

# Innovation in Agriculture

## How did innovations in agriculture impact the economy in America?

Improvements in agriculture have been one of the most dramatic features of economic and social change in America since 1800. At the start of the 19th century, over 90 percent of the population was engaged in producing the food and fiber needed to feed and clothe the nation. Two centuries later, that number has dropped to less than two percent, and American agriculture surpluses account for billions of dollars in exports.

### Three Industrial Revolutions

Agricultural historians sometimes categorize these changes as coming in three revolutions. The first was the impact of the Industrial Revolution in the mid-1800s, when horse-powered machines began to supplement human energy. John Deere's invention of a steel plow that scoured the sticky prairie sod from the blade made turning prairie sod much faster and easier. That was rapidly followed by the adoption of horse-drawn reapers, sulky plows, mowers and threshing machines that enabled one farmer to cultivate and harvest much larger holdings.

A second wave began around World War I, when gasoline power began to replace the horse. In the 1890s, Iowan John Froelich developed and improved an internal-combustion "traction motor," the tractor as it came to be known, that ran on gasoline and could move forward and backward. Over the next 20 years, Froelich continued to improve his tractors, forming a company that eventually sold out to John Deere Manufacturing in Waterloo. Henry Wallace combined his skills as corn breeder, agriculture journal editor and businessman (and future secretary of agriculture and U.S. vice president) to Pioneer Hi-Bred Corn Company. Midwestern farmers saw corn yields skyrocket when they planted the improved hybrid varieties. After World War II, chemical fertilizers, herbicides and pesticides, often developed from research at land grant universities like Iowa State, further boosted farm production.

In the 1960s, a truly new stage in agriculture began to emerge. Throughout history until then, from indigenous people around the world to the most advanced agriculture operations, the goal had been to improve the growing conditions around the individual plant. Remove the weeds, fertilize the ground and water the plants. With new genetic breakthroughs, however, scientists were developing the capacity to go "inside" the plant to reconfigure its genetic codes that guided its growth. Genetically-modified plants sparked a controversy because their long-term environmental impact had never been tested. The livestock industry engaged in new breeding techniques to adapt animals to their environment and to market demands.

### Effects on Rural Population

All three stages of Midwestern agriculture had decisive impacts on the rural population. Labor-saving equipment reduced the need for hired help and led to an incentive to farmers to expand their acres. As farms grew larger with less hired help, the rural population decreased, putting a stress on the small towns and rural institutions like churches, hospitals and schools. Rural representation in the legislature diminished. Conflicts developed between those who wanted the government to support small farmers while others preferred to allow the market economy, usually favoring larger, better funded operations, to determine prices. While the outputs of American farms multiplied exponentially, the social impacts created both positive and negative outcomes for farm families and the rural populations that depended upon them.

## Supporting Questions

What effect did innovations like the plow have on agricultural production?

- ["Wakefield's Hand Corn Planter" Newspaper Article, 1855 \(Document\)](#)
- [Baker's Plowing Machine Advertisement, 1862 \(Document\)](#)
- ["The Farm and Garden," Newspaper Article, February 12, 1872 \(Document\)](#)
- ["Valuable Invention!" Advertisement, 1885 \(Document\)](#)

What role did agriculture innovation play in the settlement of the West?

- [Diploma Awarded by the People's Agricultural Society of West Jersey, between 1857 and 1867 \(Image\)](#)
- ["Lagonda Agricultural Works" Print from Clark County, Ohio, 1859 \(Image\)](#)
- ["McCormick's Reaper-Works" Newspaper Article, October 9, 1874 \(Document\)](#)

How did innovations in agriculture meet the needs of farmers and their communities?

