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## Feeding Silage to Bred Sows and Gilts

In years past many sows farrowed on a diet solely of good legume pasture and minerals during the gestation period. Litter size and birth weight of pigs from those sows were considered adequate. With this in mind and the fact that today's grain prices have increased feed costs, it is not too surprising that producers are asking: will silages made from corn or grass-legume pastures contribute appreciable quantities of nutrients to brood sow rations and help lower gestation feed costs?

The following statements and recommendations are based on research available in silage feeding for swine during gestation. Although these studies (mostly from Purdue) were conducted in 1955-1963, the nutrient, housing, and management considerations used today by many swine producers are similar.

### CORN SILAGE FEEDING

#### What to Expect

1. Corn silage can be fed satisfactorily to bred sows and gilts. The feeding of good quality corn silage plus 1.5 pounds per head daily of a high quality protein supplement (vitamin-fortified) and minerals free choice throughout gestation has resulted in reproductive performance (number of live pigs born, birth weight, number weaned, etc.) equal to, and sometimes slightly higher, than that of sows fed 5-6 pounds daily of a complete mixed ration. Although comparisons were not made between sows fed properly supplemented silage and sows fed 4-5 pounds daily of a complete mixed ration during gestation, one could expect comparable reproductive performance.

2. Producers often overlook the large digestive capacity of sows. Once sows have become accustomed to corn silage, they may consume from 10-15 pounds daily. Even bred gilts will consume from 8-12 pounds of silage daily. One should expect about 10-15 percent of the silage fed, not consumed and therefore wasted. This wastage primarily will consist of the cob portion of the ear and coarse parts of the stalk. It is recommended that sows and gilts receive all the silage they want; however, if one wants to feed a specific intake of silage per sow daily, the specific amount should include 10-15 percent to allow for this waste.

3. Because of its bulky nature, feeding silage to bred sows and gilts could be one method of restricting feed intake. Producers should expect sows and gilts to be in moderate condition (may even appear thin) and not to be over fat when fed silage and a proper supplement throughout gestation. Compared to bred sows fed 5-6 pounds daily of a complete mixed ration, silage fed sows will most likely weigh 20-50 pounds less at farrowing. However, if allowed an adequate and equal feed intake during lactation and assuming comparable litter size, this weight difference would not be expected to be great at the end of the lactation period.

4. Unlike limited fed sows on a conventional complete mixed ration (3-4 pounds per head daily), sows fed 10-14 pounds of silage daily will appear satisfied and will not act hungry all the time.

#### Factors to Consider

1. Corn silage is usually high in carotene (pro-vitamin A), but is low in protein, minerals, and other vitamins. Since corn silage is low in these nutrients, an adequate supplement must be provided for optimum gestation performance. A high quality vitamin-fortified protein supplement (35-40 percent protein), similar to the examples in the following table, should be fed at the rate of 1.5 pounds per head daily to insure adequate protein and vitamin intake. Bred sows and gilts should also be given free access to a mineral mixture. Two example mixtures are: 35 percent dicalcium phosphate, 45 percent limestone and 20 percent trace mineralized-iodized salt; or, 40 percent bone meal, 40 percent limestone and 20 percent trace mineralized-iodized salt.

2. Feed only high quality silage. Silage made from too dry (over ripe) corn may prove to be unpalatable and not satisfactory for brood sows. **DO NOT FEED MOLDY SILAGE.** A field yielding 60-75 bushels of corn per acre when the kernels are dented and most of the leaves are still green will make satisfactory silage. For best results the silage should be finely chopped and fed free choice once daily. If poorer quality silage is fed (silage resulting from immature corn or with yields less than 60 bushels per acre), it would be advisable to feed .5-1.0 pound additional ground corn per head daily. For best feeding results, top dress the silage with the protein supplement and any additional ground corn.

3. Feed sows to gain about .5-.6 pound daily and gilts to gain about .75 pound daily during gestation. In addition to feeding good quality silage and 1.5 pounds of protein supplement, bred gilts, and also sows in poorer condition, may need an additional .5-1.0 pound of ground corn to maintain this level of gain. However, if maximum silage consumption is desired do not feed more than .5-1.0 pound of ground corn daily, depending on the quality of the silage and condition of the animals.

4. It is possible that additional labor will be required even when hand feeding sows once a day. Consider this when determining whether or not feeding silage to brood sows will work in your operation.

### FEEDING GRASS-LEGUME SILAGE

There has been only a limited amount of controlled research in this area. An analysis of grass-legume silage (or haylage) will show that the protein and calcium content is higher than that of corn silage and it is usually higher in all vitamins except vitamin B<sub>12</sub>. However, this type of silage is low in phosphorus and additional protein is apparently needed to provide a desirable amino acid balance. Research points out that 1.5-2.0 pounds of ground corn and minerals free choice are not a satisfactory supplement for grass-legume fed sows during gestation. However, this silage supplemented with 1.0 pound of ground corn and 1.0 pound of a vitamin-fortified high quality protein supplement (see table) has provided satisfactory reproductive performance. One could expect bred sows and gilts to consume

from 8-12 pounds of this silage daily. However, they still may be carrying less condition than sows or gilts fed 5-6 pounds daily of a complete mixed ration. In some instances grass-legume silage has been less palatable than corn silage. Mixing 4 parts grass-legume silage to 1 part ground corn at time of ensiling will increase its palatability.

#### IS FEEDING SILAGE TO BROOD SOWS ECONOMICAL?

This, of course, would depend mainly on the cost of a ton of the silage and also of any additional labor required. Generally one could assume a 20-25 percent saving in feed costs during gestation (silage figured at \$20 per ton, \$3 per

bushel of corn, and \$175 per ton of protein supplement) when silage plus 1.5 pounds daily of a vitamin-fortified protein supplement and mineral free choice are fed compared to feeding a complete mixed ration at the rate of 5-6 pounds per head daily. When sows and gilts are limited to as little as 4-4.5 pounds daily of a complete mixed ration, a silage feeding program could still result in a 10-15 percent feed cost saving during gestation.

FEEDING SILAGE TO SOWS DURING LACTATION OR TO GROWING-FINISHING PIGS IS NOT RECOMMENDED.

#### Examples of protein supplements for silage feeding <sup>1, 2</sup>

INGREDIENTS	A	B	C	D	E
Soybean meal, 44% protein	1660	1050	1100	1000	1500
Tankage, 60% protein	—	—	300	300	—
Meat & bone meal, 50% protein	—	500	—	—	—
Fish meal, 60% protein	—	—	—	200	200
Dehydrated alfalfa meal, 17% protein	—	300	400	—	—
Ground corn, 8.7% protein	340	150	200	500	300
Approximate percent protein	38	39	37	39	40

#### Suggested vitamin additions per ton of supplement<sup>3</sup>

Vitamin A, I.U.	10M	10M	10M	10M	10M
Vitamin D, I.U.	1M	1M	1M	1M	1M
Vitamin E, grams	50	50	50	50	50
Riboflavin, grams	10	7	7	10	10
Calcium pantothenate, grams	55	55	55	60	60
Niacin, grams	44	44	44	44	44
Vitamin B <sub>12</sub> , milligrams	60	40	40	40	40

<sup>1</sup> Mineral has not been included in these supplements and should be provided free choice.

<sup>2</sup> Commercially prepared supplements could be fed. However, they should contain at least 35 percent protein and provide the necessary vitamins in amounts approximating the suggested levels.

<sup>3</sup> Suggested vitamin additions for vitamins A and D are expressed in millions I.U./ton (example: 10M = 10 million I.U.).

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