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FORAGE FOR RANGE AND RANCH

Bulletin 120

Devoted to the Interest of Cattlemen,
Dairymen and all Live-Stock Breeders

The Pony Phalaris Scaup

AGGELER & MUSSER SEED CO.

620 South Spring Street

Los Angeles, Calif.

WHAT WAS BE SLOW GROWING THOUGH

MR. DAIRYMAN AND STOCKMAN,
READ, THIS

POULTRYMEN

To the small stock breeder and poultryman you will find in this bulletin just as much of interest to you as to the large breeder. Read it carefully.

HOW TO PLANT SMALL GRASS SEED

PLANTING A STAND BY THE CORRUGATED SYSTEM

When preparing a stand by the corrugated system, the seed should be sown in the furrows made by the corrugator, and the seed should be covered by the corrugator.

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Mr. Stockman: You will want to know a little about a certain kind of seed, how to plant it, and how to care for it. The following table shows the number of seeds to be sown in a row, and the number of rows to be sown in a field.

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1 bushel	1000 lb. of domestic seeds	247 bushels per 1000
2 bushels	2000 lb. of domestic seeds	494 bushels per 1000
3 bushels	3000 lb. of domestic seeds	741 bushels per 1000
4 bushels	4000 lb. of domestic seeds	988 bushels per 1000
5 bushels	5000 lb. of domestic seeds	1235 bushels per 1000
6 bushels	6000 lb. of domestic seeds	1482 bushels per 1000
7 bushels	7000 lb. of domestic seeds	1729 bushels per 1000
8 bushels	8000 lb. of domestic seeds	1976 bushels per 1000
9 bushels	9000 lb. of domestic seeds	2223 bushels per 1000
10 bushels	10000 lb. of domestic seeds	2470 bushels per 1000

Segment Planter. A good thing to plant grass seeds in rough places.

Plants of the same kind, a certain kind of seed, how to plant it, and how to care for it. The following table shows the number of seeds to be sown in a row, and the number of rows to be sown in a field.

THE SMALL RANGE

When the seed is sown in the furrows made by the corrugator, the seed should be covered by the corrugator. The seed should be sown in the furrows made by the corrugator, and the seed should be covered by the corrugator.

This precaution may seem impractical and unwarranted, but did you expect valuable grasses to grow with less attention than would be given other crops?

Napier Grass as a Wind Break

NAPIER

Pennisetum Purpureum

(See our Demonstration 1933, 12, 1831-833)

Napier grass is a hard, growing cane-like perennial. It grows to a height of from 8 to 12 feet or more, depending upon the amount of moisture and fertility of the soil. The joints (root extensions) forming clumps with many joint stalks under favorable conditions and after the plants are well established, as they are 8 months old or more and have had a good growth, will be produced for a single plant. At all times, joints are about 2 inches long and 1/2 inch thick. They are produced from the base of the plant and are about 2 inches long and 1/2 inch thick. They are produced from the base of the plant and are about 2 inches long and 1/2 inch thick.

The first time you plant a napier joint, you will find it is about 1/2 inch long and 1/2 inch thick and there is a small joint at the base of the joint.

When you plant a napier joint, you will find it is about 1/2 inch long and 1/2 inch thick and there is a small joint at the base of the joint. When you plant a napier joint, you will find it is about 1/2 inch long and 1/2 inch thick and there is a small joint at the base of the joint.

The Right Way to Plant Napier Joints

When you plant a napier joint, you will find it is about 1/2 inch long and 1/2 inch thick and there is a small joint at the base of the joint.

The shape of a napier joint is shown in the diagram. It is a small joint at the base of the joint. The shape of a napier joint is shown in the diagram. It is a small joint at the base of the joint.

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Single napier joints are planted with very little difficulty. The operation of planting a napier joint is shown in the diagram. It is a small joint at the base of the joint. The operation of planting a napier joint is shown in the diagram. It is a small joint at the base of the joint.

