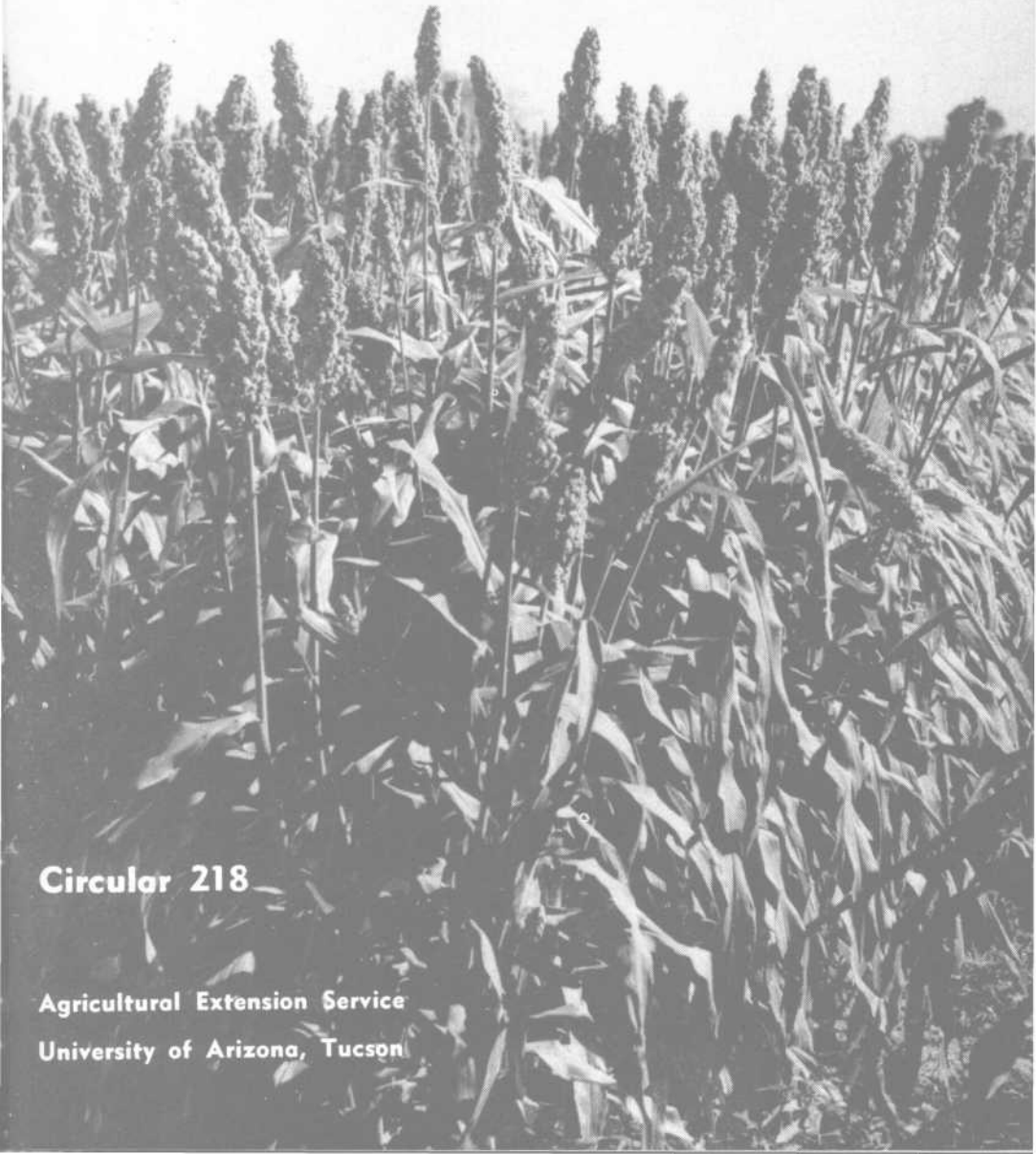
SORGHUMS
In Arizona



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SORGHUMS
In Arizona

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"Sorghum" is perhaps the most widely understood name applied to the crop which is frequently referred to as Milo, Milo Maize, Red Maize, Higear, Kafir Corn, and many other descriptive titles. There are several general types of sorghum but the two of interest in Arizona are those grown for grain, and those grown for forage.

