Producing Hay and Pasture for Horses in Michigan
Michigan State University
Cooperative Extension Service
Farm Science Series
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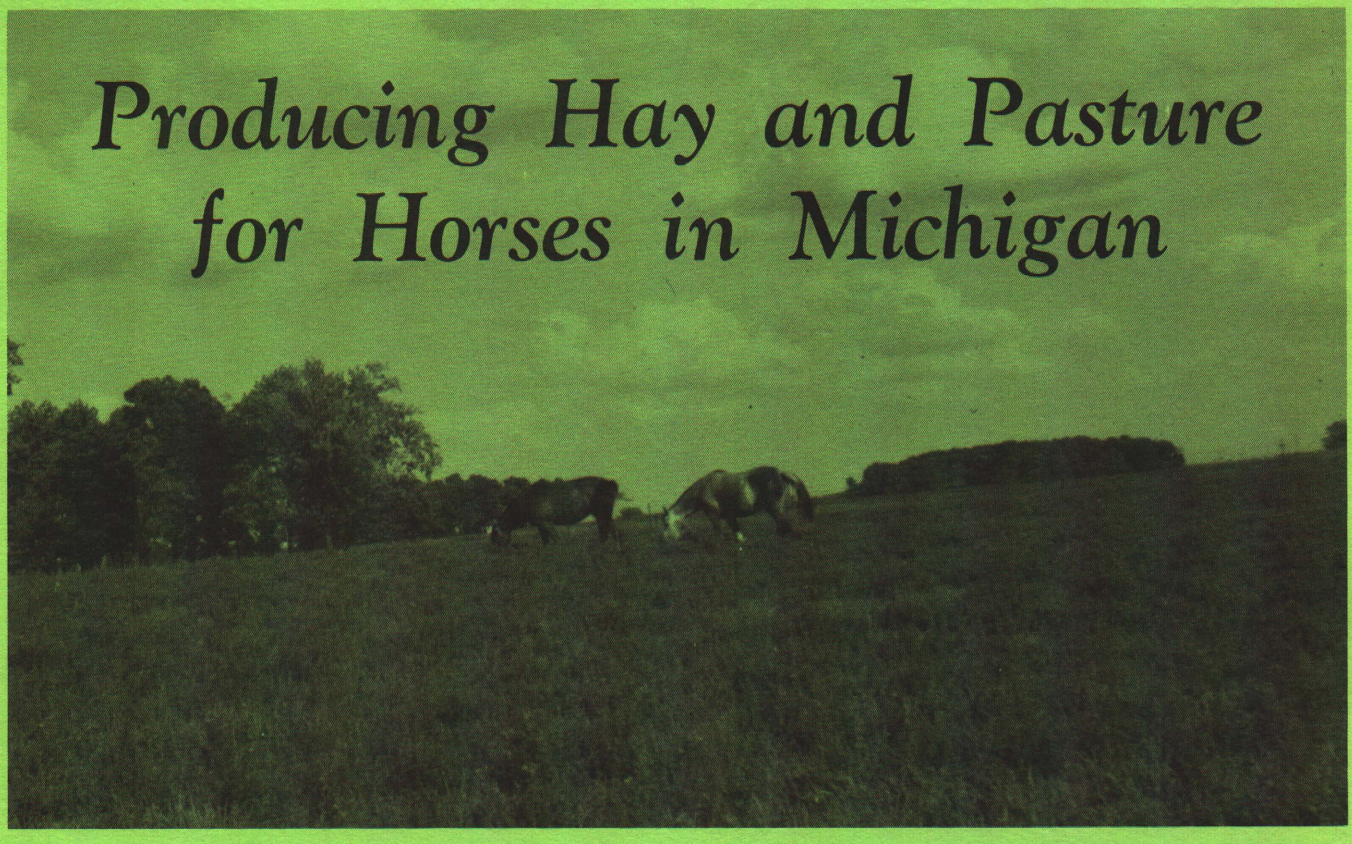

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A GOOD PASTURE is an important part of a sound horse care program. It is one of the most economical sources of high quality nutrients and provides a place for exercise, so necessary for health and body development. The nutrients obtained (proteins, vitamins and minerals) depend on the kinds of plants in the pasture, their stage of growth and the total growth made during the season. In addition to pasturing, hay may be grown for winter feed.

