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Management of Newly Received SEW and Feeder Pigs - Pork Industry Handbook
Michigan State University Cooperative Extension Service
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pork industry handbook

Michigan State University Extension

Management of Newly Received SEW and Feeder Pigs

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In the early 1980's, an estimated 25 percent or more of all pigs sold for slaughter in the U.S. were purchased as feeder pigs, with the average purchase weight near 50 pounds. A large number of these pigs were commingled, either at auction markets or at purchaser's facilities to have larger groups of relatively uniformly sized pigs. Continuous pig flows in finishing facilities were common.

Since then, the advent of segregated early weaning (SEW) and multi-site facilities have altered production systems to the extent that transport of pigs between production facilities is common, whether or not a change in ownership occurs. This transport may be limited to movement at weaning (two-site production, such as wean-to-finish) or may involve a second relocation following the nursery phase (three-site production). Transport between the nursery and finishing phases in three-site production systems may or may not include maintenance of pen integrity.

Whether one is discussing traditional feeder pig movement or transportation of pigs within a SEW system, consideration of the impacts of transportation on pigs is necessary in defining a management system to ensure rapid, efficient growth with minimal health challenges of newly arrived pigs.

Transport Effects

An increasing body of research from European and other research centers indicates that pigs suffer from motion sickness. Recent data indicate between 25 percent and 30 percent of pigs show signs of travel sickness (sniffing, foaming at the mouth, chomping, and vomiting) when transported 45 mph to 50 mph on roads classified as being in good repair.

In preference tests using 20 lb. to 70 lb. pigs and simulated transport vibrations and noises, pigs demonstrated a clear aversion to the vibrations typical of transport vehicles, but little aversion to the noises associated with transport. The degree of aversion was reduced when pigs were fasted prior to exposure

to the vibration. These data suggest pig welfare is improved if the pigs are fasted for a period of time prior to transport. Withdrawal of feed four hours prior to transport is a common recommendation to minimize the travel sickness observed in the above trials.

Feed access prior to extended transport distances is of little value. In a series of trials conducted with commingled feeder pigs transported over 600 miles, researchers at the University of Nebraska and University of Missouri found no improvement in performance to slaughter weight upon arrival at the finishing facility when pigs were given feed and water access at the auction market prior to transport.

The design of the load-out facility for transportation and relocation of pigs is a potential source of major stress for the pigs. Researchers have demonstrated that the slope of the load-out ramp can have a major impact on pig welfare. When the slope is 20° or less, there is minimal effect on the heart rate or aversion scoring of test pigs. However, as the slope of the load-out ramp increases above 20°, pigs demonstrate an increasing aversion to the ramp. They take longer to negotiate the ramp; and more importantly, they have an increased incidence of arrhythmia or irregular and uncontrolled heartbeats. As ramp angles increased, the unwillingness to descend was greater than the unwillingness to ascend. In other words, steep unloading ramps are more detrimental to pig welfare than the same ramps used for load-out.

To minimize death loss during transport, attention to the heating and cooling needs of the pigs is critical. The Livestock Conservation Institute recommends that 50 lb. pigs be provided with 1.53 sq.ft./pig on the transport vehicle. In hot weather, increase the space per pig by 10 percent to 20 percent. Many producers moving 10 lb. SEW pigs provide 0.5 sq.ft./pig in normal weather and 0.6 sq.ft./pig in hot weather.

Weight Loss

A common question when transporting pigs is "How much weight loss (shrink) can I expect?" The answer, of course, varies

with distance transported (correlated very closely with the amount of time off feed and water) and the conditions prior to transport.

In research trials at the University of Nebraska, an 8 percent to 12 percent shrink (weight loss) from the weight recorded at the auction market to arrival weight at the research facility was common following a 600+ mile transport for commingled feeder pigs weighing 30 lb. to 50 lb. For pigs purchased locally, it is not uncommon for pigs to weigh one to two pounds less after transport because of the stress and shrink associated with loading, travel, and unloading. More recently, shrink has been 1 to 1.5 percent for pigs weaned at 14 to 18 days of age and transported 100 miles immediately following weaning in University of Nebraska trials.

