Lake Mills Graphic Ag Week 2017

As we celebrate National Ag Week, it is a good time to reflect on all the traditions and advancements that help make the U.S. agriculture industry truly remarkable.

statistics about today's agriculture

• The 2012 Census of Agriculture listed a total of 2.1 million farms in the U.S. Overall, U.S. farm num-

bers have generally been declining since World War II; however, farm numbers have been more stable

• There was a total 915 million Following are some interesting acres of land in farms in the U.S. in 2012. This total land in farms declined by less than one percent from the 2007 total, which was the third smallest decline since 1950. The average U.S. farm size in 2012 was

• There was a total of \$394.6 billion of agricultural sales in the U.S. in 2012, which was at a record level, and was about one-third higher than 2007. Crop sales in 2012 totaled \$212.4 billion, while total livestock sales in 2012 were \$182.2 billion. 2012 was only the second time in the history of ag census data (since 1840) that total U.S. crop sales have

exceeded total livestock sales. The other time was in 1974.

• The average agricultural sales per farm in the U.S. in 2012 was

• There were 57,292 farms with total sales above \$1 million per year in 2012, which was an increase of 42.5 percent from 2007; however, 1.6 million farms (75 percent) had total sales of less than \$50,000 an-

• In 2015, over 5 billion bushel of corn were used for U.S. ethanol production. There were 198 operating ethanol plants in the U.S. in 2015, producing just over 15 billion gallons of ethanol.

• Advanced biotechnology corn seed was used on 93 percent of the U.S. corn acres in 2014. The use of insecticides in corn production in the U.S. has been reduced by 65 percent in recent years by the use of biotechnology corn varieties. The use of biotechnology in crop pro-

See AG STATS, Page 3

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and prosperous nation that's made possible by the hard work of America's farms

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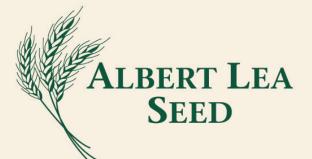


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Cautious optimism reigns for 2017 planting season

Lower costs key, as decline in production costs provides opportunity for positive

margins The cost of corn and soybean production in Iowa is expected to fall this year, according to a new study done by

Iowa State University Extension and Outreach. The cost of corn production is expected to drop by 12 percent and soybean production will dip by nine percent. While dips in production

costs are encouraging, the large drop is attributed more to math than it is to lower input

"The study shows the driver behind these falling costs is the decline in both rent and machinery costs," said Alejandro Plastina, assistant professor and extension economist with Iowa State University. "Both of those variables are affected by a one-time change in methodology."

Maker published an article on farm machinery efficiency. The new information on increasingly efficient machinery was duction, when combined with a incorporated into the formula well-executed marketing plan, used to calculate input costs.

"Despite the projected increase in fuel prices, the total machinery costs ended up being lower than what we reported last year, because of an improvement in the efficiency of those machines," said Plastina. "There has also been a \$30-35 gap between the cash rent projected for the estimated costs of production and the cash rents reported in our annual cash rent survey since Janu- hay, oats and pasture acres. ary 2014. The 2017 production cost estimates now use cash rent totals that are expected to be within \$8 of the reported averages in the 2017 cash rent iastate.edu/agdm/. The full

per bushel for mid-range yield corn is projected at \$4.08 for corn following corn and \$3.51 for corn following soybeans. Costs per bushel of soybeans

e Ship UPS Daily

In May 2016, Ag Decision are \$9.66 for the herbicide tolerant variety and \$9.60 for non-herbicide tolerant beans.

> These lower costs of prowill likely result in small but positive profit margins in certain rented acres of both corn and soybeans with cash rents similar to the ones used in the report, as well as owned land with reasonable fixed costs associated with ownership factors. Budgets are available for corn following soybeans, corn following corn, and soybeans following corn. They are also available for low-till, strip till,

Further details about the report are available in the February issue of Ag Decision Maker, http://www.extension. report, titled "Estimated Costs As for the results, the cost of Crop Production in Iowa-2017" (FM 1712), can be accessed through the Extension Store, https://store.extension. iastate.edu/.

How will climate change impact agriculture?

Drought

Climate Impacts on Agriculture and Food Supply

Information from U.S. EPA **Key Points**

- Moderate warming and more carbon dioxide in the atmosphere may help some plants to grow faster. However, more severe warming, floods, and drought may reduce
- Livestock may be at risk, both directly from heat stress and indirectly from reduced quality of their food supply.
- Fisheries will be affected by changes in water temperature that make waters more hospitable to invasive species and shift the ranges or lifecycle timing of certain fish

Agriculture is an important sector of the U.S. economy. The crops, livestock, and seafood produced in the United States contribute more than \$300 billion to the economy each year. When food-service and other agriculture-related industries are included, the agricultural and food sectors contribute more than \$750 billion to the gross domestic product.

