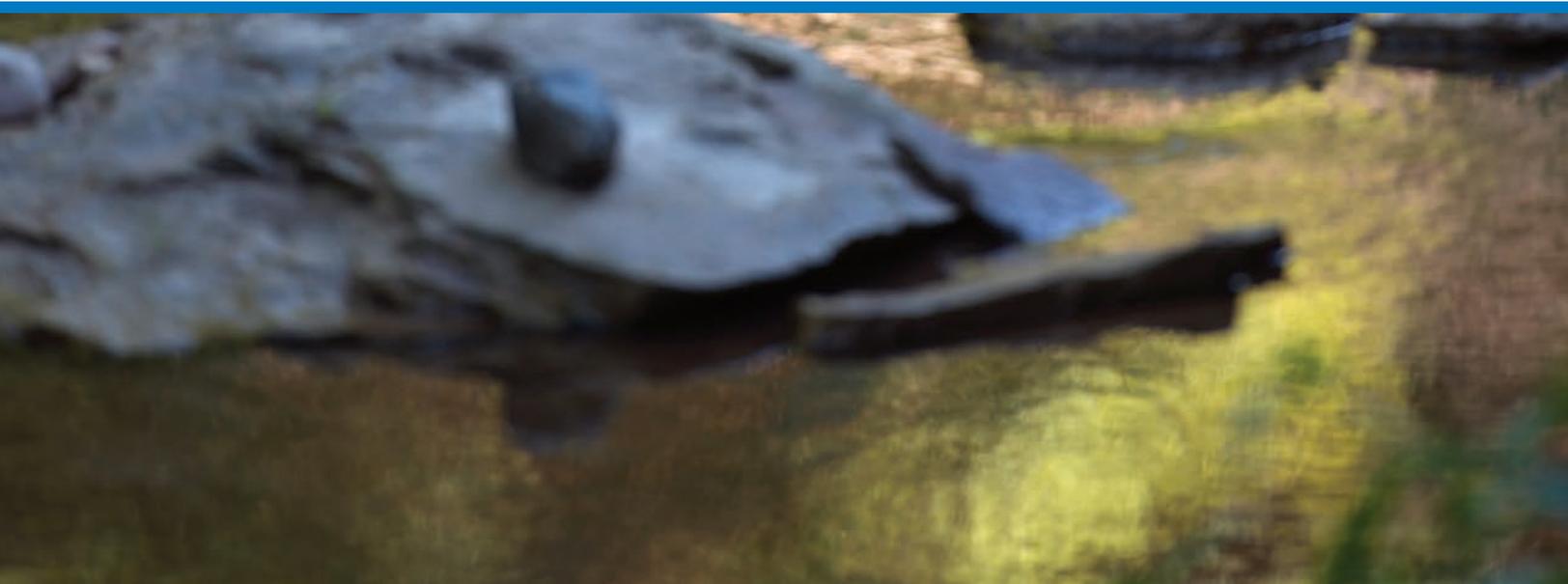
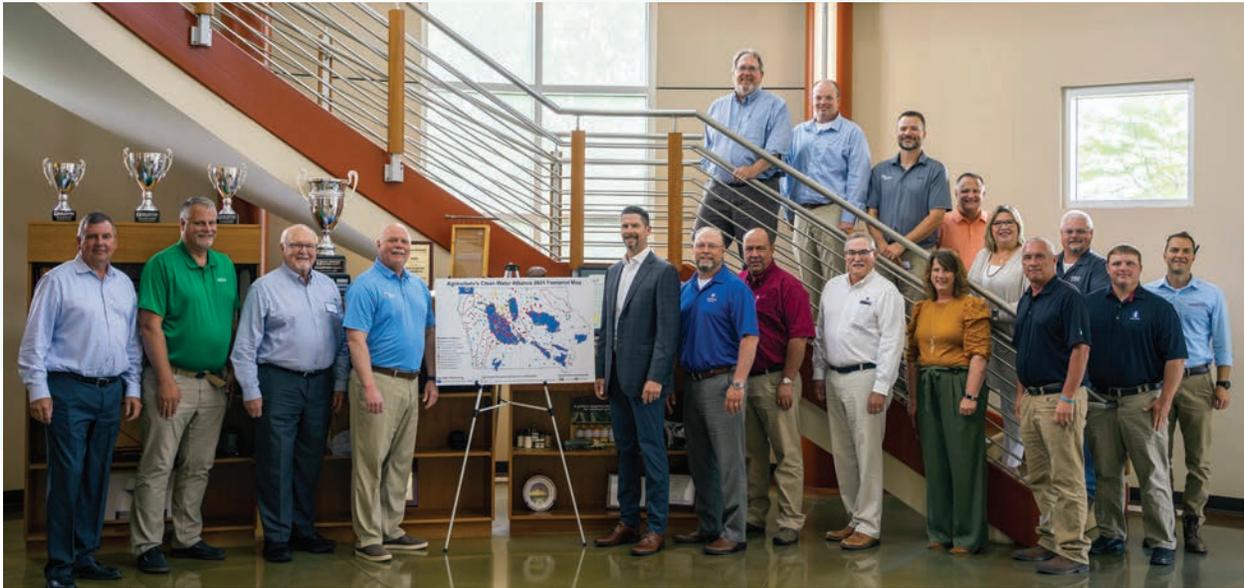




