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Layout

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Logo Design

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Criteria for euthanizing and culling swine

W.E. Morgan Morrow,¹ John Roberts,² Robert Meyer,³ Steve Matthis⁴

¹Department of Animal Science, CALS, ²Farm Animal Health & Resource Management, CVM, ³Anatomy, Physiology, and Radiology, CVM, North Carolina State University, Raleigh, NC 27695, ⁴Sampson County Community College

Introduction

Generally speaking, a pig should be culled from the herd when it is no longer profitable or euthanized when it is inhumane to let it live. The difficulty we all encounter is defining when pigs become uneconomic and whether to treat or euthanize the challenged pig.

Economic perspective

Sows

Deciding when to cull sows is easier because, over successive parities, we have accumulated some information on their individual performance. Economically, a sow should stay in the herd as long as the expected profit from her next litter is higher than the lifetime average of a replacement gilt. The exception is when she needs to be culled or euthanized to ease her suffering. We can determine from the herd records what she is likely to do in her next parity based on performance of other sows and we can use that information to help us make a more informed decision based on the economic value of the sow.

Market pigs

With market pigs we have no individual performance records and the decision to treat or euthanize is usually based on a subjective, often cursory, usually superficial, clinical examination. Implementing a program that consistently addresses the care and treatment of the sick pig has never been easy.

When pigs are moved into the next stage of production (e.g., weaner pigs to a nursery and then into a grow-finish barn), management usually weight-sorts the pigs and places poor-doing pigs into special (hospital) pens. Pigs are added to these special pens throughout the production cycle as they fall behind their pen mates or develop conditions requiring special care and attention.

The problem is that now when we walk through the barns we are seeing too many gaunt, rough-coated, poor-doing pigs that will never make it to market, let alone return a profit. To resolve the issue, veterinarians should provide their clients with clear guidelines on how to identify and deal with sick pigs. These guidelines should include the following:

- Identification: After a sick pig is identified, the first decision is whether the animal will likely respond to treatment. If it will, then appropriate treatment should be administered. If not, the pig should be euthanized or removed to a holding pen for slaughter as a casualty pig. Sick pigs should be tagged or marked with paint or crayon.
- Treatment: Treatment can be administered in the pen where the pig is found or it can be cared for in a special hospital pen. Sick pigs should be moved to a hospital pen if they are unable to fend for themselves (this gives them better access to feed and water) and are likely to be abused by the other pigs.
- Ultimate Disposal: Options include returning the pig to its pen of origin (or another) after it has recovered, selling the pig for slaughter, or euthanizing it.

The decision to euthanize a pig is never easy but is consistent with the veterinarian's oath:

Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health, the relief of animal suffering, the conservation of animal resources, the promotion of public health, and the advancement of medical knowledge. I will practice my profession conscientiously, with dignity, and in keeping with the principles of veterinary medical ethics. I accept as a lifelong obligation the continual improvement of my professional knowledge and competence.

Thus, in deciding how to dispose of a sick pig, the farmer needs to consider not only the economic implications but also the animal's welfare and the impact on public health. Animal welfare is our responsibility, and it encompasses all aspects of animal well-being, including proper housing, management, nutrition, disease prevention, responsible care, humane handling, and, where necessary, humane euthanasia.

Too often, particularly in the past, economics have been the primary deciding factor to the detriment of the pig's welfare. Pigs that are unable to walk or that are sick and unlikely to recover should be euthanized on the farm rather than sent to slaughter or market. Sick pigs should not be penned in transport with normal pigs and their individual

needs for transport should be addressed. Sick pigs that cannot be transported to slaughter and have not responded to treatment should be euthanized on the farm.

The AVMA's General Position on Food Animals states the following:

Veterinarians are obligated morally, ethically, and philosophically to promote the welfare of all animals, as defined in AVMA policy. Veterinarians should assume a leadership role to help eliminate cruelty, abuse, and neglect of animals in modern livestock production. It is the duty of livestock and poultry producers, the vast majority of whom are vitally concerned with the welfare of animals, to recognize and deal with people who are cruel, abusive, and neglectful in their production practices and to ensure that those practices that are contrary to animal welfare are abandoned or otherwise corrected.

The AVMA's position on disabled animals is detailed in the Appendix below.

Euthanasia is not, and should never become, the "easy way out" for poor managers. Rather, euthanasia should be a tool for managers to alleviate the suffering of individual animals and to protect the health of all animals under their care. Remember, regardless of the method chosen, the act of euthanasia is usually stressful for the operator. However, if euthanasia is performed well, the stress to the operator will be minimized and the stress the pig experiences up to the time of its death will be minimized. Euthanasia must result in a painless death.

