

U2U Annual Team Meeting – May 18-20, 2015

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Above: U2U Team and Advisory Committee at the 2015 Annual Meeting

In Attendance:

U2U Team

Jeff Andresen, Jim Angel, Larry Biehl, Sarah Church, Otto Doering, Mike Dunn, Roger Elmore, Silvestre Garcia de Jalon, Ben Gramig, Pat Guinan, Tonya Haigh, Beth Hall, Chad Hart, Olivia Kellner, Jenna Klink, Vikram Koundinya, Maria Carmen Lemos, Xing Liu, Yun-Jia Lo, Ray Massey, Jean McGuire, Lois Wright Morton, Dev Niyogi, Chris Panza, Linda Prokopy, Amber Schmechel, Martha Shulski, Carol Song, Eugene Takle, Dennis Todey, Melissa Widhalm, Seong do Yun

Advisory Committee

Jamie Benning (Iowa State Univ. Extension), Michael DeFelice (Pioneer), Clyde Fraisse (U of Florida Extension), Chad Geater (Syngenta), Jerry Hatfield (USDA ARS), Doug Kluck (NWS), David Miller (IA Farm Bureau and Farmer), Ray Wolf (NWS)

USDA NIFA Representative

Michael Bowers

Session with U2U Advisory Committee

Updates and Presentations

The following updates were presented. Copies of these presentations are included at the end of this document.

- Linda Prokopy – Project introduction, big picture updates, new research findings on the potential future role of Extension (see pages 15-37)
- Chad Hart – Review of U2U decision support tools (DST), including discussion of upcoming tool enhancements (see pages 38-57)
- Ben Gramig – Discussion of new U2U tool currently under development (Irrigation Investment) (see pages 58-61)
- Jenna Klink – Review of U2U stakeholder engagement process and evaluation plans (see pages 62-82)

Committee Feedback

Advisory Committee members were asked to reflect on the following:

1. Reflect on what the U2U team has accomplished so far relative to your expectations.
2. Aspects of U2U that can be better promoted/communicated.
3. Thoughts on issues you think the U2U team is well-positioned to address in the future.
4. Future funding and/or partnerships to maintain long-term access to U2U tools and data.

Q1 Responses

Doug Kluck: An edging towards climate change more directly, possibly in terms of trends.

Dave Miller: Impressed with progress to date. How can we expand on usable? For example, Split N is a good start. Private sector is looking at N availability (updated daily based on weather), but they're not bringing in the economic component. U2U has economics but not the real-time N availability. Next project could be looking at how much N do I need to put on for my split application? Irrigation tool – I lose much more yield due to excess water, so I'm more interested in drainage model (probably the concern for most in the corn belt). GDD – U2U has the best GDD tool out there. How can we make it even better? I think it's most useful for very early and very late planting, the tails of the distribution. CPV – I want to know what's happening with the frequency of events (i.e. trends in high temps during the growing season). Can I select a segment of the data and see what's happening?

Ray Wolf: U2U has filled a void for the NWS related to ag. Infusion of social science into the project is really a success point.

Jerry Hatfield: The survey that U2U did has changed USDA secretary's mind about how to approach ag and climate change. The biggest issues/questions I get related to ag and climate are in terms of water, pests, and weeds. GDD tool, with updates, can start to address more of these concerns. Long-term, these tools can help producers strategize adaptation options. Just adjusting your planting date doesn't cut it.

Chad Geater: Impressed with the comprehensive nature of the project. Suggested considering building in ENSO into the GDD tool.

Michael De Felice: One question I get a lot is how climate change is affecting weeds. Three big inputs for ag are seed, fertilizer, and pest control. U2U has done well. Tools are flexible and responding to needs. Focus on teachable moments – one could criticize that none of the U2U tools are forward looking, but if this is of less interest to farmers then the tools are hitting the right tone. You can use teachable moments to insert climate change education. Don't worry too much about competing with private sector. They come and go, and people were much more excited about charging \$2-3/acre for tools when we had \$6 corn. What you're learned throughout the project [about interactions with ag and their needs] might be more important than what you've made. If you want climate change on the agenda for ag, that will need to be a long term effort. Man changes in ag are happening all at once, and U2U has done well being responsive.

Jamie Benning: Early connections with Extension has helped with buy-in. It would be nice if Extension piece could carry on after the project, but that just isn't how the funding works. Housing the tools at USDA Hubs, RCCs is a good long-term plan. As updates occur to the tool be sure to keep Extension educators informed.

Clyde Fraisse: It's important for researchers to also be responsive to Extension educator needs. The tool transfer will be important. Keep tools updated! I like the GDD tool, but it feels too complex when you first open it. Need to explore how to simplify the tools. Also suggest changing "start date" to "planting date." For ENSO, growers are more interested in yield interaction with ENSO and not so much with weather patterns. Educational resources – it's hard to talk about climate change, but easier to discuss resilience. In the southeast, trade show participation works well for increasing project awareness and reaching audience. Overall, great job and happy with progress.

Dave Miller: What decisions did I have this year with my production plan? Cover crop inclusion, and I had to change my whole plan for corn to account for fall cover crops. How do you build-in cover crops or other upcoming decisions for next year into the tools you're developing?

Q2 Responses

Doug Kluck: What about cross-collaboration with the RCCs, Hub, etc. This would need to have some funding.

Jerry Hatfield: Supplying this type of support is currently being discussed in the Hubs. There needs to be some kind of funding to support tools long term (and not just those tools from U2U). The Hubs are working on trying to access funds. Work in progress.

Doug Kluck: Are there associations that can provide support or does that get sticky?

Michael Bowers: USDA often uses U2U as a success story. NIFA is pleased with this project. As for continued funding, what about capacity funds? Would need land grant buy-in. There are also competitive funds too.

Q3 Responses

Dave Miller: Any success reaching out to industry?

Jeff Andresen: Had some meetings with industry reps but a very one-way conversation.

Doug Kluck: Have you met much with ag media? Any effort to talk to others in big ag besides seed companies? What about international? Any interest/push in that direction? USAID might be interested in this work.

Dave Miller: I'm more interested in a phone app (even one that just directs you to a mobile version of your website) than a bookmark in my browser. Are there large groups/companies who would add a link to the U2U website from theirs? Maybe AgWeb?

Michael De Felice: Ag Media/ Ag Pres sis critical and should get involved. Collaboration with industry is a challenge because the data seed companies have are under lock and key (privacy/legal issues).

