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Saving Gasoline on the Farm

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In Missouri at the present time, there are about 54,000 farm tractors, which normally use around 30 million gallons of fuel a year. That is an average of between 500 and 600 gallons each. Tests and observations indicate that it is easily possible, through better adjustment and operation, to save 5 to 10 per cent of the fuel used by tractors.

If each operator could actually save 25 gallons a year, which is less than 5 per cent, the aggregate saving would be 1,350,000 gallons, or 135 tank cars of 10,000 gallons each. In times of shortage and rationing, this is a sizeable saving even from a national point of view. To the individual operator it means saving 25 to 50 gallons of fuel a year simply by keeping his tractor in good condition and by observing a few precautions in its operation.

These precautions will also pay dividends in more satisfactory trouble-free operation and in economy of time.

Ways To Save Tractor Fuel

The following are the most important methods for saving tractor fuel:

1. Keep the tractor in good mechanical condition, properly adjusted and properly serviced.
2. When in operation, the tractor should be kept loaded to as near its normal load as practical.
3. Keep the tractor-pulled implements in good operating condition—sharp, properly adjusted, and well lubricated.
4. Hitch and adjust the implements to give light draft.
5. Store fuels so as to avoid waste and contamination with dirt and water.

Keeping the Tractor in Good Condition

Two points are most important in keeping a tractor in good mechanical condition:

1. Periodic overhauls by an authorized service shop or a competent mechanic—once a year or once in two years, depending upon

how much the tractor is used. Some farmers can do this work themselves.

2. A program of preventive maintenance on the part of the operator. This is particularly important in extending the period between overhauls, in avoiding delays and high repair bills, and in saving labor and operating expense generally, as well as saving fuel.

Preventive Maintenance.—Preventive maintenance, which pays big dividends in more satisfactory operation, lowered costs and fuel saving, consists mainly of the following:

Servicing the air cleaner regularly.

Warming up the engine before putting it under load, and keeping it hot all the time it is in operation.

Adjusting the carburetor as may be needed.

Using good oil, changing it at regular intervals, and cleaning or renewing the oil filter element.

Keeping the ignition system in good condition by using proper type spark plugs, keeping them clean, and keeping the magneto distributor and points clean and adjusted, and the spark properly timed.

Preventing accumulations of scale and dirt in the radiator and other parts of the cooling system, by the use of clean water (soft water if possible), periodic flushing, and seasonal cleaning.

Keeping the tires properly inflated and weighted to insure traction.

Keeping the valves lubricated and adjusted.

Keeping the chassis parts properly lubricated. Some parts, as clutch bearings are often neglected and also often over-lubricated.

Tractors Operate Most Efficiently at Normal Load

At half load, most tractor engines are only about two-thirds as efficient as they are at full load. That is, they will do only about two-thirds as much work on a gallon of fuel at half load as they would at full load. It is therefore, important, from the standpoint of fuel saving to operate a tractor as near as normal load as possible. It not only saves fuel, but it also saves labor, which in many cases is even more important than fuel. When the tractor is operating at full load, the operator gets his work done with fewer man hours of labor than if the tractor were only partly loaded. Of course, a tractor should not be overloaded.

Ways to Keep Tractor Loaded.—The best way to keep a tractor properly loaded is to use an implement that is well-suited in size to the tractor's power, or to use a combination of implements where practical. For example, pulling a spike-tooth harrow behind a disc harrow may load a tractor to nearer its normal load than the disc harrow alone, thus saving on both fuel and labor.

Where it is impractical to fully load a tractor, as in pulling a spike-tooth harrow alone, use as wide an implement as practical, and operate in as high a field speed as practical. Operating in a higher gear, puts a bigger load on the tractor, and of course accomplishes more work in a day, resulting in savings in both fuel and labor.

