



Managing the Sow and Litter

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The period from farrowing to weaning is very critical in a swine operation. Profit depends heavily upon the number of healthy pigs raised in each litter. The number, weight, and health of the pigs at weaning is influenced by the care and feeding of the sow and litter.

This fact sheet briefly outlines a feeding and management program during the period from farrowing to weaning that will help insure the development of a large, healthy litter of pigs.

Before Farrowing

Deworm the sows with piperazine, dichlorovos (Atgard), Levamisole hydrochloride (Tramisol), pyrantel tartrate (Banminth), or fenbendazole (Safe-Guard) approximately two or three weeks before farrowing. Spray or dust the sows for external parasites if needed using Co-Ral, Rabon, Malathion, Methoxychlor, Prolate, Ectrin, Ectiban, or Taktic. Injectable ivermectin (Ivomec) may be used for both internal and external parasite control. For more information on the control of internal and external parasites see OSU Extension Facts F-9105, "A Guide to Swine Herd Health."

The farrowing house should be cleaned and disinfected before farrowing each group of sows. This is essential in maintaining an adequate health program. During farrowing, visitors and other potential carriers of disease such as pets and rodents should be restricted from entering the farrowing house.

Performance of pigs can be improved by developing an "all-in, all-out" management system. This system entails scheduling the breeding of the sows so that a clean farrowing room can be filled with sows for a short period of time, and all sows and litters will be removed at the same time. This allows a cleanup period before another group of sows is brought into the same facility.

Four Days Before Scheduled Farrowing

(110 days of Gestation)

1. Wash the sows with warm water and soap, then rinse with a mild disinfectant. This is necessary to minimize contamination of the cleaned farrowing units.
2. Move sows into farrowing crates or pens to permit them to become adjusted to the surroundings prior to farrowing.
3. If constipation is a problem, substitute either 20 percent wheat bran, 10 percent dehydrated alfalfa meal, or beet pulp for grain in the diet upon bringing the sow into the farrowing unit and continue up to one week following farrowing. Some producers avoid the problem by adding 20 pounds of magnesium sulfate (Epsom salts) or 15 pounds of potassium chloride per ton of farrowing-lactation ration.
4. Provide fresh water at all times.
5. Keep pens dry and free of drafts.

Injecting sows with antibiotics before and after farrowing may help prevent mastitis-metritis-agalactia complex (MMA). However, it is best to check with a veterinarian before doing this.

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Consider Induced Farrowing

Some producers choose to "induce" farrowing in sows or gilts in order to closely control when parturition occurs. Most would agree that the major advantage of induced farrowing is to avoid parturition at inconvenient times such as late hours or weekends. Other producers may want to reduce the number of farrowings during the work week when the manager is away from the farm. They may wish to cause more late evening and weekend farrowings.

Induced farrowing will result in a more efficient use of farrowing crates or sheds, and facilitates cross-fostering of pigs from very large litters to sows that delivered smaller litters. Litters from sows that were induced or born together can be weaned together. The pigs will be more uniform in age and size. In addition, sows should all exhibit estrus about the same time after weaning and can be rebred as a group.

How To Induce Farrowing

Although there are several different combinations of hormonal injections that will initiate the farrowing process in swine, an efficient method to induce farrowing is treatment of the sow with an intramuscular injection of prostaglandin F_{2a}. A compound currently available and approved for this purpose is Lutalyse (Upjohn Co., Kalamazoo, Michigan). This is the same compound commonly used for estrous synchronization of cattle and also for the abortion of feedlot heifers. The label clearly describes proper dosage and use of Lutalyse for inducing farrowing in sows and gilts. **All label instructions should be followed closely.** Accurate breeding dates and knowledge of the average length of gestation are necessary before this compound can be used. Sows should not be treated earlier than 110 days of gestation (or approximately three days before the predicted due date). Earlier treatment will induce farrowing but piglets will be lighter and survival may be reduced. In field trials, 87 to 95 percent of the treated animals farrowed within 48 hours after treatment. The average intervals from treatment to birth were 26 to 28 hours after prostaglandin injection. These were injected on or after 110 days of gestation.

Birth weights of piglets were not significantly reduced by the induction of farrowing if induction took place within three days of the normal due date. When sows were treated on or after 110 days of gestation, weaning weights of piglets in control and induced litters were similar.

During Farrowing

At farrowing time, more pigs can often be saved if an attendant is present. Keep sows as calm and comfortable as possible. Normal farrowing time should be two hours or less. If difficulty is encountered, consider consulting a veterinarian. As the pigs

arrive, the following procedures can improve survival if properly implemented.

