



HIGHWAY SAFETY CHECKLIST FOR AGRICULTURAL VEHICLES

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Definitions according to Tennessee highway laws:

A **motor vehicle** is any motorized "device upon or by which any person or property may be transported or drawn upon a highway" except vehicles which operate on rails or are powered from overhead wires. Thus, farm equipment will be considered as a motor vehicle when on a public road. This includes the powered machine and trailers, wagons or towed equipment. Tennessee law specifically defines a farm tractor as a motor vehicle.

"A **highway or street** is the entire width between boundary lines of any publicly maintained way when any part of it is open to the use of the public for vehicular traffic." This includes the roadbed, shoulders and banks.

Check the condition of each item listed below and correct all deficiencies before operating any motor vehicle on a public road.

The following are required by Tennessee law on all motor vehicles:

Lighting:

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- Headlights - At least 2, but not more than 4 headlights. They should render a person visible at least 200 feet ahead of the vehicle. Do not operate flood lights on public roads. Check function and aim (the center of the beam should not point above horizontal nor to the left). Operate headlights at night (the period between ½ hour after sunset and ½ hour before sunrise) and during fog, mist, rain, snow, smoke or other periods of reduced visibility. Industry standards specify that head lights will be provided on agricultural equipment.
- Tail lamps - Two red tail lamps, one on each side of the rear of the vehicle. Check function and visibility. Industry standards specify that tail lights will be provided on agricultural equipment.
- Brake lights - Two red stop (brake) lights, one on each side of the rear of the vehicle and visible at least 100 feet to the rear of the vehicle in normal daylight. The brake lights may be incorporated into the tail lamp assembly. The brake lights must function whenever brakes are applied. Check function and visibility. Industry standards specify that brake lights will be provided on agricultural equipment.
- Turn signals - Tennessee law states that drivers are required to give a signal plainly visible to other motorists whenever starting, stopping, turning, changing lanes, etc. The law also states that if the distance from the center of the steering wheel to the left extremity of the vehicle/load exceeds 24 inches, mechanical or electrical turn signals are required (your arm is not long enough to use hand signals in this case). Signals must be given at least 50 feet before changing course. Hand signals are acceptable only if clearly visible. Industry standards specify that turn signals will be provided on agricultural equipment and incorporated into the flashing amber warning light system.

Safety chain:

_____ Any towed vehicle (trailer, wagon, implement) must be equipped with a properly sized and properly installed safety chain. *EXCEPTION:* farm implements used for tillage, planting and harvesting when operated at speeds of less than 25 mph on State or local roads. The law gives no strength requirements. Industry standards specify a single chain with breaking strength of the chain and connections must equal or exceed gross towed weight. If two or more chains are used, each must meet the strength requirement. Industry standards specify that a safety chain will be provided on towed equipment. NOTE: never weld a safety chain.

Brakes:

_____ All motor vehicles are to be equipped with brakes capable of stopping the vehicle in 30 feet or less from a speed of 20 mph on level pavement. If the vehicle has brakes on only two wheels, it must be capable of stopping in 40 feet or less. Brakes are required by law on trailers with gross weight exceeding 3,000 pounds (most car and light truck owners manuals state that brakes should be used if the trailer exceeds 1,000 pounds). Brakes must apply automatically should the trailer become disconnected from the towing vehicle. *EXCEPTION:* Tennessee law permits trailers used exclusively for transporting farm supplies/products to be operated without brakes.

Other:

- _____ Maximum width - The maximum legal width of a vehicle/load is 102 inches (8½ feet).
EXCEPTIONS: (1) farm equipment operated temporarily on the highway during daylight hours, (2) cotton wagons and loads of round bales of hay may be 10 feet wide if operated during daylight hours and within 50 miles of the point of origin and (3) vehicles with oversize load permits.
- _____ Over-wide vehicles at night - Vehicles/loads exceeding 102 inches (8½ feet) in width are not permitted on public roads at night. This restriction applies to farm machinery as well as other vehicles, even those with oversize load permits.
- _____ Maximum height - The maximum height of a vehicle/load is 13½ feet.
- _____ Slow-Moving Vehicle (SMV) emblem must be mounted on the rear of employee-operated vehicles travelling at speeds of less than 25 mph (this is an OSHA requirement, not a highway law). The SMV emblem is an identification emblem only - it is not a substitute for proper lighting and is not recognized by Tennessee highway laws except on cotton wagons in combination with tail lights.

