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One Answer to the Confinement Pig Problem

Arthur Nehring

A new design for an intensive hog finishing operation is presented. The "maze deconfinement" system consists of a series of 4-walled concrete pens arranged in a T-maze within a confinement building that is designed to utilize solar energy. In addition to low cost and efficient use of energy, the system has the following advantages: higher feed conversion rate; less fighting among and injuries to hogs; some freedom for hogs to exercise and explore; decreased labor. The system has been in use on the author's farm since the end of 1976.

Introduction

Scientists all over the world have shown that animals cannot be confined without undergoing changes in behavior. Animals become frustrated and aggression builds up with detrimental effects. Zoo curators have already discovered the negative effects of confinement within bare cages and walls. They found that they could not maintain wild animals in a healthy state and capable of reproduction in close confinement. They are now starting to provide environments for their animals which resemble the natural habitats as closely as possible. I believe that hogs, possessing some of the same genetic endowment as wild animals, also cannot tolerate being shut up in cage-like pens.

I have, therefore, developed a new system for finishing hogs which is a modification of present intensive confinement systems. The concept involves a simple adjustment in the layout of the pen walls, but this adjustment creates a radically different environment which can be called 'deconfinement.' The whole idea is to create a more 'natural' living space for the hogs without the frills and expense involved in producing such environments for zoo animals.

The Maze Deconfinement System

The system I have developed employs a simple maze that requires no more concrete than a unit of plain four-walled pens. (The patent for the design is pending.) Figure 1 shows the basic unit and the dimensions. This design is, in fact, a going hog finishing operation. It was poured into concrete in 1976 and has been in use since December of that year. It has been so successful that we have now built two more like it. The building itself makes maximum use of sunshine in winter and air and shade in summer.

The building is both a passive and active solar collector. The whole south side is one big window of translucent plastic. In addition, all the concrete partitions are tinted coal black, making the entire mass of concrete inside a solar collector. The sun floods the entire inside of the building with sunshine for the whole day. The hogs enjoy basking in the sun and, at the same time, the heated concrete in the building creates a reservoir of heat for the night. Automated louvers controlled by temperature sensors regulate the ventilation and temperature. Heavy insulation with an R factor of 50 is placed in the side walls, and insulation with an R factor of 47 in the ceiling. The south walls are completely automated, insulated and hinged at

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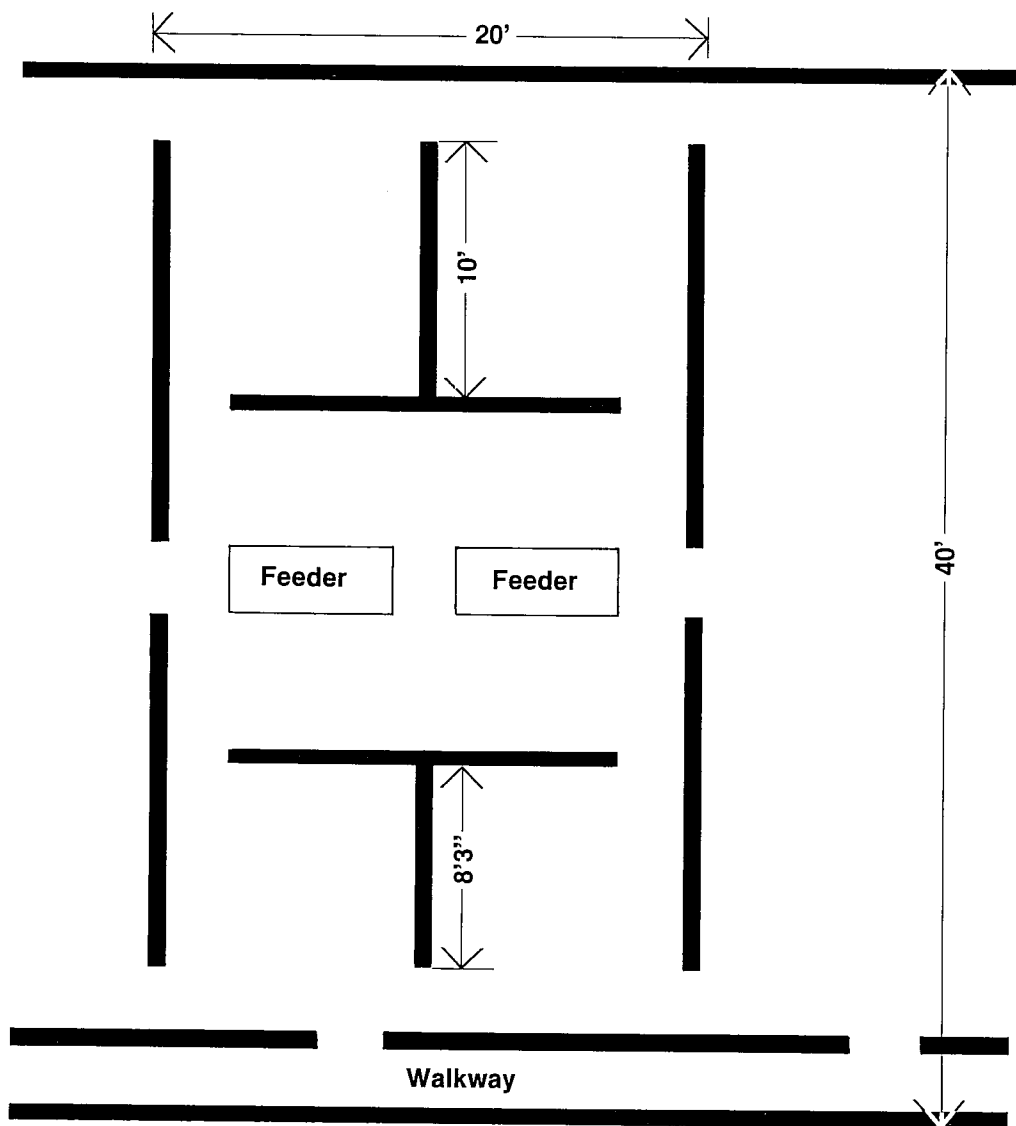


