ALABAMA A&M AND AUBURN UNIVERSITIES

ALABAMA COOPERATIVE Extension SYSTEM

ANR-673

Swine Herd Monitoring

Our society is built around setting and achieving goals, and hog farming is no different. Hog industry magazines constantly print stories about successful farmers so everyone else can see what is possible. Educators and salespeople can give you dozens of ways to improve production. Most hog farmers set goals on all this information. There is only one problem, however: Few farmers have the records to determine if they ever reach their goals.

Swine production has improved so much in the past 20 years that the average hog farm today has little resemblance to the average hog farm of 20 years ago. Unfortunately, production efficiency in this country has changed very little. Nationwide, we are still weaning fewer than 8 pigs per litter and marketing fewer than 16 pigs per female per year. Improvements require some base line for comparison. For example, how do you measure the distance from point A to point B if you don't know where point A is?

Constant monitoring is the only way to set realistic production goals and reach them. Herd monitoring and records will:

- Reduce feed use and costs.
- Improve the over-all health status of the herd.
- Allow for genetic progress.

Herd monitoring and records will also help determine problem areas before they can reduce or eliminate profits.

Production Records

Your production records should be designed for your type of production. The absolute minimum is to write down two figures per year: total production costs and income. If you think your profit is too low, records are essential for improvement.

Some problems will be obvious as you monitor the status of your herd: Scouring pigs in farrowing crates or pigs struggling to breathe because of respiratory disease on the finishing floor. Other problems are not so obvious, and these must be monitored through good production records.

Production records can be hand-generated or computer-generated. Several good computer programs are currently available, but it takes a strong commitment to the use of computers to justify the purchase of the equipment and software. Many hog farms have computers that are merely gathering dust. Investigate carefully before purchasing equipment or software; community colleges offer introductory courses in micro-computer use and applications that can serve as a starting point. Often, carefully kept handwritten records can be used to generate meaningful information with the use of nothing more complicated than a hand-held calculator.

Sow/boar records are the first place to start. At this stage of production, individual animal identification is essential, either by ear tags or ear notches. Once each boar, sow, and gilt in the breeding herd is identified, you should consider recording:

- Breeding or farrowing group ID.
- Matings (date, number of services, board ID).
- Pregnancy checks or heat checks at 21 days postmating.
- Farrowings (number born alive, stillborn, and mummies; litter weight, time of farrowing).
- Abortions (date).
- Pig deaths (date; reasons, such as crushed, scours, low viability, etc.).
- Cross-fostering on and off before weaning.
- Weanings (date, number, weight).

Not all of these records must be kept. However, your ability to detect disease and management practices affecting production improves as the number of records you keep increases. From this raw information, production parameters such as pregnancy rates, farrowing rates, and average live pigs per litter can be calculated. For a complete discussion of these calculations, refer to the Pork Industry Handbook (if you do not have a copy, see your county Extension agent).

Nursery records are more difficult to keep than sow/boar records. Keeping pigs in litter groups will simplify record keeping, as will sorting out light and heavy pigs. The critical period for nursery pigs is the first 7 to 10 days after weaning. Most death losses occur during this period. Some research also indicates a correlation between weight gain during this period and days to market. Nursery records should include:

• Number of pigs weaned into nursery (date).

• Death loss while in nursery (date, reason, pen, weight).

• Weekly pen feed intake.

• Medications used.

• Number of pigs moved to growing-finishing (date, weight).

Growing-finishing records are in many ways the most difficult to keep, especially in continuous flow finishing systems. Good growing-finishing records are more difficult to compile than sow/boar records. Growing-finishing records involve keeping track of the numbers and weights of pigs moving in and out and the weight of feed moving in. To accomplish this you must treat the growing-finishing herd as if it were a "checkbook" that requires continual balancing. Another way to look at a growing-finishing record is to treat it like a "black box." Pigs and feed move into the "black box," and pigs move out, either to market, early sale, or as death losses. See page 3, Feed Conversion And Costs, to see how it is calculated.