In working out plans for pasture and hay, you have several alternatives:

1. Establish a new semi-permanent pasture or hay field to last 7 to 8 years.
2. Establish temporary pastures to last 1 to 3 months.
3. Improve existing (old) pastures and hay fields.
4. A combination of the above.

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Whenever possible include a legume with a grass. A legume, a plant which ordinarily has a flower similar to that of a sweet pea, produces its seed in a pod and draws nitrogen from the air and uses it to make vegetative growth (a grass cannot do this). In addition, a legume produces leaves in groups of three or more.

A legume-grass mixture is ideal for pasture because it offers the advantages of a good nutrient supply, a long grazing season, and a long-lived stand. Legumes improve most grasses. Horses may eat too much straight legume forage because it is so palatable.

Alfalfa is preferred for pasture and hay and will persist for several years. Red clover is good for hay, but not very desirable for pasture if it makes up a large percentage of a mixture. A good crop may be expected the year after seeding, but very little thereafter.

White clover is mainly a pasture plant. Birdsfoot trefoil is desirable on wet, poorly-drained soils, but many people find that stands are difficult to obtain. It will make good hay and pasture. White horses, or horses with spots or white areas may sometimes develop photosensitivity on birdsfoot trefoil pastures, or in rare cases, on other legumes. This can cause peeling of skin and hair on these white areas.

If you use alfalfa in a mixture, plan to spray for alfalfa weevil with an insecticide in order to keep the alfalfa stand for more than one year. If you live in an urban area where you are not permitted to spray, select a pasture or hay mixture with little or no alfalfa.

If you plan to grow a legume, particularly alfalfa, have the soil tested for pH (acidity) and for phosphorus and potassium well ahead of planting time. This test will tell you whether lime is required for good legume growth and how much fertilizer is needed to grow the crop the first harvest year.

Check with the Cooperative Extension Service Office in your county for information on the soil test several months before you expect to establish the pasture. If lime is needed to correct the acidity of the soil, apply and work it into the soil 6 months before seeding the pasture. Fertilizing may be done at planting time.

TYPES OF PASTURE

Seeding semi-permanent pasture or hay land to last seven to eight years

Prepare land in April by plowing and working the soil. The result should be a clean, fairly firm seedbed.

Plant one bushel per acre of oats (early variety) with a grain drill. Select a seeding mixture from those suggested on page 3 for your soil conditions.

Seeding should be shallow and followed by cultipacking, if possible. (A cultipacker is a corrugated roller.) If smooth bromegrass is included in the seeding mixture, mix it with either the oats or the fertilizer for seeding. Remove the fertilizer or seed hoses from the grain drill to allow broadcast of the brome seed and fertilizer or oats on top of the soil. This procedure provides shallow planting of the light-weight brome seed. Action of the drill or cultipacker will furnish soil coverage for the seed.

Fertilize according to the soil test, using a small amount of nitrogen in the fertilizer at planting time. In the absence of a soil test, use 300 pounds per acre of 6-24-24 or similar fertilizer at planting time.

In a 6-24-24 fertilizer the "6" means 6% nitrogen, the middle "24" is 24% phosphate and the "24" on the right is 24% potash in the fertilizer. Therefore, the 300-pound rate of 6-24-24 fertilizer would provide 18 pounds of nitrogen, 72 pounds of phosphate, and 72 pounds of potash for the crop.

