

## A Foggy Morning Meeting <sup>1</sup>

This is a story about a mom taking her kids to school and a farmer that they meet along the way.

### Instructions

Get together with two or three of your friends. Then read the story and answer the questions that appear in the story.

Mark your answers on the answer sheet. (Please don't write in the problem booklet.) After you have selected your answers to each question, discuss your choices with your friends. Please don't change your answers or mark more answers. Then continue reading the story and answering and discussing the questions.

When you finish the story, ask the instructor for a copy of the answer key. Compare your answers to the answer key, but don't change your answers. Discuss the story and answers with your friends and the instructor. Then, complete the questionnaire attached to this booklet. Give the booklet and the completed questionnaire to the instructor. Your answers will be used to improve the exercise. Thanks!

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<sup>1</sup> Developed by Henry P. Cole, Grace Danao, Ryan Gagan, and Carol J. Lehtola at a workshop on August 3-5, 1998, sponsored by the University of Florida, Department of Agricultural and Biological Engineering and the University of Kentucky, Southeast Center for Agricultural Health and Injury Prevention. The work was supported by CDC/NIOSH Cooperative Agreements U07/CCU408035-06-1 and U06/CCU412900-02, 03. Revised by Henry Cole in January 1999. The views expressed in this document are those of the authors and not necessarily those of CDC/NIOSH or the US Government.

Sara Johnson

It is 7:30 A.M. in mid September. It hasn't rained for two weeks. Sara Johnson is taking her three kids to school because they missed the bus. The children are in the back seat of the late model 4-door sedan. Everyone is wearing their seat belt. The two boys, ages 9 and 11, are being rowdy and yelling at each other. Their younger sister, age 8, is sitting in the middle between the boys and complaining about the boys fighting.

Sara is driving 65 mph on SR 53, a two-lane road with a posted speed limit of 50 mph. In her haste, she forgets to turn on the headlights. As Sara crests the top of a hill she runs into a dense foggy patch. Visibility is 100 ft or less.

Bob Smith

A short distance ahead of Sara Johnson's car, local farmer, Bob Smith, is heading back to his farm on SR 53. He's traveling 12 mph on his 80-hp tractor pulling a round hay baler he borrowed from a neighbor. A new Slow Moving Vehicle (SMV) sign is mounted on the back of the baler. The tractor lights are on, but the fog is so thick Bob is having trouble finding the driveway entrance to his farm.

Bob's tractor has a Rollover Protective Structure (ROPS) and he is wearing a seat belt. Bob's wife and kids aren't home this morning. His kids rode the bus to school and his wife is also at the school this morning helping chaperone a field trip.

Look at Figure 1 on the next page to see the positions of Sara's car and Bob's tractor and the baler. Then turn to page 4 and continue.

