Extension and Educational Programs and Materials for Small- and Medium-Sized Pork Operations

Donald G. Levis, PhD
Levis Worldwide Swine Consultancy
Professor Emeritus – Animal Science
University of Nebraska-Lincoln

Project Director Meeting at Miami, Florida
Prosperity for Small and Medium-Sized Farms and Rural Communities Programs
November 7-9, 2011

USDA United States Department of Agriculture National Institute of Food and Agriculture

University of Nebraska Lincoln

Small and medium-sized family farms have significant challenges when trying to establish and maintain a sustainable pork production enterprise.

- **Limited access to traditional markets**
- **Cost of hauling small number of pigs to market**
- **Minimal allocation of labor to pork operation**
- **Control of input cost (feed cost: >150% increase)**
- **Use of specialized production practices for niche market can lower level of production, i.e. no use of medication/antibiotics.**
- **Low reproductive performance of sow herd, i.e. pen-mating of sows and gilts**

Pig production is significantly different between small and large pork operations

Large farm method
Farrowing crate: 13 piglets

Small farm niche method
“Open” farrowing pen: 8 piglets

Pigs born live/Litter	Litters/Mated Sow/Year	Pigs born live/Year
13.0	2.36	30.68
8.0	2.00	16.00
	Difference	14.68

Fixed & operating costs have to be low on small pork operations.

Extension/educational materials and pork producer meetings were specifically designed for small and medium-sized family farms.

Ten modules were developed

- **Biosecurity and Herdsmanship**
- **Improving Alternative Swine Reproduction**
- **Improving Pre-weaning Survivability**
- **Alternative Swine Nutrition**
- **Alternative Pork Production & Growth Facilities**
- **Managing Alternative Swine Environments**
- **Improving Herd Health in Alternative Growth Environments**
- **Bedding and Manure Management**
- **Genetics and Meat Quality**
- **Niche Pork Systems**

Individual modules have the following items included:

- **DVD video discussing the subject of the module**
- **CD containing supportive materials**
  - **Written documents**
  - **Pictures**
  - **Etc.**
- **Powerpoint slide presentation that mirror the DVD video**
  - **Instructors (college, university, etc.) can either use the Powerpoint or DVD video to teach students and pork producers**

Examples of written documents

Nebraska Lincoln EXTENSION

Know how. Know now.

EC284

Pen-Mating Female Pigs: Problems and Possible Solutions

Donald G. Levis[1], Duane E. Reese[2], and Richard L. Ness[3]

Summary

The master control switch of a pork production enterprise is weaning day. Pork production managers have little or no control concerning when a weaned female will cycle or how long she will be in estrus after weaning. When females are pen-mated, the producer needs to use management procedures to: (1) prevent an excessive number of estrous females from expressing the standing response at the same time in the same pen, (2) ensure estrous females are bred at the proper time, (3) maintain an adequate level of fertility in boars, (4) evaluate boars for semen quality, (5) evaluate boars for level of sexual behavior and mating dexterity before and during the mating period, and (6) heat-check gestating females. Regardless of the boar-to-female ratio used or the management procedures implemented, there is no guarantee that all pen-mated females will be satisfactorily serviced during their first estrus after weaning. This publication discusses in detail the cause of problems that occur when pen-mating female pigs and provides possible solutions to the problems.

[1]Professor Emeritus, Department of Animal Science, University of Nebraska–Lincoln, Lincoln, NE 68583-0908;
[2]Extension Swine Specialist, Department of Animal Science, University of Nebraska–Lincoln, Lincoln, NE 68583-0908;
[3]Program Organizer-Farm Beginnings, Land Stewardship Project, 301 State Road, Suite 2, Montevideo, MN 56265

IANR

http://www.ianrpubs.unl.edu/epublic/live/ec284/build/ec284.pdf

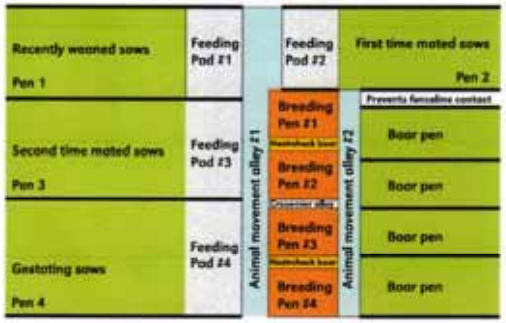
Nebraska Lincoln EXTENSION

Know how. Know now.