When oat kernels are in the soft dough stage you may cut the crop for hay or leave it to mature and harvest it for grain. If harvested for grain, remove the straw from the field. If oat hay is made early it will be of adequate quality for horses.

Do not graze the field the remainder of the year.

Pasture and/or make hay the next and succeeding years.

After the first harvest year, there are two alternative courses of action:

1. If the field is in legumes and grasses, fertilize annually with 200 pounds per acre of a 0-15-30 or similar fertilizer in late fall or early spring.
2. If the field has a high percentage of grass, apply 75 pounds per acre of nitrogen in the spring in addition to the above fertilizer.

Be careful when placing horses on pastures immediately after applying fertilizers unless the plants are dry when the application is made. A good rain will remedy this situation.

The above seeding may also be made in late summer. If so, plant seed between Aug. 1 and 25 in southern Lower Michigan and by Aug. 1 in northern Michigan. Follow the same steps as with a spring seeding except:

1. Do not use oats! Plant only the seeding mixture! Oats offer excessive competition and weeds are not as serious at this time of the year.
2. If the field to be seeded is in forage, use it for hay production or pasture heavily until about July 1.
3. About July 1 plow and work the soil weekly with a harrow, field cultivator or similar implement until seeding time to destroy any existing vegetation such as quackgrass.

Temporary pasture

Oats will provide short-season pasture for about one month. It should be planted in April at the rate of 2 bushels of seed per acre to provide pasture during June. Apply 300 pounds per acre of 12-12-12 or similar fertilizer at planting. Extra growth may be cut for hay when the oat kernels are in the soft dough stage. Weeds may be a problem in some plantings. Plow and prepare a seedbed before planting.

Rye will furnish pasture in both fall and spring for limited periods, depending on the planting date and moisture supply. Plow and prepare seedbed. Plant with a grain drill from Aug. 1 to Oct. 15 at the rate of 1 to 1½ bushels of seed per acre. The early planting date may allow a short fall pasture period but do not allow grazing of the plants closer than 4 inches. Apply 300 pounds per acre of a 12-12-12 or similar fertilizer at planting time. Do not graze in the spring until plants have grown to a height of 8 inches.

Sudangrass and sorghum-sudan grass hybrids are summer annual grasses which will furnish pasture from about 6 to 8 weeks after planting until frost in the fall. Plow and prepare the seedbed. Plant about May 25 using a grain drill or other equipment at the seeding rate of 20 pounds per acre for sudangrass and 40 pounds per acre for sorghum-sudangrass hybrids. Use 300 pounds per acre of a 12-12-12 or similar fertilizer at planting time.

Start pasturing when the plants reach a height of about 18 to 24 inches. You may need to rotate the pasturing by fencing or removing part of the growth for bedding. Do not graze closer than 4 inches. Then let the regrowth recover to about 18 inches before pasturing again.

To rotate the pasture divide it into sections with temporary fences, concentrating the horses in one section until they eat the forage to the minimum height, then move them to another section, and so on.

Although the problem has not been seen in Michigan, horse owners should be aware that most producers of sorghum-sudangrass hybrid seed are placing a warning tag on their product which states in part, "Do not let horses eat green plants produced from this seed."

In areas of the southwestern United States these plants are reported to cause an increasing number of cases of "Cystitis Syndrome" in horses. The condition causes irritation of the urethra and vagina in the mare, and of the urethra in the stallion and gelding. It results from the passage of material that has accumulated in the bladder. Another symptom is muscular incoordination in the rear quarters. For this reason, horse owners should use caution in pasturing horses on sorghum-sudangrass hybrids. So far as is known, sudangrass hay if properly cured, may be used without danger.

Improving existing pastures and hay fields

To be worthy of improvement, the plant stand should be good, with a minimum of weeds. Otherwise, it may be desirable to work up the field and establish a new seeding.