Agriculture and fisheries are highly dependent on the climate. Increases in temperature and carbon dioxide (CO2) can increase some crop yields in some places. But to realize these benefits, nutrient levels, soil moisture, water availability, and other conditions must also be met. Changes in the frequency and severity of droughts and floods could pose challenges for farmers

and ranchers and threaten food safety. Meanwhile, warmer water temperatures are likely to cause the habitat ranges of many fish and shellfish species to shift, which could disrupt ecosystems. Overall, climate change could make it more difficult to grow crops, raise animals, and catch fish in the same ways and same places as we have done in the past. The effects of climate change also need to be considered along with other evolving factors that affect agricultural production, such as changes in farming practices and technology.

Wet spring,

Line graph above shows the yield

in bushels per acre by year. The map

calls out several events that caused

significant declines in yield. Blight,

wet spring and early frost, droughts,

flood, and unusual climate events

caused as much as 29 percent de-

clines in yield. The data ranges from

1960 to 2010 and over that period of

time the trend shows that the yield

per acre has risen from approxi-

mately 60 to 150 bushels per acre.

Despite technological improve-

ments that increase corn yields, ex-

treme weather events have caused

significant yield reductions in some

States are critical for the food sup-

ply here and around the world. U.S.

farms supply nearly 25 percent of

all grains (such as wheat, corn, and

rice) on the global market. Changes

in temperature, atmospheric carbon

dioxide (CO2), and the frequency

and intensity of extreme weather

could have significant impacts on

of increased temperature will de-

pend on the crop's optimal tempera-

ture for growth and reproduction. In

some areas, warming may benefit

the types of crops that are typical-

ly planted there, or allow farmers

to shift to crops that are currently

grown in warmer areas. Conversely,

if the higher temperature exceeds a

crop's optimum temperature, yields

Higher CO2 levels can affect

crop yields. Some laboratory exper-

iments suggest that elevated CO2

levels can increase plant growth.

However, other factors, such as

changing temperatures, ozone, and

For any particular crop, the effect

crop yields.

will decline.

Crops grown in the United

years. Source: USGCRP (2009)

140

120

Impacts on Crops

Bushels

Yield:

water and nutrient constraints, may counteract these potential increases in yield. For example, if temperature exceeds a crop's optimal level, if sufficient water and nutrients are not available, yield increases may be reduced or reversed. Elevated CO2 has been associated with reduced protein and nitrogen content in alfalfa and soybean plants, resulting in a loss of quality. Reduced grain and forage quality can reduce the ability of pasture and rangeland to support grazing livestock. More extreme temperature and

precipitation can prevent crops from

growing. Extreme events, especially

floods and droughts, can harm crops

and reduce yields. For example,

in 2010 and 2012, high nighttime

temperatures affected corn yields

across the U.S. Corn Belt, and pre-

mature budding due to a warm win-

ter caused \$220 million in losses of

Dealing with drought could become

a challenge in areas where rising

summer temperatures cause soils to

become drier. Although increased

irrigation might be possible in some

places, in other places water sup-

plies may also be reduced, leaving

less water available for irrigation

Many weeds, pests, and fungi thrive

under warmer temperatures, wetter

climates, and increased CO2 levels.

Currently, U.S. farmers spend more

than \$11 billion per year to fight

weeds, which compete with crops

for light, water, and nutrients. The

ranges and distribution of weeds

and pests are likely to increase with

climate change. This could cause

new problems for farmers' crops

previously unexposed to these spe-

Though rising CO2 can stimulate

plant growth, it also reduces the nu-

tritional value of most food crops.

Rising levels of atmospheric carbon

dioxide reduce the concentrations

of protein and essential minerals

in most plant species, including

wheat, soybeans, and rice. This di-

rect effect of rising CO2 on the nu-

tritional value of crops represents

a potential threat to human health.

Human health is also threatened

by increased pesticide use due to

increased pest pressures and reduc-

tions in the efficacy of pesticides.

when more is needed.

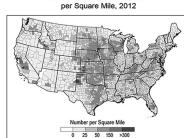
Michigan cherries in 2012.[1]

Number of Broilers and Other Meat-Type Chickens per Square Mile, 2012

Locations of Livestock



Number of Cattle and Calves per Square Mile, 2012



Impacts on Livestock Livestock by location in the **United States 2012.**

Chickens are most common in the southeast, hogs and pigs in the upper midwest, and cattle and calves across the Great Plains. Livestock locations in the continental United States. Source: USGCRF

Americans consume more than 36 million metric tons of meat and poultry annually. Livestock and poultry account for over half of U.S. agricultural cash receipts, often over \$100 billion per year. Changes in climate could affect animals both directly and indirectly.

Heat waves, which are projected to increase under climate change. could directly threaten livestock. In 2011, exposure to high temperature events caused over \$1 billion in heat-related losses to agricultural producers. Heat stress affects animals both directly and indirectly. Over time, heat stress can increase vulnerability to disease, reduce fertility, and reduce milk production.

