

## Choosing a tractor using Nebraska method

The purchase of a tractor is a major investment that requires careful consideration of various makes and models before a final purchase decision is made. The Nebraska Tractor Tests are a valuable source of information for comparison, and for predicting a particular tractor's performance.

Several factors detailed in the tests—fuel efficiency, maximum available power, lugging ability, and gear spacing—should be considered in tractor evaluation. These factors will affect your long range cost of operation.

**Fuel Efficiency**  
Fuel Efficiency deserves high priority as it will help determine farm fuel costs for many years to come.

The efficiency with which a tractor converts fuel to useful work is best represented by a horsepower-hours per gallon (hp-hr per gal) value. The fuel efficiency rating for tractors is similar to the miles per gallon rating for cars; the larger the value, the more efficient the tractor.

The Nebraska tests give horsepower hours per gallon value for 8 Power Take-Off (PTO) tests and 4 drawbar tests, which may be very confusing.

The best way to compare various tractors is to use average value for Varying Power PTO Performance Tests which averages tests 6 different loads on the power take-off shaft. The test provides the most accurate relative fuel-efficiency rating of a general usage tractor.

A difference of one or two horsepower hours per gallon will make a significant difference in the fuel bills paid over the lifetime of a tractor.

The effect upon fuel efficiency of the gear-up and

throttle-down practice is illustrated by the Drawbar Performance Test—50% of Pull at Reduced Engine Speed. The fuel efficiency rating for this test should be compared against the value given for the same load at wide-open throttle.

A comparison of the Nebraska tests on diesel and gasoline powered tractors also reveals that diesel engines use fuel much more efficiently than gasoline engines. For the same amount of work done, a diesel tractor consumes about 30 percent less fuel than a gasoline engine.

**Horsepower Ratings**  
Another important consideration is a tractor's available power. The tractor tests provide information on maximum PTO horsepower, an convenient means to compare the relative size of most tractors.

This does not tell a farmer how much power will be available in the field, however. Because the maximum available drawbar horsepower is determined in test situations on a concrete track, the rating does not provide an accurate indication of what to expect in the field.

**Lugging Ability**  
Another series of tests that you should consider when purchasing a tractor are the Lugging Ability in Rated Gear tests.

The ability of a tractor to pull through momentary overloads without shifting gears is extremely important.

This lugging ability is evaluated in the Nebraska tests by dropping engine speed at 10 percent increments from rated speed to at least 50 percent of rated speed.

For normal field operations, the first 20 percent reduction in engine speed is critical. A tractor whose pulling power rises

substantially during this first 20 percent reduction in speed has excellent lugging ability characteristics.

After this point, pulling power should not begin to decline until a 30 percent reduction in engine speed occurs.

**Gear Spacing**  
From the Nebraska Tractor Tests you can also determine the number and spacing and tractor gears.

A reasonable number of evenly spaced gears for field operations, within a normal field speed range, permits a greater number of choices for operating the tractor at a speed and power level appropriate for a particular implement.

This is very important for sprayers, where speed influences application rate. Tillage equipment also produces the most desirable results within a fairly narrow field speed range.

A transmission with several evenly spaced gears offers greater opportunity to gear-up and throttle-down while maintaining a reasonable field speed.

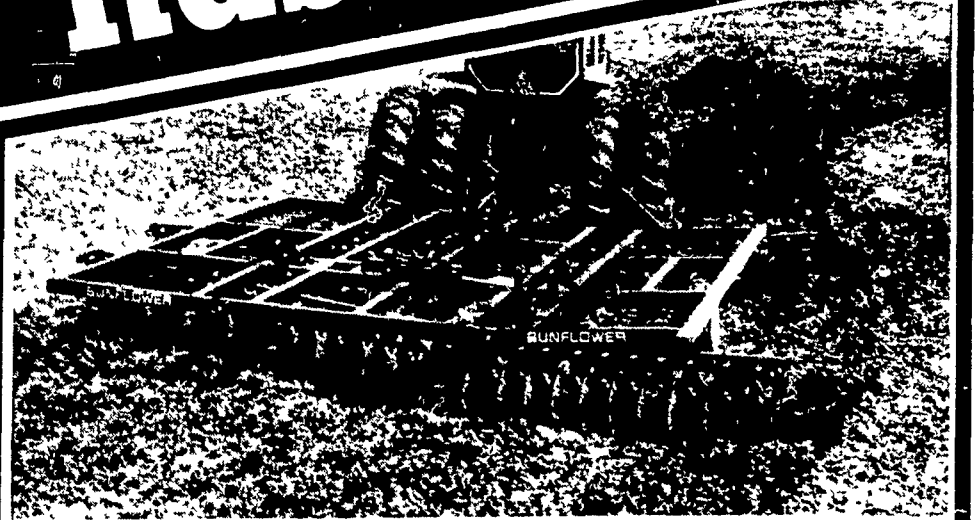
### Wild Dogs

Scientists believe wild dogs were the first animals to be tamed by people—at least 12,000 years ago. The first wild dog to be tamed probably was a wolf, and it is believed that most pet dogs are its descendants.



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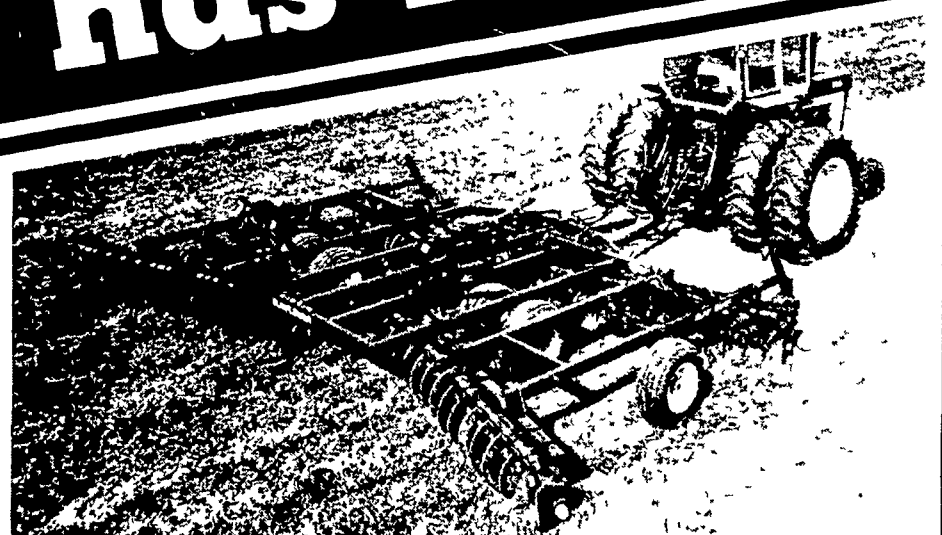
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# Sunflower has it!



## ... the Tandem Disc Harrow

When we say the new Sunflower Tandem Disc Harrow performs that's just what we mean. The Sunflower Tandem's flexible wings stretch out and follow ground contour without skipping gouging or buckling and the engineering concepts we've used have completely eliminated any possibility of sidedraft that's performance!

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