



OPINION

Silo Gas Poses Risk

Harlan Hinkelmann, who farms near Loyal, Wisconsin, is like many farmers who know about the dangers of silo gas.

"Dad always pounded into me to watch out for that stuff," Hinkelmann said. "That is why I took precautions, but they were not good enough."

Last year, Hinkelmann finished filling his silo with second crop haylage. He did not put the silo unloader in place right away. Instead, he put off the chore until the next day when he hoped he'd be less tired, and the heat and humidity would be less severe. He ran the blower in the silo for 45 minutes the next morning, thinking that would be long enough, and he climbed up the chute.

"This was nothing that I hadn't done before," he said. Soon, his chest began to hurt. "The gas had built up overnight," he said.

When Hinkelmann climbed to the silo's top, he saw pockets of yellow-brown gas. He watched them as he proceeded to work, thinking he was safe because the pockets didn't move. Unfortunately, his lungs had already been filled with the potentially deadly gas. Unable to breathe, he was taken to Saint Joseph's Hospital's Emergency Department in Marshfield, Wisconsin.

"Farmers exposed to silo gas can get short of breath and become comatose within minutes. Unless a rescuer has a SCBA — self-contained breathing apparatus system — he likely succumbs to the same thing," said John A. Campbell, M.D., a Marshfield Clinic pulmonary medicine specialist and adviser for the National Farm Medicine Center, located on the campus of Marshfield Clinic, Marshfield, Wisconsin. Marshfield Clinic is a system of care, with over 600 physicians providing medical services to more than 330,000 people living in central, northern and western Wisconsin.

"Whenever a farmer or farm worker goes into a confined space, he or she should realize toxic gas may be present and oxygen content may be dangerously low," Campbell said. "It is most important to avoid entering the silo for the first three weeks after filling. Most silo gas injuries occur during this time."

Silo gas is nitrogen dioxide that is produced by fermenting plant material. Nitrogen dioxide is yellowish-brown, smells like laundry bleach, and is heavier than air. Incidents with silo gas are not a recent phenomenon. Sudden deaths associated with working in silos were first described in 1914. The relationship between silo filling and inhalation of nitrogen dioxide was first reported in 1956.

According to the National Farm Medicine Center, silo gas exposure is sometimes confused with Farmer's lung disease, but the two problems are very different. Farmer's lung disease is an allergic reaction to exposure to mold spores associated with various feeds. The reaction to silo gas is immediate, because nitrogen dioxide is an irritant. When it enters the respiratory system, it mixes with the moisture there and forms nitric acid, which causes damage to the airway and lungs. The greatest danger from the gas occurs during the first three weeks after filling the silo. The risk is so great that farmers are urged to stay out of silos for a full 21 days. Even after that time, they should open doors to the level of the silage and run a blower for an hour before entering.

"Whenever farmers or farm employees go into a confined, poorly-ventilated place like a silo and there has been a recent filling, a potential problem exists," Campbell said. "There is also a hazard of oxygen deficiency independent of the gas that might be in the silo."

Treatment for those who survive silo gas exposure varies with the severity, according to Campbell. In the most serious cases, the person may need to have a ventilator to help with breathing, along with fluids and medications to maintain blood pressure. An anti-inflammatory drug is given to prevent lung inflammation, which can lead to permanent injury.

In less severe cases, when a farmer has mild complaints like a sore throat, eye and nose irritations, the anti-inflammatory medication still is prescribed. It also is important to realize the condition may change. "The farmer may not look seriously ill at the moment, but may be very ill soon after the exposure," Campbell said.

The condition can change because of the time it takes for fluid to accumulate in the lungs. That is why it is important to get medical attention immediately when a person believes he or she has been exposed. Immediate care can reduce the amount of lung damage that will occur. It is this long-term damage that is underestimated, according to Nancy Young,

(Turn to Page A37)



**Now Is
The Time**
By John Schwartz
Lancaster County
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To Learn From Court Cases

The first time a swine operation has been sentenced under the Clean Water Act occurred June 25, 1999 in Iowa. The fine and fish restitution costs totaled \$40,000. In this case prosecutors concluded that negligence and poor maintenance led to the discharge. The discharge resulted from a blocked pipe connecting primary and secondary lagoons.

Blockage of the pipe prevented waste from the primary to the secondary lagoon to occur and contributed to the spill. Slurry flowed through a drainage ditch, along a road ditch and polluted 8.5 miles of the stream. The Iowa Attorney General said the incident rose to a matter of criminal negligence because there were several breaches of good and common sense management practices that could have avoided this very serious pollution discharge. The U.S. attorney stated we should use the strongest legal tools available to hold those who poison our water resources accountable for their action. Regardless of the farming operation, we need to make sure we are not negligent in our management practices.

To Manage Manure Storages

Farmers need to understand their responsibility in managing manure and take the appropriate steps to prevent water pollution. In the recent Iowa court case, prosecutors stated drain plugs were not installed in shallow pits during routine power washing between group of hogs and managers did not instruct employees on proper maintenance of the waste system. Also, the prosecutors said the first stage lagoon was too small to hold all the slurry from the buildings, the crossover pipe connecting the lagoons lacked a screen to filter solid and semi-solid material, lagoons had not been checked for four weeks before the discharge and weeds restricted visibility. Operators failed to improve an eroding berm, making it impossible to maintain adequate freeboard.