Management Recommendations for Receiving Weanling Pigs

Before Arrival

Management of nursery pigs begins before they arrive. The room and all equipment used in the barns must be properly

washed and disinfected. Ventilation controls must be functioning and properly set, with time allowed for the room to become warm and dry. Feeding pans and heat lamps (if used) must be in place and functioning. Finally, all watering devices must be functioning and adjusted to the proper height.

Placing pelleted feed into empty feeders with the feed gate open will result in large amounts of pellets in the feeding trough and increased feed wastage. Therefore, the gate should be closed before the pellets are added. Once the pellets have been added, then the feed gate can be opened. Approximately 25 percent to 50 percent of the feeding pan should be visible in the first few days after weaning. As the pigs become more accustomed to the location of the feed and adjust their feeding behavior, the amount of the feed in the feeding pan should be rapidly decreased to approximately 25 percent coverage (Figure 1). Also, feed agitators need to be frequently tested to ensure that the build-up of fines does not prevent them from working freely.

Based on a normal two-pound standard deviation in weaning weight for pigs weaned between 14 to 21 days of age, the percentage of pigs within each one pound weight group with

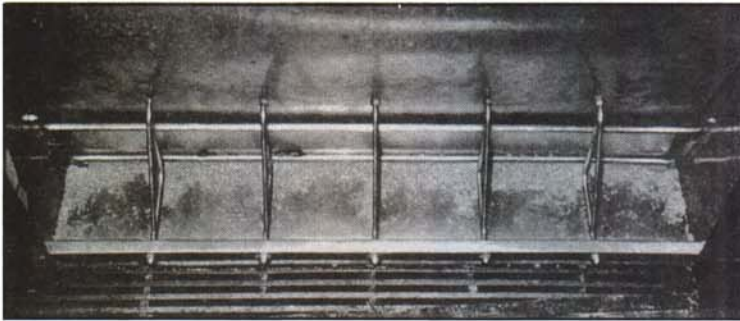


Figure 1a. Initial appearance of feeder with pelleted diets.

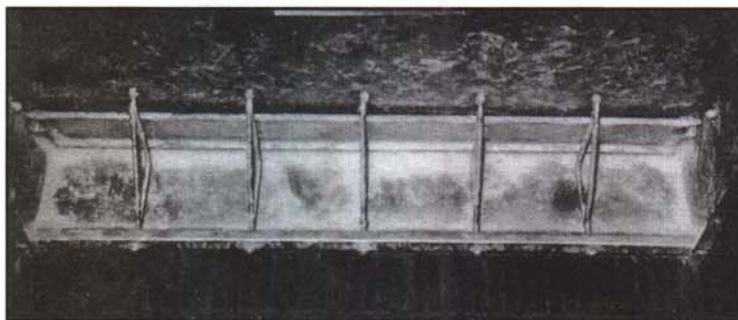


Figure 1b. Appearance of feeder after the first week when switching to meal diets.

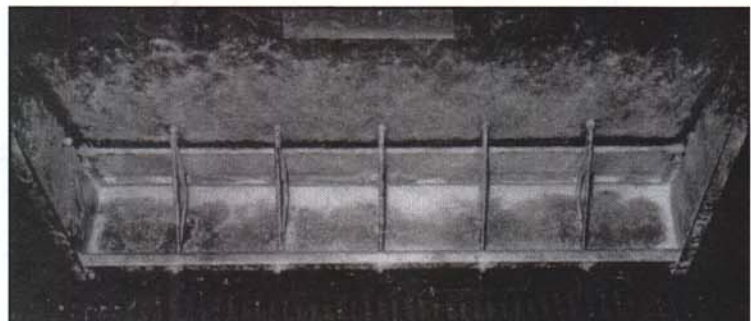


Figure 1c. Appearance of feeder after a week or so on meal diets.

weaning weights ranging from 8 to 13 pounds are shown in Table 1. At arrival, pigs should be sorted according to size and body condition. A small spring-loaded hand scale is a useful tool for employees to determine a sub-sample of individual pig weights. Pigs should be grouped by weight, because the high expense of the first diets after weaning and rapid pig growth make switching to the next less expensive diet easier. Although the range in pig weights may only be a few pounds, there is a great range of digestive capability of the pig. Therefore, every effort should be made to match the weight of the pig to the appropriate diet.