One of the easiest and most meaningful of the growing-finishing records to keep is the number of days to market. An easy way to keep track of this is to use ear tags or ear notches on several pigs in a finishing group. Use the same number for each hog, or color-code a group with colored ear tags, and record the day that group went into growing-finishing, along with their ages or average ages upon leaving the nursery. One numbering method that fits well into this system is to give the group the number of the week of the year it went on feed, from 1 to 52. For example, January 1 is in week number 1. By knowing the week they were born, you can calculate their age at any time. You also can calculate the number of days to market weight. This is important to know because disease, such as chronic pneumonia, can significantly lengthen the finishing period without causing much outright death loss.

The last step in production is carcass quality. The weight, backfat, and muscling of a carcass (or live animal) will often determine the selling price of the pig. In some cases, they determine if a market is available. Pork producers can measure weight and backfat before going to market. Every pork producer should have a set of scales to monitor final market weight. Along with determining carcass quality, scales are essential for determining days to market, making gilt selection, and determining when hogs should be marketed. Producers selling on a value-based market without scales typically lose more money in sort docks than they make in quality premiums. Docks for light hogs range from $2 to $10 per hundred pounds. If used wisely, scales eliminate these docks.

Electronic backfat probes are fairly expensive ($500 and up) but are an integral part of monitoring pork quality.

If you sell direct to a packer, request carcass information on every load. Most packers can provide you with averages for backfat and carcass weight and give you an estimate for muscling. Actual carcass information will supplement on-farm quality measurements in monitoring pork quality.

Tables 1, 2, 3, and 4 list selected production goals and problem levels. Use these tables as a starting point for evaluating your herd's performance. If the performance on your farm is below the problem level, the next step is to determine the source of the problem and correct it. The remainder of this publication will concentrate on monitoring the feeding, health and breeding-selection programs, and the environment. While these are not the only potential problem areas, they are responsible for most of our profit-robbing problems.

Table 1. Swine Herd Production Goals: Sows.

	Problem Level	Goal
Average age, years	3	2-2.5
Average parity	5	3
Weaning to breeding, days	7+	5
Entry to breeding, days	40+	28
Repeat services, %	8	5
Abortions, %	3	1
Farrowing rate, % (gilts)	70	85
Farrowing rate, % (sows)	75	90
Number born alive	9	12
Stillborns, %	7	3
Mummies, %	1	0.5
Pre-weaning survival, %	87	92
Pigs weaned/litter	8.5	10
Litters/female/year:		
3-week weaning	1.93	2.35
4-week weaning	1.84	2.23
5-week weaning	1.75	2.13

Nutrition

Feed accounts for the largest portion of the cost of producing a pound of pork. A routine monitoring program is essential for making efficient use of the money spent for feed. A good monitoring program requires production records and frequent analysis of feed and feed ingredients.

Feed Conversion And Costs

Feed conversion and feed cost per pound of gain can be used to monitor a swine feeding program. Both are dependent on feed quality. However, there are other factors such as health, environment, and genetics that can affect feed conversion and costs.

To measure feed conversion and costs accurately, thorough records are essential. Accuracy also improves as the period increases. Total farm feed con-

Table 2. Swine Herd Production Goals: Pigs.

	Problem Level	Goal
15 to 40 pounds		
Average daily gain, pounds	0.70	0.90
Daily feed intake, pounds	1.2	1.5
Feed/gain	1.71	1.67
Survival, %	95	99
40 to 240 pounds		
Average daily gain, pounds	1.50	1.90
Daily feed intake, pounds	5.30	5.60
Feed/gain	3.53	2.95
Survival, %	98	99

Table 3. Swine Herd Production Goals: Total Farm.

(Farrow to Finish)

	Problem Level	Goal
Pigs marketed/female/year		
3-week weaning	18.00	23.03
4-week weaning	16.50	21.86
5-week weaning	15.00	20.88
Feed/pound of hog sold	3.75	3.05
Days to 230 pounds	170	149
Days to 250 pounds	180	165
Last rib backfat, in.		
(at 230 pounds)	1.1	0.8
Fat free lean index	48	54

Table 4. Swine Herd Production Goals: Total Farm.

