



## Fuel Savings: Farm/Ranch Enterprise

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Gasoline and diesel fuel prices have increased over a dollar during the past year. Even a small amount of fuel savings can have an impact on operating expenses for a farm or ranch. Consider changes in practices, modifying operations, improving maintenance, and buying wisely.

### Practices

#### Consider conservation or reduced tillage practices.

- No-till farming has been used over the years but the current rising trend in fuel prices has encouraged more producers to look into it. Fuel savings can vary, but estimates are around \$10 per acre when compared to traditional tillage practices.
- Strip or zone tillage is also a useful technique in reducing fuel consumption per acre. By tilling only a narrow area where the seed is placed, less fuel is needed for each area planted.
- Other reduced tillage methods such as ridge-till and mulch-till reduce the number of trips across the field as compared to conventional-till but may not provide the same fuel savings.

**Consider using auto-steering.** Even though it is a substantial investment, auto-steering makes it easier to adopt controlled traffic. This practice will minimize or eliminate compaction in the cropping zone, leading to higher yields with no-till and a quick payback.

**Reduce the number of trips equipment is driven to and from fields.** You can add a carrier to the tractor or combine for a small motorcycle or scooter to use in traveling to and from the field.

**Avoid unnecessary operations.** For example, don't get out the chisel plow after harvest just to stay busy. Combine operations to reduce the number of trips for livestock care and feeding if possible, but still keep a balance between good management and cost savings.

### Operation

**Use proper ballast.** Farm tractors are designed to be operated with additional weight or ballast when pulling heavy loads to prevent wheel slip. Insufficient ballast can cause excessive wheel slip and increased fuel consumption.

Some slip is desirable to reduce the wear and tear on the drive train of the tractor, but it should be no more than about 10% for optimum efficiency.

Remove extra ballast when not needed. Extra weight is not required for lighter loads. If convenient and if there is a period when ballast is not needed, remove the extra weight to reduce rolling resistance, which will improve fuel economy and reduce soil compaction.

**Replace drive tires that have excessive wear.** Worn tires can cause wheel slip from poor traction and result in increased fuel consumption. Radial ply drive tires have more flex in the sidewall of the tire, which can increase traction when compared to same size bias-ply tires.

**Shut off diesel engines** rather than letting them idle for long periods. New studies show that significant fuel savings can be realized by not idling diesel engines for more than 10 minutes.

**Operate tractors in higher speed gears and lower throttle settings.** Operating tractors in lower gears at high engine speeds increases fuel consumption and wear on the drive train.

**Instead of triples, consider wider duals.** Extra tires can increase rolling resistance, and that results in increased fuel usage.

#### Maintenance

**Check injectors.** Dirty fuel injectors can cause inefficient combustion of fuel and some loss of power. If an injector is plugged, resulting in the tractor running on five cylinders instead of six, you have a loss of power and efficiency.

Clean injectors if you see black smoke coming from the exhaust. Use a fuel injector additive in the fuel for minor cleaning.

**Service air cleaners.** Dirty air cleaners restrict the flow of air needed for the combustion process. The result is excess fuel in the fuel-air mixture, leading to increased fuel consumption with less available power. Look for black exhaust smoke or check the airflow indicator found on most air cleaners.

**Use the proper viscosity oil** in the engine to maximize engine efficiency. Oils that are too thick decrease power and lubrication and increase fuel consumption.

**Replace worn-out equipment parts.** Keeping any ground-engaging tools sharp makes a big difference when it comes to saving fuel and improving speed and field efficiency.

#### Purchases

**Use the right fuel for the season.** Winter fuels are lighter to improve viscosity but have less energy per gallon, resulting in less fuel efficiency. Winter diesel has around 154,000 BTUs per gallon, while summer diesel has around 159,000 BTUs per gallon. This means that the same amount of winter fuel gives about 3% less power than summer fuel.

Either operating a tractor during the heat of the day or if the fuel tank is located where the engine can heat the fuel can impact tractor performance. Generally speaking, use of cooler fuel enhances performance. Some manufacturers now install fuel coolers on tractors. To save on fuel costs, don't use winter fuels too early in the fall season or too late into the spring season.

**Look for special purchase opportunities.** Many fuel dealers offer a summer fill program so that a producer can fill storage tanks at a reduced price.

**Consider adding additional fuel storage** or combining orders with a neighbor. Some fuel dealers have discounts for large quantity purchases.

#### Summary

Look over your specific operations. See if you can save fuel by changing farming practices, purchasing patterns, operating procedures, and equipment maintenance.

Fuel cost for grain drying is a major expense on some crop farms. Extension Extra 5056 gives several practices you can use to reduce these fuel costs.

Fuel consumption varies widely due to variations in tractor efficiency, soil moisture conditions, crop yields, and other factors. But you still have room to cut fuel bills if you follow these suggestions.

#### References

- American Society of Agronomy, Inc.; Crop Science Society of American, Inc.; and Soil Science Society of American, Inc. 1997. State of site-specific management of agriculture. MWPS-45. (2000). Conservation tillage systems and management: crop residue management with no-till, ridge-till, mulch-till. Iowa State University, Ames, IA.

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