Q4 Responses

Doug Kluck: Why is family the biggest influence, who in the family is most influential, and what does all of this mean?

Jean McGuire: Land ownership could be playing a big role.

Dave Miller: Who influences you? If you're age 20-50 it's probably "dad" since he holds the money. But there is a morphing farm dynamic.

Jerry Hatfield: Water management, which subsequently influences N management. How do you sub-irrigate on patterned tile, other innovative water management strategies.

Doug Kluck: Who knows in 5 years what regulations could be imposed on water quality. Need to focus on extreme events, which drives water quality.

Dave Miller: How do you make tools relevant to the decision I'm making? How to incorporate the impact of one decision on another? Ex. Using cover crops will impact my field workability because it will keep the soils wetter in the spring. All these interactions going on and they all tie back to water management. A soil drying predication model built into the Split N tool would help cover croppers.

Ray Wolf: What about the impact of warmer nighttime summer temperatures?

Jerry Hatfield: This can impact grain fill and lower yields. Couple this with water stress and you can really impact yield.

Dave Miller: There is only a portion of the year that I care about night temps. How to tie seed selection to this risk? See selection is driven by discounts and most discounts are over by mid-Oct (I used to buy seed in mid-Nov but it keeps getting earlier).

Doug Kluck: Indicators as opposed to predications, that what the state climatologists do when predictions give minimal direction much of the time.

Dave Miller: What are the climate decisions (ex. changing probabilities of night temps then affect seed selections) should farmers be considering? People are most interested in and influenced by weather decisions, but climate decisions are critical.

Sessions with CSCAP Extension Educators

May 19 (Afternoon) – U2U Full Team + CSCAP Educators

The following updates were presented. Copies of these presentations are included at the end of this document.

- Chad Hart – Review of U2U Year 5 Extension and Outreach Plan, role of CSCAP (see pages 84-94)
- Jenna Klink – Evaluating usability and adoption of DSTs, types of eval occurring in U2U (see pages 95-109)

CSCAP Educators were asked to respond to the following discussion questions:

1. How do you see U2U tools fitting into your existing programming?
2. Are you aware of upcoming events at which U2U should have a presence?
3. Other general feedback (about U2U tools, resources, etc.)

Discussions/Comments:

- Tool improvements
 - Split N tool – need to better communicate that it is not a N recommendation tool and that it's a tool looking at feasibility of adopting a split application practice.
 - GDD – Can you incorporate moisture content of the crop, which has implications for propane purchase?
 - GDD – Improve visibility of the data tab, and set default to have daily data table open
- Mixed responses when asked if they think U2U tools fit into their existing programming.
 - Brian Overstreet has used GDD tool for variety change decisions with this season's cool start in Indiana. Also, he uses it more in the winter meetings rather than at field days.
 - Marilyn Thelean has used GDD for delayed planting. GDD a popular tool. She also uses it with agro-business discussions.
 - Hans Schmitz – working with a group of 12 farmers, and could probably do hands-on demo for that group.
 - MN educator – Posted link to U2U site and provided brief overviews with audiences, but have not specifically trained people on the tools.
 - MI educator – Uses U2U tools with other extension eds, put link on MSU webstie. N timing work could benefit from Split N tool.
 - Some previous CAP technicians have used the U2U tools with farmers.
 - MO educator – could potentially use U2U tools with precision ag programming.
 - IL educator – Often use Jim Angel as a resource at field days and small meetings
- Events U2U should target to spread the word about DSTs
 - Winter CCS meetings
 - ASA agronomy meeting – offer CCA credits for participating in training.
 - Wisc winter crop management (Chad knows the contact for this event)
 - Tradeshows and conferences
 - Specialty growers meeting (Illinois)
 - Great Lakes Ag Summit

- Michigan agro-business association
- Could do in-service training within each university (ANR meetings)
- Illinois fertilizer group might have an interest in U2U and they hold annual meeting

May 20 (Morning) – U2U Extension Team Members + CSCAP Educators

This session was facilitated by the CSCAP Team and a separate document will be developed with notes and outcomes from this session. Any questions can be directed to Lois Wright Morton

DST Transfer to RCCs

All agreed that a Memorandum of Understanding (MOU) among Purdue and the RCCs describing the terms of the DST transfer would be beneficial to all involved. Melissa will initiate this process later this summer based on the notes below describing what was discussed and agreed upon during the meeting. Guiding questions for this session were presented by Beth Hall and Martha Shulski (see pages 112-114).

- RCC not hosting entire site, just DSTs. For a while (few years?) post-U2U, the non-DST portions of the U2U webpage will continue to live on the MyGeoHub site.
- Both RCCs will host all tools. They will be provided a “frozen” version of the tools to start. Then they (the RCC) will be at liberty to make improvements/adjustments at their discretion (no “approval” needed from other U2Users) and brand as their own after changes/updates are made. If U2U partners want to later develop a tool as part of a future grant they would need to work with one of the RCCs.
 - All agreed that RCCs will maintain the frozen version as long as reasonable. The RCCs are not expected to maintain the frozen version indefinitely. Eventually the patching/maintenance involved will become too difficult.
- While any further development beyond the frozen version is acceptable (and encouraged), the RCC should always reference the original U2U project and tool contributors in a help/about section on the tool. Melissa will add a list of tool contributors to the About page of each tool.
- It was suggested that each tool get a DOI. This needs to be investigated further.
- There were discussions about whether or not to make the tools open sources. The RCCs preferred not to go this route unless requested by users. This detail has not been fully determined although there was a leaning towards not doing open source. Can revisit this item if needed.
- There was discussion about transferring the U2U listserv to the RCC listservs. Need to further discuss. Perhaps an opt-in request would be more appropriate?

Review of Acceptable No-Cost Extension Activities

The U2U project will be seeking a no-cost extension from USDA, but this extension is not guaranteed and we’ve been told that significant progress and spending must be achieved by the formal end of the project.

The U2U Leadership has decided that **all research, tool development, and outreach activities MUST be completed by the end of Year 5 (April 14, 2016)**. The following list includes “acceptable” activities for inclusion in the no-cost extension. If you are not involved in these activities you need to plan on spending down all of your existing funds by April 14, 2016.