(Feeder Pig Production

	Problem Level	Goal
Pigs marketed/female/year		
3-week weaning	18.40	23.26
4-week weaning	16.80	22.08
5-week weaning	15.30	21.09
Feed/pound pig sold	4.33	3.75

version should not be measured for less than 3 months; a 6- to 12-month period is better. The information required is:

- Beginning and ending inventory (pounds) of all feed ingredients and mixed feed.
- Inventory (pounds) of all pigs on hand at the beginning and end of test period.
- Pounds of all pigs sold.
- Pounds of feed and ingredients purchased.
- Price of feed purchased and on hand.

The formula for feed conversion is:

$$\frac{\textit{pounds of feed used}}{\textit{pounds of pork produced}}$$

where:

Pounds of feed used = pounds of feed purchased + beginning feed inventory - ending feed inventory

Pounds of pork produced = pounds of hogs sold + ending pig inventory - beginning pig inventory

Feed cost per pound of pork produced can be calculated from feed conversion if you know the price of feed. Multiply the average price of a pound of feed times the feed required per pound of pork produced.

Monitoring feed conversion will point out problems in the feeding program after they occur. Increases in feed conversion by period and changes by season indicate opportunities for improvement in the feeding program.

Monitoring Feed Ingredients And Feed

While records provide a good method for monitoring feed quality, it is "after the fact." A program is also needed to monitor the quality of feed before feeding and even before mixing. The key component of a feed monitoring program is routine analysis of feed and feed ingredients. Constant monitoring of feed ingredients and the feed itself is another way to insure efficient pork production. A routine sampling program for all feed ingredients and mixed feeds—combined with good feed records—can improve the efficiency with which farm-mixed swine feeds are used.

Feed Ingredients. The nutrient content of many feed ingredients often varies. This variation can affect both the quality and the cost of the complete feed. To get the best evaluation of feed ingredients, take samples from each load delivered. When the ingredients are delivered in bulk, take samples before unloading. Using a grain probe, take several samples from the front, middle, and rear of the truck, then combine these samples to get a representative sample of that load. If this method is not possible, take samples throughout the time the truck is unloading. Although the combined sample may not be as representative of the load as when a probe is used, it will be better than a single sample or no sample at all.

While sampling each load is best, the cost of laboratory analysis for each sample can be prohibitive. One alternative is to mix samples from several loads, then submit the combined sample for analysis. It will be impossible to tell anything about a specific load from this type of analysis, but the sample will still aid in fine tuning the feed formulation. Sampling will also point out any problems of contamination from foreign material such as weed seeds. If mycotoxins are a problem, this should also be checked in feed grains.

The analysis needed for feed ingredients depends on the ingredient. Protein (lysine if possible), fiber, calcium, phosphorus, and USDA grade should be checked for all grains. With the exception of grade, the same analyses are needed for soybean meal. Mineral sources (trace mineral premixes, basemixes, complete supplements) require a complete mineral analysis, including calcium, phosphorus, iron, zinc, manganese, copper, and salt. If the protein content is guaranteed, it should be checked as well.

There is a monetary reason for routinely checking purchased ingredients. For example, if you buy soybean meal guaranteed to contain 48 percent crude protein and the analysis shows that it contains only 46 percent, an adjustment should be made on the price. By checking that load, you know to adjust the formulations for the lower protein level and to have the supplier adjust the price.

Mixed Feeds. Routinely analyzing farm-mixed feeds is the best way to monitor feed mixing techniques. The method you use to sample mixed feed depends on your reason for the analysis. To decide if the mixing time is appropriate, take three or more samples from one batch of feed periodically as the mill is emptying. If the analyses of all the samples are close to the same, the mixing time is adequate. For a routine evaluation of the feeding program, use the same sampling technique but combine all the samples before the analysis to see if you added the proper amounts of all ingredients. If problems exist in certain hog pens, collect feed samples from each feeder. This last method may not give an accurate evaluation of the mixing process because of separation during delivery and in the feeder.

