Iowa State University
Extension and Outreach

Ag Decision Maker

VOL. 29 NO. 8 / JUNE 2025 A BUSINESS NEWSLETTER FOR AGRICULTURE

INSIDE . . .

UPDATES

The following Information Files have been updated on extension.iastate.edu/agdm:

A1-13 USDA RMA Corn and Soybean County Yields for Iowa, 2015-2024

A1-14 Iowa Corn and Soybean County Yields (USDA RMA)

B1-21 Livestock Enterprise Budgets for Iowa–2025

The following Videos and Decision Tools have been updated on extension.iastate.edu/agdm:

A1-10 Chad Hart's Latest Ag Outlook Video

A1-44 Supplemental Coverage Option (SCO) and Enhanced Coverage Option (ECO) County Yield History for Iowa

B1-21 Livestock Enterprise Budgets for Iowa–2025 (11 Decision Tools)

The following Profitability Tools have been updated on extension.iastate.edu/agdm/outlook.html:

A1-85 Corn Profitability

A1-86 Soybean Profitability

A2-11 Iowa Cash Corn and Soybean Prices

A2-15 Season Average Price Calculator

D1-10 Ethanol Profitability

D1-15 Biodiesel Profitability

EPA's surprise announcement for soybeans

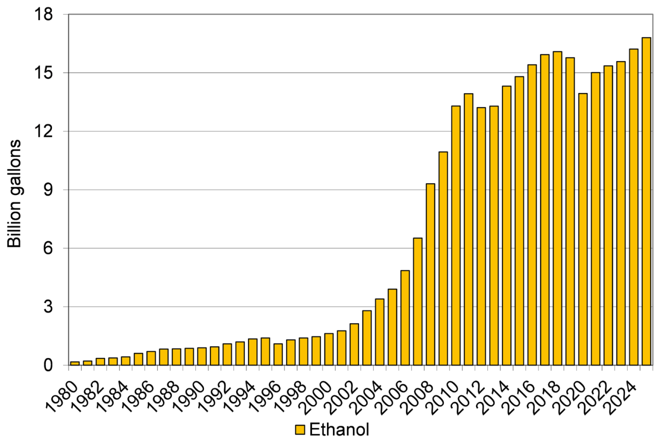
By Chad Hart, extension crop market economist, 515-294-9911 | chart@iastate.edu

Positive policy news on the biofuels front has been in short supply for a while now. The industry was highly concerned about the future settings for the Renewable Fuels Standard (RFS), the driving policy for the industry over the past couple of decades. Given the administration's desire to reduce policy involvement in many industries, it was thought we might see similar adjustments for bioenergy. Instead, the EPA shifted the RFS to boost liquid biofuel blending and to increase the usage of domestically produced biofuel feedstocks.

Before outlining the policy changes, let's explore the current biofuel picture(Figure 1). The 2023 and 2024 calendar years were very strong production years for US biofuels. Ethanol production and consumption had declined significantly during the COVID pandemic. Ethanol and gasoline usage has been slowly recovering since then, with the ethanol market reaching back to record production levels in 2024. At the same time, renewable diesel production was expanding quickly, overtaking biodiesel in 2023 and nearly doubling biodiesel production in 2024. As we finished 2024, these three biofuels accounted for over 21 billion gallons of production.

But the strength across all of these markets has not carried over to 2025. While ethanol has continued on its record pace, with the monthly data from January and February indicating production could exceed 16.5 billion gallons, biodiesel and renewable diesel production has retreated. The early monthly data for biodiesel shows a 37% decline in production, with the annual estimate just over a billion gallons. Renewable diesel displays a smaller decline, 15%, but the combination indicates a billion fewer biomass-based diesel gallons in 2025. The decline in production aligns with a pause in renewable diesel refining capacity (shown in Figure 2), which peaked in June 2024 at 4.897 billion gallons, retreated almost immediately to 4.598 billion gallons in July 2024, and has flatlined at 4.58 billion gallons from September 2024 to March 2025 (the latest data currently available).

Figure 1. United States biofuel production. Source: US Energy Information Administration.



