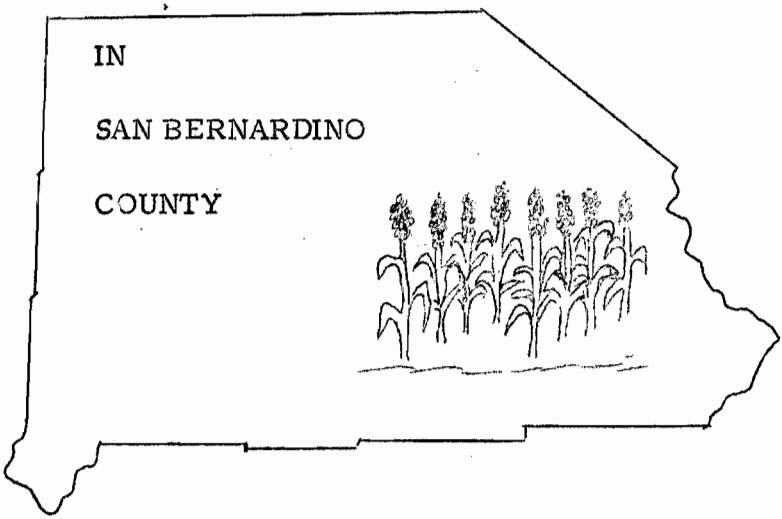
FORAGE SORGHUMS



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FORAGE SORGHUMS

IN

SAN BERNARDINO COUNTY

The term "forage sorghums" includes sudangrass, sudangrass-sorghum hybrids, hybrid-forage sorghums, and sudangrass hybrids. Sudangrass has always played an important role as an annual forage in San Bernardino County. Acreages of forage sorghums will undoubtedly increase with grower acceptance of the new hybrid sorghums.

Classification and Use* of Forage Sorghums

Sudangrass

Sudangrass is a standard open-pollinated annual grass that has been used for many years to produce summer feed. It generally grows from 3 to 6 feet tall, and has a much smaller stem size than the other forage sorghums. Its yields are still very competitive with the sorghum hybrids when both are clipped frequently.

Sudangrass is best adapted for use as pasture, and for hay due to the smaller stem size.

* "Best usage" mentioned in this publication is the author's opinion based upon local tests and observations.

Recommended Varieties:

Valley Areas - Tift and Greenleaf

High Desert Areas - Sudan 23, Tift, and Piper

Sorghum-Sudangrass Hybrids

These hybrids were developed by using sudangrass as the male parent in crosses with male sterile lines of grain sorghum. Many seed companies have developed their own varieties using this type of cross.

In hybrids tested locally, no yield differences were observed when they were harvested after heading out. When cut from flower-to-dough stage, they outyielded the pure sudangrass varieties by 30 to 40 per cent on a dry-weight basis.

Sorghum-sudangrass hybrids are best adapted for use as a green-chop forage. Preserved forage can probably be better utilized as ensilage than hay, due to the relatively large stem size. Locally tested varieties include Lindsey 77F, Asgrow Grazer, Sudax SX-11, Durrant GX-200, and Hydan 37 and 38.

Forage-Sorghum Hybrids

These hybrids are crosses between or involving tall-growing forage sorghums. They can vary in type from dual purpose crosses that can be used for grain under some conditions to very tall forage varieties.

The forage-sorghum hybrids appear to be best suited for ensilage purposes. In local tests, regrowth of varieties studied has been very poor when cut frequently. They can generally be cut only once for ensilage in San Bernardino County, because of the relatively short growing season. Locally tested varieties include Beef Builder, NK 300, NK 315, NK 145, FS-1a, and FS-22.

Sudangrass Hybrids

These are true sudangrass hybrids with sudangrass parentages on both sides. Many seed companies are still developing their varieties.

The sudangrass hybrids can be best used as a green chop; may have some use as a hay variety. The only available variety locally is NK Trudan I.

Production Factors

Seedbed Preparation

A good seedbed should be fine, firm, and moist. Proper leveling is a "must" for flood irrigation when preparing a good seedbed. With sprinklers, leveling is not so critical.

Seeding Recommendations

In the Valley areas, sorghums are seeded from May 1 to June 15; on the High Desert, from May 15 to June 15.

For green chopping, plant 18 to 30 pounds per acre, with the higher seeding rate recommended if you intend to bale excess forage.

For annual summer pastures, 20 to 25 pounds per acre is recommended. If planted in rows and furrow-irrigated, 10 to 12 pounds per acre is recommended.

Varieties

Refer to section on Classification and Use of Forage Sorghums.

Irrigation

Total water requirement at peak use period is essentially the same for the Valley and High Desert areas as that of alfalfa, if not a little higher. Due to their relatively shallow-root system, sorghums are irrigated every 7 to 10 days.

Note: Where sprinklers are used and risers are not high enough to allow maximum growth, yields will be greatly reduced.