Allowed Year 6 Activities:

- DST transfer
- Tool/website maintenance
- Page charges for U2U publications (not staff time to write pubs)
- Conference travel (not outreach travel)
- Evaluation survey and results analysis
- Project reporting and other administrative tasks

U2U Publications Discussion

Topics for potential integrated pubs:

- Commentary piece on co-production process w/ applied outcomes. Could be a lessons learned paper. Show unique perspective on how this unique project worked.
 - Ben is interested in leading this paper – thinking PNAS
- Tool development – Carol’s group would like to write a pub on the technical side of the tools, but not sure where to publish it.
 - Consider including qualitative data from the DST focus groups in such a pub.
- What do we know in terms of adaptation strategies, what does ag adaptation mean in this region?
- What do climate models need to be looking at to be useful to the social sciences (we don’t actually have the info we need to write this type of paper)

Possible U2U Special Issue:

- There was strong interest in pursuing a special issue. In about a month we will send a request over the listserv for short abstracts. Based on the topics we will pick a journal and reengage the authors to see if people are still interested.
- Who might be ready with a special issue pub in the next 6 months, and on what topic? We’d need about 6-8 papers.
 - Carol (tool development)
 - Jenna (eval)
 - Dev (depends on the journal/direction of the issue)
 - Maria (?)
 - Sarah /Linda (content analysis)
- Potential journals
 - Weather & Climate Extremes
 - Agriculture, Ecosystems & Environment
 - JAMC
 - Climate Risk Management
 - Environmental Science & Public Policy
 - Applied Geography
 - Ag & Forest Meteorology

Year 5 Evaluation Survey Planning

Attending session: Linda, Vikram, Amber, Jenna, Jean, Sarah, Silvestre, Chad

Stakeholders to engage:

- **Objective 2**
- **Wisconsin team**
- **Jim, Dennis, Chad & Hans**
- Whole team (as reviewers)
- Extension administrators (be sensitive to the fact that states have been doing their own climate change assessments, plus they may want to use this data)

Purpose of surveys:

- Accountability; answer evaluation questions
 - To what extent did the project achieve its outcomes among farmer and advisor audiences?
 - Silvestre also asked if there'd be reason to survey researchers. It's not a main evaluation focus, but we'll include Extension researchers and not just field/county staff in the Extension surveys. (There were plenty of researcher outcomes in our original logic model.)
- Answer research questions
 - Re-assess 2012, 2013 advisor indicators (not re-assessing farmers since it likely won't be same sampling/audience)
 - Other research questions TBD – will bring to our January meeting
- Information for future proposals

Preliminary thoughts on methods:

- Online survey of advisors including Extension – 12 states
 - In 2012 and 2013, this was just a 4-state survey. 2013 used the same contact lists as 2012. We will need to re-pull lists this time around.
 - As noted above, include Extension specialists and integrated faculty.
 - Wisconsin will administer these via Qualtrics.
- Paper survey of farmers
 - Likely not using NASS HUC-6 watershed sampling again due to some complications (Linda and Chad know details).
 - We will need to decide if we want state-level estimates or if we want to hear from the whole region
 - If we need to pick certain states, the following were brainstormed: Iowa, Illinois, Indiana, Nebraska, South Dakota, Missouri
 - Purdue will administer these.

Timeline:

1. June – December 2015:
 - a. Get better sense of budget (Linda)

- b. Go through 2012-2013 surveys and pull out “must have” questions, bring to January meeting
 - c. Define our big-picture questions that we want this data to answer
 - i. Assessing outcomes
 - ii. “Risks”
 - d. Organize lists (Purdue & Wisconsin)
 - e. Engage Extension
2. January 2016 – meet as a sub-team (invite the bolded people above under Stakeholders)
 - a. Goals of meeting:
 - i. Come up with rough drafts of surveys
 - ii. Decide on sampling and have plan for pulling lists
3. July-August 2016 – send surveys!

More clarity needed on the items in red above. Consider planning call in July or August 2015 to discuss details (clearly define who is doing what before our January meeting).

DST / Obj 3 Working Session Notes

Corn GDD

There was considerable discussion surrounding the Analog Year feature that is now available in the Comparison Year dropdown.

- Several people expressed concern that users might misuse this information. The analog shows a comparison of year-to-date conditions, and the concern is that people might use this to predict how the rest of the year will pan out (which could lead to poor decision making).
- Several other people expressed that analog years were included because the users want it (specifically, this request came from Dave Miller). The question often comes up “how does this year compare to past years.”
- Suggested actions:
 - Many advocated for removing this feature.
 - Others suggested a disclaimer and further explanation of the analog year

GDD Forecast

- All were in agreement that we should combine the lines for the CFS forecast and the climatological projection, but the hover box should distinguish the two data streams.
- All were in agreement to display only 30-days of the CFS forecast.

Other items

- Discussed the new method for determining the probability of freeze before black layer. This new method was developed in consultation with the Purdue stats experts. All agreed the new joint probability method should be implemented.
- Change the default on the Data Tab so the Accumulated GDD Details table is always showing.
- Remove the comparison year from the default view of the GDD graph.

Climate Patterns Viewer

Update: Larry and Melissa are working with stats consultants at Purdue for guidance on how to implement the significance testing (showing when and where a specific climate pattern phase is statistically different than the 30-year average value). Once resolved, this will be the next update implemented in this tool.

Timeline: The stats consultants are on semester break. We will reengage them in the summer.

Corn Split N

The next scheduled improvement will be to expand the tool to the remaining 7 states. Ben has computed the required fieldwork day (FWD) data for 6 states, still working on North Dakota. Ben expects his student to be finished processing this data in early June 2015.

Still need to compile the yield penalty data for the expansion states that are not involved with the Corn N Rate Calculator. We specifically need some kind of N response data for South Dakota and Nebraska. Also, for Wisconsin, they only report N trial results by soil type and not by geographic region. Will need to require Wisconsin users to select their soil type in the tool.

Timeline: Aim to have the tool expansion completed and publicly available by Sept 1, 2015.

Irrigation Investment

Chris has started developing the web interface for the Irrigation Investment tool. Chris and Ben engaged in in-depth discussion on various details of the display toward the end of the meeting (not captured in notes).

Timeline: Would like this tool publicly available for the winter meeting season (starting Dec 1, 2015). The Irrigation team will hold a meeting later this summer to discuss progress, updates, and intermediate steps to stay on track with a winter release.

