



Iowa Department of
REVENUE

2014 Retailers Motor Fuel Gallons
Annual Report

April 2015

Prepared By:
Kathy McAninch
Research and Analysis Division

Introduction

In 2006 the Iowa General Assembly enacted H.F. 2754, an act pertaining to the regulation of renewable fuels and energy and providing incentives for the installation of biofuels infrastructure and the promotion of biofuels sales. This legislation established a goal that 25% of all petroleum used in the formulation of gasoline be replaced by biofuels by the year 2020.

To measure the State's progress toward achieving this goal, new reporting requirements for motor fuel retailers, administered by the Department of Revenue, were established (Iowa Code section 452A.33). In consultation with the Renewable Fuels Infrastructure Board, motor fuel retailers, and other interested parties, the Department established an annual reporting requirement by administrative rule (701-67.27).

Annual reports are due to the Department by January 31st for each subsequent year. However, because there are no penalties imposed for not filing a report, the information provided in this report does not reflect all retail motor fuel sales in the state. Motor fuel retailers filed the first annual report for sales made during calendar year 2007.

Reporting Requirements

Motor fuel retailers shall file either a paper form or an electronic file with annual motor fuel sales by location. The Retailers Motor Fuel Gallons Annual Report requires retailers to provide information on retail gallons sold for the following fuel types:

- Gasoline (non-ethanol blend)
- Ethanol E10 blend (10 to 14% ethanol)
- Ethanol E15/E20 blend (15 to 69% ethanol)
- Ethanol E85 blend (70 to 85% ethanol)
- Clear diesel (all blends)
- Dyed diesel (all blends)

The distinction between clear diesel and dyed diesel reflects whether the fuel is subject to State and federal road taxes. Dyed diesel fuel is not subject to road taxes and is sold for use in farm, construction, and other types of equipment that do not travel under their own power on public roads, except for short distances such as between farm fields.

For biodiesel additional detailed information is required for the sales of the following fuel blends:

- Clear B2 (2% biodiesel)
- Clear B5 (5% biodiesel)
- Clear B10 (10% biodiesel)
- Clear B20 (20% biodiesel)

- Clear Biodiesel Other
- Dyed B2 (2% biodiesel)
- Dyed B5 (5% biodiesel)
- Dyed B10 (10% biodiesel)
- Dyed B20 (20% biodiesel)
- Dyed Biodiesel Other

Statistical Summary for 2014

The Department identified 2,593 potential retail locations at which motor fuel may have been sold during 2014. Paper report forms were mailed to 1,547 locations identified using Department of Agriculture and Land Stewardship motor fuel license information and the Department of Revenue motor fuel tax database. Electronic report files were e-mailed to fifteen large motor fuel retailers with 1,046 locations.

The Department received either paper forms or electronic files representing 2,158 (83.2%) of the locations. Replies from 59 locations indicated that no retail sales of any type of motor fuel were made during 2014. 2,099 locations reported retail motor fuel sales. Of those 2,099 paper reporters eleven were out of state retailers and are not included in this analysis. The analysis is based on the 2,088 Iowa retailers (see Table 1).

The response rate in 2014 is the lowest in the history of this report. The Department mailed the reports in late December. However in mid-January, retailers began to call the Department to inquire about when the reports were to be received. It became clear that the original mailing was not widely delivered. The Department sent out a second mailing that was unfortunately received around the time of the specified deadline. Directions noted the need for the second mailing and asked retailers to return the report as soon as possible. This glitch is likely the reason for the reduced compliance with completing the report.

Of the reporting 2,088 Iowa retail locations, 1,983 (95.4%) reported selling E10 blend motor fuel, 84 (4.0%) reported selling E15/E20, 209 (10.0%) reported selling E85, and 368 (17.6%) reported selling one or more of the various blends of biodiesel. Biofuel sales by these locations are summarized below and in Table 1.

Gasoline Fuel Sales

During 2014, the reported amount of E10 gasoline sold equaled 1,269.7 million gallons, the amount of E85 gasoline sold equaled 12.1 million gallons, and the amount of E15/E20 gasoline equaled 4.0 million gallons. Combined, the three ethanol blends represented 85.8% of total gasoline motor fuel sales during the year. 1,991 (96.7%) of the 2,058 locations that sold gasoline motor fuels sold one or more ethanol blend.

