CIRCULAR A-316 AUGUST 1959

RATIONS for PREGNANT SOWS

FEEDING FOR PROFITABLE PORK

PROFITABLE swine production depends on a number of factors. Proper nutrition of the sow before breeding, during pregnancy and lactation is of primary importance in producing and saving the largest number of pigs. Proper sanitation, management and breeding also play an important part.

About 30 per cent of all pigs farrowed never reach market. This results in an average litter size per sow of only 6 to 7 pigs. Seventy per cent of the baby pig death losses occur the first week after farrowing.

Poor nutrition of the pregnant sow results in pigs which are weak, lacking in vigor, or stillborn. Many pigs born alive die or are laid on by the sow because the pig does not have enough "pep" to get out of the sow's way.

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PASTURE

Alfalfa is one of the best pastures for hogs in North Dakota. Oats, rape, sudan grass and other temporary pastures can be used to good advantage. Pasture can best be used for the breeding herd and in growing out replacement gilts and boars. Pastures must be rotated to help control parasites and disease.

FLUSHING

Flushing is the practice of having sows or gilts gaining in weight before and during the breeding season by feeding extra amounts of high quality ration for 10 days before breeding and through the breeding season.

Thin sows and small gilts benefit more from flushing than thrifty sows in good condition. Flushing may result in more regular heat periods and a higher rate of conception.

FEEDING THE BRED SOW

Continuing proper nutrition during the remainder of the gestation period will capitalize on the advantages obtained from flushing. Experiments indicate the most successful way to feed sows and gilts after breeding is as follows: (1) After the breeding season reduce the amount of feed to the same level as was fed prior to breeding. Continue this feeding level until 6 to 7 weeks before farrowing. (2) At this time, again increase the amount of feed and continue until farrowing.

Bred gilts should gain from 100 to 125 pounds during the gestation period, depending upon their weight at breeding time. Mature sows should gain 75 pounds.

The greatest increase in weight will occur the last 30 to 35 days of the gestation period. The baby pig more than doubles in weight in this 5-week period.

Pregnant sows and gilts can be self-fed but are likely to eat more than is necessary and become too fat. You can control this by bulking up the ration with good quality ground alfalfa. Where this is not possible, use ground corn cobs or other ground roughage. Fifteen to 25 per cent ground roughage is enough for gilts but mature sows need 25 to 40 per cent roughage to keep gains at desired level.

FEEDING DURING FARROWING

Most swine producers reduce the feed intake shortly before farrowing and replace part of the ration with wheat bran or linseed meal which keeps the sow's digestive tract in good condition. Many swine herdsmen feed nothing but plenty of water the day before farrowing or the day after. If the sow is unusually restless a double-handful of the gestation ration

mixed with bran or linseed oil meal is a good feed the day before or the day after farrowing. Over-feeding may result in too heavy milk flow before the pigs can use it. This could result in "caked udders" and sick sows. Start sows on a lactation ration slowly and have them on full feed at 5 to 6 days after farrowing. Lactation rations are discussed in circular A317.

RATIONS FOR SOWS

There is no one "best" ration. Many feeds and ingredients can be used with success if care is used in balancing the rations with the necessary nutrients.

1. PROTEIN:

Quality of protein (the level and balance of the essential amino acids) is more important than the actual amount of protein.

The exact amino acid requirements of swine are not yet known so it is best to add protein of both plant and animal sources. Protein sources, such as soybean oil meal, meat scraps, tankage, fishmeal, milk and its byproducts, are all good supplements to use in combinations of 2 or 3 with the cereal grains.

Gestation rations should contain 14 to 15 per cent protein for gilts and 13 to 14 per cent for mature sows. These levels can be reduced 2 per cent when pigs are on pasture.

2. ENERGY:

Most cereal grains can be used to provide the energy requirements. Do not use damaged or moldy grains, blighted barley and corn, and ergot infected rye. Oats are especially good in gestation rations.

Alfalfa is very good for it provides bulk and many essential vitamins and minerals. A minimum of 15 per cent alfalfa is recommended. If alfalfa cannot be ground and mixed in the ration, feed it in a rack free choice. If sows are on pasture alfalfa may be omitted.

3. MINERALS

Minerals which need special attention in sow rations are salt and calcium. No feeds commonly fed to sows contain enough of these minerals. Use iodized or trace mineral salt to prevent the farrowing of hairless pigs.

Supply calcium by the use of limestone at ½ per cent of the ration.

A 40-40-20 mixture of bone meal, limestone and trace mineral salt is a good mineral mix to feed free choice. Commercial mixes can be used but <u>do not</u> feed high phosphorus beef cattle range minerals in swine rations.

4. VITAMINS

When sows and gilts are on pasture most of the vitamin requirements are met. Under dry lot conditions lack of vitamins is often critical. Always add vitamins A and D to swine rations. About the only feeds that have vitamin A activity are yellow corn and alfalfa and these cannot always be depended upon to supply enough. The problem is greater with vitamin D as sun-cured roughages are the only feeds which contain any appreciable amounts.

Some of the B-complex vitamins are often lacking. It is a good insurance to add a commercial vitamin supplement to supply vitamin B_{12}, riboflavin, pantothenic acid, and sometimes choline and niacin.

