



**GREAT PLAINS**  
Center for Agricultural Health

***FarmSafe* in the Classroom:  
Overhead Power Lines  
Season 3, Episode 15**

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**FarmSafe in the Classroom:**  
Safe Practices around Overhead Power Lines  
(Season 3, Episode 15)

The **FarmSafe Podcast** is a place where ag workers and public health experts share first-hand stories and real-life tips for making safer and healthier decisions on the farm. Season 3, Episode 15 discusses the hazards associated with overhead power lines and other electrical hazards on farms.

**FarmSafe Podcast**  
S3E15 | Safe Practices around Overhead Power Lines

Published May 29, 2024. Hosted by Libby Presnall.

**Episode Summary**  
Electricity is one of the "silent killers" in agriculture. There are many ways to come in contact with it, and without an understanding of common electrical hazards, farmers can get hurt. Libby speaks with Ann Augspurger from Safe Electricity on these hazards. We also hear from Cody and Bailey Conrady. They share the story of Cody's electrocution and the surgeries and loss of limbs that followed.

**Episode Resources**  
[Infographic on Electrical Safety](#)  
[The Cody Conrady Story](#)  
[Electrical Hazards During and After a Storm](#), SafeElectricity.org  
[Safe Electricity Homepage](#)

Have students listen to the podcast [here](#) (original) or [here](#) (with assignments) then complete one of the following assignments.

1. [Quiz](#)
  - a. 9 questions, multiple choice (multiple correct answers for several questions)
  - b. Competencies: Core: CTSE 3, AG3  
ANFN: FPS.03.03.03, FPS.08.04
2. Generate poster showing how to safely exit a potentially energized vehicle
  - a. Resources: Internet search for guidance, including <https://safeelectricity.org/public-education/tips/preparation-awareness-keys-farm-electrical-safety/>
  - b. Competencies: Core: CTSE4 (communicate), CTSE6 (creativity), RSL7 (Translate technical information into visual expression), RSL9 (compare and contrast information), WSL2 (Prepare informative text)  
ANFN: FPS.03.03.03, FPS.08.04, ECL.04.02.02b, PST.01.02.02c, PST.02.02.01a
3. Design equipment storage and use with overhead lines in mind
  - a. Resources: Transcripts from podcast, search (overhead power safety: <https://ag-safety.extension.org/overhead-power-line-safety/>)
  - b. Competencies: Core: CTSE4 (communicate), CTSE6 (creativity), RSL7 (Translate technical information into visual expression), WSL2 (Prepare informative text), WSL9 (draw evidence from informational text)  
ANFN: PST.01.02.02c, PST.02.02.02a
4. **Model Farm** assignment: Apply the solutions in Assignment 3 to the selection of where to locate buildings and vehicles (storage and setup) on the Model Farm.



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Competencies mapped to in this lesson:

Activity	Common Core Standards	AFNR Performance Indicators
Quiz	CTSE3, AG3	FPS.03.03.03, FPS.08.04
Generate Poster	CTSE4, CTSE6, RSL7, RSL9, WSL2	FPS.03.03.03, FPS.08.04, ECL.04.02.02b, PST.01.02.02c, PST.02.02.01a
Design equipment storage and use	CTSE4, CTSE6, RLS7, WSL2, WSL9	PST.01.02.02c, PST.02.02.02a
Model Farm	CTSE4, CTSE6, RLS7, WSL2, WSL9	PST.01.02.02c, PST.02.02.02a, PST.05.03c

Details of Competencies mapped to in this **FarmSafe in the Classroom** activity options.

**Table 1:** Relevant Main Core Competencies

Standard	Code	Description
CCTE Practices <a href="#">(link)</a>	<b>CTSE3</b>	Attend to personal health and financial well-being
	<b>CTSE4</b>	Communicate clearly, effectively, and with reason
	<b>CTSE6</b>	Demonstrate creativity and innovation
	<b>AG3</b>	Examine and summarize the importance of health, safety and environmental management systems in AFNR businesses
Common Core: Reading <a href="#">(link)</a>	<b>RSL7</b>	Integrate or translate technical information into visual or mathematical expression
	<b>RSL9</b>	Compare and contrast information from multiple sources, identifying contradictions and resolving conflicting information when possible
Common Core: Writing <a href="#">(link)</a>	<b>WSL2</b>	Prepare written informative/explanatory text using precise language
	<b>WSL9</b>	Draw evidence from informational text to support analysis, reflection, research



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**Table 2:** Relevant AFNR Standards