Figure 1 Design of one unit of the maze deconfinement system. The openings are set at 2'6" or 2'3".

the top and rise to the ceiling with the rising of the sun and swing down tight against the translucent plastic side of the building when the sun sets.

The building was designed so that the winter sun reaches completely to the back, but the summer sun leaves the whole inside in the shade. Four feet of the entire south side and three and a half feet of the entire north side open up in summer, insuring free air movement through the building. At the same time the particular angle of the slope of the roof and the vent at the top provide free escape of the animals' body heat on hot summer days (Fig. 2). The dimensions of the structure are 330 ft x 40 ft, with the south side being 20 feet high and the north side 7. During the hottest summer days there was no danger of hogs becoming too hot because they had the same kind of shade and air movement as if they were lying under a shade

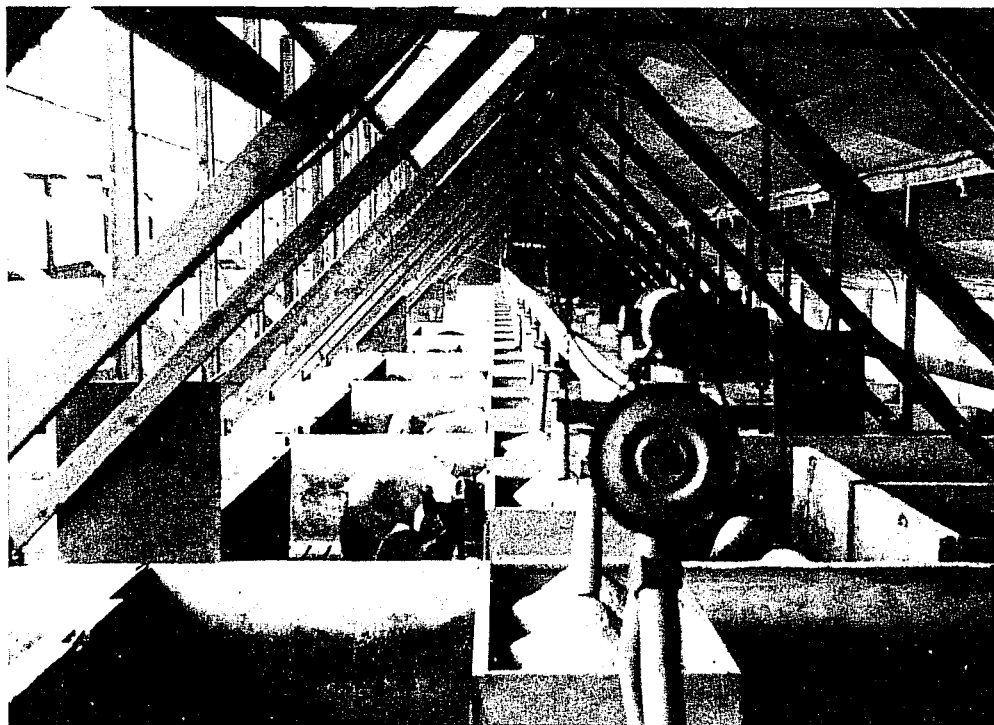


Figure 2 Sloped, ventilated roof for control of body heat.

tree outside. The design of the building makes forced air ventilation superfluous. The automatically controlled vents at the peak of the south wall regulate the air flow according to weather conditions.