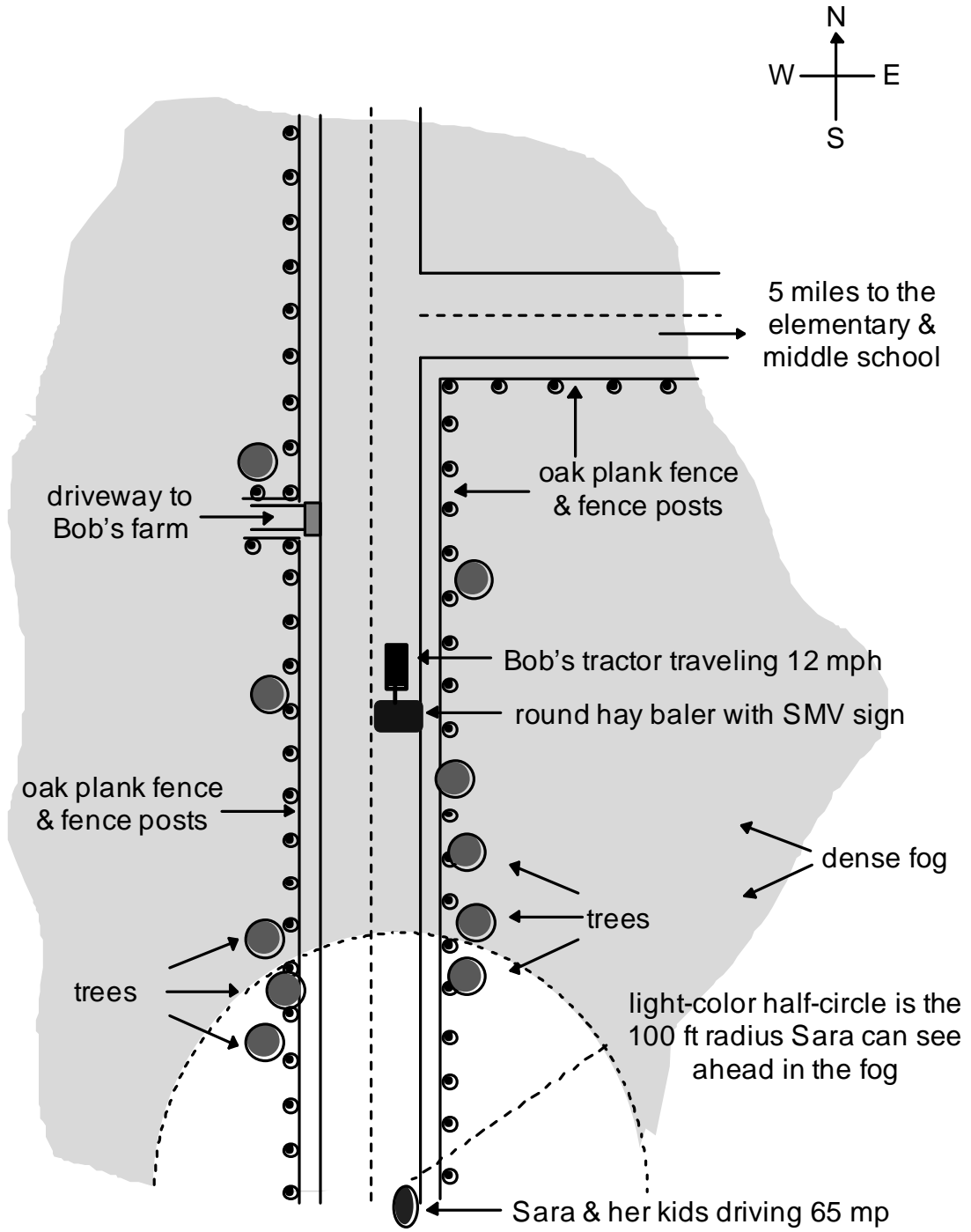


Figure 1: Sara and Bob's positions as they travel north on SR 53

Question A

Look at Figure 1 again. What are some things that could result in a motor vehicle collision between Sara's car and Bob's farm equipment? (For each item, circle T or F on the answer sheet.)

- T F 1. Bob may not expect high-speed traffic on this road this early.
- T F 2. Sara won't see the SMV sign on the baler because her headlights are off.
- T F 3. Sara won't see the turn signal lights on Bob's tractor because the round baler is in the way.
- T F 4. Because of the dense fog, Bob's attention will be focused on the road ahead and looking for his driveway.
- T F 5. Her children's yelling and fighting in the back seat may distract Sara.
- T F 6. When she sees the baler, Sara won't have time to stop.
- T F 7. Sara's car could hit standing water and slide off the road (hydroplane) as she runs into the fog.

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[ After you have marked your answer sheet, please continue with the story.]

Question B

Because of the dense fog, and because the headlights are off, Sara doesn't see the SMV sign and baler until she is within 100 feet of it. At this point what can Sara do to avoid a collision? (See Figure 2 on the next page.) (For each item, circle T or F on the answer sheet.)

- T F 8. Slam on the brakes and stop before she hits the baler.
- T F 9. Swerve off the road to the right into the field.
- T F 10. Swerve off the road to the left into the field.
- T F 11. Pull into the left lane and pass the baler and tractor.
- T F 12. At this point there are no good options for avoiding a collision.

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[After you have marked your answer sheet, please continue with the story.]

