

A line drawing of sorghum plants. The left side shows a dense field of mature plants with long, pointed leaves. The top right shows a smaller cluster of plants, including a seed head and a circular object, possibly a seed or a fruit.

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FORAGE
SORGHUM
PRODUCTION

SONOMA COUNTY

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UC Cooperative Extension

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FORAGE SORGHUMS IN SONOMA COUNTY

Forage sorghums are grown in Sonoma County for pasture, green chop, silage and sometimes hay. They are grown under irrigation and dry land conditions. These crops can be a good source of animal feeds provided they are harvested and used at the proper stage of maturity.

CLASSIFICATION

Sudangrass. A standard open-pollinated annual grass. (Example: Piper Sudan, Sweet Sudan, Sudan 23, Tift Sudan, Greenleaf Sudan, Lahoma.)

Sudangrass Hybrids. A true sudangrass hybrid originating from crosses between two sudangrass varieties. (Example: Trudan I)

Sorghum-Sudangrass Hybrids. These were developed by crossing the male sudangrass with grain sorghum. (Example: Lindsey 77F, Asgrow Grazer, Sudax SX-11, Durrant GX-200, Hydan 37 and 38.)

Forage-Sorghum Hybrid. These are crosses between tall-growing forage sorghums. (Example: Beef Builder, NK 300, NK 315, NK-145, FS-1a, FS-22.)

UTILIZATION

These forage sorghums can be used for hay, pasture, green chop or silage. Because of difference in stem size, some are better suited for one purpose over another.

Table I shows the recommended uses for forage sorghum in Sonoma County.

TABLE I

	Hay	Pasture 18-24" in height	Green Chop 30" or more in height	Silage Boot Style
Sudangrass	X	X	X	
Sudangrass Hybrids	X	X	X	
Sorghum-Sudan grass Hybrids			X	X
Forage-Sorghum Hybrids			X	X

PRUSSIC ACID POISONING

Forage sorghums that are growing slowly due to drought or frost may contain prussic acid levels that could be harmful to livestock. The sudangrass usually contains less prussic acid than do the sorghum varieties.

In order to reduce any danger from prussic acid, observe the following precautions.

1. If growing under droughty conditions or after a frost or clipping, allow 18-24 inches of regrowth before harvesting.
2. Do not feed excessively hungry cattle on forage that has been frosted or is growing under droughty conditions.
3. If you suspect poisoning problems, call your veterinarian promptly.

FEEDING VALUE

The feeding value of forage sorghums will depend on the stage of maturity at harvest and the manner in which it is stored and handled.

Studies at the University of California, Davis, show most varieties will average 17 to 18 per cent crude protein when harvested at 30"-36" in height. The protein value drops sharply as maturity increases. If the forages are allowed to go to the boot stage, just prior to head emergence, then the protein drops to 10-11 per cent. In the flower stage, the protein may be as low as 9 per cent.

SOIL PREPARATION

A well-prepared seedbed is necessary for good germination. Before planting, plow or disc the soil to kill weeds; follow with a spike-tooth harrow and a flat drag or cultipacker to smooth the surface and conserve moisture. These operations should follow each other in the shortest possible time to avoid surface drying of the soil.

SEEDING

Plant after the danger of frost is over and the soil is warm enough for good germination. In Sonoma County, seeding should be done in May.

The best machine for seeding is a grain drill set to discharge seed into moisture at 2-3 inches below the surface. Row spacing can be 6, 12 or 18 inches with little difference in yields. Cultipacking after seeding helps to conserve surface moisture.

