

GROW SUDANGRASS

for

SUMMER PASTURE

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Grow Sudangrass for Summer Pasture

Sudan grass will give you a productive pasture during July and August which can maintain high livestock production and gains during the hot dry periods when pastures are often short. This has been proved in 5 years of trials at the Experiment Station in Fargo.

Approximately 3 to 4 million acres of sudangrass are used for pasture each year in the United States. Most stockmen in North Dakota are short of July and August pasture every year unless they have large acreages of native grasses or alfalfa available and are not afraid to risk pasturing alfalfa because of the bloat hazard.

Sudan provides excellent pasture that will enable dairymen to maintain or increase milk production during the hot July and August period when milk yields usually drop due to lack of high quality pasture. Beef cattle and sheep grazing sudan can maintain or increase daily gains during this same period.

PASTURE TWO OR MORE COWS PER ACRE

Piper sudangrass has averaged approximately 3 tons of forage at a pasture stage of growth during the past 3 years in experiments at Fargo. This should be ample forage to carry at least 2 cows per day during the period July 15 to Sept. 15, with average rainfall.

Protein production an acre from this forage is excellent. Analyses of forage at a pasture stage at Fargo in 1953, involving five different varieties, indicated about 900 to 1,000 pounds of crude protein are produced per acre. This is equal to the protein in 1 ton of soybean meal. This protein is worth about \$80 to \$90 an acre on the basis of present prices of soybean meal.

Table I. FORAGE PRODUCTION OF THREE SUDANGRASS VARIETIES CUT THREE TIMES AT A PASTURE STAGE AND ONCE AT A HAY STAGE FOR THE YEARS 1951-53, INCLUSIVE, FARGO.

Variety	Tons an acre at 12% moisture							
	PASTURE STAGE				HAY STAGE			
	1951	1952	1953	average	1951	1952	1953	average
Piper	3.19	3.06	3.23	3.16	4.68	4.13	4.46	4.42
Common	3.28	3.09	3.21	3.19	3.97	3.77	4.28	4.01
Sweet	2.56	2.67	2.98	2.72	4.92	4.12	4.57	4.53

The above yields are based on years having fairly adequate, but not unusually high rainfall. The sudangrass has been sown each year on an area which was cropped the previous year. Even though rainfall may become inadequate during part of the season, sudangrass is a drouth resistant crop. It can go dormant during dry periods and come back very vigorously with a lot of forage when soil moisture becomes plentiful again.

USE SURPLUS FOR SILAGE OR HAY

Sudangrass can be grown for hay or silage as well as for pasture, although it has its greatest value as a pasture crop.

The crop can be grown in rows or in solid seedings for hay or silage and produces yields comparable with that of corn although the yield of nutrients per acre may be slightly less than those obtained with corn silage.

Piper has averaged 4.42 tons of hay annually from drilled plots at Fargo for the period 1951-53. The crop as it stands in the field in rows or drilled seedings on Sept. 15 is approximately 65 to 70 percent moisture which is ideal for ensiling as a so-called "grass" silage.

PIPER PASSES 1953 FARM TESTS

At least 35 to 40 farmers in North Dakota grew small amounts of Piper sudangrass for hay or pasture in 1953. Most of these farmers indicated they were satisfied with its yield and will grow a similar acreage for pasture or hay in 1954.

Farmers in the southern half of the state indicated better results with the crop than in the northern half. These results are to be expected as sudangrass is a warm season crop and probably is best adapted to southern North Dakota. Greatest productivity may be expected in the area where 88-day to over 100-day corn is grown with adequate soil moisture. However, this crop grown in rows at Langdon in 1953 produced a hay crop approximately 5 to 6 feet tall yielding about 1-1/2 to 2 tons an acre.

SEED CERTIFIED PIPER SUDANGRASS FOR PASTURE

Piper sudangrass, preferably certified seed, should be selected for use as pasture in North Dakota. Piper sudangrass was recently developed and released by the Wisconsin Agricultural Experiment Station. It is very low in prussic acid (hydrocyanic acid or HCN). Adequate seed will be available for seeding in 1954 and succeeding years.

Piper has given very high yields of protein per acre and has a better recovery after grazing than some of the available southern sudangrass varieties. This variety has been tested under pasture conditions with sheep and by chemical tests at Fargo during the past 5 years and at no time have any losses due to prussic acid poisoning been experienced. Further, there has never been an indication that the level of prussic acid content has ever been high enough to approach the toxic level, when the plants are grazed at the proper stage. By proper stage is meant plants 18 inches tall. Very short plants have not caused poisoning either.