Ideally, every batch of farm-mixed feed and every load of purchased feed should be checked. Unfortunately, the cost may be prohibitive. An alternative is to sample each diet mixed or purchased at least once every 3 months and when problems occur. Have the sample analyzed for protein, fiber, calcium, phosphorus, iron, zinc, copper, and salt. Amino acid and vitamin analysis would be very helpful, but these are often expensive and can be hard to get.

Collecting feed samples and having them analyzed will do little good if the lab report is not accurately evaluated. From this report, any nutritional problems can be detected as well as possible causes for these problems. A thorough evaluation of a laboratory analysis by a competent nutritionist can pin-point problems and possibly solve them.

A combination of these sampling methods and correct evaluation of laboratory analyses results is the best evaluation of a feed mixing program. For more information on mixing swine feed, see Circular ANR-637, "Controlling The Quality Of Farm Mixed Swine Feed."

Health

Disease can significantly lower profitability in a swine herd. Consider the following steps to help monitor the health and disease status of your herd.

Veterinary Assistance

Regular visits from an experienced veterinarian who is interested in swine and who keeps up with the swine industry is a major step forward. Establish a schedule of regular visits so your veterinarian can make a periodic assessment of your herd. Some large herds have this done monthly; others only every 3 to 4 months. If you have had difficulties or are just starting out, these visits may need to be more frequent at first.

Work with your veterinarian to set goals for the herd. During the regular consultation visits, the two of you can examine your production records and assess the role disease may be playing in the herd's performance. You should also discuss records of slaughter checks and necropsy reports. It will also be beneficial to go over your production schedule and routine health practices. Are your vaccinations, dewormings, and processing routines doing all that they should to prevent disease and enhance profitability? Are the products you are using the best ones for your particular situation? These should be topics of periodic review and discussion during your veterinary visits.

Involve your employees with the routine veterinary visits. Compliance with health practices is often a function of how well the employees understand the importance of various routines, such as disinfection and proper use of medicated feeds. Your veterinarian can help explain the reason for such practices and, on large farms, can be directly involved in employee education programs. Even on smaller farms, the employees should be present during the consultation visit. They usually know the most about conditions that affect the disease status of the herd.

Necropsies (Autopsies)

A dead hog is more than a loss, it is a "diagnostic opportunity." Have your veterinarian conduct a necropsy on the farm and submit appropriate samples to the veterinary diagnostic laboratory for suitable tests. This is particularly important for sudden, unexpected death losses. If your veterinarian is unavailable on short notice, submit the dead hogs directly to the lab in as fresh a condition as possible. Too many producers fail to have their death losses examined by competent professionals, and they will go for long periods of time without knowing what is causing a problem. Remember, a veterinary diagnostic laboratory is not perfect—they will not always come up with a definitive answer for the problem. However, there is even less chance of knowing the cause by simply guessing at it.

Many swine producers have become frustrated about having necropsies conducted because they have not had professional help to interpret the results from the diagnostic lab. These reports are usually quite technical in nature and can be unintelligible without competent professional help. Use your veterinarian to interpret the reports in the light of how

your farm works. What you are really looking for is help in making a management decision about a problem on your farm. This is difficult to do without good professional help.

Routine Slaughter Checks

Slaughter checks are an excellent tool for examining diseases occurring during the last 4 to 6 weeks of your finishing process. Disease occurring before this time may not be evident on slaughter checks but will probably be reflected in other information, such as days to market or feed conversion.

During a slaughter check a veterinarian will be present at the slaughter plant to examine the lungs, livers, and snouts of a representative group of hogs. These organs will be scored for disease damage, and a report will be given to you. In some cases, other organs such as reproductive tracts in cases of unexplained infertility in gilts, or intestinal tracts in cases of suspected ileitis, may be examined. If your veterinarian cannot conduct a slaughter check for you, some slaughter plants can arrange for a veterinarian in the area to conduct it for you.