ACWA
Agriculture's Clean Water Alliance

2021 ANNUAL REPORT





ACWA members attending the board meeting and statewide celebration in June 2021.

In 2021, Agriculture's Clean Water Alliance (ACWA) experienced considerable growth. In addition to expanding the organization statewide, ACWA increased its scope of water monitoring, strategically advanced conservation agronomists as they work to evolve Iowa farmland for improved water quality, and restructured internally to enhance the return-on-investment to its members and to attract new members across the state.

ACWA members completed their strategic plan in early 2021, establishing a solid vision for the future. The three Core Pillars of ACWA is a primary outcome from the planning process and are highlighted in this annual report: Leader & Advocate, Innovate & Sustain and Science to Solutions. The ACWA mission and vision, its programs and projects, and leadership within the organization and its external partners — all align with the core pillars to provide members and prospective members with a clear direction of ACWA.

After months of strategic planning, reflection and reshaping, ACWA continues to set sights on the future of Iowa agriculture and its relationship with water quality in the state as well as downstream. This annual report offers an overview of this impactful work.

CONTENT:

Leader & Advocate

Innovate & Sustain

Science to Solutions

Financials and Footprint Map of Members

PILLAR: LEADER AND ADVOCATE

Statewide Expansion

When ACWA members looked in detail at its geographical presence in Iowa, they realized ag retailer members in total served customers across 75 percent of the state. ACWA's mission "to advance solutions that build healthier soils and improve Iowa's waters" seemed inadequate through efforts limited to only a few designated watersheds. Thus, the decision to expand ACWA's efforts statewide was a simple matter; the implementation of a statewide presence is more complex.

Because ACWA's original focus was in the Raccoon and Des Moines River watersheds, ag retail members and their customers outside of these watersheds may not be familiar with the organization and its goals.

"As we explored the current members' geographic locations in Iowa and the impact they could have on water quality, it was a fairly easy decision (on paper) to expand," Roger Wolf, ACWA Executive Director said. "Iowa needs to scale up with the implementation of agricultural practices that can help improve water quality; this is where ag retail fits into the equation."

These ag retail members work with their staff in locations beyond the original watersheds to familiarize them with ACWA. They impress upon their personnel of how important ag retail's role is for water quality improvement. Additionally, ACWA leaders recruit new ag retailers and other potential partners to become members or associate members. They created a kit of materials that includes information about ACWA's goals, the core pillars and a membership application form.



ACWA also established a new membership dues structure — another outcome of the strategic plan. The new structure is more equitable for both current and future members. Tiers and their associated dues were designed based on the geographic service area of each member.