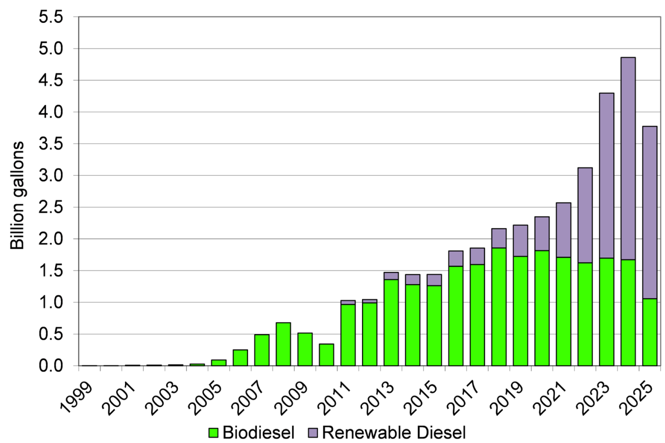
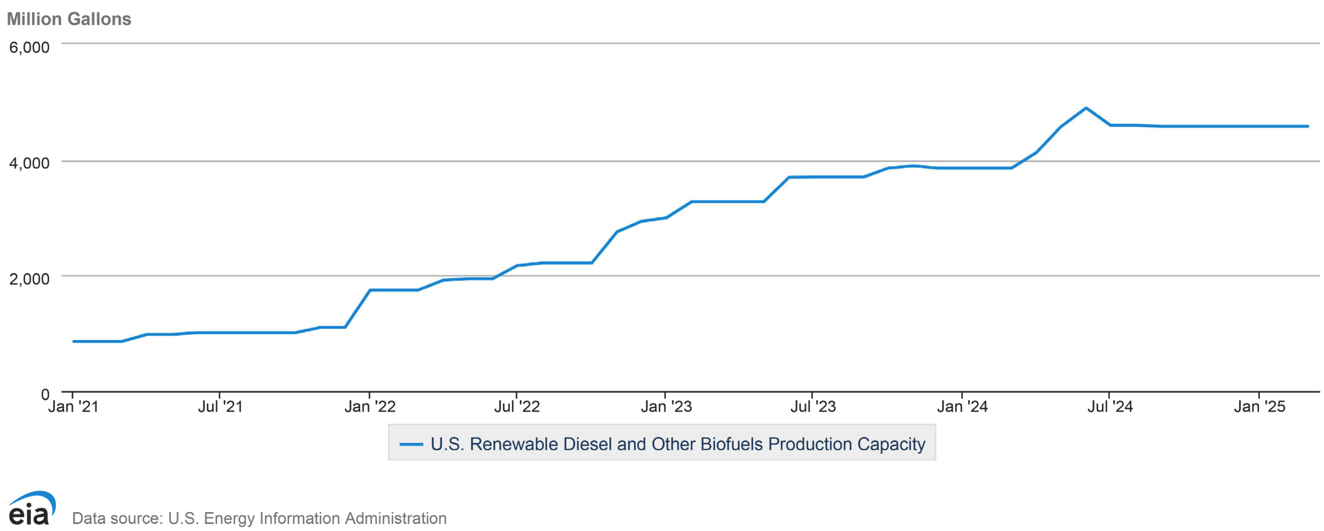


Figure 2. United States renewable diesel and other biofuels production capacity.
Source: US Energy Information Administration.



The surge in renewable diesel production was fed with numerous feedstocks, as Figure 3 shows. These feedstocks came from a variety of domestic and international sources: soybean oil from domestic crushing, corn oil from ethanol plants, animal fats from livestock processing, and used cooking oil (included in the Yellow Grease category) from international sources. Much of the policy discussion around renewable diesel in 2024 centered on concerns about the increase of international feedstocks into the US market (especially used cooking oil).

Combining these storylines together gives us the reasoning behind some of the EPA's adjustments to the RFS. For this article, we will focus on the shifts for biomass-based diesel (biodiesel and renewable diesel). The EPA made other adjustments as well, for example, the removal of electricity as a qualifying renewable fuel, but we will not examine those changes here.

There are three major parts to the EPA's biomass-based diesel policy shifts. First, the EPA shifted the biomass-based diesel blending targets from a set number of gallons to a set number of RINs to align biomass-based diesel with all of the other biofuels. Currently (and since the RFS became law), under the RFS, ethanol and all other biofuels, except biomass-based diesel, are measured in RINs, whereas biomass-based diesel is measured in gallons. A RIN is equal to one ethanol-equivalent gallon of renewable fuel. The equivalence is based on both the energy content and the renewable content of the biofuel. So one gallon of ethanol equates to one RIN. A gallon of biodiesel equates to

1.5 RINs. A gallon of renewable diesel equates to 1.7 RINs. For 2025, the biomass-based diesel requirement in the RFS was 3.35 billion gallons. For 2026, the biomass-based diesel requirement in the RFS will be 7.12 billion RINs.

