

MACHINERY MAINTENANCE

Gauging your pressure gauge

MONEY-SAVING TIP: Check tire pressure when you check engine oil. Four tractor tires cost about the same as a new engine. With recommended operating psi sinking into the single digits, regular pressure checks have become critical for optimum wear and performance. But before checking a tire, check your pressure gauge. It's probably overdue for retirement.

Just about the cheapest tire gauge you can buy will monitor tractor tire pressure just fine. An Alberta Agriculture Engineer found some \$6 to \$9 pencil-type gauges worked better than \$20 to \$30 dial and digital models.

But be warned! You can't buy a tire gauge, use it occasionally, pack it around for months in a dusty glove compartment or tool box, and assume it will perform as accurately as the day you bought it. Tire gauges are perishable!

Few farmers ever toss and turn at night wondering about tire gauge accuracy. Falling commodity prices, rising input costs, mortgage payments, the impact of new international trade agreements, even the cost of new machinery ... these are what sleepless nights and grey hairs are all about.

Faulty tire gauges are low priority, right? But that \$10 you spend on a new gauge is a good investment, says Reed Turner at the Alberta Farm Machinery

Research Centre in Lethbridge. "The cost of four tires is about the same as a new engine," he says. "Most farmers check oil levels regularly, but how many routinely check tire pressure?"

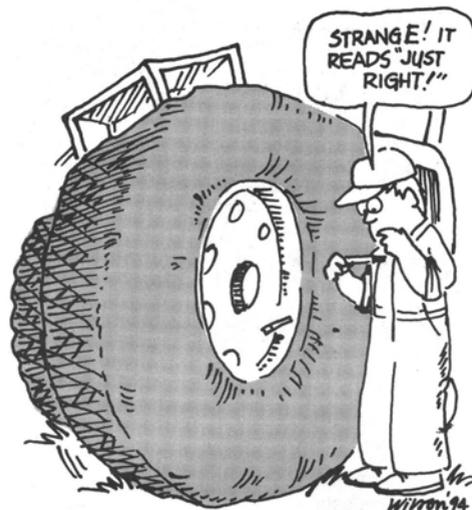
And even if you do throw the gauge on from time to time, how old is it, how many times have you used it, how often have you cleaned it, and how do you know it's showing the correct psi? The truth is, you probably don't know.

With tire pressure recommendations going steadily downward, Turner set out to find a better - or best - tire gauge.

Particularly with radial tires (*Country Guide*, June/July, 1992), manufacturers are now recommending pressures as low as 6 to 8 psi for proper performance. If your gauge is out by 2 to 4 psi, it doesn't matter so much when your running at 18 to 20 psi anyway, but being out by 2 to 4 psi when you're targeting 6 to 8 is bad news.

With tire pressure and, indirectly, gauge accuracy being more critical, Turner tested 10 commonly available gauges. That included pencil or stick types, dial gauges, and digital gauges. Prices ranged from \$6 to \$30.

His rating criteria included pressure range (lowest to highest pressure measured); readability when on a valve stem; accuracy (deviation from know psi); du-



rability (tolerance of normal wear and tear including a drop test); and general performance on tires carrying liquid ballast.

What did he learn? Plenty. Some gauges obviously don't go low enough to measure the new tire inflation recommendations. Others start at zero psi and go all the way up to 150 - not necessary or practical for farm use. He preferred models concentrating on the lower ranges.

Poor markings or too much information on the guide stick made some gauges hard to read while on the tire. Others needed 2 hands for proper operation.

Accuracy also left much to be desired. Some gauges were inaccurate on the first use. Others were fine initially, but lost their accuracy after repeated readings. On durability, pencil-type and digital gauges were better able to withstand wear and tear. The drop test generally

Tire Pressure Gauges Ranked From Best to Worst

Gauge	Type	Price	Pressure	Readability	Accuracy	Repeatability	Durability	Ballast
Superex	Pencil	\$6.00	10 to 15	Excellent	Excellent	Excellent	Excellent	Acceptable
Motomaster	Pencil	6.00	0 to 20	Excellent	Acceptable	Acceptable	Acceptable	Acceptable
Bridgeport 40-402	Pencil	9.00	5 to 45	Acceptable	Acceptable	Excellent	Acceptable	Acceptable
Bridgeport 40-399	Pencil	8.00	0 to 20	Excellent	Acceptable	Acceptable	Acceptable	Poor
Accutire	Digital	30.00	0 to 150	Acceptable	Acceptable	Acceptable	Acceptable	Poor
Milton s901	Dial	20.00	0 to 15	Acceptable	Excellent	Excellent	Poor	Poor
Milton s917	Pencil	8.00	0 to 20	Acceptable	Poor	Acceptable	Acceptable	Poor
Milton s928	Pencil	8.00	5 to 50	Acceptable	Poor	Poor	Acceptable	Poor
Superex Dial	Dial	8.00	8 to 60	Excellent	Poor	Poor	Poor	Poor
Power Flat	Dial	5.00	8 to 60	Excellent	Poor	Poor	Poor	Poor

cooked dial gauges.