Sorghum is well adapted to growing under irrigation in Arizona and is potentially the state's most productive feed-grain crop. However, cotton and alfalfa often have been "preferred" crops and sorghum has tended to get what was left of land, water, and attention after those crops were cared for.

Grain Sorghums

Sorghum is a feed grain approximately equal to white corn in feeding value. Like white corn it contains no vitamin A, but certain varieties have been produced which are high in niacin, one of the B-complex vitamins important in some feeding rations.

Sorghum grain is somewhat higher in protein and lower in fat than corn. Because of its small size, the grain needs to be ground for feeding to livestock.

Grain sorghum plants can be distinguished from other types. Most varieties are of low stature,

not over 4 feet in height. They typically produce large, more or less compact heads.

Stalks are slender to sturdy, moderately leafy, and usually not sweet. The pith may be dry but frequently is juicy. A moderate amount of tillering is considered desirable.

The grain is red (sometimes called yellow) or white. In size it ranges from 12,000 to 20,000 seeds per pound. It threshes readily. A standard bushel weighs 56 pounds but test weights in some varieties run up to 61 or 62 pounds per bushel.

Grain sorghums frequently are planted following the harvest of a small-grain crop. This probably is the best land use as it will approximately double the production of feed per acre per year. Current experiments on the University of Arizona Mesa Experiment Farm point to the possibility of harvesting two crops of grain from a single early planting of sorghum in areas where the growing season is long.

In addition to its use as feed, the grain can be used in most of the ways in which corn is used. The starch is of good quality and the wet-milling process not too difficult. Certain varieties having a "waxy" starch are used to produce a very satisfactory tapioca substitute.

The grain may be used for alcohol production, and varieties with an acceptable expansion ratio make a tasty popped confection similar to popcorn. Sorghum meal is finding acceptance in parts of Mexico for use in tortillas. Elsewhere in the world, sorghum is used for human food and ranks next to wheat and rice in importance. However, people accustomed to consuming sorghum grain find our varieties unpalatable.

VARIETIES

Grain sorghum varieties currently grown in Arizona are Double Dwarf 38 Milo, Double Dwarf Yellow Sooner Milo, Hegari, Early Hegari, and Plainsman; Martin, Redbine 60, Redbine 66, Combine Kafir 60, and Dwarf Kafir 44-14. The first five named may be considered as reasonably well adapted to most of southern Arizona. The others are grown only for the certified seed trade and seldom will yield as well as an adapted variety under similiar conditions.

Double Dwarf 38 Milo

Double Dwarf 38 Milo is a selection from Double Dwarf Yellow Milo that is resistant to Milo Disease. The heads are not well extended from the boot and occasionally are recurved ("goose-necked") where the stand is thin.

Double Dwarf 38 Milo is the outstanding grain producing variety of the combine types of sorghums produced in Arizona. It is about 10 days to 2 weeks later in maturity and taller than Double Dwarf Yellow Sooner.

Double Dwarf Yellow Sooner Milo

Double Dwarf Yellow Sooner Milo is raised in Arizona primarily to supply seed for the southern great plains. It has the ability to produce a crop on a very limited water supply because of its short growing season. The head is compact like D.D. 38 and matures in 90 to 100 days.

Like D.D. 38, the seeds are large and soft. If planted in cold ground the seed is very susceptible to rotting. It is resistant to Milo Disease but susceptible to charcoal rot.

Where two grain crops are produced from an early planting of sorghum, this variety seems to offer the best possibility.

Hegari

Hegari is also known as Higear, Higeary, and Higrain wheat. It came originally from Khartum, Sudan, Africa in 1908.

It is the most widely grown sorghum in Arizona and is important in Texas, Oklahoma, Kansas, and New Mexico. A small acreage is grown in California, Colorado, and Arkansas.

This is the best dual-purpose (grain and forage) sorghum grown in Arizona. The stalk is juicy but not sweet. It is very palatable to livestock as silage. In Arizona the grain production is nearly as high as Double Dwarf 38 Milo.

Early Hegari

Early Hegari is identical to Hegari except it usually matures earlier. It is a mutation found in a field of Hegari. Where the length of day is 10 hours or less, it is identical to Hegari. Where the length of day is increased to 14 hours, the two varieties become increasingly different, with the early Hegari maturing sooner than Hegari.