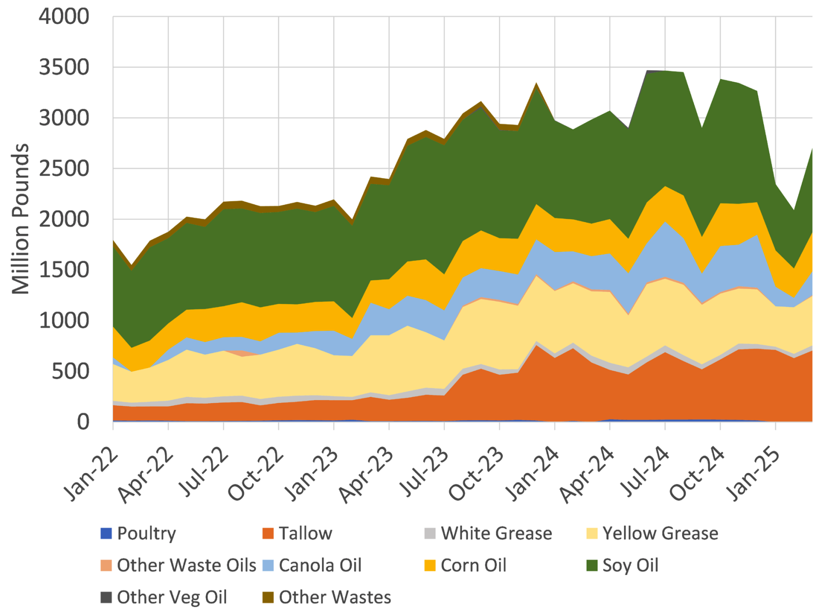
Second, the EPA significantly boosted the number of biomass-based diesel gallons needed to reach the RFS requirement. For the 2026 target of 7.12 billion RINs of biomass-based diesel, the EPA estimates that it will take 5.61 billion gallons of biomass-based diesel. When compared to the 2025 target of 3.35 billion gallons, that is a 67.5% increase in one year. However, the number of gallons needed also depends on the third change EPA made.

Third, the EPA is adjusting the fuel equivalence formula to derive RINs by reducing the number of RINs by 50% for imported biofuels and domestic biofuels made with imported feedstocks. So a gallon of imported ethanol or domestic ethanol made with imported feedstocks equates to 0.5 RINs. A gallon of imported biodiesel or domestic biodiesel made with imported feedstocks equates to 0.75 RINs. A gallon of imported renewable diesel or domestic renewable diesel made with imported feedstocks equates to 0.85 RINs.

This last change effectively reduces the number of RINs from imported biofuels and feedstocks, forcing a combination of either more domestic production or more imports. Given the 2026 target of 7.12 billion RINs from biomass-based diesel, it would take (based on only using one fuel type) either 4.19 billion gallons of domestically feedstocked and produced renewable diesel, 4.75 billion gallons of domestically feedstocked and produced biodiesel, 8.38 billion gallons of internationally feedstocked or produced renewable diesel, or 9.49 billion gallons of internationally feedstocked or produced biodiesel. Given EPA's estimate of 5.61 billion gallons, that tells us they expect over half of the biomass-based diesel to be domestically feedstocked and produced in 2026, with the rest having some international sourcing.

Current estimates of biomass-based diesel production capacity in the US are 4.58 billion gallons of renewable diesel per year and 1.984 billion gallons of biodiesel per year. So the US already has enough production capacity to reach the new targets. In fact, the US could meet the 2026 target using only domestically feedstocked and produced renewable diesel based on production capacity. The challenge will be the feedstock sourcing. The emphasis is on soybean oil as it is the largest feedstock by volume in use today. In 2022, soybean oil represented 44% of the total feedstock for biomass-based diesel, at 10.524 billion pounds. However, by 2024, that percentage had dropped to 35%, with many in the industry pointing to the importation of canola oil and used cooking oil for the decline. The data for 2024 show 13.235 billion pounds of soybean oil being utilized for biomass-based diesel. Combining the Energy Information Administration data on biomass-based diesel production and feedstocks,

Figure 3. United States biomass-based diesel feedstocks.
Source: US Energy Information Administration



we find that in 2024 it took an average of 7.84 pounds of feedstock (across all feedstocks) to create a gallon of biomass-based diesel.