Drought may threaten pasture and feed supplies. Drought reduces the amount of quality forage available to grazing livestock. Some areas could experience longer, more intense droughts, resulting from higher summer temperatures and reduced precipitation. For animals that rely on grain, changes in crop production due to drought could also become a problem.

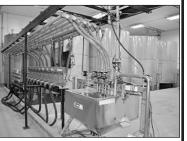
Climate change may increase the prevalence of parasites and diseases that affect livestock. The earlier onset of spring and warmer winters could allow some parasites and pathogens to survive more easily. In areas with increased rainfall, moisture-reliant pathogens could thrive.

Potential changes in veterinary practices, including an increase in

See **CLIMATE CHANGE**, Page 3







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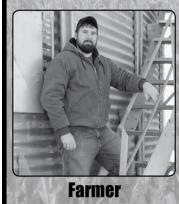
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Is this the demise of the honeybee?

Bees flitting from one newly sprouted flower to another as they collect pollen is one of the more common sights of the spring. Honeybees are content to buzz between plants for hours. But in recent years, the honeybee population has declined considerably, and scientists and environmentalists continue to study and debate why bees seem to be dying out.

Although bees are best known for their honey production, their symbiotic relationship with nature goes much further. Honeybees are instrumental in transferring pollen from plant to plant, which helps to foster new life for many agricultural species. In addition to wild flowers and other plants, bees pollinate many of the crops that end up as food on dinner tables across the globe. Bees help pollinate more than 90 commercially grown field crops, citrus and other fruit crops, vegetables and nut crops. Without these insects, crop yields would decrease dramatically, and some foods may cease to exist. Without bees, food production would diminish and the prices of produce would

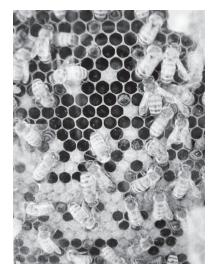
Commercial beekeepers in the United States have reported deaths of tens of thousands of honeybee colonies. Ninety percent of wild bee populations in the United States have disappeared, according to Target Health, Inc. In the Netherlands and the United Kingdom, bee species have declined considerably, and some have even become extinct.

Since 2006, millions of honeybees have died off due to a phenomenon called Colony Collapse Disorder, or CCD. CCD refers to the absence of adult honeybees in a colony with few or no adults remaining. Worker bees simply disappear, leaving behind the queen and vulnerable developing young. Bees are not usually known to leave the hive unguarded. While similar disappearances have been documented in the last 100 years, those incidences have grown considerably in recent years.

Officials in the United States Department of Agriculture and the Environmental Protection Agency have not been able to determine why the honeybee population has undergone such a steep decline, though some believe that a complex combination of factors, including parasites, lack of genetic diversity, poor nutrition, and pesticides, could be responsible. Examination of dead bees has found residues of more than 100 chemicals, insecticides and pesticides, including some used to control parasites, in bee hives.

Other factors that come into play involve climate changes that affect wildflower production. Without wildflowers, bees have no sources of food. Rainy, wet or overly dry weather can wreak havoc on the landscape, resulting in fewer flowers and, as a result, a smaller bee population.

Scientists are still studying the situation and working toward a solution to restore the honeybee population. Individuals can do their part by keeping plenty of blooming flowers in their yards and never killing honeybees found on their property. Disturbing an established hive can result in the bees abandoning their work, leading to even greater losses. TF143020



Honeybees pollinate many of the world's plants. But their numbers are on the decline, and the environmental impact of that decline is significant.

10 Fascinating Facts About Honey Bees

1. Honey bees can fly at speeds of up to 15 miles per hour. Their tiny wings must flap about 12,000 times per minute just to keep their pollen-laden bodies aloft for the flight home.

2. A honey bee colony can contain up to 60,000 bees at its peak.

3. A single honey bee worker produces about 1/12th of a teaspoon of honey in her lifetime. It takes tens of thousands of workers to get the job done.

4. A queen honey bee stores a lifetime supply of sperm.

5. The queen honey bee lays up to 1,500 eggs per day, and may lay up to one million in her lifetime.

6. The honey bee uses the most complex symbolic language of any animal on earth, outside of the primate family.

7. Drones, the only male honey bees, die immediately after mating. 8. Honey bees maintain a con-

stant temperature of about 93°F within the hive year-round. 9. Honey bees produce beeswax

from special glands on their abdo-10. An industrious worker bee

may visit 2,000 flowers per day.

