



HAYFIELDS

A hayfield is a general name given to any field which has been planted with a grass or legume or a combination of grasses and or legumes with the purpose of harvesting the plants for use as food (hay) for livestock or allowing livestock to graze in that field.

Hayfields can provide many kinds of wildlife with food and cover. Meadowlarks, bobolinks, and pheasants are examples of open-ground nesters that use hayfields. Waterfowl, rabbits, deer, and wild turkeys nest in grassland located next to woods, wetlands or brushlands. Besides providing nesting cover, hayfields:

- (1) yield browse for deer and rabbits
- (2) provide habitat for protein-rich insects that serve as food for songbirds and young gamebirds
- (3) furnish limited winter cover for many species of wildlife.



fawn

Kestrels, foxes, skunks, and red-tailed hawks use hayfields as hunting areas for insects and small rodents such as mice and voles. Deer often use hayfields for feeding and resting sites. Does frequently place their fawns along the wooded edges of hayfields where the fawns remain hidden while their mothers feed.

Hayfields that are an integral part of the overall management plan on your property provide great value to wildlife. In conjunction with woodlands, brushlands, and wetlands, hayfields contribute to the habitat mosaic to which wildlife respond. Because hayfields and pastures are not tilled annually, they help retain moisture, reduce erosion, and aid in soil building. Depending on the type of grasses and legumes planted, some hayfields that are properly managed will last five or six years before they need to be worked up and replanted. They also help keep valuable nutrients in the topsoil where they are available for future crop use.

In addition, when hayfields are part of the landowners crop rotation, less herbicides and fertilizer may be needed because of weed control and nitrogen benefits of hayfields.

Field Size Considerations

Any wildlife management plan will help some kinds of



bobolink

wildlife and harm others, and that is why landowners should consider the impacts of their decisions. Many predominant grassland species such as pheasants, Henslow's sparrows, bobolinks, and meadowlarks do better in areas where at least 25 percent of the cropland acres are in grass. Fields larger than 40 acres are more secure to ground nesting wildlife than fields smaller than 40 acres because nesting birds are less vulnerable to predation. This is not to say that hayfields smaller than 40 acres are not important or productive to many kinds of wildlife for nesting or feeding areas. Hayfields larger than 80 acres, however, have lower nesting density for rabbits, quail, pheasants, and other wildlife that are somewhat edge dependent. Also, converting several smaller fields to one large field may require the removal of fences, which will eliminate natural travel corridors.

Mowing Considerations

The timing and height of hay cutting can have a dramatic impact on both wildlife and the production of your fields. With the ground bared, wildlife that use hayfields become vulnerable to predation, and the animals must move to nearby areas for cover. The size and vegetation types planted in your hayfield will also impact the types and amount of wildlife using the area.

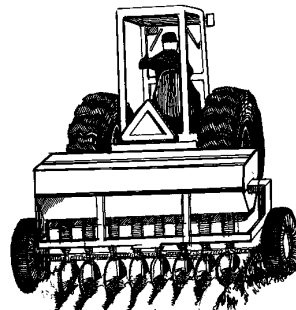
Delaying mowing until after the primary nesting season will be the best practice for wildlife. The problem for landowners is that the best livestock forage often occurs prior to the end of the nesting season. Alfalfa is best managed for forage production when it is cut at quarter-bloom (when 25 percent of the field is blossoming). After cutting, the alfalfa will once again be at quarter-bloom in four to five weeks. The cycle of harvesting every 30 to 35 days is what spells doom for pheasants, which require a period of 40 days in which to successfully lay their eggs (about 13 days) and incubate them to hatch (23 days on average).

Therefore, a landowner who mows on June 1 will likely destroy any egg clutches from hens who happened to begin nesting on April 20 or later. Although most hens attempt to re-nest, success is thwarted by the same set of circumstances.

Undisturbed nesting habitat is the key to the survival of wildlife who use hayfields. Nesting waterfowl, for example, may benefit

even more from permanent vegetation in hayfields than upland gamebirds do. So what can landowners who need to harvest their hay crop do? One management option is to delay mowing as long as possible. Even a one-week delay, to June 8, for example, will result in higher nesting success.

Different hay crops have different peak harvest times. By having diverse hayfield plantings, some planted to pure stands of alfalfa and others planted to a grass/clover mix can alter the timing of the harvest. Some grasses and/or clovers actually produce more hay if harvested later in the spring or early summer. Planting diverse hayfields can also spread out your harvest time and effort. Also, more and more hayfields and pastures are being planted to warm season grasses such as switchgrass, big bluestem, and little bluestem. Since these grasses are not usually harvested until mid-summer they provide outstanding nesting and brood rearing cover before being grazed or cut for hay. Another option is to cut your hayfield late in the fall. Nesting wildlife choose nesting sites based on spring vegetation heights. For most grassland nesting wildlife, fields with short vegetation height in the early spring are not preferred. Since these fields will not be preferred nesting sites there will be less negative impact to wildlife when the fields are harvested.