Fertilization

In general, the kinds and amounts of fertilizer to use economically depend upon soil type, soil moisture, length of the growing season, native fertility, and previous cropping history.

In local tests on lighter soils where severe leaching may occur, sorghums were shown to utilize 40 to 60 pounds of actual nitrogen per acre per cutting. On heavier soils, applications of nitrogen can be reduced to 30 to 40 pounds.

Phosphorus and potash are generally not required. If a phosphorous deficiency is suspected, apply 40 to 60 pounds of actual phosphorus per acre in several strips through the field.

On calcareous soils in the Chino Basin and High Desert, sorghums may develop an iron deficiency --particularly after the first cutting. This can be corrected by a foliar application of 3 per cent ferrous sulphate solution, (25 pounds per 100 gallons of water), plus a wetting agent.

Diseases and Pests

Occasionally, insect pests such as armyworms, cutworms, and aphids cause severe damage. Control recommendations are available from the local farm advisors' office.

In the Valley areas, Helminthosporium leaf blight sporadically causes severe damage. The only varieties having tested resistance to the disease at this time are Tift and Greenleaf sudangrass. To date, none of the hybrids have shown resistance.

Utilization

Hay - In general, forage sorghums produce hay nutritionally equivalent to hay from barley, oats, and rye. Crimping or crushing reduces hay-making time about 50 per cent. Some San Bernardino growers have baled three to four days after mowing, where they crushed the sudan. It also increased the palatability.

Pasture - Sudan pasture can be used for all classes of livestock. Pasturing can be started when the forage is 18 to 24 inches. This is also true of subsequent grazings.

Green Chop - Green chopping is generally started after sorghums are at least 30 inches tall. Yields can be greatly increased if cutting is delayed until the field is fully headed.

Sorghum-Silage - Sudan silage is worth about 10 per cent less than corn silage for dairy cattle. Because of high moisture content of these forages at their earlier stage of maturity, liquid molasses at 80 pounds, or ground barley at 125 to 150 pounds per ton of green material have given good results as additives.

Forage sorghum hybrids will produce greater tonnage of silage as compared to corn, but are usually lower in quality.

Labor: Tractor Operator - $1.35/hr. Cash Costs
Other Labor - $1.25/hr.
Chopper - PTO - $ .65/hr.
Truck (5-ton load) @ $ .08/mi.

SUDANGRASS FOR
IN
SAN BERNARDINO
PER ACRE
1 9 6 4

FORAGE
COUNTY

Based on: 80 Acres
Yield: 25 Tons Green
Interest: 6% on 1/2 Original Cost

Operation	Annual Hours	Labor	Equipment
Land Preparation			
Pre-irrigate	2.0	$2.50	$ --
Plow	.8	.90	1.10
Disc - 2 x	.6	.75	.90
Harrow	.2	.25	.30
Float	.5	.65	.75
Border	.2	.25	.30
Cultural			
Plant	.3	.40	.50
Fertilize (attached to planter)	--	--	--
Irrigate - 5 x	5.0	6.25	--
Harvest			
Swath - 3 x	.8	1.00	2.00
Chop - 3 x	2.1	2.60	4.20
Haul	3.4	4.25	3.20
Cash Overhead			
General Expense (accounting, insurance, transportation, office, etc.)			
Taxes			

Materials	Cost	Combined Costs	Total Cost
Water - 1 Acre-inch	$ .60	$ 3.10	$
		2.00	
		1.65	
		.55	
		1.40	
		.55	9.25
Seed - 25 lbs. @ 18¢/lb.	4.50	5.40	
N - 100 lbs. @ 12¢/lb.	12.00	12.00	
Water - 4 Acre-feet @ $7/ Acre-ft.	28.00	34.25	51.65
		3.00	
		6.80	
		7.45	17.25
		4.10	
		6.75	10.85
TOTAL CASH COSTS			$ 89.00

Non Cash Overhead

	Investment	Depreciation
Land	$2500.00	$ --
Equipment (10-yr. life)	145.00	14.50
Building (20-yr. life)	15.00	.75
Irrigation System (30-yr. life)	240.00	8.00
	$2900.00	$23.25

Interest		
$150.00	Depreciation (1/2 year)	11.65
4.35		
.45	TOTAL CASH AND DEPRECIATION COSTS	$100.65
7.20	Interest (1/2 year)	81.00
$162.00		
	TOTAL ALL COSTS	$181.65
	Per Ton	$ 7.26

Prussic Acid Poisoning

This seldom occurs in California or the southern states. High concentrations of prussic acid are more likely to occur in forage sorghums that are growing slowly because of either drought or frost. For this reason, early spring or late fall growth is more likely to cause trouble.

General precautions:

1. Prussic acid content reduces as growth advances. You should allow 18 to 24 inches of growth before grazing.

2. If hay is frosted, allow hay to dry thoroughly or make it into silage to reduce poisoning hazard. Watch initiation of growth again.

3. If you suspect poisoning, call your veterinarian promptly.

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