an easily cleaned material like plastic or rubber to prevent problems with diseases such as coccidiosis or *E. coli*. If used, feeding boards must be removed from the pen promptly after the pigs are adjusted to eating from the feeder. The feed placed on the feed mat should be limited to small amounts for two reasons: 1) the expensive diet placed on the mats is easily wasted, and 2) if the newly arrived pigs are not fed to appetite, they will begin to explore and find the feed in the feeder. However, when feeding on mats, it is critical that feed be available in the feeder at all times so pigs that are eating in this time period are not limited in energy intake.

Water intake is crucial to the newly weaned pig. Because of

Table 1. Percentage of pigs between each weight grouping, standard deviation 2 lb.

Weight/pound	Average pig weaning weight					
	8	9	10	11	12	13
<2	0.1%					
2 to 3	0.5%	0.1%				
3 to 4	1.7%	0.5%	0.1%			
4 to 5	4.4%	1.7%	0.5%	0.1%		
5 to 6	9.2%	4.4%	1.7%	0.5%	0.1%	
6 to 7	15.0%	9.2%	4.4%	1.7%	0.5%	0.1%
7 to 8	19.1%	15.0%	9.2%	4.4%	1.7%	0.5%
8 to 9	19.1%	19.1%	15.0%	9.2%	4.4%	1.7%
9 to 10	15.0%	19.1%	19.1%	15.0%	9.2%	4.4%
10 to 11	9.2%	15.0%	19.1%	19.1%	15.0%	9.2%
11 to 12	4.4%	9.2%	15.0%	19.1%	19.1%	15.0%
12 to 13	1.7%	4.4%	9.2%	15.0%	19.1%	19.1%
13 to 14	0.5%	1.7%	4.4%	9.2%	15.0%	19.1%
14 to 15	0.1%	0.5%	1.7%	4.4%	9.2%	15.0%
15 to 16		0.1%	0.5%	1.7%	4.4%	9.2%
16 to 17			0.1%	0.5%	1.7%	4.4%
17 to 18				0.1%	0.5%	1.7%
18 to 19					0.1%	0.5%
>19						0.1%

The First 36 Hours after Placement

During the first 36 hours after weaning, pigs need to find the water and feed. During this time period, check water height adjustment to ensure proper access to water for pigs. Assure that feed is always available in the feeder, and add small amounts of feed on comfort mats (if used) to encourage feeding behavior. Pigs should NOT be limit-fed after arrival. For newly weaned pigs, feed can be offered several times per day on a feeding board, but fresh feed should always be available in the feeder.

In addition to a properly designed feeder, feeding boards can be used to supply adequate feeding space in fully slatted pens the first week(s) after arrival. The feeder board must be made of

a low body weight in proportion to metabolic rate, dehydration occurs easily. The unguarded center-flow water nipple works well by facilitating drinking, thus preventing dehydration. In addition, ensure that water pressure is below 20 psi so pigs can easily operate water nipples. Many producers block or tie the nipples open for the first 24 hours to help the newly weaned pigs rapidly find the waterer. Cup waterers have been used successfully to prevent dehydration of piglets during the period immediately after weaning. Nipple waterer height should be adjusted to approximately shoulder height for the smallest pigs in the pen. Pigs should be observed to ensure that they have found the water source and are beginning to develop feeding behavior.

36 to 60 Hours After Placement

Most pigs will have found water and are beginning to find the feeders and eat by 36 hours after placement. However, this is a critical period to identify “starve-out” pigs. With proper management, the number of pigs requiring extra attention will be limited to 2 percent to 4 percent. The most difficult part of the process involves identifying the small percentage of pigs that are candidates for individual attention. The critical times are approximately 36 to 60 hours after weaning. For pigs weaned and transported on Thursday mornings, the critical period is Friday evening through Sunday morning.

