USDA Midwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Midwest CHU

Climate Hub Update

Winter 2019

Promoting Climate-Informed Decisions Since 2014.

Missouri Smart Agriculture Dialogue

Through this Solutions From the Land facilitated dialogue, Missouri agriculture leaders looked into the future, examined what science is telling them is coming, and identified ways to improve resiliency and ensure the economic viability of the state's agricultural sector for decades to come. A group of leading Missouri farmers, ranchers and foresters, along with key academic, business and government partners, including the USDA Midwest Climate Hub, came together as the Missouri Smart Agriculture Work Group. The Work Group's mission was to assess the challenges that changing climatic conditions and extreme weather events will pose to agriculture and forestry production in the state, examine basic adaptation opportunities, and determine the need and proper pathway for constructing an adaptation strategy to ensure that Missouri farms, ranches and forests remain resilient, productive and financially sound. Find out more here.

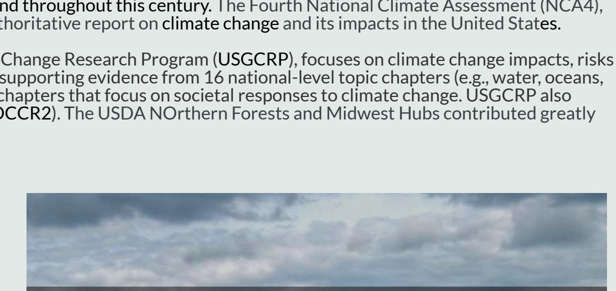
For more on Solutions From the Land, select here.

RELEASED: Fourth National Climate Assessment (NCA4)

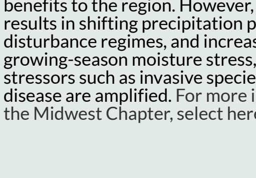
Climate change is indeed affecting the natural environment, agriculture, energy production and use, land and water resources, transportation, and human health and welfare across the U.S. and its territories. The NCA assesses the science of climate change and variability and its impacts across the United States, now and throughout this century. The Fourth National Climate Assessment (NCA4), completed in November 2018, is a comprehensive and authoritative report on climate change and its impacts in the United States.

Volume II of NCA4, released tby the United States Global Change Research Program (USGCRP), focuses on climate change impacts, risks and adaptations occurring in the U.S. The report contains supporting evidence from 16 national-level topic chapters (e.g., water, oceans, energy, and human health), 10 regional chapters and two chapters that focus on societal responses to climate change. USGCRP also released the Second State of the Carbon Cycle Report (SOCCR2). The USDA NOrthern Forests and Midwest Hubs contributed greatly to Chapter 21.

CHAPTER 21: Midwest
The Midwest is home to more than 60 million people, and its active economy represents 18% of the U.S. gross domestic product…The region is probably best known for agricultural production. Trends toward warmer, wetter, and more humid conditions provide challenges for field work, increase disease and pest pressure, and reduce yields to an extent that these challenges can be only partially overcome by technology. The Midwest contains large tracts of federal, state, and private forests and preserves that provide significant economic and ecological benefits to the region. However, as a changing climate results in shifting precipitation patterns, altered disturbance regimes, and increased frequency of late-growing-season moisture stress, the effects of existing stressors such as invasive species, insect pests, and plant disease are amplified. For more information and to access the Midwest Chapter, select here.



Economic Research Service (ERS) State Fact Sheets now available!



The USDA ERS State Fact Sheets provide information on population, income, poverty, food security, education, employment, organic agriculture, farm characteristics, farm financial indicators, top commodities, and agricultural exports. Links to available county-level data are included. The State Fact Sheets were updated on November 30, 2018 with revised State and U.S. farm financial indicators and top commodities. See details of your state here.

For more on the products and services provided bu USDA ERS, select here.