What sets ACWA apart from similar organizations, is the peer-to-peer collaboration for a stronger unified voice. To advance soil health and water quality, provide metric-driven sustainability values for member organizations, and boots-on-the-ground support through Conservation Agronomists for its members' customer base.

The statewide expansion enabled ACWA to fulfill a growing demand among farmers who want to implement conservation practices such as cover crops and precision nutrient management, and edge-of-field practices including bioreactors, saturated buffers, controlled drainage and more. Farmers will continue to turn

to their trusted ag retailer for agronomic needs, and for their land stewardship goals as well.

Work Groups

ACWA established three work groups in 2021, an outcome of the strategic planning process. The work groups — Membership Services, Communications, and Programs and Projects — consist of ACWA members and associate member representatives. These groups are integral to accomplishing tasks in the ACWA annual work plans and achieving long-term goals. They empower all members to have a voice in the organization's direction.

The many accomplishments by these work groups this past year illustrated that member contributions are valued and make a difference.

Membership Services Work Group 2021-2022 Members

- Molly Toot, *Landus Cooperative (Co-Chair)*
- Mark Kriegshauser, *Helena Agri-Enterprises, LLC (Co-Chair)*
- Dan Dix, *NEW Cooperative*
- Jake Van Diest, *Van Diest Supply*
- Gregg Schmitz, *Nutrien Ag Solutions*
- Jacob Aizikovitz, *Koch Fertilizer, LLC*
- Thomas Fawcett, *Heartland Cooperative*

The Membership Services work group contacted and made personal visits to prospective members. They hosted a networking event in November to strengthen the relationships among members and potential members. The group also set the new membership tier structure.

Communications Work Group 2021-2022 Members

- Eric Scherder, *Corteva Agriscience (Chair)*
- Gary Moritz, *NEW Cooperative*
- Cheri Huber, *AgState (previously AgPartners LLC/FCA)*

The Communications work group led the development of the membership recruitment and retention materials by creating a membership kit. They also led

the communication efforts to promote ACWA's statewide expansion, which included live broadcasts on Carroll, IA radio stations and WHO-AM radio's "The Big Show" in June.

Programs & Projects Work Group 2021-2022 Members

- Thomas Fawcett, *Heartland Cooperative (Chair)*
- Becky Kenow, *Land O' Lakes*
- Clint Sires, *AgState (previously AgPartners LLC/FCA)*
- Derek Hommer, *Nationwide*
- Dewey Petersen, *Nutrien Ag Solutions*
- Gregg Schmitz, *Nutrien Ag Solutions*
- Jacob Aizikovitz, *Koch Fertilizer, LLC*
- Dan Dix, *NEW Cooperative*
- Heath Ellison, *Iowa Soybean Association*

The Programs and Projects work group led ACWA's annual reaffirmation of the Code of Practice. They developed and helped test the new Code of Practice online self-reporting framework. The group provided leadership in ACWA projects including the continuance of the Farm to River Partnership Water Quality Initiative, and the Conservation Agronomists deployed across Iowa. The group also provided direction for ACWA's water monitoring efforts.



During ACWA's networking event, participants including ACWA 21-22 President Brent Low (bottom left), enjoyed hearing presentation by Daniel J. Robison, Endowed Dean's Chair of the College of Agriculture and Life Sciences at ISU (top right).

PILLAR: SCIENCE TO SOLUTIONS

Water Monitoring

The task of measuring nitrate levels in the Des Moines and Raccoon Rivers helped shape the organization of ACWA. Before 2000, the city of Des Moines recorded high levels of nitrate-nitrogen (N) in the rivers that serve as sources for the metro’s drinking water; nutrient concentrations upstream were largely unknown. ACWA began monitoring the rivers to establish a benchmark of nutrient levels and gain insight of where efforts should be focused to reduce nutrient levels in the water bodies.

Two decades later, ACWA continues to monitor these rivers and their tributaries as well as the Boone River and private farm edge-of-field sites. Along with expanding membership statewide, ACWA expanded its support for water monitoring to rivers and streams beyond these original watersheds. Now included in the monitoring schedule are the Cedar River, Skunk River, and the South Fork of Crooked Creek to name a few. See the map below for the ACWA water sampling locations.