Obj 1 Crop, Climate, Economic Modeling Notes

Notes in this section include discussions from Monday May 18 and Wednesday May 20

Future Climate Modeling

Timeline/Next Steps:

- Chris will send site runs for remaining RCM/GCM scenario combos. Chris is working on this task the week of May 25. The complete list of scenarios is listed below.
 - These were from Shannon (IF INCORRECT LET MELISSA KNOW ASAP)
 - MM5/NCEP
 - HRM3/NCEP
 - CRCM/NCEP
 - MM5/CCSM -- contemporary and future scenario and delta

- MM5/HadCM3 -- contemporary and future scenario and delta CRCM/CCSM -- contemporary and future scenario and delta
 - Chris will deliver contemporary and future scenarios (with deltas) for the following:
 - HRM3/HadCM3
 - HRM3/GFDL
 - CRCM/CGCM3
- Gene will start drafting text/table describing model performance and bias. Gene will circulate this document the week of May 25.
- Jeff/Dev's teams will run climate scenarios through crop models, run verifications, and analyze results (before our next conference call June 12)
 - Verification will be conducted in the same way as was done for historical runs. Focus on yields (absolute and anomalies), growing season length and time spent in vegetative vs reproductive stage, ET, and whatever other output shows large differences
- During June 12 call you will discuss site results and select climate scenarios to use for gridded analysis
- Chris will send required gridded data
- Jeff/Dev's teams will run gridded data through crop models (**NOTE: Ben needs gridded results and irrigation runs from Jeff NO LATER than Sept 1**)
- Jeff/Dev's teams will develop pdf & spatial maps of current and future outputs by March/April 2016 (end of project)
 - The goal will be to hand over these results (maps) to MRCC for inclusion in their updated climate change data viewer. Olivia showed mockup of this tool during the meeting. All agreed that no new development on a data viewer would be done under the U2U.
- Next Crop/Climate/Econ Modeling Conference Call: **Friday June 12, 3 PM EST**

Other follow-ups:

- Solar Radiation: Need to resolve how to deal with SR in future climate scenarios
- Output visualization/sharing: All agreed that we need to make output available, but we are not required to have a dynamic interface. All agreed that a new interface to view output would NOT be developed within the U2U project. Current plan is to incorporate modeling output (maps, pdfs?) into MRCC climate change viewer. Olivia show mockup of planned MRCC viewer.
- Data Publishing: Can publish data on MyGeoHub or PURR and receive a DOI. Need to determine if this can be beneficial to the teams.

Discussion regarding use of Deltas:

- One major result from Hybrid Maize research (current vs future climate) was that the way we process (straight output vs delta approach) and apply data has a big impact on yield.
 - Need to evaluate how well the model output for current period compares to the observed current period (Gene's suggestion – add this to the current vs future comparison research so output shows 1) current period observed, 2) current period modeled, 3) future raw from model, 4) future using delta method).
- Group agreed that we should just use the deltas and not the “out of the box” values for the future runs.
- Chris said he would be able to supply the deltas

Other Obj 1 tasks/follow-ups:

- Economic Case Studies / Adaptation Scenarios and FWD research
 - **Jeff and Ben need to follow up regarding the adaptation scenarios being tested in DSSAT.** During the meeting Jeff suggested that only one of the five adaptations (irrigation) were showing a response in DSSAT under future climate scenarios. This has major impacts on the economic case studies and needs further investigation. According to Jeff, there was minimal response in outputs due to planting date, tillage, N type and timing. **Need to decide how to move forward with this piece.**
 - Still working on troubleshooting future FWD using the statistical model (currently getting values outside the realistic range of 0-7). Gene suggested using CMIP5 data to see if the observed trend and modeled trend match.
- There are unresolved data storage issues that need to be addressed this year. Dev, Xing, Carol, Larry, Chris to work on these since it primarily involves datasets generated at Purdue for the U2U project.
- Irrigation calculator research – Molly will be looking at selected locations to evaluate current “pay-off” of irrigation and then reevaluate at mid-century climate to see if/how “pay-off” changes.

Publication Updates

Ben

- All FWD analysis is complete and a rough draft of the pub developed. Working on writing up the statistical model text and validation. Aiming for Nature Climate Change, but this will require inclusion of results from the future climate piece, comparing trends, and discussing adaptation implications.
 - Significance of future FWD work – implications for adaptation options and effectiveness of options, also implications for Split N tool and how key windows at planting and harvest changing.

Dev

- Niyogi et al. multi-model paper has been accepted
- Xing et al. Hybrid Maize paper has been accepted
- LIS dataset paper (includes point vs grid comparison) is in near final draft stage. Submit this summer
- Xing working on gridded model output paper. Submit this summer
- Planting date and drought paper (feedback loop) – Anil has full draft ready. Submit this summer
- Dataset paper – what do we do with all of the data we’ve gathered and generated for gridded modeling, legacy of data, metadata, etc. – Xing will start drafting this soon
- Model comparison, LIS vs NARR input and how it affects gridded yields. In the works

Historical crop runs (status update)

Jeff

- Have run all historical data across the site locations using several GCM/RCM comobs. Found significant differences in yields among these runs, mostly driven by precip amount and timing and to some extent temperatures. Some regional variability in model accuracy can be seen.

Other U2U Meeting Notes

- At the end of U2U it would be helpful to develop slides/talking points showcasing U2U outcomes, discussing the project process, etc. so people can easily reference U2U as an example in the future. Consider developing short 1-2 page factsheets summarizing major outcomes of our project.
- U2U Final Report should also acknowledge the use of Federal data sources and collaborations amongst various agencies. We also need to document the tool/data hand-off procedure as it may benefit future projects.
- U2U survey data from NOAA SARP will be published on PURR (Purdue University Research Repository) at the conclusion of the project.