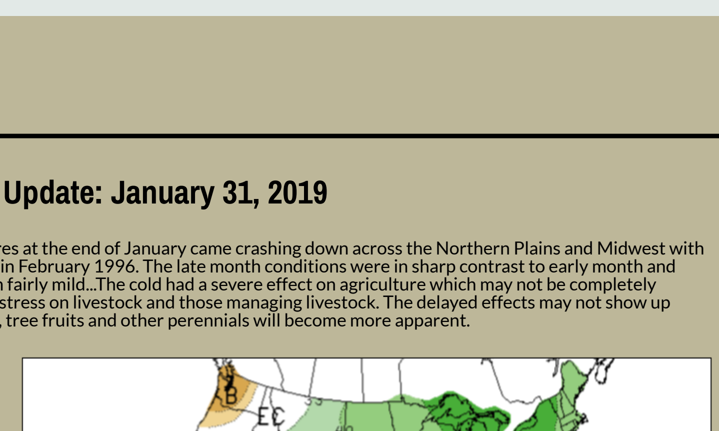
CHU in Every Issue...

Midwest Ag Focus Climate Update: January 31, 2019

Current Conditions and Impacts: Temperatures at the end of January came crashing down across the Northern Plains and Midwest with extreme cold most comparable with an event in February 1996. The late month conditions were in sharp contrast to early month and much of the rest of the winter which had been fairly mild...The cold had a severe effect on agriculture which may not be completely measurable until spring. Direct impacts were stress on livestock and those managing livestock. The delayed effects may not show up until spring when the impact on winter grains, tree fruits and other perennials will become more apparent.

Outlook: The winter temperature variability will likely continue with warm conditions spreading over the region in the early part of February...Spring snow melt along with already wet soils are likely to be problems early in the spring given the current snow pack and wet soil conditions from the wet fall especially from Kansas through Iowa and southern Minnesota and Wisconsin. The higher likelihood for precipitation in February is over the less-wet area of the Corn Belt, adding to the potential spring wetness issues.

Select here for more information on the Midwest Climate Hub Ag-Focus Outlook.



Maps are generated at the NOAA Climate Prediction Center. Select here for more information.

Quarterly Climate Impacts and Outlooks

In collaboration with NOAA, NIDIS, and the Midwest Regional Climate Center, we are pleased to provide the following December 2018, Regional Outlooks and Drought Status Update. These can be accessed by clicking on their titles to the right. Select here for a list of all regions.

Missouri River Basin

Midwest Region

Great Lakes Region

Meet the Climate Hub Partners: Justin Mount, NRCS Liaison

The success of the Midwest Climate Hub in transferring management practices, decision tools and information to our stakeholders can only be achieved through coordination via a diverse array of regional partners. In that spirit, we would like to highlight our newest member and NRCS Liaison to the Midwest Climate Hub, Justin Mount.

Justin is a natural resource specialist with NRCS's Conservation Planning Technical Assistance Division (CPTAD) in Fort Collins, CO. He has been with NRCS and USDA for about for 15 years in four distinct locations and is a fifth-generation farmer from Southernmost, IL. While with the Midwest Climate Hub, Justin hopes to improve producers' understanding of universal crop system planning tools, ultimately helping producers become more resilient. When asked what appeals mostly about his position, he responded it is having the "ability to implement change and collaborate with others that recognize soil carbon as a key factor for farm profitability."

Justin has a B.S. in Plant & Soil Science from University of Tennessee, a M.S. in Forestry from Southern Illinois University and is currently pursuing another Master's degree in Integrated Resource Management at Colorado State University. When not studying, Justin likes board gaming, backpacking, summiting mountain peaks, and spending time with his family.

Welcome to the Hub Justin!

On the RADAR....

PASA Sustainable Agriculture Conference

Lancaster, PA: February 6-9, 2019

Each February, thousands of farmers, homesteaders, educators, and other food system professionals gather for four days of intensive learning on more than 120 food and farming topics. Registration opens in mid-November. Join their email list to stay in the loop.

