



Farrowing Sows on Pasture

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The farrowing of sows on pasture or dirt lots is common in Oklahoma on a small scale. However, large (100 to over 1,000 sows) brood sow operations which farrow in individual farrowing houses on dirt lots or pasture are successful in the Southwest. Even though litter size weaned may not be as large as in confinement operations, this can be a feasible system of swine production for producers of essentially any size.

Lower initial investment per sow unit is one of its main advantages. Often it is easier to control the spread of disease such as TGE or other types of baby pig scours when pigs are farrowed in individual houses compared to a central farrowing house. The disadvantages of using individual farrowing houses include increased labor, operator discomfort and inconvenience, and usually an average decrease in litter size weaned of one-half to one pig. For additional information concerning swine production in pasture-dirt lot systems, see Extension Facts, 3676, 3677, and 3679 through 3683.

Breeding Recommendations

Gilts should be seven to eight months of age and weigh at least 250 pounds before they are bred. To help insure that gilts are cycling and ready to breed by this age, pen them adjacent to a boar pen. The sight and smell of the boar will help induce cycling.

Sows can usually be bred during the first estrus after weaning if the pigs are weaned at four weeks of age or later. However, in some management systems, it may be necessary to permit sows to skip one heat period before rebreeding so as not to get a litter farrowed earlier than desired. Breeding recommendations are given in Table 1.

Pen breeding requires less labor than hand breeding, which accounts for its present popularity. In pen breeding, a boar is turned in with a group of females with the expectation that they will all be bred during a 21-day period.

Hand breeding requires more labor because the boars are not allowed to run with the sows. When a sow is in heat, she is taken to the boar or vice versa.

Even though hand breeding requires more labor, there are some advantages for the system. There is less stress on the boar when mating a large number of females. It is also easier to know the exact breeding date. Each sow or gilt should

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be bred twice during the heat period (12 to 24 hours apart) which will increase conception rate by about 10 percent and increase litter size by approximately one pig.

When using the pen breeding system, divide sows into groups of eight to ten and use one boar with each group. One should be able to breed eight to ten sows within a three week period with one boar. Consider alternating or rotating boars every few days among pens. This helps prevent a group of sows from not becoming bred because of a sterile boar and helps insure that each sow will be bred more than once during an estrus period. Another method is to divide sows into groups of 16 to 20 and to put two boars with each group. However, for this method to be successful, the pair of boars must have been penned together starting at an early age. Older boars put together for the first time will usually fight.

Table 2 presents a breeding and production schedule for a 40-sow herd divided into two breeding groups, thereby farrowing four times per year.

Keeping Breeding Stock Cool During the Summer

Sows farrowing during the summer months have smaller litters and lower weaning weights than those farrowing during the cooler months. Heat stress during gestation is usually the cause of this lower reproduction performance.

Sows subjected to heat stress for the first 15 days after

Table 1. Breeding Information.

Age to breed gilts	7-8 months
Weight to breed gilts	250-300lbs
Length of heat period	2-3 days (range 1-5)
Best time to breed in heat period	1st and 2nd day
Number of services per female	2 services at 24-hour interval
Interval between heat periods	21 days (range 18-24)
Heat occurs after weaning pigs	5 days (range 2-10)
Gestation period	114 days (range 109-120)

Table 2. Multiple Farrowing Schedule for Sow Herd Divided into Two Groups

Sow Group	Dates to Breed	Dates Due to Farrow	Weaning Dates	Dates Sows ¹ Are Rebred
1	Nov 10-Dec 5	Mar 4-29	Apr 15-May 10	May 10-June 5
2	Feb 10-Mar 5	June 4-27	July 16-Aug 8	Aug 10-Sept 5
1A	May 10-June 5	Sept 1-27	Oct 13-Nov 8	Nov 10-Dec 5
2A	Aug 10-Sept 5	Dec 2-28	Jan 13-Feb 8	Feb 10-Mar 5

¹ The sows which farrowed the earlier litters in the previous farrowing will actually skip one heat period. This is necessary if the producer wishes to continually farrow in the months of March, June, September, and December.

breeding tend to have lower conception rates, fewer viable embryos, and lower embryo survival rates than sows not subjected to heat stress. Heat stress two to three weeks before farrowing is even more critical. Heat stress during this period results in more stillborn pigs and fewer live pigs farrowed. Heat stress during early and late pregnancy tends to be more critical than heat stress during mid-pregnancy.

