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Timely Farm Suggestions

By TAIT BUTLER

No Practical Way of Killing Johnson Grass Seed in Manure

A READER has a quantity of Johnson grass hay which he desires to feed and asks: "Is there anything I can use that will kill the germination of the Johnson grass seed that is inexpensive and will not injure the manure?"

We know of no practical method of killing the Johnson grass seed without injury to the manure. When manure heats or ferments many of the seeds are killed. When manure is well rotted the seeds are also killed; but these processes mean a loss of fertilizer value from the manure. When the manure heats, ferments, or "fire fangs," there is a loss of nitrogen. Also when manure is well rotted it loses about one-half its fertilizer value, because while for most crops a ton of fresh manure is equal to a ton of well rotted manure, it takes two tons of fresh manure to make one ton of thoroughly rotted manure.

Irish and Sweet Potatoes as Feeds

A READER asks the "digestible protein, carbohydrates and fat in Irish and sweet potatoes and a discussion of their comparative feeding values with corn at \$2 a bushel."

The water, digestible nutrients and total digestible nutrients in 100 pounds of these materials are as follows, according to Henry's Feeds and Feeding:

	DIGESTIBLE NUTRIENTS				
	Water	Protein	Carbohydrates	Fat	Total
Irish potatoes	78.8 lbs	1.1 lbs	15.8 lbs	0.1 lbs	17.1 lbs
Sweet potatoes	88.8 lbs	0.9 lbs	24.3 lbs	0.8 lbs	26.8 lbs
Corn	10.5 lbs	7.5 lbs	27.5 lbs	4.5 lbs	55.7 lbs

In calculating the "total" digestible nutrients the fats are multiplied by 2.25 to bring them to an equivalent value to the carbohydrates.

It is seen that corn contains 5 times the total digestible nutrients in Irish potatoes and nearly 3 1/2 times those in sweet potatoes. Theoretically this means that 100 pounds of corn is equal in feeding value to about 500 pounds of Irish potatoes and about 330 pounds of sweet potatoes. If fed alone this is perhaps as accurate a comparison as can be given of these feeds, but none of them should be fed alone. They are all of the same character in respect to an excess of carbohydrates, or a deficiency of protein.

Swine require a nutritive ratio of 1 of protein to 5 to 6.5 of carbohydrates and fats, whereas the proportions in these feeds are, Irish potatoes 1 of protein to 14.5 of carbohydrates and fats, sweet potatoes 1 to 27.7 and corn 1 to 10.4. It is apparent, therefore, that some feed rich in protein must be given with these feeds to obtain their full feeding value.

There is also another difference which must not be overlooked in comparing these feeds. Irish potatoes contain about 7.5 times and sweet potatoes about 6.5 times as much water as corn.

In other words, the potatoes are what are known as succulent feeds, the value of which is well established, but this large amount of water and the larger amount of fiber which the potatoes contain make them "bulky," and not suitable for the digestive or-

gans of the hog, except in comparatively small quantities. Consequently corn may be made a much larger part of the whole ration for a hog on full feed than is practicable or desirable with Irish or sweet potatoes.

To sum up these statements, Irish or sweet potatoes fed in small quantities, one-fourth to one-third the ration, in combination with suitable dry feeds or concentrates, may have a slightly larger relative feeding value than indicated by the comparison of their total digestible nutrients, because of their succulence and the value of this to any animal whose other feeds are hard, dry grains.

Results of feeding trials seem to indicate that Irish potatoes should be cooked for hogs if fed in any considerable quantity, but probably a better plan is to limit the quantity of potatoes to what can be consumed advantageously and avoid the expense of cooking.

Sweet potatoes are unquestionably of higher feeding value than Irish potatoes, and when the hogs are allowed to harvest the sweet potatoes and are fed a suitable grain ration in addition they are one of the very best crops in the South for hog production.

Perhaps, all things considered it may be estimated that 100 pounds of corn is worth about 400 pounds of Irish potatoes and about 300 pounds of sweet potatoes. On this basis, with a bushel of corn, of 56 pounds, worth \$2, a bushel of Irish potatoes, of 60 pounds, should be worth about 53 1/2 cents, and a bushel of 56 pounds of sweet potatoes should be worth about 66 1/2 cents, for hog feeding.

Some Hog-feeding Inquiries

A READER asks: 1. "What amounts each, of corn and shorts will make a balanced ration for pigs? 2. For brood sows? 3. Should the ratio be changed when the hogs are running on a good rye pasture? 4. What method may be used to bring a sow in season before her pigs are weaned?"

1. By reference to column 3, page 3, of our issue of October 19, 1918, it will be seen that equal parts of corn and shorts are advised as a suitable mixture for hogs. (There is an error in this table, in adding up the fat in the mixture of corn and velvet bean and pod meal. The total amount of digestible fat in 50 pounds of corn and 50 pounds of velvet bean and pod meal is 5.20 pounds instead of 11.20 pounds, as shown in the table).

The nutritive ratio of a mixture of equal parts of corn and shorts is 1 to 6.4, or one of digestible protein to 6.4 parts of digestible carbohydrates and fats. This will be a good mixture for brood sows and for pigs weighing 150 to 200 pounds, but for pigs weighing around 100 pounds or less a larger proportion of shorts should be used, because a larger proportion of protein is required by young growing pigs. In fact, a little more protein than this mixture of equal parts of corn and shorts would probably also be better for brood sows suckling pigs. For such sows, probably a mixture of 3 parts of shorts to 2 parts of corn, or in making a 100-pound mixture, 60 pounds of shorts and 40 pounds of corn would be better. This gives a nutritive ratio of 1 to 5.8.

