



Dwight Ault moves from a conventional confinement hog operation to using hoop structures for finishing hogs. The change significantly reduces animal stress, improves working conditions and increases profit for this southeastern Minnesota farm.

Letting Pigs Be Pigs: Building a Better Hog Operation

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State-of-the-Art Thirty Years Ago

Dwight Ault purchased his farm in 1970. The farm had an old 40 by 60-foot dairy barn on the premises that Dwight converted into a farrowing barn for hogs. To complete the hog finishing cycle, he built a 40 by 80-foot insulated confinement finishing barn, complete with slats and a good manure pit. "It was state-of-the-art at the time," says Dwight.

The finishing barn did what it was supposed to do, but after 30 years of use it needed repair. The concrete slats were breaking down, the building needed to be rewired and the maintenance was just getting to be a nightmare.

Swedish Pigs and Open Pens

Around the same time that the barn needed extensive repairs, Dwight decided that he wanted to reconsider the way he raised hogs. He had worked on a committee with animal welfare activist Marlene Halverson for 12 years, and those twelve years of discussion and conversation had planted some ideas about new ways to run his operation. He also noticed some behaviors that seemed to be the result of stress. Says Dwight, "It was really unnerving to go in the confinement barn and hear pigs fighting and see blood splattered all over the place from tail biting or ear biting."

Dwight and his wife were invited to visit Sweden to see how hogs are raised in an animal-friendly, deep-bedded system. This style of raising pigs considers the social needs of the animals, providing something for them to

chew on and allowing them to move around and interact with each other. At the time, Dwight thought the Swedish system a bit too technical for him, but he did change the way he farrowed pigs by replacing the crates with open pens.

Hoop Houses: Simple, Inexpensive and Flexible

Dwight began considering hoop structures for finishing hogs in 1996, after attending a workshop put on by Iowa State. Hoop structures are buildings that look a lot like greenhouses. Tubular arches, or hoops, are placed on top of four to six foot wooden side walls. The hoops are covered with an opaque, UV-resistant, polyvinyl tarp. The end walls have tarps that can be raised or lowered to accommodate changes in weather conditions.

Most hoop structures have a fourth of the floor covered with concrete for the feeders and waterers. The rest is earthen

put up. Dwight put up his first 30 by 84-foot hoop structure in 1997, which accommodates between 180 and 230 pigs. The structure was ready for hogs only two weeks after he decided to build it. He thinks farmers can do the building themselves and save even more on construction, because the skills required are not as sophisticated as those needed to build confinement barns.

Repeating a Good Thing

He liked the hoop house so well he put up another one three years later, and is now in the process of modifying his old confinement finishing barn to operate like a hoop structure so he can finish all the pigs his 300 sows produce.

"Hoop structures cost less per pig to purchase and build, but do require a little more work," according to Dwight. One area that needs a different approach is environmental management prac-

"THE REAL VALUE OF HOOP STRUCTURES IS THE MENTAL & PHYSICAL ENVIRONMENT THE ANIMALS HAVE TO LIVE IN, AND THE FARMER HAS TO WORK IN."

floor covered with straw or crop residue, and bedding is added as needed.

The Agriculture Engineers Digest (AED 41), published in 1997 by the Midwest Plan Service, Iowa State University, lists hoop construction cost per pig at \$125 less than a confinement system.

Hoop structures are also fast to

tices. The Midwest Plan Service says that farmers who convert to hoop structures need to change from warm to cold barn air management, where body heat rather than heaters keep the animals warm. The key to a successful cold barn is a ventilation system that allows enough air to escape to remove excess moisture, but not enough to chill the hogs.

Are Hoop Houses for You? Chart #1: Hoop Houses v. Conventional

Use this comparison to decide if hoop structures will work for your hog operation.

	Confinement	Hoop
Building costs (investments) per unit	\$64.29	\$19.64
Fixed costs per unit	10.18	5.36
Feed	43.40	46.20
Labor	1.58	3.00
Fixed and operating costs	\$55.16	\$54.56

This table, which was excerpted from the Midwest Plan Service document *Agricultural Engineers Digest*, indicates that the total cost of producing hogs is about the same in both operations. The big difference between the two is in building costs. The investment for a hoop structure is figured at 10 years, and confinement units at 15 years. Your figures may vary. Building investment is the costs of building and interior systems (feed, water, ventilation, manure, etc.) needed per unit of production.

If you like what you see here, the complete comparison is available for \$4 plus \$1 postage from: Midwest Plan Service's *Agriculture Engineers Digest* (AED 41), by Michael C. Brumm, Jay D. Harmon, Mark C. Honeyman, James B. Kliebenstein; copyright 1997 by Iowa State University, Ames, Iowa 50011-3080, (515-294-4337).

Good ventilation is also necessary in warm weather in order to allow heat to escape while still providing protection from the sun.

The need for bedding is another major consideration when using hoop structures. Most operators change the bedding when a new group of hogs are added, and stockpile it until it can be spread on the fields. Dwight needed to replace his honey wagon with a manure spreader able to handle solid waste, but he already had both a front-end loader and tractor to load and haul the material.

An advantage of the need for bedding, according to Dwight, is that it, "can help diversify your farming operation. The need for bedding may encourage growing more forage or small grain crops." Products that would normally go to waste can be used for bedding. Corn and bean stover are commonly used, and poor quality alfalfa is also a good

source for bedding.

Dwight thinks that the system allows him more flexibility in his management practices, and notes that, "You can mix pigs of different sizes with more success than in a confinement unit."

Letting Pigs Be Pigs

"There are a lot of other unidentified advantages with hoop structures that can't always be measured in dollars," says Dwight, "The real value of hoop structures for hogs is the mental and physical environment the animals have to live in, and the farmer has to work in."

