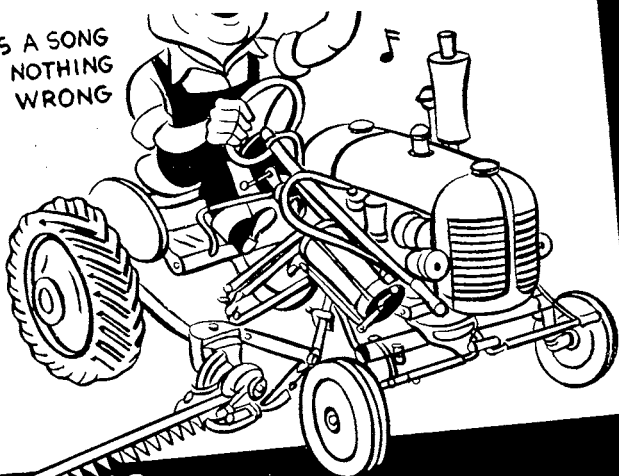


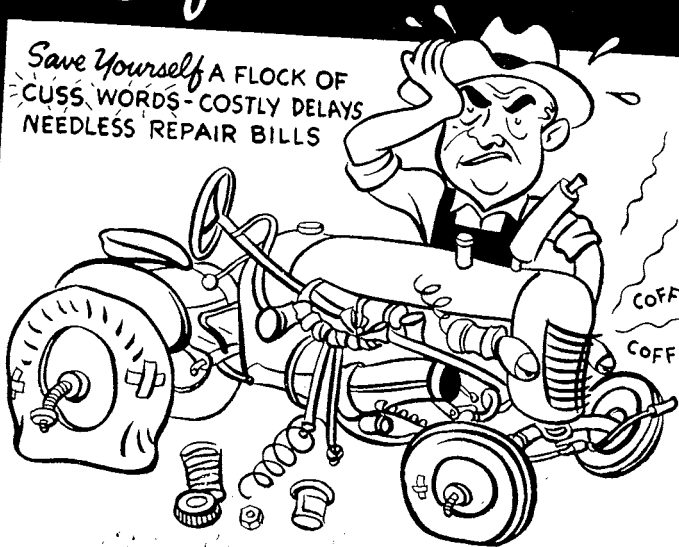
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LIFE IS A SONG  
WHEN NOTHING  
GOES WRONG



*Count* YOUR  
**MACHINERY TROUBLES**  
*Before* **THEY HATCH!**

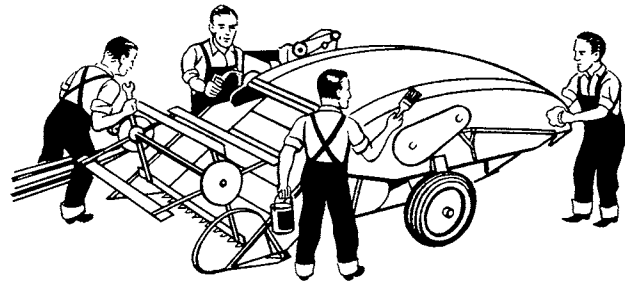
Save Yourself A FLOCK OF  
CUSS WORDS - COSTLY DELAYS  
NEEDLESS REPAIR BILLS



★ 1944 FOOD PRODUCTION PROGRAM SERIES  
UNIVERSITY OF MINNESOTA  
*Agricultural Extension Service*  
U. S. DEPARTMENT OF AGRICULTURE

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# DEPEND ON YOUR *Present* MACHINERY TO SEE YOU THROUGH



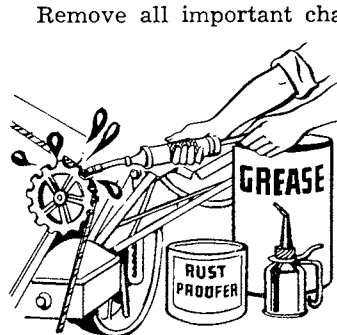
TIGHTEN UP · GREASE UP · CHECK UP · PAINT UP

## BETTER CARE

**K**EEP your machines well lubricated at all times to save wear and tear and insure best performance. A few drops of oil may save many pounds of steel.

## Winterize Your Farm Machinery

One grease job that is too often ignored may be called the *annual grease job*. Celebrate the anniversary of each machine on your farm by giving it a thorough grease job the day it finishes its work for the season. Pump each grease fitting so full of grease that the old grease and dirt is forced out of the bearings. This will remove and keep out moisture and dirt and will protect all shiny parts of the bearing from rust, so even though the machine sits outside all winter, these bearings will stay bright and clean. Cover all shiny parts, such as sprockets, gear teeth, knife sections, and ledger plates with old oil or grease; or better yet with a special rust preventive compound, a new product somewhat like axle grease but which gives much better protection. Rust preventive compound is especially recommended for plow mold boards, shares, coulters, knotters bills and clutches on binderheads, disk blades, and other working parts that must be shiny for proper functioning.