Because over 16% of locations did not return their Retailers Motor Fuel Gallons Annual Report to the Department for 2014, gallons from the Department's Monthly Motor Fuel Tax Reports were used to estimate the amount of underreporting of gasoline sales. The

gallons presented in the Monthly Motor Fuel Tax Reports reflect taxable motor fuel shipped from terminals rather than gallons sold at retail locations. Because the Monthly Motor Fuel Tax Reports reflect fuel shipments made during the prior month, taxable gallons reported in the monthly reports covering February 2014 through January 2015 were compared with gallons reported as sold by retailers completing the 2014 annual report. During this period, fuel taxes were paid on a total of 1,659.8 million gallons of gasoline fuels. In comparison, the 83.2% of retail locations that filed annual reports indicated 1,498.9 million gallons of gasoline fuels were sold, including all ethanol blends and non-ethanol gasoline, which equals 90.3% of taxable gallons, reported for 2014. Despite the low response rate, this share is just above the 90.2% of taxable gallons reported in 2013.

Diesel Fuel Sales

During 2014, based on annual reports submitted to the Department, the amount of clear biodiesel sold equaled 314.4 million gallons, or 56.1% of total clear diesel fuel sales. Retailers reported selling 560.6 million of gallons of clear diesel fuel. In comparison, the number of taxable (clear) gallons of diesel fuel shipped during 2014 as reported on the Monthly Motor Fuel Tax Reports equaled 714.0 million. Therefore, retailers completing annual reports for 2014 accounted for 78.5% of diesel fuel on which fuel taxes were paid. This is down from the 79.5% reported in 2013.

Also, during 2014, 164.4 million gallons of dyed (non-taxed) diesel fuel sales were reported on the annual reports, including 40.3 million biodiesel gallons (24.5%). Dyed diesel gallons are not captured in the Monthly Motor Fuel Tax Reports.

Based on the annual reports, 1,247 locations sold clear diesel fuel and 114 of these locations sold clear biodiesel fuel during 2014. In addition, 309 locations sold dyed diesel fuel and 114 of these locations sold dyed biodiesel fuel during 2014.

Total diesel gallons reported were 725.0 million gallons and total biodiesel gallons were 354.8 million gallons; therefore, biodiesel blended gallons accounted for 48.9% of diesel gallons sold by reporting retailers.

Table 1. Iowa Gasoline, Diesel, and Biofuel Sales for Calendar Year 2014

<u>Data Description</u>	<u>Locations</u>	<u>Gallons</u>	<u>Pure Petroleum/Diesel</u>	<u>Pure Biofuel</u>
Gasoline (Non-Ethanol)	1,673	213,252,397	213,252,397	0
Ethanol				
E10	1,983	1,269,655,383	1,142,689,845	126,965,538
E15/E20	84	3,953,477	3,360,455	593,022
E85	209	12,081,095	2,537,030	9,544,065
<u>Total Ethanol</u>	<u>1,991</u>	<u>1,285,689,955</u>	<u>1,148,587,330</u>	<u>137,102,625</u>
Total Gasoline and Ethanol	2,058	1,498,942,352	1,361,839,727	137,102,625
Ethanol Share	96.7%	85.8%		9.1%
Clear Diesel (Non-Biodiesel)	1,247	246,127,832	246,127,832	0
Clear Biodiesel				
B2 Clear	54	11,435,901	11,207,183	228,718
B5 Clear	271	70,926,368	67,380,050	3,546,318
B10 Clear	140	49,066,144	44,159,530	4,906,614
B20 Clear	29	43,515,597	34,812,478	8,703,119
Other Clear	55	139,501,853	125,639,088	13,862,765
<u>Subtotal Clear Biodiesel</u>	<u>326</u>	<u>314,445,863</u>	<u>283,198,328</u>	<u>31,247,535</u>
Clear Biodiesel Share	20.7%	56.1%		9.9%
Total Clear Diesel	1,247	560,573,695	529,326,160	31,247,535
Dyed Diesel (Non-Biodiesel)	309	124,108,751	124,108,751	0
Dyed Biodiesel				
B2 Dyed	35	1,509,752	1,479,557	30,195
B5 Dyed	87	33,766,218	32,077,907	1,688,311
B10 Dyed	21	1,231,759	1,108,583	123,176
B20 Dyed	12	403,228	322,582	80,646
Other Dyed	28	3,394,109	3,217,343	176,766
<u>Subtotal Dyed Biodiesel</u>	<u>114</u>	<u>40,305,066</u>	<u>38,205,973</u>	<u>2,099,093</u>
Dyed Biodiesel Share	27.0%	24.5%		5.2%
Total Dyed Diesel		164,413,817	162,314,724	2,099,093
Total Biodiesel	368	354,750,929	321,404,301	33,346,628
Total Diesel and Biodiesel	1,301	724,987,512	691,640,884	33,346,628
Biodiesel Share	28.3%	48.9%		4.6%
Total Fuel All Types	2,088	2,223,929,864	2,053,480,611	170,449,253
Pure Biofuels Share of Gasoline and Diesel				7.7%
Biofuel Distribution Percentage				11.4%