Consumers' appetites for local ranging term that refers to foods foods are growing, and restaurants produced in a particular town, state have taken notice. Today, many loor even region. The 2008 Farm Act defines a "locally or regionally procal businesses, including farms and duced agricultural food product" as restaurants, have mutually exclusive relationships that make it posone that is marketed less than 400 sible for local residents to enjoy numiles from its origin. However, a few states have established more According to the market research stringent rules that indicate "local" firm Packaged Facts, local foods constitutes food produced within generated \$11.7 billion in sales in the borders of a state or within a 2014 and will climb to \$20.2 billion

Farm to table

tritious, locally produced meals.

by 2019. Farm-to-table remains a

growing trend that benefits farmers,

restaurateurs and consumers. This

is evidenced by the rising number

of farmers markets cropping up in

neighborhoods all across the coun-

try, as well as the niche offerings by

regional food purveyors. The U.S.

Department of Agriculture says that,

in the last 20 years, the number of

farmers markets has grown by more

than 350 percent. Many consumers

are now choosing "local" for dining

at home and when dining out, and

this is making a major impact on the

perts predict that the local foods

movement is a permanent and main-

stream trend. In 2014, the National

Restaurant Association found the

desire for local foods dominated its

clude locally sourced meats and

seafood as well as locally sourced

produce. Consumers also are inter-

ested in farm/estate-branded foods.

Some restaurants are even produc-

ing "hyper-local" food, or herbs and

produce grown right on the prop-

has evolved, so has the term "lo-

cal foods." "Local" can be a wide-

As the demand for local foods

The most in-demands foods in-

Foodies as well as industry ex-

nation's food systems.

'Top Food Trends.'

businesses booming

small perimeter of the state. The growing preference for locally produced foods is great news for the farmers and small food producers that have long fought for footing among the mega-importers. According to the trade publication Produce Business, even though "local" does not place limits on the size of the farm, the growing desire among consumers to go local is benefitting many small and midsized farms, as consumers are increasingly buying foods grown closer to where they live.

In addition to meats, fruits and vegetables, consumers can find many locally made items that expand the potential for farm-to-table. These include, but are not limited to, artisanal cheeses, wines, beer, baked goods, milk and other dairy, and honey.

Local, sustainable foods are in demand, helping not only local restaurants and merchants, but also the small and medium farms that service these establishments.

From the basics of feed

and fertilizer to targeted

AG STATS

From Front

duction has also reduced the overall need for pesticides, while helping to protect the environment.

• The U.S. farmer of today produces enough food and fiber for approximately 160 people. This number compares to 19 people in 1940, 46 people in 1960, and 115 people

• Farmers receive just under 16 cents of every consumer dollar that is spent on food. The other 84 cents is spent on processing, packaging,

CLIMATE CHANGE

From 2B

the use of parasiticides and other animal health treatments, are likely to be adopted to maintain livestock health in response to climate-induced changes in pests, parasites, and microbes. This could increase the risk of pesticides entering the food chain or lead to evolution of pesticide resistance, with subsequent implications for the safety, distribution, and consumption of livestock and aquaculture products.

Increases in carbon dioxide (CO2) may increase the productivity of pastures, but may also decrease their quality. Increases in atmospheric CO2 can increase the productivity of plants on which livestock feed. However, the quality of some of the forage found in pasturelands decreases with higher CO2. As a result, cattle would need to eat more to get the same nutritional benefits.

marketing, transportation, distribution, and other costs in the retail food supply.

• One acre of wheat will yield about 50 bushels per acre and will produce over 2,500 loaves of bread, or over 50 loaves of bread per bushel of wheat. If a farmer is paid \$5 per bushel for wheat from the farm, the wheat cost in a two pound loaf of bread is only about 11 cents per loaf. (Est. retail value of a loaf of bread is about \$2.79/loaf).

• Following is the farmer's share of some other common food products and the (Est. Retail Value as of February, 2016, based on USDA average prices). Bacon \$.59/lb. (\$4.33/lb.); Sirloin Steak \$2.09/lb. (\$6.99/lb.); Boneless Ham \$.59/lb. (\$4.39/lb.); Milk \$1.38/gal (\$3.89/ gal.); Eggs \$1.29/doz. (\$2.99/ doz.); Breakfast Cereal \$.05/box (\$4.69/box); Potatoes \$.44/five lbs. (\$3.89/five lbs.); Tomatoes \$1.08/ lb. (\$3.29/lb.).

As we celebrate National Ag Week, everyone should take time to appreciate the abundant supply of safe and affordable food and energy that is provided by farmers and the U.S. agriculture industry.

(Note: Facts listed in this article are from USDA, Minnesota Department of Agriculture, National Farmers Union, American Farm Bureau, National Corn Growers Association, and other sources.)