One joint planted during April will grow as many as twenty or more sprouts that may be separated July 1st and planted separately so that by October 1st the original joint may be multiplied by 400. We advise that no subdivision be made after October 1st but let the crown remain undisturbed until the following April when each one will again produce twenty or more divisions besides many joints. Thus one joint within twelve months will produce more than 8000 plants. This is a conservative estimate.

For field pasture or browsing we recommend planting two feet apart in rows three feet apart.

NAPIER (Continued)

For frequent cutting we advise planting twelve inches apart each way; thus one plant to each square foot will quickly fill the space solidly with succulent green feed that may be pastured or cut frequently for hay or green feed for chickens, rabbits or goats.

The grass is also said to possess drouth resistant qualities to a marked degree, but it will thrive best where soil moisture is not lacking.

In a discussion of this grass as found in a state of nature in Tropical Africa the author says:

"It occurs along watercourses and in marshy depressions, but also enters the bush and forest where open spaces afford sufficient light. - In rich marsh land it attains a height of 21 feet, while in drier soils it only grows 6 feet high."

During the past year Napier grass has received considerable advertisement. In some cases over enthusiasm has led to error and exaggeration and the impression has become more or less prevalent that this grass will produce very large crops on practically any type of land and that it requires little or no cultivation. This belief is based upon a misapprehension. Plantings made during the past year indicate that results will vary directly with the fertility of the soil, and the amount of moisture. Its habit of growth is like millet and is about as easily eradicated as kafir corn. It grows very rapidly and may be cut when 3 or 4 feet high, supplying a heavy crop of green feed or hay. In nutritive value and palatability, Napier Grass is not excelled by any similar non-leguminous feed. When cut at the height of 3 or 4 feet, the stubble is in a tender growing condition. This tends to promote a quick and vigorous growth and insures a maximum number of good cuttings during the growing season, yielding about 3 tons or more of dry hay per acre each cutting, and it has been known

Guinea

Napier

Just Five Months' Growth from Dormant Joint

NAPIER (Continued)

is needed, as much as 30 tons of green feed per acre in 10 days, growing from two- or three-day feeds. Napier Grass can be cut as many times per year as alfalfa and will produce several times as much green feed each cutting, if given the same conditions. Napier Grass seems especially suited to a spring and summer regime as its high content of protein and its excellent, low-starch, rather tender, if valuable for winter feed.

Napier Grass should be cut while young and succulent. This is not only important to the nutritive value of the growth, but it also permits a steady flow of the highest quality to the stock, whereas low and matured grasses tend to become hard and woody and cannot be so easily consumed. To keep young grass this plant is claimed to make a specially suitable one of our winter or a feed which need scarcely change.

It is also extremely for stables and horses with some caution. It is best to subject to the stock without sometimes to meet their condition.

From an investigation of Napier, it is found that two best purposes for which it can be used is as the material for a winter or summer for breeding. When well established it will produce an average 100 with 100,000 lbs. of feed per acre. It is also a good feed for the stock and can be used for the purpose of a winter or a summer feed. It is also a good feed for the stock and can be used for the purpose of a winter or a summer feed.

Table showing composition of green Napier Grass with 1000 lbs. of water. From 1000 lbs. of water 17. (Cattle) Exclusive of water.

Nutrients	1000 lbs. water	1000 lbs. water	Napier
Water	71.0	71.0	91.0
Oil	1.0	1.0	1.0
Protein	1.0	1.0	1.0
Carbohydrates	11.0	11.0	11.0
Cellulose	1.0	1.0	1.0
Other	1.0	1.0	1.0

	Price Per doz.	100	500	1000
	Postpaid	Postpaid	here	here
Dormant young	\$.75	\$ 1.00	\$ 12.00	\$ 20.00
Rooted Sprouts	1.00	5.00	18.00	30.00
Divided young	1.25	5.00	24.00	40.00

Napier grass and young are given from June until September to feed the sheep and goats.

NAPIER DROUTH RESISTANT

On the 25th of the year, we planted a 100 root resistant Napier Grass in the field. It was just after a heavy fall of rain and the first rain was observed. The grass was in the field and the first rain was observed. The grass was in the field and the first rain was observed. The grass was in the field and the first rain was observed.