Like other early varieties, Early Hegari is more certain of producing some grain, but is not potentially as good a producer as is Hegari when conditions are favorable. It is susceptible to charcoal rot where growing conditions are not favorable.

Plainsman

Plainsman is a double dwarf variety that was originated in 1927 at the Lubbock, Texas, Experiment Station from a cross between Kafir and Milo.

The stems are stout and tiller slightly. The lemmas (papery

Field of Early Hegari showing mutations (tall, off-type plants). All of these tall plants must be removed before a field of Early Hegari can be certified.

bracts which partially enclose the seed) bear short awns which allow this variety to be distinguished readily from Martin. The head is usually larger and more compact than Martin.

Plainsman is resistant to Milo Disease. It is a few days later than Martin and considerably more productive. The heads do not dry out as readily and, therefore, harvest and storage are more of a problem.

A field of Plainsman in Cochise county that was reported yielding close to 7,000 pounds of grain per acre. Note large, even, well-filled heads.

Martin

Martin originated as a single plant selection made in 1937 by W. P. Martin, Lubbock, Texas. This plant was selected from a field of Wheatland that was badly infested with Milo Disease because of its resistance to the disease. It is a double dwarf and combines very easily. It matures rather early and the heads are loose. The stems dry out quickly after maturity.

Martin has no awns and the seeds have more of a brownish color than other combine types with which it might be confused. It is often preferred by growers in Texas because its earliness and dry-headedness allow early harvest, and also because of its rather high test weight.

Martin is a notoriously poor producer under Arizona conditions.

Redbine 60 & 66

Redbine 60 and 66 were both selected from a cross between Martin and a sister selection of Caprock. They are nearly the same except for maturity. Redbine 60 is a little earlier than Redbine 66. One other difference is that Redbine 60 has awns and Redbine 66 is awnless. The heads are loose and dry out readily for combining. Neither has been as productive as Plainsman in tests at the Mesa Experiment Station.

Combine Kafir 60

Combine Kafir 60 is a double dwarf blackhull kafir recently developed for Texas. The stems are

sturdy and it tillers slightly. The heads are awnless and well exserted (neck elongated, forcing head well out of the boot). Like Martin, the heads dry out well and thresh easily.

Dwarf Kafir 44-14

Dwarf Kafir 44-14 is a double dwarf kafir developed in Oklahoma. It has a midseason maturity and sturdy stalks with rather long kafir-type heads. The headstems do not dry out well after maturity and, therefore, threshing is very difficult. As a rule the kafirs do not produce as well in Arizona as the milo types.

VARIETY TESTS

Extensive sorghum variety tests have been conducted at the University of Arizona Experiment Station at Mesa. Table I shows the yield by year and the average for eleven varieties that have been tested for three years. Table II gives a description of the main varieties of sorghums in Arizona.

SEEDBED PREPARATION

The seedbed should be firm, mellow, and moist. Sorghums can be "irrigated up" but the practice is not recommended. The land should be level and in condition to take

Table I

RESULTS OF SORGHUM VARIETY TEST

at

MESA EXPERIMENT STATION, 1951 to 1953

VARIETY	1951	1952	1953	AVER.
D. D. 38 Milo	6151	5612	3829	5197
Hegari	5976	5060	3909	4982
Early Hegari	6061	4220	4524	4935
Caprock	5206	4306	3549	4354
Combine 7078	4738	3400	3452	3878
D. D. Yellow Sooner	4522	2931	3755	3736
Plainsman	4299	3052	3517	3623
D. Kafir 44-14	4564	2699	3391	3551
Redbine 60	3762	3201	2822	3262
Martin	3696	2633	3064	3131
Redbine 66	3387	2831	2878	3032

