TRANSITIONS IN THE
American Agricultural Landscape
Agriculture is woven into the history of North America. For thousands of years, it has provided food security and commerce for the continent's inhabitants. Native Americans were farming North America for over 5,000 years prior to European settlement\(^1\).

They used tools shaped from bone, stone and shell; practiced irrigation, selective breeding, crop rotation and terracing; and traded with other tribes from more than 1,000 miles away. Their crops included foods like corn, squash, sunflowers, and beans; many now commonly produced in the U.S.

Once Europeans began to colonize North America, they began to produce crops for sustenance and profit with the help of the Native Americans\(^2\). By the time the colonies became independent from Britain, farmers were producing crops at a surplus large enough to trade amongst themselves and other countries\(^3\). States like Virginia became more established and started growing tobacco for export to Europe.

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Transition to Production Agriculture

After independence, the United States began to improve its farming techniques and began transitioning away from subsistence farming\(^4\). By the 1840s, machinery such as McCormick’s reaper and the cotton gin helped farms transition to commercial enterprises\(^5\). By the 1890s, the settlement era had ended, and the crop footprint in the United States seemed to have stabilized\(^6\).

Since the 1930s, U.S. agriculture has seen several improvements that have boosted productivity and reduced labor-intensive tasks\(^6\). Up until this point, there was little improvement in corn yields, but the practice of hybridization (cross breeding of two lines of a crop variety) increased corn harvest by an average of 0.8 bushels per year until the 1950s. Since then, the next big advance was the introduction of fertilizer and other chemicals, which increased yields at a rate of 1.9 bushels per year for corn and soybeans\(^7\).

By constantly improving genetic stock and applying better agronomic practices, such as the adoption of a corn-soybean rotation (planting soybeans that fix nitrogen in the soil, available to the subsequent corn crop, and reducing insect pressure), continue this yield trend today\(^7\). Likewise, soybeans, which have taken up a larger percentage of the agricultural acreage, have seen improving yields commensurate with corn; yields for both crops have increased by more than two and a half times since 1950. These innovations have led to an increase in the number of acres planted similar with that of corn and soybeans while reducing wheat acres\(^7\).

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With yield improvements and mechanization, fewer people were needed to plant and harvest more crops\textsuperscript{8}. The United States transitioned from a rural to an urban country. Farm size increased, and fewer types of crops were grown. A surplus of crops with increasing global demand led to increased exports of agricultural products.

Not surprisingly, acres in principal crops (soybeans, corn, wheat, and cotton) in the United States were highest in the 1930s before innovations led to the tremendous yield increases\textsuperscript{9}. Since then, acreage slowly declined until a bump in the 1980s before declining again. Land in principal crops today is still well below the peaks of the 1930s and 1980s.

The fluctuations in cropland indicate land is continuously going in and out of production based on demand and revenue opportunities, and that the actual area devoted to crops is larger than can be calculated in a year or even in several years.

Recent studies have shown that lands that were once in crop in the past return to crop when demand or revenue warrants the transition back\textsuperscript{10}.

Since 1900 rural population and number of farms have declined in the United States, while farm size and urban population have gone up as fewer workers were required to grow more crops.

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\textsuperscript{9} Crop Production Historical Track Records, 2019, United States Department of Agriculture, National Agricultural Statistics Service, ISSN: 2157-8990.

The data shows that farmers will return previous fields to production rather than convert natural lands to farmland.

Rotations and other decisions also impact land usage. The movement of land in and out of agriculture, at a snapshot in time, may look like land is being converted to agriculture, but it is actually part of a trend that shows that fewer acres can be used to produce more crops in the long term.

This can be seen in overall land use since 1982. Land use has been fairly stable for rangeland and pastureland, increases for natural forest and large increases in developed land, along with declines in cropland.¹¹

With continuing improvements in crop genetics, machinery and inputs there is no reason to believe that yield improvements should not continue. The U.S. Department of Agriculture (USDA) forecasts improving yields through 2030\textsuperscript{12}.

Agricultural producers spend a lot of time actively managing their land and understand it better than perhaps anyone. Their livelihood depends on the weather, and they are concerned about climate change and want to help. Studies have found that most U.S. growers realize the climate is changing\textsuperscript{13}. As agriculture moves forward, practices such as conservation tillage and planting cover crops will capture carbon without reducing productivity. U.S. agriculture can help mitigate climate change, produce food for the world and stay within the existing crop footprint while leaving natural areas pristine.

\textbf{USDA Yield Forecast (2019—2030)}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{usda_yield_forecast.png}
\caption{Project Yields for Soybeans and Corn to 2023 (USDA ERS)}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{land_use.png}
\caption{United States Land use in 1982 compared to 2017 (USDA NRCS)}
\end{figure}

\textsuperscript{12} USDA Agricultural Projections to 2030; 2021. Interagency Agricultural Projections Committee, online.

References


Learn more about U.S. Soy and the American landscape at ussoy.org.