Napier Grass forms an ideal winter-feed around small gardens and a good feed for the sheep and goats.

GUINEA GRASS

Guinea Grass

RHODES GRASS

Write Department of Agriculture, Washington, D. C.

Ask for Farmers' Bulletin No. 1048

Was discovered in South Africa by Cecil Rhodes in 1893 and developed by him on his farm from a few handfuls of seed he found wild. It was taken to New Zealand and Australia and is responsible for the development of the sheep industry there. It was named in honor of Mr. Rhodes. About 12 years ago it was brought to Florida where it became known as the East Coast Grass, and where it made records of wonderful growth.

For first hand information we are indebted to Mr. C. J. Renfrew, who with Mr. W. D. Beatty have 320 acres of Rhodes Grass growing at Niland, Cal. The soil is heavy and salty, for this land borders on the Salton Sea. They are cutting it six times a year and two tons per cutting.

After two years' experience with Rhodes Grass, Mr. Renfrew says of it: "It is a plant which thrives well in warm climate. It is perennial in a temperature above 48 degrees and thrives at 125 degrees. It stands drouth remarkably and will endure much neglect and pasturing. It does not scald in hot weather from excessive moisture like alfalfa. It is highest in protein of any grass tried. Stock like it and will not show bloat."

Rhodes Grass will drive out Bermuda and other weeds because of its dense growth. It is easily controlled by being plowed once and let stand for sixty or ninety days. It adds humus to the soil.

The best time to plant Rhodes Grass is from March 1st to September 1st.

The soil must be well prepared by thorough pulverizing then corrugated (see page 4). Broadcast 11 pounds of seed per acre, going over the field twice once north and south and east and west sowing 7 pounds each way. Keep the soil continually moistened until the grass is established. It grows so rapidly that the first cutting may be had the sixth week. Do not pasture until after the second cutting.

Price per lb. \$1.00 postpaid. Write for quantity price.

Another year of experience with Rhodes Grass has added much to its popularity. It might be claiming too much to say that for a permanent pasture field it excels alfalfa, but it is no exaggeration to say it has a wider usefulness, because it will thrive on soil too alkaline for a falfa. It will endure more drouth, more pasturing, more neglect, and will support as many head of stock per acre.

The following extract is from the U. S. Department of Agriculture Bulletin 1048:

Rhodes Grass was first cultivated because of its pasture value. It bears trampling well, recovers quickly after it is eaten down, and is relished by all kinds of live stock. In pastures favorably located, Rhodes Grass will support about two steers to the acre for 9 to 10 months and double that number during the more favorable parts of the year. The quality of hay made from Rhodes Grass is superior to that of most other grasses in that it contains a larger proportion of leaves, while the stems are slender, tender, and sweet, so that the hay is eaten with very little waste. It retains its color well in drying, therefore making an attractive bale for market.

Mr. McArthur of this city planted twenty acres near Holtville in Imperial Valley, on soil that was white with alkali. He is very enthusiastic concerning it. He says it is the most valuable grass that has ever come to Southern California. There is no longer any excuse for waste places; every acre of alkali soil may now be converted into valuable grazing land.

The following was copied from the Orchard & Farm, contributed by Dr. P. B. Kennedy (Grass and Forage Plant Investigation), University of California:

"Rhodes Grass hay is sweet and tender, and well liked by all classes of stock. It has an attractive appearance and lends itself admirably to baling for market. One to two tons per acre would be considered a poor yield, and might be expected on poor soils with insufficient irrigation, while on good soils with ample irrigation and a long season, eight tons per acre may be reasonably expected. The grass grows very rapidly during the warm summer, thirty days being sufficient to produce a cutting, but as the season advances and the mean temperature becomes lower, the growth becomes less rapid.