1. Remove membrane from around the nose if necessary to prevent suffocation.
2. Disinfect the naval cord with a germicide such as tincture of iodine solution. Naval cords should not be cut unless they are tied to prevent bleeding. The entire cord can be dipped in iodine. This helps reduce the incidence of naval ill.
3. Be sure the sow is cleaned — remove afterbirth from farrowing house.
4. Help pigs to nurse as soon as possible.
5. Do not let pigs chill. Provide supplemental heat as described below.

Birth to Four Days

1. Clip the tips of needle teeth to prevent pigs from injuring each other or irritating the sow's udder. Use small side cutting pliers.
2. Ear notch pigs. Directions for ear notching are discussed in the section on identification.
3. Adjust litter size if possible. A higher percent of pigs will survive when litter size is equalized among sows. This should be done within 36 hours.
4. Prevent anemia by injecting pigs with 100 to 150 mg of iron dextran in the neck or ham muscle. A second injection may be needed at two to three weeks of age if pigs are not consuming a creep feed.
5. Keep the farrowing pen clean and dry.
6. Gradually increase the amount of sow feed. Self-feed at five days if the sow has a large litter and is milking well.
7. Be sure sows have plenty of fresh water.

Tail Docking

Tail docking has become a common practice to prevent tail biting of pigs fed later in confinement. Sellers of feeder pigs find that buyers usually prefer docked pigs. Cut tails by the time pigs are three days of age about $\frac{1}{4}$ to $\frac{1}{2}$ inch from the body with side cutting pliers. The crushing action helps to stop bleeding. A chicken debeaker which cauterizes the cut surface can also be used for docking. The tail stump should be disinfected with a good germicide such as tincture of iodine solution. The instrument should also be disinfected between docking each pig. Possible disinfectants are quaternary ammonia or chlorine products.

Castration

It is recommended that male pigs be castrated from three days to two weeks of age. Pigs at this early age are easier to handle, heal faster, and suffer less. Use a clean sharp knife or scalpel, make the incision low to promote good drainage, and use antiseptic procedures.

Scours

Scours (diarrhea) is often a problem with baby pigs. Sanitation is extremely important to reduce the incidence of baby pig scours. Thorough cleaning and disinfecting of each farrowing house or room after each farrowing is a must. A dry, warm, draft-free environment is also of primary importance to reduce scours.

There are vaccines available to administer to the sow in late gestation. The vaccinated dams then help protect the newborn pigs via antibodies in their colostrum and milk. Seek a veterinarian's advise on the method.

When vaccination fails, individual administration of drugs orally or by injection is often effective. It is wise to have a veterinarian conduct a sensitivity test to determine which drugs are most effective on the farm.

Sow Diets

Suggested lactation diets for average sows are shown in Table 1. For high producing sows, constantly weaning nine or more pigs per litter, see Current Report CR-3510, "Nutritional Needs of High Producing Sows." Sows during lactation should be full-fed in order to obtain maximum milk production. A sow will normally consume 10 to 15 pounds per day. The intake will depend upon the diet composition, sows condition and environmental temperatures.

Baby Pig Diets

Baby pigs should be provided creep feed by the time they are three weeks of age if they are not already weaned. Diets 1 through 6 could be used as creep feed or starter feed. Diets 1 through 3 are formulated for pigs weighing less than 15pounds, diets 4 through 6 are formulated for pigs weighing 5 to 25pounds, and diets 7 through 10 are formulated for pigs weighing 25 to 45 pounds. For more information on diets for early weaned pigs, see Current Report CR-3508, "Diets for Early Weaned Pigs."

Temperature and Ventilation Control

Ideal room air temperature for central farrowing houses during the farrowing period is 70 to 75°F. However, the creep area needs to be at a temperature of 85 to 95°F. This temperature can gradually be reduced to 80°F by the time the pigs are three weeks old. Thus, the creep area needs to be zone heated by the use of heat lamps, gas brooders, and/or heat pads.

Ventilation rates must be controlled to remove moisture without causing drafts on the pigs. Properly controlled ventilation rates as low as 20 CFM (cubic feet per minute) per sow and litter during winter months and should adequately remove moisture, odors, and excess animal heat in most farrowing houses.

Evaporative cooling is recommended for summer use either as snout cooling or space cooling for the sows. Drip cooling, a system whereby drops of water wet the shoulder and neck area of sows in a crate, is another effective method of cooling sows. It works best in farrowing houses with slotted floors. Care must be taken that the baby pigs don't get wet.

Supplemented heat in the creep area should also be provided for the baby pigs during the summer and may be in use concurrently with evaporative cooling.

