United States Department of Agriculture

Missouri Job Sheet

Conservation Crop Rotation JS-MO328

Natural Resources Conservation Service (NRCS) Missouri Conservation Practice 328
January 2016

Definition

Growing different crops in a recurring sequence on the same piece of land. This may include alternating row crop production from a high residue producing crop to a low residue producing crop like soybeans. It may also involve rotation to a small grain or grass-legume mix for hay. Including cover crops after the row crop will also be a conservation crop rotation measure.

Cover Crops after row crop

Purpose

This practice is applied to support one or more of the following purposes:

- Reduce sheet, rill and wind erosion.
- Maintain or increase soil health and organic matter content.
- Reduce water quality degradation due to excess nutrients.
- Improve soil moisture efficiency.
- Reduce plant pest pressures.
- Provide feed and forage for domestic livestock.
- Provide food and cover habitat for wildlife, including pollinator forage, and nesting.

Crop Rotation Requirements

To reach the planned level of erosion reduction or Soil Conditioning Index (SCI), you must follow the crop sequence shown in your conservation plan.

Applying the Practice

This practice is considered applied when the most conserving crop has been planted at least once in each specified field, or conservation treatment unit. The "most conserving" crop is the crop with the lowest overall erosion potential in the specified crop rotation. After the rotation or cropping sequence is established, it will continue and be repeated on the established schedule.

Adding Small Grains into the Rotation

General Specifications

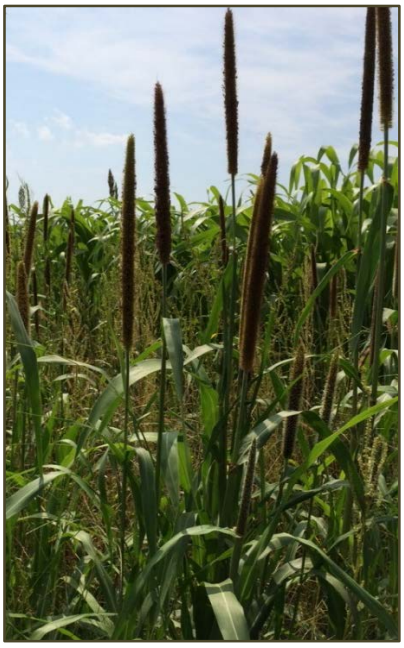
- Crops shall be grown in a planned recurring rotation, unless a suitable substitution crop is used.
- Cover crops can be grazed and should have a minimum height of 6-8" inches before grazing. Livestock should graze no more that 40% of available cover crop forage to insure enough biomass remains for the intended purpose.
- A conservation crop rotation may include crops planted for cover, nutrient enhancement, or weed control.

Other Considerations

Selecting varieties that produce high residues, using cover crops, plant density, and row spacing will all help in reducing erosion. Combining other practices such as No Till (Code 329) and Buffer Strips (Code 332) will increase the effectiveness of the Conservation Crop Rotation (Code 328) practice. In general, crops can be categorized into high and low residue producing groups. The high residue producing crops are considered more conserving because they provide better protection to the land than the low residue producing crops. Knowing which kind of crop you are growing can be useful in planning any crop substitutions.

High Residue Crops	Low Residue Crops
Corn Grain	Corn Silage
Sorghum Grain	Sorghum Silage
Small Grains (winter or spring)	Soybeans
Perennial Forages (grass or legume)	Sunflowers
All crops with winter Cover Crops	Vegetables or any root crops
Sudangrass Hybrids	Tomatoes
Millets	Cotton

Table 1: Common Missouri Crops and Residue Category



Pearl Millet

Adjusting the rotation

Weather conditions, unexpected herbicide carryover, and marketing considerations can affect year to year crop rotation decisions. This may require adjustments in the scheduled crop rotation. Simple adjustments to rotations can often be made by following these guidelines:

