Sec. I, Technical Notes, Agronomy Technical Note 97. *Colorado Nitrogen Leaching Index Risk Assessment Ver. 3*, Denver, CO http://efotg.sc.egov.usda.gov/references/public/CO/COATN_97.pdf

Colorado Pesticide Mitigation Worksheet

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Colorado Phosphorus Index

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