



# Current Report

Cooperative Extension Service • Division of Agriculture • Oklahoma State University

## TRACTOR FUEL ECONOMY - 1981

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### Fuel Use by Tractors

The cost of fuel represents over 30% of the total operating costs of owning and operating farm tractors. This proportion has increased significantly over the last ten years and will increase further as the price of fuel rises in the future. One of the ways fuel costs can be minimized is to select tractors having good fuel economy. Fuel economy refers to the efficiency with which tractors convert fuel into energy or work. There are differences of 25% to 30% in fuel economy between tractors with good fuel economy and those with poor fuel economy. Listed in this report are fuel economy figures for tractors tested at the University of Nebraska. The Nebraska Tractor Test reports are the only commonly available source of unbiased test information on farm tractors.

### Fuel Economy

Tractor fuel economy is measured in units of hp-hrs/gal. It represents the energy or work output in hp-hrs for each gallon of fuel consumed. High efficiency tractors have a higher hp-hr/gallon fuel economy figure. Table I lists fuel economy figures for tractors above 15 PTO hp measured by the Nebraska Tractor Tests during the last 5 years. These figures can be used to compare the fuel economy of tractor models and estimate annual fuel consumption.

#### 1. Average fuel economy for "varying power and fuel consumption" tests.

This fuel economy figure is the average fuel economy obtained when the engine is operated over a range of loads from zero to maximum. This corresponds to the typical farm situation of constantly varying loads. The resulting average loading in the tests is about 55% of maximum. Since this figure accounts for variations in fuel economy over the total range of engine output, it is the best figure to use for comparing fuel efficiencies and gives a good estimate of long-term fuel economy.

#### 2. Drawbar fuel economy at "75% of pull at maximum power."

Many of the larger tractors do not have power-take-offs. For these tractors the best fuel economy figure to use is the drawbar fuel economy at "75% of pull at maximum power." In most instances this figure is close to the value in 1 above and can be substituted for it.

Do not make comparisons using a mixture of PTO and drawbar figures. Either use all PTO figures (preferred) or all drawbar figures.

### Estimating Annual Consumption

Annual fuel consumption is estimated as follows:

1. Multiply maximum PTO Power by 0.55 (55% is the average long-term loading level for farm tractors) and by the number of hours of annual use.
2. Divide the result by the hp-hrs/gallon figure for the tractor.

The answer is in gallons of fuel used per year.

eg. International 886; Test No. 1338;  
Max. PTO Power 86.6 hp.; average Fuel Economy 11.77  
Hp-Hr/Gal.; 560 hrs. of annual use.

1.  $86.6 \times .55 \times 560 = 26,670$  Hp-hr/year.
2.  $\frac{26,670}{11.77} = 2,266$  gals/year.

\*To obtain Nebraska Tractor Test Reports write:  
Tractor Test Lab., University of Nebraska, East  
Campus, Lincoln, NB 68583.

\*\*For these tractors, maximum PTO power is an estimation since the tractor does not have a PTO or does not have one that transmits full power. Estimate based on