Planting Recommendations

Solid stands of any one kind of grass or legume are not nearly as valuable to wildlife as a mixture of plants. A mixture provides the greatest diversity of growth, which in turn offers vertical and horizontal densities, a variety of plant heights, and different palatability to insects and wildlife throughout the food chain. The mixtures also establish better and adjust to different soil types across fields. They often have longer growth periods and higher yields. And, they are also less susceptible to total loss from drought, wetness and insects.

Cool season grasses such as orchard grass, redtop, and timothy grass grow most rapidly during spring and early summer and again at the end of summer and early fall when cool nights follow warm days. Mixed with clovers, they offer an outstanding variety of wildlife food and cover, provided they are not mowed aggressively. Clovers to consider are medium-red, ladino, and alsike. Cool season grasses are popular with landowners because they are easy to establish and respond to heavy fertilization. They do better in 6.0-7.0 pH soils than other cover types, and they continue to be productive for many years. Landowners increase soil pH by adding marl, lime or some other calcium-based material. Fertilizer rates and types are based on soil tests, easily obtained for a nominal fee with a soil sample kit available from Michigan State University Extension offices.



timothy

A recommended mix of cool season grasses and legumes that provide excellent nesting, and brood rearing cover would be 7 lbs. of medium red clover, 6 lbs. of timothy grass, and 2 lbs. of ladino clover per acre. This planting will produce high quality hay when cut around July 15, which is past the prime nesting season for most birds and mammals. The mix will grow well on most soil types and well to poorly drained conditions.

Warm season grasses have a shorter growing season and are usually planted for grazing or wildlife purposes, but can be used as a hay crop as well. They grow most rapidly during the peak of summer when warm nights follow hot days--especially the months of



switchgrass

June, July and August. When soil temperatures begin to drop, growth slows dramatically. Because these warm season grass stands are used primarily as pasture or hay in the summer months, songbirds, gamebirds, and other wildlife will have completed their nesting activities before livestock is allowed into the grass stands. Warm season native grasses species are big bluestem, little bluestem, switchgrass and Indiangrass. Often mixed with wildflowers (forbs) to represent the diverse grass stands of our prairies, they are usually referred to as prairie grasses. They make more efficient use of water and soil nutrients (nitrogen, phosphorus and potassium) than do cool season grasses, and they do not require as much fertilizer. Their value to wildlife is exceptional--standing up well in snow to offer warm, secure winter

shelter; providing nesting habitat diversity when mixed together; and yielding food in the form of insects and seeds.

Warm season grass seeds tend to be fluffy and bulky. Pure Live Seed (PLS) takes into account that a pound of warm season grass contains inert materials and seeds that will not germinate. You can use the following formula and information from the seed bag to determine the percent PLS of your seed. Percent PLS = Percent (%) pure seed multiplied by (percent germination plus percent dormant seed). For example:

$$\begin{aligned} \% \text{ pure seed} &= 0.90 \\ \% \text{ germination} &= 0.80 \\ \% \text{ dormant} &= 0.10 \end{aligned}$$

$$0.90 \times (0.8 + 0.1) = 0.81 \text{ (\%PLS)}$$

Thus, for every 10 lbs. of bulk seed you would have 8.1 pound of pure live seed.

To calculate the pounds of bulk seed needed per acre, take the desired PLS divided by the percent PLS (figured above) for your seed. For example:

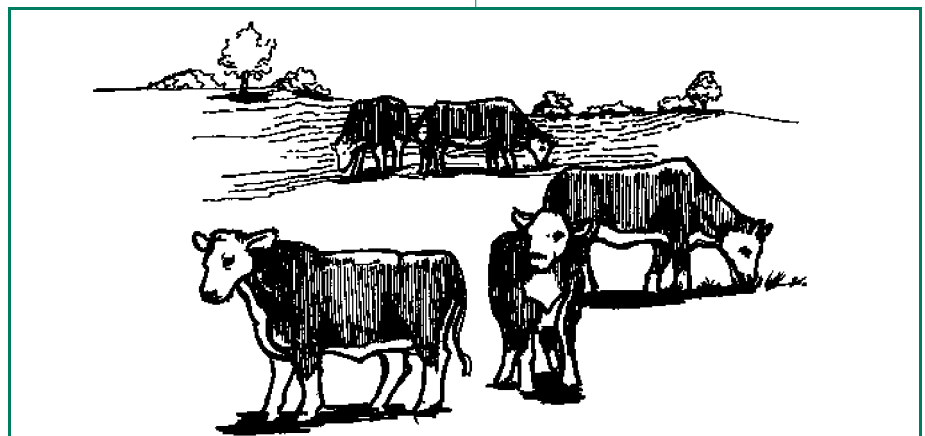
$$\begin{aligned} \text{Desired plant rate} &= 8 \text{ lbs/acre} \\ \text{Percent PLS} &= 0.81 \\ 8/0.81 &= 9.5 \text{ bulk lbs/acre} \end{aligned}$$