Boars subjected to high temperatures, typical of Oklahoma during the summer, often have a reduction in fertility rate for four to six weeks after exposure. Females bred to heat stressed boars may have a decreased conception rate and smaller litters.

Therefore, protection from extreme summer temperatures is essential to maintain maximum productivity. A shade over sand works well in Oklahoma. The sand is hand sprayed several times a day during the hot periods. Timecontrolled sprinkler nozzles over sand or concrete can also be used and are less time consuming. A hog wallow, although not pleasing in appearance, is another possibility.

Feeding During Gestation

During gestation, nutrients are necessary for maintenance and for the developing litter. Underdeveloped gilts require additional nutrients for growth. Bred gilts and sows are normally fed four to six pounds of feed per head per day during the gestation period. There are several factors that can influence the exact level of feeding. These include the type of ration fed, weight, age and condition of the animal, stage of gestation, climatic conditions, and availability of pasture. More feed is generally needed during cold weather.

Overfeeding the bred sow or gilt can be as much of a problem as underfeeding. Both result in reduced litter size and a decrease in size and thriftiness of individual pigs.

Also, fat sows and gilts tend to lay on and crush more baby pigs. Naturally, overfeeding during gestation increases feed cost. Sows should gain approximately 50 to 70 pounds, and gilts should gain approximately 70 to 100 pounds during gestation. Suggested brood sow rations for producers who elect to mix their own rations are shown in Table 3. These rations are designed for both bred and lactating sows.

Hand feeding sows during gestation is recommended. Self-feeding often results in the bred sow or gilt becoming too fat. Limit feed the sows in individual feeding stalls or on a concrete slab. Advantages in using individual feeding stalls include:

1. Controlling feed intake for each sow makes it possible to obtain the desired weight gain.

2. Feeding large groups composed of animals of different sizes and ages in the same lot is possible with this system.
3. "Boss" sows are less of a problem with individual stall feeding.
4. Less injury will occur to sows competing at the feed trough.
5. Sows can be more easily caught and handled when confined to stalls.

If concrete slabs are used, the feed should be spread over a large area to prevent "boss" sows from getting more than their daily allowance.

Pasture for Sows

Brood sows can make good use of pasture. Good quality pasture can reduce the amount of feed fed daily during gestation by approximately one-half. For breeding and gestation on pasture, provide approximately one acre per 10 sows. Suggested pastures are any of the small grains in the winter and sudan hybrids in the summer. Legumes such as alfalfa, ladino clover, or arrow leaf clover, in areas where they can be grown, make good brood sow pasture too.

Farrowing on Pasture or Dirt Lots

Farrowing on pasture or dirt lots usually involves individual farrowing houses. A discussion and description of housing and other facilities for farrowing in pasture is presented in OSU Extension Facts No. 3676, "Swine Facilities for Production on Pasture." If pasture is used, provide one acre for each 10 sows.

In Oklahoma, producers often refrain from farrowing on pasture during extremely cold months such as January and February and extremely hot months such as July and August. When they do attempt to farrow in the cold months, some producers find it advantageous to group the individual farrowing houses and use supplemental heat. When an electricity source is not available, a small propane heater supplied from a portable propane tank is sometimes useful. Banking dirt around the sides of the houses also helps keep them warmer. Putting the houses on terraces will help keep the area dry.

When farrowing in the summer, doors or flaps should be opened for ventilation. Sometimes during very hot periods, sows are hesitant to farrow in individual houses. They may try to build nests and farrow outside. When a sow does farrow outside, she can usually be made to go into the individual farrowing house by putting her pigs into the house. A 2 x 6 inch board placed across the bottom of the door will keep

pigs in the house until they are about one week of age. After pigs start getting out, the board should be removed.

Before Farrowing

If possible, the farrowing lots should be disked and planted to an appropriate forage for grazing before the sows are placed in the lot. The farrowing houses should be cleaned, disinfected and bedded with straw before the farrowing season.