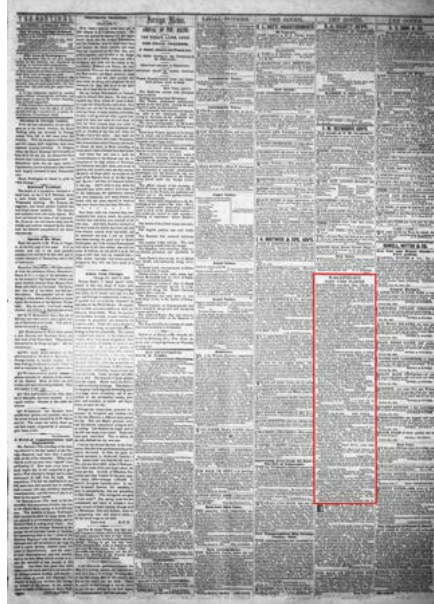
- ["History of Scott County, Iowa. Chapter IV \(pt. 4\)" Essay from The Annals of Iowa, 1863 \(Document\)](#)
- ["A Sulky and Gang Plow" Newspaper Article, September 16, 1874 \(Document\)](#)
- ["Machinery Department" Newspaper Article, August 27, 1897 \(Document\)](#)

## [\\*Printable Image and Document Guide](#)

## Additional Resource

[The Goldfinch: Early Agriculture \(Vol. 2, No. 3, February 1981\)](#): This Iowa history magazine for children was published quarterly by the State Historical Society of Iowa from 1975-2000. Each issue focuses on different people, innovations and farming techniques that were all part of Iowa's early agricultural practices.

## “Wakefield’s Hand Corn Planter” Newspaper Article, 1855



Courtesy of Library of Congress, “Wakefield’s Hand Corn Planter,” *Portage Sentinel*, pp. 3, 11 April 1855

### Description

This article appeared in an Ohio newspaper in 1855. It touted the significance of the new Wakefield Corn Planter. The article describes how the planter works and why it is an improvement over other methods of corn planting, and it ends with numerous testimonials from farmers about the effectiveness of the planter.

[Full Transcript of “Wakefield’s Hand Corn Planter” Newspaper Article](#)

[Transcribed Excerpts from “Wakefield’s Hand Corn Planter” Newspaper Article](#)

[Printable Excerpt of “Wakefield’s Hand Corn Planter” Newspaper Article](#)

### Text-Dependent Questions

- What words or phrases does the author of this article use to try and prove that the Wakefield Corn Planter is innovative and useful for farmers? Why might the author use such descriptive language?
- Why would the author include testimonials from other users of the product? What do the testimonials add to the article?
- What is the purpose of this article? Cite evidence from the text to support your answer.

### Citation Information

“Wakefield’s Hand Corn Planter,” *Portage Sentinel*, pp. 3, 11 April 1855. [Courtesy of Library of Congress](#)

## Baker's Plowing Machine Advertisement, 1862



Courtesy of Library of Congress, "A new era in plowing! A great saving of time and power, Baker's patent double plowing machine," 1862

### Description

This document is an advertisement for a double-plowing machine, and it includes an image of the new plow being drawn by a team of horses. The advertisement, from 1862, contains testimonials from farmers to confirm the claims made by the manufacturer.

### [Full Transcript of Advertisement for Baker's Plowing Machine](#)

### [Transcribed Excerpts from Advertisement for Baker's Plowing Machine](#)

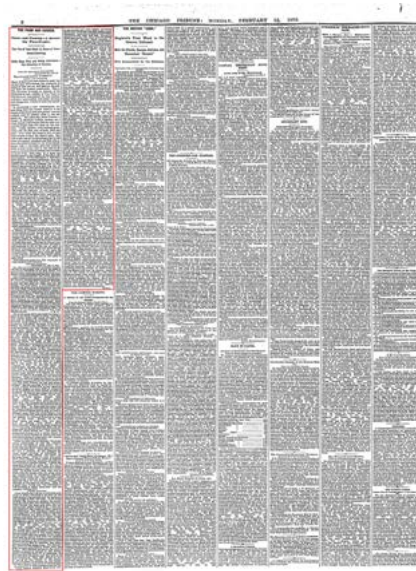
### Text-Dependent Questions

- What are the major selling points of this machine that would appeal to farmers? Cite evidence from the text as you explain your reasoning.
- Use evidence from the testimonials to describe how Baker's Plowing Machine impacted farmers' lives.
- Compare the testimonials in this article to those in the [Wakefield Hand Corn Planter](#) article. What is similar about the testimonials? What is different? Why are only positive testimonials used?
- Can you think of any ways the plowing machine could have negatively impacted farmers' lives?