Source: 2014 Retailers Motor Fuel Gallons Annual Reports

Biofuel Distribution Percentage

The primary purpose of this report is to provide the information needed to determine the State's progress toward replacing 25% of petroleum-based motor fuels with biofuels by the year 2020. Table 1 provides estimates of the breakdown between petroleum or diesel and pure biofuel for each fuel type.

For the purpose of measuring progress toward that goal, the following computations were made to estimate the amount of each type of fuel sold that was pure biofuel:

- For E10 blend gasoline fuel the number of gallons was multiplied by 0.10
- For E15/20 blend gasoline fuel the number of gallons was multiplied by 0.15
- For E85 blend gasoline fuel the number of gallons was multiplied by 0.79
- For B2 blend diesel fuel the number of gallons was multiplied by 0.02
- For B5 blend diesel fuel the number of gallons was multiplied by 0.05
- For B10 blend diesel fuel the number of gallons was multiplied by 0.10
- For B20 blend diesel fuel the number of gallons was multiplied by 0.20
- For other biodiesel blends the number of gallons was multiplied by the average pure biodiesel share based on the four reported blends (for clear other biodiesel: 0.099 and for dyed other biodiesel 0.052)

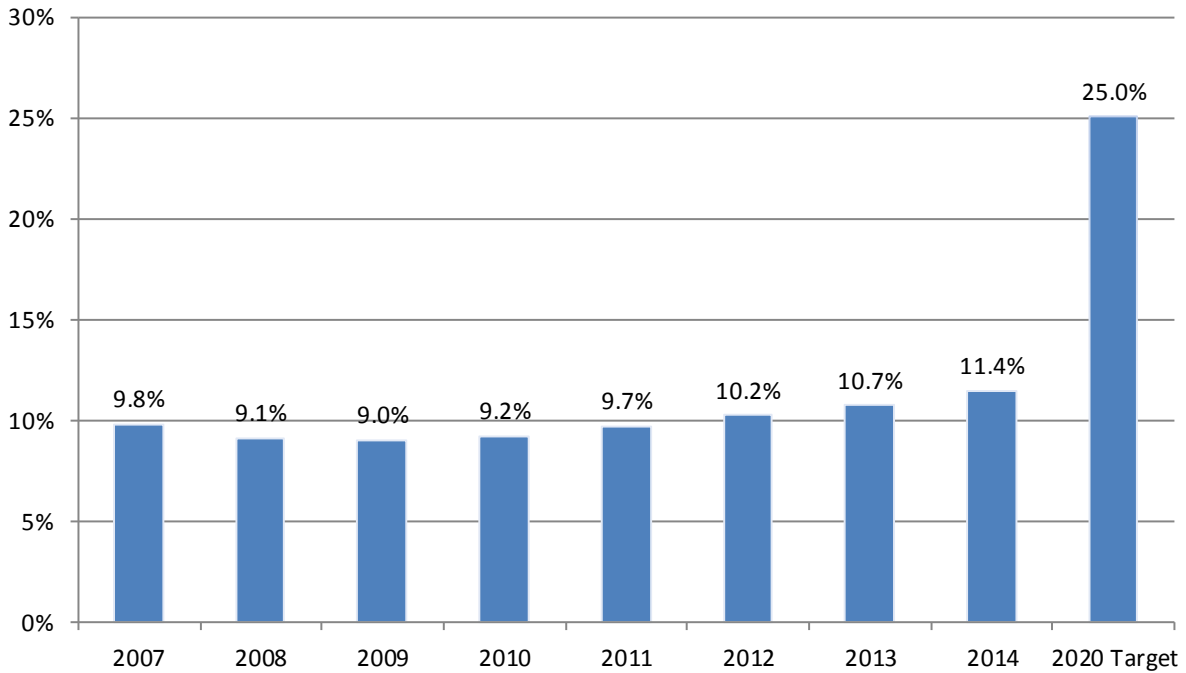
These calculations indicate that during 2014 pure ethanol comprised 9.1% of the volume of total gasoline and ethanol fuel sales. The aggregate ethanol gallonage, which is the number of pure ethanol gallons sold by retailers during 2014, was 137.1 million gallons. Pure biodiesel comprised 4.6% of diesel and biodiesel sales. The aggregate biodiesel gallonage, which is the number of pure biodiesel gallons sold by retailers during 2014, was 33.3 million gallons. Together, pure ethanol and pure biodiesel comprised 7.7% of all fuel sales reported by retail locations. However, the formula specified in Iowa Code 452.31 (8) for the biofuel distribution percentage used to determine progress toward meeting the 25% biofuels goal does not include diesel fuel in its denominator. The formula is:

$$\text{Biofuel Distribution Percentage} = \frac{\text{Pure Ethanol Gallons} + \text{Pure Biodiesel Gallons}}{\text{Total Gasoline Gallons}}$$

Using this formula, during 2014 biofuels accounted for 11.4% of Iowa retail motor fuel sales. This is an increase from the revised 10.7% calculated for 2013. The revised sales data for 2013 are presented in the Appendix.

Figure 1 presents the biofuel distribution percentage reported in the 2007 through the 2014 calendar years. Between 2010 and 2013, the State percentage increased 0.5 percentage points each year solely as a result of higher biodiesel usage. The 0.7 percentage point jump to 11.4% in calendar year 2014 reflects in part continued growth in biodiesel (0.2 percentage points), but mostly an increase in ethanol gasoline sales (0.5 percentage points).

Figure 1: Biofuel Distribution Percentages Based on Annual Retailer Motor Fuel Reports, 2007-2013



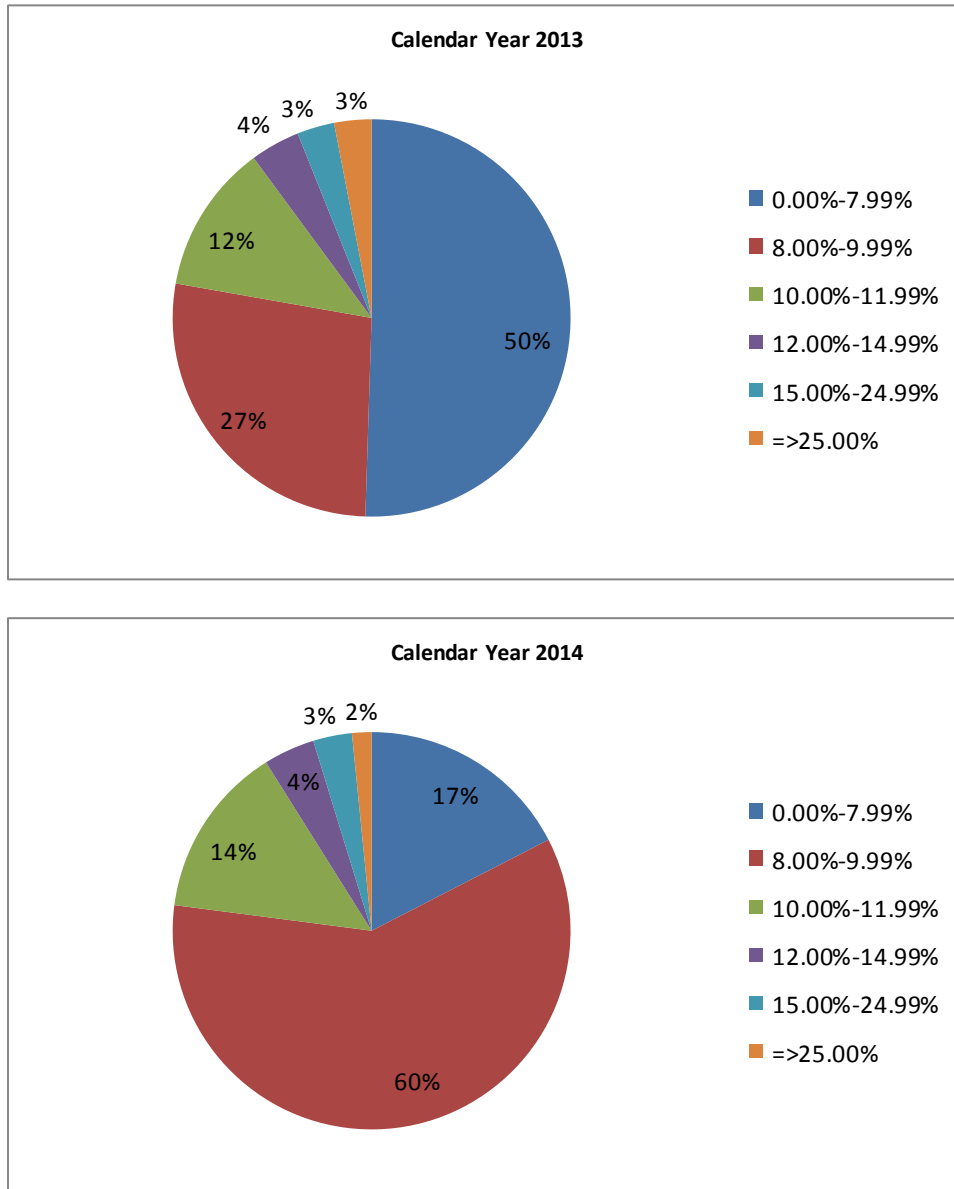
The rise in ethanol sales resulted from a pipeline change which occurred in late 2013. Iowa's largest pipeline operator, Magellan Midstream Partners, stopped shipping 87-octane gasoline to its Iowa terminals and instead shipped 84-octane gasoline which cannot be legally sold because Iowa requires a minimum 87-octane fuel at gas pumps. Boosting the fuel to the minimum required 87-octane requires either blending with ethanol (87-octane fuel can be created by blending 90% 84-octane gasoline with 10% ethanol because ethanol has a high octane content) or with more expensive 91-octane premium gasoline. The need to include premium in any non-ethanol gasoline raised the relative price of non-ethanol gasoline. The impact of the pipeline change is seen in the higher ethanol sales in Iowa during 2014.