ANNUAL GREASE PARTY

Remove all important chains, especially the new roller type chains. Roll up these chains, tie them with wire or twine, and soak them for a day or so in a bucket of tractor fuel to wash out all the dirt and hardened grease. Then wrap them in an old gunny sack,



## 1. BEST OF CARE

soak sack and all in a pail of old oil, and then hang them up somewhere out of the way but under shelter.

Remove all canvases and belts. Roll and tie the canvases and hang them up under a roof out of the reach of mice. Roll up the belts and place them on a shelf where they will be well protected and out of the way. Remove or effectively cover all fiber pulleys on machines standing outside. Remove rubber tires, or if the machine is stored inside, block up wheels.

## Note and List Repair Jobs

Last, but most important of all, **CHECK** over each machine for needed repairs and things that need fixing, and at the same time, tighten nuts and bolts. When you have just finished using any machine, you are most conscious of what needs fixing. If you don't have time then, mark the jobs or make a note of them so that you won't forget to do them sometime before the next spring. A chain that climbs the sprocket is worn out. Order a new one now. A chain "stretched" from wear cuts out sprocket teeth in short order, so it is generally advisable to replace the chain as well as the sprocket. New bearings or bushings are probably needed if a set of gears have started to cut out. Gears with knife-edge teeth should be replaced. Check for such things as end-play of shafts, proper mesh of gear teeth, and sprocket wheel alignment for chains and make a note to fix these during the winter.

Protection from the elements is important. If you have a machine shed it should be filled to capacity. Perhaps other shelters, such as a driveway in corncrib or barn, may be used as a shelter. Whether



CHECK FOR NEEDED REPAIRS

## This Will Call For . . .

## 2. TIMELY REPAIR

machines are sheltered or not, every machine should be checked over and given its annual grease job when its use for the season has been completed.

## Keep Machines Properly Adjusted

Nothing is more important for good performance of a machine than **PROPER ADJUSTMENT**. Improper adjustment means poor performance, excessive wear, big repair bills, higher power cost, and lost time. Proper adjustment, however, requires a little "Know-How" plus constant attention. You can get much of the "Know-How" from the *service manual* or instruction book that came with your machine. Really study these service manuals, and talk over your problems with your neighbor or implement dealer.

## Don't Overload Your Tractor or Machinery

The governor of your tractor should never be allowed to keep the throttle butterfly arm pushed up tightly against the stop pin for long periods of time. Put the tractor in a lower gear or reduce the load. The throttle on your tractor for a proper load should vary between two thirds and three fourths the way open. You are then traveling the fastest and getting the best economy out of your tractor, everything considered.

It never pays to overload a machine, but it is likewise poor economy to operate too much below capacity. In general, follow the instructions in your service manual and you will be really practicing *Better Care*.



STUDY YOUR SERVICE MANUALS

## 3. A WILL TO SHARE



JUST THINK! A \$3 BEARING REPLACED LAST YEAR, COULD HAVE SAVED ALL THIS

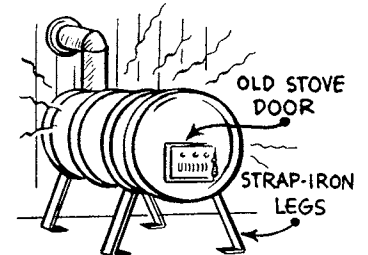
## TIMELY REPAIR

**W**INTERTIME is repair time, but on many farms repairs have not been made in the wintertime because farmers lack the facilities of a good farm shop. Owing to the present shortage of skilled mechanics and blacksmiths, farmers may have to do much of their own repair work. Since farmers are too busy, once field work starts, to do much repair work, they should have most of their machines ready to go when the snow thaws in the spring. This means:

- Your machinery should be checked and needed repairs ordered at once, or purchased now if available. Then whenever the repair work can be done this winter, the repairs will be on hand.
- Tractor overhaul jobs and major machinery repair jobs should be listed with your implement dealer at once and taken in when he is ready.
- Minor repairing and fix-up jobs should be done this winter.

A good farm shop becomes almost a necessity if repair and fix-up work is to be done on the farm in winter. With ever increasing amounts of precision machinery on farms, the time has come when farmers can no longer afford to be without the facilities of a good farm shop.

A farm shop need not require a large investment. In many cases it need not require a new building.



A BARREL STOVE WILL HEAT YOUR WORK SHOP

# TAKE CARE — REPAIR — AND SHARE YOUR FARM MACHINERY

To be of any real value, however, a farm shop must provide:

1. A work floor area (12' by 12' or larger) in addition to space occupied by the shop tools and equipment.
2. Heat—tight walls and an old stove.
3. Good light—windows and/or electric light.

Without a work area, heat, and light the farm shop is of little use in cold weather or on a dark, rainy day in summer.

Other desirable features of a good farm shop are, of course, electrical power equipment, if electricity is available, such as a circular saw, drill press, emery wheel, and an electric welder. Also quite necessary is storage space and a supply of bolts, screws, nails, rivets, lumber, and the like. However, once the basic requirements of a work area, heat, and light are provided, these other things will generally accumulate in a few years without noticeable expense.