### Citation Information

"A new era in plowing! A great saving of time and power, Baker's patent double plowing machine," 1862. [Courtesy of Library of Congress](#)

## “The Farm and Garden,” Newspaper Article, February 12, 1872



Courtesy of Library of Congress, “The Farm and Garden,” *Chicago Tribune*, pp.2, 12 February 1872

### Description

This article appeared in the *Chicago Tribune* in 1872 on the “Farm and Garden” page. The author gives advice to farmers about new plows and spends a great amount of time advocating for cast steel in the manufacturing process. The author states that the volume of mail received is so high that a general article like the one printed is all they can do.

[Full Transcript of “The Farm and Garden” Newspaper Article](#)

[Transcribed Excerpts from “The Farm and Garden” Newspaper Article](#)

[Printable Excerpt of “The Farm and Garden” Newspaper Article](#)

### Text-Dependent Questions

- What material does the author of this article promote for the manufacture of farming implements? Why is the author promoting that material?
- What factors does the author of this article say farmers take into account in order to decide what implements to buy? Analyze the factors. Which do you think were the most important in making the decision and why?

### Citation Information

“The Farm and Garden,” *Chicago Tribune*, pp.2, 12 February 1872. [Courtesy of Library of Congress](#)

## “Valuable Invention!” Advertisement, 1885



Courtesy of Library of Congress, Dana, C.H., “Valuable invention!. Dana’s premium cultivator ... [West Lebanon, N. H. 1855],” 1885

### Description

This 1885 advertisement has two parts. The first part by the manufacturer makes claims about their new cultivator, while the second half contains testimonials from farmers confirming the claims. The claims about the device make the point that it is a time-saving device that does the work of multiple men.

### [Transcript of “Valuable Invention!” Advertisement](#)

### Text-Dependent Questions

- What selling points does the manufacturer give for calling his invention “Valuable” in the advertisement? Do the testimonials support the claims? Why or why not?
- What are the common opinions given by farmers in their testimonials about this device? How would you categorize what they say? What kinds of themes are repeated in the farmer testimonials? What correlations can be made between the testimonials for this product and the [Baker’s Plowing Machine Advertisement](#)?

### Citation Information

Dana, C.H., “Valuable invention!. Dana’s premium cultivator ... [West Lebanon, N. H. 1855],” 1885. [Courtesy of Library of Congress](#)



## Diploma Awarded by the People's Agricultural Society of West Jersey, between 1857 and 1867



Courtesy of Library of Congress, Queen, James F., "Diploma awarded by the People's Agricultural Society of West Jersey," between 1857 and 1867

### Description

This print shows a bird's-eye view of fairgrounds with a steamboat on the river in the foreground. The image includes seven vignettes showing livestock, agricultural machinery, and, at top center, two female figures representing "Liberty and Prosperity." Also shown on the sides are examples of agricultural produce.

### [Transcript of the Diploma Awarded by the People's Agricultural Society of West Jersey](#)

### Text-Dependent Questions

- How does the artist of this certificate connect the ideas of liberty and prosperity with innovations in agriculture?
- Based on this document, how do you know that the Swedesboro Fair is not just a one-time event. Cite two pieces of evidence. What can you infer about the importance of the Agriculture Society of West Jersey to the at-large community?
- What adjectives would you use to describe the scene depicted? How does the whole diploma reflect the idea that agriculture and growth are connected?

### Citation Information

Queen, James F., "Diploma awarded by the People's Agricultural Society of West Jersey," between 1857 and 1867.  
[Courtesy of Library of Congress](#)

## “Lagonda Agricultural Works” Print from Clark County, Ohio, 1859



Courtesy of Library of Congress, Forbes, Edwin, “Lagonda Agricultural Works,” *Eyes of the Nation: A Visual History of the United States*, 1859

### Description

The scenes on this print show men harvesting grain using mechanical devices. The print, originally produced in 1859, was published in the book, *Eyes of the Nation: A Visual History of the United States*, in 1997.