5. WATER

Too often a good, clean source of water is overlooked for swine. Water is the cheapest nutrient and good swine management practices mean water available at all times.

REQUIREMENTS FOR GESTATION

Total protein	– 290 lbs. per ton of ration
Calcium	– 14 lbs. per ton of ration
Phosphorus	– 10 lbs. per ton of ration
Vitamin A	– 4 million I. U. per ton of ration
Vitamin D	– 2-3 million I. U. per ton of ration
Riboflavin	– 3,000 mg. per ton of ration
Niacin	– 20,000 mg. per ton of ration
Pantothenic Acid	– 10,000 mg. per ton of ration
Choline	– 800,000 mg. per ton of ration
B_{12}	– 10 mg. per ton of ration

SUGGESTED RATIONS

The combination of feedstuffs which provides the nutrients and is the most economical determines which ration to feed. The soundest gestation and lactation rations are best supplemented by the use of commercial protein supplements which supply the additional protein, vitamins and minerals.

Use protein supplement according to the level of protein in the grain and the percentage of the protein in the supplement. Most sow supplements range from 30 to 40 per cent protein.

To compute a balanced ration using alfalfa and cereal grains, the protein supplement should contain the following:

TABLE I. PROTEIN SUPPLEMENTS

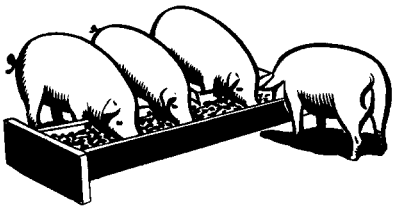
Protein in Supplement	Calcium	Phosphorus	Vitamin A	Vitamin D	Riboflavin	Niacin	Pantothenic Acid	Choline	B_{12}
PER CENT	%	%	IU/LB	IU/LB	MG/LB	MG/LB	MG/LB	MG/LB	MCG/LB
32	4*	2*	16,000	800-1200	3.6	13	10	640	40
35	4.5*	2.2*	18,000	900-1350	4.0	15	11.25	720	45
38	5.0*	2.5*	20,000	1000-1500	4.5	17	12.5	800	50

* If the supplements do not contain these amounts of calcium and phosphorus, add limestone or bonemeal or dicalcium phosphate to make up the requirement.

If the gestation ration cannot be ground as one complete ration to be used in self-feeding, hand-feeding the following works satisfactorily.

TABLE II. HAND-FED RATIONS (1 ton mix)

PROTEIN SUPPLEMENT USED	CORN	BARLEY or OATS	PROTEIN SUPPLEMENT LBS.	COMMENTS
32% Ration I	No corn	1,800	200	Feed 5.5 to 6.5 lbs. of ration per day with alfalfa fed free-choice.
32% Ration II	Up to 300 corn	1,450 or more	250	"
35% Ration I	No corn	1,820	180	"
35% Ration II	Up to 350 corn	1,425 or more	225	"
38% Ration I	No corn	1,840	160	"
38% Ration II	Up to 400 corn	1,400 or more	200	"



A useful 38 per cent protein supplement for use in gestation rations can be mixed from this formula.

Dehydrated alfalfa 15 per cent, meat scraps 35 per cent, soybean oilmeal 40 per cent, bonemeal or dicalcium phosphate 5 per cent and trace mineral salt 5 per cent. This should be used at 200 pounds per ton. However, at this level or higher levels the ration is likely to be deficient in vitamins A, D, riboflavin, B_{12} and possibly pantothenic acid. Add these vitamins from a commercial source at the following levels per ton of supplement: A, 6 to 8 million units; D, 2 million units; riboflavin, 5000 mgms.; B_{12}, 40 mgms. and pantothenic acid 5,000 mgms. Be sure the vitamins are thoroughly mixed in the supplement.

TABLE III. SUGGESTED RATIONS

	ALFALFA (lbs.)		CORN (lbs.)	BARLEY OR OATS (lbs.)		PROTEIN SUPPLEMENT (lbs.)
	Gilts	Sows		Gilts	Sows	
When a 32 per cent protein supplement is used: (1 ton mix)						
Ration I	500	600	No corn	Any combination of oats or barley up to:		250 lbs.
				1250 lbs.	1150 lbs.	
Ration II	500	600	Corn can be used up to levels of 500 lbs. with	Any combination of oats or barley up to:		265 lbs.
				750 lbs.	650 lbs.	
When a 35 per cent protein supplement is used: (1 ton mix)						
Ration I	500	600	No corn	Any combination of oats or barley up to:		225 lbs.
				1275 lbs.	1175 lbs.	
Ration II	500	600	Corn can be used up to levels of 550 lbs. with	Any combination of oats or barley up to:		240 lbs.
				725 lbs.	625 lbs.	
When a 37 to 38 per cent supplement is used: (1 ton mix)						
Ration I	500	600	No corn	Any combination of oats or barley up to:		200 lbs.
				1300 lbs.	1200 lbs.	
Ration II	500	600	Corn can be used up to levels of 600 lbs. with	Any combination of oats or barley up to:		240 lbs.
				700 lbs.	600 lbs.	

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