

Water Quality Enhancement Activity – WQL02 – *Biological Suppression and Other Non-chemical Techniques to Manage Herbaceous Weeds and Invasive Species*



Biological Suppression and Other Non-Chemical Techniques to Manage Herbaceous Weeds

This enhancement is for the reduction of invasive species and/or herbaceous weed using physical and or biological control methods. Physical methods include pulling, hoeing, mowing, mulching or other similar methods. Biological methods include use of natural enemies either introduced or augmented. Use of chemicals is prohibited with this

enhancement.

Land Use Applicability

This enhancement is applicable on pasture, rangeland, and woodland in which an invasive plant and/or herbaceous weed problem exist.

Benefits

Environmental benefits will be site specific. Benefits may include but are not limited to improved water quality achieved through eliminating the use of synthetic pesticides resulting in no chemicals in surface runoff or leaching into the soil profile. Air quality will see similar impacts by eliminating chemical drift and volatilization. Controlling invasive species and/or herbaceous weeds will allow native plant communities to return and improve wildlife habitat.

Criteria

- 1) Develop a plan for managing invasive and/or herbaceous weeds that includes:
 - Assessment of existing conditions
 - Identify strategies for control
 - Control methods selected
 - Monitoring and evaluation process
 - Operation and maintenance follow up activities
- 2) Implementation of this enhancement requires the use of biological pest suppression techniques instead of pesticides. These techniques, used individually or in combination, can include activities such as:
 - Grazing animals (primarily through the use of goats) to target undesirable vegetation.
 - Introduction of beneficial insects to attack undesirable vegetation.
 - Introduction of beneficial micro-organisms to attack undesirable vegetation.
 - Hand removal or cultivation



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- Mowing or cutting
- 3) Biological suppression techniques should be based on techniques recommended by the local Land Grant University.
- 4) Biological suppression must be preceded by an analysis to ensure the proposed biological agent is compatible with the agronomic, ecological and social objectives of the operation.
- 5) Operation and maintenance activities must be followed to ensure regrowth is controlled. Additional treatment of individual plants or areas needing retreatment should be completed as required to effectively controlling the targeted species.

Documentation Requirements

Written documentation for each treatment area and year of this enhancement including:

- a. A full description of all biological and/or physical suppression techniques utilized include:
 - Method (s) of control used
 - Area (s) on farm control methods were applied
 - Number of animals or insect colonies distributed and the planned time frame of the treatment.
 - Photograph (s) of treatment applied
- b. A map showing where the activities were applied including treatment acreage

**TENNESSEE SUPPLEMENTAL INFORMATION FOR
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Grazing animals (goats, sheep, cattle or horses) used to target undesirable vegetation. Grazing animal will be matched to targeted vegetation.

- The prescribed grazing treatment for control of brush will be for up to three years or less if control is achieved sooner. Control will be considered achieved if no live plant tissue is observed for a period of two months after grazing in the growing season (April – Oct.). Grazing prescription to control invasive plants will target priority areas. Sufficient animals will be needed to maintain 85 percent or more defoliation. Stock the treatment area in early spring prior to green up. The objective is to deplete carbohydrate reserves of invasive plants.
- Stock density of 10,000 lbs./ac. is ideal (i.e. 100/100 lb. goats on one acre or 25/100 lb. goats on ¼ acre). Minimum stock density will be 4,000 lbs./ac. Stock density will depend on palatability of species being targeted and season of use. Vary the stocking rate and/or the area of treatment based on forage availability.
- Supplemental nutrients should be provided to animals to maintain Body Condition Score (BCS) of 4, moderate condition, or higher. Animals can be brought in or removed from the treatment area to maintain their body condition and health.
- Physical removal can be accomplished by hand tools or other mechanical methods, no chemicals are to be used for this activity.
- Always consider erosion and impact on sensitive areas. Monitor erosion potential, one option if erosion is a threat is to unroll hay which has seed of a desired species in it. Goats will tromp in mulch and seed as well as fertilize the seeding with manure. Otherwise establish cover using traditional methods.

Field Number	Acres	Existing Condition: Target Plant(s) % Cover	Control Method: Goats, Hand removal, Cultivation	Planned rotation or interval of mechanical removal	Date and status of treatment	Notes