And on ballast, 3 pencil gauges again performed better than the more expensive dial and digital models. They even outperformed gauges specifically made to withstand chloride corrosion.

The Alberta Farm Machinery Research Centre is publishing a detailed report on tire gauge testing. It explains the performance of the various gauges tested.

Keep A Reference Gauge

Meanwhile, Turner offers these general recommendations:

- The Superex, Motomaster, and Bridgeport 40-402 pencil-type gauges at between \$6 and \$9 had the best performance of the 10 tested, although even among these, there was variability in certain aspects.

- Buy 2 new gauges at a time. Have them both tested for accuracy before they're actually put into use. Finding a testing centre may be difficult. One possibility: a home economist or test kitchen with access to equipment used for testing pressure cookers. It also works on tire gauges.
- Once you know the gauges are accurate, put one away in a clean dry location. Use it as a reference gauge in the future.
- Take good care of the working gauge. After each use, store it in a clean environment.
- If a gauge is used on liquid-ballast tires, make sure it's thoroughly cleaned and dried after each use.
- It's not uncommon for tire pressure to vary 5% during a day. A psi reading may

be slightly higher in the afternoon than in the morning. If the difference is more than 5%, check your working gauge against your reference gauge. If the reading is out, replace the working gauge with a new one that's been tested for accuracy (against your reference gauge).

If all this seems like a lot of fuss over a \$10 gadget, think about the cost of new tractor tires. Getting maximum wear and performance out of each set is worth the investment of a little time.

For the full tire gauge test report, contact the Alberta Farm Machinery Research Centre, 3000 College Drive, Lethbridge, AB. T1K 1L6 (phone 403-381-5729).

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GTI RESEARCH HILITES

Conservation Club Research Funding

The Sports Turf Association joined with several other Turf Associations in forming a Rural Conservation Club which has enabled Dr. Gary Kachanoski, Dr. Terry Gillespie and Dr. Paul Voroney of the Univ. of Guelph and Ms. Pam Charbonneau, turf specialist with O.M.A.F., to receive the first major research grant for work at the Guelph Turfgrass Institute. Funding totalling \$255,600 will be made available for research on 'Water and Chemical Systems for the Turfgrass Industry'.

The quality and use of rural water resources affects the lives of all rural and urban communities. The Turfgrass industry is a significant part of Ontario's Agribusiness and can have a significant impact on how our land and water resources are utilized. Little information is available regarding the impact of existing management systems on water use, and the quality of water leaving the site.

The objectives of the three year study are:

- To measure the quality (nitrate, pesticides, etc.) and amount of excess drainage water under conventional management systems for turf.
- To demonstrate/compare the impact of innovative water conserving irrigation systems on the amount and quality of drainage water from turf.
- To demonstrate/compare the impact of innovative chemical management systems on the quality of drainage water from turf.

The benefits of the study to the turfgrass industry will be to provide data from which more efficient chemical and water use programs can be designed which will reduce the risk of off-site environmental impact to ground and surface water and allow the turf manager to be in compliance with environmental laws. The benefits to the rural and urban communities will be to assure better

quality drinking and recreational water and to provide a better understanding of the effect of chemicals used in the turf industry on the domestic water supplies. Lastly, for all concerned the study will provide information which will aid in the conservation of water in both the urban and rural communities through innovative irrigation scheduling.

The overall approach to the project will be to make detailed measurements of the amount and quality of drainage water under conventional and innovative irrigation/chemical input systems at the field plots of the Guelph Turfgrass Institute. In addition six sites will be selected where intensive monitoring will be conducted under conventional management systems to give baseline values of water quality over a range of soil/site conditions.

Depending on the results of the measurements at these sites, changes in the management will be implemented based on the detailed work at the Turfgrass Institute. This could involve changing irrigation scheduling procedures, changing amounts/types of fertilizer or pesticide, or both.

Conventional irrigation scheduling based on set timing of constant amounts of applied water will be compared to applications amounts and timing based on estimated evapotranspiration rates from detailed meteorological information. Several soil indexes of water, such as tensiometers, dryness sensors and TDR (Time Domain Reflectometer) probes will also be used. The cost and effectiveness of various meteorological based systems and the soil sensor will be compared to determine the simplest system necessary to implement a good water conserving irrigation schedule.

With less water moving through the root zone, less chemicals will be added to the water supplies.