Max. Db Power  
.875

Tractor Make and Model	Nebraska Test No.	Max. PTO Power (hp)	Fuel Economy Average of "Varying Power & Fuel Consumption" (hp hrs/gal)	Fuel Economy "75% of Pull at Maximum Power" (hp hrs/gal)
IH 3788	1377	170.57	12.22	12.25
IH 844	1376	72.91	12.47	12.91
White 4-175	1375	151.69	11.70	11.98
White Iseki 2-35	1374	32.84	10.86	11.73
White Iseki 2-30	1373	28.33	10.27	11.42
Kubota L345DT	1372	29.35	10.58	10.81
& L345				
Kubota L305DT	1371	26.21	11.14	11.13
& L305				
Kubota L295DT	1370	26.46	11.75	11.39
& L295				
Kubota M5500DT	1369	53.99	12.44	12.77
& M5500				
MF 220-4	1368	26.48	11.56	11.55
MF 220	1367	26.37	11.07	11.60
MF 210-4	1366	21.77	10.75	10.44
MF 210	1365	21.96	11.04	10.53
MF 205-4	1364	16.40	9.69	9.57
MF 205	1363	16.56	9.62	9.65
JD 4240 PS	1362	111.06	11.25	11.65
JD 4240 Syncro	1361	110.81	11.08	11.47
JD 4040 PS	1360	90.79	10.79	11.35
JD 4040 Syncro	1359	90.31	10.85	11.29
JD 4640 PS	1358	155.96	12.17	12.55
JD 9440 PS	1357	130.41	11.83	12.22
Versatile 835	1356	198.23	11.36	11.87
Steiger PTA-325	1355	**300		13.45
Hesston Fiat 980DT	1354	91.12	13.92	13.59
& 980				
Hesston Fiat 880DT-5	1353	81.32	13.23	13.44
& 880-5				
Hesston Fiat 680DT	1352	62.47	14.19	14.20
& 680				
JD 2940	1351	81.17	11.73	11.91
JD 2040	1350	41.25	11.73	11.35
Kubota M7500DT	1349	72.34	14.15	14.20
& M7500				
Kubota M4500DT	1348	49.72	12.22	12.02
Satah Mitsubishi Stallion S750DD	1347	33.45	10.89	11.18
& S750D				
AC 7010 P/S	1346	106.72	11.74	11.35
AC 7010	1345	106.53	11.57	11.48
MF 4880	1344	272.81	11.51	11.98
18 SP				
& 12 SP				
MF 4840	1343	210.67	10.77	11.25
18 SP				
& 12 SP				
MF 4800	1342	179.31	10.12	10.73
18 SP				
& 12 SP				
Leyland 472	1341	63.52	12.28	11.67
272				
Leyland 482	1340	74.28	12.63	12.10
282				
IH 886 16 SP	1339	90.56	11.98	12.38
IH 886	1338	86.57	11.77	12.21
IH Hydro 86	1337	70.89	10.23	9.55
IH 686	1336	66.36	13.16	13.27
Versatile 895	1335	**287		13.72
Belarus 7100 (K-701)	1334	269.62	13.26	14.35
Belarus 1500 (T-150K)	1333	168.76	13.69	13.98
Versatile 875	1332	247.16	12.02	12.53
Versatile 555	1331	182.25	11.15	11.17
Case 4869	1330	253.41	13.02	13.27
Case 4690	1329	219.62	12.76	12.84

Tractor Make and Model	Nebraska Test No.	Max. PTO Power (hp)	Fuel Economy Average of "Varying Power & Fuel Consumption" (hp hrs/gal)	Fuel Economy "75% of Pull at Maximum Power" (hp hrs/gal)
Case	4490	1328	175.20	12.36
JD	1050	1327	33.41	12.36
Ford	1900	1326	26.88	10.38
Ford	1700	1325	23.26	11.21
JD	8640	1324	228.75	12.40
JD	8440	1323	179.83	12.55
MF	2705 8 SP	1322	121.11	11.22
MF	2765 8 SP	1321	100.84	11.14
IH	3588	1320	150.41	12.19
IH	3388	1319	130.61	12.00
White	4-210	1818	182.44	11.53
IH	784	1316	58.73	10.50
IH	T84	1315	65.47	12.39
IH	684	1314	62.52	12.21
IH	584	1313	52.54	12.34
IH	484	1312	42.42	11.85
MF	2745 24 SP	1311	143.40	10.62
MF	2705 24 SP	1310	122.20	11.22
MF	2765 24 SP	1309	103.29	11.56
AC	7045 P/S	1308	146.88	11.32
Deutz	DX-160	1307	145.41	14.47
Deutz	DX-110	1306	100.29	13.71
Deutz	DX-90	1305	84.47	14.15
Case	2090	1304	108.74	12.23
Case	2590 P/S	1303	180.38	12.97
Case	2390 P/S	1302	160.72	12.41
Ford	TW 10	1301	110.24	11.50
Ford	TW 20	1300	135.60	11.78
Ford	TW 30	1299	163.28	12.49
Long	360	1298	36.16	11.97
Case	2290	1297	129.08	11.53
Case	2290	1296	128.80	11.66
Case	2090 P/S	1295	108.29	11.77
Fiat	780	1294	70.36	13.62
Fiat	420	1293	41.34	12.93
Fiat	580DT	1292	51.61	12.59
Ford	FW 20	1291	**172	11.69
Ford	FW 40	1290	**260	12.84
Ford	FW 60	1289	**310	13.38
Ford	FW 30	1288	**235	12.24
White	2-180	1287	181.89	11.66
Kubota	L185DT	1286	15.45	11.00
Kubota	L185	1285	15.33	10.90
Kubota	L245DT	1284	22.35	11.21
Kubota	L245	1283	22.06	11.07
JD	950	1281	27.36	12.36
JD	850	1280	22.27	11.51
Versatile	875	1279	248.07	11.76
MF	2775	1278	165.95	11.50
IH	284 (GAS)	1277	25.75	9.54
White	2-155	1276	157.73	11.91
White	2-135	1275	137.64	11.38
Steiger Panther III	PT350	1274	**335	11.42
Steiger Cougar III	PT270	1273	**241	13.75
Steiger Bearcat III	PT225	1272	**197	12.45
AC	5030	1271	26.42	11.52
AC	5020	1270	21.79	11.48
Lamborghini	1056DT	1269	92.13	10.51
Same Tiger	100	1268	90.45	10.99
JD	4040	1267	90.80	13.02
JD	4240	1266	110.94	12.74
JD	4440	1265	130.58	13.08
JD	4640	1264	156.30	10.96
JD	4840	1263	180.63	11.35
AC	8550	1262	253.88	11.83
AC	7045	1261	146.18	12.29
AC	7020	1260	123.85	12.47
AC	7020 P/S	1259	123.79	12.54
				12.45
				12.08
				11.40
				10.94
				11.26
				12.12
				12.08
				12.45