Although the 25% goal was for the state as a whole, it is instructive to consider that same measure at the retailer and county level. Figure 2 illustrates the breakdown of retail locations by biofuel distribution percentage calculated using the sales reported by each retail location for which Retailers Motor Fuel Gallons Annual Reports were filed in 2014 or 2013. The data includes only the retail locations that reported gasoline or ethanol sales in the respective calendar year, excluding those with only diesel sales reported. However, as noted above, the calculation of the biofuel distribution percentage includes any pure biodiesel sales reported at those locations.

The sharp decline in the share of retailers reporting less than an 8.0% biofuel distribution percentage in 2014 (17%) compared to 2013 (50%) again reflects the impact of the pipeline change in late 2013. In calendar year 2014 there was a significant

increase in those retailers reporting a biofuel distribution percentage between 8.0% and 9.99%, 27% of retailers in 2013 to 60% of retailers in 2014. The 10.0% to 11.99% category grew slightly from 12% in 2013 to 14% in 2014. The rest of the categories had no significant changes.

Figure 2: Breakdown of Retail Locations by Reported Biofuel Distribution Percentage



To further illustrate the variation in sales of biofuel among Iowa retailers, Figure 3 maps the biofuel distribution percentage calculated by county. These percentages are based on total sales reported by the retailers within each county who remitted the 2014 annual gallons report. No county exceeded the 25% goal, although nine counties had pure biofuel sales comprising between 15.0% and 24.99% of total motor fuel sales. Only five counties had biofuel distribution percentages below 8.0%. The majority of the counties (forty-five) fall in the 8.0% to 9.99% category.

Table 3 provides the total gallons of non-ethanol gasoline, ethanol, clear and dyed non-biodiesel diesel, and clear and dyed biodiesel gallons for all counties with more than five retailers reporting sales to the Department.

