RFA RENEWABLE FUELS ASSOCIATION

A new Associated Press (AP) story on the environmental impacts of corn ethanol uses disproven myths, skewed data, and outright fabrications to suggest biofuels and the Renewable Fuel Standard have not lived up to their promise. The lead reporter responsible for the story interviewed RFA staff on multiple occasions. RFA provided indisputable facts, peer-reviewed studies, and government data documenting ethanol's positive impacts. Yet, the AP consciously chose to ignore this material and instead opted to publish a salacious and terribly unbalanced account of the effects of corn production and ethanol on the environment. This document responds to some of the most egregious and inflammatory statements in the AP article.

AP Claim	The Rest of the Story
"Five million acres of land set aside for conservation…have vanished on Obama's watch. Landowners filled in wetlands. They plowed into pristine prairies, releasing carbon dioxide that had been locked in the soil."	• According to USDA data, 33.7 million acres were enrolled in CRP in 2009, the year President Obama began his first term. As a consequence of the 2008 Farm Bill, ***the cap on CRP acreage was dropped from 39.2 million acres to 32 m. acres*** beginning in 2010. Accordingly, CRP acreage fell to 31.3 m. acres in 2010, 31.1 m. acres in 2011 and 29.5 m. acres in 2012. • Acres enrolled in CRP since 2010 have been closer to the legal enrollment cap (92-98% of the maximum allowed) than in the years preceding passage of the expanded RFS (2002-2007 average CRP enrollments were 89% of maximum allowed). • It is important to remember that in addition to providing environmental services, a key objective of the CRP program was to help reduce burdensome surpluses of agricultural commodities; land in enrolled in CRP was always intended to remain available for a return to agricultural production if warranted by market conditions. • Farmers and landowners are ***not*** "filling in wetlands." Acreage enrolled in the Wetlands Reserve Program (WRP) hit a record high of 2.65 million acres in 2012. The program has been so successful that the cap on enrollments was ***raised*** from 2.28 m. acres to 3.04 m. acres in the 2008 Farm Bill. Land that enters the WRP is enrolled ***permanently*** or for a period of 30 years, meaning landowners can't just "fill in" wetlands when commodity prices rise. • While some CRP and actively-managed pastureland has been converted to cropland, there is no evidence that farmers are "plowing into pristine prairies." Most

	native grasslands are protected under so-called "sodbuster" and "swampbuster" provisions of the Farm Bill. • According to EPA's latest Greenhouse Gas Inventory, ***no new grassland has been converted to cropland since 2005*** and grassland ***sequestered 14% more carbon in 2011*** (latest data available) than in 1990.
"Farmers planted 15 million more acres of corn last year than before the ethanol boom…"	• Farmers increased corn acreage in 2012 and 2013 in response to *drought-ravaged corn supplies* in 2011 and 2012—not because of ethanol. In fact, *less corn* was (will be) used for ethanol in both 2012 and 2013 than was used in 2011. • U.S. corn acreage has been higher in the past than it was in 2012 and 2013. In the 1930s, for instance, planted corn acreage averaged 103 m. acres. • In any event, the increase in corn acres in 2012 and 2013 has been achieved through crop-switching, not through cultivation of new, non-agricultural lands like prairie. Farmers have reduced plantings of other crops to accommodate the increase in corn acres, and yields for all crops have continued to trend upward. In fact, total cropland continues to trend downward and is roughly 5% lower than levels in the late 1990s.
"The hilly, once-grassy landscape [in Wayne County, Iowa] is made up of fragile soil that, unlike the earth in the rest of the state, is poorly suited for corn."	• Farmers in Wayne County plant far less corn today than they did in the past. Wayne County corn acreage in 2012 was ***34% lower*** than the peak acreage in 1985 and 11% lower than the average from the 1980s. In fact, average corn acreage in the county from 2000-2012 has been lower than corn acreage during any decade since recordkeeping began in the 1920s, with the one exception of the 1990s. • According to a comprehensive report on the sustainability of commercial crop production by the Keystone Center, soil loss per bushel of corn production has ***declined 69% since 1987***.
"The government's predictions of the benefits have proven so inaccurate that independent scientists question whether it will ever achieve its central environmental goal: reducing greenhouse gases."	• There are plenty of independent scientists who have found ***ethanol significantly reduces GHG emissions*** relative to gasoline. Other scientists have looked at the full range of ethanol's impacts on air, land, and water compared to gasoline and concluded that ethanol is superior. In just the last few years, scientists from Argonne National Laboratory, Purdue University, University of Nebraska, Michigan State