The following checklist can be used to inspect pigs from a distance:

- Mental status – alert or excited /depressed
- Body condition – fat or normal versus thin
- Abdominal shape – bloated or gaunt
- Skin – fuzzy or sleek appearance
- Appetite – feeding at the feeder or huddled
- Evidence of urination or defecation
- Signs of dehydration – sunken eyes

The appearance of abdominal shape is an especially useful indicator. Pigs that are eating well begin to have round abdomens; whereas, pigs that have not begun to eat will be gaunt. The abdomen can be palpated for evidence of food intake. Signs of dehydration can be evaluated by palpating mucous membranes of the mouth or the tip of the nose. Dehydration can be further evaluated by pinching a fold of skin just behind the front limb. If the fold remains elevated for more than a few seconds, this is an indication of dehydration.

Once the pigs at risk have been identified, wet a small hand full of pellets with water and gently place the softened pellets in each pig's mouth. If there are a large number of pigs that require attention, a small bucket of moistened pellets can be prepared and individual pigs gently fed. Some personnel use gruel and a 12-cc syringe with the end cut off as a dosing syringe. The moist pellets or gruel stick to the tongue of the pig, causing a swallowing reflex. Carefully place the pig near the feeder, so it associates the food in its mouth with the feed in the feeder. Gently setting the pig down is important, so pain or stress is not associated with feeding.

Small pigs with low body-fat reserves must have a ready energy source. As little as 20 g to 30 g of feed will provide energy to keep small pigs from starving. In high-health status pigs, signs of anorexia, depression, and dullness are more likely to be caused by lack of energy than infectious disease.

Management Recommendations for Receiving Feeder Pigs

When feeder pigs are purchased from commingled sources, the emphasis in receiving management programs should be the maintenance of herd health. With pigs commingled from a variety of unknown sources, purchasers of feeder pigs should implement management strategies that seek to minimize the impact of commingling pigs with a variety of unknown health statuses. If the pigs are purchased from unknown sources, assume the worst in terms of health. The newly arrived pigs may be carriers of swine dysentery, pseudorabies, salmonella, actinobacillus pleuropneumonia, TGE, PRRS or other contagious diseases. To decrease the potential for introducing diseases into your operation, purchase pigs from a single source, or at least minimize the number of sources from which pigs are obtained. Refer to other PIH fact sheets for further information on these

specific diseases and their introduction into production systems.

With the majority of the industry now purchasing feeder pigs or SEW pigs from known sources, usually from a single origin, the unknowns regarding health are minimized. The purchaser of feeder pigs should inquire as to the health status of the source herd and make health management decisions based on the history of that source herd and the history of their finishing facilities when managed in an all-in/all-out manner. Decisions as to appropriate vaccination regimens, water medications, and even selection of growth-promoting feed-additive additions to diets should be based on source herd-health histories and facility experiences.

Many items essential for getting weaning pigs off to a good start also apply to older pigs. Management begins before the pigs arrive. Rooms should be properly washed and disinfected. Ventilation controls should be set to allow enough time for the room to warm up and dry. The correct diet should be in the feeders, and waterers should be checked and adjusted to the proper height.

Nutrition Management

Feed intake (and thus energy intake) is highly dependent on environmental factors. Based on published research results about commingled feeder pigs, there is no evidence to support the routine addition of elevated levels of vitamins and/or trace minerals beyond levels normally added to swine diets. While the addition of potassium chloride to the diet of newly received feeder calves has been shown to be of some benefit in overcoming the effects of transportation and the associated weight loss, it has not been effective in improving the performance of commingled feeder pigs when added at levels ranging from .48 percent to 1.44 percent for two weeks following arrival.

The addition of 20 percent ground whole oats or 10 percent good quality alfalfa hay (not alfalfa meal) to the commingled feeder pigs' receiving diet for a 2 to 4 week period may aid in the reduction of the typical post-arrival scour. While this fiber addition will not adversely influence the rate of gain or feed efficiency from purchase to market in properly formulated diets, it has been shown to delay the onset of the typical post-arrival scour. Research is lacking as to the response of high health, single-source feeder pigs to the addition of these feedstuffs to diets immediately following arrival.