Program	Performance Indicator	Description
Career Ready Practices Standard (AFNR)	<b>CRP.05.02.01 &amp; 02</b>	Make, defend, and evaluate decisions at work and in the community using information about the potential environmental, social and economic impacts; 05.02.01a List areas; 05.02.01c: evaluate decisions; 05.02.02: review information about E/S/E impacts; 05.02.02b Analyze past decisions and their effects on E/S/E; 05.02.02c: Recommend decisions for a given workplace and community situation based on positive impact in E/S/E.
Foundational Pathway Skill (AFNR)	<b>FPS.03.02</b>	Develop and implement a plan to maintain and improve health, safety, and environmental compliance and performance .01: ID components of required plans; analyze effectiveness at workplace, create plan .02: ID examples of plans; prepare plans to improve, develop strategy to educate employees on compliance/performance
	<b>FPS.03.03</b>	Apply H&S practices to AFNR workplaces .02: Emergency response (ID, Assess, create) .03: ID how to avoid H/S risks; Discuss 1 <sup>st</sup> aid; Evaluate workplace for 1st aid .04: Describe risk of contamination/injury; select responses to contamination/injury; Create plan to mitigate contamination/injury
	<b>FPS.08.04</b>	Assess the importance of health and safety in the AFNR workplace (a) define; (b) analyze, (c) design
Education, Communication, Leadership	<b>ECL.04.02</b>	ID/apply and demonstrate communication skills .01: (a) ID; (b) use; (c) critique written communication messages about AFNR .02: (a) ID; (b) use; (c) critique visual communication messages .03: (a) ID; (b) use; (c) critique various verbal communication message
Power, Structural and Technical Systems	<b>PST.01.02.02c</b>	Design a process to implement the safe use of AFNR related tools, machinery and equipment
	<b>PST.02.02.02a</b>	ID safety hazards associated with equipment, machinery and power units used in ANFR power, structural and technical systems (e.g., caution, warning, danger, etc.)
	<b>PST.05.03c</b>	Analyze and interpret data from maps using geospatial technologies

**Overhead Power Line Safety (FarmSafe: Safe Practices around Overhead Power Lies S3E15)**

1. This story contains a story that involved electrocution. What ag process was underway when Cody was injured by electricity?
  - a. Moving haybales
  - b. Moving cattle
  - c. Unfolding sprayer booms
  - d. Working on roof of machine shed
  
2. How many people die each year from electrical incidents?
  - a. 100
  - b. 1000
  - c. 10,000.
  - d. Too many to count
  
3. When is the only time it is recommended to jump out of a vehicle/equipment if they have hit an overhead powerline?
  - a. Any time is fine, the tires keep you well insulated
  - b. If it is more dangerous to stay in the vehicle, such as a fire or ammonia release will hurt you if you stay in the vehicle
  - c. If there are friends nearby telling you to jump
  - d. If your family calls you and tells you to
  
4. If you jump from a vehicle that is in contact with a power line, what steps need to be taken? (Select all that apply)
  - a. Jump free and clear of the vehicle
  - b. Do not hang on to the vehicle with one or both hands when jumping
  - c. Jump so you land with your feet together at the same time
  - d. Bunny-hop away from the tractor after leaving, keeping both feet in and out of contact at the same time
  - e. Just step out of the vehicle and run
  
5. Which of the following are recommendations that are made to minimize the risk of contacting power lines? (select all that are true)
  - a. Load and unload a grain bin on side away from the electrical power line
  - b. Don't store bales under power lines (tarps can fly up and contact power)
  - c. Don't store pipes under power lines (when moving them, the wind can lift it and cause touch to power lines)
  - d. Don't store equipment under power lines
  
6. Who should be educated about potential electrical hazards on the farm? (Select all that apply)
  - a. Family members, including kids and grandchildren
  - b. Seasonal workers
  - c. Contractors who provide ag-related services
  - d. Fire chief

Name \_\_\_\_\_ Date: \_\_\_\_\_

7. What is the benefit of a spotter to help an equipment driver in the cab of a vehicle? (Select all that apply)
    - a. In the cab, you can't see above you very well, so have someone watch to make sure you don't contact a power line
    - b. The spotter can move downed power lines to help the tractor driver avoid running over it
    - c. A spotter can let you know when it is break time
  
  8. Which of these tasks are recommended to improve safety when working around overhead power? (Select all that apply)
    - a. Educate everyone on the farm about electrical hazards
    - b. Use a spotter
    - c. Don't work on the edge of a field, where power lines commonly run
    - d. If you make contact with an overhead power line, stay in the cab, call 911, and wait for utility crew to say it is ok to get out
  
  9. What is the number to call before digging to learn if there are buried power or gas lines that may cause hazards?
    - a. 911
    - b. 999
    - c. 988
    - d. 811
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Key: 1 c; 2 b; 3 b; 4 a-d; 5 a-d; 6 a-c ; 7 a ; 8- all; 9 - 811

## **Assignment 2: Generate poster showing how to safely exit a potentially energized vehicle**

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One of the detailed descriptions in this podcast helps explain how to exit a vehicle that has come into contact with a power line. While all speakers indicated that you should wait until 911 and the utility company de-energize the power to the utility line, some emergency conditions make it urgent to exit a vehicle.