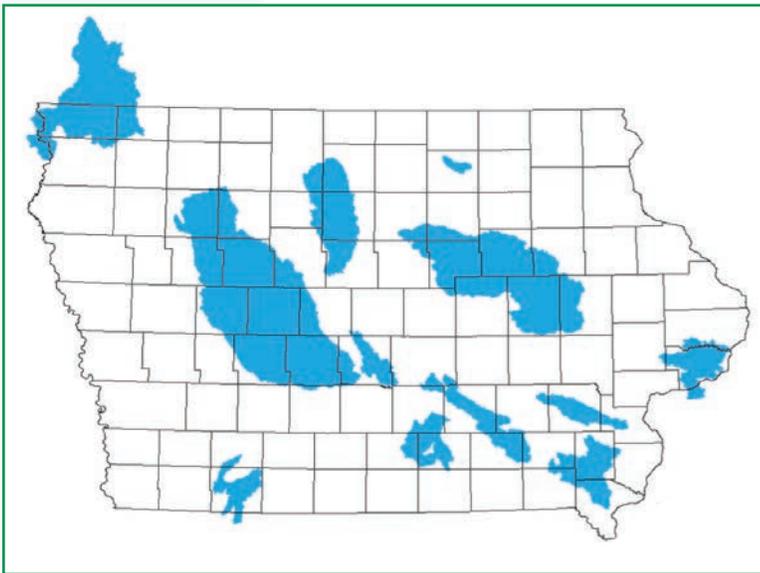


Figure 1. 2020-2021 Statewide Water Sampling Areas.

Legend
■ Water Sampling Areas

Much of Iowa experienced drought conditions again in 2021, like the previous year. As Figure 2 illustrates, the levels of exported nitrogen from the central Iowa rivers were very low. This

year ranked the lowest for nitrate-N concentration and estimated loads since 2007, except in the Upper Boone River where it was second-lowest.

	Beaver Creek	Des Moines River	Upper Boone River	Boone River	Upper North Raccoon River	North Raccoon River	Middle Raccoon River	South Raccoon River
Acres	236,475	3,739,942	266,985	541,309	1,030,905	1,462,636	384,544	240,291
2021	0.7	0.4	2.8	2.5	.04	0.3	0.3	0.9
2007-2020 Average	17.7	12.9	23.0	21.5	17.7	18.1	10.7	15.1

Figure 2. Average export of nitrogen in pounds per acre April-August 2021; estimated load divided by total acres.

The lingering effects of drought can impact subsequent years after conditions are eased with normal rainfall levels. Figure 3 focuses on the North and South Raccoon rivers and illustrates the further effects of drought. The levels are similar to 2000 and 2012, which were also drought years. Without

adequate moisture, the nitrate-N cannot migrate into the crop or down to the groundwater. It accumulates in the soil profile, leaving it vulnerable of being lost later. In the years following a drought, water bodies can contain high levels of nitrate-N, as recorded in 2001, 2013, and 2015, also illustrated in Figure 3 below.

