

Swine Light Requirements Vary

UNIVERSITY PARK (Centre Co.) — Just how the topic of light fits into hog production isn't well understood. Most agree it can affect performance. But to date we lack standards on how many hours of light are needed or what intensity is best.

Kenneth B. Kephart, extension swine specialist, Department of Dairy and Animal Science, Penn State took a look at the research conducted over the past 30 years. Here's what he found.

Growing-Finishing Hogs

Given the choice, pigs will spend about 18 hours a day in the dark, Canadian studies show. Other studies seem to parallel this finding. When pigs are raised in complete darkness, weight gains are depressed. And conversely, providing more than 6 to 8 hours of light for growing-finishing hogs is of no value.

For many producers the 8-hour requirement is easy, since most hogs are grown in modified open front facilities. But for those in totally enclosed buildings, leaving the lights on during working hours makes good sense.

Developing Gilts

One thing is pretty certain regarding gilts — those in confinement won't cycle as early as those outside. Lots of studies show that but we don't know why. Light and day-length may be part of it, but other factors seem to be involved as well.

If you're committed to confinement, then what? Light isn't the whole answer but keeping gilts out of the dark will help. For example, experiments at Iowa State and in Canada show that gilts in total darkness will be slower coming into heat than those getting artificial light or natural light through windows.

How many hours of light are needed? Experiments point to 6 to 8 hours as an absolute minimum. And studies at Purdue make a 15-hour schedule look pretty good — especially during late summer and fall when day-length is waning. From August to January, gilts getting 15 hours of light (8 hrs natural, 7 hrs artificial) cycled an average of 20 days earlier than those on natural light alone.

Developing Boars

Light does influence the time it takes for boars to reach sexual maturity. But the details are a little different from what we described for the gilts. With the male, it doesn't seem to matter whether days are getting longer or shorter. If the day-length is short, supplemental light will accelerate mating behavior. Studies at Purdue show that 15 hours of light (8 hrs natural, 7 hrs artificial) will increase libido scores in young boars.

Unfortunately these boar experiments are a little misleading. For one thing, only crossbred boars were used. Many commercial producers use purebred boars. Sec-

ondly, libido scores were taken from about 5 to 8 months of age — too early to be using boars in the first place.

Lactating Sows

Only a few studies have measured the effect of light on lactation. But the results are striking. For example at Kansas State, sows getting supplemental light weaned litters that were 6 pounds heavier at 25 days than those exposed to lights only at feeding time. And by 5 days post weaning, 83 percent of the sows in the lighted group were in heat compared to only 68 percent in the dark group.

In a University of Georgia experiment, sows receiving 16 hours of light weaned .9 more pigs and litters that were 10 pounds heavier at three weeks compared to sows on eight hours of light. Survival of all pigs weighing 3 pounds and under at birth was improved.

How Does It Work?

We haven't answered that one yet. Study after study shows that light has no influence on the hormones crucial to reproduction. About all we know is that the more time a pig spends in the dark, the heavier his pineal gland becomes. This is a tiny structure in the brain that starts out as a third eye in the fetus, but ends up as a pineal with nerve connections to the functional eyes.

Recommendations

We don't have all the answers, but here are some suggestions.

How Long?

1. Growing-finishing hogs. If you have hogs in dark confinement buildings, lights should be on a minimum of 8 hours a day.

2. Developing gilts. From about August until January, gilts cycle earlier with 16 hours of light. If you have ample light coming through windows or curtains the rest of the year, that will be adequate. If gilts are housed with the other market hogs, then the finishing floor should have 16 hours of light during late summer and fall.

3. Developing boars. Sixteen hours seem to provide the best response for very young boars. But as long as boars are getting 8 hours throughout the growth period, that will probably be adequate for practical situations.

4. Lactating sows. Provide 16 hours.

How Bright?

Light coming from fixtures covered with dust and fly specs will

not be enough. Light coming through fan blades will not be enough. Light coming from heat lamps in the farrowing house will not be enough. Most experiments indicate 300 to 400 lux (27-37 foot candles) is optimum. To be sure what you have, measure the intensity about one foot off the floor. Otherwise, a rough rule of thumb is that three clean 100-watt incandescent bulbs will provide about 300 lux over a 75 square foot area.

Two 40-watt fluorescent bulbs will do about the same.

And keep in mind that lights in the farrowing house should be installed over or behind the sows head so the front of the crate doesn't create an obstruction.

What kind?

It doesn't matter. Incandescent or fluorescent will work equally as well. But remember, fluorescent lights provide more light, watt for watt, than incandescent.



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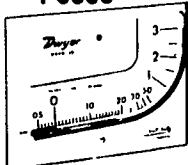
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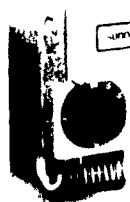
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