Table II DESCRIPTION OF SORGHUM VARIETIES

Variety	Maturity*	Height**	Stems	Tillering	Head	Kernels
Hegari	120 days	75"	Mid-slender to stout Leafy	Freely	Erect, mid-compact Ellipsoid Has short awns	Much exposed. Small to midsize. White with reddish brown to black spots.
Martin	100 days	35"-40"	Slender Mid-leafy	Seldom	Erect, medium-sized rather loose and dries out well. Awnless	Hard and small. Reddish brown to brown
Early Hegari	110 days	60"	Mid-slender Mid-leafy	Freely	See Hegari	See Hegari
D. D. Yellow Sooner	95 days	35"-40"	Slender & less leafy than Martin	Freely	Small, typical milo erect, well out of boot. Awned	Salmon-yellow, exposed, large, attractive, but weathers badly. Soft and cracks easily.
D. D. 38 Milo	120 days	50"	Mid-stout mid-leafy	Freely	Compact and ovoid to ellipsoid, awned	See DDY Sooner generally larger
Plainsman	110 days	40"	Stout mid-leafy	Slightly	Erect, large, long and cylindrical resembling Kafir. Short awns	Reddish yellow and Medium sized. Medium hardness.
Dwarf Kafir 44-14	115 days	45"-50"	Stout Leafy	Sparse to moderate	Like Kafir, erect, long, Cylindrical. Does not dry out or thresh easily	Like Kafir, white with small dark spots. Medium size and medium hard.
Redbine 60	100 days	40"	Mid-stout	Moderately	Like Martin, but larger. Redbine 60 has awns, 66 is awnless.	Bright, reddish-yellow medium size
Redbine 66	105 days	40"	mid-leafy			
Combine Kafir 60	105 days	42"	Mid-stout Mid-leafy	Slightly	Like Kafir, erect, long cylindrical. Dries out & threshes easily	See Dwarf Kafir 44-14

**Days maturity for June planting*
***For June planting*

water readily.

Sorghums prefer a rather heavy soil. The seedlings are not able to penetrate a crust, so an effort should be made to prevent a compacted soil from baking before the plants emerge.

The normal root system is quite extensive, being both wide and deep. Anything which seriously limits its development is likely to be reflected in lowered yields. Compacted layers of soil should be opened up to encourage both water penetration and normal root development.

PLANTING DATE

The planting dates for grain sorghum may vary considerably without serious effect. The optimum planting date is probably near June 15 except where this would cause the period of bloom to coincide with extreme heat as it might in the Yuma area. (See Table III.)

Table III

PLANTING DATES FOR GRAIN SORGHUM

Area	Date
Salt River Valley	June 15 to July 1
Yuma County	July 1 to July 15
All Other Sections	As soon as soil temperature at planting depth is over 65 degrees F.

There is evidence that high tempratures, especially when accompanied by wind, may seriously interfere with pollination and therefore reduce seed set and crop yields. Until further information can be obtained, milo - type sorghums should not be planted at a time that will cause them to be in bloom under those conditions. See Table IV (page 10) for information on blooming dates.

Success of early plantings is limited by several factors.

(1) Sorghum seedlings grow very slowly at temperatures below 70 degrees F. and not at all at 60 degrees F. and below. These are the preferred temperatures for many of the fungi which attack the sorghum seed and seedling and these organisms increase rapidly. Consequently, even properly treated seed sometimes will fail to produce a satisfactory stand.

(2) Maturity in sorghum is influenced by day length. Early plantings of many varieties tend to head out early without making much vegetative growth. Consequently, yields may be reduced.

(3) In areas where bird damage is a problem, early fields attract a concentration of birds and are much more severely damaged than they would be if all the fields matured at about the same time so the bird population would remain scattered. On the other hand, if the main attack is from migrant rather than resident birds, it may be possible to take off the grain crop before the southbound flocks arrive.

Late planting is never a sound policy although late plantings may be successful. The most serious consequences of late planting occur when the first frost arrives before the crop is completely mature.

Preliminary data from an experiment now in progress indicate that germination of the seed is

markedly reduced and weak neck (a disease) greatly increased when frost comes before the crop is completely matured and dried out. Threshing and storage problems may become complicated.

Since the rate of development of a plant is dependent in part upon temperature, the relatively cool fall weather retards growth and maturity. A variety may take 20 to 30 days longer to reach maturity when planted late.

Late plantings are likely to encounter larger insect populations. They may attract concentrations

Table IV

SORGHUM PLANTING INFORMATION

Variety	No. Seeds Per Pound	Lbs. per Acre to plant to give a 4-inch stand		Days from planting to bloom at Mesa	
		20" rows	40" rows	Planted May 22	Planted June 15
DD 38 Milo	12-15,000	12-14	6-7	63	67
DD Yellow Sooner	15,000	12	6	59	50
Hegari	20,000	**	4	79	77
Early Hegari	20,000	**	4	62	67
Plainsman	18,000	9	4-5	71	59
Martin	20,000	12	6	63	61
Redbine 60	15-20,000	8-10	4-5	61	57
Redbine 66	15-20,000	8-10	4-5	77	64
Combine Kafir 60	20,000	12	6	66	65
Dwarf Kafir 44-14	20,000	12	6	73	65

(*The days to bloom will vary from year to year depending upon weather, etc.)
(**Not Recommended)

of birds after the bulk of the crop in that locality has been harvested.