Specific criteria for euthanasia

Unlike the companion animal arena, where there is much discussion and many suggested guidelines on the appropriateness and timing for euthanasia, there is little discussion and few, if any, guidelines for when a food animal should be euthanized. Many of the individual companion animal guidelines are very subjective (e.g., ability to enjoy food, ability to breathe freely and without difficulty, ability to eat and drink without pain, pet responds to owner and family) but when taken together are helpful. Others are more objective, and Duncan (1988) recommends that companion animals should be euthanized if they present any of the following conditions:

- Weight loss: 20-25% of total body weight, characterized by muscle wasting
- Extreme weakness/inability: No desire to eat or drink, persisting for 24 hours or more
- Moribund state: Depression and body temperature below 99°F
- Infection: Involving one or more organ systems, which fails to respond to treatment within an appropriate amount of time

- Respiratory/cardiovascular: Failure of these systems, including blood loss or anemia resulting in a hematocrit below 20%
- Nervous/musculoskeletal: Injuries that cannot be healed, resulting in uncontrolled seizures or the loss of a limb

Using the above, the following general guidelines could apply to all weight categories of swine:

- Weight loss of 20-25% of total body weight, characterized by muscle wasting
- Extreme weakness or inability with a lack of desire to eat or drink, persisting for 24 hours or more
- Suffering from any infection/disease which fails to respond to treatment

Adhering to these guidelines would ensure that pigs with broken legs, unresolved prolapses, or lameness that prevents the animal from walking (or pigs that are able to walk only with assistance) would be euthanized.

Different farming systems have adopted specific protocols to provide direction to managers coping with the difficult decision on what to euthanize and what to keep. For example, the "two-strike" system has two criteria that must be fulfilled before a weaner pig is euthanized:

- Pigs that are underweight (e.g., less than 8 lb on a farm with 18 day weaning)
- Pigs that have a disability such as a rupture, navel ill, lameness, or poor body condition

This introduces a special category of concern for pork producers, the lightweight pig.

The lightweight pig

Since the work of England (1974), it has been accepted that lightweight piglets at birth are lightweight at weaning. Others have established that lightweight pigs at weaning remain small and are a significant contributor to the variation in slaughter weight and, as such, a major problem in assembling slaughter loads.

Given the economic incentives to produce and deliver similarly sized "cookie-cutter" type pigs to slaughter, various techniques have been pursued to improve the profitability of lightweight pigs. Some have concluded that it is cheaper to euthanize them as soon as they are identified. Others have advocated special treatment, including penning by size, special accommodation, and special diets, including liquid diets.

The importance of product uniformity is illustrated by producers' responses to the USDA's National Animal Health Monitoring System (NAHMS) survey, which examined how pork producers sold their finished hogs in

the Swine 1995 study. The survey showed that 64.2% of US operations always assembled a "uniform group based on weight." Further illustrating the objective of providing what the packer wants, 61.8% never sold "all animals in pen or building."

Like most complex problems, there is unlikely to be one solution, and the optimal approach will likely vary by farm and the particular mix of genetics, nutrition, and overall stockmanship. In three-site production, where the system rewards nursery managers for dispatching more pigs, there tends to be more pigs shipped than there should be. Conversely, finishing managers struggle with the issue of how to handle the underweight/disadvantaged pigs they are shipped.

Selecting the individual pigs for special treatment is not hard: Simply select the lightest. It is more difficult to decide which should be euthanized because, on an individual pig basis, there is no room for error!

The advantages of culling the lightweights include:

- Increased floor space for the remaining pigs
- A market for the lightweights, such as the barbecue market in the Southeast
- An increase in the throughput (turns) for the building
- A decrease in the risk of disease transmission

The additional advantages for euthanizing the lightweights include

- Avoidance of the antibiotic residue problem
- No need for special housing or handling
- No mixing problems post accumulation
- No marketing issues
- No cull trucks picking up lightweights from multiple farms

The need to do something is compelling: A recent study by Azain, Jones, and Glaze (1998) at the University of Georgia demonstrated that lighter pigs at day 14 were also lighter at birth and at weaning (28 d). Also, they found that the growth rate of the heavier pigs was greater than the lighter. The magnitude of the difference in growth rate was greatest between birth and 14 days with the lighter pigs growing at 45% the rate of the heavier (122 vs. 223 gm/day). Their efforts to assist the lighter pigs were unrewarding. They showed that piglets fed a liquid milk replacer had greater growth and dry matter intake; however, the benefit was not sustained through day 14 of the study. They were able to improve 21 day weights in pigs weaned at day 7 and fed liquid diets to day 21 (Azain et al., 1994). However, they stated that the obstacles preventing the use of liquid diets is in identifying a feasible

means to automate the process, mixing and dispensing the milk replacer, and cleaning the equipment.

