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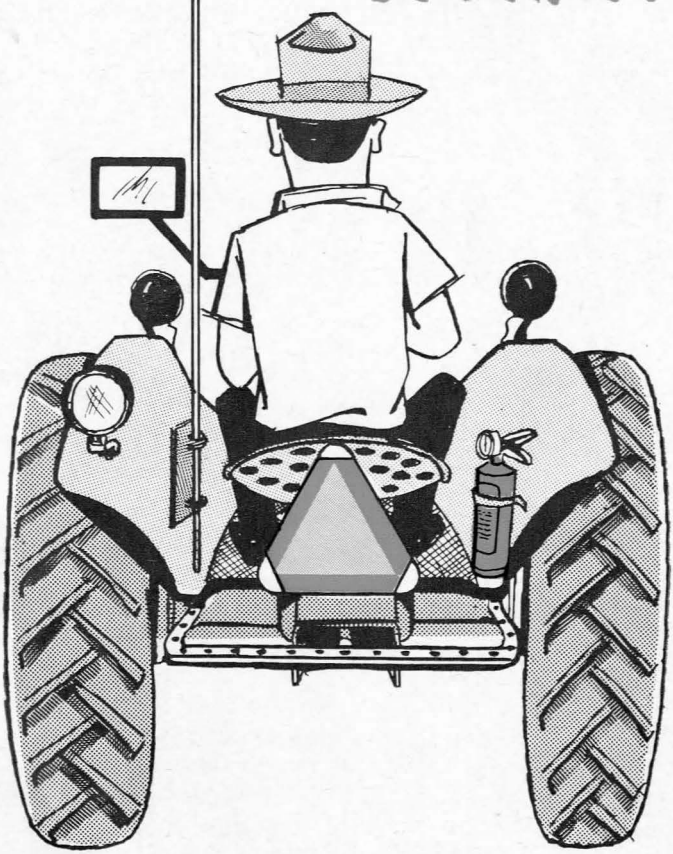
SAFE TRACTOR OPERATIONS



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Safe Tractor Operation

By Rollin D. Schnieder
Extension Safety Specialist

No one deliberately has a tractor accident. Nevertheless, every year many farmers are killed or injured on their tractors. These deaths or injuries can be attributed to four main causes.

1. Unsafe methods
2. Failing to use safety equipment
3. Hurrying
4. Working when overly tired

Farm people know the immediate pain and financial loss, and realize that permanent disability from a tractor accident causes continued hardship through medical expenses and loss of income.

Good judgment and constant alertness are the keys to preventing accidents. Study your tractor to become proficient in its use and then practice these safety hints:

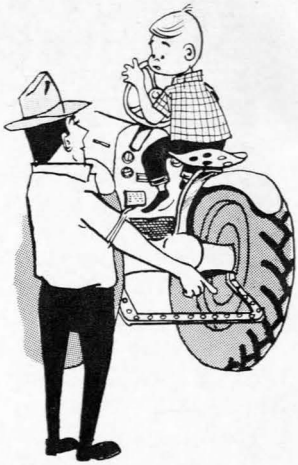
1. Be sure your tractor is properly serviced. Check lubrication, fuel and water. Be careful when checking the water level of a hot radiator.

2. Never refuel your tractor while the engine is running. Static electricity, a spark from the ignition system, or a hot exhaust could cause the fuel to ignite. Always fuel your tractor outside and store fuel outside.

3. Carry a first aid kit and an approved dry chemical extinguisher.

4. Assure good ventilation before starting your tractor engine. Exhaust gases contain carbon monoxide which is colorless, odorless, and deadly.