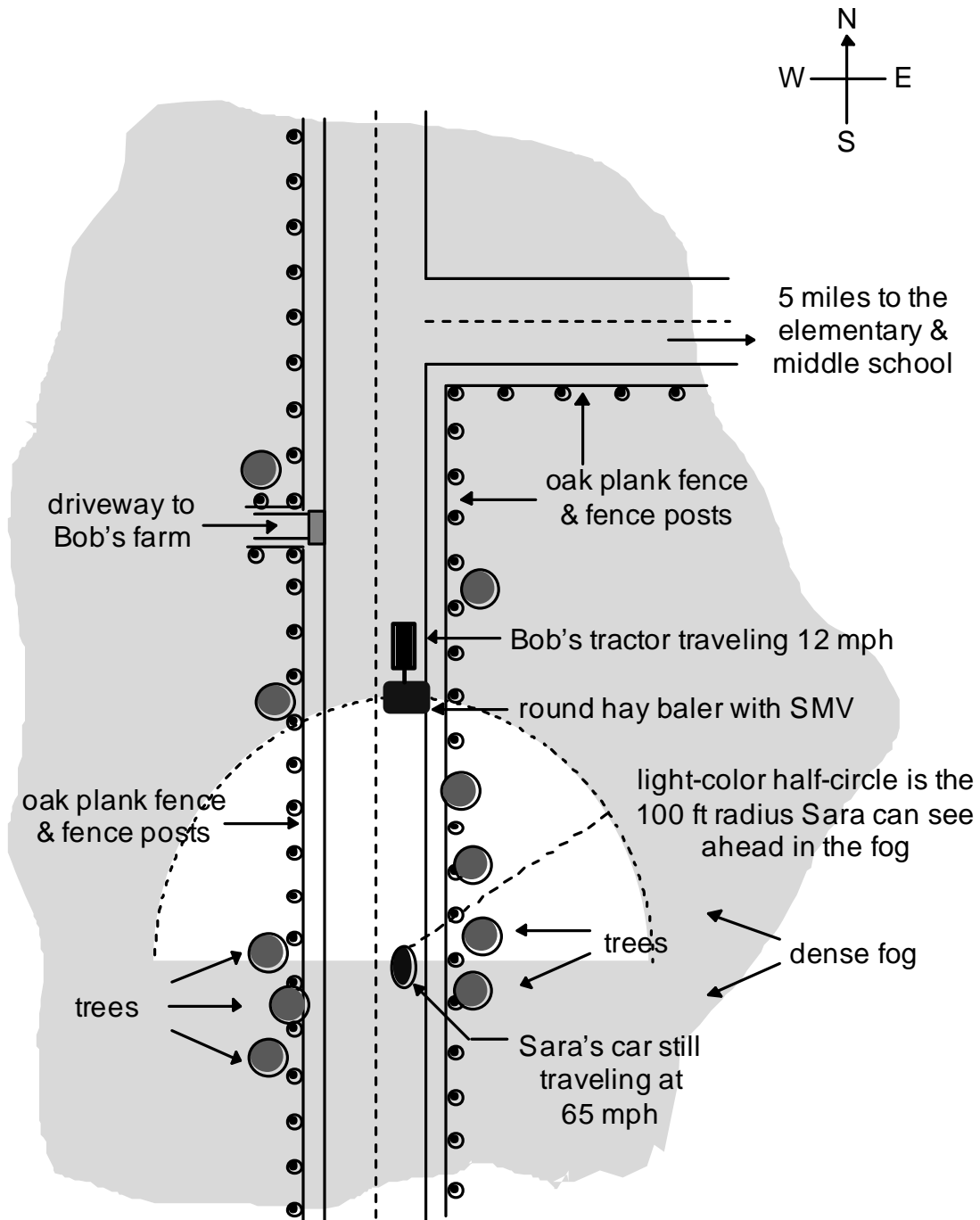


Figure 2: Sara sees the SMV sign and the baler less than 100 ft ahead

Sara doesn't have time to brake. She swerves into the left lane to pull around the baler. Just at that moment, Bob sees his driveway and starts his left turn into the farmyard. Sara swerves left again. Her car sideswipes the baler, bounces off and crashes through the fence, and runs into the field on the left side of the road. Fence posts and planks break, splinter and fly everywhere! Bob's tractor and the baler continue on into his driveway and come to a stop. His fastened seat belt keeps him from being thrown from the tractor and he's not hurt. Even if the tractor had overturned, its ROPS would have protected Bob. (See Figure 3 on the next page.)

Bob shuts down his tractor and runs to check on the people in the car. The three kids in the back seat are still buckled up and are scared but they look OK. The mother, Sara, is in the front seat. She is wearing her seat belt, but is badly injured. A five-foot long broken piece of oak fence plank is sticking through the windshield. It has pierced Sara's left shoulder and chest. The sharp pointed end of the broken plank is sticking out the back of the car seat. Sara is conscious and asking if her kids are OK. She's pinned to the seat and can't move her upper body, left arm, or head.

### Question C

What should Bob do? (For each item, circle T or F on the answer sheet.)

