

# The MYSTERY CLUB



brought to you by **Captain Overalls**, the Safety Crusader

## CAPTAIN SEZ

Follow the directions to find Captain Overalls' secret message.

Write the word "farmstead"

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Change the "f" to an "h"

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Move the "r" in front of the "d"

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Omit the "ste"

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Change the "m" to a "z"

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What does Captain say?

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## UNVEILING HIDDEN FARM HAZARDS

### Peaceful or perilous playground?

*The smell of freshly mown hay drifts over a countryside dotted with pastures of grazing sheep, green and golden fields, and bubbling brooks. A cat stretches lazily from the open door of the hay mow, where the farmer has just tossed bales of straw into a pen of baby pigs. Dairy cows wait patiently for milking time. A shop light glows from the work bench in the machine shed where a finely tuned tractor is parked.*

If this sounds too good to be true, you are correct. Farms and ranches can be a great place to grow up, but they also have many dangers not found anywhere else. Many agricultural dangers are hidden, especially to visitors and people who have never lived on a farm.

The presence of many hidden dangers is one reason why agriculture is one of the most perilous occupations in the United States today. Working on a farm is more dangerous than working on a construction site. These dangers also affect the families who live on farms and ranches. Each year, doctors, emergency rooms, and others treat more than 32,000 farm kids for injuries.

### The dark side

For a minute, let's imagine the same farm scene with all its hidden dangers.

*Mowers and other farm implements are powerful with many cutting hazards. Livestock can bite or unknowingly crush a person. Young children can wander into farm fields and get lost. People can drown in creeks and manure lagoons as well as suffocate in bins full of grain. People fall out of hay mows, or get poked by pitch forks. A shed may store chemicals, power tools, machinery, and other dangerous items. Livestock, silos, and other farm buildings can contain harmful amounts of poisonous gases.*

Not a pleasant picture, is it? But farms do not need to be scary places. People who understand and know how to find possible dangers can avoid certain areas.

Living or working on a farm offers many wonderful opportunities – to learn independence, practice good work habits, and enjoy the outdoors. But these opportunities also come with the responsibility of learning how to recognize danger and knowing ways to stay safe. This is the only way you can really enjoy all the good things about growing up on a farm.

IOWA STATE UNIVERSITY  
University Extension

## 1 2 3 4 5 6 7 8 9 BY THE NUMBERS

585 ..... Number of farm kids who died from drowning, 1982 to 1996.

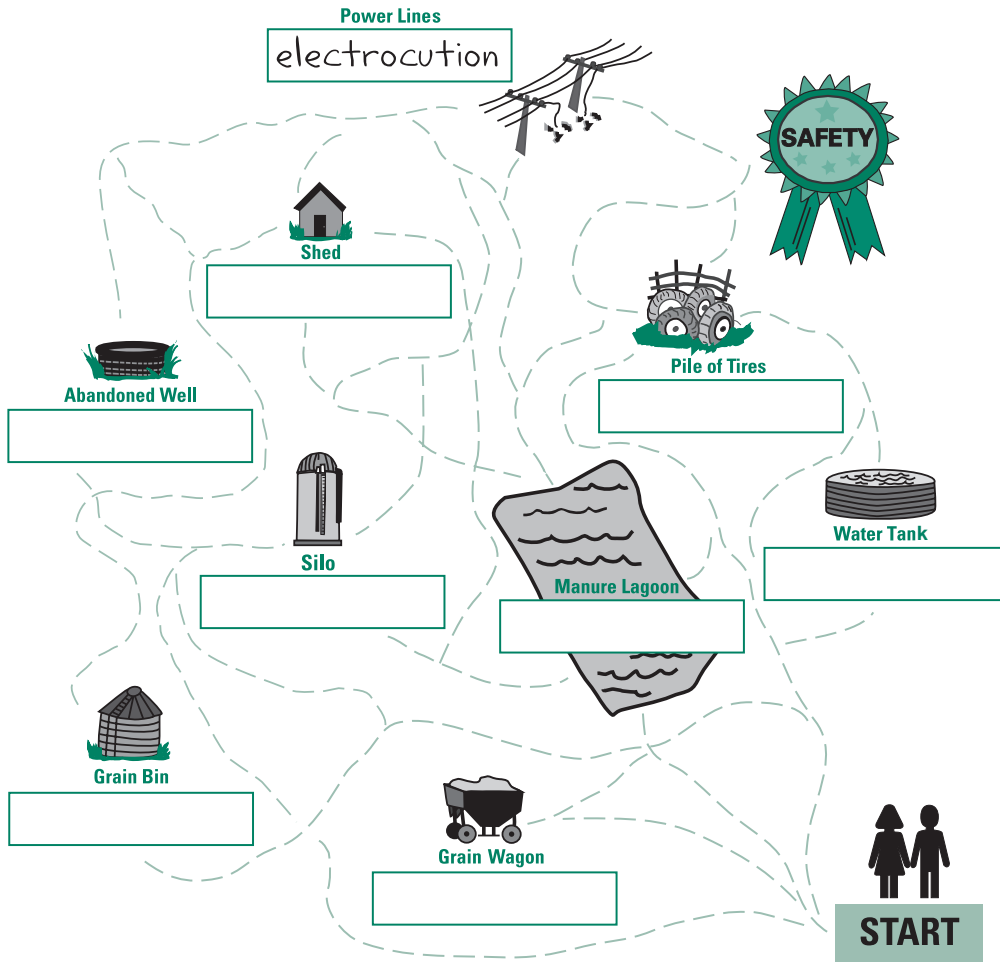
12,075 ..... Approximate number of serious injuries from falls each year in agriculture.