PASTURE PLANT

Perhaps the best way to utilize Rhodes Grass is to make two cuttings of hay and then pasture for the remainder of the season. Continuous grazing is not to be recommended, although the plant withstands pasturing well. We have not as yet determined the carrying capacity of Rhodes Grass for California conditions, but the reports from other states are really remarkable. A very conservative estimate would be three cows per acre for eight months.

Since California must from now on produce more forage under intensive cultivation we believe this to be one of the grasses that will help to solve the livestock problem.

Experience with feeding Rhodes Grass in Imperial Valley has been very profitable, and it is believed that it will be a valuable addition to the agricultural and animal products of that region.

Rhodes Grass does not grow underground sprouts like Johnson or Pennsylvanian Grass, but sends runners over the surface like strawberry tops. It is easily eradicated.

Just Six Months' Growth from One Joint

HARDING GRASS

11. *Journal of the American Chemical Society* (1964) 86, 552.

3.50 lb
postpaid

Plants
H. cooperi
F. O. B.

Phalares Stenoptera.

The foliage is devoid of hairy coverings of any kind, and is free from rust, thus tending toward a clean hay and palatable pasturage. During the first season the flower-bearing stems are comparatively few and grow only about two feet high. During the second season a dense leafy mass three feet high is produced with the flower-bearing stems four to six feet high, depending on the rainfall.

Feeding experiments with calves in co-operation with Dr. Wood at the University Farm at Davis, show that the winter growth of the grass is very much liked and that it compares very favorably with alfalfa as a feed. All classes of stock are partial to it.

Small trial plots at Berkeley have also done well although the growth is much slower.

F. B. KENNEDY

Grass and Forage Plant Investigation— University of California

At the University of California, Berkeley, California, and
also the State of California, the following grasses and
forage plants are being investigated:

Winter Pasture: F. W. Woll Says of It

THE UNIVERSITY OF CALIFORNIA, BERKELEY, CALIFORNIA
DEPARTMENT OF AGRICULTURE
Berkeley, California
January 1, 1918
Dear Sirs:

I am pleased to inform you that the following grasses and
forage plants are being investigated at the University of California
Berkeley, California:

Composition of Harding Grass

Water	88.00%
Protein	11.75%
Fat (free extract)	1.00%
Fibre	1.00%
Nitrogen—free extract	24.15%
Ash	10.00%
	100.00%

The sample was cut after a period of steady increase in the
section which, however, did not seem to hurt the grass ap-
preciably. The grass was 6 to 12 inches high at this time.
Cuttings taken during the growing season when the grass
grew to a height of 3 to 4 feet or more on this plot would
doubtless show a lower percentage of protein and a higher
fibre content, but the results of the analysis of the sample
submitted show, beyond a doubt, that this grass is ex-
ceptionally high in protein, fat and mineral matter and sug-
gests that it will prove a most valuable addition to the list
of California forage plants. Feeding trials with the grass
conducted with stock at the University Farm showed that
it is very palatable to dairy cows, sheep and goats.

I shall watch with great interest further developments in
introducing this grass, and making its merits known to the
stock-men of the State. It would appear to me that it is a
very remarkably promising plant that may prove of consid-
erable value to our stock interests.

Very truly yours,

(Signature) F. W. WOLL.

Prof. of Animal Nutrition.

(The King of All Winter Grasses)

For cold districts Phalaris is the grass. It seems to thrive
on the cold, and grows an inch a day or more in the depth
of winter. Thoroughly perennial, and makes a valuable and
permanent pasture. Can also be made into hay. Plant from
March to June at the rate of 2 to 3 pounds per acre. Can
also be established from roots planted from May to August,
about 18,000, eighteen inches apart, being required to cover
an acre.

J. D. THOMSON,

Altadena.

Mr. Thomson says also that after cutting his Harding
Grass for seed the plot lay dormant until September; then,
without any irrigation, it started to grow, and before rain-
fall made considerable growth.

Dear Sirs:

Regarding the Harding Grass (Phalaris Stenoptera) I
wish I could get more. Having a few seeds in 1918 I planted
them in 6 times, beginning Oct. 12, the last planting being on
March 25th. I am well pleased with the results, although it
does not grow very high in our granite soil, it is the only
grass I know of that will pay here.