EC287

Hand-Mating Pigs on Small- and Medium-Sized Pork Operations (Design and Management Principles)

Donald G. Levis, Professor Emeritus



Summary

Most small- and medium-sized swine operations have a diversified farm; thus, they cannot devote total time and management to the swine enterprise. The use of hand-mating helps to increase reproductive performance of the sow herd. Hand-mating involves the placement of an individual estrous female in a small pen where she is mated to an individual boar with supervision by a person working in the breeding area. The main factors that make hand-mating easy, fast and efficient include: (1) location of boars, sows, and gilts, (2) procedure for estrous detection of sows and gilts, (3) procedure for moving animals, (4) design of alleyways, (5) design of breeding pens, (6) functionality of gates and gate latches, (7) design of boar housing area, (8) provision of an adequate number of working boars, (9) method of feeding sows, (10) efficient use of labor, (11) use of an excellent record keeping system, (12) control of extreme weather conditions on boars, sows, and gilts, and (13) facility design whereby estrous sows can be mated by a boar. Regardless of the number of sows in the herd, these factors apply when hand-mating sows and gilts.

This publication discusses these factors and provides designs for hand-mating sows either indoors or outdoors. In addition, the publication discusses the importance of minimizing stress of sows after mating.

IANR

http://www.ianrpubs.unl.edu/epublic/live/ec287/build/ec287.pdf

Small Farm Pork Producer Meetings

- **Niche sow breeding & gestation discussion group**
  - **Participation by internet and telephone**
  - **Four 90-minute sessions (20 people per session)**
  - **IA, MN, WA, CA, ID, KS, MI, CT, WI, NC**
- **Increasing efficiencies and reducing costs of producing niche pork**
  - **Niman Ranch pork producers**
  - **Trained Niman Ranch swine field agents (internet)**
- **Genetic selection and management for niche markets**
  - **Roundtable discussion in Nebraska**
    - **22 pork producers, 1 veterinarian, 1 feed company, 1 University of Nebraska swine specialist**

Small farm pork producer meetings

Virtual niche pork farm tours & discussion (Iowa State University & University of Nebraska)

- **Fundamentals when pen-mating sows and gilts**
- **Training young boars to successfully mate sows**
- **Principles to make hand-mating easy, fast and efficient**
- **Basic principles to implement an artificial insemination program on a small pork farm**
- **Stimulating puberty in replacement gilts**
- **Reducing pre-weaning death loss**
- **Cost effective nutrition for niche herds**
- **Effects of basic environmental factors on pigs**
- **Outdoor low cost production facilities**
- **Niche pork cost of production summary**

Marketing activities about availability of materials generated from this grant

- **National Pork Board Swine Educators Conference (2010 & 2011)**
  - **26 States represented**
  - **750 copies of below publications distributed at 2011 meeting**
    - **Pen-mating female pigs: Problems & possible solutions**
    - **Hand-mating pigs on small- and medium-sized pork operations (Design & Management Principles)**
- **Personal mailing of information to:**
  - **Swine veterinarians**
  - **Swine consultants**
  - **Universities and Community/Technical colleges**
  - **Popular press (national and international)**
- **USDA NIFA Family Farm Forum**

Worldwide Availability

Cooperative Extension and the U.S. Pork Center of Excellence have partnered with the National Pork Board, Pork Industry Handbook, National Swine Improvement Federation, and the American Association of Swine Veterinarians on content aggregation and development to create the robust Hogs, Pigs and Pork segment on e*X*tension.

The Extension materials generated in this grant will be a major contribution to the Niche Production domain of the U.S. Pork Center of Excellence.

http://www.extension.org/pages/32952/pork-information-community-page

Conclusions

- **Niche pork producers have learned effective:**
  - **Breeding management skills**
  - **Pre-weaning piglet survival management skills**
  - **Feed management skills**
  - **Methods to control ventilation & environment**
  - **Design and management of outdoor facilities**
- **Formation of “in person” discussion groups that have a small number of participants is an effective and enjoyable learning method for niche producers.**
- **The use of internet programs has been an effective method for reaching a large geographic area of small farm pork producers.**
- **Self-learning is available from these 10 modules.**