6 ..... Number of seconds before someone is helplessly trapped in flowing grain.

20 ..... Speed, in miles per hour, of a wrench dropped from the top of a combine.

# Hidden hazards on the farm

Can you avoid all the hidden hazards and get to safety? In the box near each picture, name a hidden hazard. Some places may have more than one hidden hazard.



ANSWERS: POWER LINES: electrocution; SHED: poisoning (chemical storage), electrocution or cuts (tool storage); ABANDONED WELL: falling or drowning; PILE OF TIRES: crushing or falling; SILO: falling or poisoning (from gases); MANURE LAGOON: drowning or poisoning (from gases); WATER TANK: drowning; GRAIN BIN: falling or suffocation; GRAIN WAGON: suffocation



We expect to see “DANGER” signs posted near power plants and on the high fences around electrical substations. But what about a farm?

Farms have many electrical dangers. Electricity is used to dry grain, operate augers and mixers, ventilate buildings, pump water for livestock or irrigation, milk cows, and process crops. Electricity also is used in machine shops, tool sheds, storage buildings, animal barns, dairy parlors, and in the home.

Although some farms generate their own electrical power, most electricity used on farms comes from high-voltage (high-powered) transmission lines that are extremely dangerous. These lines look like heavy cables connected to very tall towers in the middle of fields.

Electricity arrives at the farm from one main line connected to a transformer on top of a pole. Usually this pole is located near the road or place where a lot of electricity is used, such as a dairy barn or livestock building. From the transformer other electrical lines go to the house, barn, and other buildings.

Touching any power line is deadly. Sometimes people come in contact with these lines by mistake. Long pieces of equipment, such as grain augers or irrigation pipes, can touch power lines when they are moved. Ladders, fruit pickers, and other items can hit power lines while they are being used. Humidity in the air makes even non-conductive materials (such as kite string or twine) able to carry electricity and kill someone. **Never fly a kite near power lines!**

When power lines fall to the ground, they are even more dangerous. **Always stay away from downed power lines after a storm.**

Warning signs might not be posted on farms, but electrical dangers are all around you. Electrical safety is up to you.



## TOP 10 Water Hazards Around the Farm

1. Livestock water tanks and troughs – Duh!
2. Ponds, creeks, and streams – Double-duh!
3. Your little sister’s wading pool
4. Flooded areas after heavy rain
5. Manure pits and lagoons
6. Drainage ditches or irrigation canals
7. Five-gallon bucket with water
8. Lawn sprinkler (just kidding, unless you are a turkey)
9. Wells – those being used and those not being used
10. Bird bath (depends on size of the bird!)

# Wacky Science



Sometimes our bodies know when to be scared. Do you get a funny feeling in your stomach when you stand at the edge of a cliff and look down? Your body is telling you to be careful.

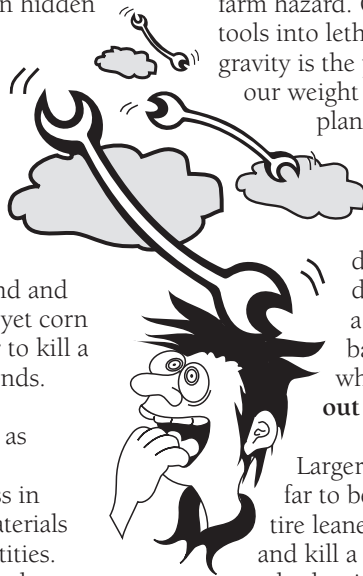
When you do not get the funny feeling in your stomach and you are in a risky place is the most dangerous situation of all. Recognizing hidden dangers is the first step toward safety. Here is the science behind two common hidden farm hazards.

## Grain's awesome power

What's so dangerous about a kernel of corn? You can hold one or several kernels in your hand. Corn is ground and used in many of our foods, yet corn that is stored has the power to kill a full-grown man within seconds.

Corn and other grains such as wheat, canola, and oats are granular materials. Harmless in small amounts, granular materials act differently in large quantities. Moving grain creates a force that can pull objects (and people) into bins, wagons, piles, or silos where it is stored. In fact, it is impossible to pull out someone who is caught in shoulder-deep corn. You would need to be able to lift more than 625 pounds to rescue someone from grain – that is, if you do not first break that person's arm or leg!

This same force also makes it very difficult for a person to breathe in grain. Every time a person who is trapped in grain exhales, the kernels move in closer around the chest. The result is suffocation similar



to what happens with a boa constrictor and its prey.