Additional safe operating tips:

- All vehicles must obey all traffic laws, including speed limits, traffic signals and signs.
- Never allow your vehicle or load to extend into oncoming traffic lanes. If the road is so narrow that this cannot be avoided, always have an escort vehicle to warn or stop oncoming traffic.
- Have an escort vehicle whenever possible to warn other motorists, especially when moving over-width loads or traveling on narrow, winding roads or roads with heavy traffic.
- Stay on the pavement. Traveling with one set of wheels on the pavement and one set off can lead to loss of control if you encounter soft spots or rough spots on the shoulder.
- Pull over occasionally (when safe to do so) to let faster traffic pass safely. This can reduce likelihood of a following motorist attempting an unsafe pass.
- Never exceed the gross vehicle weight rating (GVWR) nor the towing capacity of the vehicle.
- When towing with a tractor, the towed weight should not exceed the weight of the tractor. Since tractors have brakes only on the rear wheels, towing loads heavier than the tractor can lead to loss of control.
- Use the same gear when going down a hill that you would use to tow the load up the same hill so the engine can do most of the braking. Use one gear lower with trucks.
- Do not operate farm equipment on public roads at night or during conditions of poor visibility.
- Check with your insurance agent to determine whether you have adequate liability coverage.



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HIGHWAY SAFETY WITH AG MACHINERY

Your name: _____

1. Which of the following is considered a motor vehicle by Tennessee highway law?
 - a. farm tractor
 - b. farm wagon which is being towed by a farm tractor
 - c. combine
 - d. 2-ton flatbed truck
 - e. automobile

2. Which of the following is required by Tennessee highway law on a farm tractor?
 - a. headlights
 - b. slow-moving vehicle (SMV) emblem
 - c. tail lights
 - d. brake lights
 - d. flashing amber warning lights

3. When installing a slow-moving vehicle (SMV) emblem, where should it be placed?
 - a. anywhere you can find a place for it
 - b. any height, but on the center or left side of the rear of the machine
 - c. 2 to 6 feet from the ground, on the center or left side of the rear of the machine

4. In which of the following situations is a safety chain required by law?
 - a. wagon loaded with hay being towed by a farm tractor on a public road
 - b. hay baler being towed behind a pickup truck on a US highway
 - c. disk harrow being towed by a farm tractor on a public road
 - d. horse trailer with bumper hitch towed by a pickup truck
 - e. boat trailer

5. You are using a 150 horsepower farm tractor and a trailer to transport large round bales. The tractor is properly ballasted and weighs about 20,000 pounds. The trailer weighs about 5,000 pounds and has a bed that measures 25 ft. long by 8 ft. wide. The bales are 5 ft. dia. by 5 ft. high and weigh about 1,500 pounds each. How many bales can you transport safely?

6. What is the maximum legal width for vehicles being operated on public roads during daylight hours in Tennessee without special permits?

7. It is legal to operate a combine with grain header on a public road at night if you have escort vehicles with hazard flashers operating.
 True
 False

8. Hand signals are legal for signaling your intentions when operating which of the following vehicles?
- automobile
 - flatbed truck hauling hay
 - tractor (with cab) towing folded disk harrow
 - pickup truck towing cotton wagons
9. You are towing a forage harvester behind a farm tractor on a public road, and several cars are waiting to pass. You should:
- signal them to pass when you can see that there are no approaching vehicles
 - drive partially on the shoulder so they can see to pass
 - pull completely off the road when it is safe to do so and allow them to pass
 - let them take their chances
10. It is OK to let passengers ride on wagons towed by tractors on public roads.
- True
- False
11. It is OK to let passengers ride in open pickup beds or other trucks on public roads.
- True
- False

Additional Information

HIGHWAY:

- Definition in Tennessee Code:

A **highway or street** is the entire width between boundary lines of any publicly maintained way when any part of it is open to the use of the public for vehicular traffic." This includes the roadbed, shoulders and banks.

MOTOR VEHICLE:

- Definition in Tennessee Code:

A **motor vehicle** is any motorized "device upon or by which any person or property may be transported or drawn upon a highway" except vehicles which operate on rails or are powered from overhead wires.

- Farm tractors are specifically defined by the law as motor vehicles
- The entire vehicle combination is considered as a motor vehicle, not just the part which is motorized. Thus, the wagon hitched to a farm tractor is a part of a motor vehicle and must comply with the law.

REQUIRED EQUIPMENT:

- **Lighting**

- **Headlights** - should render a person visible at least 200 feet ahead of the vehicle. Do not operate flood lights on public roads because they can blind oncoming drivers. Check function and aim (the center of the beam should not point above horizontal nor to the left).

Operate headlights at night (the period between ½ hour after sunset and ½ hour before sunrise) and during fog, mist, rain, snow, smoke or other periods of reduced visibility.

The current industry standard specifies that head lights will be provided on agricultural equipment.

- **Tail lamps** - two red tail lamps, one on each side of the rear of the vehicle. Check function and visibility.

The current industry standard specifies that tail lights will be provided on agricultural equipment.

- **Brake lights** - two red stop (brake) lights, one on each side of the rear of the vehicle and visible at least 100 feet to the rear of the vehicle in normal daylight. The brake lights may be incorporated into the tail lamp assembly. The brake lights must function whenever brakes are applied. Check function and visibility.

The current industry standard specifies that brake lights will be provided on agricultural equipment.

- **Turn signals** - Tennessee law states that drivers are required to give a signal plainly visible to other motorists whenever starting, stopping, turning, changing lanes, etc.