Figure 3. Biofuel Distribution Percentage by County for 2014

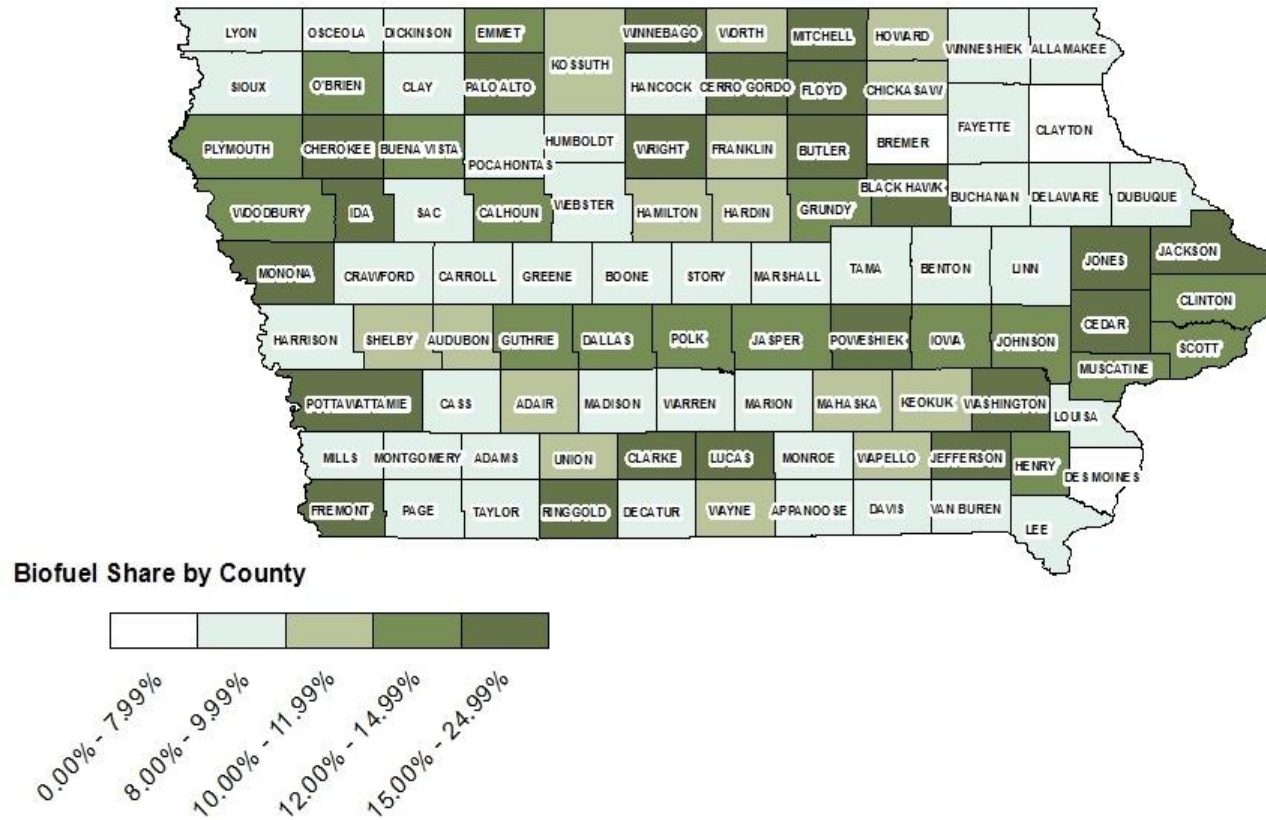


Table 2. Calendar Year 2014 Total Gallons by County

County	Number of Retail Locations	Non-Ethanol Gas Sales	Ethanol Gas Sales	Clear and Dyed Diesel Sales	Clear and Dyed Biodiesel
ADAIR	11	1,498,410	7,153,133	1,321,561	432,515
ALLAMAKEE	16	1,322,461	6,096,143	1,007,143	581,356
APPANOOSE	14	389,801	4,504,969	1,471,576	396,831
AUDUBON	7	211,272	2,251,831	1,804,137	477,334
BENTON	17	1,096,102	7,993,274	2,399,618	125,858
BLACK HAWK	62	9,074,884	46,272,539	6,649,975	17,284,847
BOONE	14	1,193,860	9,107,604	1,900,618	333,389
BREMER	13	2,262,557	9,093,542	2,283,837	38,062
BUCHANAN	18	1,368,303	7,718,064	2,414,267	172,974
BUENA VISTA	26	1,179,545	10,265,077	6,308,029	0
BUTLER	13	749,377	4,405,617	486,123	1,169,292
CALHOUN	15	384,323	3,969,251	2,535,128	0
CARROLL	29	1,764,296	9,192,933	9,614,854	328,098
CASS	17	913,270	7,872,401	4,423,588	209,332
CEDAR	18	1,528,116	8,791,090	4,362,994	12,898,052
CERRO GORDO	28	4,347,752	22,000,207	1,808,321	16,496,314
CHEROKEE	14	655,089	4,490,381	2,316,384	352,231
CHICKASAW	12	1,331,510	5,668,456	3,056,476	2,088,216
CLARKE	9	1,108,077	5,968,259	1,062,938	8,384,848
CLAY	23	1,263,809	6,318,132	4,404,199	63,526
CLAYTON	24	1,447,824	7,777,262	1,630,326	260,101
CLINTON	30	2,318,379	20,213,142	8,300,150	713,020
CRAWFORD	15	1,359,812	6,862,022	6,583,810	15,848
DALLAS	31	5,953,085	32,110,286	3,990,590	3,701,973
DECATUR	7	652,485	2,774,250	807,698	173,042
DELAWARE	15	923,804	7,284,529	2,291,045	1,073,247
DES MOINES	20	3,122,262	13,370,454	1,921,214	0
DICKINSON	24	2,236,414	7,790,336	2,352,997	73,936
DUBUQUE	66	15,161,915	83,300,705	13,574,401	20,460,061
EMMET	9	540,794	3,833,687	1,192,329	1,153,940
FAYETTE	20	1,534,546	7,215,758	17,445,237	79,941
FLOYD	15	1,258,966	5,865,627	3,948,103	210,968
FRANKLIN	14	601,746	5,164,500	2,741,387	1,316,656
FREMONT	9	1,538,424	6,407,869	5,598,653	10,905,457
GREENE	11	516,582	3,794,825	1,410,312	76,196
GRUNDY	12	722,462	5,755,981	3,610,481	2,077,390
GUTHRIE	11	409,181	4,562,162	1,058,652	8,723,861
HAMILTON	8	880,191	5,065,447	502,665	3,017,805
HANCOCK	11	636,572	3,391,038	4,008,132	51,677
HARDIN	19	906,990	6,758,064	1,875,581	755,987
HARRISON	17	700,365	6,895,501	3,737,596	9,569
HENRY	18	1,104,543	10,983,244	1,119,923	1,786,031
HOWARD	10	529,036	3,701,477	2,328,286	545,491
HUMBOLDT	15	650,408	4,140,377	5,182,877	199,081
IDA	11	753,721	2,671,331	2,296,151	24,700
IOWA	17	1,685,810	8,245,502	3,638,767	703,936
JACKSON	20	1,155,313	7,537,085	4,804,413	47,965
JASPER	25	2,090,382	16,161,763	4,937,367	14,474,553