- T    F    13. Reach into the car and turn off the ignition switch.
- T    F    14. Tell the kids and Sara to stay where they are and not to move while he goes to call for help. Then run to his house and call 911.
- T    F    15. Tell the kids to unbuckle their seat belts and get out of the car.
- T    F    16. Send the oldest child to his house to call 911 while he (Bob) stays at the car to help the others.
- T    F    17. Stay with Sara and the kids, watch over them, reassure them, and wait for help to come.
- T    F    18. Try to free Sara by pulling the broken piece of fence plank out of her chest and the car seat.

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[After you have marked your answer sheet, please continue with the story.]

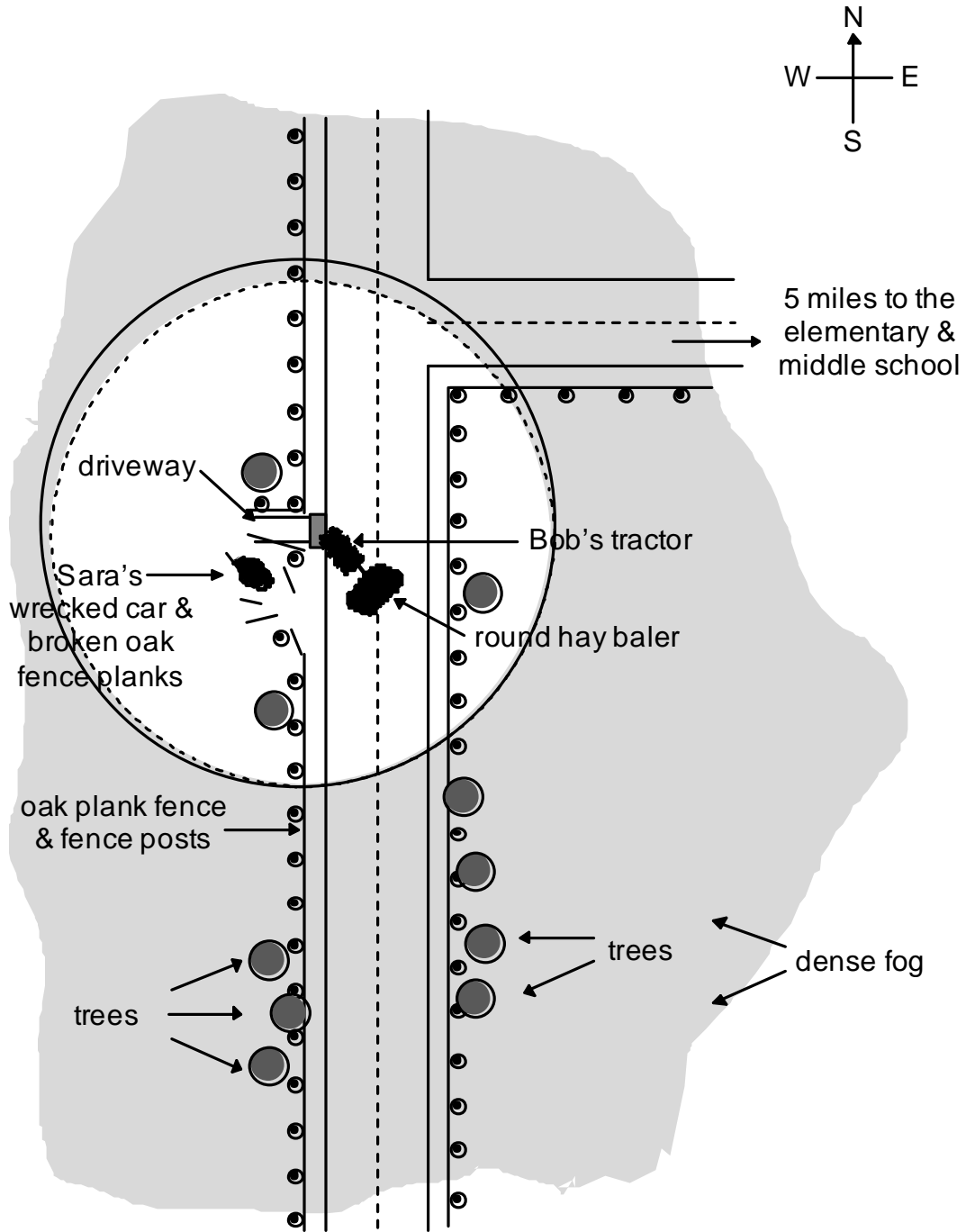


Figure 3: Sara's car sideswipes the baler and crashes through the fence



The local rescue squad arrives in about 12 minutes. The kids are OK, but Sara is severely injured. To free her, the car seat has to be cut open and both ends of the fence plank that are sticking out of her shoulder and chest have to be cut off. The pain is terrible.