Progress Overview

Linda S. Prokopy
U2U Project Director



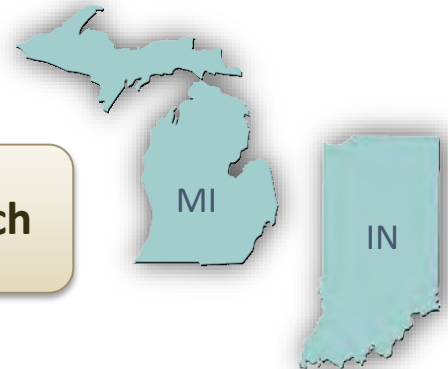
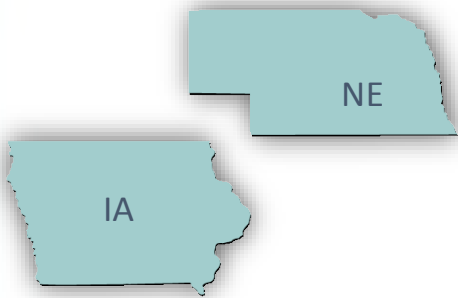
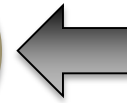
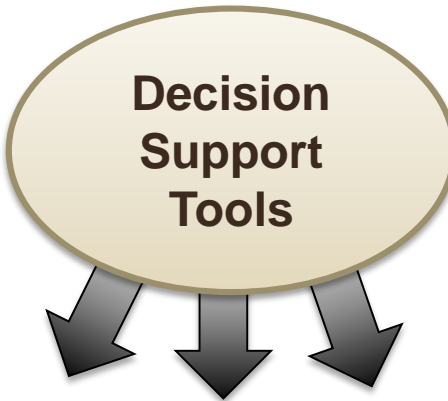
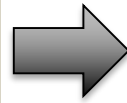
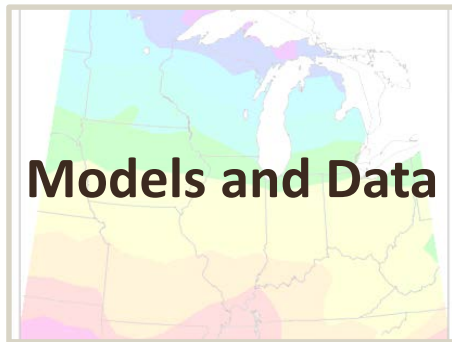
U2U Vision

- Transform existing climate information into usable knowledge for agricultural decision making
- Give farmers the resources and training to more effectively manage variable climate conditions
- Increase Extension capacity to address agro-climate issues

More **resilient** and **profitable** farms
in a variable and changing climate



Project Objectives



Pilot test tools, methods, and outreach



Disseminate across 12 state region



PROJECT OUTCOMES

TARGET AUDIENCE = Advisors and early adopting farmers
(and eventually average farmers but via advisors not via direct outreach by U2U)
PRODUCTS = Decision Support Tools (DSTs) and other resources on website

1

EDUCATIONAL

- Aware of U2U products
- Understand how U2U products fit into the decisions they make
- Trust U2U products
- Realize agronomic and economic value of incorporating U2U products into decision making

2

ACTIONS

- Use U2U products
- Use U2U products in decision making/planning



Advisors make more & better recommendations based on climate data

3

VISION

- Farmers make more informed/better decisions



Associated long-term outcomes/impacts:

- Improved producer business resilience
- Increased profitability
- Increased yields
- Increased cost savings
- Reduced business risks



Transforming Climate Variability and
Change Information for Cereal Crop Producers

U2U Team





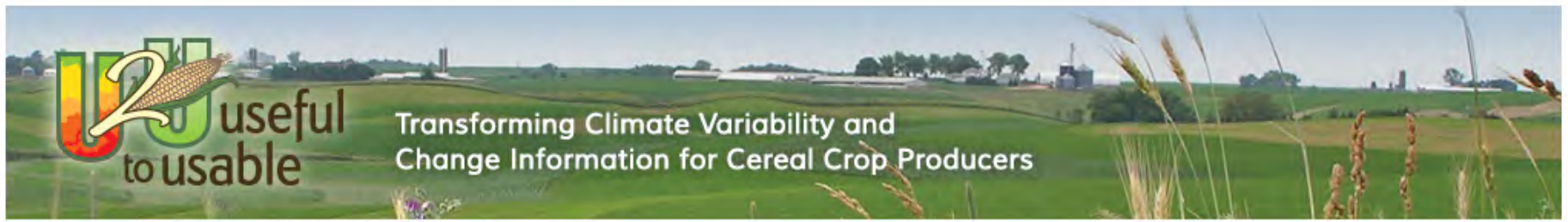
Transforming Climate Variability and
Change Information for Cereal Crop Producers

U2U Advisory Committee

- Tom Bartholomay
- Jamie Benning ★
- Kathryn Brasier
- Steven Crimp
- Michael DeFelice ★
- Clyde Fraise ★
- Chad Geater ★
- Jerry Hatfield ★
- Doug Kluck ★
- Ken Kunkel
- Dave Miller ★
- Jeanne Schneider
- Dave Sieck
- Daniel Wildcat
- Dave Williams
- Ray Wolf ★

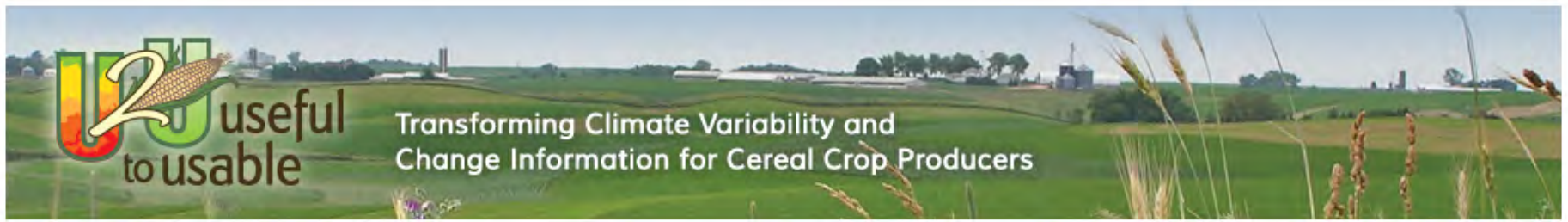
USDA NIFA Representative: Michael Bowers ★

Since we last met.....



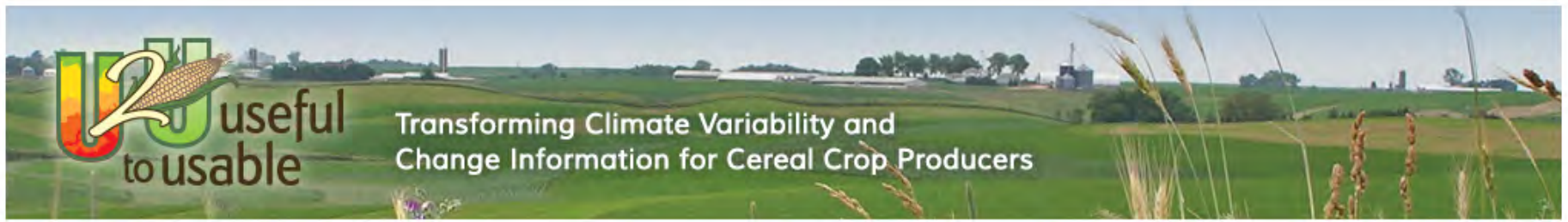
We've been busy...