Table 2. Calendar Year 2014 Total Gallons by County (continued)

County	Number of Retail Locations	Non-Ethanol Gas Sales	Ethanol Gas Sales	Clear and Dyed Diesel Sales	Clear and Dyed Biodiesel
JEFFERSON	17	965,426	5,366,263	1,340,769	872,770
JOHNSON	59	7,256,034	42,120,533	5,491,589	5,996,647
JONES	13	1,015,306	7,613,913	2,451,459	625,510
KEOKUK	12	479,984	4,074,623	1,490,958	1,244,936
KOSSUTH	19	831,912	7,348,765	9,969,709	623,538
LEE	25	2,211,605	14,172,050	4,983,207	750,052
LINN	87	12,034,833	82,057,462	10,082,793	5,465,565
LOUISA	8	498,196	3,927,182	907,161	1,500
LUCAS	7	386,742	2,792,741	0	2,954,842
LYON	14	1,057,317	5,736,378	2,973,901	28,161
MADISON	11	1,085,956	7,451,061	6,963,751	937,871
MAHASKA	17	881,781	9,360,011	4,103,878	1,674,268
MARION	23	1,286,777	13,030,314	3,883,494	45,098
MARSHALL	23	2,339,616	11,938,211	0	1,433,929
MILLS	10	545,640	5,153,586	2,747,781	176,714
MITCHELL	10	641,835	3,402,518	296,170	196,725
MONONA	11	1,461,969	5,194,939	3,866,940	1,443,066
MONROE	6	345,779	3,196,583	251,083	0
MONTGOMERY	7	528,213	3,031,375	915,801	0
MUSCATINE	22	2,474,144	13,732,211	3,020,067	557,706
OBRIEN	19	988,379	6,017,423	2,936,478	162,858
OSCEOLA	7	225,202	2,320,250	2,684,273	33,491
OTHER	6	414,135	2,859,966	403,002	0
PAGE	9	569,651	5,687,711	654,355	528,614
PALO ALTO	11	402,304	4,138,723	3,102,539	0
PLYMOUTH	23	2,227,743	8,906,007	5,019,694	23,614
POCAHONTAS	9	314,398	2,497,266	6,045,005	13,897
POLK	185	38,839,714	172,243,978	24,225,407	65,283,768
POTTAWATTAMIE	62	6,198,152	54,070,245	9,297,117	24,749,878
POWESHIEK	17	1,644,167	9,920,533	7,021,709	15,801,977
RINGGOLD	6	170,993	1,316,181	1,542,837	78,906
SAC	17	605,237	4,680,871	2,365,506	0
SCOTT	80	5,103,629	84,949,581	8,392,065	53,031,793
SHELBY	13	589,550	4,234,769	3,525,076	1,156,654
SIOUX	32	2,654,555	10,144,522	10,908,799	728,436
STORY	43	5,690,612	33,401,636	4,200,299	2,914,491
TAMA	15	748,602	7,646,450	2,162,486	29,993
TAYLOR	7	117,813	2,060,240	652,525	0
UNION	11	655,840	4,912,306	994,580	387,661
VAN BUREN	8	263,791	2,310,183	750,257	83,592
WAPELLO	27	2,091,158	15,126,339	-801,913	3,887,157
WARREN	25	2,619,897	19,196,877	1,536,120	1,006,207
WASHINGTON	25	1,652,781	12,043,839	5,139,207	8,512,326
WAYNE	7	228,303	1,934,472	338,587	577,248
WEBSTER	28	1,571,849	15,399,044	4,276,273	105,092
WINNEBAGO	18	687,690	4,729,297	2,339,227	102,902
WINNESHIEK	17	1,608,062	7,442,880	3,358,248	4,233
WOODBURY	50	8,154,512	37,682,679	12,717,794	15,493,480
WORTH	10	1,994,348	3,254,648	501,566	457,575
WRIGHT	20	855,439	5,093,199	3,686,045	100,681
Total	2,088	213,252,397	1,285,689,958	370,236,583	354,750,929