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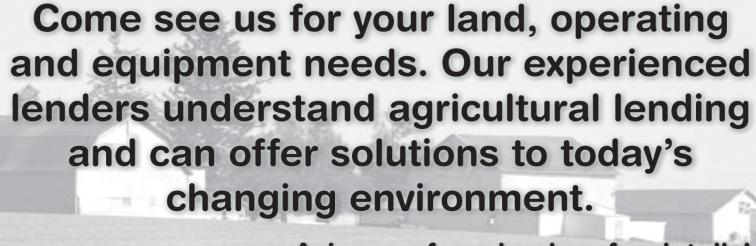
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Climate disruptions projected to increase

Increasing Impacts on Agriculture

Producers have many available strategies for adapting to the average temperature and precipitation changes projected for the next 25 years. These strategies include continued technological advancements, expansion of irrigated acreage, regional shifts in crop acreage and crop species, other adjustments in inputs and outputs, and changes in livestock management practices in response to changing climate patterns. However, crop production projections often fail to consider the indirect impacts from weeds, insects, and diseases that accompany changes in both average trends and extreme events, which can increase losses significantly. By mid-century, when temperature increases are projected to be between 1.8°F and 5.4°F and precipitation extremes are further intensified, yields of major U.S. crops and farm profits are expected to decline. Over time, climate change is expected to increase the annual variation in crop and livestock production because of its effects on weather patterns and because of increases in some types of extreme weather events. Overall implications for production are for increased uncertainty in production totals, which affects both domestic and international markets and food prices. Recent analysis suggests that climate change has an outsized influence on year-to-year swings in corn prices in the United States.

One critical period in which temperatures are a major factor is the pollination stage; pollen release is related to development of fruit, grain, or fiber. Exposure to high temperatures during this period can greatly reduce crop yields and increase the risk of total crop failure. Plants exposed to high nighttime temperatures during the grain, fiber, or fruit production period experience lower productivity and reduced quality. These effects have already begun to occur; high nighttime temperatures affected corn yields in 2010 and 2012 across the Corn Belt. With the

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number of nights with hot temperatures projected to increase as much as 30 percent, yield reductions will become more prevalent.

Weeds, Diseases, and Pests

Many agricultural regions will experience declines in crop and livestock production from increased stress due to weeds, diseases, insect pests, and other climate change induced stresses.

Current estimates of losses in global crop production show that weeds cause the largest losses (34 percent), followed by insects (18 percent), and diseases (16 percent). Further increases in temperature and changes in precipitation patterns will induce new conditions that will affect insect populations, incidence of pathogens, and the geographic distribution of insects and diseases., Increasing CO2 boosts weed growth, adding to the potential for increased competition between crops and weeds. Several weed species benefit more than crops from higher temperatures and CO2 levels.

Extreme Precipitation and Soil Erosion

Several processes act to degrade soils, including erosion, compaction, acidification, salinization, toxification, and net loss of organic matter. Several of these processes, particularly erosion, will be directly affected by climate change. Rainfall's erosive power is expected to increase as a result of increases in rainfall amount in northern portions of the United States, accompanied by further increases in precipitation intensity. Projected increases in rainfall intensity that include more extreme events will increase soil erosion in the absence of conservation practices.

Heat and Drought Damage

Climate change projections suggest an increase in extreme heat, severe drought, and heavy precipitation which all have large effects on crops and livestock. The timing of

extreme events will be critical because they may occur at sensitive stages in the life cycles of agricultural crops or reproductive stages for animals, diseases, and insects. Extreme events at vulnerable times could result in major impacts on growth or

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productivity, such as hot-temperature extreme weather events on corn during pollination. By the end of this century, the occurrence of very hot nights and the duration of periods lacking agriculturally significant rainfall are projected to increase. Recent studies suggest that increased average temperatures and drier conditions will amplify future drought severity and temperature extremes. Crops and livestock will be at increased risk of exposure to extreme heat events.

Rate of Adaptation Agriculture has been able to adapt to recent changes in cli-

mate; however, increased innovation will be needed to ensure the rate of adaptation of agriculture and the associated socioeconomic system can keep pace with climate change over the

Much of the economic literature suggests that in the short term, producers will continue to adapt to weather changes and shocks as they always have, with changes in the timing of field operations, shifts in crops grown, and changing tillage or irrigation practices. In the longer term, however, existing adaptive technologies will likely not be sufficient to buffer the impacts of climate change without significant impacts to domestic producers, consumers, or both. New strategies for building long-term resilience include both new technologies and new institutions to facilitate appropriate, informed producer response to a changing climate.