Indiana Horticultural Congress

Indianapolis, IN: February 12-14, 2019

The Indiana Horticultural Congress is an educational meeting designed to meet the needs of fruit, vegetable, wine, organics, and specialty crop growers and marketers in Indiana and surrounding states. All interested individuals are invited to attend.

Sponsored by the USDA Midwest Climate Hub, Midwestern Regional Climate Center, and Purdue Extension, a session titled **"Climate and Food Crops: Climate Information, Tools and Needs for Indiana Fruit and Vegetable Production and Planning"** will bring a team of climatologists, extension specialists and Purdue specialty crops specialists/faculty to discuss existing climate/weather tools and resources in the framework of specialty crop production in Indiana. This session will be interactive with the goals being to identify a list of climate/weather informational needs for specialty crop production and planning that this team can prioritize in the future and ultimately increase resiliency of specialty crops to climate extremes.

INDIANA HORT CONGRESS

Indiana Small Farms Conference

Danville, Indiana: February 28- March 2, 2019

The 2019 conference at the Hendricks County 4-H Fairgrounds & Conference Complex, Danville, Indiana begins with a series of daylong workshops on Thursday, February 28. Topics include writing a food safety plan, vegetable crop planning, mushroom cultivation, biological orcharding and two tours: on the subjects of agri-tourism and livestock processing. Breakout sessions on March 1-2 will cover topics ranging from vegetable and livestock production to farm management and marketing. Participants will have an opportunity to network with Extension educators, expert speakers, other farmers and vendors. Check back for a complete list of speakers. The Small Farm Trade Show takes place on March 1-2 where more than 50 vendors will showcase their products and services. The Small Farm Poster Session on March 2 will feature research and programs on local foods, diversified agriculture, and small farm production and education. Check back for details on the poster session.

MOSES ORGANIC FARMING CONFERENCE
Celebrating 30 Years of Organic Education

MOSES Organic Farming Conference

La Crosse, WI: February 21-23, 2019

The MOSES Conferences (Midwest Organic & Sustainable Education Service) is the largest event in the U.S. about organic and sustainable farming, offering 60 workshops over 6 sessions, inspiring keynotes, engaging roundtables, and a resource-packed exhibit hall with over 170 vendors. Organic University, day 1 of the conference, provides full-day classes that dig deeper into specific farming topics.

Additional Resources

REPORT: Agricultural Conservation on Working Lands: Trends From 2004 To Present

The first step toward increasing adoption of conservation practices is to establish a baseline of current adoption rates. Using this knowledge, USDA and other organizations can improve the effectiveness of supporting agricultural conservation, help identify patterns in farmer motivation, and track the environmental and GHG impacts of conservation adoption. This report fills an important gap in USDA publications in that it presents national- and regional-scale data on conservation practice and technology trends over the past decade. Data are primarily from the USDA Economic Research Service (ERS)-National Agricultural Statistics Service (NASS) Agricultural Resources Management Survey (ARMS) and the U.S. Environmental Protection Agency's (EPA's) AgSTAR database. National-scale data from the USDA Conservation Effects Assessment Program on tillage were also included. For the full report, select here.

For a 2-page summary of the report, select here.

RESEARCH: Growing climatic sensitivity of U.S. agriculture linked to technological change and regional specialization

Science JOURNALS AAAS

A pressing question for climate change adaptation is whether ongoing transformations of the agricultural sector affect its ability to cope with climatic variations. We examine this question in the United States, where major increases in productivity have fueled most of agricultural production growth over the past half-century. To quantify the evolving climate sensitivity of the sector and identify its sources, we combine state-level measures of agricultural productivity with detailed climate data for 1960–2004. We find that agriculture is growing more sensitive to climate in Midwestern states for two distinct but compounding reasons: a rising climatic sensitivity of nonirrigated cereal and oilseed crops and a growing specialization in crop production. In contrast, other regions specialize in less climate-sensitive production such as irrigated specialty crops or livestock. Results suggest that reducing vulnerability to climate change should consider the role of policies in inducing regional specialization.

