

Knapweed Management

For Northeast Farms and Grazing Lands

Spotted and Brown Knapweed, *Centaurea maculosa* and *Centaurea jacea*, are relative newcomers to the Northeast, and their woody, spiny stems and invasive tendency have become an immediate problem. Knapweeds reduce the quality of pasture lands and baleage, limiting good forages and reducing the value of baled ones.

In 2004, a SARE Farmer/Grower Grant funded a research project at Huot - Kinne Farm in Columbus, New York. The farmer was noticing an increasing quantity of knapweeds and bedstraw in his pasture and hayfields and wanted to know the best recommendations for their control, but recommendations for the Northeast were basic and only focused on herbicide spraying and mowing. (See accompanying fact sheet for bedstraw information)

In an effort to find alternatives, a three year research project evaluating 7 different treatments ran from 2004 to 2007. An herbicide (dicamba), three mowing frequencies, bovine grazing, pH adjustment, and biocontrol predatory insects (knapweed seedhead and root weevils) were tested and compared against an untreated field.



These recommendations are based on the results of the research project at the farm; evaluate the scenarios and recommendations for which best fits your farm and goals before implementing. Contact your local Cooperative Extension, Soil and Water Conservation District or Natural Resources Conservation Service office for additional management information. For the complete research report go to: <http://www.cce.cornell.edu/Chenango>.

Overall Recommendations on controlling Knapweed

1 - Do not plow infested fields as this appears to encourage spreading.

Options for heavy infestations:

2 – Graze at very high stocking rate if you have livestock.

Temporary fencing allows for rapid movement of animals and lets you virtually “nuke” the ground through very high stocking rates.

3 - Mow 2 to 3 times per year as flowers appear and prior to seed development. Late spring and late summer mowings were found to be more effective than late spring followed by mid-summer mowings.

4 – Improve overall field fertility by applying lime, animal manure and/or organic fertilizers to improve competitiveness of desirable species.



Knapweed basal rosette and dry seed heads.

5 - Spray with dicamba or comparable herbicide according to Cornell Cooperative Extension and manufacturer’s guidelines. Apply in fall and mow in spring to control seed development. Approximate cost - \$8 – \$12 per acre, plus cost of chemical (\$17/ac.) (2006 price)

Farm Scenarios for addressing Knapweed infestation

Early signs of infestation – a small number of Knapweed plants are present in field(s).

Key Strategies:

Livestock Farms – Do not allow the fields that contain Knapweed to go un-grazed. Encourage intensive grazing of Knapweed plant areas by livestock, early in the season. When Knapweed plants are young livestock find them palatable. Return animals to these areas upon re-growth of Knapweed plants. Do not allow plants to flower and develop seed. Use mowing if necessary. If unable to graze closely see *Non-Livestock Farms* next.

Non-Livestock Farms - Do not allow the fields that contain Knapweed to go un-mowed. Knapweed spreads rapidly in idle fields and can quickly become the dominant plant. Mowing 2 to 3 times per year will help keep Knapweed in check and enhance the environment for grasses and broadleaf plants that flourish under this type of management. Improving fertility with animal manure and/or organic fertilizers and lime will also help desirable plants to improve vigor.

Moderate infestation – moderate amounts of Knapweed plants spread throughout the field(s) or heavy infestations in small areas of fields.

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Livestock Farms – Encourage intensive grazing of Knapweed plant areas by livestock, early in the season. When Knapweed plants are young livestock find them palatable. Return animals to these areas upon re-growth of Knapweed plants. Do not allow plants to flower and develop seed. Use mowing if necessary. Consider introducing Knapweed appropriate biological control agents such as Knapweed Flower Weevil and Knapweed Root Weevil, particularly in heavy infestation areas. Consult Cornell Cooperative Extension for appropriate regulations and rates of introduction. If unable to graze closely see Non-Livestock Farms.

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Heavy infestation – high numbers of Knapweed plants throughout field(s).

Key Strategies:

Livestock Farms – Apply very high stocking rate grazing of fields with Knapweed plants early in the grazing season. When Knapweed plants are young livestock find them palatable. Additionally, the ground should show heavy animal impact from livestock herd effect. Return animals to these fields upon re-growth of Knapweed plants. Do not allow plants to flower and develop seed. Use mowing if necessary. Consider if unable to graze closely see Non-Livestock Farms.

Non-Livestock Farms - Do not allow the fields that contain Knapweed to go un-mowed. Knapweed spreads rapidly in idle fields and can quickly become the dominant plant. Mowing 2 to 3 times per year will help keep Knapweed in check and enhance the environment for grasses and broadleaf plants that flourish under this type of management. Improving fertility with animal manure and/or organic fertilizers and lime will also help



Knapweed in flower: biocontrol field.

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Overall Field & Farm Planning Recommendations:

Focus on your goal for the field, farm and family.

Just focusing on killing a pest plant may indeed kill the plant but doesn't guarantee a high quality pasture / hay field, if indeed that is your desire. In fact without a change in management you are likely to get the same result (infestation of undesirable plant(s)) down the road. Focus on your goal for the field: if it is high quality forage then look at control methods and management that result in meeting that goal. Said another way, focus on attaining high quality forage not just killing the problem plant, or, manage toward what it is you want not what you don't want.

Also, realize that the goal of particular fields should lead toward your farm/family goal for the entire farm. The establishment of a farm/family goal gives you a direction to make decisions towards. This holistic view will more likely result in actions that provide the desired impacts and results.

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Thanks to Stacie Edick, the DCMO BOCES New Visions Agriculture and Environmental Studies 2006 class, and the Headwaters Youth Conservation Corps members 2005-2007 for assisting in data collection and entry.

Funded through a Northeast SARE Farmer/Grower Grant