



United States Department of Agriculture

Habitat Management on Grasslands

Natural Resources Conservation Service - Indiana - October 2015 (ver. 1.0)

647 - Strip Spraying Job Sheet

STRIP SPRAYING

Once established, grassland fields need management so that the grasses do not crowd out forbs and legumes over time. In the absence of disturbance, the composition of grassland communities will change over time through normal plant succession. The vegetation changes as annual forbs and legumes are replaced by perennial forbs, grasses, and eventually, woody plants. Changes also occur structurally, as open ground networks decline, litter accumulates, and vegetation density increases. These changes lead to a decline in wildlife benefits.

The purpose of disturbance activities is to enhance the wildlife habitat value of the managed acres by increasing the amount of open ground networks under the grass canopy, and by encouraging a diverse forb/legume community. Forbs (any broadleaf plant) and legumes in grasslands are beneficial to birds, insects such as butterflies, and other wildlife. Strip spraying is an effective management tool that can be utilized where vegetation has become too thick to benefit the target species.



Spraying is especially helpful for maintaining brood-rearing habitat for Northern bobwhite, Wild turkey, Ring-necked pheasant, and other early successional grassland wildlife species. The insects associated with annual weed communities provide critical nutrients, including protein, and essential amino acids for growing nestlings and chicks. Reduced plant residue, along with open ground networks, are also critical for young chick mobility in grassland areas. The structural diversity that results from spraying also improves habitat for a variety of grassland songbirds including Dickcissels, Bobolinks and Savannah sparrows. Many of these species have experienced population declines over the last several decades. Spraying enhances habitat quality because it inhibits woody growth, promotes favored seed producing plants, reduces plant residue, increases open ground networks, and increases insect abundance.

The goal of the herbicide application should be to suppress approximately 50% of the perennial grasses within the treatment area. Consult with your local dealer, or Cooperative Extension Specialist, for specific herbicides that are recommended for your area. Note that the type of chemical, and spray timing, varies between warm season and cool season grasses.

SPECIFICATIONS

The following are specifications for Strip Spraying:

- Use the Indiana (IN) NRCS Field Office Technical Guide (FOTG) Standard (647) *Early Successional Habitat Development/Management*
http://efotg.sc.egov.usda.gov/references/public/IN/647_Early_Successional_Habitat_Development-Management.pdf for this practice.
- Grassland fields must be established for a minimum of three (3) years before initiating strip spraying, and strips will not be sprayed more than once in a two-year period.

SPECIFICATIONS (continued)

- Strip-spraying should occur on only half of the area in a given year. However, to maximize wildlife benefits, landowners are encouraged to perform management on one-third ($\frac{1}{3}$) of the area each of three (3) years if feasible.
- Strip spraying will be avoided on environmentally sensitive areas including:
 1. Concentrated flow areas
 2. Critical areas
 3. Acreage within the first 20 feet of a practice that borders a water resource to avoid water quality resource concerns
 4. Other areas where gully erosion is likely
- Mark environmentally sensitive areas on the plan map to ensure disturbance activities are avoided on these areas.
- Leave designated filter strips adjacent to all water bodies to maintain water quality. See NRCS IN FOTG Standard 393 - *Filter Strip* http://efotg.sc.egov.usda.gov/references/public/IN/393_Filter_Strip.pdf for additional guidance.
- Erosion from sprayed strips will not exceed tolerable limits.
- Do not perform spraying operations from April 1 through August 1 to protect the primary nesting period for grassland bird species. It is also recommended, but is not required, to delay spraying until after August 15 to reduce the chance of harming fledgling birds and other young wildlife.
- Do not spray grassed waterways, riparian forest buffers, or areas planted to trees and/or shrubs.
- Perform strip-spraying operations along field contours, or across the slope, when practical.
- Strips will parallel brushy or woody escape cover when feasible.
- Follow all Federal, State and Local guidelines and Manufacturer's label rates when applying herbicides.