DATA: Great Lakes Regional Water Use Database

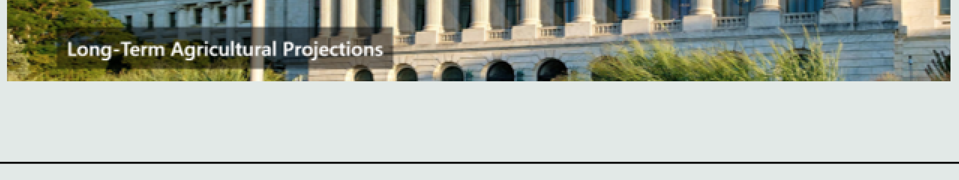
The **Great Lakes Regional Water Use Database**, provides comparable water use information on withdrawals, diversions and consumptive uses. This database supports the states and provinces in implementing Article 4 of the Great Lakes-St. Lawrence River Basin Water Resources Compact and Article 301 of the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement: The requirement being to report water use information to the regional database repository and aggregated information be made available to the public on an annual basis.

The Great Lakes Regional Water Use Database has been around for over 20 years! Originally, it was established by the Great Lakes states and provinces in response to the recommendation of the Great Lakes Charter of 1985, which calls for a uniform, consistent base of data of Great Lakes water withdrawals, diversions and consumptive uses. Beginning in 1987, water use data have been submitted to the repository on an annual basis and reports provided to assist the jurisdictions in Great Lakes-St. Lawrence River water resources planning and management. As specified by the Water Resources Management Committee in its 1987 report, *Managing the Waters of the Great Lakes Basin*, the database catalogs withdrawals by water use category, sub-basin and jurisdiction.

DATA: Early-Release Tables from USDA Agricultural Projections to 2028

USDA's long-term agricultural projections are a departmental consensus on a long-run representative scenario for the agricultural sector for the next decade. The projections are based on specific assumptions about macroeconomic conditions, policy, weather, and international developments, with no domestic or external shocks to global agricultural markets. A complete report is issued every year in February. These projections cover agricultural commodities, agricultural trade, and aggregate indicators of the sector, such as farm income. The projections identify major forces and uncertainties affecting future agricultural markets; prospects for long-term global economic growth, agricultural production, consumption, and trade; and U.S. exports of major farm commodities and future price movements. The projections can also be used to analyze impacts of alternative policy scenarios.

The World Agricultural Outlook Board chairs an Interagency Agricultural Projections Committee that develops the projections. Other agencies involved with the long-term projections analysis and review include the Economic Research Service; the Farm Service Agency; the Foreign Agricultural Service; the Office of the Chief Economist; the Office of Budget and Program Analysis; the Risk Management Agency; the Agricultural Marketing Service; the Natural Resources Conservation Service; and the National Institute of Food and Agriculture. The Economic Research Service has the lead role in preparing the USDA long-term projections report.



ARTICLE: Farmers Know Climate Change is Real. Will the Feds Help Them Adapt?

While dismal farm economics—and shrinking conservation funds—make it hard to find the funds, a growing number of farmers are ready to make critical changes.

"In the Midwest, where farms are highly dependent on rain-fed crops such as corn and soy, the changing climate is especially risky. And it's making many common farming practices less practical, says Dennis Todey, director of the U.S. Department of Agriculture's Midwest Climate Hub in Ames, Iowa. For example, farmers always used to apply nitrogen in the fall, he says, but it doesn't stay on the fields through the winter anymore. Few farmers are adapting proactive strategies that could help them thrive in the future. And talk of how to mitigate climate change by, for example, managing soils to store more carbon, isn't taking place often enough, says Todey."

For the entire Article, select here.

CIVIL EATS