Pig and Litter Identification

Ear notching is the most common way of identifying pigs and the litter. The following system is popular and easy to follow. Remember the facts:

1. Litter number is placed in the pig's right ear.
2. The pig number (within a litter) is placed in the pig's left ear.
3. All the pigs in the same litter will have identical notches in the right ear.
4. All pigs in the same litter will have different notches in the left ear.

Usually the litter of the first sow to farrow in a six month period or other specific time frame is designated Litter number 1. Each successive litter is assigned a number in order of farrowing. All the pigs in Litter number 1 will have a "1" notched in the right ear. If there are ten pigs in the litter, each pig would be notched either 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 in the left ear. Thus, each pig in Litter number 1 will have the same notch in the right ear as the other pigs in the litter, but a different notch in the left ear. An example of a commonly used ear notching system is shown on page 4.

Table 1. Suggested sow lactation diets

Ingredient	Diet Number									
	1	2	3	4	5	6	7	8	9	10
Corn, yellow	1573	1419	1243	—	—	—	—	—	807	—
Sorghum grain	—	—	—	1559	1410	1234	—	—	—	804
Wheat, hard red winter	—	—	—	—	—	—	1660	1496	807	805
Wheat midds	—	—	400	—	—	400	—	—	—	—
Soybean meal, 44%	305	310	285	365	320	295	265	235	310	315
Dehydrated alfalfa meal 17%	—	200	—	—	200	—	—	200	—	—
Calcium carbonate	19	12	25	20	13	25	20	13	19	20
Dicalcium phosphate	43	44	32	41	42	31	40	41	42	41
Salt	10	10	10	10	10	10	10	10	10	10
Vitamin trace mineral mix ^a	5	5	5	5	5	5	5	5	5	5
Total pounds	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Protein, %	14.62	14.76	14.94	15.05	15.09	15.24	15.96	16.00	15.29	15.46
Lysine, %	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70
Tryptophan, %	.18	.20	.18	.19	.20	.19	.22	.24	.20	.20
Threonine, %	.55	.56	.55	.52	.53	.53	.53	.55	.54	.53
Methionine + Cystine, %	.51	.51	.49	.43	.44	.42	.56	.56	.53	.49
Calcium, %	.90	.90	.91	.90	.90	.90	.90	.90	.90	.91
Phosphorus, %	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70
Metabolizable energy, kcal/lb	1474	1403	1439	1420	1354	1396	1417	1352	1446	1418

^a See Table 3.

Table 2. Suggested baby pig diets.

Ingredient	Pigs<15pounds			Pigs 15 to 25 pounds			Pigs 25 to 45 pounds			
	1	2	3	4	5	6	7	8	9	10
Corn, yellow	967.5	892.5	610	1209	1013	750	1226	1012	1139	1335
Oats, groats	—	200	—	—	—	200	—	200	—	—
Soybean meal, 44%	—	—	445	125	390	505	430	525	600	595
Fish meal, menhadden	120	125	—	125	110	50	125	110	—	—
Dried whey, edible grade	500	400	400	400	400	400	200	200	200	—
Dried skim milk, food grade	190	200	400	—	—	—	—	—	—	—
Plasma protein, spray dried	100	—	—	—	—	—	—	—	—	—
Blood meal, spray dried	—	60	—	50	—	—	—	—	—	—
Soybean oil	80	80	100	40	40	40	—	—	—	—
Lysine, 78%	6	6	—	5.5	3	2	—	2	—	2
Calcium carbonate	—	—	6	2	4	8	10	16	16	18
Dicalcium phosphate	24	24	27	31	28	33	22	33	33	38
Copper sulfate	2	2	2	2	2	2	—	—	—	—
Ethoxyquin	0.5	0.5	—	0.5	—	—	—	—	—	—
Salt	—	—	—	5	5	5	7	7	7	7
Vitamin-trace mineral mix ^a	10	10	10	5	5	5	5	5	5	5
Flavor, additive ^b	++	+++	+++	+++	+++	+++	+++	++++	++++	++++
Antibiotic ^c	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
Total pounds	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Protein, %	17.80	17.92	21.67	16.73	18.99	20.12	19.20	18.88	19.51	18.96
Lysine, %	1.40	1.40	1.40	1.25	1.25	1.25	1.10	1.10	1.10	1.10
Tryptophan, %	.23	.23	.29	.21	.24	.26	.24	.25	.26	.25
Threonine, %	.86	.79	.95	.72	.79	.82	.77	.73	.77	.72
Methionine + Cystine, %	.72	.65	.74	.61	.66	.65	.66	.60	.63	.62
Calcium, %	.92	.90	.90	.91	.91	.91	.85	.85	.85	.86
Phosphorus, %	.79	.80	.80	.80	.80	.80	.70	.70	.70	.70
Metabolizable energy, kcal/lb	1563	1571	1581	1512	1504	1495	1479	1463	1461	1468

^a See Table 3.