Food Security

Climate change impacts on agriculture will have consequences for food security both in the U.S. and globally. Food security includes four components: availability, stability, access, and utilization of food. Within the complex global food system, climate change is expected to affect food security in multiple ways. In addition to altering

agricultural yields, projected rising temperatures, changing weather patterns, and increases in frequency of extreme weather events will affect distribution of food- and water-borne diseases as well as food trade and distribution., This means that U.S. food security depends not only on how climate change affects crop yields at the local and national level, but also on how climate change and changes in extreme events affect food processing, storage, transportation, and retailing, through the disruption of transportation as well as the ability of consumers to purchase food. In an increasingly globalized food system with volatile food prices, climate events abroad may affect food security in the U.S. while climate events in the U.S. may affect food security

Read the full report at: http:// nca2014.globalchange.gov/report/ sectors/agriculture#statement-16371

Iowa and Minnesota big players in agriculture

Minnesota Agriculture

Minnesota is a leading state in annual farm income. It ranks at No. 5 among the states, generating about four percent of the nation's total agri-

In terms of revenue generated Minnesota's top five agricultural products are corn for grain, hogs, soybeans, dairy products, and cattle and calves. Livestock and livestock products account for about half of the state's

farm income. Minnesota's most valuable livestock products are hogs, accounting for 18 percent of the state's total agricultural revenues. Minnesota s a leading (No. 3) hog-producing state. Dairy products and cattle and calves are also very important sources of

revenue in the state. Minnesota is a leading milk-producing state, most of which is converted into butter and cheese. Turkeys and chicken eggs complete the list of the top five livestock prod-

Corn is the state's most valuable crop followed by soybeans and again,

ucts of Minnesota. Minnesota is also a leading producer of eggs and turkeys.

Minnesota is a leading producer. Farmers also grow hay, sugar beets, wheat, barley, flaxseed and oats. The leading vegetable crops are peas, potatoes and sweet corn.

Minnesota's leading fruit crops are apples.

Iowa Agriculture

With some of the richest and most productive soil in the world, over 90 percent of its land used for agriculture, and a plethora of other agricultural advantages, it's no wonder Iowa ranks second in the nation for ag production. Iowa is also second in total agricultural exports, with farmers exporting more than \$10 billion worth of ag products in 2013.

Leading agricultural commodities in the Hawkeye State, which are produced on more than 30 million acres of farmland, include corn, soybeans, hogs and eggs. Red meat is a leading product, too, and 6.6 billion pounds of red meat were manufactured in 2014. Iowa also helps fuel the nation's vehicles—over 25 percent of ethanol used in the U.S. is produced in Iowa.

Minnesota Top Ag Exports

- Corn
- Pork
- Feeds and other feed grains
- Soybean meal
- Dairy products
- Wheat
- Grain products, processed

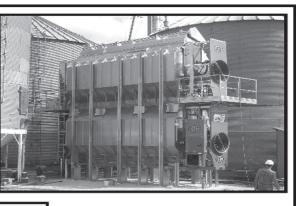
- Soybeans

- Other plant products

- Vegetable oils







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Iowa Top

Ag Exports (2015)

Top commodity exports

(in millions):

Brewing or Distilling Dregs - \$536

Swine meat, fresh or chilled - \$452

Top destinations of exports

(in millions):

Climate & Soil

• Iowa temperature averages 20°F in

January and 76°F in July. The annual

average temperature ranges from a

• Iowa's average precipitation is 34".

• Iowa is the 7th windiest state in the

nation, generating 570,000 megawatts

• The Iowa state soil is a series called · Iowa has at least 11,000 different · Iowa has some of the richest and

Canada - \$3,872

Mexico - \$2,100

China - \$1,199

low of 11°F to a high of 86°F.

of wind energy.

• Swine meat, frozen - \$368

• Soybean oilcake- \$324

• Corn Except Seed Corn - \$966

• Tractors - \$764

• Herbicide - \$405

Soybeans - \$385

- Iowa farmers harvested 13.1 million acres of corn (2.5 billion bushels) in 2015. Iowa corn crop values \$8.8 billion.
- · Iowa harvested 9.8 million acres of soybeans (553.7 million bushels), in 2015, which valued \$4.8 billion.
- million bushels of Iowa Grown corn annually. • Iowa leads the nation in hog and egg

• Livestock in Iowa consumes 291

- production. • Over 240 million pounds of cheese are made in Iowa per year.
- There are 20.9 million hogs (almost
- 32 percent of the nation's hogs), 3.9 million cattle, 175,000 sheep and 51.2 million chickens in Iowa. Iowa chick ens laid 12.5 billion eggs in 2015.
- · Iowa's dairy industry produced an estimated 4.84 billion pounds of milk in 2015. The average milk produced per cow was 22,943 pounds.

· Iowa ranks second nationally in red

- meat production. In 2015, 7 billion pounds of red meat were produced. The 165 thousand sheep shorn in 2015 produced 900 thousand pounds of wool. Iowa ranks 10th in wool pro
- Iowa's hog industry yielded a gross income of \$7.5 billion in 2015. • In 2015, a little more than 9 million
- turkeys were produced in Iowa, many of which supplied the turkey for Subway restaurants.

General

• Iowa has 55,875 square miles of land. Over 85 percent of Iowa's land is used for agriculture • Iowa ranked 2nd in 2014 in the na-

tion in farm cash receipts at \$30.6 bil-• Iowa's 43 ethanol plants have a

combined annual capacity of 4 billion gallons of ethanol annually. Iowa produces more than 25 percent of the nation's ethanol.