For weaner pigs, Deen and Desrosiers (1995) established that the beginning weight is the best predictor of end-weight. **Figure 1** illustrates that the lightweight pigs coming in are at a lighter weight at exit as well. The middle bar shows the average and the outside bars show the expected range of weights for 95% of pigs at a specific entry weight. For instance, a pig entering at 10 pounds is expected to exit between 18 and 40 pounds.

Figure 2 illustrates the average weights by pen when the pigs are sorted into pens by weight. The average pen weights are more predictable. For a pen with pigs averaging 10 pounds at entry, the weight range for pigs leaving is 21 to 34 pounds. Remember that these are the results for one farm and may not apply to the pigs on all farms.

The percentage of lightweight pigs that are at-risk for suffering or death is very dependent on their facilities and how they are managed. For example, assume that a farm is supplying weekly groups of 1000 pigs with a mean weight of 5 kg and the nurseries they supply have real difficulty caring for pigs less than 3 kg (**Figure 3**). If the sow farm experiences difficulties (e.g., oversupply of farrowing sows leading to earlier weaning) and the mean weaning weight drops (and variance remains the same), then the number of pigs at-risk can increase geometrically as the 3 kg cut-off moves right to the steeper part of the distribution curve (**Figure 4**). Similarly, the number of lightweight newborn pigs will increase as the sow herd ages. The impact of this on the nursery management can be overwhelming; nursery staff cannot spend half their time caring for 20% of the pigs.

In the field, producers have had success in minimizing lightweights by feeding Paylean^(®) (ractopamine hydrochloride by Elanco). Paylean is approved to be fed at 4.5 to 18 grams per ton (5-20 ppm) from 150 to 240 lbs live weight, that is, the last 90 lb of live weight gain prior to slaughter. Paylean can increase the rate and efficiency of muscle tissue growth and by giving lightweights an extra two pounds at slaughter. Fewer are penalized for being outside the packer's matrix.

Producers have also been able to reduce the mean percentage of lightweight pigs to 3.1% compared to 9.6% by injecting 900 mg lincomycin intramuscularly for three consecutive days. This practice stems from the work reported by Dr. Joe Connor last September at the A.D. Leman conference.

To help determine if producers need to do anything special on their farms, we recommend that they measure the growth rate and fate of lightweight pigs entering the facility. Producers should tag and weigh the lightest 5% of pigs at entry and when they are shipped. Also, if it dies, record the date and its weight. You are likely to find that

Figure 1: From: Deen J., and Desrosiers R. (1995).