5. Keep small children away from tractors. Tractors are designed to carry only the driver. Discourage other riders.

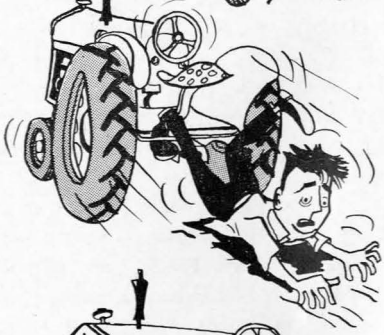


6. Keep wheels spread wide whenever possible.

7. Reduce speed before turning. Doubling the speed of a farm tractor increases the danger of upsetting sideways four times.

8. A loader in the raised position can increase the possibility of upsets. Reduce speed when driving over rough ground. Be alert for ditches, rocks, or holes which might cause the tractor to overturn.

9. Stop the tractor before you get off. Shut off the engine. Jumping from a moving tractor is dangerous.



10. Never hitch to the axle or other high points. Always hitch to the drawbar. Take up slack slowly and never jerk on chains or cables. Broken parts of the chain could act like shrapnel. Tractors can also upset backwards when pushing, using a front end loader, or when hitched to the front end by chains or cables which pass under the back axle. Brake carefully when backing down a steep incline because the tractor can flip over backwards.

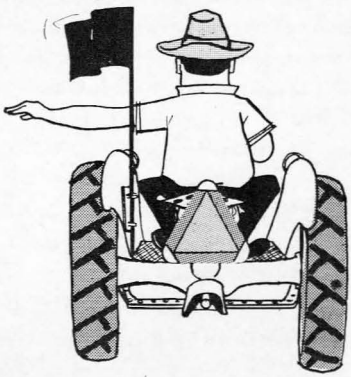
11. Disengage the power take-off when not in use. The power shield should be in place whenever equipment is in use.

12. Do not wear loose, sloppy clothing while operating the tractor. Sloppy clothing can catch on moving parts.

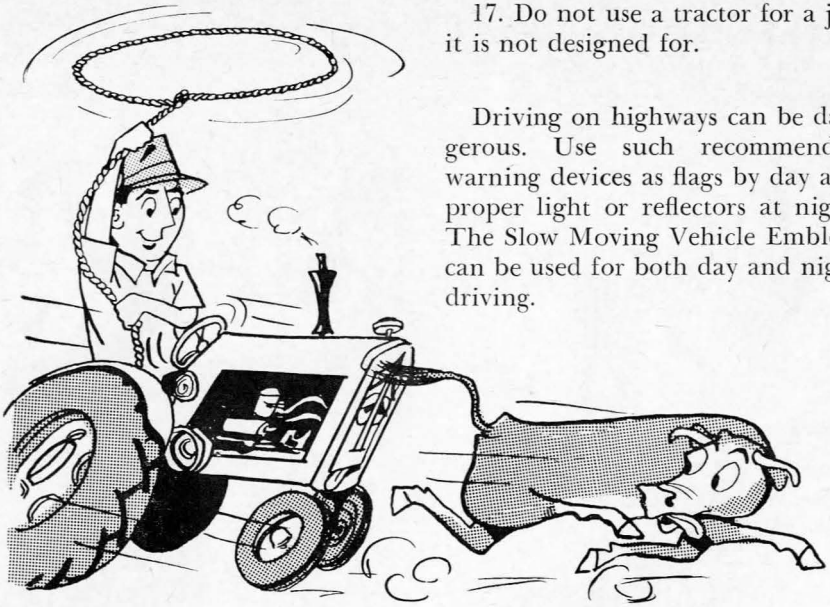
13. Keep the tractor in gear when going down hill. Let the tractor engine serve as brake.

14. Engage the clutch gently, especially when pulling uphill. Jackrabbit starts can be dangerous.

15. Never attach a post or log to the rear tractor wheels when stuck in mud. If the wheels are not free to turn, the tractor will pivot around the axle and upset. Try to back out if possible. If not, get another tractor to pull you out. The time spent may be worth a lifetime.



16. Use proper hand signals when operating a tractor on a public road. Signaling your intention to turn or stop might save a life.



