U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NEW YORK CONSERVATION PRACTICE GUIDELINE

RESIDUE AND TILLAGE MANAGEMENT:

NO TILL/STRIP TILL/DIRECT SEED

MULCH TILL

RIDGE TILL

(Ac.)

CODES 329, 345 and 346

REFERENCES

National Handbook of Conservation Practices - Codes 329-Residue and Tillage Management, No Till/Strip Till/Direct Seed, 345-Mulch Till, and 346-Ridge Till
Lead Discipline: ESD-Agron

Commonly Associated Practices or Procedures

The following conservation practices are commonly used in conjunction with this practice to address natural resource concerns and opportunities in New York. This does not imply that any or all of the listed practices must be included or that others may not be included in a conservation management system (CMS). Consult Section III of the Field Office Technical Guide for assistance in developing a CMS.

To determine whether a Conservation Practice Standard applies to this and any other associated practices in New York, check the following website: http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=NY. Select a County. On the eFOTG main screen, in the menu pane on the left side of the screen, open the Section IV folder to find the Conservation Practices for use in New York. Also included under Section IV are New York Construction Specifications, Engineering Job Sheets, Guidelines and/or Procedures relevant to the Practice Standards.

Table A: Commonly Associated Processes or Practices

Number	Name
	CNMP
328	Conservation Crop Rotation
330	Contour Farming
340	Cover Crop
344	Residue Management, Seasonal
324	Deep Tillage
362	Diversion
412	Grassed Waterway
585	Stripcropping
590	Nutrient Management
595	Pest Management
600	Terrace

OTHER REFERENCES

RUSLE2 Manual and Software http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm

The following references can be accessed from http://policy.nrcs.usda.gov

National Agronomy Manual
NRCS National Planning Procedures Handbook (NPPH)
NRCS National Environmental Compliance Handbook (NEPA)

NRCS New York electronic Field Office Technical Guide (eFOTG):
http://efotg.nrcs.usda.gov/treemenuFS.aspx

NRCS Tillage Equipment Identification Guide

NRCS Agronomy Technical Reference No. 56 "Crop Residue Management To Reduce Erosion and Improve Soil Quality – Appalachia and Northeast" USDA-ARS, Conservation Research Report No. 41. 1995

Cornell Guide for Integrated Field Crop Management
Equipment Manufacturer's Publications

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

Determine that an Environmental Evaluation (EE) has been completed. Results of the EE must be documented on a NRCS CPA-52. Based on the EE results determine if the project can proceed.

Cultural Resources - reviews will be conducted for all ground disturbing practices, components, or other activities, as per the State Level Agreement between NRCS and the New York State Historic Preservation Officer.

Threatened and Endangered (T&E) species review will be conducted for all projects as a part of the NEPA process. This review will include an assessment of the most current NYS Natural Heritage Program Database records documenting the current or historical presence of T&E species within or adjacent to the project area. If a T&E, species is or was historically present on or adjacent to the site, as indicated by the NYS Natural Heritage Program Database or field observation, document findings on the NRCS-CPA-52 form and contact a NRCS Biologist for guidance on how to proceed with the project.

PERMITS AND NOTIFICATIONS

All permits, easements, and rights-of-way are the responsibility of the landowner. **Dig Safely NY** (formerly the Underground Facilities Protection Organization, or UFPO) and non-member local utilities will be contacted according to the time required before construction to mark all applicable facilities in the construction area. This is the responsibility of the excavator.

Identification and the location of all other underground or overhead facilities is the responsibility of the landowner.

EROSION AND SEDIMENT CONTROL

An erosion and sediment control plan shall be developed for all ground-disturbing activities. For disturbed areas greater than one acre, the erosion and sediment control plan shall meet the planning, installation, and maintenance requirements of NYS Pollutant Discharge Elimination System General Permit for Stormwater Discharges. All erosion and sediment control structures and measures shall be installed prior to earth disturbing activities unless otherwise directed in the construction drawings and specifications.

DECISION MAKER INVOLVEMENT AND PLAN REVIEW

Involve the decision maker at all stages of inventory and design. Review the conservation plan. Determine that the NEPA process has been completed and documented on a CPA-52 and that the project can proceed with no additional analysis required. All landowner decisions need to be documented. Ensure an operation and maintenance plan is provided to and reviewed with the decision maker.