Statistical tables have been developed that determine the number of animals to be examined during a slaughter check. The numbers depend upon the type of disease that may be suspected in the herd and the extent to which it is believed to be present. If the disease status of the herd is good, then only a relatively small percentage of market hogs needs to be checked.

Other Steps For Herd Monitoring

Your veterinarian may recommend other steps in the monitoring process, such as conducting fecal flotation exams for parasite eggs in manure of hogs on the finishing floor. In some cases this may need to be done routinely, or in others only if there is an indication that the present deworming plan is not effective.

Another monitoring step that may be recommended is periodic bleeding for determination of levels, or "titers," of blood antibodies to various diseases. This process is also known as "serology." To maintain a herd in a brucellosis- and pseudo-rabies-free status, some bleeding must be done. Other diseases that can be monitored include transmissible gastroenteritis (TGE), Actinobacillus (Hemophilus) pleuropneumonia, and leptospirosis. This may be recommended by your veterinarian based upon past disease problems in the herd. If routine serology is to be done, it is best to bleed a group of hogs at various times during the production flow to see when and where they become positive to certain conditions. Remember, blood antibody titers to various diseases usually only show that an animal was exposed to a potential disease-causing bacteria or virus, not necessarily that the disease itself is present. Serology reports may be useful but need to be interpreted carefully.

Genetics

Genes are responsible for the true genetic potential of an animal and are fixed at conception. However, an animal rarely performs exactly at that potential. Some may meet their potential, while others never reach it because of conditions under which the animal is raised. What you can see or measure (phenotype) is a combination of genetics (genotype) and the conditions under which the animal is raised. The genetic portion is low (10 to 20 percent) for reproductive traits such as litter size, birth weight, and weaning weight. Genetics account for 30 to 40 percent of the growth traits and 40 to 60 percent of carcass traits. Monitoring the genetics of a swine herd is, therefore, difficult at best. Monitoring the breeding program (selection, culling, and cross breeding) is not. By monitoring performance of the herd, you can evaluate your breeding program and make the necessary changes.

The two approaches to monitoring the breeding program are: herd monitoring and contemporary group monitoring. Both are necessary because they serve different purposes.

Herd Monitoring

If the average performance of your herd is below the problem level, or if you are making little or no progress, the first step to improvement is to evaluate your total program.

- Are you selecting the type of boars you really need?
- Do you have a cross-breeding program and are you following it?
- What criteria do you use to cull a sow?

One or more of these areas is partially to blame for poor performance in a herd. To answer these questions, we will go through several examples. In each case, we will assume that nutrition, health, and environmental conditions are adequate. This should give you some idea of the process for improving herd performance through genetics.

Example 1. You have a 100-sow farrow-to-finish farm and use a three-breed rotational cross. Your goal is to produce 23 market hogs per female per year. All boars are purchased from breeders that emphasize litter size. You are averaging 12.5 pigs at birth and are weaning 10.2. It takes your pigs an average of 187 days to reach 230 pounds and your packer is docking every load you ship because your hogs are too fat.

The first place to look in this example is boar selection, the source of most genetic improvement in this system. Boars for a rotational cross should be selected for both reproductive and growth traits. With the reproductive performance in this herd, boar selection should be based on maintaining litter size and improving growth and back fat.

The next step is to evaluate your rotational cross. You can improve growth and backfat by replacing a breed with one known for rapid gain and low backfat. You should also make sure you are keeping the rotation in the right order. Part of the advantage of cross-breeding is lost if you use a breed out of sequence.

Example 2. You have a 30-sow herd and produce feeder pigs. Your average sow is in her fifth parity. Litter size at birth and at weaning is low (8.2 and 7.1).

The problem in this example is culling. Sow performance usually peaks at 4 to 5 parities. Since the average parity is 5, there has been little culling. Very little new genetics have been added to the sow herd. Ideally, 40 to 50 percent of the sow herd should be culled each year. Sows should be culled first on performance. Next, soundness, condition, age, and temperament should be considered. These will affect a sow's ability to perform in the future. Culling removes poor sows and allows for the introduction of new gilts in the herd.