· Iowa ranks second in total agricultural exports. Iowa farmers exported more than \$11 billion worth of agri-

cultural products in 2014.

Water is an essential ingredient in ethanol production

It currently takes about three gallons of water to produce a gallon of ethanol. That number is rapidly decreasing with environmental efforts and developments in technology. To put ethanol's water use into perspective, it takes about 25 gallons of water to produce one gallon of oil and 150 gallons of water to produce one Sunday newspaper.

Indirect Land Use Change (ILUC) assumes that growing grains for biofuel production displaces other crops, which are then grown in other parts of the world, leading to deforestation. The theory is flawed, speculative and withstands no credible scrutiny.

Indirect Land Use Change (ILUC) is an untested and heavily disputed theory that assumes corn used for ethanol will displace other crops, like soybeans, and in turn, cause farmers in other countries to cut down rainforests to grow soybeans and fill the demand. Estimates vary drastically depending on the assumptions of the researchers. Some are based on false or out-of-date assumptions. More dependable recent studies have shown no indirect land use change in other countries due to U.S. ethanol production. They have shown that corn-based ethanol production is far better for the environment than oil.

According to the National Institute of Space Research, deforestation in the Amazon has declined sharply just as American biofuels production doubled. In 2004, 10,588 square miles of the Amazon was deforested and in 2009/10, that number dropped to 2,490.7 square miles. Meanwhile, U.S. ethanol production has gone from approximately three billion gallons in 2004 to approximately 13.23 billion gallons in

Myths and Facts about ILUC

MYTH: Increased U.S. ethanol production is causing Brazilian deforestation.

FACT: Since 2004, the total number of square miles deforested in the Amazon has been cut in half, while the total number of gallons of American ethanol production has nearly tripled.

MYTH: There is widespread agreement in the scientific community that ILUC is real.

FACT: The theory employs no empirical evidence and is highly controversial. No consensus in the scientific community as to its validity has been achieved. The data/facts contradict the theory. Many scientists challenge the credibility of economic models used to approximate the theoretical values of GHG missions projected from ILUC. Even EPA Administrator Jackson noted the significant uncertainties associated with ILUC in a Sept. 23, 2009 letter to Senator Harkin.

MYTH: Land diverted for increased corn production used for ethanol leads to sharp decreases in American grain exports.

FACT: Even with increased ethanol production, corn production has been able to meet and exceed the demands for food, fuel and exports. In 2007, the U.S. produced a record 13 billion bushels of corn. In 2008, American farmers produced more than 12 billion bushels of corn, the second largest corn crop ever. Since 1998, corn exports have remained at 1.5-2.5 billion bushels an-

MYTH: The ILUC penalty applied to biofuels will reduce carbon emissions.

FACT: The ILUC penalty on biofuels would abandon the "polluter pays" principle, which states the party responsible for producing pollution is responsible for paying for the damage done to the environment. If a party that is engaged in deforestation activities is not held responsible, yet another party (American farmers) are penalized, it is unlikely those individuals will change their practices of deforestation.

MYTH: The U.S. Congress fully supports ILUC theory.

FACT: The provision was not at all debated before its inclusion in the Energy Independence and Security Act of 2007. In fact, the U.S. House of Representatives included a provision in the American Clean Energy and Security Act of 2009 (H.R. 2454) that prevents EPA from implementing the ILUC rule for six years, until the National Academy of Sciences thoroughly studies whether the theory is corroborated by actual scientific evidence.

MYTH: It is appropriate to penalize biofuels with the ILUC theory because other fuels are similarly penalized.

FACT: American biofuels are inappropriately singled out by the ILUC theory. EPA's proposed rule does not account for the international or domestic indirect land use impacts of other transportation fuels such as Middle East oil, Canadian tar sands oil or coal-fired electricity needed to

power plug-in hybrids.

MYTH: Farmers are plowing up forests and breaking native ground to grow more corn.

FACT: Thanks to advances

in technology, corn farmers have consistently increased crop yields so that today, they grow five times as much corn as in the 1930s on 20 percent less land. Average corn yields have gone from 91 bushels per acre in 1980 to 152.8 bu/ acre in 2007. Similarly ethanol yields have increased from 2.4 gallons per bushel in 1980 to 2.81 gal/bu in 2007.



