

INCREASING YOUR ENERGY EFFICIENCY ON THE FARM

Energy prices have never been more troublesome. Unfortunately, there is no indication of a moderation in cost. Farmers with crops to raise and livestock to feed have no choice but to pay the price and attempt to cut expenses elsewhere. A Fact Sheet from Penn State University offers the following suggestions that may prove helpful to local farmers who are struggling with inflated fuel costs.

Service air cleaners. Dirty air cleaners restrict the flow of air needed for fuel combustion process. The air required for burning just one gallon of #2 diesel fuel is approximately 1,300 cubic feet! Restricting the air flow means there is excess fuel in the fuel-air mixture, resulting in less available power, increased fuel consumption, and obnoxious emissions from the engine. Black exhaust smoke is one indicator that your engine is not getting enough air for complete combustion.

Keep your fuel system clean. Replace the fuel filters as often as necessary. Fuel filters on diesel engines are more critical than those on gasoline engines because dirt or other small particles can ruin the fuel injector systems. Servicing fuel filters and air cleaners on a frequent basis always makes sense and saves dollars.

Use the proper viscosity of motor oil. Oils that are too thick decrease power and lubrication and increase fuel consumption. Oils that are too thin do not provide the protection needed in the engine and drive train.

Use the right size tractor for the job. Certainly you don't use a 200 hp tractor for mowing the grass along the driveway. It would be just as foolish to use a 60 hp tractor to pull a 4-bottom plow through heavy clay soils.

Operate tractors in higher speed gears and lower throttle settings. Most tractors are seldom operated at conditions when the total power capacity of the tractor is required. Therefore, when the drawbar loads are reduced, shift to a higher gear and reduce the throttle setting to get the desired forward speed. Problems with operating tractors in low gears at high engine speeds are increases in fuel consumption and wear on the drive train. You can do the "shift up-throttle down" manually. Many of the newer tractors have the option for infinitely or continuously variable transmissions to achieve greater fuel efficiency without the need for manual adjustments.

Use proper ballast. Farm tractors are designed to be operated with additional weight or ballast when pulling heavy loads to reduce wheel slippage. Insufficient ballast can

cause excessive wheel slip and increased fuel consumption. Some slip is desirable under heavy loads to reduce wear and tear on the drive train of the tractor.

Check tire pressures frequently. During periods of heavy usage, check tires on a weekly basis for proper inflation. Don't wait until the tires look low or flat. Tire pressure that is just 4 psi low can result in an 8% increase in fuel consumption.

Replace drive tires that have excessive wear. Worn tires can cause an increase in fuel consumption because of increased wheel slip resulting from poor traction. A radial-ply drive tire has more flex in the sidewall of the tire, which can increase traction when compared to the same size bias-ply tire. Although radial tires are usually more expensive, these tires outperform bias tires because of their unique design features.

Practice conservation tillage. The big advantage of reduced-till, low-till, or no-till systems is that you are reducing the number of tractor passes through the field. Not only does this reduce fuel consumption, it also reduces soil compaction, and potential soil erosion. There is an increased cost of herbicides, however.

Keep all tools sharp and well lubricated. Ground engaging tools such as plowshares, coulters, and chisels must be kept sharp to maintain fuel efficiency, speed through the field, and overall equipment performance. It also makes sense to have a sharp knife on the swather and sharp knives on the chopper. Sharpen the tools on a regular basis and replace worn out parts when necessary.

Shut off diesel engines rather than idling for long periods. Studies show that significant fuel savings can be realized by not idling diesel engines for more than 10 minutes. Consider fuel additives. Before pouring any additives into your fuel storage tank, check with your fuel supplier to learn what additives have already been provided.

Refer to your operator's manual. The manual contains critically important information such as proper oil viscosity, tire inflation pressures, ballasting, trouble shooting tips, and recommended maintenance intervals.