If we hold the conversion rate at 7.84 pounds per gallon, keep soybean oil's percentage at 35% of total feedstock, and utilize EPA's estimate of 5.61 billion gallons of biomass-based diesel; that leads a potential production increase of 750 million gallons of biomass-based diesel (renewable diesel and biodiesel, compared to 2024), using an additional 2 billion pounds of soybean oil. However, if the shift in RIN values allows soybean oil to recapture a higher percentage of the feedstock, returning back to 44%; the increase in soybean oil would jump to over 6 billion pounds.

While some of this soybean oil increase would come at the expense of lower soybean oil exports, there would be a need to crush more soybeans domestically. If the domestic crush had to add 2 billion pounds of soybean oil, that would add 173 million bushels of soybean in the crush. For 6 billion pounds of soybean oil, we would need to add 524 million bushels of soybean. The American Soybean Association estimates that current soybean crushing capacity is 2.55 billion bushels per year (Gerlt, 2025). With USDA already projecting 2.49 billion bushels of the 2025 soybean crop will be crushed, that leaves little room for biofuel growth without some expansion. Announced crush capacity increases would raise the total to 2.78 billion bushels per year, which could cover the smaller scenario, but not the larger one.

The June 2025 **Market Outlook video**, https://youtu.be/RtUj2sIg9LU, is provided for further insight on outlook for this month.

References

Environmental Protection Agency. **EPA Proposes New Renewable Fuel Standards to Strengthen U.S. Energy Security, Support Rural America, and Expand Production of Domestic Fuels**. https://www.epa.gov/newsreleases/epa-proposes-new-renewable-fuel-standards-strengthen-us-energy-security-support-0. Accessed June 16, 2025.

Gerlt, S. **Soybean Crush Expansion, 2025 Update**. https://soygrowers.com/news-releases/soybean-crush-expansion-2025-update/. Accessed June 16, 2025.

Tracking farm consolidation with the Share Weighted Size Index (SWSI)

By Rabail Chandio, extension economist, 515-294-6181 | rchandio@iastate.edu

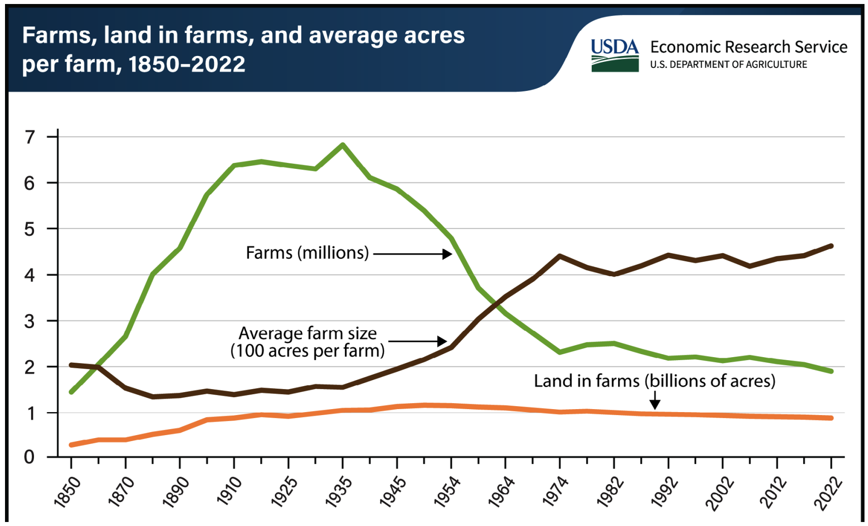
Understanding how farm size shapes agricultural production is critical for interpreting structural changes in the farm economy. Traditionally, average or median farm size has been used to track these trends. But these simple statistics can be misleading. For instance, the US average farm size has hovered around 440 acres since the 1970s, even while the number of farms decline and farms expand their share of production (see Figure 1). The median farm size doesn't capture these shifts either, because it ignores what's happening at the top and bottom of the size distribution.

To get a fuller, more accurate picture, we need to look beyond single-number metrics and ask: Which farms are producing how much of the crop? To help answer this question, a new **Visualization Tool was developed through the Center for Agricultural and Rural Development**, https://farmland.card.iastate.edu/swsi.