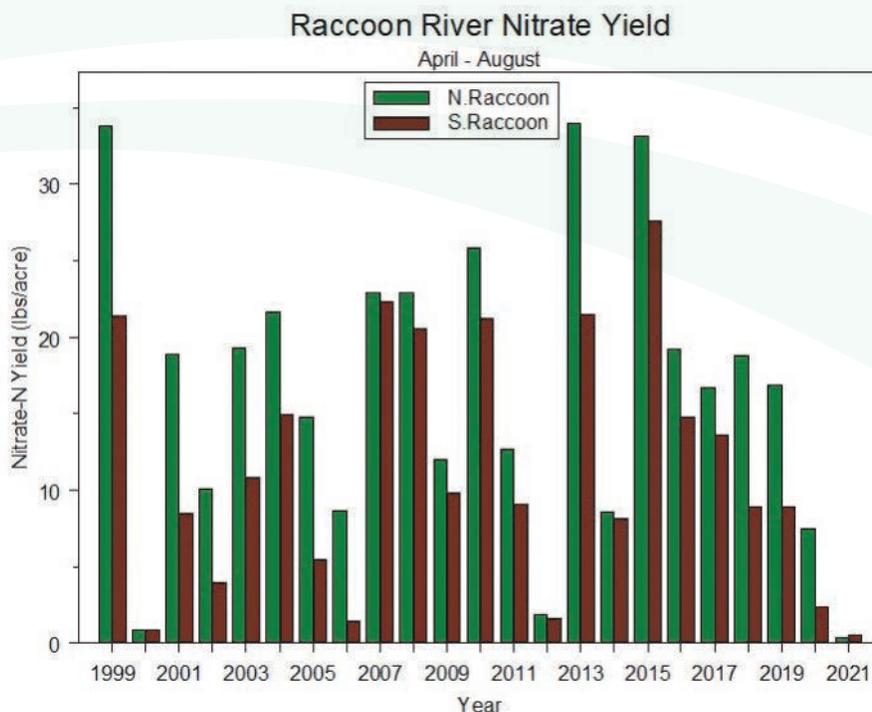


Figure 3. North and South Raccoon River nitrate yield in pounds per acre between 1999 and 2021.

Tile Drainage

In 2008, ACWA added water monitoring at edge-of-field sites on participating private farms to track nitrate-N levels from tile drains. Bioreactors and saturated buffers intercepted tile drainage from fields to help reduce nutrients before the drainage water enters nearby streams. In 2021, ACWA continued its sponsorship of water sample analysis from tile outlets, however, due to drought conditions, the data is incomplete.

The drought conditions that prevailed across the state means many tiles discharged for short periods of time, if at all. The map in Figure 4 highlights precipitation amounts and locations of sampled tiles. Areas with the least precipitation correlate with the most

sample visits where no water was flowing. Since sampling season and frequency are not consistent with all projects, dry tiles are expressed as a percentage of the time. Exceptionally dry places are of concern, as large amounts of residual nitrate might be still in the soil. If Spring rains fall before crops are planted and growing, the residual nitrate will be vulnerable to leaching into streams and rivers. However, in 2021 the crops in many of these fields saw above-average yield, so it is promising that the nitrogen was utilized by the crops.

2021 Dry Tiles

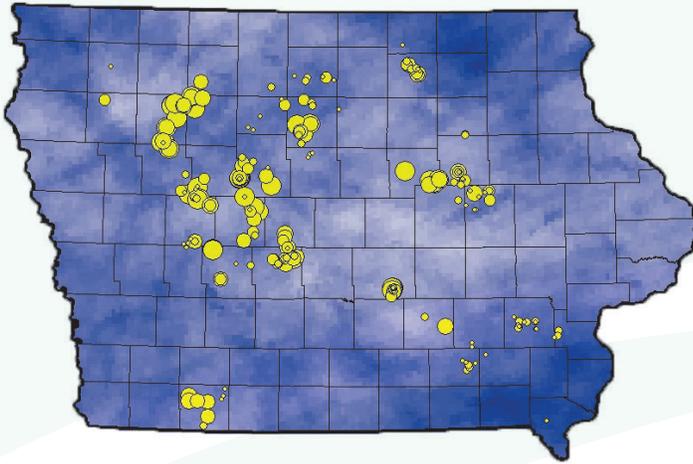


Figure 4. Dry tile line percentage by visit compared to rainfall amounts in 2021.

Legend

Percent of visits dry

- 0-13
- 14-31
- 32-43
- 44-63
- 64-88
- 89-100

Precip A pr-Sep
Inches

High: 40
Low: 11

Code of Practice

ACWA members reaffirmed their agreement to protect Iowa’s soil and water resources, which they have done annually since 2001. Through the Code of Practice, ACWA members agree to delay fall anhydrous applications without a nitrification inhibitor until soil temperatures are 50 degrees (F) and trending lower. This agreement establishes and implements reasonable and practical guidelines for nitrogen fertilization applications to reduce nitrate loss from farm fields.