While no guarantee can be made that losses will not occur in pasturing Piper sudan, the possible gains from the use of the crop due to its high productivity appear to be much greater than any remote risk involved. However, always buy seed from a reliable dealer to be sure that the seed you get is pure. The seed should be free from any of the forage sorghums which are higher in prussic acid content than any of the sudangrass varieties. It is very likely that occasional cases of livestock poisoning on common sudangrass in the past may have been from sorghum admixtures in the seed planted. The cost of Piper sudan seed is approximately equal to that of common or other standard varieties.

DON'T SEED BEFORE JUNE

Sudangrass is a warm season crop. It should not be seeded before the first week of June or until approximately two weeks after corn is ordinarily seeded. Seeding can be delayed until the third or fourth week of June and still give very good yields of sudangrass for pasture or silage.

The seedbed should be worked up and weeds controlled until the time of seeding. This can be effective in wild oat control. A firm seedbed similar to the one used for flax is desirable. As this crop grows during the warmer period of the year, high rates of nitrogen fertilization are usually not necessary, unless the crop is growing under irrigation and large amounts of forage are being produced. If nitrogen is deficient, 100 to 200 pounds of ammonium nitrate should be an adequate treatment. Sudangrass should be treated, especially if it is seeded in cool soil.

Seeding to 1-1/2 to 2 inches or slightly deeper on light soils is recommended. Seed approximately 25 to 30 pounds of seed an acre with a press drill for pasture. However, if sudan is to be used for hay or silage production, it can be seeded in cultivated rows at the rate of 5 to 8 pounds an acre. The

height and maturity of sudan in rows may be more advanced at harvest time although the production will probably be slightly less than in drilled seedings.

GRAZE AT 18 INCHES OR HIGHER FOR SAFETY

Proper grazing management of Piper sudangrass is important from the standpoint of maximum production and the hazard of prussic acid poisoning.

In grazing tests at Fargo, sheep have never shown any injury from even close grazing of Piper or common sudangrass. However, as a special safety factor, allow plants to get about 18 inches tall before grazing is begun.

Grazing may be delayed until the plants are 3 feet or more tall as sudangrass is very palatable over a long period. The sudangrass plant is highest in prussic acid when very small and the prussic acid content rapidly decreases as the plants mature or the height of the plants increases.

GRAZE CATTLE AND SHEEP DIFFERENTLY

If cattle are being grazed on Piper sudangrass, the pasture should be stocked properly so the height of the sudan will be kept at around 15 to 18 inches.

If sheep are grazed on Piper sudangrass pasture, division of the pasture into approximately three areas which will be grazed in rotation may be necessary or desirable. Sheep tend to graze part of a pasture down very short and keep it that way while another area grows tall and coarse. By grazing a pasture in rotation, sheep may be forced to graze more evenly. A small area can be grazed down quickly to a height of 5 or 6 inches and while the sheep are moved on to another area, the first area can be allowed to recover for later grazing.

Dry weather conditions may reduce the vigor and rate of growth of the sudangrass plants so sheep or cattle grazing them may reduce the growth to a rather short height. If this occurs, move to another pasture to allow the sudangrass to recover to a greater height when soil moisture becomes adequate for best growth of the plant. The inconvenience caused by a short pasture due to a periodic summer drouth may be avoided by dividing the pasture into at least two areas and grazing in rotation.

FROST NOT A SERIOUS POISONING HAZARD

Although the first frost usually will kill all top growth of sudangrass, the dried frosted forage is not a poisoning hazard to animals. If a warm, moist period follows a killing frost, new small shoots or regrowth may occur from the base of the plant and any poisoning hazard associated with frost lies in this regrowth. As the frozen forage dries, the prussic acid becomes gaseous and moves into the air from the ruptured plant cells. Thus, the dried, frozen forage contains less prussic acid than before freezing. Grazing maybe delayed until the frosted forage dries as a special safety factor.

DON'T GROW FOR SEED IN NORTH DAKOTA

Growing Piper sudangrass for seed in North Dakota involves considerable risk from the standpoint of an early frost injuring the germination of the seed. The seed will not reach adequate maturity most years to escape the first frost, except possibly in the extreme southeastern portion of the state. However, if you wish to try to grow seed of Piper sudangrass, you may plant it in cultivated rows at a rate of 5 to 8 pounds an acre. As the crop matures and if the seed has reached the late dough stage or beyond, harvest the sudan about a week before the first killing frost is expected. This is done so the moisture content of the seed will be reduced to escape low temperature damage to germination. At any rate, although the seed may not be of high germination, the risk may be worthwhile in southeastern North Dakota if the farmer is able to use the forage produced in a livestock program.

OTHER ANNUAL FORAGES OF POSSIBLE USE

The millets are inferior to sudangrass for yield or forage produced per acre. Sunflowers are grown commonly for silage production in areas having cool summers and offer some possibilities as a silage crop although sunflowers must be ensiled at the proper stage of maturity to get good, palatable silage.