

with grain, chop, bran and other feed stuffs. This plan is especially adapted to the dairy, where it has given very good results indeed.

Cured sorghum is most extensively used as a forage during the fall and early winter months, as it is often more difficult to keep than corn fodder and other of the commoner kinds of roughness. However, when well cured and stored in a dry place, it may be kept in a good condition for a year or more, and hence often constitutes the entire hay supply of many farmers. Even in the great corn-growing States it is widely grown and fed to stock as a change and appetizer. All kinds of stock will eat sorghum fodder more readily than they will corn fodder, and there is much less waste in feeding.

As Silage.—Opinions vary widely as to the value of sorghum for ensilage. On account of a greater tendency to develop acidity it is more difficult to keep in good condition than corn. Well-kept sorghum ensilage is an excellent feed, and is highly prized by stock-raisers and dairymen in many sections of the country.

Prof. C. S. Plum regards sorghum as less satisfactory for ensilage than either corn or red clover, though he would recommend it in sections in which there is difficulty in getting good crops of the other two plants. At the Texas Station, Director Connell reports that sorghum has given very satisfactory results in both field and barn silos. Chemical analyses of silage at this station show sorghum to be but little behind corn and Kafir corn in feeding value. Director Redding of the Georgia Experiment Station says, "My experience with sorghum ensilage is quite satisfactory. For the silo I consider the three most valuable plants, in order, are Indian corn, cow peas and sorghum."

Among other stations which report more or less satisfactory results in the use of sorghum for ensilage are New York (State), Kansas and Mississippi. Many farmers also report good results.

There is no doubt but that corn silage can be more easily kept. On the other hand, a larger yield is usually obtained from sorghum, especially on thin soils, and, at least in the drier sections of the country and the South in general, it is a surer crop. Prof. E. M. Shelton, at the Kansas Station, found that while 16 tons per acre was the heaviest yield for corn, sorghum frequently reached 20 tons.

All things considered, sorghum is not as valuable a crop for the silo as corn in regions where the latter can be successfully grown, but there is no doubt that for a large portion of the South and West the former is the more profitable crop to grow for this purpose, taking one year with another.

The Seed as a Grain Ration.—In chemical composition sorghum seed is very similar to shelled corn, but contains rather more crude fiber or cellulose and less fat and crude protein. As a consequence, it is not so valuable for feeding purposes.

Many stockmen who have had experience in feeding the seed claim that it is worth about 90 per cent. as much as corn. There are others, however, who give it a somewhat lower value. It is rather seldom that any large amount of seed is saved when the sorghum is grown for forage. It is usually fed on the stalk, or is cut up with it and fed as silage. When cane is grown for sugar or molasses the "heads" are often stored and fed whole, or thrashed and the seed fed or kept for planting.

Though the thrashed seed is often fed whole, either dry or soaked, it can be used to best advantage when crushed or coarsely ground. Mixed with equal quantities of oats, peas or soja beans, it makes an excellent food and for most purposes is a very good substitute for corn.

Prof. Hunt says that "to be most economically used the seed should be siloed," which is certainly true if the "heads" are to be fed whole. It is probable, however, that more of the seed is digested by the animal when ground and fed in connection with foods richer in nitrogenous substances as above described, and for certain kinds of stock, at least, this is the preferable way of feeding it.

One of the most common uses of sorghum seed is as a feed for poultry. For this purpose it is very highly

prized by all who have tried it. It is especially recommended for laying hens.

Objections Sometimes Urged Against Sorghum as a Forage Crop.

Effects Upon the Land.—The often-repeated statement that sorghum is a hard crop on land is undoubtedly true for many soils. Those poor in potash and phosphoric acid are likely to suffer more than from wheat and corn, since it uses more of these substances than do those crops. On the other hand, its deep-rooting habits enables it to draw many elements from the subsoil which the shallower rooting plants would not reach, but which they need in their growth. Hence sorghum can be used advantageously in rotation with those crops. Farmers generally maintain that cotton, wheat and other small grain, sweet potatoes, and like crops do well after sorghum. The stubble is quite persistent, and when the cane grows large and coarse may interfere somewhat in working the land the next season. Plowing deep and thoroughly as soon as the crop is harvested will usually get around this difficulty. In case the cane is sown or drilled thickly little trouble is experienced, as the stubble is not coarse enough to bother much. It is always a good plan, however, to plow as soon as the crop is harvested.