The Code of Practice — exclusive to ACWA — was initiated by its members and is reviewed and updated by its members. ACWA members hold each other accountable to uphold it each year.

Effective on-farm nutrient management is one of the keys to enhancing both environmental quality and profitable crop production. Consistent with the Iowa Nutrient Reduction Strategy, the Code of Practice provides information about guidelines adopted by the ACWA members as a condition of membership.

Beginning in 2021, ACWA established an online self-reporting system so ACWA ag retail members can easily record their information. The online reporting form is confidential, secure to each member, password-protected and

takes little time to complete. The data continues to be consolidated and kept on file. Members continue to use county soil temperature and forecast maps, compiled by Iowa State University, as a decision tool for beginning fall fertilizer applications.

ACWA Members Have Embraced the Online Self-Reporting Database, as 2021 Results Show

100%

Reported implementation of the Code of Practice requirements.

92%

Reported using a nitrogen stabilizer with their normal nitrogen application.

82%

Utilized the ISU NPK Knowledge website, tracking soil temperature.

PILLAR: INNOVATE AND SUSTAIN

Conservation Agronomists: Innovating Conservation Delivery from Ag Retailers to Farmers

Ag retailers have established lasting relationships with their customers and are farmers' trusted voice for improved profitability. The on-staff field agronomists have a full plate as they help farmers with decisions on planting and harvest, weed and pest management, soil fertility and more. ACWA recently introduced the Conservation Agronomist model; several members are adapting their business philosophy to utilize this position.

Conservation Agronomists focus their expertise on environmental aspects such as nutrient management and erosion control, which all lead to reduced nutrient levels and sediment in water bodies. They help field agronomists and farmers find the best ways to reduce nutrient and soil loss and build soil health while remaining profitable.

At the close of ACWA's fiscal year, there were seven Conservation Agronomists in Iowa (see ACWA's Footprint Map on the last page). In the next fiscal year, expanding the Conservation Agronomist network is a priority, as it is one of the most valuable returns on investment according to ACWA members. Conservation Agronomists are funded by grants through ACWA and the Iowa Soybean Association, the others are employed directly by an ag retailer.

"Access to expertise and cost-share funding are keys to success for our farmers," Tom Fawcett, ACWA board member of Heartland Cooperative said. "Ag retail can play a leading role in affecting water quality and soil health throughout the state. ACWA is good at bringing a network of ag retailers together to support each other so we

can support our growers in adopting conservation practices."

The long-term goal and broad vision of ACWA are to alter the model of the ag retailer to include conservation experts as employees. On-staff Conservation Agronomists provide yet another trusted voice producers will turn to for advice and direction for improved land stewardship and water quality.

Value By the Numbers

In 2021, ACWA ag retailers and Conservation Agronomists have been diligently working to implement conservation practices on the land. Through ACWA and its members, the Iowa rural landscape is evolving.

ACWA Stats for Increased Agricultural Conservation Practices

897	Farmers met with 1-on-1
3,594	Farmers contacted through various outreach efforts
500+	Practice recommendations
960	Acres of improved nutrient management
1,440	Acres no-till/strip-till adopted
40	Edge-of-field practices enrolled in cost-share programs
24.4K	Acres with cover crops

Resulting in:

245,040	Pounds of nitrogen loss reduced
8,616	Pounds of phosphorus loss reduced



*Bioreactor trench
with wood chips for Farm to River project.*

Farm to River Partnership

In 2015, a small Water Quality Initiative (WQI) began in the Elk Run watershed. The WQIs are funded through the Iowa Department of Agriculture and Land Stewardship (IDALS). The Farm to River Partnership, in the North Raccoon River watershed, is an expansion of the Elk Run project. This three-year WQI began in 2018 and recently received IDALS approval of \$1.3 million in funding to continue for an additional three years.