Most warm season grasses will range from 50 to 95 percent PLS

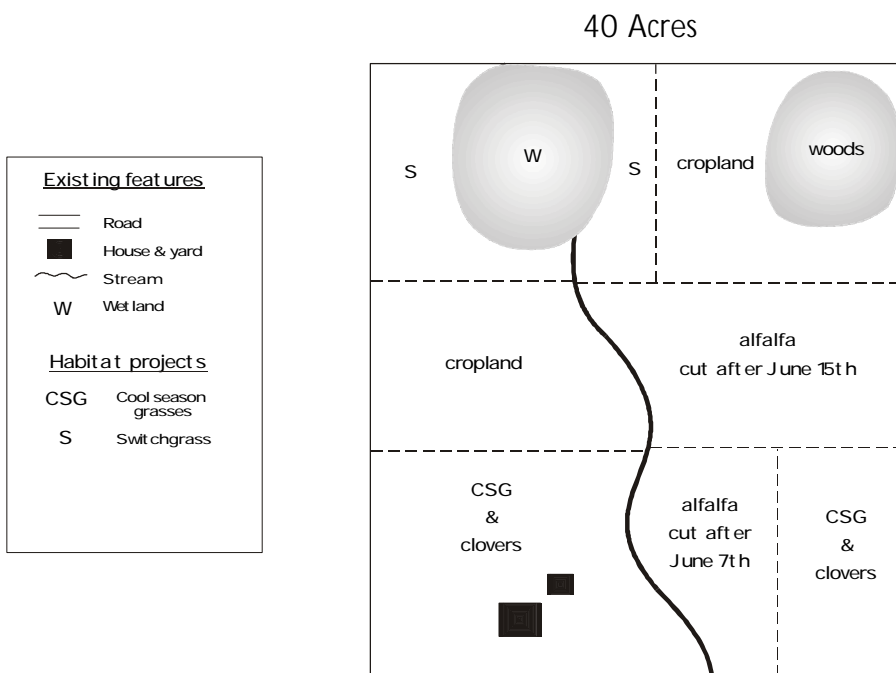
per bulk pound due to the difference between each bag of seed or each grass type.

When planting warm season grasses for pasture or hay production, plant pure stands of switchgrass at 5 to 8 lbs. of pure live seed (pls) per acre or 8 lbs. of pure live seed of big bluestem or Indian grass, which would produce quality wildlife cover as well good forage for livestock. A mixed stand of warm season grasses will also produce good forage for livestock and because of the plant diversity be very attractive to wildlife. A recommended mix is 3 lbs. of big bluestem, 3 lbs. of Indiangrass, and 2 lbs. of little bluestem, all pure live seed, planted per acre.

Several stands of warm and cool season grasses, with or without legumes, provide the broadest habitat diversity. Horse fanciers, who typically harvest hay only once each year, like such a mix for its high forage value. Light grazing or rotational grazing lessens livestock's impact on wildlife. When mowing or grazing, warm season grasses should not be cropped lower than eight inches to allow for rapid regrowth. By comparison, cool season grasses are typically cropped as close as four to six inches. For more information on planting, maintenance and management



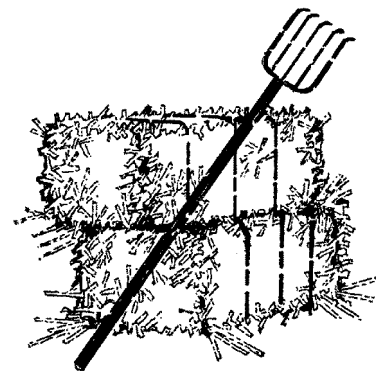
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This map is an example that demonstrates the many management options discussed throughout this chapter. The option(s) you choose should depend not only on your goals, but the location, condition, and present use of your land.

see the respective **Warm and Cool Season Grass** chapters in the Grassland Management section. Also refer to the **Wildflowers** chapter in the Backyards section.

In summary, hayfields are essentially grasses and/or legumes that are planted for livestock. However, while providing food for livestock, hayfields can also provide food and cover for a variety of wildlife. The most critical management option is to mow hayfields before April 15 or after July 15 to ensure successful nesting and brood rearing.



FOR ADDITIONAL CHAPTERS CONTACT:

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Private Land Partnerships: This partnership was formed between both private and public organizations in order to address private lands wildlife issues. Individuals share resources, information, and expertise. This landowner's guide has been a combined effort between these groups working towards one goal: Natural Resources Education. We hope this manual provides you with the knowledge and the motivation to make positive changes for our environment.

FOR ADDITIONAL ASSISTANCE: CONTACT YOUR LOCAL CONSERVATION DISTRICT