167 *Sorghum (forage)*

SAMPLE COSTS TO PRODUCE AND GREEN-CHOP SUDANGRASS IN SONOMA COUNTY

1967¹

Cost Analysis Work Sheet

<u>Pre-harvest Costs</u>	<u>Per Acre</u>	
	<u>Sample Cost</u>	<u>Your Cost</u>
Land preparation: man & tractor, 1.5 hrs.	\$ 6.52	
Fertilizer: 120# N @ 11¢ + broadcaster & tractor	13.75	
Plant: Man & tractor, .3 hr.	1.45	
Seed: 25# @ 14¢	3.50	
Irrigate 8 times, 7.5 man hrs.	13.13	
Water, 2 A-ft. @ \$5.50	11.00	
General expense (acc., misc. trans.)	2.60	
Repairs, except tractor	2.00	
County taxes	18.00	
TOTAL PRE-HARVEST CASH & LABOR COSTS	\$ 71.95	
<u>Depreciation</u>		
Irrigation system (cost \$200, 75% of \$13.33)	\$ 10.00	
Tractor, 1.8 hrs. @ .75¢	1.35	
Other equipment (cost \$65, 10 yrs.) x 60%	3.90	
TOTAL DEPRECIATION	\$ 15.25	

<u>Interest on Investment @ 6%</u>	
Land - \$500	\$ 30.00
Irrigation system, on 1/2 cost x 75%	4.50
Tractor, 1.8 hrs. @ .25¢	.45
Other equipment, 1/2 cost	1.15
TOTAL INTEREST ON INVESTMENT	\$36.10
Total cost per acre except harvesting	\$123.30
Total cost per ton except harvesting ²	4.93
Harvest, haul, unload	1.52
TOTAL COST PER TON FED	\$ 6.45

TOTAL COST PER TON FED AT VARYING YIELDS³

<u>Yield green tons & (hay equiv.)</u>	<u>15 (2.5)</u>	<u>20 (3.3)</u>	<u>25 (4.1)</u>	<u>30 (5.0)</u>
Total cost per green ton	\$9.74	\$ 7.68	\$ 6.45	\$ 5.63
Total cost hay equiv. Ton	\$58.44	46.08	38.70	33.78

1. Man labor at \$1.75 per hour, including compensation insurance and social security.
2. Based on a yield of 25 tons @ 12% dry matter (6 tons of green fodder = 1 ton hay).
3. Based on 1,000 tons chopped

Seeding rates can vary greatly without appreciably influencing yields, but under irrigation 20-25 lbs. per acre is satisfactory. On dry land, 12-15 lbs. per acre is recommended.

FERTILIZING

The kind and amount of fertilizer will depend upon soil type, previous crop history and whether or not it will be irrigated.

Applications of 50 lbs. per acre of actual nitrogen at time of planting plus an additional 50 lbs. per acre after each cutting will give maximum yields. 150 lbs. nitrogen per acre should be the maximum applied in one season. Where phosphate is known to be deficient, 40-60 lbs. per acre of $P_{2}O_{5}$ may be applied.

WEED CONTROL

Broad leaf summer growing weeds like pigweed may be controlled with 2,4-D if sprayed after the crop is 6 inches high and before heading. One-half to one pound acid per acre in this form of 2,4-D amine plus 10-50 gallons of water per acre is recommended.

UTILIZATION

Pasture. Feeding value of sudangrass is comparable to other grasses at the same stage of growth. Pasturing should be started when 18-24 inches high. Irrigation should be frequent enough for vigorous growth.

Green Chop. Start when the plants are 30-40 inches tall.

Hay. Sudangrass should be cut shortly after it begins to head out. Feeding values are comparable to other types of grass hay.



Other Publications Available at the Farm
Advisors' Office

Circular 481 - Oats for Grain and Forage

Circular 411 - Silage, Silage Crops & Silos

Bulletin 2186 - Making and Feeding Hay-Crop
Silage

Pest & Disease Control Program for Field
Corn and Sorghums

Circular 476 - Managing Irrigated Pastures

Paraquat - For Range Seeding Without
Cultivation

Salina Strawberry Clover

Bulletin 775 - Grain Fertilization in Calif.

Facts About Chicken Manure as a Fertilizer

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George B. Alcorn, Director, California Agricultural Extension Service.

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