Irrigation Water Use

2030 Goal

U.S. corn farmers are committed to increasing irrigation water use efficiency by 15 percent from 2020 to 2030.

Background

Although only 14% of corn acres are irrigated, those acres are an important part of consistency in supply of corn each year. While one part of the country may be hit with a major weather event, another may have a record year. That type of risk management is also why a percentage of growers use irrigation to deliver consistent production.

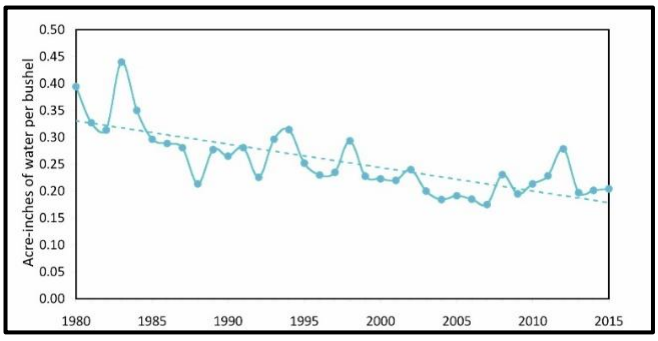
Irrigation water efficiency assesses the overall efficiency of irrigation water applied in terms of the incremental improvement it produces in crop yield. This is designed to consider the water factor most directly under the control of the producer—the efficiency of water supplied through irrigation. It does not include a measure of water use efficiency from precipitation or on non-irrigated cropland, nor does it reflect the source of the water used for irrigation.

Irrigation technology has advanced substantially in recent years, and as farmers continue to adopt these technologies, they can more efficiently raise their corn crop each year, growing a bushel of corn using less water.

Increased regulatory or pumping cost in sensitive areas will also lead to increased water use efficiency.

Improvements from 1980 - 2015

As cited in the 2016 Field to Market National Indicators Report, over the 36 years from 1980 – 2015, corn for grain improved resource efficiency with a per bushel decline in irrigation water use of 46%.



Irrigation Water Use for corn for grain.

Irrigation water use improved (decreased) over the total study period. For this, extreme weather years become apparent in the annual trend. For example, a sharp increase in irrigation was seen in the extreme drought year of 2012. While irrigation water use improved in the three years after that event, it has remained relatively steady and is higher in 2015 than the lowest point (greatest efficiency) reached around 2004–2008.

Sustainability Outcomes

Water is an important limiting factor for crop production; without an adequate and timely water supply, crop yields are lower and highly variable across years. In some regions of the country, water from precipitation is not sufficient or does not occur at the right time for optimum plant growth and crop

yield. Irrigation allows producers to provide water to achieve high and stable yields. Agriculture is the single largest consumptive user of water in the U.S. and is consequently the sector most vulnerable to changes in weather and climate and to depletion of groundwater resources. Water is becoming an increasingly scarce resource due to greater demands associated with population growth, urbanization, and accessibility. As water becomes scarcer and precipitation more variable and uncertain, growers will continue adopting strategies to improve irrigation water use efficiency to ensure continued production and longevity of water sources.

Getting to Goal

A normal trend yield increase suggests a 10% improvement in this measure. A 15% goal requires the adoption of new irrigation technology but also recognizes that adoption of this technology requires long-term investments. Further, additional improvements in soil health are expected to increase irrigation water use efficiency.

Alignment with UNSDGs

Progress made on the NCGA environmental sustainability goals will support multiple United Nations Sustainable Development Goals (SDGs). The 17 SDGs and 169 targets established by the UN in October 2015 "stimulate action over the next 15 years in areas of critical importance for humanity and the planet." These 2030 goals are interrelated, and actions taken specifically towards one goal or target may also address another area of concern.

The NCGA Irrigation Water Use Environmental Sustainability Goal is most closely aligned with the following SDGs and targets:

UNSDG 6: Clean Water and Sanitation

6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

UNSDG 12: Responsible Consumption

12.2 By 2030, achieve the sustainable management and efficient use of natural resources.

Prepared for NCGA in part by Strategic Conservation Solutions, LLC (May 2021) – Information obtained from:

- Field to Market: The Alliance for Sustainable Agriculture, 2016. Environmental and Socioeconomic Indicators for Measuring Outcomes of On Farm Agricultural Production in the United States (Third Edition). ISBN: 978-0-692-81902-9.
- integrated Financial Analytics & Research (iFAR), LLP, January 2021. *Sustainability Goals for NCGA* Trendline Report.
- NCGA "Corn Sustainability Report," 2021.
- United Nations, 21 October 2015. *Transforming Our World: The 2030 Agenda for Sustainable Development*.