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Answers to Tractor Safety Questions: Extension Circular 7-57-2

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ANSWERS TO TRACTOR SAFETY QUESTIONS

1. When the speed of a farm tractor is doubled, the danger of tipping over sideways is four times as much. When turning, the tipping force is in proportion to the square of the speed. Even when the tractor operator is attempting to drive straight ahead, this rule still applies because every bump turns the tractor to some extent. Remember, twice the speed means four times as much side tipping danger. Three times as much speed causes nine times the tipping hazard, etc.

2. By replacing the front wheel unit of a row-crop tractor with a wide front end, the danger of side tipping is "greatly decreased". When the wheels are placed farther apart, the tipping axis is moved farther from the center of gravity. Therefore, wide front end tractors are less likely to upset sideways.

3. In collisions involving automobiles and farm tractors "The driver of the tractor is much more likely to be killed." This seems reasonable when we realize that a farmer has practically no protection when seated on the tractor. The records in one state for one year showed 17 farm tractor operators killed in collisions involving other vehicles while only one other person was killed. No matter who has the right-of-way, the farmer should be the most interested in avoiding the accident.

4. Non-removable P. T. O. shields were placed on farm tractors to "increase safety". This may not seem necessary to those who have never been injured by an exposed P. T. O. shaft but many have been killed and seriously injured because someone didn't think they had the time to install a good shield or straighten a damaged one. Some had the time but didn't think it was necessary.

5. There is a maximum limit to the height of the drawbar on farm tractors. This was set to prevent backward tipping when pulling a load on level ground. When pulling a load on level ground a tractor will not tip backwards if the load is hitched to a standard drawbar. Whenever the front end of the tractor is higher than the back end, then the tractor is already part way over and may tip even though hitched at the proper height.

6. Many tractor operators think they can make it safe for extra riders by merely warning them to "hold tight." This warning is practically useless -- especially after the first minute or two. None of us can concentrate on holding tightly for more than a minute or two at a time. Just try it sometime. Your attention will be attracted to something else or you'll get tired. You'll relax your grip although you won't know when it happens or why. Then a sudden bump or jerk will throw you from the tractor or the drawbar. This is the second largest cause of farm tractor deaths. Don't allow extra riders! Don't ask to be an extra!

7. Children are not more likely to have accidents while operating farm tractors because of slower reaction time. Children react more quickly than adults; therefore, it is wrong to assume they have accidents because their reaction time is slower. However, lack of judgment, lack of strength and machinery not adapted to fit the size of children do account for many farm tractor accidents involving young drivers.

8. By increasing the width of the rear wheels the danger of side tipping is decreased because the tipping axis is farther away from the center of gravity. They should be kept at full width except when closer spacing is necessary for a particular job.
9. If a farm tractor is traveling at 10 miles per hour and an automobile 60 miles per hour, how far will the auto travel while the tractor moves 1/4 mile? 1 1/2 miles. This difference of speed helps explain why tractor operators are often surprised by a car that 'wasn't even in sight when I checked a few seconds before the crash.'

10. Uneven brake adjustment is least important when the tractor is hauling a load on level ground at slow speed. When going uphill, it may be necessary to hold the load. In this case, jackknifing may result if brakes are not even.

11. When wheel weights are added to a tractor the chance of back tipping is increased because the center of gravity is moved farther to the rear.

12. The safest way to pull out of a rut, mudhole or ditch is to back out or be pulled by another tractor. All others increase the danger of tipping backwards. By backing out, you will not tip backwards. If this doesn't work hitch on with another tractor or truck.

13. For safety when pulling a loaded trailer there should be brakes on both the tractor and trailer. Of course, just "having brakes on both the tractor and trailer" does not solve the problem by itself. They must be used properly. To prevent jackknifing the trailer, brakes should be applied before or at the same time as they are applied on the tractor.

14. Low center of gravity decreases the danger of side tipping. High speed, rough ground and sharp turns all increase the danger.

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