Injurious Effects Upon Stock.—Sorghum is sometimes objected to as a forage on the ground that it produces rough coats of hair on horses and cattle. This is only the case when the sorghum is used as the principal or only feed for a long period of time, and the difficulty is easily avoided by feeding it in connection with foods rich in albuminoid substances, such as clover, vetches, peas and alfalfa.

There is considerable prejudice in some sections against second-growth sorghum on account of its reputed injuriousness to stock. Most of the trouble seems to have arisen from carelessness in turning hungry animals into the fields and allowing them to gorge themselves. Stockmen agree that the same difficulty is met with in feeding clover or any other succulent forage, and may happen with either first or second or any other growth.

Professor Connell, in answering an inquiry regarding possible danger in turning cows upon second-growth cane, says: "In every case coming under my observation death has occurred when the cow's stomach was unaccustomed with such food. A small amount of this crop swallowed quickly into the paunch may produce a vast quantity of expansive gas * * * causing death." He then gives his own practice of allowing the animals to run to the cane but a short time at first and gradually lengthening the period as they become accustomed to the food.

It is not advisable to allow stock to eat frost-bitten sorghum, especially while the frost is still on the plants. Many cases of loss of stock are reported from this cause.

There are a few cases on record where death has resulted in a very short time after eating sorghum (both saccharine and non-saccharine varieties), and in some cases but little of the plant was swallowed by the animal. In most instances in this country, second-growth sorghum was eaten. It has been supposed that some poisonous substance developed in the plants under certain conditions was the cause of these sudden deaths. In India it is known that under conditions of extreme drought, nitrate of potash may be formed in the canes of the closely-related Johnson grass in sufficient quantities to cause the death of animals eating much of the forage. This seems more likely to take place when the drought is followed by a short period of excessive rainfall. Dr. Mayo records several instances occurring in Kansas where under similar conditions corn has developed this same substance, and cattle to which it was fed died, in some cases quite suddenly. It is quite possible that this substance may be developed in sorghum in this country and be the cause of the trouble mentioned. It is noticeable that the instances reported follow seasons of protracted drought, as was the case with the corn in Kansas and the juar plant in India, and also that in these localities the soil was supposedly rich in nitrogen and potash.

However, cases of poisoning are so rare that little loss from this source is to be feared, although caution in feeding is always advisable, until the animals have become accustomed to the forage.

Summary.

Sorghum stands drought better than corn. It is a stronger feeder and will do better on thin soils. It is a good crop to grow on "alkali" lands.

As a general thing, the earlier varieties are preferable for forage. Use plenty of seed. Sow when the ground becomes warm, in a well-prepared seed bed.

Keep the weeds down by a shallow

cultivation while the sorghum is small. Stir the ground as soon as each crop is taken off to start the new growth. Use water when it is accessible.

It is a good practice to plant cow-peas, field peas or other legumes with sorghum. A better quality of forage is obtained and the land is left in better condition.

Sorghum may be used for soiling, pasturage, hay and ensilage. It is especially valuable for pasture for lambs and hogs and as a summer and autumn feed for dairy stock. Feed sparingly until the stock become accustomed to it.

The best quality is obtained by cutting the sorghum shortly after it begins to bloom. When used for soiling cutting may be profitably begun as soon as the "heads" are formed. The common practice is to cut for ensilage when the seed is in the "dough."

The forage contains an excess of fat-forming substances and should be fed in connection with foods rich in muscle-making materials. The seed is usually fed with the stem and leaves. Thrashed seed should be crushed or ground and mixed with wheat bran, oats, or other nitrogenous foods.

A Powerful Magnet.

Although there were but sixteen columns of advertisements in the last Imperial Press there are twelve pages—48 columns. The new editor is making his personality felt and if the owners of the paper back him up the paper will soon be a powerful magnet in attracting to Imperial those who desire to farm as farmers farm. There is plenty of good land down there, and plenty of water—and both are very reasonable in price. The next federal census will show a population only second to San Diego in that county.—Redlands Citigrapher.

Going to Calexico.

Oscar Rice, who has been making his home with John Crawford for several months past, left on Tuesday for Calexico, in the New River country, where he is to have employment.—Ontario Record-Observer.

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