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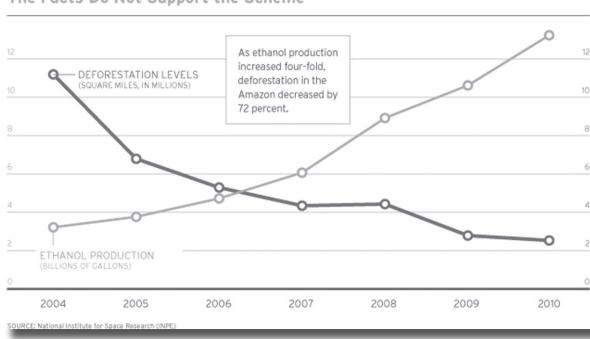
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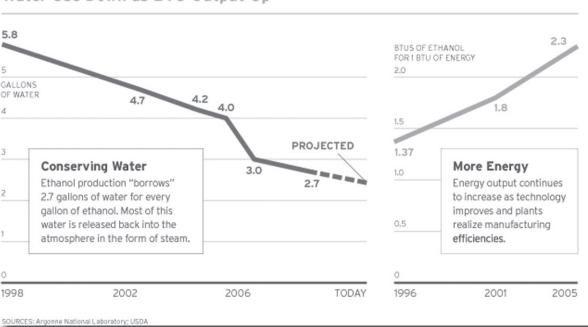
Indirect Land Use Change

The Facts Do Not Support the Scheme



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Water Use Down as BTU Output Up



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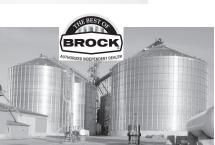


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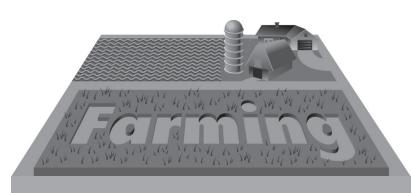
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Iowa beef producers explore trade opportunities

Demand for U.S. Beef increases in South Korea

The Iowa Beef Industry Council (IBIC) recently embarked on an Iowa trade mission to South Korea on February 11-18, 2017. The beef and pork schedule was coordinated through the U.S. Meat Export Federation (USMEF). The projected expansion of U.S. chilled beef exports to South Korea is set for record levels. In 2016, U.S. beef exports grew by 31 percent in dollars received and 42 percent in total shipment weights. In total, 179,280 metric tons valued at \$1.059 billion were exported to South Korea. The growing middle class of Korea has a demand for beef, especially beef short ribs for their Korean BBQ style meals.

Daryl Strohbehn, Boone, and Dave Rueber, Luxemberg, Iowa beef producers and members of the IBIC board of directors, attended the meat trade mission on behalf of the beef checkoff. The trip began with a tour of the cold storage and

processing plant at Kyunwoo Foods and Haesung Provision in South Korea to better understand the Korean market.

mission was to the Costco Kwangmyung warehouse. Costco, the largest importer in the region, recently transitioned two of their 13 warehouses from Australian beef to 100 percent U.S. chilled beef. The remaining 11 warehouses will be converted during May. The regaining of the Korean imported chilled beef market is a milestone for U.S. beef pro-

"The retail market is vital for U.S. beef. Costco's announcement to move from 17 percent to 100 percent U.S. beef in their stores is exciting for cattle producers," said Rueber. "USMEF has been working on this for 13 years. This will result in a 15,000 metric ton increase in beef purchases this year."

Efforts from USMEF to increase U.S. beef consumption at Costco included taste testing sessions utilizing different beef cuts, cooking methods and arranged meetings. The meetings porters and processors from the U.S. and South Korea.

"As beef producers, we The next phase of the trade cannot become complacent, we must continue to focus on building long-term beef demand and being aware of future opportunities," stated Strohbehn. "As an industry, we have to continue listening to what our consumers want, including our overseas custom-

> The Iowa trade mission participated in the USMEF Spring Seminar. This event attracted more than 200 people in the meat industry including importers, processors, distributors, retailers, foodservice and government to learn about U.S. meats. In addition, they at-

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launch event. Korea has one of the most advanced social media networks of any country. USMEF brought in key bloggers and restaurant owners to from the U.S.

Beef checkoff dollars are tial." invested in USMEF, that share the positive attributes of U.S. beef with international consumers through messaging focused on the safety and quality of U.S. beef, develop the market for new items and preparation techniques/trends (e.g. American BBQ) within international countries, and maximize the impact of market access initiatives. USMEF staff potential for growth and estab-

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were with Costco, potential ex- tended a U.S. meat cookbook lish unique strategic objectives in each market.

> "I was impressed by the professionalism, the networking skills, and expansion for U.S. beef in South Korea," noted explore new processed meats Rueber. "The beef checkoff's support of USMEF is essen-

> The trade mission was coordinated by Iowa Economic Development Authority with representatives from the Iowa Beef Industry Council, Iowa Pork Producers Association, beef processor and pork exporters. Checkoff investments with USMEF assisted with many of the in country meetings. The mission was partially funded by the Iowa Beef Industry identify areas with the highest Council, the Beef Checkoff Program in Iowa.

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Daryl Strohbehn and Dave Rueber, Iowa beef producers, visit Costco in South Korea as Costco transitions to 100 percent U.S. beef in stores.



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