Grassy sods with very little alfalfa or clover. These should receive about 300 pounds per acre of a 12-12-12 or similar fertilizer, applied every third year in late fall or early spring. For the other two years apply 100 pounds per acre of nitrogen in early spring.

Sods with a fair to good proportion of alfalfa and/or clover. Apply 200 pounds per acre of a 0-20-20 or similiar fertilizer annually in the late fall or early spring.

SEEDING MIXTURES FOR SEMI-PERMANENT PASTURES AND HAY FIELDS

Where insecticides cannot be used to control the alfalfa weevil, select a mixture that contains little or no alfalfa. In the mixtures below all numbers refer to **pounds per acre.** These mixtures do not include the one bushel per acre of oats used with spring seedings. For assistance in determining the type of soil in your horse pasture, contact your local County Extension Office or the Soil Conservation Service Office.

Well-Drained Clay and Loam Soils

MIXTURE 1		MIXTURE 3	
Alfalfa	8 lbs.	Alfalfa	2 lbs.
Smooth bromegrass	4 lbs.	Red clover	3 lbs.
Timothy	2 lbs.	Smooth bromegrass	6 lbs.
		Timothy	2 lbs.
MIXTURE 2			
Alfalfa	8 lbs.		
Timothy	5 lbs.		

Well-Drained Sandy Loams and Loamy Sands

MIXTURE 1		MIXTURE 3	
Alfalfa	8 lbs.	Smooth bromegrass	7 lbs.
Smooth bromegrass	4 lbs.	Timothy	2 lbs.
MIXTURE 2			
Alfalfa	2 lbs.		
Smooth bromegrass	8 lbs.		
Timothy	2 lbs.		

Soils with Variable Drainage, Well- to Poorly-Drained

MIXTURE 1		MIXTURE 3	
Alfalfa	8 lbs.	Alfalfa	2 lbs.
Timothy	5 lbs.	Red clover	2 lbs.
Red clover	3 lbs.	Smooth bromegrass	6 lbs.
		Timothy	2 lbs.
MIXTURE 2			
Alfalfa	8 lbs.	MIXTURE 4	
Smooth bromegrass	4 lbs.	Smooth bromegrass	7 lbs.
Red clover	3 lbs.	Timothy	4 lbs.
		Orchardgrass	4 lbs.

Wet Mineral Soils

MIXTURE 1		MIXTURE 2	
Smooth bromegrass	5 lbs.	Smooth bromegrass	12 lbs.
Birdsfoot trefoil	4 lbs.		

Fairly Well-Drained Organic (Muck) Soils

Smooth bromegrass 12 lbs.

VARIETIES FOR PASTURE AND HAY

Alfalfa: Vernal, Saranac, WL 202, PAT 525, Progress. Do not use wilt susceptible varieties.

Birdsfoot trefoil: Viking for hay and pasture. Empire for pasture only.

Smooth bromegrass: Commercial, Lincoln, Achenbach, Canadian.

Timothy: Commercial, Climax.

Sudangrass: Piper.

Sorghum-sudangrass hybrids: Numerous good ones are available.

Red clover: Commercial, Lakeland.

Orchardgrass: Pennmead.

Oats: Clintland (early), AuSable (for pasture).

Rye: Balbo, Wheeler.

PASTURE MANAGEMENT

Keep in mind that horses are "spot" grazers, and in Michigan it will take 2 to 4 acres of pasture to provide feed for a mature horse for a 6-month grazing season depending on the quality and kind of pasture. A pasture that will produce 4 tons of hay per acre will require only about 2 acres to carry a mature horse for the 6-month grazing season. Besides eating

the forage, a horse tramples down quite a bit of it, and defecates on other forage. To keep the pasture productive, good management is essential. During the hot summer months plant growth is short and moisture for growth is limiting.

1. Start pasturing at the right time. A good time for alfalfa is May 15 to 25, when it is in the bud stage. Pasturing many of the grasses could begin earlier than May 15 depending on their stage of growth, but few grasses will be ready for pasturing before May 1.