The Share Weighted Size Index (SWSI)

Recent research by Lacy et al. (2023) introduced the Share Weighted Size Index (SWSI) as a more comprehensive indicator of farm size dynamics. SWSI is a number between 0 and 1 that reflects how crop production is distributed across farms of different sizes.

Figure 1: Average farm size in the United States, 1850-2022.
Source: USDA Economic Research Service.



The Share Weighted Size Index (SWSI) gives a quick sense of where production is concentrated along the farm size spectrum. A simple way to interpret it is: SWSI is approximately the share of total production coming from large farms, while *(1–SWSI)* is the share coming from smaller farms. So, if a crop has a SWSI of 0.60, that means about 60% of production comes from large farms, and the remaining 40% is from smaller operations. The higher the SWSI, the more dominant large farms are in the market.

For example, a corn SWSI of 0.42 in Iowa suggests that the crop is still primarily produced on small to medium-sized farms (58% of production). If the SWSI rises to 0.55, it indicates a shift toward larger farms gaining greater market share, likely in the 1,000+ acre range.

General SWSI guide:

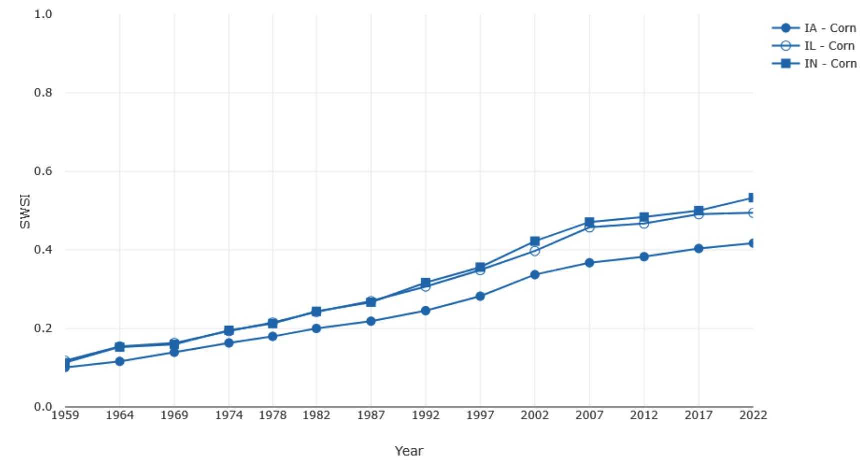
- SWSI ≈ 0.0–0.3: Production is dominated by small farms (e.g., less than 220 acres)
- SWSI ≈ 0.4–0.6: Production is more evenly distributed or driven by medium-size farms (e.g., 220–999 acres)
- SWSI ≈ 0.7–1.0: Production is concentrated in large farms (e.g., more than 1,000 acres)

How SWSI is calculated

SWSI is calculated using USDA Census of Agriculture data, which classifies farms into twelve groups by total operated acreage (e.g., 0–9 acres, 10–49 acres, all the way up to 2,000+ acres). Each group's share of production is calculated and then weighted by its size to reflect its relative contribution. These weighted values are aggregated to produce the SWSI.

While the index itself does not impose rigid size categories, we can loosely interpret the ranges as follows: **small farms** are generally those under 220 acres, **medium farms** fall between 220 and 999 acres, and **large farms** are those with 1,000 acres or more. Because SWSI is a continuous measure, it captures nuanced shifts across the entire farm size distribution.

Figure 2. Trends in Share Weighted Size Index (SWSI) for Corn in the I-States. Source: Ag Consolidation Tool–CARD Farmland Portal.