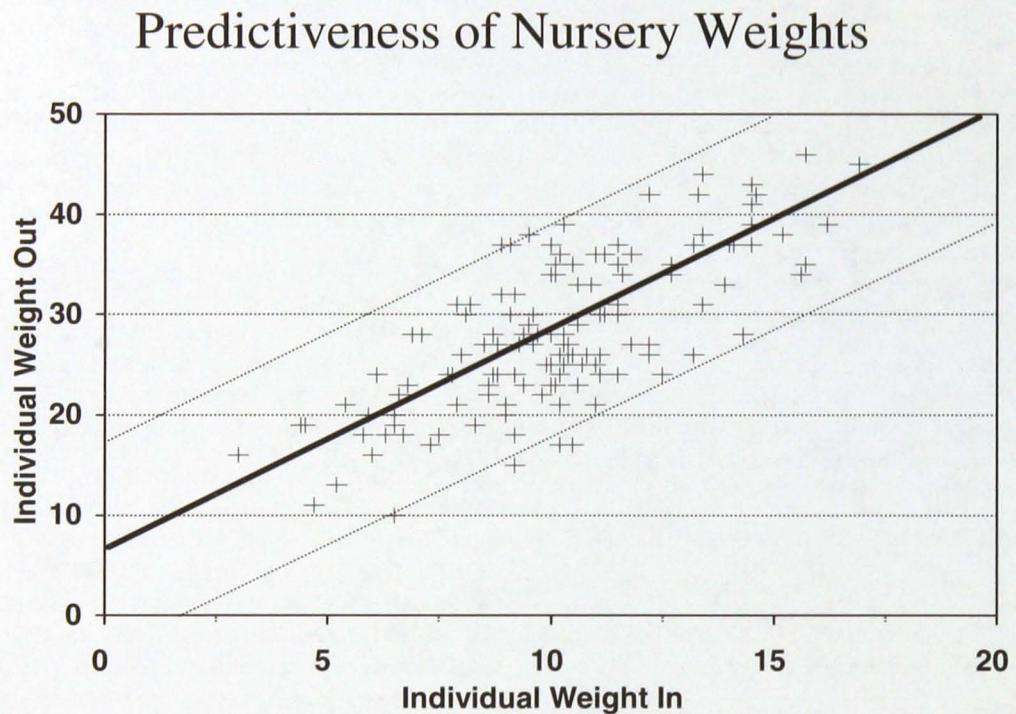


Figure 2: From: Deen J., and Desrosiers R. (1995).

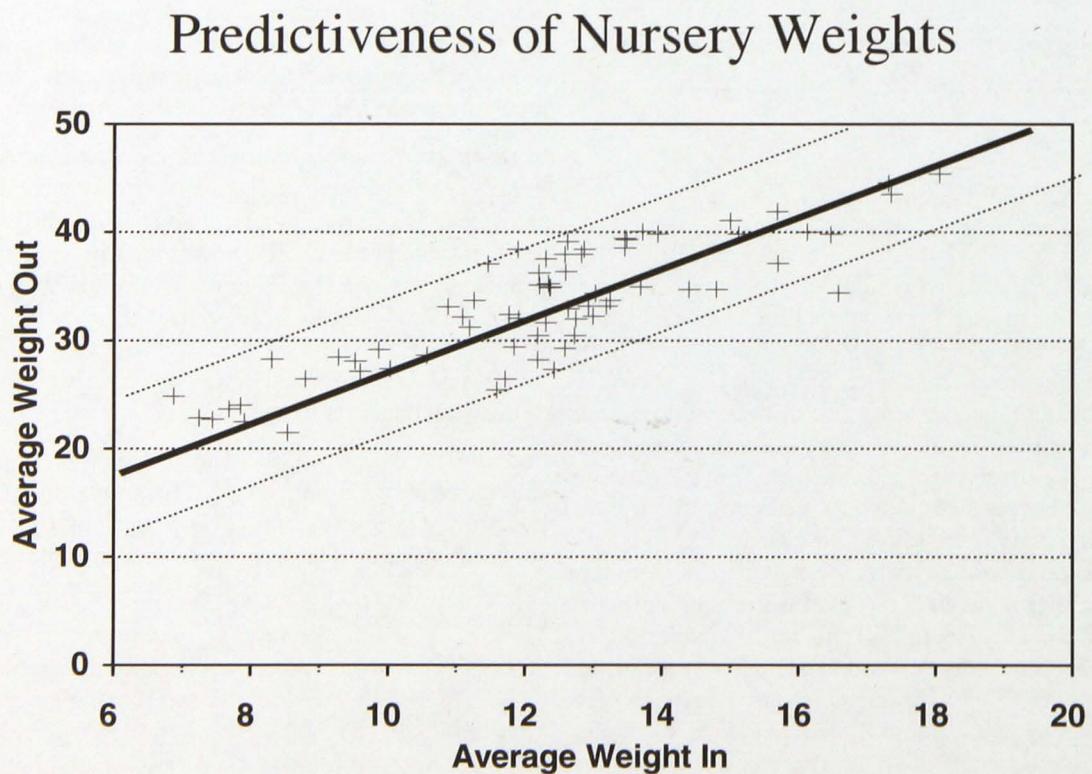


Figure 3: Distribution of weaned pig weights, 5 kg mean.

