

Landowner/Producer:		Farm #:
Field(s):	Acres:	Tract #:
Designed By:		County:
		Date:

**DEFINITION:** The treatment of residual woody material that is created due to management activities or natural disturbances.

**PURPOSE: (check all that apply)**

- Reduce hazardous fuels.
- Reduce the risk of harmful insects and disease
- Protect/maintain air quality by reducing the risk of wildfire
- Develop renewable energy systems
- Enhance aesthetics
- Reduce the risk of harm to humans
- Improve the soil organic matter
- Improve the site for natural or artificial regeneration



**SPECIFICATIONS: (check all that apply)**

- General specifications.** Apply these practices for all purposes.
  - Maintain necessary filter strips and/or riparian forest buffer areas.
  - Remaining slash and debris should not create habitat for or harbor harmful levels of pests, or hinder needed equipment operations, or create undue fire hazard.
  - Erosion and/or runoff will be controlled.
  - Soil compaction and soil displacement will be minimized.
  - Comply with applicable federal, state, and local laws and regulations.

Specific specifications for applying this practice are listed below. Follow all specifications for this practice that are checked.

**Reduce hazardous fuels.** Woody residue is treated so concentrations of 1" size material and larger (10.0-hour fuels) do not exceed 9 tons/acre (computations based on oven-dry weights and air-dry volume) and do not exceed 2 feet in height (with exceptions for piling and windrowing of up to 10 feet heights and 20 feet widths). Piles and windrows should be positioned to prevent fire damage to crop trees and desirable vegetation. Treat slash to prevent spread of fire within 100 feet of public roads and railroads and 200 feet of areas with frequent concentrated public use. Residue treatment will be coordinated with fire break needs as applicable.

**Reduce the risk of harmful insects and disease.** Based on the characteristics and life cycles of existing and anticipated pest species, treat and/or dispose of woody residue in a way to minimize harm and infestation to the residual trees and adjacent stands/areas.

- Protect/maintain air quality by reducing the risk of wildfire.** Woody residue is treated so concentrations of 1" size material and larger (10.0-hour fuels) do not exceed 9 tons/acre (computations based on oven-dry weights and air-dry volume) and do not exceed 2 feet in height (with exceptions for piling and windrowing of up to 10 feet heights and 20 feet widths). Position piles and windrows to prevent fire damage to crop trees and desirable vegetation. Treat slash to prevent spread of fire within 100 feet of public roads and railroads and 200 feet of areas with frequent concentrated public use. Residue treatment will be coordinated with fire break needs as applicable.
- Develop renewable energy systems.** Woody residue treatment that involves removing biomass from the site for renewable energy purposes must take all environmental concerns into consideration. Recommendations outlined in *Missouri Woody Biomass Harvesting Best Management Practices Manual* (Missouri Department of Conservation) pertaining to residue retention shall be followed.
- Enhance aesthetics.** Woody residue will be treated sufficiently to comply with client objectives for aesthetics. Consider wildlife needs when performing treatments. Occasionally leave a few small scattered piles for wildlife cover.
- Reduce the risk of harm to humans.** Woody residue will be treated to facilitate safe access by humans. Stumps created by treating slash should be cut low enough to the ground to eliminate safety threats to those using the area.
- Improve the soil organic matter.** Woody residue will be treated to minimize its size and maximize its contact with the forest floor to accelerate decomposition. Where chips are produced in sufficient quantities to uniformly cover the ground surface, depth shall not exceed 3 inches. To provide a source for organic matter cycling, residual slash left after treatment shall not fall below 2 tons/acre and be as evenly distributed as possible. Where feasible, let fine debris (needles, leaves, and twigs) weather and/or fall from slash before it is burned or removed from the site. Debris left on the site after treatment shall not present an unacceptable fire, safety, environmental or pest hazard. Such remaining material shall not interfere with the intended purpose or other management activities.
- Improve the site for natural or artificial regeneration.** Woody residue treatment and intensity will be coordinated with site preparation treatment and tree and shrub establishment activities.