### [Transcript of “Lagonda Agricultural Works” Print](#)

### Text-Dependent Questions

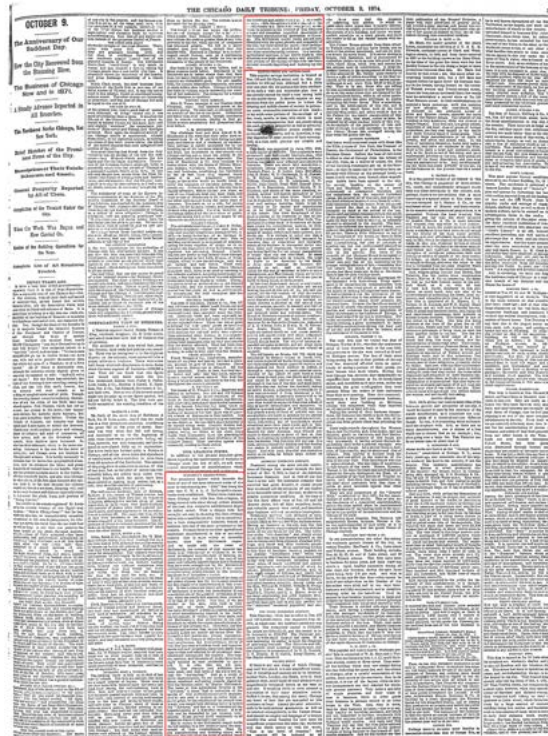
- How important do you think farm machinery was to the artist of this print? Cite evidence from the print with your answer.
- Compare the farm scenes in this print with those in the [Diploma Awarded by the People’s Agricultural Society of West Jersey](#). What is similar? What is different? Why did both include agricultural based imagery?
- The two men in the image hold traditional hand-powered farm implements while looking at the mechanical farming implement. Using evidence from the image, explain how the artist might feel about the new technology.

### Citation Information

Forbes, Edwin, “Lagonda Agricultural Works,” *Eyes of the Nation: A Visual History of the United States*, 1859.  
[Courtesy of Library of Congress](#)



## “McCormick’s Reaper-Works” Newspaper Article, October 9, 1874



Courtesy of Library of Congress, “McCormick’s Reaper-Works,” *Chicago Daily Tribune*, pp.3, 9 October 1874

### Description

This newspaper article appeared in the *Chicago Daily Tribune* on October 9, 1874. It describes McCormick reapers and other innovations by C.H. & L.J. McCormick. The author credits the McCormick Reaper-Works with helping to improve farm implements as well as bringing wealth and success to the city of Chicago.

### [Transcript of “McCormick’s Reaper-Works” Newspaper Article](#)

### [Printable Excerpt of “McCormick’s Reaper-Works” Newspaper Article](#)

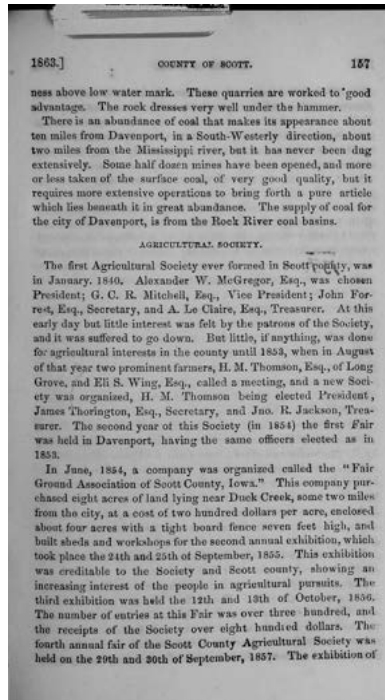
### Text-Dependent Questions

- What parallels does the author draw between the growth of Chicago and the growth of McCormick’s Reaper-Works? Use evidence from the text to support your answer.
- Using evidence from the text, explain the level of importance the author gives to McCormick’s Reaper with regard to farm implements?
- How do you know that the McCormicks did not stop innovating after inventing their first reaper in 1846? Cite evidence from the text.

### Citation Information

“McCormick’s Reaper-Works,” *Chicago Daily Tribune*, pp.3, 9 October 1874. [Courtesy of Library of Congress](#)

## “History of Scott County, Iowa. Chapter IV (pt. 4)” Essay from *The Annals of Iowa*, 1863



Courtesy of University of Iowa Libraries and Archives, Barrows, Willard, "History of Scott County, Iowa. Chapter IV (pt. 4)," *The Annals of Iowa*, Vol. 1863, No. 4, pp. 157-158, 1863

### Description

*The Annals of Iowa* published a history of Scott County in 1863. Among the details was the story of the "Agricultural Society," which sponsored a fair in the county starting in 1854. The essay shows that the fair expanded every year as it became more and more popular.