RATE OF PLANTING

Rate of planting depends on several factors and may vary from 4 to 6 pounds per acre up to 12 or 15 pounds per acre.

The proper planting rate is one which will give the ideal plant population per acre. That figure will vary depending upon the variety grown, soil characteristics, row spacing, irrigation and fertilization procedure, and probably other factors.

Obviously, planting rate must take into account the size of the seed being sown as there may be nearly twice as many seeds per pound of Hegari as there are of Double Dwarf 38 Milo.

Table IV (page 10) may be used as a guide when seed of high germination is available. When planting in a cold soil or when seed of poorer germination must be used, the rates shown should be increased.

ROW SPACING

The distance between rows is usually determined by the type of equipment available. Corn or cotton planters may be adapted to handle sorghum seed and are usually adjustable between 36 to 44 inches. The row width for which the planter is set is generally the one at which the sorghum is planted.

This practice makes for convenient field operations, but an 18 to 20-inch row is likely to produce higher yields. Where the narrower rows can be handled satisfactorily they are to be preferred.

Under some conditions, the narrow spacing may be obtained easily by using the standard planter and 40-inch rows, then making a second trip over the field, placing the rows halfway between the original rows. If this practice is followed, care should be taken that the tractor wheel marks do not come on top of the planted rows, as poor stands may result.

A few farmers are using grain drills to plant in 7-inch rows. It is very difficult to reduce the planting rate sufficiently with a drill. More test work must be done before this method of planting can be recommended.

PLANTING DEPTH

The seeds of sorghum are relatively small and the seedlings not particularly vigorous. Germination is rapid under favorable conditions. Therefore, it is advisable to plant at a relatively shallow depth.

Plant only deep enough to insure against drying out before the plants can emerge. Under most conditions, 1½ to 2 inches is deep enough. The seed must make good contact with moist soil. The soil above the seed should be firmed down but not compacted to the point where it will bake hard and interfere with emergence.

FERTILIZATION

Like most of the grasses, sorghum can utilize considerable amounts of nitrogen and may show some response to applications of phosphorus. Present recommendations are for 75 to 125 pounds per acre of actual nitrogen either with or without 50 pounds of phosphoric acid.

The form of nitrogen used appears to make little difference so long as it is distributed uniformly. Application may be prior to planting, banded beside the row, injected at planting, or side-dressed at the first cultivation.

Late applications of fertilizer may not be too effective because the head is formed at an early stage of growth. Once the head is formed, the upper limit on yield per plant is rigidly fixed.

The young plants should be given every encouragement to grow. This means the crop never should be allowed to want either for plant food or for water. The best use of phosphate would be to phosphate the alfalfa in the rotation and apply only nitrogen to the sorghum.

IRRIGATION

Sorghum has the reputation of being a drought resistant crop. It is true that sorghum can remain alive on small amounts of water. But if high yields are desired, *it must have ample water available at all times to carry the plants to maturity.*

The field should be irrigated before planting to wet the soil to a depth of 4 to 6 feet. The plants should never be stressed for water during the growing season. Water stress during the head forming stage may cause blasting of the heads. The frequency and amount of water applications will depend upon weather conditions and the water-holding capacity of the soil.

Apply the last irrigation at the soft dough stage, unless unusual conditions exist, such as a very sandy soil.

Any stress for moisture while the grain is filling will reduce the yield by reducing the size of the grains. Excess moisture at maturity encourages branching and tillers which interfere with harvesting. Excess moisture at this time also prevents the grain from drying out properly for harvest.

CULTIVATION

Cultivate only to control weeds and to encourage water penetration when necessary. On clean land, a grain sorghum crop sometimes can be grown without cultivation. This saving is reflected directly in higher net returns per acre. In any case, the cultivation should be as shallow as possible to avoid injury to the mass of feeder roots which occupy the soil near the surface.