Contemporary Group Monitoring

Sometimes performance problems can be traced to one or more purchased boars. The only way to decide this accurately is by monitoring the offspring under the same conditions. For example, evaluate a group of market hogs from a single sow group or those that were born within a 1- to 2-week period, sired by three boars, and housed and fed the same. The effects of nutrition, health, temperature, climate, etc. should be the same for the entire group. This group of pigs is then a contemporary group. Any difference in performance between the pigs sired by the three boars is more likely due to the boars since most other factors are the same.

Contemporary group comparison is a necessary tool for finding genetic difference in growth and reproduction. However, comparisons made across contemporary groups or without contemporary groups cannot be made with any degree of accuracy for a commercial herd.

Environment

Monitoring the environment can be the simplest part of a herd monitoring program. Unfortunately, it is often the most overlooked. The "environment" is the conditions in which a pig is expected to grow. To monitor the environment, we actually monitor factors that affect the environment—temperature, air quality, and condition and use of the facility.

Temperature

Temperature has a tremendous effect on performance of swine. The ideal temperature for a pig decreases with age, from 90°F to 95°F at birth to 60°F to 65°F for sows. For pigs from birth to 40 pounds, low temperatures and drafts increase the pig's susceptability to respiratory diseases and scouring. Low temperatures for pigs from 40 pounds to market results in increased feed intake and feed required per pound of gain. High temperatures reduce feed intake and weight gain.

Cold stress is not a major problem for sows in the Southeast. Heat stress, however, is a major cause of poor reproductive efficiency. High temperatures during lactation reduce feed intake, leading to poor sow condition and more days from weaning to rebreeding. During gestation, there are two critical periods: immediately after breeding and 2 to 4 weeks before farrowing. Temperatures above 85°F for 3 days during the first 2 weeks after breeding increase embryonic death. High temperatures (over 85°F) during the last month of gestation may increase the number of stillborn pigs. Temperature also affects boars. High temperatures increase the boar's body temperature. An increase in body temperature decreases libido and the number of normal sperm produced. In the Southeast, the ultimate effect of heat stress on reproduction is decreased litter size and farrowing rate from May to December.

Monitoring temperature is easy. Every barn, room, shed, or shelter should have a thermometer place at "pig" level. Placing a thermometer too high will not accurately measure the temperature a pig is actually feeling. If you use a drip or sprinkler system, it is possible to have high temperatures without heat stress. Pigs will lose body heat by evaporation. Wet-bulb temperature more accurately estimates the temperature an animal is feeling under these conditions. Whatever the instrument used, you will improve sow and pig performance by monitoring environmental temperature daily and making necessary adjustments.

Air Quality

Unlike temperature, air quality is difficult and expensive to measure accurately. Measuring air velocity, gas levels (methane, ammonia, hydrogen sulfide), humidity, and particle content require specialized equipment. You can, however, use some simple methods to decide if a problem exists.

The simplest way to monitor air quality in a barn,

building, shed, or pen is to spend 1 to 2 hours in the facility at pig level. This may sound unreasonable, but if you cannot stand it, there is a good chance the pigs can't either. There is, however, some risk involved with this method. If toxic gases are present, they can be detrimental to your health!

Prevention is always better than a cure. In an enclosed building, check all ventilation equipment and controls at least once a week:

- Fan blades should be clean and in working order. Dirty or bent blades reduce the amount of air the fan can move.
- Fan motors should be properly wired and working.
- Air intakes and exhausts should be calibrated for the needed air movement.
- Automatic louvers must be clean.
- All thermostats and controls should be clean and calibrated.

If there is a serious problem with air quality, have your system checked by a competent engineer or service technician.

Open-sided or curtain sided buildings usually lack mechanical ventilation. They depend on natural ventilation for temperature control and air quality. You will get the best environmental control by orienting these buildings east-west, eliminating western sun exposure. You should also plan for a minimum of 40 feet (60 to 100 feet preferred) between buildings for normal air flow. Another potential problem is totally enclosing these buildings during the winter. You can see from Table 5 that there is a minimum amount of ventilation required year-round. Whatever the outside temperature, there should always be some fresh air entering a hog building.

