

Remodel swine buildings for a healthy environment

UNIVERSITY PARK — The decade of the 1980's will see many of the swine buildings built in the 1970's, especially farrowing and nursery units, remodeled to reduce environmental stress, which is an important key to profitable pig performance, says Daniel J. Meyer.

Meyer, a Penn State Extension Agricultural Engineer, says ventilation problems in farrowing and nursery units include short-circuiting, poor air distribution, drafts due to excessive air speeds (1/4 fps) and improper air inlet adjustments, excessive air flows in winter (high fuel costs), lack of adequate summer air flows, and high NH₃ levels in winter in buildings with over 10 days manure storage.

Corrections for ventilation problems include using smaller rooms for better air distribution, using preheated air from service alleys to reduce drafts, eliminating high speed air recirculation systems (advertise no stratification of air temperatures), and using heat exchangers to reduce fuel costs (single or multiple room types).

Meyer also cites pen or under floor slotted PVC pipes connected to fans where shallow or deep pits are used, increasing fan capacity in summer and/or more snout cooling and using front creepers where possible.

Manure system problems in farrowing and nursery units are getting manure away from the pigs and out of the buildings more frequently (10 days is maximum before gases develop). Corrections being utilized Meyer says include going to more open-type flooring materials, such as woven wire, and using narrower gutter widths so gutters fill faster and can be drained by gravity sooner.

Naturally ventilated growing and finishing buildings' air quality can best be improved in winter, spring and fall by using adjustable ridge openings of 6-24", depending on building roof type and pit location, insulating the buildings and using automatic door controls on the ridge openings to hold temperature more constant, Meyer adds. In summer, less heat stress can be achieved by using sprinkler systems, large 60" horizontal-type circulating fans (1

per 1000 sq. ft.), opening up the sidewalls (1 ft. per 10 ft. of building) and opening up the ridge.

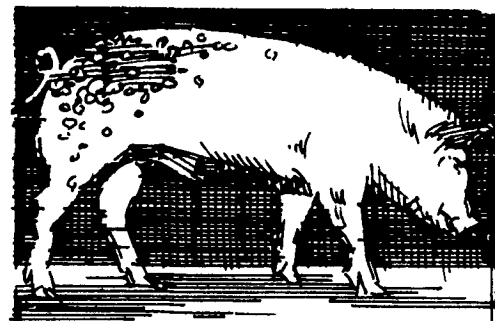
Five 8-1/2 x 11 size plans, which utilize the most up-to-date swine building ideas, are available free by writing to: 204 Agricultural Engineering Building, University Park, PA 16802. Three fact sheets and one magazine article reprint are also available which describe single bank ventilation systems (with heat exchanger), gravity drain gutters, remodeling buildings and ridge ventilation designs for finishing buildings for free. A list of these materials is given below:

8-1/2 x 11 planographs (free) - 726-396 Farrowing-Nursery Design (Solid Manure Handling) - 14 pens; 726-510 - 4-Rm. Farr.-Nurs. Unit W/Earth Tube Heat Exchanger; 726-511 - 6-Rm. Farr.-Nurs. Unit W/Multiple Room Heat Exchanger; 726-512 - 4-Rm. 900 Head Capacity Growing-Finishing Facility W/Scrapers; and 726-513 Gestation-Breeding Unit for 200 Sows (2 Rms.).

Agricultural Engineering Fact Sheets (free) - FS-60 - Single Bank Ventilation System for Multiple



Room Swine and Veal Calf Facilities (includes heat exchanger); FS-61 - Gravity Drain Gutters for Swine Manure Systems; and FS-62 - Remodeling Swine Buildings for a Healthier Environment. NWPS-8 - Swine Housing and Equipment Handbook - \$5.



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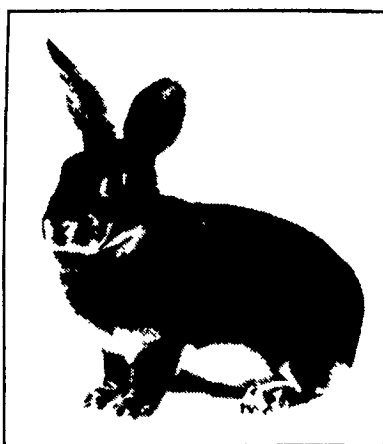
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