The partnership covers Sac, Calhoun, Carroll and Greene counties with goals of installing 20 edge-of-field practices including bioreactors and saturated buffers, as well as increased cover crop acres. Conservation Agronomist Joe Wuebker oversees the ACWA administered project and is partnering with ag retailers and their customers to achieve these goals.

“We’re working hard to add edge-of-field practices in the watershed, and 10 bioreactors have been installed so

far,” Wuebker said. “The process for these takes some time as site design needs to be approved. The drainage control boxes are custom-made, and contractors need to be secured for the installation. But once everything has the green light, the actual installation goes quickly.”

Mark Schleisman, who farms near Lake City, IA fully believes one can farm profitably while remaining conscious of water quality and soil health. He and his family use many conservation practices on their farm including grassed waterways, terraces, filter strips, and habitat for birds and pollinators. They also use cover crops as well as no-till and strip-till.

The Schleismans took advantage of cost-share through the Elk Run project and installed their first saturated buffer and bioreactor. Since these were installed, they have seen the benefits of improved water quality and soil health.

“Since Elk Run, we’ve added three more bioreactors through the Farm to River Partnership and have increased our cover crop usage,” Schleisman said. “We are seeing more cover crops being used in our area as well as more edge-of-field practices added. Of course, these conservation practices are being adopted slower than I would like to see, but I believe we are going in the right direction.”

The Farm to River Partnership receives leveraged funding from ACWA, Iowa Soybean Association and the larger federal Regional Conservation Partnership (RCP). The cost-share dollars cover the installation of the edge-of-field practices and for farmers to try cover crops.

The RCPP is a five-year water quality project is getting underway in the North Raccoon Watershed, which encompasses the Farm to River Partnership geographic area. The RCPP is a federally funded project through the Natural Resources Conservation Service (NCRS).

ACWA and 10 other organizations and agencies are partnering with the NCRS in this RCPP. The project goals include increased acres with reduced or no-tillage and cover crops – the addition of bioreactors, saturated buffers, targeted wetlands and restored oxbow wetlands.

2021 FINANCES

Report of ACWA's FY21-22 (March 1, 2021 - February 28, 2022)



Additional In-Kind Grants & Contracts: Total: \$607,797

ACWA in-kind grants and contracts are aligned partner/collaborator investments, supporting Conservation Agronomists and water monitoring programs in targeted locations across the state.

IN CLOSING

ACWA has experienced tremendous growth within the last year as illustrated throughout this report. It has advanced its efforts statewide and grown within the organization; it strengthens its structure to recruit new members and retain core members, making the organization's return on investment valued by all.