Tractor Make and Model	Nebraska Test No.	Max. PTO Power (hp)	Fuel Economy	Fuel Economy	
			Average of "Varying Power & Fuel Consumption" (hp hrs/gal)	"75% of Pull at Maximum Power" (hp hrs/gal)	
MF	2805	1258	194.62	11.33	11.14
IH	H186	1257	105.02	10.06	9.84
IH	4386	1256	**194		11.92
IH	986	1255	105.68	11.34	11.72
IH	886	1254	86.14	10.55	10.92
MF	245 (GAS)	1252	41.09	9.07	9.07
MF	245	1251	42.90	12.72	12.79
MF	255	1250	52.68	12.70	12.82
JD	2840	1249	80.65	11.52	11.57
IH	1586	1248	161.55	12.28	12.38
IH	1086	1247	131.41	11.90	12.36
Steiger Bearcat III ST220	1246	**195			12.60
Ford	8700	1245	110.58	11.91	12.28
Ford	6700	1244	68.94	12.23	12.38
Ford	9700	1243	135.64	11.77	11.97
Ford	7700	1242	84.38	11.65	11.21
Case	2870	1241	252.10	12.01	12.37
AC	5050	1240	51.46	12.42	13.01
Steiger Cougar III ST-250	1239	**230			11.90
Steiger Cougar III ST-270	1238	**250			12.62
Steiger Cougar III ST-210	1237	**187			12.58
& RC-210					
Steiger Cougar III ST-325	1236	**308			14.19
Steiger Cougar III ST-310	1235	**282			13.09
Steiger Cougar III ST-251	1233	**227			13.69
White	2-60	1232	63.22	13.82	13.87
White	2-50	1231	47.02	13.03	13.49
AC	5040	1230	40.05	11.80	12.74
AC	7580	1229	186.35	11.47	11.39
Ford	1600	1228	23.02	11.82	11.45
Ford	5600	1227	58.46	11.94	11.94
Ford	3600 (GAS)	1226	40.62	8.16	8.57
Ford	7600	1225	84.79	12.35	11.77
Ford	6600	1224	68.10	12.64	12.77
Ford	4600	1223	52.44	11.49	11.85
Ford	2600	1222	32.47	11.18	11.22
Ford	3600	1221	40.55	12.40	12.51
Deutz	D6806	1220	68.18	14.73	15.05
Deutz	D6206	1219	60.23	15.43	15.34
Case	1570	1218	180.41	12.47	12.46
Ford	6600	1217	70.56	12.86	12.71
& 6700					
IH	4568	1216	**261		11.79
MF	230 (GAS)	1215	34.34	8.72	8.90
MF	230	1214	34.53	14.81	14.74
White	2-85	1213	85.54	11.72	11.64
White	2-70	1212	70.71	12.28	12.13
Case	M-B 4/94	1211	73.33	10.68	11.65
Case	1410 P/S	1210	80.61	13.76	13.21
Case	1410	1209	80.88	14.69	14.38
Ford	3600 (GAS)	1208	40.17	8.07	8.77
Ford	2600 8 SP				
(GAS)	1207	34.18		8.38	8.64
Ford	2600 (GAS)	1206	32.78	7.89	8.17
Ford	2600	1204	32.38	11.51	11.74
Ford	3600	1203	40.49	12.12	12.34
Ford	4100	1202	45.46	11.57	11.96
Ford	5600	1201	60.46	12.83	12.88

This material was prepared with the support of the U.S. Department of Energy (DOE). Grant No. 62096. However, any opinions, findings, conclusions, or recommendations expressed herein are those of the authors and do not necessarily reflect the view of DOE.

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