Saving Fuel on Light Loads.—Where tractors must be operated continually on light loads, such as in cultivating small corn, there are two ways of saving fuel:

1. Throttle the engine down to a slower speed and operate in a higher gear.

2. Be sure the carburetor is adjusted as lean as practical. The load needle valve may be closed slightly, giving a slightly leaner mixture. Be careful not to close it too much, however, as this would give poor engine operation, and actually require more fuel.

Do Not Allow the Tractor to Idle For Long Periods.—It may be better to stop the engine and then start it again when needed. Too frequent stopping and starting may not be good, however, for the engine will be operating cold too much of the time.

Keeping Implements in Good Condition

Rusting of plows, discs, and cultivators should be avoided. A plow with a rusty moldboard, or a disc harrow with rusty discs, will require much more power than if in good condition. More fuel will be used, more time will be lost, and inferior work will be done.

Used engine oil will prevent rusting for short periods. It may be applied with an old paint or whitewash brush, or with a hand sprayer. If an implement is not to be used for a few days, it is a good plan to oil the polished metal working parts.

A drag is often used to transport a disc harrow from field to field. In such cases, it is good practice to pull the disc up on the drag if the disc is to be left in the field for a few days. When implements are to be stored for long periods, heavy oils or greases should be used. Special anti-rust greases are especially good.

Sharp Cutting Parts and Good Adjustments Make for Easy Operation.—Dull shares and discs, dull ensilage cutter knives, and dull feed grinder hammers and burrs, all require more power and fuel than if kept sharp and in good adjustment. With ensilage cutters it is particularly important to keep the knives sharp and set to just clear the shear plate. Operating silo fillers at speeds no higher than necessary to insure good elevation, is likewise important, as the higher speeds consume considerably more power and fuel with very little if any increase in speed of doing work.

Adjust Plow Hitches to Give Light Draft

Where possible, adjust the tractor wheel tread and the plow hitch so as to pull straight ahead on the plow, thus lightening the

load by avoiding side draft. This will also result in better plowing. Vertical adjustment of the hitch, both at the plow and the tractor drawbar, is also important. Under average conditions, hitch as low on the front of the plow as possible and yet maintain an even depth of plowing in all parts of the field. Adjusting the tractor drawbar too low will cause poor traction and wheel slippage, with loss of power and waste of fuel. Adjusting the drawbar either too low or too high may cause hard steering.

Storing Fuel on the Farm

It is best not to keep gasoline in storage too long, usually not over three months and preferably for shorter periods during the summer. Long storage favors formation of gum. Fuel drums should be placed under cover, if practical, to protect them from direct sunshine and from rain and snow. Drums should be laid down, or if placed on end, water or snow should not be allowed to collect on the drum heads around the screw plugs. If water stands around a screw plug some is almost certain to get inside. The air in a drum expands and contracts with changes in temperature, causing alternate pressure and suction, and thus tends to draw water inside.

Keep Fuel Clean.—Every precaution should be taken to keep fuel clean. Use only clean measures and funnels. Particles of dirt may easily lodge in the small passages in the carburetor and cause trouble.

Adjustments Which Save Fuel Also Improve Operation

Practically every adjustment or practice made to save fuel will also make for more satisfactory, trouble-free operation. This, in turn, saves labor and contributes generally to efficient farm production.

For more detailed suggestions on operation and adjustment of tractors and machinery, see the instruction books supplied with the new machines. The following bulletins and circulars, available from your county extension agent, or the College of Agriculture, Columbia, Missouri, are also recommended:

Bulletin 468—Farm Tractors; Their Care, Operation and Maintenance.

Station Circular 232—Plow Adjustment and Operation.

Extension Circular 449—Mower Repair and Adjustment.

Bulletin 426—Combine Harvesters in Missouri.

Station Circular 217—Adapting Horse-Drawn Mowers to Tractor Power.

Station Circular 252—Rental Rates for Farm Machines.

Saving Fuel Is Not Only Patriotic; It Is Also Good Business.