- We've had **58 conference calls** in the last year!
 - Over 200 calls throughout the duration of the project
- We've held **2 in-person meetings** during the last year!
 - 17 over the duration of the project
- We performed **1 internal evaluation** during the last year
 - 7 over the duration of the project
- In total, team members awarded over **\$600,000** in additional funding to expand and leverage U2U research, tools, and ideas!



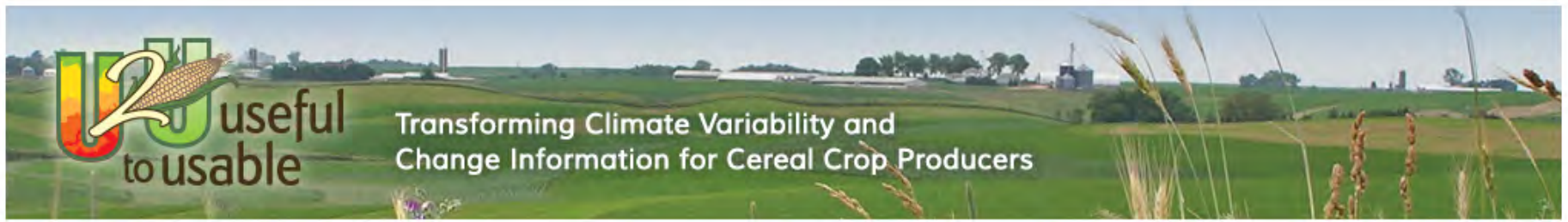
Building Decision Support Tools...

- Together, we launched **2 additional decision support tools**. Four web-based tools now available!
 - AgClimate View
 - Corn Growing Degree Days
 - Climate Patterns Viewer – NEW
 - Corn Split N – NEW
- Numerous enhancements to our existing tools
- A new tool is in the works! (Irrigation Investment DST)



Spreading the word far and wide...

- In total, attended **81 meetings/conferences** (excludes outreach events)
 - 101 verbal presentations
 - 33 poster presentations
 - 3 special sessions
- **31 published journal articles**
 - 4 additional pubs in review
 - Numerous pubs under development
- **32 other publications** (books, Ext. pubs, magazines, etc.)
- **110+ training/outreach events** in 8 states since 2013



And generating lots of interest...

Our work has been featured in at least **90** news articles!

AGRINEWS

FARM & RANCH
GUIDE

PHYS ORG

Farms.com™

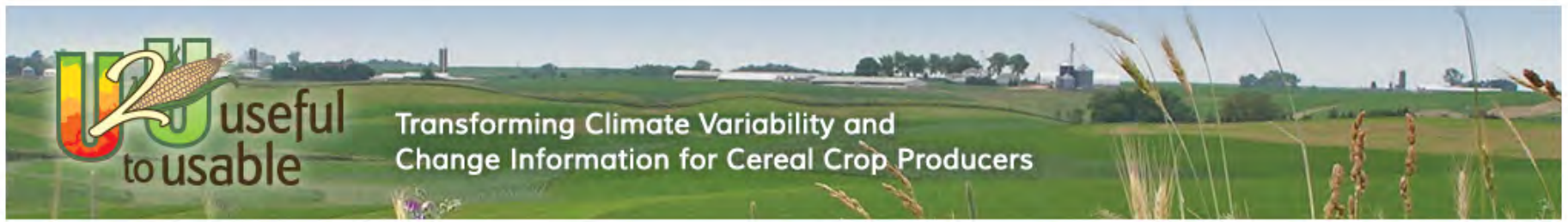
THINK DIFFERENT | AGRONOMICS | DATA | SOIL | PROFITS™
CORN + SOYBEAN
DIGEST

V
DROVERS
CattleNetwork

BROWNFIELD
AG NEWS FOR AMERICA

 CropWatch
25

SCIENTIFIC
AMERICAN™



Connecting with our stakeholders in many ways...

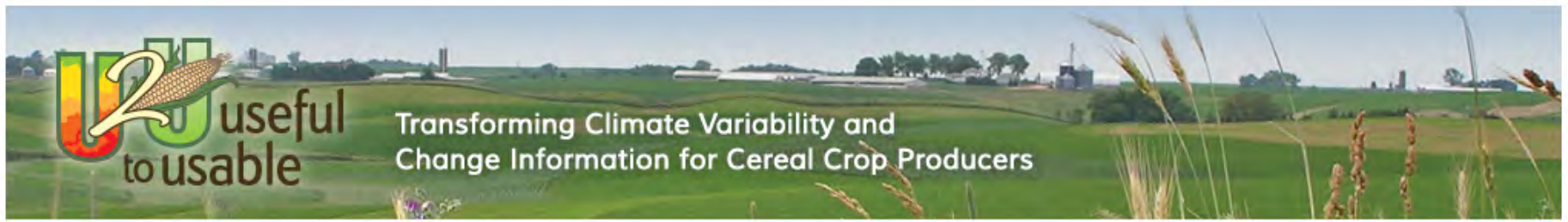
- AgClimate4U.org website
 - Over 18,000 visitors
 - +75,000 pageviews
- In-person / hands-on training
- Newsletter, blog
- Media campaign
- Social media



 **Useful 2 Usable**
@AgClimate4U

Get ready for #plant15 with our FREE ag-climate tools! bit.ly/1A1f1jb #agchat #NIFAImpacts

26



Making new discoveries...