The sows should be dewormed with piperazine, dichlorvos (Atgard), levamisol HCL (Tramisol), pyrantel tartrate (Banminth), or fenbendazol (Safe-Guard) approximately two weeks before farrowing. Spray or dust the sows, if needed, for external parasites using Co-Ral, Rabon Malathion, Prolate, Eciban, Ectrin, or Taktic. Tiguvon can also be used as a pour-on. Injectable ivermectin (Ivomec) may be used for both internal and external parasite control. Some pork producers inject sows with antibiotics before and after farrowing to help prevent mastitis-metritis-agalactia complex (MMA). However, it is best to check with a veterinarian before doing this. For more information on swine herd health, see Extension Facts F-9105, "A Guide to Swine Herd Health."

During Farrowing

Check sows as often as possible during farrowing. Be sure that a sow is in a farrowing house before she actually tries to farrow. Close the door if it is cold. A few sows may be reluctant to go into an individual farrowing house. Normal farrowing time should be two hours or less. If difficulty is encountered, consult a veterinarian.

Birth to Four Days

Within the first four days newborns should have the tips of their needle teeth clipped. Use either small sidecutting pliers or toe nail clippers. Anemia should be prevented by injecting the pigs with 100 to 150 mg. of iron dextran in the neck or ham muscle at about three days of age. To maintain adequate records and have a meaningful selection program, the pigs should be ear notched with at least a litter ear notch. For more information on ear notching pigs, see OSU Extension Fact 3650, "Managing the Sow and Litter."

Fours Days to Weaning

Scours are often a problem with baby pigs. Although requiring a lot of labor, individual administration of drugs orally or by injection is often effective. Often it would be wise to have a veterinarian conduct a sensitivity test to determine which drugs are more effective on the farm. In addition, a clean, dry, warm, draft-free environment is very important in reducing scours. Thorough cleaning and disinfecting of each farrowing house after each farrowing aids in disease prevention.

Tail docking has become a common practice to prevent tail biting of pigs fed later in confinement. Producers who sell feeder pigs find that buyers usually prefer docked pigs. Cut tails about one-fourth to one-half 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. The tail stump should be disinfected with a good germicide such as a tincture of iodine solution. The instrument should also be disinfected between pigs. Possible disinfectants are quaternary ammonia and chlorine products.

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

Feeding the Farrowing and Lactating Sow

The rations in Table 3 are designed for feeding sows during lactation as well as gestation. During lactation, rations may be limit fed during the first few days following farrowing. Increase the daily feed gradually to full feed by 5-7 days after farrowing. If one feeds a suggested ration that does not contain much bulk (i.e. fiber) such as rations 1, 4, 6, and 7 in Table 3, constipation may be a problem around farrowing time. If constipation is a problem, substitute approximately 20 percent wheat bran or 10 percent dehydrated alfalfa meal or beet pulp for grain in the ration three to four days before farrowing and continue for the first few days after farrowing. Some producers avoid this problem by adding 20 lbs. of magnesium sulfate (Epsom salts) or 15 lbs. of potassium chloride per ton of ration.

Creep Feeding the Baby Pigs

Baby pigs should be provided creep feed by the time they are three weeks of age. Suggested rations are shown in Table 4. Pigs should remain on these rations after weaning until they weigh about 40 pounds. Ration 1 in Table 4 is commonly called a simplified starter ration since it is built around a corn-soybean meal base. Pigs may not perform quite as well on this ration as they will on the more complex ones also shown in Table 4. However, the less complex rations are cheaper and research indicates that type of starter diets fed may not affect days to market weight.

Antibiotic Feeding

Continuous feeding of antibiotics during gestation to brood sows is usually not recommended unless a disease or environmental stress condition exists. However, some pork producers find it advantageous to feed a high level of broad spectrum 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 being used.

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

Weaning Procedures

Generally, pigs farrowed in pasture are weaned at six to eight weeks of age. General management recommendations for weaning procedures are as follows:

1. Pen pigs of same size together.
2. Provide warm, dry sleeping quarters.
3. Medicate drinking water if scours is a problem.
4. Provide one feeder hole for each four or five pigs and one waterer for each 15 pigs with a minimum of two waterers per pen.