	University, Oak Ridge National Laboratory/Duke University, and University of Illinois-Chicago have published work documenting the GHG and environmental benefits of using ethanol. Even Richard Plevin of U.C. Berkeley, who is quoted in the article, was co-author of a paper entitled ***"Ethanol Can Contribute to Energy and Environmental Goals."***
"Corn demands fertilizer, which is made using natural gas. What's worse, ethanol factories typically burn coal or gas, both of which release carbon dioxide."	• Farmers are using less fertilizer today than in the past, both in aggregate terms and in terms of fertilizer use per bushel produced. In 2010 (latest USDA data available), corn farmers used 1% less nitrogen, 10% less phosphate, and 28% less potash than in 1985. Yet, the 2010 corn crop was 40% larger than the 1985 crop! The nitrogen required to produce a bushel of corn has fallen 43% since 1980, while phosphate requirements are down 58% and potash requirements are down 64%. • Approximately 90% of ethanol plants operating today use natural gas as a power source, while just 10% use coal. Ethanol plants have reduced thermal energy and electricity use by 36% and 38%, respectively, since 1995. • When all the GHG emissions related to producing corn and converting it into ethanol are tallied, ***average corn ethanol reduces GHG emissions by 34% compared to gasoline***, according to Argonne National Laboratory. This includes all emissions related to fertilizer/chemical production and use on the farm, diesel fuel use on the farm, transportation of the corn, energy use by the ethanol plant, transportation of the ethanol to market, and ***even hypothetical land use change emissions***. This peer-reviewed, published work was shared with the AP reporters, who chose to ignore it.
"The most important of those assumptions was called the yield, a measure of how much corn could be produced on an acre of land."	• While crop yield is an important factor in analyzing land use effects, it was far from "the most important" assumption in EPA's modeling. Contrary to the AP story's implication, EPA's final determination that corn ethanol reduces GHG emissions by more than 20% used the "base case" yield trajectory, ***not*** the "high yield" trajectory. Using the "high yield" case wouldn't have significantly affected EPA's results anyway. In its regulatory impact analysis, EPA stated: "The high yield scenario has a modest change in the overall GHG reductions of corn ethanol. With the high

	yield estimates the 2022 average corn ethanol plant reduces GHG emissions compared to the gasoline baseline by 23%, compared to reductions of 21% for the base case scenario." This point was clearly explained to the AP reporter, who chose to purposely contort the facts on this issue.

"When the final rule came out, the EPA and Agriculture officials added a new 'high yield case scenario' that assumed 230 bushels per acre. The flaw in those assumptions, independent scientists knew, was that a big increase in corn prices would encourage people to farm in less hospitable areas like Wayne County, which could never produce such large yields. But the EPA's model assumed only a tiny increase in corn prices."	• EPA did indeed examine a "high yield" case, but didn't use the results for its final GHG determination. Further, the "high yield" case didn't significantly change the GHG results in EPA's analysis. Corn ethanol met the 20% requirement in both the "base case" and "high yield" case.
	• In the AP reporters' haste to use Wayne County, Iowa, as a "case study" for corn acreage expansion, they omitted a few key facts:
	  ○ Farmers in Wayne County planted ***fewer*** acres to corn in 2012 than they did in 2011.
	  ○ Wayne County farmers plant ***far less corn today than they did in the past***. County corn acreage in 2012 was ***34% lower*** than the peak acreage in 1985 and 11% lower than the average from the 1980s.
	  ○ Average corn yields in Wayne Co. are trending upward. Since passage of the original RFS in 2005, average yields have been 27% higher than average county yields in the 1990s and 51% than average yields in the 1980s.
	• The AP reporters obviously misunderstand EPA's modeling results. EPA was attempting to model the increase in corn prices ***that would be attributable only to the RFS***; the Agency was not attempting to model actual future corn prices and price increases attributable to other market factors.

"It didn't take long for reality to prove the Obama administration's predictions wrong. The regulations took effect in July 2010. That September, corn passed $4, on its way to about $7, where it has been most of this year."	• Corn prices in the summer of 2010 (when the RFS2 regulations took effect) were actually substantially ***lower*** than corn prices through much of 2008, despite the fact that ethanol production in 2010 was ***40% higher*** than in 2008! • Corn prices have been above $7/bushel only 49 days out of the 311 days so far this year—or ***16% of the time***. That's a far cry from "most of the year." In fact, corn prices have spent more days (66) this year under $5/bushel, and have recently traded as low as