Sara is transported to the emergency department of the regional hospital. She is in the intensive care unit for 5 days. During her six-week hospitalization she has five surgeries to clean out her wound and repair a ripped lung, broken ribs, broken bones, torn muscles and ligaments and tendons in her upper left arm and shoulder. Then she goes home, but she has to return to the hospital every weekday for physical therapy for six months. She hopes she will be able to use her left arm again sometime in the future. Her doctors tell her she will need to be in physical therapy for two years and may always have limited use of her arm.

### Question D

What could Bob and Sara have done to prevent this collision? (For each item, circle T or F on the answer sheet.)

- T    F    19. Bob should have installed taillights and turn signals on the hay baler.
- T    F    20. Bob could have accelerated and pulled the tractor and baler out of the way and off the road into his driveway.
- T    F    21. Bob could have listened carefully to hear if any cars were approaching from behind the baler.
- T    F    22. Bob could have arranged to have an escort vehicle use its headlights and four-way flashers while following along behind the baler.
- T    F    23. Bob could have waited until later in the morning when the fog cleared before moving the baler.
- T    F    24. Sara could have been driving slower.
- T    F    25. Sara could have had the headlights on.
- T    F    26. Sara could have noticed the tractor's left turn signal.
- T    F    27. Sara could have had the two boys in the front seat with her.

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[After you have marked your answer sheet, please turn the page.]

### **A Similar Tractor-Motor Vehicle Collision**

Like fog, blind hills and roadway dips can also lead to collisions even in good weather. Read the following report. If an automobile (rather than a large truck) had struck this wagon, what do you think would have happened to the driver and occupants of the car?

The Kentucky Fatality Assessment and Control Evaluation (KY FACE) Project at the University of Kentucky investigates farm fatalities as well as other occupational deaths. This summary was taken from a fatality report on the KY FACE website. The full report, as well as all other Kentucky agricultural fatality reports from 1994 to the present, are available on-line at Internet address <http://www.kiprc.uky.edu/oipp/face.htm>

### **KY FACE Fatality Report #9411101**

**Date:** 26 October 1994

#### **Summary**

A 63-year-old farmer was killed while hauling five round hay bales on a flatbed wagon. The farmer was driving his tractor and on a two-lane public roadway when the wagon was struck from behind by a two-ton logging truck. Both vehicles were traveling north. As the truck crested a hill at 55mph (80.7 ft/sec), its driver saw the wagon directly ahead in his lane, saw a car approaching in the oncoming southbound lane, and saw a steep embankment dropping off to the right. Unable to stop, and to avoid a head-on collision or going over the embankment, the truck driver ran into the rear of the wagon. The impact caused the bed of the wagon to move forward off the wagon frame and strike the rear of the tractor. The tractor jackknifed, rolled over on its side and slid northward in the southbound lane, and then turned over again, coming to rest upside down on the west side of the road. The farmer was thrown from the tractor and landed on the asphalt near the tractor. He sustained massive head injuries. The farmer was pronounced dead at the scene by the coroner at 1:25 PM. The truck driver was not injured. The tractor did not have a Roll Over Protective Structure (ROPS) or a seat belt. Neither the tractor nor the wagon had a Slow Moving Vehicle (SMV) sign. The weather was clear and dry.

#### **Recommendations:**

In order to prevent future fatalities of this type, the FACE investigator recommends:

- Tractors should be retrofitted with ROPS and seat belts.
- All farm equipment should be clearly marked with Slow Moving Vehicle (SMV) emblems before driving on public roadways.
- When pulling harvest products or equipment on public roadways, a trailing unit (escort vehicle) to warn drivers should follow tractors.

### **End of the Story**

Please complete the questionnaire attached to your answer sheet. Ask the instructor for a copy of the answer key. Compare your ideas and answers to the answer key. Discuss any ideas and differences of opinion. Please don't change any of your answers in this booklet. Your answers will be used to help improve the exercise. Please give your problem booklet and your answer sheet and questionnaire to the instructor. If there is time, look at and discuss "Facts About Tractor-Motor Vehicle Collisions."