Role of Extension in disseminating climate/climate change information



PROJECT OUTCOMES

TARGET AUDIENCE = Advisors and early adopting farmers
(and eventually average farmers but via advisors not via direct outreach by U2U)
PRODUCTS = Decision Support Tools (DSTs) and other resources on website

1

EDUCATIONAL

- Aware of U2U products
- Understand how U2U products fit into the decisions they make
- Trust U2U products
- Realize agronomic and economic value of incorporating U2U products into decision making

2

ACTIONS

- Use U2U products
- Use U2U products in decision making/planning



Advisors make more & better recommendations based on climate data

3

VISION

- Farmers make more informed/better decisions

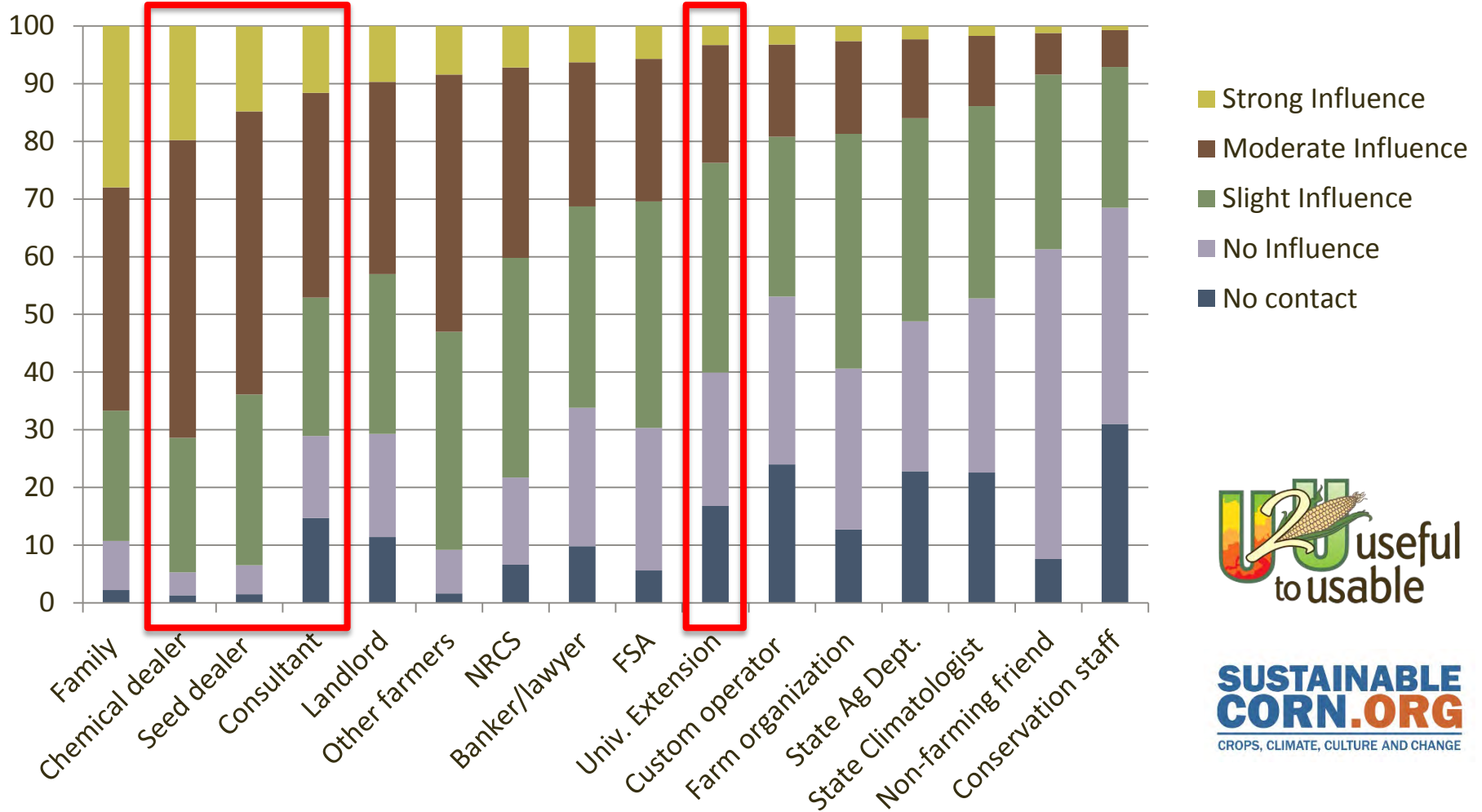


Associated long-term outcomes/impacts:

- Improved producer business resilience
- Increased profitability
- Increased yields
- Increased cost savings
- Reduced business risks

Q: Please indicate how influential the following groups and individuals are when you make decisions about agricultural practices and strategies

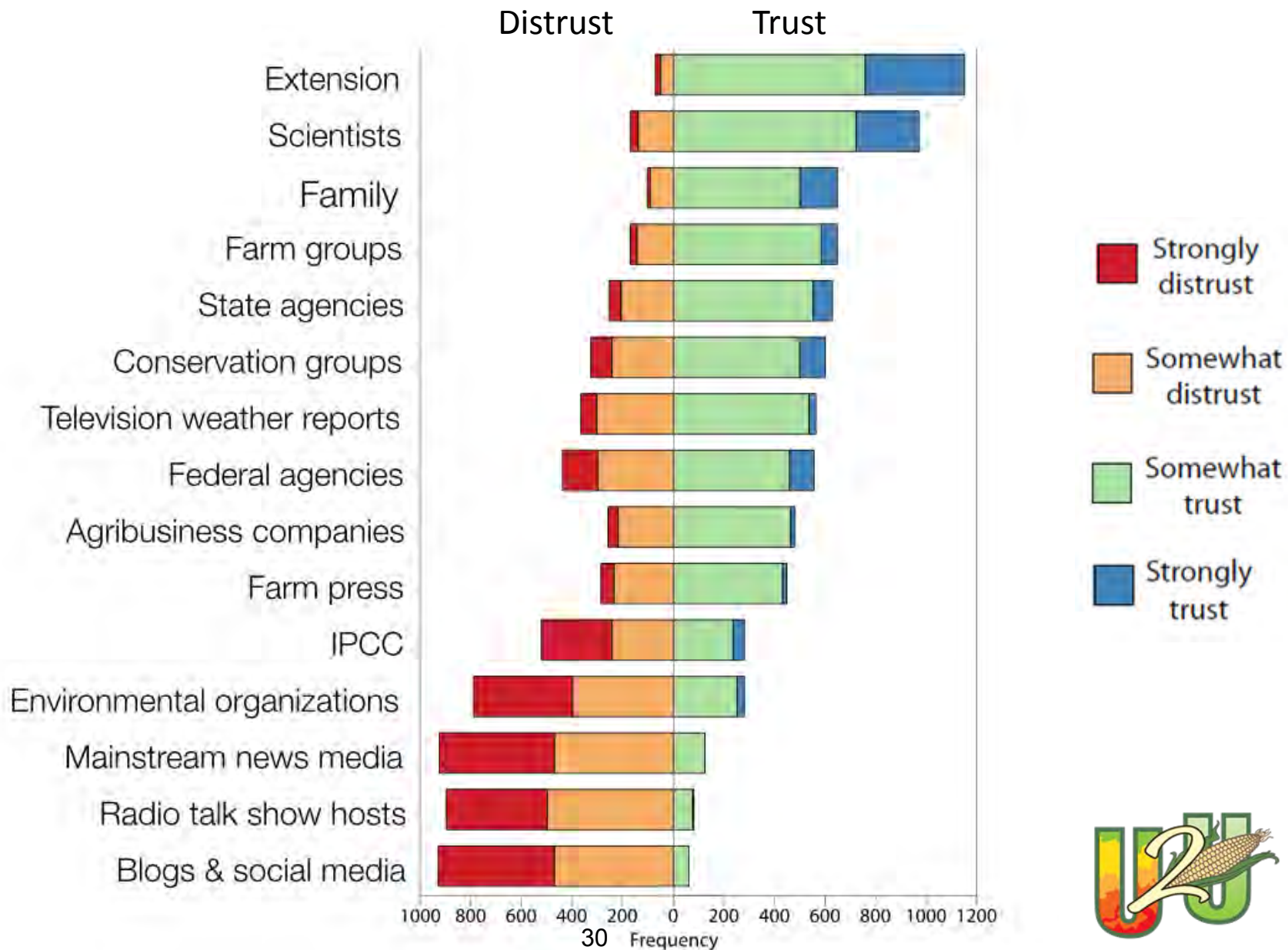
Results from a 2012 survey of Midwestern corn producers conducted by Useful to Usable (U2U) and SustainableCorn.org