	$4.20/bushel. • On Dec. 19, 2007, the day President Bush signed the Energy Independence and Security Act into law, ***corn prices closed at $4.34 per bushel***. By comparison, corn prices closed yesterday's (Nov. 7, 2013) trading session at ***$4.21 per bushel***.
"Historically, the overwhelmingly majority of corn in the United States has been turned into livestock feed. But in 2010, for the first time, fuel was the No. 1 use for corn in America. That's been true every year since."	• The AP story blatantly ignores the fact that each 56-pound bushel of corn processed by an ethanol plant results in 2.8 gallons of fuel ***AND*** 17 pounds of co-product animal feed. Thus, one-third of every bushel destined for ethanol actually returns to the livestock feed market in the form of distillers grains or corn gluten. • When co-product output is properly considered, livestock feed remains the top user of corn by a large margin. For instance, on a net basis, ethanol consumed 26% of the 2012 corn crop, while livestock feed accounted for 50%.
"Forty-four percent last year's corn crop was used for fuel, about twice the rate in 2006, according to the Department of Agriculture."	• According to USDA, 4.67 billion bushels were used for ethanol ***AND*** feed co-product production in 2012/13 out of a total supply of 11.93 billion bushels. That represents 39% ***on a gross basis***. But as stated above, one-third of the 4.67 billion bushels was actually used as animal feed, reducing ethanol's ***net use of the corn supply to 26%.*** USDA expects that ***only 23% of 2013's record corn supply*** (14.53 billion bushels) will be used for ethanol on a net basis.
"Before the government ethanol mandate, the Conservation Reserve Program grew every year for nearly a decade. Almost overnight, farmers began leaving the program, which simultaneously fell victim to budget cuts that reduced the amount of farmland that could be set aside for conservation. In the first year after the ethanol mandate, more than 2 million acres disappeared."	• CRP enrollments ***fell in five consecutive years*** from 1994-1999, before rising gradually to a record high in 2007, according to USDA data. The 2008 Farm Bill slashed the cap on CRP acres from 39.2 m. acres to 32 m. acres, so of course CRP enrollments fell. • It is true that CRP acres fell roughly 2 m. acres from 2007 to 2008—but they fell from a ***record level*** of 36.8 m. acres to 34.6 m. acres (which ranked as the fifth highest level in the last 17 years).
"But rather than insisting that farmers report whenever they plow into virgin land, the government decided on a much murkier oversight method: Washington instead monitors the total number of acres of cropland nationwide. Local trends wash	• Current law strictly prohibits the conversion of sensitive ecosystems to cropland. The provisions of the Energy Independence and Security Act (EISA) require that corn and other feedstocks used to produce renewable fuels for RFS may only be sourced from land that was actively engaged in agricultural

away when viewed at such a distance."	production in 2007, the year of the bill's enactment. Feedstocks grown on land converted to cropland after 2007 would not qualify as "renewable biomass," and therefore biofuels produced from these feedstocks would not generate RIN credits for the RFS. • EPA is required to annually evaluate whether the RFS is causing U.S. cropland to expand beyond the 2007 level of 402 million acres (the year the RFS was expanded). Each and every year, EPA has found that cropland has been below the 2007 baseline; and the 2012 cropland total was at its lowest point (384 million acres) since EPA began this annual analysis.
"But using government satellite data -- the best tool available -- the AP identified a conservative estimate of 1.2 million acres of virgin land in Nebraska and the Dakotas alone that have been converted to fields of corn and soybeans since 2006, the last year before the ethanol mandate was passed."	• On the contrary, the "best tool available" is to confirm what is ***actually happening on the ground***. Total 2013 corn acres in the states of Iowa, Minnesota, Nebraska, N. Dakota, and S. Dakota were 9.8 m. acres higher than the 3-year average from 2000-2003, according to USDA acreage data. However, acres dedicated to wheat, hay, and other crops fell by -11.06 m. acres. This demonstrates that the ***increase in corn acres was more than offset by the decrease in acres for other crops***. No "virgin land" was needed. • The AP story fails to elaborate on what "government satellite data" was used and what methods were used to identify "virgin land." NASA, USGS, USDA and others have confirmed that there is a high degree of error associated with using satellite data to analyze land cover changes. This uncertainty is well-documented and is a reason satellite data is rarely used for strict regulatory/enforcement purposes. • USDA itself acknowledges that, the grassland-related satellite data categories have traditionally had "***very low classification accuracy."*** For example, USDA accuracy data shows the CDL satellite tool mischaracterized North Dakota acreage for alfalfa, other hay, and idle/fallow cropland ***more than half the time in 2012***.
"Between 2005 and 2010, corn farmers increased their use of nitrogen fertilizer by more than one billion pounds. More recent data isn't available from the Agriculture Department, but because of the huge increase in corn planting, even conservative projections by the AP suggest another	• The 2010 corn crop was ***12% larger*** than the 2005 crop, so it stands to reason that slightly more nitrogen was used in 2010. Still, USDA data shows that the amount of nitrogen applied in 2010 was ***down from 2007*** and ***lower than nitrogen use in the early and mid-1980s***. • In 2010 (latest USDA data available), corn farmers

billion-pound fertilizer increase on corn farms since then."	used 1% less nitrogen, 10% less phosphate, and 28% less potash than in 1985. Yet, the 2010 corn crop was 40% larger than the 1985 crop! The nitrogen required to produce a bushel of corn has fallen 43% since 1980, while phosphate requirements are down 58% and potash requirements are down 64%.
"Even under the government's optimistic projections, the ethanol mandate wasn't going to reduce greenhouse gas right away."	• EPA's GHG analysis is not at all "optimistic" when considered in the context of other, more recent analyses that show corn ethanol reduces GHG emissions by ***more than 30%*** ***today***—not in 2022.
"The EPA could revisit its model and see whether ethanol is actually as good for the environment as officials predicted. But the agency says it doesn't have the money or the manpower."	• RFA has repeatedly encouraged EPA to revisit its RFS2 modeling because there are strong indications that corn ethanol's environmental performance is ***far better***—not worse—than EPA predicted. Numerous reports and studies conducted since EPA finalized the RFS2 definitively show that *today's* ethanol reduces GHG emissions by more than 30% compared to gasoline.