Table 3. Suggested Sow Rations

Ingredient	Ration Number							
	1	2	3	4	5	6	7	8
Pounds								
Corn, yellow	1627	1479	1286	---	---	---	---	---
Sorghum grain	---	---	---	1617	1469	1651	---	---
Wheat, hard winter	---	---	---	---	---	---	1724	1565
Wheat bran	---	---	400	---	---	---	---	---
Soybean meal, 44%	295	250	245	306	260	205	200	165
Meat and bone meal, 50%	---	---	---	---	---	100	---	---
Dehydrated alfalfa meal, 17%	---	200	---	---	200	---	---	200
Calcium carbonate	19	11	29	20	13	9	20	12
Dicalcium phosphate	44	45	25	42	43	20	41	43
Salt	10	10	10	10	10	10	10	10
Vitamin trace mineral mix ¹	5	5	5	5	5	5	5	5
Total, lbs.	2000	2000	2000	2000	2000	2000	2000	2000
Protein, %	13.40	13.50	13.90	13.90	13.70	14.40	14.90	14.90
Lysine, %	.62	.62	.62	.62	.62	.62	.62	.62
Tryptophan, %	.17	.18	.19	.17	.18	.15	.21	.22
Threonine, %	.51	.52	.50	.48	.49	.48	.49	.50
Methionine + Cystine, %	.54	.50	.49	.42	.42	.42	.55	.54
Calcium, %	.91	.90	.90	.90	.91	.91	.90	.90
Phosphorus, %	.70	.70	.70	.70	.70	.70	.70	.71
Metabolizable energy, kcal/lb.	1476	1406	1371	1419	1354	1423	1417	1352

¹ See table 1**Table 4. Suggested Baby Pig Rations.¹**

Ingredient	Ration Number			
	1	2	3	4
Pounds				
Corn, yellow	1396	1255	1070	625
Sorghum grain	---	---	---	625
Ground oats	---	---	200	---
Soybean meal, 44%	543	490	475	495
Dried whey	---	200	200	200
Calcium carbonate	15	13	13	13
Dicalcium phosphate	34	30	30	30
Salt	7	7	7	7
Vitamin trace mineral mix ²	5	5	5	5
Total, lbs	2000	2000	2000	2000
Protein, %	17.90	17.40	17.50	17.60
Lysine%	.95	.95	.95	.95
Tryptophan, %	.23	.23	.23	.23
Threonine, %	.68	.70	.69	.69
Methionine + Cystine, %	.60	.59	.58	.56
Calcium, %	.75	.75	.75	.75
Phosphorus, %	.65	.65	.66	.66
Metabolizable energy, kcal/lb.	1478	1470	1440	1449

¹ Higher protein rations would be required if pigs are weaned earlier than six weeks of age,² See Table 5.

5. Continue feeding the starter ration until the pigs weigh 40 pounds.

6. Deworm the pigs about two weeks after weaning or when they weigh about 40 pounds, using piperazine, dichlorvos (Atgard), levamisole HCL (Tramisol) or pyrantel tartrate (Banminth), fenbendazole (SafeGuard) or injectible ivermectin (Ivomec)

Table 5. Suggested Vitamin-Trace Mineral Mix^{1,2}

Nutrient	Amount per² pound of premix	Suggested Sources
Vitamin A	900,000 I.U.	Vitamin A palmitate-gelatin coated
Vitamin D	100,000 I.U.	Vitamin D3 - stabilized
Vitamin E	5,000 I.U.	dL-~tocopheryl acetate
Vitamin K (Menadione Equivalent)	660 mgs.	Menadione sodium bisulfate
Riboflavin	1,200 mgs.	Riboflavin
Pantothenic acid	4,500 mgs.	Calcium pantothenate
Niacin	7,000 mgs.	Nicotinamide
Choline chloride	20,000 mgs.	Choline chloride (60%)
Vitamin B12	5 mgs.	Vitamin B12 in mannitol
Folic Acid	300 mgs,	Folic acid
Biotin	40 mgs.	D-Biotin
Copper	.4%	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
Iodine	.008%	KIO_4
Iron	4.0%	$\text{FeSO}_4 \cdot 2\text{H}_2\text{O}$
Manganese	.8%	$\text{MnSO}_4 \cdot \text{H}_2\text{O}$
Zinc	4.0%	ZnO (80% Zn)
Selenium	.012%	NaSeO_3 or NaSeO_4

1 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.

2 Premix is designed to be used at a rate of 5 lbs. per ton of complete feed for sows and baby pigs and 3 lbs. per ton of complete feed for growing-finished swine.

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