

# Vitamic C Helps Boars Beat The Heat

PRINCETON, N.J. — When temperatures rise, conception rates fall. It's a fact of life taken for granted on hog farms around the country.

But research suggests that supplementing boar rations with vitamin C may help minimize the typical summer slump, said University of Kentucky animal scientist Dr. Merlin Lindemann.

The reason: the vitamin appears to help protect sperm from heat-related damage.

Because swine synthesize vitamin C in the liver, the industry hasn't worried much about the nutrient, Lindemann points out. In fact, the National Research Council (NRC) doesn't even estimate a dietary vitamin C requirement for swine.

But the question is whether hogs produce enough vitamin C to meet their needs during hot weather and other stress conditions, especially given the high levels of

production expected on today's farms.

"There's been quite a bit of work in other species that manufacture vitamin C showing a response to supplementation during periods of heat stress," Lindemann said. "The swine studies to date have been limited, but they do appear very favorable and fit in with all the concepts involved in vitamin C metabolism. If you put them together with the work in other species, they seem to indicate that breeding boars, especially in situations of high heat stress, might be a very responsive animal to supplementation."

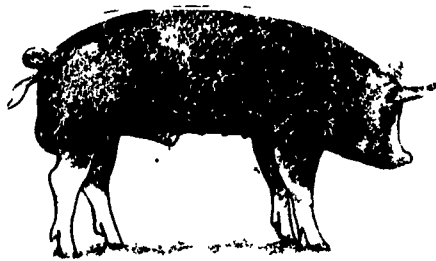
For instance, Taiwanese researchers found that sperm count fell by a little over 25 percent in unsupplemented boars from April into June and remained depressed at that level through October. The drop was halved to about 12 percent in boars whose ration was

supplemented to provide 300 milligrams of vitamin C per head daily.

"The researchers also found more abnormalities in the unsupplemented boars' sperm; these cumulative effects on the semen/sperm quality could potentially be related to greater returns to estrus or lower conception rates in sows that were bred to those boars," Lindemann said. "All those measures were responsive to vitamin C supplementation."

Scientists still don't know exactly why vitamin C supplementation seems to influence sperm counts and quality during summer heat, but Lindemann points out that the testes normally contain a relatively high concentration of vitamin C. In addition, human research at the University of California/Berkeley suggests that increased concentrations of vitamin C, which is an antioxidant, help protect the sperm from damage by highly reactive oxygen-derived substances, which are natural but often harmful byproducts of metabolism.

One of the challenges when feeding vitamin C, Lindemann points out, is the instability of the vitamin. To offset that, he recommends checking to make sure any vitamin C product used in swine rations is a stabilized form.



# Here Are Strategies To Manage Compaction

GOLDEN VALLEY, Minn. — Aside from filling in ruts, there is little producers can do this spring to correct deeply compacted fields, said Jim Graeber, Northrup King agronomist for Illinois.

Deep tillage at this time usually results in yield losses. During a dry spring, tillage carries an additional risk as it reduces already limited soil moisture.

Graeber acknowledges that winter temperature swings can help reduce compaction. This year's light snow cover, combined with extreme cold temperatures, drove frost deep into the soil, helping to break up compacted layers. Unfortunately, it may take several years of these freezing and thawing cycles to correct deep compaction problems.

Badly compacted fields are not good candidates for first-year no-

till, Graeber warns. Instead, growers should follow a conventional tillage program for one more year, then deep-till the field in the fall. If producers must no-till a compacted field, the Northrup King agronomist recommends planting soybeans. Soybeans, which have a more vigorous taproot system, can tolerate compaction better than corn.

Severe soil compaction may be a yield-limiting factor for several years. As a result, Graeber advises growers to correct compacted areas with fall tillage. To identify soil compaction problems, growers should look for corn roots that exhibit horizontal, rather than vertical growth. Other more visible signs include slow or uneven plant growth, poor drainage, and drought stress.



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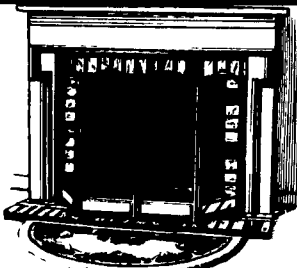
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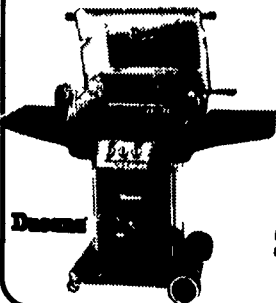
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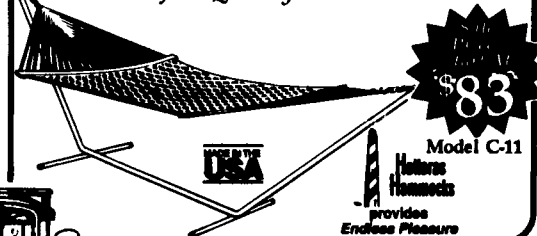
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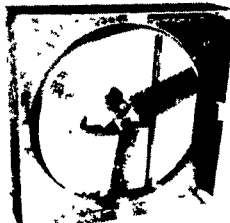
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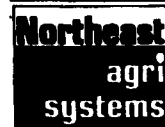
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