The law also states that if the distance from the center of the steering wheel to the left extremity of the vehicle/load exceeds 24 inches, mechanical or electrical turn signals are required.

Signals must be given at least 50 feet before changing course. Hand signals are acceptable only if clearly visible.

The current industry standard specifies that turn signals will be provided on agricultural equipment and incorporated into the flashing amber warning light system.

- **Safety chain:**

- Any towed vehicle (trailer, wagon, implement) must be equipped with a properly sized safety chain.

EXCEPTION: farm implements used for tillage, planting and harvesting when operated at speeds of less than 25 mph on State or local roads. The current industry standard specifies that a safety chain will be provided on towed equipment.

The safety chain (and all hardware used to connect it to the vehicles) must have a breaking strength at least as great as the gross towed weight (GTW). *NOTICE:* Only one chain is required to meet ASAE and SAE standards. If two or more chains are used, each chain must be able to meet the breaking strength requirement independent of the other. *YOU CANNOT USE TWO OR MORE SMALLER CHAINS!*

There should be only enough slack in the chain to allow the vehicles to operate properly.

- Use a proper hitch pin with a locking device.

- **Brakes:**

- All motor vehicles are to be equipped with brakes capable of stopping the vehicle in 30 feet or less from a speed of 20 mph on level pavement. If the vehicle has brakes on only two wheels, it must be capable of stopping in 40 feet or less. Brakes are required by law on trailers with gross weight exceeding 3,000 pounds.

EXCEPTION: trailers used exclusively for transporting farm supplies/products can be operated without brakes. However, the Agricultural Extension Service encourages the use of brakes on all trailers with a GVWR heavier than the towing vehicle.

- Lock tractor brakes together to prevent loss of control.
- When towing with a tractor, the towed weight should not exceed the weight of the tractor. Since tractors have brakes only on the rear wheels, towing loads heavier than the tractor can lead to loss of control when braking.
- Use the same gear when going down a hill that you would use to tow the load up the same hill. For extra safety, use one gear lower.
- If driving a late-model truck, the improved streamlining causes less drag, so use one gear lower when going down the hill than is required to go up the same hill. Also note that today's tires have less rolling resistance than tires a few years ago.

- **Other:**

- Maximum legal width - 8½ feet (102 inches)

EXCEPTION #1: Farm tractors and agricultural implements operated temporarily on public roads. The term 'temporarily' is not defined, but some other sections state a distance of 50 miles from the point of origin.

EXCEPTION #2: Trucks hauling large round bales of hay may be 10 feet wide if operated during daylight hours only, on state or local roads, and not more than 50 miles from the point of origin.

- Over-wide vehicles at night - vehicles/loads exceeding 102 inches (8½ feet) in width are not permitted on public roads at night. This restriction applies to farm machinery as well as other vehicles.
- Maximum height - the maximum height of a vehicle/load is 13½ feet, but some roads may have lower clearances due to low bridges, etc.
- Slow-Moving Vehicle (SMV) emblem must be mounted on the rear of employee-operated vehicles which travel at speeds of less than 25 mph (OSHA requirement).

NOTE: The SMV emblem is an identification emblem only - it is not a substitute for proper lighting and is not recognized by Tennessee highway laws. You must have proper lighting, period.

EXCEPTION: The legislature passed a bill to permit cotton wagons to have a continuously burning red light and SMV emblem. However, the Agricultural Extension Service continues to recommend that all lighting required of other vehicles be present on cotton wagons.

- Try to schedule transport of agricultural equipment for times with the least risk. For example, avoid rush hours, football game traffic, etc.
- Have an escort vehicle whenever possible to warn other motorists, especially when moving over-width loads, when traveling on narrow, winding roads or when on roads with heavy traffic.

- **Additional safe operating tips:**

- Obey all traffic laws. All vehicles must obey all traffic laws, including speed limits, traffic signals and signs.
- Maintain a safe speed at all times. Tractors do not handle like cars for several reasons:
 - No suspension: A tractor may begin bouncing on rough surfaces at transport speeds.
 - Sloppy steering: A tractor does not have the 'tight' steering system that a car or truck has, and can be more difficult to control at transport speeds.
 - Fluid-filled tires: The fluid ballast in the tires will rotate with the tires, and the momentum of this rotating fluid must be overcome when braking. This can result in longer stopping distances.
- Stay on the pavement. Traveling with one set of wheels on the pavement and one set off can lead to loss of control if you encounter soft or rough spots on the shoulder.

- Pull over occasionally (when safe to do so) to let faster traffic pass. This can reduce likelihood of a following motorist attempting an unsafe pass.
- Never exceed the gross vehicle weight rating (GVWR) nor the towing capacity of the vehicle.
- Do not operate farm equipment on public roads at night or during conditions of poor visibility, even if legal to do so. Farm machinery is large, slow and often not expected by motorists. Remember the maximum legal width at night is 8 feet.
- Check with your insurance agent to determine whether you have adequate liability coverage.