



# What Hog System for You?

by Kenneth R. Krause and Raymond R. Beneke

**S**OME CHANGES are taking place in midwestern hog production. They're resulting from changes in nutrition, housing and sanitation practices and knowledge. Where once you chose mainly between a one-litter or two-litter system, producers now are successfully using four-, five- and even six-litter systems. Which would be best for you? How can you decide?

You could merely watch your friends and neighbors to see what works best for them. But the best system for your neighbor may not be the best one for you. What about the old "trial-and-error" method? Simply try one system, and, if it doesn't work out, try another. The trouble here is that an error can be costly. There are, on the other hand, some definite guides you can use in advance to determine fairly well whether one system or another will work.

KENNETH R. KRAUSE is a graduate assistant in agricultural economics, and RAYMOND R. BENEKE is professor of economics.

Considered in total, our research at Iowa State indicates that no one of the systems studied has any great advantage over another. But for individual producers, the advantages of the different systems shift and become more meaningful. The shifts occur because of differences in funds available, in the labor supply and its distribution, in the skills of the manager and in the facilities already on the farm.

Our research suggests very strongly that the best system for you will be the one which best fits in with your situation, considering these factors, and that this is the best single guide you can use. How can you tell? Let's look at the systems we studied.

## The Systems . . .

**One-Litter System:** You'd commonly farrow your hogs in late May or early June—usually on pasture, so that the pigs will make maximum use of it. Your shoats typically would glean cornfields

in the fall and be brought into winter shelter late in the fall. Your marketings would be in January or early February.

**Two-Litter System:** This system has been widely used in the Corn Belt for many years. You'd usually farrow in February and early March, again in August or September, and probably market your sows after they've farrowed two litters. You'd most likely save gilts from the spring crop for breeding purposes, though some producers prefer fall-farrowed gilts. You'd aim your spring-farrowed crop at the late summer market—before the sharp seasonal price break typically occurs—and the fall pigs at the late February and March market.

**Four-Litter System:** You'd farrow sows four times each year with this system. February, May, September and December farrowing is a typical pattern, and you'd keep two sets of sows.

**Five-Litter System:** From the standpoint of timing, this is a modification of the two-litter system. You'd farrow three sets of sows a few weeks apart in December, January and February—using the same farrowing facilities for all three. You'd farrow two groups of sows again in the latter part of July or August. Your timing of farrowings and marketings, thus, would be similar to the two-litter system. But you'd use your farrowing facilities much more intensively. The December and January litters would be raised in confinement; the February litter could go on pasture in April. Fall-farrowed litters could be kept on pasture and in

the cornfields until November and then finished on concrete drylot.

**Six-Litter System:** This is a virtually continuous program. You'd typically raise all hogs in confinement, with some of them marketed during nearly every month of the year.

### The Costs . . .

Without going into detail, we budgeted the costs of raising hogs under each of these five systems on a 1958 basis to represent the annual costs that would be incurred if the producer had no facilities and started out to construct housing and to buy equipment for each system. Here are the essential findings of our cost analysis:

- Cost differences among the systems were not great.

- There's some economy in producing hogs in large numbers, though the cost differences between 200 and 400 head per year aren't great. We budgeted the cost on up to 1,000 head but found the cost advantage beyond 400 per year to be slight. The reason: Feed costs per 100 pounds of gain make up a large percentage—about 80 percent—of the total cost of producing hogs. And the feed costs per hog remain fairly constant as numbers increase. There are some economies in labor use with increased numbers of hogs. But labor costs make up only 7-15 percent of the total cost of pork production, depending on the size and type of operation.

- Producers following the one- and two-litter systems generally had the highest feed costs—mainly because they fed more pounds of feed to produce 100 pounds of gain than did producers with other systems. The reason: Producers using the one-litter system, in particular, typically were larger-scale operators, with heavy competition for their managerial attention from other parts of their farm business. So they didn't pay as much attention to their hogs as did other operators.

- When we compared the costs on the basis of equal feed conversion rates for each system, the cost differences were insignificant.

This means that the cost advantage of the four-, five- and six-litter systems arises mainly from more efficient feed conversion achieved by the producers using these systems.

### Hogs Compete . . .

The cost information just given doesn't give you much help in choosing among these systems. What else is important? One factor is the extent to which a system would take advantage of seasonal price trends. But remember that your hog enterprise is only a part of your farm business. And this is where your appraisal of your own situation begins to count in choosing a hog system. For maximum returns for your farm business as a whole, your labor, management skills, funds, facilities and equipment need to be used where the entire bundle yields the greatest returns.

Thus, your hog production must compete for these returns along with corn, soybeans, beef cattle, dairying, etc. And here's where you can couple your knowledge of your own farm operation directly to our research results in considering the hog system best fitted to you and your farm business. Here are the main conclusions from our research:

- *The multiple-farrowing systems*, with four to six farrowings distributed more or less evenly throughout the year, won't fit well into a farm business where there's heavy pressure on the labor and capital supply. In this case, your farrowings inevitably will bump into other pressing work. This is a major drawback if your labor situation is tight. It's not serious if you don't have this conflict. If your total operation is relatively small, the more or less constant demand for labor throughout the year for these systems may provide an excellent opportunity to make productive use of your labor.

- *The one-litter system*, with June farrowings, will compete heavily for labor at corn cultivation and haying. But if you have extra family or other help during the summer months—even though labor is tight during the rest of the year—this system permits

raising a large volume of hogs with less labor per litter. If you have barns or sheds available for housing, this system permits a large volume with limited funds and investment.

