OVER THE FENCE

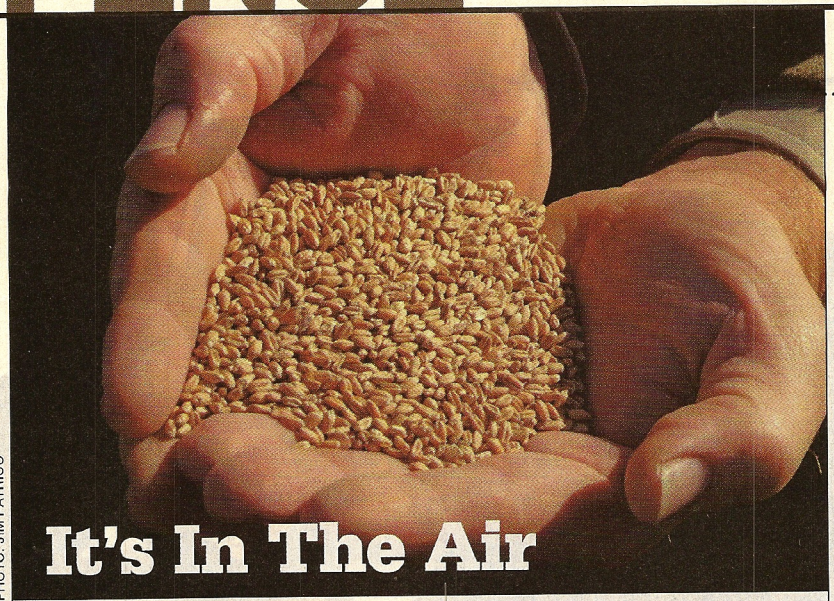


PHOTO: JIM PATRICO

It's In The Air

Only when you get close to the grain bins at Purdue University's Agronomy Farm can you detect the odor, reminiscent of burnt hair. Those who know it say it's similar to the smell immediately after a lightning strike.

Linda Mason, an entomologist who directs the school's Food Pest Management program, is pleased with the scent. It is a byproduct of the creation of ozone—the result of an electrical shock that temporarily turns oxygen in the air from O_2 to O_3.

When circulated through a grain bin, ozone gas has been shown to kill nearly every insect that might live inside. That's good news for agriculture, which in recent years has lost fumigants such as methyl bromide due to regulation. Ozone, which poses virtually no risk to people or the environment in this application, also seems to reduce the growth of—or even destroy—mold in grain.

"So far I haven't found an insect I can't kill with it," says Mason, whose work is part of Purdue's Post-Harvest Education and Research Center. The ozone is believed to interfere with bugs' respiration, turning them into something of a dazed, zombie insect shortly before they die.

While dangerous to humans in high concentrations, ozone only remains that way briefly. Then the gas "quickly dissipates back into O_2," says Mason. She believes ozone generators could be in use commercially within three years. A portable ozone generator (cost: $20,000 to $80,000, depending on capacity) would pump the gas into a bin.

At Purdue, the process has been tried with success on corn, soybeans, rice, popcorn and wheat. It leaves no residue and doesn't affect food quality, according to Mason. In fact, the process leaves grain smelling rather pleasant.

The cost might seem prohibitive, but large commercial grain operations and local cooperatives would likely own ozone generators and lease them out to customers and members, says Mason. *—Des Keller*

bythenumbers

Just to get by

One of the most pronounced changes between this generation of farmers and the last: If you're gonna do it full-time, you've gotta get big. Gary Hachfeld, an ag business management educator with University of Minnesota Extension, says 80 to 160 acres may have worked for our grandparents, but times have changed. A recent study in his state found the average farm family (3.5 people) needs $74,804 just to cover living expenses, not counting input and farm equipment costs. How much farm does it take to cover things like food, shelter, medical expenses, non-farm vehicles, etc.? Here's what the study found it would take to earn $74,804:

928 acres

If a farm family plants a 50/50 corn and soybean rotation, they would need approximately 464 acres of corn and 464 acres of soybeans.

10,717 head

Hogs from weaning to finish

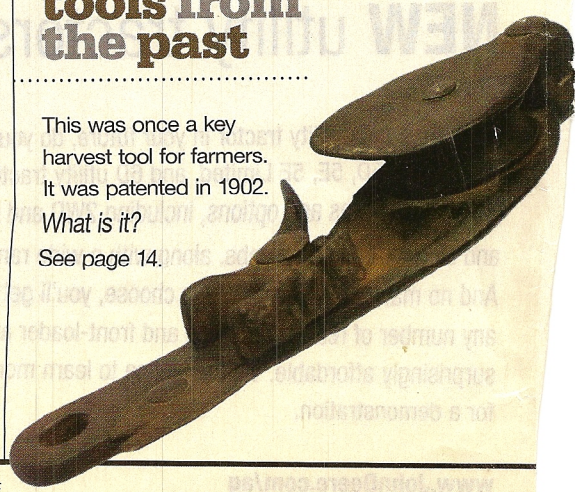
948 head

Beef cows in a beef cow/calf operation

127 head

Dairy cows

tools from the past



This was once a key harvest tool for farmers. It was patented in 1902.

What is it?

See page 14.