The farmer felt the discharge was a result of vandalism. Regardless, the fact remains we need to make sure our manure management system I being operated correctly and preventative maintenance is being conducted on a regular basis. Also, we should examine our farm security system to make sure vandals cannot sabotage systems that could cause bad press and pollution.

To Keep Deer Away

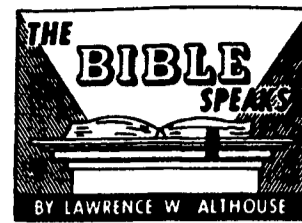
The white tail deer has moved from forest lands into farmland and urban settings in search of food. Each year the number of

complaints associated with deer feeding on crops, orchards, trees and ornamentals increases, according to Robert Anderson,

Lancaster County Extension Agronomy Agent.

Rutgers University has studied

(Turn to Page A39)



WHERE'S THE FIRE?
October 3, 1999

Background Scripture:

Exodus 40:34-38;

Numbers 9:15-23

Devotional Reading:

Psalms 107:109

Several decades ago, when I was between assignments, I came up with an idea that seemed to have come from God in response to prayer. I would go around the country conducting a seminar I had worked out. I think it was something on how God guides us.

First, I scheduled one in Ft. Myers, FL, where a friend handled the newspaper advertising and the hiring of a meeting room. The seminar went well and I was encouraged to try a second one in San Diego, CA where a sister-in-law agreed to handle the same arrangements. On the appointed day I went to the motel where she had secured a large meeting room, arriving an hour in advance so that I get the room ready. Forty-five lonely minutes later I began to wonder if we would be affected by the statewide gas shortage that had cars backed-up for blocks. I waited another 45 minutes, but I realized that I would have this expensive meeting room to myself!

"What happened?" I asked God. Had He not led me to this empty room? Had I mistaken the intention of his message to me? We preachers like to urge others to follow wherever God leads, but sometimes we forget that often it is difficult to know if and where God is leading us. It is not as easy as we make it sound. In the wilderness the Hebrew tribes had a pillar of fire and a cloud to lead them. Well, bully for them! Who can't follow a pillar of fire and a cloud? There are times when I would love a non-too-subtle pillar of fire or a cloud to follow. God, however, doesn't seem to use them much anymore. So how can God lead us?

THERE ARE WAYS

Even without fires and clouds, there are ways, admittedly much less dramatic and confidently, that God can use. First, we may trust our God-given reason. In lots of situations we don't need a fire or cloud if our brains are sufficiently engaged. Many times this way has worked for me—but not always. When I was part of a university dramatic group, there was a fellow member who seemed to do nothing but sit around and 'plink' and 'plunk' (a generous description) on the clubhouse piano. One day, I commented, "Now there is one guy that's never going to amount to anything in the theater!" A decade or so later I was chagrined to learn that he had become a successful movie director with numerous box office hits to his credit. So much for reason!

Another way to seek God's guidance is to use the scriptures in a literal manner. Often the

guidance we seek from the Bible is timely and applicable and surely from God—but not always.

Sometimes the Bible seems to sanction practices in conflict with the way of Jesus Christ: polygamy (Deut. 21:15-17; 2 Samuel 5:13-16; 1 Kings 11:1, 3, Gen. 16:3), the execution of people found in adultery or having sexual intercourse with animals (Lev. 20:10, 15, 16), stoning to death a betrothed virgin who is raped in a city if she did not cry for help (Deut. 22:23), forbidding entrance to the assembly to ten generations anyone who is born out of wedlock (Deut. 23:2), the killing of military prisoners (Deut. 20:13), the slaughter of all enemies, including women, children and anything "that breathes" (Deut. 20:16), stoning to death "a stubborn rebellious son," who will not obey his parents (Deut. 21:18-21), or a breaker of this sabbath (Numb. 15:32-36).

If any of us today did any of the above, we would be carted off jail and excommunicated from our churches. Many of us have found over the years that the Bible is not a play-book to be followed literally without discernment.

Sometimes God uses other people to lead us. I was led into the ministry by a pastor who discerned my life's calling long before I did. Yet, there have been other times when I have had to disagree with the advice others gave me.

WHOSE VOICE IS IT?

God also can lead us when we take the time and effort to listen instead of simply talking to him. All too often we do not get the message from God because we don't really listen with patience. But then there was San Diego and the empty hall and I was there because I thought God wanted me there. Was it just my own voice I was hearing?

An Amish farmer told his bishop that he had received the call to preach. But the congregation to which he was assigned told the bishop that this man was definitely not a preacher. "Tell me about your call," the bishop said. The man told him he had been plowing in the field. "I saw the clouds arrange themselves into two great letters 'PC.'" The bishop shook his head, "I wish you had told me that earlier: those clouds didn't mean 'Preach Christ,' they meant 'plant corn!'"

I'd like to be able to tell you that I have figured out the answers to the questions above—but I have not. But I have learned that we cannot listen to God and jump to conclusions at the same time. Following God takes lots of patience and the 'fire' and 'cloud' may not be as evident as we think.

Lancaster Farming

Established 1955

Published Every Saturday

Ephrata Review Building

1 E. Main St.

Ephrata, PA 17522

- by -

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William J. Burgess General Manager

Everett R. Newswanger Editor

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