2. If horses do not graze the pasture to the desired height of 2 to 3 inches, it may be necessary to clip to approximately this height to control weeds and keep the pasture in a vegetative stage. This also helps maintain the balance of legumes and grasses. Orchardgrass becomes especially unpalatable when it is tall. Clipping can be done with a hay mowing machine, large rotary mower, or field chopper. Remove the clippings for hay or bedding.

3. Keep horses out of the pasture during extreme wet weather to prevent "mudding"—punching the soil with hooves.

4. Do not graze closer than 2 to 3 inches. If you are short on pasture, stable the horses for a while or rent some pasture on a temporary basis, rather than ruin a good pasture by overgrazing.

5. Opinions differ on the management of manure droppings in horse pastures. Spreading manure droppings evenly by running a chain harrow or similar implement over the fields at regular intervals will add fertility to the soil and spread any parasite eggs in the droppings where they can be killed more easily by the sunshine.

A good time to do this is after clipping the pasture, or when it has been grazed closely. On the other hand, spreading the droppings evenly over the pasture tends to spread the parasite eggs where they are easier for the horse to pick up while grazing. It is up to each horse owner to make his own decision on which practice to follow.

6. The rotation of clean pastures, if in conjunction with a good parasite control program, will help discourage parasites and diseases. Rotational grazing (explained earlier) within the pasture field by fencing off areas may enable you to make better use of the field.

7. Keep an eye out for mechanical hazards in the pasture such as wire, glass, and nails. Remove them promptly.

8. Pasture fencing should be approximately 5 to 6 feet in height for paddocks and 4 to 5 feet in height for pastures. Rail fences made of 2-inch boards, poles or split rails are the safest for the horse, but the most expensive to build and maintain. If woven wire is used it should be smooth. Wire fences where the horse can catch its feet or shoes can cause problems. A top rail is recommended for use with woven wire fences. It keeps horses from breaking them down, and presents more for the horse to see when running toward a fence.

Electric fence can be used to keep horses from rubbing on other fence, or if used as the only fence, it should have two charged wires (top and bottom) with a smooth wire in the middle. The lower wire should be about 1½ feet off the ground, with about 1½ feet between each wire (making a fence 4½ feet high). Space posts about one rod apart. Avoid barbed wire.

The larger the pasture, the less critical the type of fencing used. Corners where horses congregate should be designed so the horses cannot become injured. Some horse owners build round instead of 90° corners.

9. Do not graze alfalfa in September, or do not graze it closer than 8 inches from the ground during this period. This will help prevent winter-kill.

TURF IN PADDOCKS

Tall fescue (a tufted perennial grass) is suggested for use in paddocks because it will tolerate considerable traffic once established, and if not allowed to get taller than about 8 inches it is reasonably palatable. A seeding rate of one pound per 1000 square feet is suggested with the seeding made in August. Seeding procedures are similar to those for a home lawn.

A good seedbed should be prepared using available equipment—a roto-tiller, or regular farm equipment. Apply 400 pounds per acre of a 12-12-12 or similar fertilizer and work it into the soil before seeding. Plant the seed shallow and cultipack or cover lightly using a rake or other suitable implement.

The area should not be used until the grass is established the following spring. During the spring and the following seasons you will probably need to clip the grass occasionally to keep it in a vegetative state.

EQUIPMENT

To establish pasture and hay fields you should use farm equipment, although it need not be of large size. Any area larger than one acre in size is hard to handle with garden size equipment. If you do not have farm equipment, perhaps a nearby farmer could prepare and plant the field for you. In many cases, paddocks can be prepared and seeded using yard and garden equipment.

PRECAUTIONS

If chemicals (herbicides or insecticides) are used to control weeds or insects, use extreme care in their application. Read the label carefully before using! Also, check the instructions closely to see when the plants may be safely pastured, or cut for hay.

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