During the nursery phase, health, nutrition, and environment interact to impact variation in gain and hence weight out of the nursery and onto the finishing floor. It is typical for groups of pigs similar in age to have variations as defined by the coefficient of variation (CV) of 15 to 20 percent. Table 2 depicts the percentile ranges for pig weight for groups of pigs with CV's of 15 and 20 percent. For example, if the average weight is 50 pounds for a group of pigs with a CV of 15 percent, 25 percent of the pigs will weigh 45 pounds or less and 25 percent of the group will weigh 55 pounds or greater. If the CV increases to 20 percent, the lightest 25 percent will weigh 43 pounds or less and the heaviest 25 percent will weigh 57 pounds or greater.

Formulate the diet for the newly arrived pigs based on the expected nutritional needs of the lightest 25 percent of the pigs. While the average pay weight of a group of pigs may be 50 lb., if the bottom 25 percent average 43 lb. at arrival, a diet formulated for the 50-lb pig may put these bottom pigs at a nutritional disadvantage. Increasing or decreasing the protein (lysine) level for the first week following arrival from what is normally recommended for pigs of similar weight does not result in improved performance to slaughter.

Table 2. Pig weight distribution when variation is known.

CV	Standard deviation	Weight (lb) by percentile		
		25th	50th	75th
15%	5.3	31	35	39
15%	6.0	36	40	44
15%	6.8	40	45	50
15%	7.5	45	50	55
15%	8.3	49	55	61
15%	9.0	54	60	66
20%	7.0	30	35	40
20%	8.0	35	40	45
20%	9.0	39	45	51
20%	10.0	43	50	57
20%	11.0	48	55	62
20%	12.0	52	60	68

Water

One watering space is required per 10 to 15 pigs, especially if nipple or bite-drinking devices are used. For cup drinkers, one drinker per 20 pigs is recommended. If nipple or bite-watering devices are provided, they should have a delivery capacity of two or more cups of water per minute.

The routine addition of a medication (antibiotic or other product) to the drinking water for the prevention of unknown health problems is not recommended. In trials with commingled feeder pigs, the addition of an electrolyte product to the drinking water upon the pigs' arrival has not been shown to consistently improve performance or health to market weight. However, a water-medication system should be available in the event water medication is prescribed for the control or treatment of a specific health problem. Regardless of the type of drinker used, do not change the concentration of any water medications used.

If palatability of water medication is limiting water intake, a flavoring agent such as corn syrup or flavored gelatin may increase consumption. Refrain from the use of citrus-flavored gelatin as a flavoring agent as its use may result in decreased intake due to palatability.

Water-medication equipment that allows measurement of consumption is preferred. Depending on weather conditions and watering equipment style, 40 lb. to 50 lb. pigs can be expected to use (consume plus waste) water in ratio to feed of 2:1 (bowl drinkers and wet/dry feeders) to 3.4:1 (conventional

nipple waterers). That is, for every pound of feed consumed, expect water disappearance as measured by a water meter to be 2 lb. to 3.4 lb. (.25 to .40 gal) per pig per day. Water disappearance may be higher in extremely warm conditions because pigs use water for cooling activities. The difference in water disappearance between various types of drinkers is thought to be due to differences in water wastage, not differences in water intake.

Observation

Frequent observation is essential. Close scrutiny (at least twice a day) for the first few weeks allows for early observation, identification, and treatment of diseases before they have serious influences on performance. Monitor feed and water consumption, because reduced consumption of either is a sign of a problem. Be prepared to act immediately in the event of illness. Have personnel trained to recognize the signs of major growing-finishing diseases and the most appropriate treatment. Have necropsies performed on dead pigs to accurately determine the cause of death and the most effective treatment(s).

Treat newly arrived pigs as pigs with the highest health risk in a production system. That is, if other pigs are on the farm, manage worker flow so the newly arrived pigs are observed and tended to prior to worker contact with other pigs. This minimizes the risk of workers being the vectors of disease agents from other pigs to newly arrived pigs. For multiple observations during the day, install boot and clothing changing stations to minimize this risk of contamination.



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