17. Do not use a tractor for a job it is not designed for.

Driving on highways can be dangerous. Use such recommended warning devices as flags by day and proper light or reflectors at night. The Slow Moving Vehicle Emblem can be used for both day and night driving.

Since 1956 there have been 1,149 accidents in Nebraska between motor vehicles and tractors. These accidents caused 79 deaths and 387 injuries (Table 1). In some cases tractors caused accidents between other vehicles even though they were not involved themselves.

Table 1. Accidents between motor vehicles, tractors.

Year	Total	Fatalities	Injury
1956	83	5	30
1957	112	10	38
1958	128	13	52
1959	142	8	51
1960	192	8	49
1961	170	9	55
1962	162	10	57
1963	166	16	55

Tractor accidents have increased in Nebraska in the past few years. Much of this is because of an increase in the number of tractors and a decrease in the number of farms. The 1954 Census of Agriculture showed 89,509 farms and 163,284 tractors. In 1964 there were 190,000 tractors on 75,000 farms. When the size of farms increases, distance traveled by the farmer increases, adding to the probability of collision between motor vehicles and tractors.

Many tractor accidents which happen on the open road and result in death are single accidents caused by improper use of brakes and other acts of carelessness.

Table 2 shows the number of persons (by age groups) killed in Nebraska as a result of tractor accidents on farms from 1955 to 1963.

Table 2. Number of persons killed (by age group) in farm tractor accidents, 1955-1963.

Year	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–	Total
1955	2	0	2	1	1	0	1	1	2	1	4	2	2	1	1	21
1956	1	0	0	1	0	4	0	0	0	3	1	3	6	1	4	24
1957	1	0	1	1	0	2	0	1	0	3	1	9	1	4	3	27
1958	1	0	4	0	2	4	0	4	3	4	3	2	5	3	2	37
1959	2	1	2	1	1	1	0	1	2	2	3	5	1	3	2	27
1960	0	1	0	1	0	1	1	0	0	2	2	3	6	4	6	27
1961	2	1	2	3	1	2	3	1	4	2	4	3	6	6	2	42
1962	2	1	3	1	0	1	1	1	3	2	4	3	2	4	2	30
1963	3	1	2	1	3	4	0	1	2	9	3	3	4	6	7	49
Totals	14	5	16	10	19	10	6	10	16	28	25	33	33	32	29	284

There is no age range immune to this type of death. Although there is concern with the youth of some drivers, there should also be concern for the older drivers. The table shows that the age range 30 to 39 has a low accident rate, whereas operators over 45 have a high accident rate.

Tractor misuse causes accidents and death. A tractor is not designed for herding cattle, racing, or for trips to and from town. Many tractor accidents do not happen in the field, but on some errand or job for which the tractor was not designed.

When tractors are used carelessly or improperly they can be dangerous. Have your dealer explain the use of the machine you purchase. Four-H has a tractor driving program using four instruction books stressing maintenance, operation and safety. This program also includes local, state, regional, and national tractor driving contests.

Tractor accidents can be avoided if you use your knowledge and realize the capabilities and limitations of your tractor.

Agricultural Engineering

More capable high school graduates should be interested in preparing for top positions in either mechanized farming or its kindred businesses.

Those interested in top positions in the agricultural industry should investigate the college courses available. For example, the Department of Agricultural Engineering can furnish information about their "Mechanized Agriculture major with Business Option" and their course for "Agricultural Engineers."

The Mechanized Agriculture major is planned for those persons interested in mechanized farming or ranching, agricultural contracting, agricultural extension, or sales and service work.

The Agricultural Engineering course—offered in the College of Engineering—qualifies the graduate to develop a professional career as an engineering consultant, manager of large-scale farming operations, or for design development testing or research work with manufacturers of supplies and equipment or with public service agencies.

The Department of Agricultural Engineering welcomes your inquiries about opportunities in these areas of employment.