A. LAFORGE,
Newcastle,
California.

AUSTRALIAN SALTBUSSH

(*Atriplex semibaccata*)

Australian Saltbush Growing by the Roadside

One plant growing by a roadside on clay soil having had no moisture other than the season's rainfall.

Cardinal points: For range near the coast or interior lowlands where fogs are of frequent occurrence—any kind of soil—endures much alkali—thrives with a minimum of moisture—very succulent during winter, spring and early summer, when it is relished by all stock—becomes parched by heat in late summer, then it is less palatable to stock, but they will thrive if forced by hunger to eat it—it seeds freely. Requires no preparation of soil for seeding. Cannot cut and dry as hay—has one tap root—easily eradicated.

Per lb. \$1.00 postpaid. Write for quantity price.

The best way to get a stand of Saltbush is to sow broadcast the seed during the months of January and February. Five pounds of seed will sow one acre broadcast.

Saltbush has made a new record which establishes a value. Heretofore, this has not been appreciated, although for years we have tried to make plain that its principal use was for sheep and goat pasture.

Mr. Maurer, who has large interests in the San Clemente Islands, and maintains large herds of sheep and goats, states that were it not for the several hundred pounds of Saltbush he purchased from us several years ago he would, undoubtedly, have lost his herd. If you have any waste land, sow Saltbush; it may be depended upon when all else fails.

Had the owners of Guadaloupe wisely sown Saltbush seed over their island several years ago they would not have found it necessary to ship their herds to the mainland, entailing much expense and inevitable loss of animals.

Fire may devastate the range and destroy all dry forage in its path, but the Saltbush being perpetually green is absolutely uninjured by fire.

COCKSFOOT

(*Dactylis glomerata*) also called Orchard Grass

RUSSIAN BROME GRASS

(*Bromus inermis*)

Price per lb. 75c. net weight.

BERMUDA GRASS

(*Cynodon dactylon*)

Bermuda Grass is a very hardy perennial, the creeping stems of which produce nodules or joints at short intervals. Each joint is capable of producing a new plant, though commonly reported from all the corners. These stems have been known to survive 2 to 12 years in a dormant season under the most adverse conditions for growth. While the joints remain in contact with the soil, they can sprout once more roots and the soil.

It also produces a single upright stem and the succumb to the death of frost. These stems spreading outward several feet from the base, and the upright stems are numerous ascending or prostrate, depending from a central node in height.

This grass, which will grow and flourish against and most feared by most plantations because of the difficulty of eradicating it in cultivation, and is at once very rare in nature in the south, and joint is most common to its great value as a pasture grass under all conditions. Lands well adapted to Bermuda grass, and in many instances considered the most valuable property in the southern States, it is strictly a summer grass as it grows best when the heat is greatest, the more productive being right. It starts late in the spring, grows slowly at first and turns brown in the earliest frosts of autumn but it grows right on through the middle of the summer. While it grows best in good soils, no grass in the south will furnish so much valuable pasture when grown on poor sandy, galled or worn soils. It has much power to withstand heat and drought. Though apparently dormant through drought it will quickly re-appear when moisture comes. It will also withstand inundation better than any other grass. A valuable grass grown in the south. But it does not succeed well in the shade, hence it is not well adapted to being grown in groves.

This grass is beyond question the most valuable pasture grass in the south. It will furnish grazing on soils too poor to grow commercial crops will furnish more and better grazing than any other southern grass and will also stand closer grazing and more trampling under all conditions than any other. All kinds of live stock on the farm are fond of it. At all stages of development until smitten by frost. It also makes excellent and valuable hay, more palatable and nutritious than that made from blue grass.

Bermuda Grass also renders excellent service in preventing erosion in soils and in binding the same. It will hold together the most acid and loose sands when once set in them. It has no superior in forming a sod on ditch banks and ravines.

Strictly speaking, Bermuda Grass is not a rotation plant. Because of the difficulty found in eradicating this grass and because of its continuity in growth, its highest use is found in permanent pastures.