Control of many weeds may be achieved through the use of sprays containing 2,4-D or similar compounds. Under certain conditions, such control may be much more economical than cultivation.

HARVEST

Any combine adapted to harvesting small grain may be used successfully on grain sorghums with proper adjustment of cylinder speed, concave setting, and air blast. Since the grain tends to crack with rough treatment, recommended cylinder speeds are generally somewhat slower than those used for small grain. One of the rasp-type cylinders seems to be more satisfactory than the spike-tooth in getting all of the grain with a minimum of damage.

Under certain conditions it is difficult if not impossible to remove all the grain from the head without cracking some in the process. Since cracked grain goes out of condition in storage, it may be

necessary to accept the loss of some grain left in the head rather than try to store or sell cracked grain.

Sorghum grain should be stored at a moisture content of about 13 percent. It will spoil in storage if the moisture exceeds 15 percent. It is important that the crop be fully matured and dried out before harvest.

INSECTS AND DISEASES

Proper cultural practices are important for the prevention and control of insects and diseases of sorghums. Seed treatment will improve germination and stand. By avoiding the planting of sorghum on land where sorghum was grown the year before, and by plowing stubble under in the fall, the problem of insect damage can be reduced.

Your local County Agricultural Agent can supply latest information on seed treatment, disease and insect control recommendations, and cultural methods that will help to reduce or prevent serious losses.

Forage Sorghums

Not all tall, rank-growing sorghums can be classed as forage sorghums or "sorgos." In order to be so considered, the variety must have a juicy, sweet stalk.

Sorgos are typically rather tall plants of intermediate to late maturity. Grain production is not usualy high and the seeds are small, sometimes running as many as 30,000 to the pound.

In former years when bundles of forage had to be manhandled, there was a demand for shorter, less productive varieties which made the bundles easier to handle. With present developments in farm machinery there is no sound reason for discrimination against the tall-growing, productive forage sorghums so long as they are satisfactory in other respects.

LODGING

Experience in Arizona has shown that the sorgos frequently lodge badly as maturity approaches. This poses a very serious harvesting problem. Lodging occurs even in varieties noted elsewhere for having strong stalks.

One type of lodging — stalk breakage—results from infestation by the southwestern corn borer It is likely to be rather localized and sporadic in appearance.

The other type of lodging typically gives the appearance of plants with stalks too limber to support the weight of foliage and head. Generally a wind storm provides the initial push and the crop falls over like a row of dominoes, but in much greater confusion, and never returns to an erect position.

The cause of this second type of lodging is not understood, but several factors may play a part. Heavy nitrogen feeding is known to produce similar lodging in other grasses, and it may be a factor in conjunction with a heavy final irrigation of sorghum before harvest.

Lighter and more frequent applications of water may reduce the

risk. But it must be kept in mind that any rank, heavy growth of material tender enough to be palatable to livestock is likely to suffer when the wind blows.

VARIETIES

Hegari is the recommended forage variety even though it did not produce the most tonnage in tests. It is best for use in Arizona for a number of reasons: (1) Good resistance to lodging; (2) excellent tillering, which tends to make up for skips in the stand; (3) comparatively high grain yield, making for ensilage with high feed value; and (4) an assured supply of seed. Also, Hegari is short enough to be harvested with a combine while the sorgos all require specialized harvesting for seed production.

Forage varieties such as Sumac and Sourless are capable of producing more forage per acre than Hegari. The yield of grain as shown in Table V (below) is so much less than Hegari, however, that the total digestible nutrients are the same or less.

All of the tall growing forage types will lodge more than Hegari.

For double cropping sorghums (ratooning), Sumac may have a place in forage production. It is slightly earlier than Hegari and the early planting will reduce the height some, thus reducing the lodging. Apparently the yields will be increased 50 to 75 percent higher than single cropping.

Table V (below) gives information on a forage test conducted in 1953 at the Mesa Experiment Station.