- *The five-litter system* would seem to work out well on farms with a fairly stable labor supply throughout the year, even though hogs must compete with other operations for labor, capital and feed. With three farrowings bunched in December, January and February, and two later in July and August, the major labor peaks in hog production don't conflict heavily with other farm work. Remember that this is a close modification of the two-litter system—but that farrowing facilities are used more intensively.

*One word of caution* on this system: It applies also to the other systems but, perhaps, to a lesser extent. Our research analyses are based on the performance of skilled hog producers. Even the best operators have some difficulties with disease problems and the like. But usually they have the know-how and willingness to give proper attention to the many details needed to keep these problems under control.

### Other Help . . .

So far we've talked about the relative cost differences and how the various systems will most likely fit in with other farm operations. Here now are some other factors which may be helpful to you.

**Labor Requirements:** We've indicated generally how the labor requirements for these systems are distributed throughout the year. And we've pointed out where the labor requirements for hogs are most likely to conflict with others. But you may also be interested in the total amount of labor you must put into raising a litter of pigs—regardless of when it comes during the year.

Estimating the labor required to produce hogs under these systems is difficult. This is mainly because of the differences in the speed at which people work and the differences in the amount and

type of labor-saving equipment they have to work with.

So, instead of trying to give you an average, here are our best estimates of the labor requirements per litter for typical well-organized operations. These figures will give a relative picture which you can interpret in terms of your own ability. Here are our estimates of the time required to raise each litter—including the time spent with the breeding herd—with the one-litter system:

| No. of litters | Hours per litter |
|----------------|------------------|
| 8 .....        | 25               |
| 15 .....       | 18               |
| 25 .....       | 14               |
| 40 .....       | 10               |

Notice that the labor required per litter decreases substantially as the herd size increases. It doesn't take twice as much time to look after 200 hogs as it does 100 hogs.

Suppose you plan to produce 40 litters per year. With the one-litter system, you'd get full advantages of these economies of size. With the two-litter system, you'd be sacrificing some of the efficiency in labor. And, with multiple-farrowing—the three-, four-, five- and six-litter systems—the size of each farrowing would be even smaller if you still produced the total of 40 litters per year.

Thus, from the standpoint of *labor required per litter*, you'd sacrifice some labor efficiency with multiple farrowings as compared with the one- or two-litter systems—unless this sacrifice is offset with labor-saving equipment.

**Buildings, Facilities:** The buildings and facilities already on your farm are an important factor in choosing a hog system. Any additional investment needed to establish one of these systems depends heavily on what you already have on your farm.

The one-litter program lends itself most readily to using open sheds and converted barns, with a minimum of additional investment. Such buildings can also be reworked for multiple farrowings. But they can't be converted as cheaply, since more alterations are necessary to provide farrowing quarters (and concrete if you plan to raise hogs in confine-

ment). Even though the one-litter system uses the buildings only once a year, the building costs per litter of pork produced may be less when existing buildings are used with little alteration than with well-equipped multiple-farrowing arrangements.

**Flexibility:** The flexibility of a prospective investment often is fully as important as the size of the investment. One useful measure of the flexibility of an investment is the ability to get your capital out of an enterprise if your own situation or economic conditions change.

Systems made up largely of relatively shortlived portable equipment are the most flexible from this standpoint. If necessary they can be sold when only partly depreciated. Confinement systems—using concrete and highly specialized permanent farrowing houses—on the other hand, commit you to hog production over a number of years if you're to get full benefit from the heavy investment.

Another test of flexibility is the extent to which you can convert your investment to another use if liquidation isn't feasible. How cheaply or effectively, for example, can you convert housing using concrete for hogs so that it can be used for grain storage, cattle feeding or dairying? This question can best be answered by considering your particular farm. In general, however, multiple-farrowing and confinement facilities can be expected to be less adaptable than sheds or barns.

**Prices:** How do these systems stack up from the standpoint of taking advantage of seasonal price peaks?

The one-litter system—because it's timed to achieve low-cost production—involves a sacrifice on the price side. Two factors are involved: Hogs are marketed in January and February and are sold at relatively heavy weights to avoid the usual November-December low. During the last 5 years, hogs produced with the one-litter system would have sold for \$1.10 to \$1.40 less than the sea-

sonal average, depending on when they were sold in January or February.

The two-litter system—with February and September farrowings—on the other hand, would have given prices 75 cents to \$1 above the seasonal average. And the five-litter system—with farrowings squeezed together in January and February and again in August and September—would have enjoyed a price advantage almost as great.

Four to six farrowings, spaced more or less evenly throughout the year, would have yielded essentially the seasonal average price. The only price advantage of multiple farrowing, thus, is stability. The multiple-litter systems sacrifice the chance of hitting a good market with all hogs sold. But they also avoid the possibility of selling all hogs when prices are unusually low.

**Management:** High levels of management are desirable with any hog program. But some systems, particularly the one-litter program, suffer less from a lack of managerial attention than others. Sows are farrowed on pasture at a time of year when close attention during farrowing is less critical than at other times. Disease control also is less difficult because of the long spread between farrowing periods.

Multiple or continuous farrowing systems, especially when combined with confinement production, call for a higher level of skill. Sanitation becomes an all-important problem, and making sure that sows are bred to farrow on schedule (to avoid irregular farrowings that cause gaps, followed by overcrowding of facilities) also is a major problem.

In a following article, we'll provide more information on the management angle for these systems. In this article, our main purpose has been to point out and emphasize the importance of choosing a system that will fit in with the rest of your farming operations. In the short run, we suggest that you choose on this basis rather than to have your newly chosen hog system "blow up" or to have to try and adapt your other operations to it!