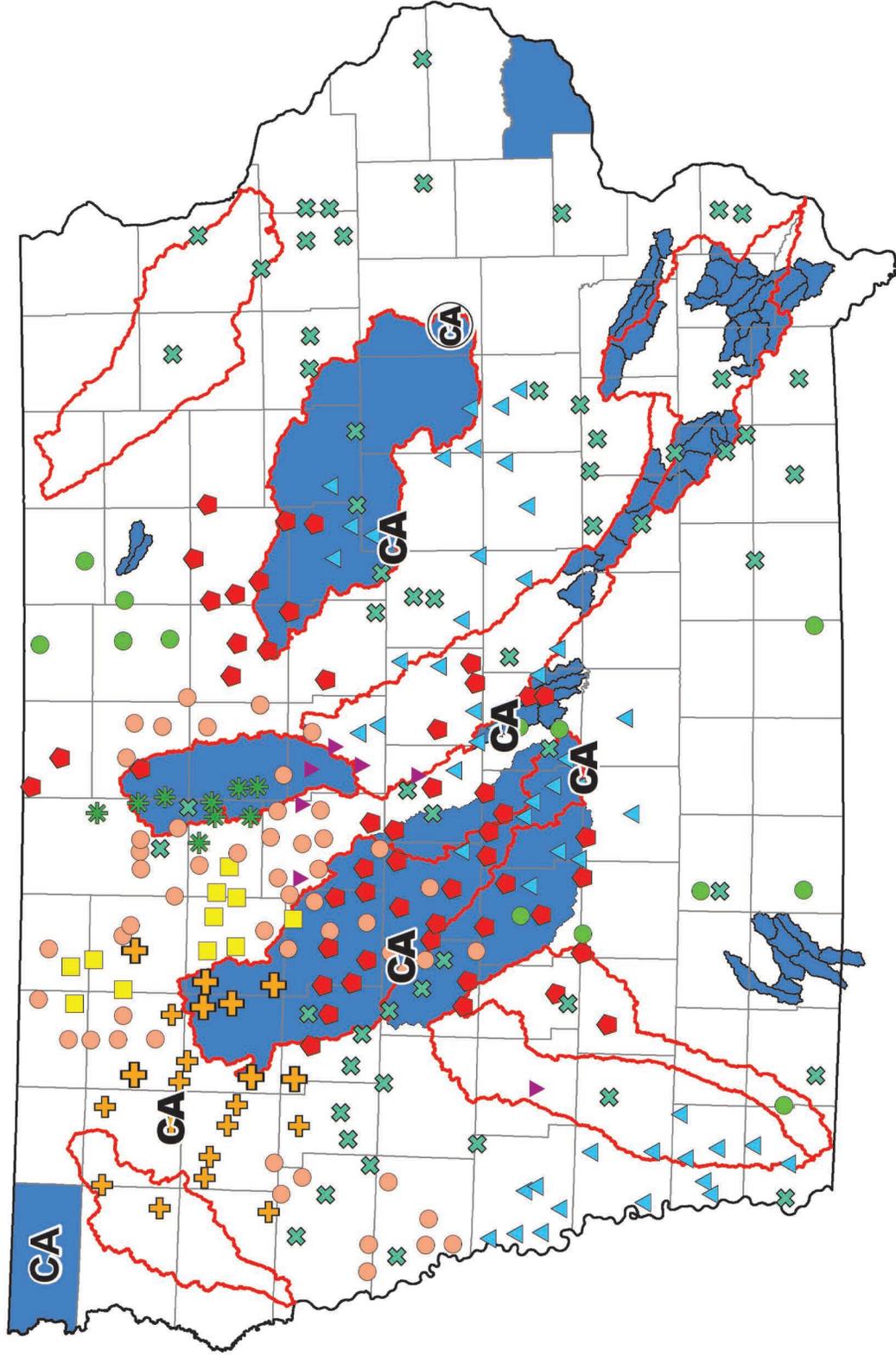
In the next fiscal year and into the future, ACWA will strategically work to support water quality improvement in targeted areas across the state. The "boots-on-the-ground" Conservation

Agronomists are stationed, working within the North Raccoon headwaters, Buttrick and Hardin Creek, Swan Branch watersheds and the Farm to River Partnership, in Skunk River and Cedar River project areas, in Northwest and Southeast Iowa, and in other locations as funding allows.

ACWA welcomes the support and partnership from all Iowa ag retailers and organizations that champion an improved soil health and water quality in the state and beyond.



AGRICULTURE'S CLEAN WATER ALLIANCE 2021 FOOTPRINT MAP*



Current Members*

- AgState
- Gold-Eagle Cooperative
- Heartland Co-op
- Helena Agri-Enterprises LLC
- Landus Cooperative
- NEW Cooperative, Inc./Max Yield
- Nutrien Ag Solutions
- Pro Cooperative
- Van Diest Supply

Associate Members*

- Corteva Agriscience
- Iowa Corn Growers Association
- Iowa Soybean Association
- Koch Fertilizer, LLC
- Nationwide
- Truterra, LLC - Sustainability Business of Land O'Lakes
- Vertesian Life Sciences

2021 Water Monitoring

- Counties and Watershed Areas

Iowa Nutrient Reduction Strategy Focus Watersheds

- Counties and Watershed Areas

Conservation Agronomists

- Pending **CA**
- Existing **CA**

* As of December 2021



Trusted Leader
Greater Unified Voice
Impact and Connectivity to Peers
Leveraging Financial Investments



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