With the facilities of a good farm shop, repairing is far more likely to be taken care of in winter, and the result will be machinery ready to go next spring which will give better performance, save precious time, and thus aid maximum food production.

A good farm shop will also be useful for the construction of homemade laborsaving equipment, as well as for keeping the buildings and other equipment around the farm in good repair.

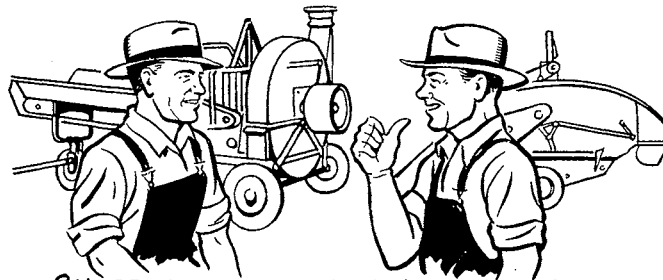
**You must repair now—you can build after the war is won.**

## SHARING FARM MACHINERY

**F**ARM machinery must be made to last, but it would be false economy to hoard machinery now when new machinery happens to be scarce and thus hinder maximum food production. Because of the shortage of new machinery and of labor to operate our present machinery, farmers will undoubtedly have to cooperate more this year than ever before in getting their field work done.

Using farm machinery on more than one farm can be good farm machine management as it can increase machine use per year without much decrease in its years of service and thus greatly lower the cost per acre for machinery. However, using machines on more than one farm should be put on a businesslike basis. **Plain borrowing or loaning should be done away with.** The following points will help neighbors to share equipment and avoid misunderstandings:

- ▶ A machine used on another farm should preferably be operated by the owner or someone hired by him.



SHARE YOUR FARM MACHINERY...

- ▶ Neighbors must be willing to cooperate and to adjust their work to the availability of the machine.
- ▶ There must be a definite understanding with regard to charges and payments for the use of the machine. Rates should be decided upon beforehand and settlements should be made frequently.

Machinery can be shared through: (1) Custom work. (2) By exchanging machines. (3) By cooperative ownership of some of the new machines that do become available.

The following table showing average costs of using farm machinery will help establish fair charges:

Machine	Annual cost	Cost per day	Days used per year
	Per cent of cost new		
Tractor plow (2-16").....	15.0	\$1.69	12
Tractor plow (3-16").....	15.0	2.12	12
Disk harrow (15' single).....	11.6	1.40	12
Spike-tooth harrow .....	9.9	.45	10
Field cultivator .....	13.2	1.30	14
Tractor cultivator 2 row.....	12.1	.90	15
Tractor cultivator 4 row.....	12.0	2.90	10
Grain drill tractor hitch			
10 foot .....	9.4	3.75	6
Corn planter 2 row.....	11.3	1.60	6
Mower 6 foot.....	12.8	1.20	10
Side delivery rake.....	12.7	1.98	8
Hay loader .....	10.7	1.85	8
Grain binder (Tractor).....	11.3	4.80	8
Corn binder 1 row (Tractor)	10.3	5.85	6
Combine (6 foot Auxiliary Motor) .....	15.4	9.25	15
Corn picker 2 row.....	13.8	8.05	12
Ensilage cutter .....	12.3	5.70	7
Manure spreader .....	12.6	.80	25
Pickup baler .....	16.4	7.38	20
Mower (Tractor) .....	16.1	1.61	10

It should be emphasized that these are cost figures taken from actual farm records. They do not include the power or labor to operate the machine. For more information, ask your county agent for Extension Pamphlet 96, "Costs of Tractor and Machine Use."

**T**ODAY as never before the farmer must depend upon his farm power and machinery. In recent years the farmer has come to take his modern machinery for granted. He has forgotten how much labor is saved by it or how much more a man can produce with the help of his tractor and machinery.

A little over 100 years ago, in 1830, it required about 60 man-hours to produce one acre (20 bushels) of wheat. In 1930 an acre in the Great Plains area was produced with 3.3 man-hours.

In 1855 it required about 35 man-hours to produce one acre (40 bushels) of corn. In 1933, with good management of power and machinery, corn was produced with only 6 man-hours of labor per acre. This included seedbed preparation, planting, cultivating, harvesting, and storing.

**The difference for wheat 1830-1930—about 55 man-hours per acre.**

**The difference for corn 1855-1933—almost 30 man-hours per acre.**

**What made this difference? The use of modern power and machinery.**

Your present power and machinery can, no doubt, do more next season to help offset the critical labor shortage than any other one factor, if it performs at its maximum efficiency. All but a small part of the 1944 crop will have to be produced by the machinery now on your farm. Although there will be some new machinery, the supply will not meet the demand, and, at best, new machinery can account for only a small part of the total 1944 farm production.

**Therefore, place your dependence on your present equipment.**

*This folder prepared by Norton Ives, extension agricultural engineer.*

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