For pigs weighing less than 100 pounds, probably a mixture of one

part of corn to three parts of shorts, or for a 100-pound mixture, 25 pounds of corn and 75 pounds of shorts, will give the best proportions. This mixture has a nutritive ratio of 1 to 5.2.

Green rye 5 inches high, according to Henry, has a nutritive ratio of about 1 of digestible protein to 1.5 of digestible carbohydrates and fats. While the amount of dry matter in green rye pasture is small and the suckling brood sows and young pigs will probably not get a large part of the feed they require from it, still because of its large proportion of digestible protein there will be slightly less need for protein in the dry ration when the pigs are grazing young rye pasture and a smaller proportion of shorts and a larger proportion of corn may be used. Experience has also shown that animals need less protein in their grain ration when they are grazing the young tender growth of grass or cereal pastures.

In our issue of October 19, Prof. Dugger discusses the results of experiments at the Ohio Experiment Station in which sows were caused to come in heat while suckling their pigs, merely by separating them from their pigs for four or five successive nights. It is stated that this not only caused the sows to come in season, but also that it did not affect the flow of milk as measured by the rate of growth of the suckling litter. If this proves effective in a fair proportion of trials, it is a simple solution of an important problem.

From our personal observation and experience in breeding sows we would not expect them to get in pig regularly, even if they came in heat and were bred while suckling their young. And we would also expect the removal of the pigs for four or five successive nights to seriously affect the milk flow, especially if done when the pigs were less than three weeks old or when the sows were suckling their first litters. But mere observation and theory, nor even what we sometimes call "experience," can stand against actual tests or trials, and if further trials prove that this practice will cause the sows to come in heat and that they will get in pig when bred and that the flow of milk is not seriously or permanently reduced for that nursing period, it is a valuable discovery for the swine breeder of the South, where at least two litters a year are necessary for the most successful hog production. When the sows are not bred until the pigs are weaned at two months of age it is often not practicable to have the litters come at the best time, but by this method it would be easy to have at least two litters a year come at the season best suited to their growth.

Fertilizing Value of Velvet Beans

A READER writes: "I understand a velvet bean meal has over 9 per cent of potash. Therefore I am thinking of using velvet bean meal and 16 per cent acid phosphate, half and half, as a fertilizer next year for corn, cotton, sweet potatoes, etc. What would such a fertilizer analyze?"

Of course, our reader is much mistaken in his understanding of the content of potash in velvet bean meal, for it contains nowhere near so large an amount as 9 per cent.

Assuming that by "velvet bean meal" our reader means velvet bean and pod meal, or the beans in the pods, he will probably get less than 2 per cent of potash in his velvet bean and pod meal. We have secured a number of analyses of velvet bean and pod meal, which run from 1.59 to 2.10 as the per cent of potash contained.

The average is about 1.8 per cent. The analyses which we have collected show the following average composition for velvet bean and pod meal:

Nitrogen 2.75 per cent—65 lbs. in a ton.
Phosphoric acid 0.75 per cent—15 lbs. in a ton.
Potash, 1.80 per cent—36 lbs. in a ton.

A mixture of equal parts of velvet bean and pod meal and acid phosphate would contain the following amounts of plant foods in a ton:

	Nitrogen	Phos. Acid	Potash
1,000 lbs. velvet bean and pod meal.....	27.5 lbs.	7.5 lbs.	18 lbs.
1,000 lbs. acid phosphate, 16 per cent...		160.0 lbs.	
2,000 pounds Totals...	27.5 lbs.	167.5 lbs.	18 lbs.
Per cent	1.375	8.375	0.9

For practically all lands and all crops, except such lands as are already well supplied with nitrogen, such a mixture contains too little nitrogen. Nitrogen, however, will be extremely high-priced and the usual supplies will be almost impossible to obtain, and consequently it may be neither economical nor possible to use the proportion of nitrogen in our fertilizers which experience teaches is best.

For the Coastal Plain or sandy land sections, especially of the Southeast, and on land which has not received the usual amount of potash in its fertilization during the past three years, we advise the use of more potash than this mixture contains for such crops as cotton, tobacco and potatoes. Potash will be more plentiful and lower priced in 1919 than for the past few years, and it may be profitable to use as much as 2 to 3 per cent of potash in fertilizers for the soils and crops mentioned, even at the high prices which will probably still prevail.

But we cannot neglect to register our protest against the using of feeding stuffs direct for fertilizer. With the world hungry for food it is little short of criminal to use a material suitable for feeding livestock as a direct fertilizer to the soil. Every pound of cottonseed meal and velvet bean and pod meal should be used for feeding, in order to save human food grains for the starving millions of the world. Velvet bean and pod meal, at the current prices of fertilizer materials, is at most, not worth over \$30 to \$35 as a fertilizer, whereas it is worth \$40 to \$45 a ton for feeding, at the prices now charged for other feeds.

VETERINARY PROBLEMS

Probably a Rupture

A READER writes: "A heifer calf one year old, has a knot on her belly, between the navel and udder, about the size of a man's fist. It feels soft as if filled with wind. What must I do? I have been thinking of puncturing with a knife but thought I would write you first."

This tumor may be a rupture or a hernia, and if so it would be dangerous to puncture it with a knife. The heifer might be thrown down and turned on her back. If when in that position the tumor disappears or can be forced into the abdomen by pressure it is a rupture, and the opening through the abdominal walls can be felt with the finger. Or, even while the heifer is standing, it may, in case it is a rupture, be possible to force the mass back into the cavity and feel the hole in the walls of the abdomen.

If it is not a rupture there will probably be no danger in puncturing the tumor with a knife and injecting the cavity with tincture of iodine after the sack is well opened; but if it is a rupture only a different operation will effect a cure, and this should be performed by some competent veterinary surgeon.