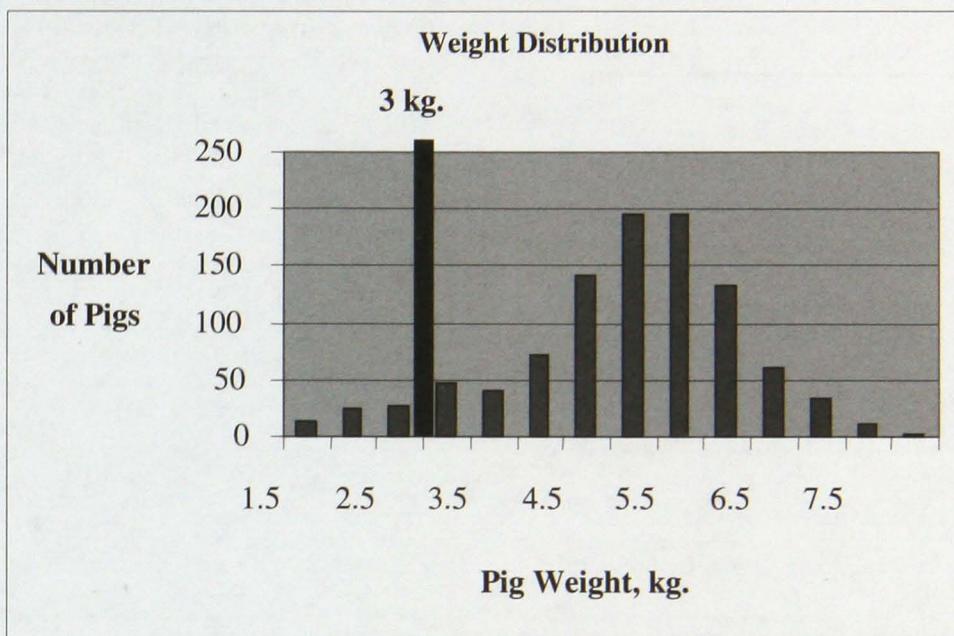
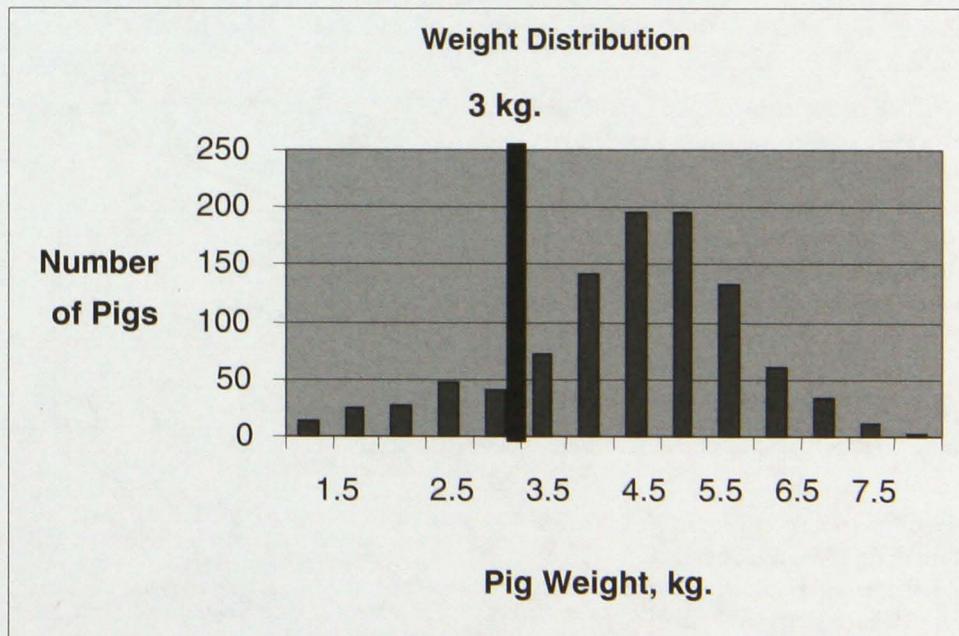


Figure 4: Distribution of weaned pig weights, 4 kg mean.



light pigs have a high mortality and are sold as lightweights. These data will help you decide whether more should be euthanized or just given special treatment.

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Appendix: AVMA General Position on Food Animals

This can be found at <http://www.avma.org/care4pets/polfood.htm>.

Disabled Livestock: The AVMA recommends that disabled livestock be handled humanely in all situations.

If an animal is down on the farm, the following procedures are recommended:

- If the animal is in extreme distress or the condition is obviously irreversible, the animal should be moved humanely and directly to a state or federally inspected slaughter plant, slaughtered on the farm if possible (with appropriate precautions taken to maintain the safety of the food product), or immediately and humanely euthanized.
- If the animal is not in extreme distress and continues to eat and drink, the producer should contact a veterinarian for assistance and provide food, water, appropriate shelter, and nursing care to keep the animal comfortable.
- If the condition involves a recent injury to a healthy animal, the animal should be shipped directly to a state or federally inspected slaughter plant or slaughtered on the farm (where state laws permit).
- Non-ambulatory animals should never be sent through intermediate marketing channels. They should be euthanized or shipped directly to a state or federally inspected slaughter plant.

If an animal is down at the market, the following procedures are recommended:

- If the animal is in extreme distress or the condition is obviously irreversible, the animal should be moved humanely and directly to a state or federally inspected slaughter plant or immediately and humanely euthanized. If immediate euthanasia is not possible, pain relief should be provided in the interim before euthanasia.