The Results

The deconfinement system has been a success in a number of ways. Not only is the feed conversion rate better than in the confinement units, but there is less fighting and fewer injuries. For example, we customarily combine animals from four or more pens, depending on the size of the herd of nursery pigs coming into the finishing unit, but have little or no fighting. When selling, we have experimented by putting pigs from different deconfinement groups together and have not seen any fighting. This cannot be done with confinement pigs.

The deconfinement system has other advantages. It automatically 'house-breaks' the pigs since the particular design has the effect of inspiring the pigs to keep the nooks created by the tees clean. You can walk the length of the building day after day without ever finding a messed up nook. This also means that deconfinement requires a minimum of labor. Automated equipment coupled with no need to scrape makes you feel like a bystander—like it was working for you rather than you working in it.

Discussion

I believe that the deconfinement system works because the pigs do not have the feeling of being shut in: They can run through the openings all day without ever

coming to an end of openings to go through (Fig. 3). The maze thus provides the pig with no end to the new horizons to be explored and a whole new life around the very next corner. In confinement, the pigs know in a moment when they are caged and this leads to frustration, aggression and stress.

Another advantage is that the maze allows a pig to escape from the normal level of aggression. When I experimented by opening whole rows of pens containing hundreds of pigs of every size, there was hardly any fighting. I saw one pig chasing another, but the pig being chased ran around the corner. The pig doing the chasing stopped and reacted with evident bewilderment.

I believe this is due to a pig's inability to remember anything which has moved out of its sight.

I also believe that confinement flies in the face of the laws of biological behavior. A confined animal feels trapped and can even be dangerous. Frustration and aggression is a set sequence of animal response to confinement. It is nature's way of arousing an animal to escape from a trap that may threaten its survival. Further, confinement frustrates a pig's exploratory drive and the need to exercise that is as necessary as eating and drinking.

Deconfinement is the solution to confinement problems. The maze system has been built and is performing gratifyingly well. The laws of nature are deferred to rather than defied. Specifically, pigs are given the freedom to run and poke around within the same area as confinement, thus creating an illusion of wide open spaces. At the same time the system uses no complicated trappings. As you can see by the illustration the design is starkly simple and conservative in its use of materials.

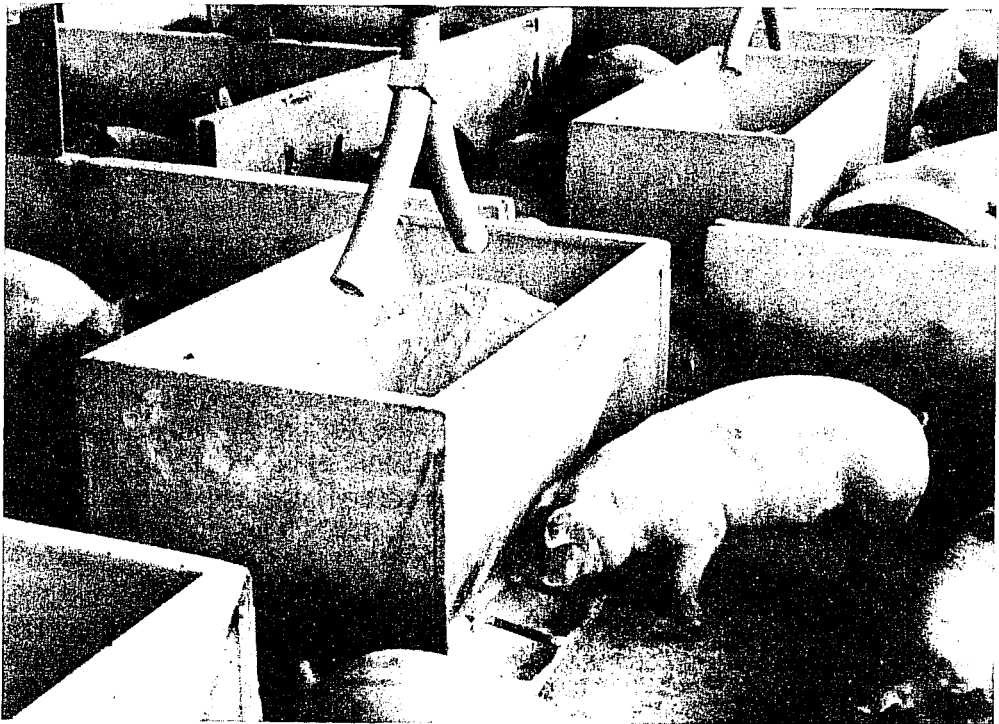


Figure 3 Pigs travelling through maze.