**METHODS: (check all that apply)**

The method of residue treatment will be based on; 1) desired purpose(s) and 2) the condition and extent of residual slash. When determining method and timing of slash treatment, consider air quality regulations, burning requirements, available resources, and ability to use the woody biomass and regeneration needs.

**Woody residue treatment methods:**

- Removal:** Slash is removed from the site. This method is suited to areas with higher slash accumulations where other methods may not sufficiently reduce undesired materials in order to utilize the material, or dispose of it safely. Recommendations outlined in *Missouri Woody Biomass Harvesting Best Management Practices Manual* (Missouri Department of Conservation) pertaining to residue retention shall be followed.
- Lopping and scatter:** Lopping is the cutting of limbs, branches, treetops, small diameter trees, or other woody plant residue into lengths so that the remaining slash will lie close to the ground. Scattering is the spreading of lopped slash evenly over the ground so that the remaining residue will lie close to the ground. This method is suited to areas with lower accumulations and is effective for such accumulations in meeting height requirements, facilitating use of the treated area by humans and animals, improving aesthetics, and distributing material more uniformly and closer to the forest floor for faster decomposition. Safety equipment (e.g., goggles, gloves, chaps, ear plugs) must be worn when using chainsaws or other lopping equipment and comply with the federal, state and/or local safety authority.

Piling and burning: Piling is placing, laying, heaping or stacking of woody residue into piles to facilitate intended burning. Burning is igniting piled slash under prescribed conditions to reduce the amount and continuity of fuels. These methods are suited to areas with adequate spacing between residual trees or areas with few or no residual trees. Piles that will be burned later may be “mounded” to shed water or, if small in size, temporarily covered with water-resistant paper or plastic to allow material beneath to dry. Loosely stacked, unburned piles or windrows can serve as nesting and escape cover for wildlife. When machine piling or windrowing, a “brush rake” (blade with tines) will minimize pushing surface soil into slash accumulations. Synthetic materials (e.g., old tires, petroleum products) will not be incorporated in piles. **Any burning will comply with a Prescribed Burning plan** and be conducted to minimize heat damage to residual trees, their roots and underlying soil. Avoid piling and burning in sensitive areas such as glades due to possible long term damage to the soil. All burning associated with slash removal must meet local and state burning regulations.

Chipping: This method includes the mechanical conversion of woody residue to chips and chunks of varying sizes to distribute on site or utilized offsite as landscape mulch. For safety purposes, humans and animals must be excluded from areas being treated by equipment that flails and throws chips and chunks. Operate machinery to minimize bark damage to the residual trees. This chipped material can also be used as woody biomass fuel or pulp for paper products.

Crushing: This method involves the use of heavy ground-based equipment that crushes/grinds woody residue to a depth not exceeding 2 feet. The closer crushed material is to the forest floor, the quicker decomposition occurs and the less chance of fire reaching into the above canopy layers.



#### MINIMUM TREATMENT:

Woody residue that is lopped and scattered, shredded, or crushed **will not exceed 24 inches in depth** on any part of the treatment area.

#### TIMING:

Treatment shall coincide with the intended purposes and minimize impact on other resources. Reduce the risk of damage by harmful insects.

Pile and burn the piles when the piles are dry [usually six (6) months after being cut] and at a time when it can be conducted in a safe manner. Follow Missouri’s open burning rules and laws. The landowner is responsible for obtaining any required permits. **Any burning activities should comply with the Prescribed Burning plan.** Slash piles should be placed in natural openings (avoiding sensitive areas such as glades) and/or away from trees to avoid damaging or scorching them when piles are burnt. Piles must be free of excessive dirt and debris to facilitate complete consumption of the debris. When feasible, use chipping, shredding, woody biomass fuel, pulp, or other techniques, in lieu of burning.

#### MONITORING:

Monitor the potential damage to site resources by harmful pests and take necessary controlling actions.

Access by vehicles or people will be controlled during slash treatment for safety.

ADDITIONAL COMMENTS AND RECOMMENDATION

DRAFT

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

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