Other includes counties with five or less retailers reporting. (Adams and Davis)

Source: 2014 Retail Motor Fuel Gallons Annual Reports

Appendix

Revised Table. Iowa Gasoline, Diesel, and Biofuel Sales for Calendar Year 2013

Data Description	Locations	Gallons	Pure Petroleum/Diesel	Pure Biofuel
Gasoline (Non-Ethanol)	1,845	259,638,996	259,638,996	0
Ethanol				
E10	2,022	1,185,095,674	1,066,586,107	118,509,567
E15/E20	77	2,876,206	2,444,775	431,431
E85	206	11,152,763	2,342,080	8,810,683
Total Ethanol	2,032	1,199,124,643	1,071,372,962	127,751,681
Total Gasoline and Ethanol	2,117	1,458,763,639	1,331,011,958	127,751,681
Ethanol Share	96.0%	82.2%		8.8%
Clear Diesel (Non-Biodiesel)	1,273	234,033,317	234,033,317	0
Clear Biodiesel				
B2 Clear	67	13,627,559	13,355,008	272,551
B5 Clear	267	80,148,715	76,141,279	4,007,436
B10 Clear	141	72,410,451	65,169,406	7,241,045
B20 Clear	31	25,235,740	20,188,592	5,047,148
Other Clear	46	122,000,489	111,440,986	10,559,503
Subtotal Clear Biodiesel	328	313,422,954	286,295,271	27,127,683
Clear Biodiesel Share	20.5%	57.3%		8.7%
Total Clear Diesel		547,456,271	520,328,588	27,127,683
Dyed Diesel (Non-Biodiesel)	313	125,137,732	125,137,732	0
Dyed Biodiesel				
B2 Dyed	41	1,527,217	1,496,673	30,544
B5 Dyed	91	27,910,748	26,515,211	1,395,537
B10 Dyed	22	1,167,037	1,050,333	116,704
B20 Dyed	23	679,424	543,539	135,885
Other Dyed	41	3,097,403	2,931,202	166,201
Subtotal Dyed Biodiesel	125	34,381,829	32,536,957	1,844,872
Dyed Biodiesel Share	28.5%	21.6%		5.4%
Total Dyed Diesel		159,519,561	157,674,689	1,844,872
Total Biodiesel	347	347,804,783	318,832,228	28,972,555
Total Diesel and Biodiesel	1,334	706,975,832	678,003,277	28,972,555
Biodiesel Share	26.0%	49.2%		4.1%
Total Fuel All Types	2,156	2,165,739,471	2,009,015,235	156,724,236
Pure Biofuels Share of Gasoline and Diesel				7.2%
Biofuel Distribution Percentage				10.7%

Source: 2013 Retailers Motor Fuel Gallons Annual Reports