Cover Crop Mix after Wheat

- Small grains and hay mix can always be used to replace any row crop or low residue crop.
- Cover crops can be planted in a timely manner after the annual crop.
- Corn or sorghum (grain) can always be used to replace soybeans or any other low residue crop in the rotation.
- For crop rotations which include hay (meadow), the rotation can be lengthened by maintaining the existing hay stand for additional years.
- Any crop substitutions which are not identified in this job sheet should be evaluated to ensure sufficient quantities of biomass to reduce erosion to acceptable soil loss levels.
- Warm season grass such as millets, sorghums, sudangrass, or sorghum-sudangrass can replace any corn or soybean in the rotation.
- Any high residue crop can replace a low residue crop.
- **Contact your local NRCS office prior to planting the substitute crop**.

Agroecosystem Biodiversity

In agricultural systems, biodiversity performs many ecosystem services including:

- Production of food, feed, fuel, and fiber.
- Decomposition of plant residues for cycling of nutrients.
- Production of nutrients with plant biomass and legume crops.
- Water cycle regulation for surface and ground water.
- Detoxification of chemicals in agricultural systems.
- Habitats for plant and animal life.

Agriculture can play a role in diversifying landscapes. Management decisions influence how agriculture can enhance ecosystem services such as water infiltration, diversified soil organisms, disease and pest suppression, clean water, and pollinator habitats. The use of cover crops, perennial mixed forages, and small grain crops can be part of biodiversity. Vineyards and orchards can also benefit from cover crops, intercropping, and perennial covers (Altieri, 1999).

Maintenance

After the most conserving crop is established, the conserving crop will continue to be rotated with the other crops in subsequent years. Consider application methods of pesticides to avoid negative impacts on future crops in the rotation including cover crops. In addition, carefully consider pesticide application when raising crops for wildlife purposes. Unharvested crop rows and crop residues can provide wildlife with valuable food and cover.

References

Altieri, M.A., 1999. The ecological role of biodiversity in agroecosystems. Agriculture, Ecosystems & Environment 74, 19-31.

United States Department of Agriculture

Conservation Crop Rotation – Job Sheet -Rotation Schedule and Documentation

Producer Name:	Farm # Tract#
Field(s): Total Acres Applied:	Rotation Years:
Designed By: Date:	

Purpose (check all that apply)	
☐ Reduce erosion from wind and water	☐ Provide feed and forage for domestic livestock
☐ Maintain or increase soil health and organic matter	☐ Manage plant pests (weeds, insects, diseases)
☐ Reduce water quality degradation due to excess nutrients	☐ Improve soil moisture efficiency
☐ Provide food and cover for pollinators and wildlife	

Existing Crop Rotation _____

Planned Conservation Crop Rotation

Field No. & Acres	Rotation Year	Planned Crop(s) Including Cover Crops	Applied Crop(s) Including Cover Crops	Tillage Operations (RUSLE2 printout with positive SCI and tillage information is adequate)	Approved Suitable Crop Substitutions (if needed for weather or other situations)
	1				
	2				
	3				
	4				
	5				
	6				

Attach map and RUSLE2 printout with job sheet for documentation. Upon completion of the practice, I certify that the above listed practice was completed according to the NRCS specifications, design, and installation on the field and area identified above.

_____ _____

NRCS/SWCD Employee Signature **Date**

Extra Tables (if needed)

Field No. & Acres	Rotation Year	Planned Crop(s) Including Cover Crops	Applied Crop(s) Including Cover Crops	Tillage Operations (RUSLE2 printout with positive SCI and tillage information is adequate)	Suitable Crop Substitutions (if needed for weather or other situations)
	1				
	2				
	3				
	4				
	5				
	6				

Field No. & Acres	Rotation Year	Planned Crop(s) Including Cover Crops	Applied Crop(s) Including Cover Crops	Tillage Operations (RUSLE2 printout with positive SCI and tillage information is adequate)	Suitable Crop Substitutions (if needed for weather or other situations)
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NRCS SWCD Employee Signature **Date**