Table V

FORAGE SORGHUM VARIETY TEST MESA EXPERIMENT STATION, 1953

	Days to *Bloom	Height in Inches	Grain lbs per Acre	Forage Tons per acre	Lodging	Palatability
Hegari	76	81	4,109	20.9	none	Juicy-not sweet
Atlas	72	111	2,363	22.6	none	Juicy-sweet
Sumac	73	108	2,672	25.1	slight	Juicy-sweet
Kansas Orange	67	102	3,337	22.7	none	Juicy-sweet
Sourless	79	106	2,530	26.7	moderate	Juicy-very sweet

**Planted June 18. Harvest for ensilage would follow in 30-45 days.*

PLANTING PRACTICES

Planting practices are in general quite similar to those for grain sorghum. (See page 7). The recommended planting date may be less flexible. In ordinary practice, planting sometime between May 15 and June 15 appears to be desirable for high yields.

The rate of planting should be about the same as when growing Hegari for grain, or slightly higher. Sumac has a smaller seed than Hegari but tillers less readily so that planting at equal rate is permissible.

Present recommendations favor a 36 to 44 inch row spacing. Not too much information is available on narrower spacings. They may prove successful if lodging is not increased.

SILAGE

Forage sorghums are most widely used as livestock feed. Common practice is to make ensilage of the crop and feed it from the silo. The fermentation process causes some loss of dry matter, from 10 to 15 percent according to most authorities. However, this loss is less than is usually encountered in other methods of preserving forage, and the silage is generally so palatable that there is no waste at the feed trough.

The recommended harvest time for best silage production is when most of the grain is in the hard dough stage. Total dry matter is highest at that time and the product also is near the top in palatability.

SOILING

Forage sorghums may be used as a soiling crop. Chopped in the field and fed immediately, the crop is nutritious and highly palatable. However, little information is available on the proper method of handling to insure highest yields. (See Double Cropping below).

PASTURING

At times, feeding green sorghums or pasturing a growing field may bring up the problem of prussic acid poisoning. Apparently the danger is not great in the warmer parts of the state, but at the higher elevations it may be increased.

It is never advisable to give cattle or sheep access to early stages of second growth on sorghum, or to plants which have been under stress for water. *Plants under such conditions can be deadly, and only a small amount need be eaten to be fatal.*

Double Cropping Sorghums

It is common practice to plant sorghum on the land from which a small grain crop has been harvested, thereby producing two grain crops on the land in a single growing season. Probably the most serious disadvantage of this practice is its demand for prompt land preparation following removal of the small grain crop. There is also the expense of this land preparation to consider.

Several years' data are now available from an experiment conducted on the Mesa Experiment Station farm in which another type of "double cropping" was investigated. In this test, an early planting of sorghum was harvested as soon as possible following maturity. The stubble was fertilized and irrigated immediately after harvest to encourage growth of tillers from the base of the old stubble. A second grain crop was produced in this manner without the expense of a second planting. This is called "ratooning."

FERTILIZATION

Sufficient available nitrogen is always needed for high yields of either grain or forage. It is of greatest importance that an adequate supply be made available when the second growth is starting. Probably at least 100 pounds per acre of actual nitrogen should be supplied to the second crop, with about one half of that amount supplied at the irrigation following the first harvest.

When deciding on the amount of nitrogen to apply, consider the actual amounts used by the crop. In order to produce a grain crop of 7,000 pounds per acre of Double Dwarf 38 Milo, the plants must take up approximately 200 pounds of elemental nitrogen, which becomes tied up in the growing plant.

The plant residue returned to the soil keeps actual nitrogen removal at a considerably lower figure. But it is clear that heavy applications of nitrogen must be made if good yields are to be obtained.

IRRIGATION

The heavy vegetative growth resulting from the fertilization necessary to produce high grain yields places an increased demand on the water supply. Water will be taken from the soil at a faster rate, requiring more frequent irrigations.

The permissible lag between the time that need for an irrigation is first observed and the time that water is actually applied is reduced. In fact, if water is held off until a need for it is observed, damage to the crop may already have occurred. When shooting for high yields, any stress is detrimental.

PLANTING

Present data indicate that sorghums for double-cropping should be planted early in April. *Use only high quality treated seed.* Plant on beds to take advantage of the warmer soil.

VARIETIES

Either Double Dwarf Yellow Sooner or Double Dwarf 38 Milo may be used, with D. D. Y. Sooner preferred because of its earliness and better production on the second crop. Harvest should promptly follow maturity in August, but make sure that the moisture content is below 15 percent for safe storage.

Irrigate and fertilize for the second crop as soon as the first crop is harvested. When an early frost occurs, germination of the second crop may be reduced. However, in most cases the grain will be far enough along to make good quality feed.