Table 5. Recommended Ventilation Rates For Swine In Alabama.[a]

	Ventilation Rate, cfm[b,c]		
	Winter		
Weight/class	Minimum	Maximum	Summer
Sow and litter	20	80	500
Growing pigs			
12-20 pounds	2	10	25
20-50	2	15	36
50-100	5	20	48
100-150	7	25	72
150-230	10	35	120
Sows and boars			
250-300 pounds	12	40	180
300-500	15	45	250

[a]Adapted from "Structures and Environment Handbook," Midwest Planning Service, 1983, and "Mechanical Ventilation of Swine Buildings," Pork Industry Handbook PIH-60.
[b]Cubic feet per minute.
[c]Ventilation rates are cumulative Maximum summer rates include minimum and maximum winter rates. For properly designed curtain-sided barns, mechanical ventilation is only required for winter ventilation.

Air quality is a potential problem for all types of facilities. Low-investment, outside units can also have air quality problems. Most are related to inadequate shelter space in the winter. Pigs tend to "pile up" during cold weather if there is not enough shelter, thus creating a "micro-environment" where air quality is poor.

Preventing air quality problems will prevent many performance and disease problems. Good air quality will also allow maximum use of the facility and the utility costs associated with it.

Condition And Use Of A Facility

Some of the worst swine facilities in the Southeast are well designed and built but are not used as designed. Over-crowding a pen or barn affects both temperature and air quality. There are other negative effects on performance that have not been identified. For example, a pen designed for 25 finishing hogs will produce faster, more efficient gains than one designed for 50, even if square feet, temperature, and air quality are the same. Table 6 contains the space requirements and ideal number of animals per pen for most classes of swine. These recommendations will at least help explain problems in existing facilities.

Summary

An effective swine herd monitoring program includes records to pin-point potential problems and determine the cause of the problems along with a systematic approach to solving the problems. Solving production problems will increase production efficiency and lower production costs.

For more information on swine production and management, ask your county Extension office about the following publications:

Circular ANR-637, "Controlling The Quality Of Farm Mixed Swine Feed."

Circular ANR-639, "Swine Diet Recommendations For Alabama."

Circular ANR-672, "Managing Growing-Finishing Hogs."

Circular ANR-683, "Improving Reproduction In Swine."

Circular ANR-617, "Crossbreeding Systems For Swine."

Circular ANR-882, "Selection Guidelines for Commercial Pork Production."

Pork Industry Handbook.

Table 6. Space Requirements For Swine.[a,b]

Class	Weight, pounds	Confinement[c]	Pasture/Drylot		Animals /pen[e]
			Pasture Space[d]	Shelter Space	
Growing pigs	15-30	1.7-2.5	—		
	30-60	3-4	—	4	
	60-100	5	50-100	4	20-30
	100-150	6-8	50-100	6	20-30
	150-market	8-10	50-100	6	20-30
Gestation	250-300	14	10	15-20	6-12
	300-500	16	10	15-20	6-12
Breeding	250-300	24	NA	15-20	1-6
	300-500	30	NA	15-20	1-6
Boars	300-500	40	NA	15-20	1

[a]Adapted from "Space Requirements For Swine," Pork Industry Handbook (PIH-55), and "Structures And Environment Handbook," Midwest Planning Service, 1983.
[b]Requirements listed as square feet per pig, except for pasture space.
[c]Requirements are for floors using partial slats, total slats, or open gutter flush (raised deck flooring for pigs under 30 pounds).
[d]Pasture requirements are listed as number of animals per acre. Actual pasture or lot space requirements depend on soil type, slope of the land, plant growth, and rainfall.
[e]The number of pigs per pen from 60 pounds to market can exceed 30 on pasture/drylot if adequate waterers and feed space are available. However, small groups can reduce labor and management costs.

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ALABAMA COOPERATIVE Extension SYSTEM

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