

# Agricultural Update

June 2, 2000

## Missouri Crop Basis Weekly

### General

#### Gas Prices are High: So What?

By no means do I want to downplay past U.S. consumer usage of energy due to a thriving economy and low fuel prices. However, over the past year we have all personally witnessed an about \$0.60/gallon increase in fuel prices; this has caused some consumers to reconsider the fuel efficiency of vehicle they drive. The crux of the issue is that the nearly 60% price increase will cost drivers more to operate the vehicle. Yes, the price increase is significant, but many times consumer's overestimate the impact gas price increases have on their pocket book. So, let's take a look at the impact of higher gas prices on annual vehicle fuel expenses.

Tables 1 and 2 provide a sensitivity analysis for the average annual and difference in monthly fuel costs for different gas prices and different miles per gallon (MPG). It is assumed that the average driver travels 12,000 miles annually. Table 1 is used to indicate the difference in annual fuel costs for alternative levels of \$/gallon and MPG. The table is interpreted as, for the case of \$900 in the box, for a vehicle that gets 20 MPG and a fuel price of \$1.50/gallon the annual fuel cost would be \$900. The box with \$600 indicates the annual fuel cost of operating a vehicle that obtained 30 MPG at a fuel cost of \$1.50/gal. Therefore, we could ascertain that the savings from driving a vehicle that gets 30 MPG over a vehicle that gets 20 MPG is \$300/year. Table 2 indicates the difference in monthly cost from driving a vehicle getting 34 MPG versus the reported level. For instance, the additional monthly cost of driving a vehicle that gets 24 MPG over a vehicle that get 34 MPG is \$18/month. Also, the difference, for \$1.50/gal gas, in monthly fuel cost between a vehicle that get 30 MPG and 20 MPG is \$18/month (\$24 less \$6).

The real question is, can an individual trade their current vehicle for \$300 (as noted in the example above) a year to offset the added fuel cost. Typically, the answer will be no because the interest cost of buying a new vehicle and depreciation will not be offset by the cost of owning a different vehicle. Additionally, there may be some personal utility issues with a vehicle that obtains better gas mileage.

#### As a colleague recently informed me,

"The price per gallon of water is \$4 and we are worried about gas prices over \$1.50/gal!"

That is, suppose you are interested in taking a 4,000 mile trip this summer in a vehicle that gets 24 MPG.

The difference in cost between gas at \$1.20/gal and \$1.55/gal is \$58 ( $\$1.55 \times (4000/24) - \$1.20 \times (4000/24) = \$58$ ). So what is the big deal? These costs could become substantial over time; however, in the short-run the additional fuel cost is irrelevant in the overall vacation cost. The conclusion - persons will generally not alter their summer vacation plans and persons will generally not trade for more efficient vehicles in the short- run. Note: a camper that gets 5 MPG would incur increased fuel cost of \$280 over a 4,000 mile trip when the gas price increases from \$1.20/gal to \$1.55/gal.

[table 1](#) [table 2](#)

**Prepared by Joe Parcell, Extension Economist, Department of Agricultural Economics, University of Missouri. To contact Joe, call 573-882-6533, or e-mail [parcellj@missouri.edu](mailto:parcellj@missouri.edu). All copies of this publication are accessible through [AgEBB](#).**

---

[University Outreach  
and Extension](#)

| [AgEBB](#) |

[College of Agriculture, Food,  
and Natural Resources](#)

Table 1. Annual Fuel Costs when Traveling 12,000 miles

MPG	\$/gallon								
	\$0.90	\$1.00	\$1.10	\$1.20	\$1.30	\$1.40	\$1.50	\$1.60	\$1.70
	--- \$/year on fuel ---								
12	\$900	\$1,000	\$1,100	\$1,200	\$1,300	\$1,400	\$1,500	\$1,600	\$1,700
14	\$771	\$857	\$943	\$1,029	\$1,114	\$1,200	\$1,286	\$1,371	\$1,457
16	\$675	\$750	\$825	\$900	\$975	\$1,050	\$1,125	\$1,200	\$1,275
18	\$600	\$667	\$733	\$800	\$867	\$933	\$1,000	\$1,067	\$1,133
20	\$540	\$600	\$660	\$720	\$780	\$840	<b>\$900</b>	\$960	\$1,020
22	\$491	\$545	\$600	\$655	\$709	\$764	\$818	\$873	\$927
24	\$450	\$500	\$550	<b>\$600</b>	\$650	\$700	\$750	\$800	\$850
26	\$415	\$462	\$508	\$554	\$600	\$646	\$692	\$738	\$785
28	\$386	\$429	\$471	\$514	\$557	\$600	\$643	\$686	\$729
30	\$360	\$400	\$440	\$480	\$520	\$560	<b>\$600</b>	\$640	\$680
32	\$338	\$375	\$413	\$450	\$488	\$525	\$563	\$600	\$638
34	\$318	\$353	\$388	\$424	\$459	\$494	\$529	\$565	\$600

Interpretation: \$900 for \$1.50/gallon and 20 MPG indicates the annual fuel costs of operating a specific vehicle. The difference between, say the red bolded, values of \$900 and \$600 (\$300) represent the cost difference between obtaining 20 MPG and 30 MPG at a gas price of \$1.50/gallon.

Table 2. Added Monthly Fuel Costs between 34 MPG and noted MPG (12,000 miles)

	\$/gallon								
	\$0.90	\$1.00	\$1.10	\$1.20	\$1.30	\$1.40	\$1.50	\$1.60	\$1.70
MPG	--- \$/month ---								
12	\$49	\$54	\$59	\$65	\$70	\$75	\$81	\$86	\$92
14	\$38	\$42	\$46	\$50	\$55	\$59	\$63	\$67	\$71
16	\$30	\$33	\$36	\$40	\$43	\$46	\$50	\$53	\$56
18	\$24	\$26	\$29	\$31	\$34	\$37	\$39	\$42	\$44
20	\$19	\$21	\$23	\$25	\$27	\$29	\$31	\$33	\$35
22	\$14	\$16	\$18	\$19	\$21	\$22	\$24	\$26	\$27
24	\$11	\$12	\$13	\$15	\$16	\$17	<b>\$18</b>	\$20	\$21
26	\$8	\$9	\$10	\$11	\$12	\$13	\$14	\$14	\$15
28	\$6	\$6	\$7	\$8	\$8	\$9	\$9	\$10	\$11
30	\$4	\$4	\$4	\$5	\$5	\$5	\$6	\$6	\$7
32	\$2	\$2	\$2	\$2	\$2	\$3	\$3	\$3	\$3
34	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Interpretation: \$18/month for the \$1.50/gallon and 24 MPG indicates the additional monthly fuel costs of a vehicle obtaining 24 MPG versus a vehicle obtaining 34 MPG. Also, the difference between any two values in a **column** represents the added (or less) monthly fuel costs from changing either gas price or MPG.