When land is to be laid down to Bermuda Grass, the cleaner it is, and the better its condition, the sooner will a stand of the grass be secured, and the greater will be the returns from it.

The seed is not only low in germinating power, but the young plants from the seed grow so slowly that they are much liable to injury from the crowding of weeds unless well cared for.

A pound of seed should sow one-fifth to one-third of an acre. The method of sowing the seed in drills would doubtless be preferable.

Bermuda Grass is unquestionably the best pasture grass in the south viewed from the standpoint of palatability, productiveness and endurance. There are reasons for believing that in its proper sphere it will produce more grazing and more meat than blue grass under the most favored conditions. Sheep can graze upon it from 7 to 9 months in the year according to the locality.

In seasons of much drought the plants will, on some soils, appear to die, but when rain comes they will revive again with surprising quickness. Overflow during the growing season rather encourages the growth of this grass but for a time it usually injures grazing by the sediment deposited on it.

Bermuda Grass becomes sod bound after a few seasons of pasturing or mowing, hence where practicable it is recommended to break it up by plowing and smoothing the ground quite soon thereafter with the harrow; plowing it thus loosens and aerates the soil, breaks up the matted roots and brings new life to the plants.

Per lb. \$1.00 postpaid. Write for quantity price.

SMILO GRASS

(*Oryzopsis Milineae*) Many Flowered Millet

Recommended by the University of California) is a hardy evergreen perennial, drought-resistant bunch grass that thrives on dry hills among rocks and brush and is a wonderful producer when planted in good soil, but must have sufficient moisture to get a good root system before the dry season. It also thrives under trees.

Smilo seed originally came from Southern Europe, where it is considered one of the best forage grasses.

Smilo will not become a pest, as it has fine fibrous roots which penetrate very deep, but is easily cultivated out.

Smilo grass does not do well planted thick. Plant in drills about 14 inches, using from $\frac{1}{4}$ to $\frac{1}{2}$ pound of seed per acre. Thin to one every 14 inches in row. When sown broadcast, sow very thin and hoe out the surplus roots.

Do not plant seed over $\frac{1}{4}$ inch deep. Better sow on top of ground and harrow lightly. When planted deep we have known Smilo to lie in the ground two years, but as soon as brought to the surface and got sufficient moisture it came up and made a good stand.

Smilo grass is a slow grower the first year until it gets a good strong root system (unless irrigated), when it is a good producer and will stand many months without moisture.

When possible plant seed before fall rains, during September and October, so it may get a good root system before the cold weather and will stand the following dry season.

In a small way plant seed in a seed bed, using the same care you would in planting a lawn. At the beginning of the rainy season transplant to permanent place, setting the roots straight down with the bulb about one inch below the surface.

We have a limited amount of seed which will be sent postpaid. Packet 50c one pound \$3.25, 10 pounds \$25.00 postpaid. Good, well rooted.

Plants 75c per 100 postpaid; \$4.00 per 1000 f.o.b. here.

Two years ago a brush fire got started on our hills. Before the rainy season started we sowed several pounds of Smilo seed broadcast over the burnt stumps. As it did not rain for several weeks we feared the birds would get all the seed. Consequently, on this hill land, that for ages has produced nothing but brush and wild animals, we pastured several head of horses all summer. The last week I rented it for a nice sum to Burt Erwin, lessee of the 9000-acre old Spreckels ranch, who has 35 head of his work horses and mules in my pasture.

G. D. STEAD, San Diego County.

PASPALUM DILATATUM

Paspalum Dilatatum

Per lb. 75c postpaid. Write for quantity price.

(*Agrostis vulgaris*)

Price per lb. 15c postpaid. Over 100 lbs. 25c l.o.b. here.

(*Lolium perenne*)

Per 30, 50c postpaid.

Lolium Italicum)

20

21

(Sweet Clover) 'Ballhorn'
Melilotus Albi

SWEET CLOVER

It may have been seen as a common weed. For centuries it grows in fields and along roads.