Dwight thinks there is a lot less stress on his hogs now that they are in a hoop structure. He notes that, "The pigs don't intimidate each other as much because they have something to chew on and keep busy and occupied." Dwight doesn't even clip tails—something he would never even consider if the animals were in confinement. Dwight likes that

hoop structures "let pigs act like pigs."

The Up Side and the Down Side

The *Pork Industry Handbook* (PIH 138) lists these advantages and disadvantages. Some will be more important than others, depending on individual needs and resources.

Hoop structures are an advantage if you:

- Want facilities with versatility to match a rapidly changing swine industry.
- Need a short-term structure that can be removed after use or that can be adapted for other uses.
- Want to keep fixed costs down.
- Have limited capital.
- Are not interested in accepting the additional financial risk associated with a large capital investment.

- Prefer to handle solid manure and have the capability to do so.
- Want a working environment with lower levels of manure gases.
- Have the equipment and land resources to harvest crop residue for bedding.
- Prefer a system of production that is less automated and requires more specialized husbandry skills.
- Believes pigs should be reared in an environment with bedding.
- Need a structure built quickly.

These are some disadvantages:

- More difficult to observe

individual animals if they are in a large group.

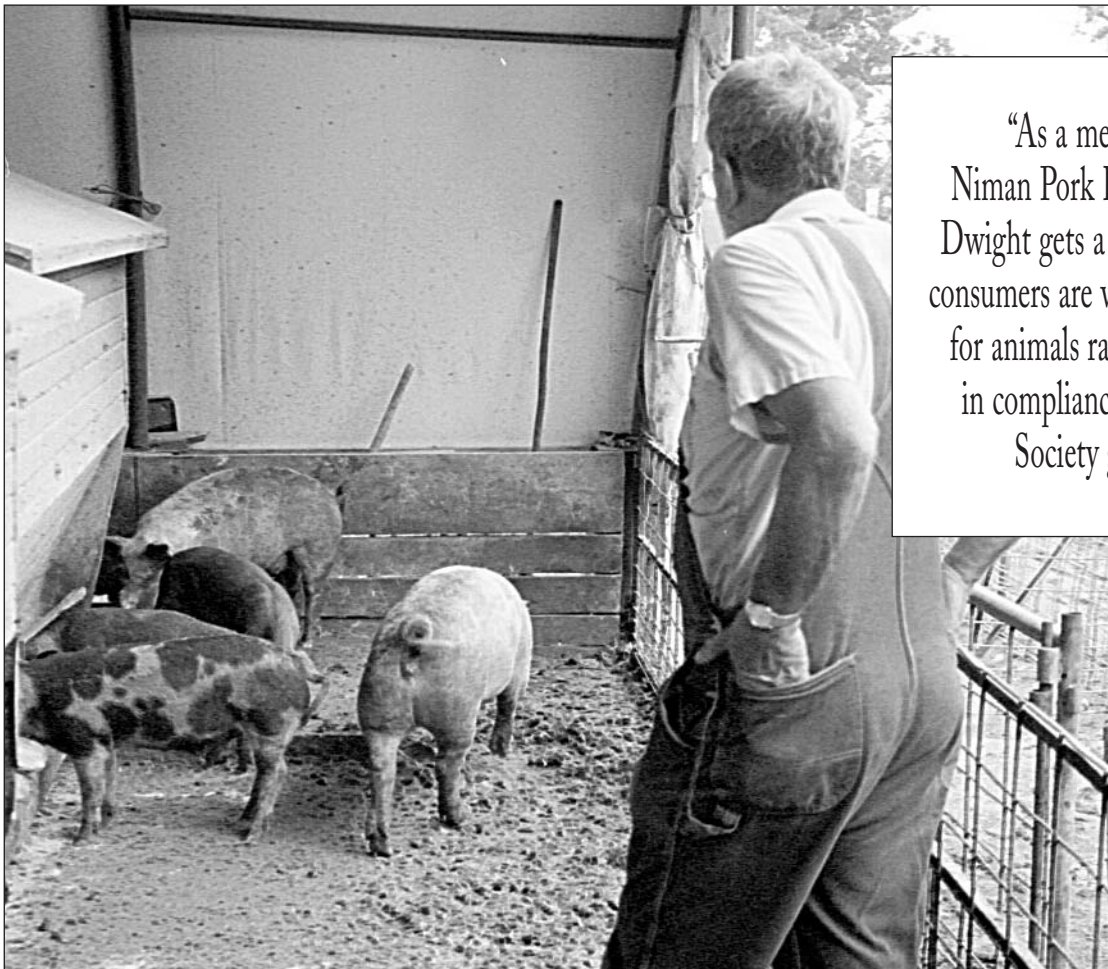
- Hoop pigs have less feed efficiency.
- Less favorable labor environment during inclement weather.
- Hoop pigs have slightly less lean than confinement pigs.
- More labor is needed with hoop structures.
- Hoops need large amounts of bedding.
- Since hoops are open, birds may carry diseases in.

Enjoying Pigs and Profits

By raising hogs in open pens and using hoop structures, Dwight's more humane produc-

tion practices bring in an extra four to five dollars premium per cwt. for his hogs—which more than offsets the extra cost of feed and labor. As a member of the Niman Pork Ranch Company, he gets a premium because consumers are willing to pay more for animals raised and harvested in compliance with Humane Society guidelines.

Dwight sums it up this way, “If you love technology and have to have everything automatic, you won’t like hoop structures. If you enjoy hogs and like to see them enjoy life, you’ll like hoop structures for hogs.”



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