CONSIDERATIONS

- Strip spraying should be planned for the least erosive parts of fields and not in places where gully formation is a problem. CAUTION: Spraying in the late fall on highly erosive sites may cause erosion to occur over the winter months. Consider drilling one-half ($\frac{1}{2}$) bushel of winter wheat per acre, between September 15 and October 30, to reduce erosion potential.
- Consider seeding a mixture of forbs and legumes into areas that have been strip disked if species present in the seed bank are not adequate to meet the intended purpose. See the Indiana FOTG Standard (647) *Inter-seeding Job Sheet* for additional guidance.
- Consider the habitat needs of the target wildlife species. Areas sprayed in late summer or early fall will tend to stimulate the production of hard-seeded plants such as common ragweed. These species provide excellent brood-rearing cover and winter food for quail and pheasants.
- In fields with heavy cover, consider connecting sprayed areas to improve brood movement.
- Avoid spraying in low, wet areas currently dominated by sedges because these areas often add additional plant diversity to the site.
- Where the existing vegetation is extremely thick, tall, or rank, consider first using prescribed burns or mowing, on those areas where spraying will be preformed.
- Consider raking the thatch after any mowing operations, and prior to herbicide application, to increase the germination of forbs in the seed bank. NOTE: Thatch will not be removed from the field.
- Landowners should be wary of tile blowholes, groundhog holes, fallen tree limbs, and other hazards that may have developed since they were last in the field.

- After completion of the strip spraying, consider planting wheat at a rate of one (1) bushel per acre. In addition to adding food and habitat structure, wheat may suppress grass growth and increase forbs resulting in longer-term wildlife benefits.

EXAMPLE: 3-Year Rotation

1. When spraying entire fields, a maximum of 50-foot wide sprayed strips are recommended. Alternate a sprayed strip with two un-sprayed strips to create a “plot”. Each of the two un-sprayed strips should be the same width as the sprayed strip. Duplicate this pattern across the field. See Figure 1 below.
2. In fall of the first year of disturbance, within each plot, spray the first strip of land and leave the second and third strip un-sprayed.
3. In fall of the second year, spray the second strip, leaving the first (sprayed during previous year) and third strip un-sprayed.
4. In fall of the third year, spray the third strip leaving the first and second strips un-sprayed.
5. In the fourth year, begin the rotation again, as indicated in the conservation plan.

When fields are small (5 acres or less), or consist of linear practices such as field borders, see the example patterns in Figure 2.

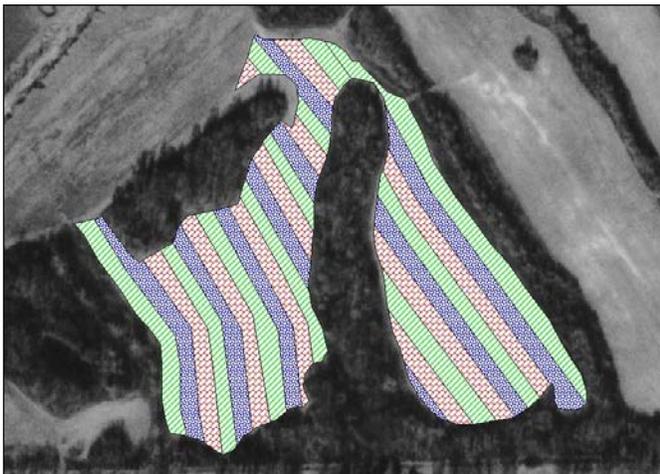


Figure 1 (Figure courtesy of Dr. L. Wes Burger, Department of Wildlife and Fisheries, Mississippi State University.)

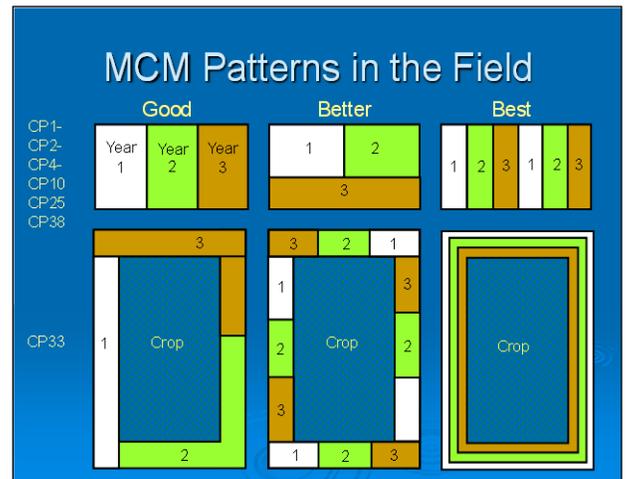


Figure 2

STRIP SPRAYING - SPECIFICATIONS SHEET

Landowner:				County:	
Farm:	Tract:	Field(s):	Acres:	Date:	
CONCURRENCE OF IDNR DISTRICT BIOLOGIST (recommended):					

SPECIFIC RECOMMENDATIONS

Wildlife species to be benefited:

Date range (i.e. spraying window):

Preparations needed before spraying:

Additional Considerations:

SITE/SKETCH MAP

(Include environmentally sensitive areas to be avoided)

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