### [Transcript of "History of Scott County, Iowa. Chapter IV \(pt. 4\)" \*Annals of Iowa\* Essay](#)

### Text-Dependent Questions

- According to the author, what was the purpose of the annual fairs in Scott County? Why would this purpose be important to Iowans in 1854?
- Why do you think that people might have found the annual agricultural exhibition valuable? Cite evidence from the text in your answer.

### Citation Information

Barrows, Willard, "History of Scott County, Iowa. Chapter IV (pt. 4)," *The Annals of Iowa*, Vol. 1863, No. 4, pp. 157-158, 1863. [Courtesy of University of Iowa Libraries and Archives](#)

## “A Sulky and Gang Plow” Newspaper Article, September 16, 1874



Courtesy of Library of Congress, “A Sulky And Gang Plow,” *The Grange Advance*, pp. 13, 16 September 1874

### Description

This newspaper article appeared in *The Grange Advance* in Red Wing, Minnesota, in 1874. It makes the point that a Sulky and Gang Plow will make the work of farmers easier. The article promises that the plow, made by Sear's, will ease the difficulty of farm work better than anything else on the market.

### [Transcript of “A Sulky and Gang Plow” Newspaper Article](#)

### [Printable Excerpt from “A Sulky and Gang Plow” Newspaper Article](#)

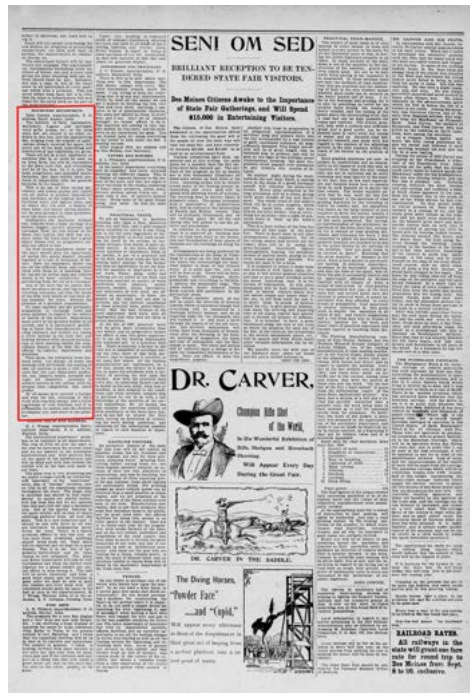
### Text-Dependent Questions

- Based on this article, what need(s) of farmers would the Sulky and Gang Plow meet? How do you think meeting those needs would impact the lives of farmers?
- What does this article promise the Sulky and Gang Plow will do? Why do you think such promises would be a selling point for farmers in 1874?

### Citation Information

“A Sulky And Gang Plow,” *The Grange Advance*, pp. 13, 16 September 1874. [Courtesy of Library of Congress](#)

## “Machinery Department” Newspaper Article, August 27, 1897



Courtesy of Library of Congress, “Machinery Department,” *Twice-A-Week Plain Dealer*, pp. 6, 27 August 1897

### Description

This newspaper article from 1897 talks about the importance of the Iowa State Fair to farmers in the state. The piece focuses on the new implements farmers can see and the salesmen they can discuss the new tools with at the fair. The author boldly claims that anything worth seeing will be at the fair.

### [Transcript of “Machinery Department” Newspaper Article](#)

### [Printable Excerpt of “Machinery Department” Newspaper Article](#)

### Text-Dependent Questions

- What can you infer about the author’s purpose in writing this article?
- What does the author predict farmers will see at the Iowa State Fair? Why might farmers be interested in seeing those items?
- What adjectives does the author use to describe the implements farmers who visit the fair will see? If you were a farmer in 1897, would this article convince you to attend the fair? Explain.

### Citation Information

“Machinery Department,” *Twice-A-Week Plain Dealer*, pp. 6, 27 August 1897. [Courtesy of Library of Congress](#)