By P. H. Holden, Director, Agricultural Extension Department, International Harvester Company of New Jersey.

For many years we have known Sweet Clover—*Melilotus albus*—as this common yellow-flowered plant, growing under adverse conditions, to be valuable to some extent during the dormant, dormant season, and for the purpose of land reclamation, and for the purpose of land reclamation.

The great value of a plant which will be found to grow in it on mountain and in the open fields. The plant will grow in the most adverse conditions, and will be found to be of great value in the most adverse conditions. It is almost impossible to find it in the most adverse conditions, and it is almost impossible to find it in the most adverse conditions. It is almost impossible to find it in the most adverse conditions, and it is almost impossible to find it in the most adverse conditions.

As the population of the world grows, the time is not far off when some day will be required to cultivate a large factory farm and a considerable amount of the world's food will be produced in the most adverse conditions. It will be found to be of great value in the most adverse conditions, and it is almost impossible to find it in the most adverse conditions.

When all other crops have been killed and killed by the something else, when the occasional drought has killed the last of the seed from Sweet Clover will come to your assistance, making a comfortable position, and tide over a most critical period.

In answer to the many inquiries received as to when where and how to sow sweet clover, or melilotus, the following will prove successful in this region:

When to Sow.—The best results are obtained by sowing in early spring as soon as the ground is dry and warm enough to put in condition for a good shallow seed-bed—this latitude April 1 to 15, before spring rains. In the South where the rainfall is copious in winter, fall plowing will be better.

Where to Sow.—Any place on the farm, especially on the poor, worn-out spots, fence rows, ditches. It prevents erosion.

How to Sow.—Preferably in a fine shallow seed-bed on a firm sub-soil. If sown before a rain it needs no harrowing. Always cover very lightly, as deep seeding is unsuccessful. Corn stubble, or any ground cropped the preceding year, by discing and harrowing, putting the top two inches of soil in fine condition, is suitable for sowing. Always cover seed shallow. Without nurse crop preferred.

General Remarks.—With a favorable season and good stand it can be pastured without injury to the plant in about 10 weeks. The first season, pasture or cut crop of hay; the second season, pasture, hay or seed. It is most valuable as continuous pasture, when it will reseed itself without thought or care of the grower.

It will never bloat stock, horses, cattle, sheep or hogs, turned out at any time, even in rain or dew. A good stand will pasture 20 head of hogs to the acre. Ring the hogs. The bitter taste of sweet clover is caused by the presence of cumarin, which prevents the bloating. It does not affect flavor of milk. Sweet clover will thoroughly inoculate the land for alfalfa, as the bacteria of both plants are the same. Sow 12 to 15 pounds per acre.

A Few Don'ts

Don't plow deep.

Don't sow deep.

Don't cut low in mowing—at least 6 inches high.

Don't have subsoil loose.

Don't be afraid to sow sweet clover

Melilotus Alba for the Range

Mr. Stockman, as soon as you read this send for some seed of this Sweet Clover and just to get a start sow at the rate of one pound per acre all over your range. On any kind of soil. If not pastured too closely you will soon have a valuable range for your stock.

The same advice applies also to Smilo.

Sow also Burr Clover on heavy soil and Alfilaria on any kind of soil.

BURR CLOVER

Like Alfilaria is native to the southwest and thrives best on adobe soil, enduring considerable alkali. It starts growing as soon as the fall rains set in and with a minimum of rainfall such as we have in "dry years" it grows luxuriantly, bearing enormously of seed pods. When mature the whole plant dries, forming a mat of good cured forage relished by all stock. **Per lb. 40c postpaid.**

BEST CROPS FOR THE SILO

Now that you have the silo you want to grow the best and most productive crops.

Indian Corn heads the list as recommended by the Department. Aggeler & Musser Seed Co. have at all times endeavored to give their customers the best of everything, therefore we make the following recommendations as to varieties of corn that will produce the most tonnage.

Branching corn for rich land. It grows more stem, more foliage, and more ears than any other variety of Indian corn. As for grain, Mr. Newbill says it yields just twice as much grain as other varieties.

