Millet, Rape and Sorghum
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MILLET, RAPE and SORGHUM

THEIR ADAPTATION AND USES IN MICHIGAN

S. C. Hildebrand and H. M. Brown
Department of Farm Crops

COOPERATIVE EXTENSION SERVICE
MICHIGAN STATE UNIVERSITY
EAST LANSING

MILLET, RAPE AND SORGHUM

MILLET

There are three main types of millet: foxtail *(Setaria italica)*, grain or Proso *(Panicum miliaceum)*, and pearl or cattail *(Pennisetum glaucum)*.

Adaptation

Millet is best suited to fertile soils and warm temperatures and is more dependable than other short-lived annuals on light, sandy soils. It is a short-season, rapid-growing, warm-weather crop which requires about 60 to 80 days from planting until pasture harvest.

The foxtail and grain millets are grown primarily in the Great Plains area, in the Lake states, and in Canada with smaller acreage in the Southern states. The pearl or cattail types are used in the Southeastern United States for pasture. The foxtail and grain millets are primarily adapted to the central and southern parts of the Lower Peninsula of Michigan but have been grown for silage with fair success in the southern part of the Upper Peninsula.

Uses

Millet is an emergency crop which can be planted late in the season after regular crops have failed. Even the leafiest millets are coarse and hard to cure for hay. Good silage may be made from millet when the crop is harvested soon after heading. Silage yields are usually about 8 tons per acre. The pearl or cattail types have given good results for pasture in the Southeastern United States. However, tests conducted with cattail millet in comparison with Sudangrass under Michigan conditions indicate it to be second choice to Sudangrass for pasture. Grain yields are frequently about 20 bushels per acre but may be above 50 bushels. The feeding value of millet grain is slightly lower than that of oats.

Soil Preparation and Fertilization

Prepare the land as for a small grain crop. Test soil to determine the requirements for phosphorus and potassium. About 50 pounds per acre of nitrogen will be needed. In the absence of a soil test use about 400 to 450 pounds (to get 50 pounds N) per acre of a 12-12-12 fertilizer.

Planting

Plant June 1 to 30, depending on location. The weather should be warm at planting time or growth will be slow and weeds a problem. Seed should be planted shallow and at a rate of 10 to 15 pounds per acre for grain and 30 to 40 pounds per acre for forage. The 15-pound rate may be obtained by stopping up every other hole in the grain drill and setting the drill to sow 2 pecks of wheat per acre.

As the cattail millets are slow-starters, especially in cool weather, it may be necessary to plant in 21-inch rows so that a cultivation may be made for early weed control. There are no recommended herbicides at this time to control weeds in millet.

Varieties

For pasture, no varieties are recommended at the present. Starr and Gahi cattail varieties are being tested. The foxtail varieties are not suitable for pasture because the root system is very shallow and cows will pull the entire plant from the soil in pasturing.

For hay, use the foxtail millets such as Japanese, German and Hungarian.

For grain, the Yellow Manitoba variety of grain or Proso millet is the most widely used. Manta has been tested but is not recommended.

For silage, use the foxtail millets such as Japanese, German and Hungarian

Harvest

For hay, cut as soon as the plants have headed out.

For grain, combine when the moisture content of the of the grain is 14 percent or lower, unless a drier is available. Some shattering of seed may occur before the seed reaches the desired moisture content.

For silage, cut soon after heading.

Tests conducted at East Lansing in 1960 showed that pearl millet made a faster growth and gave higher forage production during the hottest summer period (July 15 to August 29) than Sudangrass. However, during the period June 1 to July 15 the growth and forage of Sudangrass greatly exceeded that of millet. Total production for the season, June 1 to September 26 was highly in favor of Sudangrass.

RAPE[1]

Rape *(Brassica napus)* is a member of the mustard family, along with kale and rutabaga. It is termed a "leaf" crop and is quite palatable and succulent.

Adaptation

Rape is adapted to all sections of Michigan and is best suited to fertile soils and a cool, moist growing season. It does not grow well on droughty soils. It will tolerate light frosts in both spring and fall.

Uses

The primary use of rape is for swine and sheep pasture but it may be used as emergency pasture for cattle. On a dry matter basis, rape is almost as high in protein as alfalfa, but alfalfa has a much higher total feeding value.

Rape seeded alone or in combination with oats makes an excellent sheep pasture and can be used to finish lambs for market. In some cases it may be possible to remove the oats for silage and allow the rape to develop for summer and early fall pasture.

Precautions

Sheep and lambs are likely to prefer weeds and grass in the rape pasture when first placed in the pasture. Once they start to eat the rape they may scour. Drenching with a soluble antibiotic solution will relieve this problem.