Corn Consolidation in the I-States: Trends in SWSI for Corn

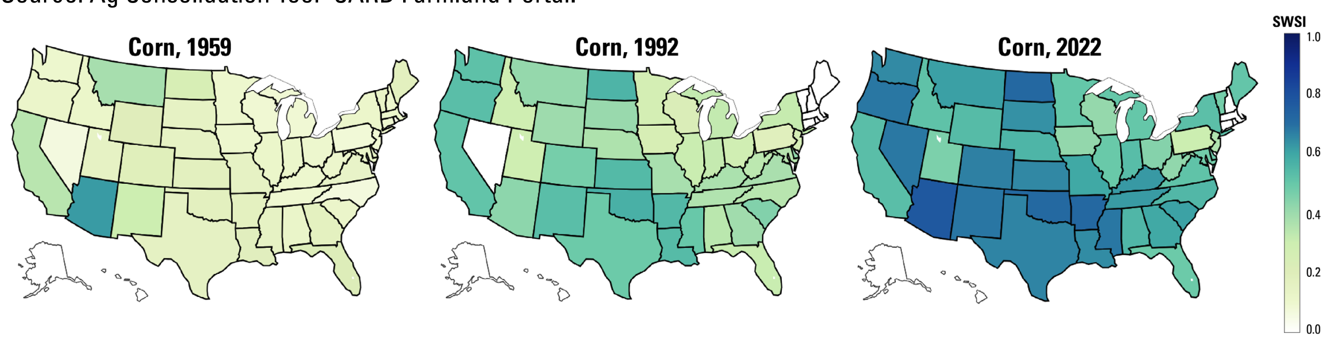
Let's examine the historical trend of SWSI for corn in Iowa, Illinois, and Indiana from 1959 to 2022 using the SWSI visualization tool (Figure 2). We see that all three states show a steady increase in SWSI, meaning that over time, larger farms are producing more of the corn crop. Indiana leads slightly in corn concentration: Indiana's corn SWSI in 2022 is just above 0.50, meaning larger farms (≈1,000+ acres) now produce a little over half of the state's corn. Similarly, Illinois shows a SWSI around 0.49, suggesting a nearly even split between large and medium farms. Iowa has a slightly lower SWSI (~0.42 in 2022), indicating relatively more corn production still comes from medium-sized farms (likely 500–999 acres) compared to Illinois and Indiana.

Looking beyond corn (use the SWSI tool to select multiple crops, or Toggle All Crops for a state), SWSI has increased consistently for most major crops since 1959, confirming that farm consolidation is real and measurable, even when average farm size appears flat. The fastest growth in SWSI is seen in corn, soybeans, wheat, and cotton, particularly in states in the Midwest and South. Crop categories like vegetables and fruit/tree nuts still maintain a lower SWSI, pointing to a continued role for smaller, often specialty farms. Lacy et al. (2022) also find that SWSI growth is slower in densely populated states, likely because off-farm income helps support small farms in those areas.

SWSI maps: visualizing consolidation over time

We can also compare the SWSI across states for a given crop in a given census year and how it has evolved over time using the SWSI map. Figure 3 maps show how the Share Weighted Size Index (SWSI) for corn has changed by state

Figure 3: Distribution of Share Weighted Size Index (SWSI) for corn across the United States over time. Source: Ag Consolidation Tool–CARD Farmland Portal.



across three time points: 1959, 1992, and 2022. The shift from light green to dark blue shows rising SWSI values, meaning more of the corn production in that state is coming from larger farms. In 1959, most states show light shading, indicating that corn production was largely dominated by smaller farms. By 1992, the map reveals growing consolidation, especially in the South and Great Plains, with more states showing mid-range SWSI values. By 2022, the consolidation is widespread, with many states across the South, West, and parts of the Midwest having darker shades, reflecting high SWSI values and a clear dominance of larger-scale corn producers. These maps visually confirm the long-term trend: larger farms are increasingly dominating production, not just in the Corn Belt, but across much of the US.

Explore farm consolidation trends with the SWSI tool

While this article focused on corn, the SWSI Tool on the CARD Farmland Portal lets you explore consolidation trends across a wide range of crops, including soybeans, wheat, cotton, tobacco, fruit and tree nuts, vegetables, and an All Crops summary category.

With interactive maps and trend charts spanning every Census of Agriculture year from 1959 to 2022, you can:

- Compare SWSI values by crop, state, or nationwide
- Track how farm size dynamics have evolved over time
- Visualize the shift in production from small to large farms across the US.

Access the **Visualization Tool on the Center for Agricultural and Rural Development website**, https://farmland.card.iastate.edu/swsi.

References

Lacy, K., Orazem, P. F., & Schneekloth, S. (2022). Measuring the American farm size distribution. American Journal of Agricultural Economics, 105(1), 219–242.

Ag Decision Maker is written by extension ag economists and compiled by Ann Johanns, extension program specialist, aholste@iastate.edu.

Permission is given to reprint ISU Extension and Outreach materials contained in this publication via copy machine or other copy technology, so long as the source (Ag Decision Maker Iowa State University Extension and Outreach) is clearly identifiable and the appropriate author is properly credited.