Orange County Prolific and Eureka Ensilage are about equal as to the tonnage they will produce. Mr. King, formerly of Long Beach, said the former is sweeter and on that account is to be preferred. Hickory King is an old favorite hard to beat. If for any reason planting is delayed until July 15th, plant King of the Harvest.

If you have only a sand soil, use an irrigation water in May or June. It may always be counted upon to make a big ear.

For the silo, corn should be cut with the grain heads to harden.

Next to Indian Corn, Dwarf Mil. & Co. are named as the best non-saccharine sorghum because of its wonderful rooting property and enormous yield of grain.

But when this recommendation was accepted we had not yet introduced our Wonder Sorghum (Sudan Sorghum). This easily surpasses all other sorghums, saccharine or non-saccharine. (See the picture.)

Sudan Sorghum—The Wonder Forage Plant

SUDAN SORGHUM (Continued)

other sorghum. Seed planted April 3rd the plants averaged six feet high on June 1st, on August 1st were 12 feet high and ready for the silo. Plants cut July 1st produced a good second crop. Its growth was not checked by the cold weather during April as were other sorghums growing beside it. Cultivate as a sorghum, 5 lbs of seed is sufficient for one acre. **Price of seed, 60c per lb. postpaid.**

Mr. M. C. Connell planted seed in June. August 15th he made the first cutting. It stood ten to twelve feet high, full headed. The tops are panicle squared and, because of the multitude of stools, it easily leads other varieties in quantity of grain, none of which is lost in harvesting, which was done with an alfalfa mower. About October 1st it will be ready for second cutting, which he says, may be done with the same mower by raising the blade. Mr. Connell says also that it is the ideal sorghum for the silo because it is sweeter than non-saccharine and has less sugar content than saccharine, therefore it is less likely to ferment. Consider the green stalks to be good.

Next in line of sorghums for ensilage is the Silver Chaff Seeded Ribbon and the Improved Sorghum.

Sudan Sorghum

THE SIZE OF SILO TO BUILD

Cows	Thoms Required Daily	Size of Silo Grain Feet	Height Feet	Cu Yards
10	340	10	20	22
20	360	12	24	34
30	520	16	30	47
40	600	12	36	55
50	800	12	42	79
60	1000	12	48	94
70	1200	14	31	104
80	1400	14	38	128
90	1600	16	34	143
45	1800	16	38	167
50	2000	16	40	180

Based on 40 lbs. per cow a day

One ton of hay requires 500 cubic feet of storage space, while one ton of silage requires only 50 cubic feet.

The best dairymen feed about forty pounds of ensilage, with two pounds each of bran and oil meal daily to each cow in order to secure the maximum milk production.

SUDAN

Write College of Agriculture, Berkeley, Cal., for Bulletin No. 277

SUDAN GRASS

Sudan Grass

This is a very hardy and productive grass, growing from 1 to 2 feet high. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses.

The grass is very hardy and productive. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses.

Sudan grass is a very hardy and productive grass. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses.

When grown in rows it is a very good feed for cattle and horses. It is a very good feed for cattle and horses. It is a very good feed for cattle and horses.

Per 20, 400 postpaid. Write for complete price.

JAPANESE SUGAR CANE

This is considered one of the most prolific of all sweet sorghums with the advantage of being a permanent source of supply. It produces no seed, but is propagated by planting joints like Napier. (See page 6.)

Price of Joints, Per Dozen, \$1.00 Postpaid
100 Joints, \$6.00 Postpaid

BRANCHING CORN

The largest corn stalk you ever saw. Two ears on main stem and five branches with one ear on each branch.

AGGELER & MUSSER SEED CO.

FARMERS BULLETIN 170

FORAGE FOR RANGE AND RANCH

1 Paspalum Grass
2 Guinea Grass
3 Napier Grass

4 Rhodes Grass
5 Napier Grass
6 Rhodes Grass

7 Italian Rye Grass
8 Australian Rye Grass
9 Red Top Grass