INVENTORY AND EVALUATION

1. Identify landowner/operator cropping goals and objectives.
2. Determine the resource concern(s) to be addressed with Residue Management. Consider sheet and rill erosion, wind erosion, ephemeral/ gully erosion, soil quality, and energy consumption.
3. Review all potential sites in the field to determine if the site meets the "Conditions Where Practice Applies" statement within the conservation practice standard.
4. Determine existing tillage methods, timing, crop rotations, yields, and supporting practices. Inventory the tillage equipment available to the producer.
5. Through detailed field analysis, determine the critical dominant slope for each field or conservation management unit. Measure the slope percentage, slope length, and row gradient for RUSLE2 sheet and rill erosion calculation.
6. Document and measure any concentrated flow erosion areas. Use procedures outlined in eFOTG to calculate the mass soil loss.
7. For sheet and rill erosion, enter all required inputs into RUSLE2 to determine soil loss, soil conditioning index, Soil Tillage Intensity Rating (STIR), and energy consumption for the current management system.
8. If wind erosion is a resource concern, the unsheltered distance along the prevailing wind direction must be measured for the field or fields.
9. For wind erosion, enter all required inputs into the Wind Erosion Prediction System (WEPS).
10. Summarize existing conditions for sheet and rill, ephemeral, gully, wind erosion, soil quality trends, and energy consumption in a benchmark plan narrative with supporting documentation.

DESIGN

1. Prepare plan maps with fields delineated where practice is to be applied, acres, land use, tract number(s), field number(s), location of existing support practices, and location of any features sensitive to runoff.
2. Develop alternatives using RUSLE2 and/or WEPS. Match crop management scenarios and supporting practices with proposed reduced soil tillage intensity methods to reach soil loss, STIR, soil quality, and energy consumption objectives.
3. Evaluate and identify any additional conservation practices needed in conjunction with residue management practices that will result in the application of a conservation management system. Refer to the appropriate practice standard and practice guideline as needed. Be sure that additional conservation practices are compatible to the planned tillage methods, crop management scenarios, and supporting practices.
4. Ensure that tillage equipment aligns with baseline and width of supporting practices.
5. Identify and treat with appropriate practices all concentrated flow areas that may threaten residue stability and retention.

6. If post-harvest residue amounts are altered by bailing, flail chopping, or grazing, insure that the correct residue removal operation has been entered into the RUSLE2 scenario.
7. Develop detailed practice specifications using a RUSLE2 and/or WEPS report. Specifications need to clearly document crops and cropping sequence; all operations in terms of implement types and number of field passes; any external inputs of residues; and all required supporting practices.
8. Determine your level of Job Approval Authority under the Ecological Science Conservation Practice Standard Certification System. Obtain approval from appropriate individual if not qualified to certify and approve the completed practice.

INSTALLATION

The practice inspection will be in accordance with the practice being installed.

1. Provide and review with the producer the detailed practice specifications using a RUSLE2 and/or WEPS management report.
2. Verify that the actual field operations and management match the RUSLE2 and/or WEPS planned scenario.
3. Planned residue amounts are calculated by the RUSLE2 and/or WEPS models. Insure that residue is distributed evenly over the field. Checking residue levels using the line-transect method at the critical period (after planting) may be advisable to verify the management system planned was applied.
4. Inspect all component practices to ensure they are installed in the proper sequence, according to the design. Refer to respective guidelines as needed.
5. Benchmark this practice with respect to the crop rotation year in the conservation plan.
6. Follow-up with the landowner annually to ensure that the practice is meeting his/her needs and expectations and that the identified resource concerns are addressed.
7. Make plan adjustments as necessary.

CHECK OUT

All planned, designed, and installed conservation practices require documentation in the appropriate case file. Documentation must be sufficient to show:

1. The design conforms to the applicable standard;
2. The prepared construction drawings, specifications, plan maps, and/or job sheets accurately reflect the design;
3. The installed practice meets the requirements of the construction drawings, specifications, and practice standard; and
4. The “As Built” condition of the practice. Write “As Built” in red on drawings. Record all changes made during implementation in red. Practices not requiring drawings will have the “As Built” condition documented on plan maps, job sheets, and/or with narrative.

REPORTING

Enter all documentation in the Conservation Plan (Toolkit), contract document (Protracts) and Conservation Assistance Notes (NRCS-CPA-6/6A).

Report the practice and applicable components in the NRCS Progress Reporting System (PRS). Be certain to report benefits for all applicable resources and resource concerns as allowed in the NRCS progress reporting system.

OPERATION AND MAINTENANCE

Facilities, structures, and practices must be operated and maintained to ensure proper function and longevity. Periodic follow-up with the landowner is essential to ensure that all operation and maintenance (O&M) requirements are understood and followed.