^b Usually manufactured to be added at the rate of 0.5% of diet.

^c Mecadox, Neo-terramycin or other recommended antibiotics should be used.

Weaning Procedure

Age of the pigs at weaning varies from herd to herd, according to facilities available, intensity of operation, and managerial skills of the producer. Generally, the younger the pigs are weaned, the more management skill and better environmentally controlled facility is required. Most swine operations in Oklahoma wean from three to six weeks of age.

The trend is for large commercial operators to wean at three weeks of age. The key to success in early weaning is to have a well designed, environmentally-controlled nursery and provide well fortified diets for pigs weighing less than 15 pounds as shown in Table 2. For additional information on early weaned diets see, Current Report CR-3508 titled "Diets for Early Weaned Pigs."

General management recommendations for weaning procedures are as follows:

1. Pigs of same size should be penned together.
2. Pigs should be penned in small groups if possible. Twenty pigs per pen is preferred, but not over 40.
3. Provide warm, dry, draft-free quarters.
4. Medicate drinking water if scours is a problem.
5. Provide one feeder hole for two to three pigs and one waterer for every ten pigs with a minimum of 2 waterers per pen.
6. Continue feeding starter diets until the pigs weigh 45 pounds (see Table 2).
7. Deworm the pigs about two weeks after weaning or when they weigh about 40 pounds, using piperazine, dichlorovos (Atgard), levamisole HCL (Tramisol), pyrantel tartrate (Banminth), fenbendazole (Safe-Guard), or injectable ivermectin (Ivomec). This may not be necessary if the sows were dewormed prior to farrowing, or the pigs farrowed on concrete or slotted floors and then moved to a confinement feeding

Table 3. Suggested Vitamin-Trace Mineral Mix^a.

Nutrient	Amount per pound of premix	Suggested Sources
Vitamin A	900,000 IU	Vitamin A palmitate-gelatin coated
Vitamin D	100,000 IU	Vitamin D3 - stabilized
Vitamin E	5,000 IU	di-a tocopheryl acetate
Vitamin K (Menadione)	660 mg	Menadionesodium bisulfate
Riboflavin	1,200 mg	Riboflavin
Pantothenic acid	4,500 mg	Calcium pantothenate
Niacin	7,000 mg	Nicotinamide
Cholinechloride	20,000 mg	Cholinechloride (60%)
Vitamin B12	5 mg	Vitamin B12 in manitol (.1%)
Folicacid	300 mg	Folic acid
Biotin	40 mg	D-Biotin
Copper	0.4 %	CuSo • 5H O
Iodine	.008 %	KIO
Iron	4.0 %	FeSO4 2H2O
Manganese	.8 %	MNSO4 - H2O
Zinc	4.0 %	ZnO (80% Zn)
Selenium	.012 %	NaSeO3 or NaSeO4

^a Vitamin and trace mineral mixes may be purchased separately. This is advisable if a combination vitamin-trace mineral premix is to be stored longer than 3 to 4 months. Vitamins may lose their potency in the presence of trace minerals if stored for a prolonged period.

The author wishes to acknowledge William G. Luce and Charles V. Maxwell for providing material for this fact sheet.

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert E. Whitson, Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 20 cents per copy. 0607

floor. When pigs are farrowed on dirt and/or fed out in dirt lots, deworming is highly recommended.

Rebreeding Sows

Generally sows will come into heat three to seven days after pigs are weaned. Unless pigs are weaned younger than three weeks of age, the general recommendation is that sows be bred on the first heat period after weaning instead of skipping a heat cycle and breeding 21 days later. Skipping a heat period results in a three-week delay before the next litter is born and very little if any increase in litter size.

Using Antibiotics

Continuous feeding of antibiotics during the gestation period to brood sows is usually not recommended unless a disease or environmental stress condition exists. However, some producers find it to be an advantage to feed a high level of antibiotics (100 to 200 grams/ton) from seven days before to seven days after farrowing.

In the pigs' starter feed, it is recommended that a level of 50 to 250 grams of antibiotic activity be added per ton of feed. Usually this level can be decreased to 50 grams or less per ton of feed when the pigs reach a weight of approximately 75 pounds. The exact levels of antibiotics to feed depend on the disease level, environment, and the specific antibiotics or chemotherapeutics used.

Pork producers should follow all federal regulations including withdrawal periods on the use of feed additives.

Identification System