If students know the safe practice of getting out of an electrified farm vehicle, the same applies to safely exiting a car that had a power pole fall onto it and other emergency situations. This exercise asks students to make a graphic that illustrates the steps to take to exit a potentially electrified tractor.

Here is a guide for this activity:

1. From the podcast, have the class:
  - a. List steps to take (Rudolphi at 4:48+; Finley at 5:11; and Augspurger at 13:28)
  - b. See online sources, including: <https://safeelectricity.org/public-education/tips/preparation-awareness-keys-farm-electrical-safety/>
2. Have students, in teams, make a shoot list to get photos demonstrating each of these critical body positions for the steps to exit the vehicle
  - a. Have them take photos, one for each step, that focus the image on the most important part of that tip
  - b. Review photos across teams
3. Prepare a poster (8.5x11 or 11x17) or a PowerPoint slide of a one-page info sheet with graphics to illustrate the procedures to take (and when) to exit a vehicle that may be in contact with electricity.
4. Have class critique posters, then vote on the one that best communicates the safety message.
5. Final Assignment (pick one):
  - a. Write a short summary that identifies the reason for generating the poster with recommendations on sharing the information with their family's farm, community, or other ag organization.
  - b. Ask each person identify a group that would make sense to give a copy of the poster to and how they would use or distribute it. Then, have each student to write a short paragraph to the group of their choice, summarizing why the poster was made and asking them to post/distribute it (whatever they are being asked to do).

### **Assignment 3: Design equipment storage and use with overhead lines in mind.**

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This *FarmSafe Podcast* includes a discussion of tips to think about separating important tasks and equipment away from power poles. It may be helpful to assign listeners to focus on the following when listening to this podcast. Alternatively, share the transcript provided below after podcast is heard.

*“As you listen, write down suggestions on where to arrange work (such as unfolding sprayer arms) and where to store items (such as bales) relative to overhead power lines. Make a list as you go and we will ask you to do something after you finish listening.”*

Here is a guide for the activity:

1. Make your list of safety suggestions for organizing work and equipment relative to the overhead power lines on farming property.
2. Providing the students with a farm layout (**use the Model Farm if you are doing this project this semester**) and have them evaluate layout of equipment relative to these hazards.
3. Have students make suggestions for exactly where equipment and tasks are safe from power lines and identify areas that are unsafe. Redesign the building / equipment layouts to map to these safety precautions.
4. Examine other areas near the edge of the property, relative to power lines, and make recommendations for moving / setting-up / operating equipment near the perimeter of the farm or other areas where electrical lines are nearby.
  - Assess equipment that is on the farm that, if extended, would reach the power lines and identify “no action” areas.
  - Summarize the “Don’t” activities across these areas and determine how this would be communicated and enforced on this farm.
5. Consider making a map that has high risk areas marked off with tasks to prohibit in areas close to power lines where equipment could touch.
6. Final Assignment (pick one):
  - Write a brief that summarize the high-risk areas and hazards in them; recommend what tasks cannot be done in these areas and identify where these tasks should be done to be safer. Explain how to interpret the map (if made) to minimize the risk of contacting power lines with equipment in the farm.
  - Convert the map into a poster with a legend that explains prohibited tasks in areas and alternatively provides locations where tasks can be done that do not risk contacting overhead power lines.
  - If using **the Model Farm**, also consider redesigning the farm to minimize contact with overhead power lines (to buildings and to poles on roadway).



## Safe Practices around Overhead Power Lines (S3E15)

From the transcript (~9:30):

A lot of times overhead power can be too close to a grain bin. You definitely want to work with your electric utility on that because there's electrical code mandates. Distances have to be between the grain bin and the power lines, but if there is a power line, even if it meets the letter of the law, if there's a power line that runs on one side of a grain bin, always load and unload on the other, just so that you're not getting too close to that. And then, as I mentioned, always contact your electric utility before having a grain bin raised or moved, just so that those electrical code clearance requirements can be met.

And then just as a PSA, please don't store anything under power lines like hay or equipment or irrigation pipes. You go to lift up an irrigation pipe if the wind gets a hold of it, it could easily go right into the power line. And we had an electric utility member of ours in Kalona say, "could you please get the word out not to put hay under lines, and don't put tarp on it," because all it takes is a really high winds to get a hold of that get up underneath that tarp and then that can blow into the power line and then there's an outage. Be aware of where those power lines are and don't store things underneath them, equipment or otherwise.