Your best bet: **Never, ever stand on the surface of grain** in temporary piles, wagons, grain bins, or silos.

## Gravity's serious side

"What goes up, must come down" describes the cause of another hidden farm hazard. Gravity can turn everyday tools into lethal weapons. To be specific, gravity is the pull of the earth that creates our weight and keeps our feet firmly planted on the ground.

Gravity also is responsible for making small objects, such as a wrench, screwdriver, or socket, fall with deadly force when knocked off a combine platform, ladder, barn loft, or other high place where they were used. **Watch out below!**

Larger items do not have to fall very far to become dangerous. A tractor tire leaned against a barn can tip over and kill a small adult. Portable fencing and other items stored by stacking them next to a building are not stable. Even if the item is not heavy enough to crush someone, a person could be trapped and not be able to get help.

Your best bet: Stay away from tires and other things piled against buildings, and never climb on them.

**The moral of these tales:** just because something looks safe does not mean that it is safe. A good safety sleuth knows how to spot hidden hazards by using a hidden weapon: the brain.

**Q: How is a vacuum cleaner like a load of grain?**

**A: They both suck!**

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# Jeers and Cheers



**Cheers** – to the brother and sister who did not play near the well that had not been used for many years.



**Jeers** – to the farmer who stacks old tires against the shed without tying them in place.



**Cheers** – to the farmer who puts up a tall fence around the manure lagoon and posts signs for people to stay out.



**Jeers** – to the 10-year-old boy who does not look for power lines while flying a kite.



**Cheers** – to the family who makes the machine shop and tool shed off-limits for kids without an adult to supervise.



**Jeers** – to the 12-year-old girl who runs into the work area while equipment is running and adults are not expecting her.

# The **MYSTERY** of the "Dream Visit"

## Word Find



Can you help Captain Overalls find these key words?



Hannah was happy today. Her cousin Sam was at the farm for a visit. For months they had talked about all the adventures they would have together, and now the day was finally here!

"Dad just filled the silo last week," Hannah remembered. "Everyone is supposed to stay away because this is the time of year for silo gas, which is really, really dangerous."

"I need to remember all the rules, especially the one about staying off the silo ladder," she thought. "I better talk to Mom and Dad to make sure Sam knows all the rules, too."

"I'm in the mood for climbing," Sam hollered as he bolted out of the house.

Hannah knew where Sam was going – the concrete silo next to the dairy barn. He had been talking about climbing to the top of the silo since his visit last year. Now both Sam and Hannah were tall enough to reach the bottom rung of the ladder that went up one side of the silo.

"I can hardly wait to see the view," he said. "Last one to the top is a rotten egg!"

Before Hannah could answer, Sam had reached the base of the silo and was climbing the ladder. He soon disappeared up the ladder and into the silo chute.

By the time Hannah got there, she knew something was wrong. She heard Sam gasping for air and what sounded like Sam falling. Would she be able to catch him?

Then Hannah woke up and sat up in bed. Her heart was racing. She had been dreaming!

### Your Challenge:

What dangers did Hannah dream about?

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What should Hannah do to make sure this nightmare does not come true?

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What other safety rules should you follow when you have a visitor at the farm?

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S	I	R	D	R	C	I	L	M
R	S	H	E	D	L	L	O	A
G	R	O	L	A	E	A	D	H
W	E	B	E	Y	R	R	Y	A
A	D	A	H	T	A	S	I	R
R	D	R	S	I	R	T	C	G
U	A	N	A	C	S	A	L	M
O	L	A	C	I	R	T	L	A
W	E	L	L	R	N	R	O	N
R	U	O	A	T	C	A	R	U
C	N	E	E	C	T	A	G	R
E	L	C	R	E	E	K	R	E
E	L	E	S	L	E	G	A	F
L	A	I	N	E	H	S	I	A
L	I	T	C	R	E	G	N	S

ELECTRICITY	SILO
GRAIN	MANURE
DRAINAGE	WELL
LADDERS	BARN
	SHED

## USE YOUR NOGGIN



Sonja, David, and Jan from the Mystery Club were discussing a news report about the dramatic rescue of someone caught in grain. Each Mystery Club member talked about where grain might be a danger, and each gave a different reason why it was dangerous. Using the chart below, can you figure out which place and danger each child talked about?

HINT: When you put a \* in a box, put a "0" in the other boxes in that column and row.

1. David did not talk about a bin, but he said people cannot breathe in grain.
2. Jan did not talk about a wagon or the power of moving grain.
3. Sonja did say that a temporary pile of grain can be dangerous.

Who?	Where can grain be a danger?			What makes grain dangerous?		
	Wagon	Bin	Temporary pile	"Grain flows very fast."	"You cannot breathe in grain."	"Grain moves with a lot of power."
Sonja						
David						
Jan						

ANSWERS: David heard the report about a person buried in a grain wagon who could not breathe. Jan saw that report about the person trapped by fast-flowing grain in a bin. Sonja read about a temporary pile of grain that moved with a lot of power and pinned someone against a fence.