As an added precaution, it is advisable to clip away excess wool from around the dock. Hogs, especially those with white or thin hair, sometimes sunscald when they wet from moisture on the rape leaves and then are exposed to bright sunlight. This is usually not serious.

If dairy cows are pastured on rape, they should be turned into the pasture after milking, and removed 3 to 4 hours before the next milking, to avoid off-flavored milk.

Soil Preparation and Fertilization

Prepare the land for any spring-seeded small grain crop. If no manure has been applied or no legume crop turned under for rape, apply about 300 to 400 pounds per acre of a 12-12-12 fertilizer or comparable amounts of a similar ratio. If the pH of the soil is above 6.0, it may prove profitable to include ½ to 1 percent boron in the fertilizer.

Planting

Plant from April 1 to June 1. Earlier dates are preferred because rape is a cool weather crop and late

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[1]Acknowledgment is made to Graydon L. Blank, Ext. Specialist in Animal Husbandry for the section on uses for rape.

plantings are not as profitable as the early ones. Seed may be sown broadcast and covered with a spike tooth drag or sown with a grain drill at 4 to 6 pounds per acre and at a ½ inch depth. When seeding with oats, use 2 bushels per acre of oats.

The Dwarf Essex variety of rape is most commonly used and has given good yields.

Management

Rape, seeded in April, should be ready for pasture in about 8 weeks. Pasturing should start when it is about 12 inches tall. Care should be taken not to remove all of the leaf growth in pasturing or the total yield will be reduced.

SORGHUM

The sorghums *(Sorghum vulgare)* may be subdivided into groups which are grown for grain, forage, dual purpose for grain and forage, and syrup and straw. Sudangrass and broomcorn are classified as sorghums but they are not part of this discussion.

Forage sorghums are usually tall-growing and have sweet and juicy stalks which dry out slowly after being cut. This type is also referred to as "sweet sorghum", "sorgo" or "cane".

Grain sorghums are shorter than the forage types, normally about 4 to 6 feet tall, and have semi-compact to compact heads. They are mainly varieties of kafir and milo. The stalks are neither sweet nor juicy.

Adaptation

Kansas, Oklahoma, Nebraska, and Texas are important sorghum producing states. Sorghum is resistant to drought and heat and is more reliable than corn when conditions of drought and high temperature prevail. Under the humid weather conditions in Michigan in the fall, grain sorghums do not mature or dry down satisfactorily for successful harvest and storage. A few Michigan farmers grow sorghum as a substitute for corn.

Uses

Sorghum grain and white corn are both low in Vitamin A content and are similar in feeding value. The grain should be ground for livestock feed. Sorghum silage, made when the seeds are in the hard dough stage, has a total digestible nutrient content slightly less than that of corn. It is estimated that about one-third of the grain in sorghum silage passes through livestock whole and undigested.

Varieties

Three years of testing, 1957-59, at East Lansing have shown that grain sorghum varieties will not compare favorably with corn in yield of grain. Grain of the earliest available varieties, Norghum and Reliance, matured in only 2 of the 3 years. Similar results have been obtained in tests south of East Lansing. In Ingham and Monroe counties, grain sorghums suffered from excessive bird damage.

In the 3-year period, only the 1958 crop was mature enough to ensile before frost damaged the leaves. An exception was Black Amber, which matured in 1959 but had a low yield. Atlas has produced good tonnage but was immature at locations in Ingham, Branch, and Cass counties in 1958. DeKalb FS-1 has performed well but the highest yields per acre of silage were obtained from (Northrup King) NK 320.

Production Practices

1. Prepare the seedbed in the conventional manner as for corn and soybeans.
2. Plant when the soil is warm (about 65 degrees F.), or about 10 to 14 days after corn planting time.
3. Treat seed with either Ceresan M, Panogen, Arasan, Spergon, Orthocide, or a similar material according to directions of the manufacturer of the fungicide.
4. Sorghum seed may be planted in rows, using a corn planter with special plates or a grain drill set up to plant a specified row width, or it may be planted solid with a grain drill. Weeds are likely to be more of a problem in solid planting, so planting in rows is suggested as the best method. Rows widths of 30 to 40 inches are recommended. When planting in rows use 3 to 5 pounds of seed per acre for grain and 5 to 8 pounds for silage. A desirable plant spacing in the row for grain sorghum is 2 to 3 plants per foot. Use 20 to 30 pounds of seed per acre in solid plantings for silage.
5. As seedling growth is slow, weed control constitutes a problem, especially in the early stages of growth. The first cultivation should be quite shallow to avoid seedling damage. Conventional tillage methods as for corn are recommended.

Sorghum is susceptible to damage from herbicides now used to control common weeds in corn.

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