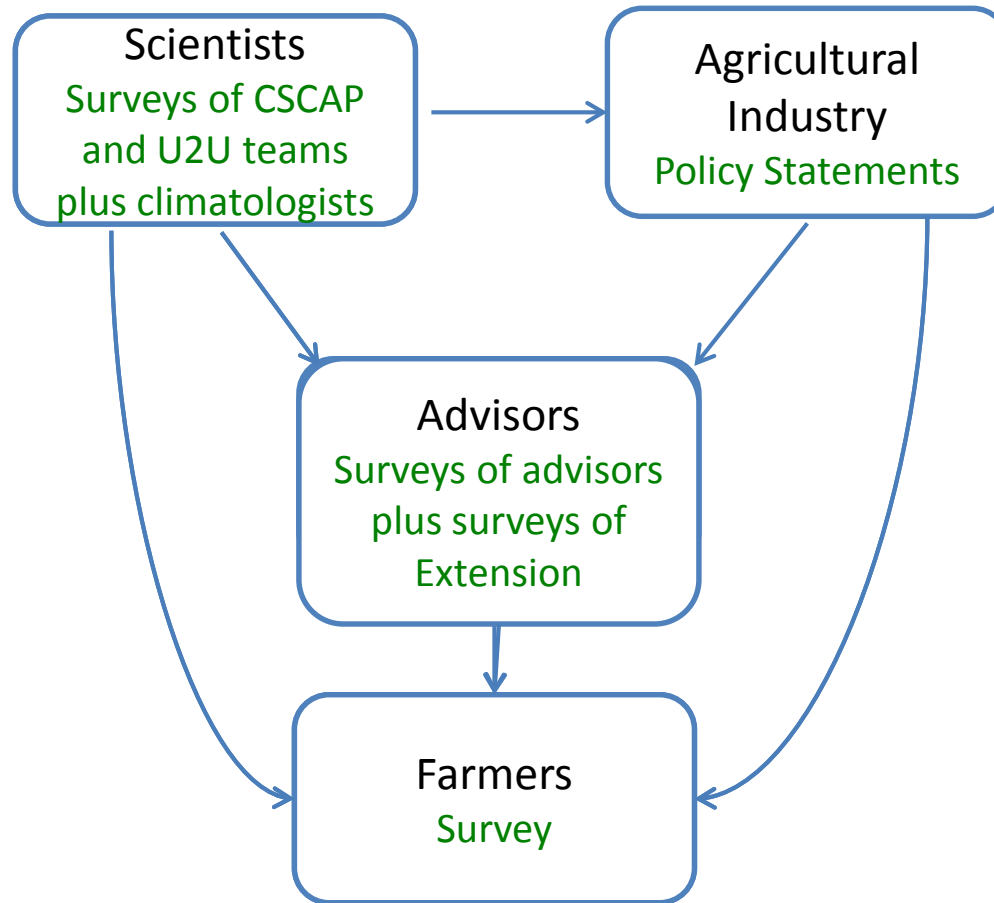
Prokopy et al. 2014. "Adoption of Agricultural Conservation Practices: Insights from Research and Practice" Purdue Extension Publication FNR-488-W.

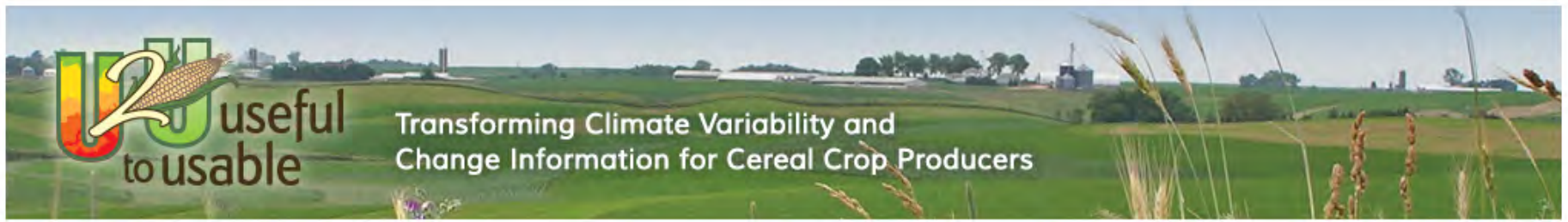
Davidson, E.A., E.C. Suddick, C.W. Rice, and L.S. Prokopy. 2015. "More Food, Low Pollution (Mo Fo Lo Po): A Grand Challenge for the 21st Century." *Journal of Environmental Quality*. 44(2): 305-311

Who do non-Extension ag advisors trust for climate information?



Flow of climate change information in the ag sector





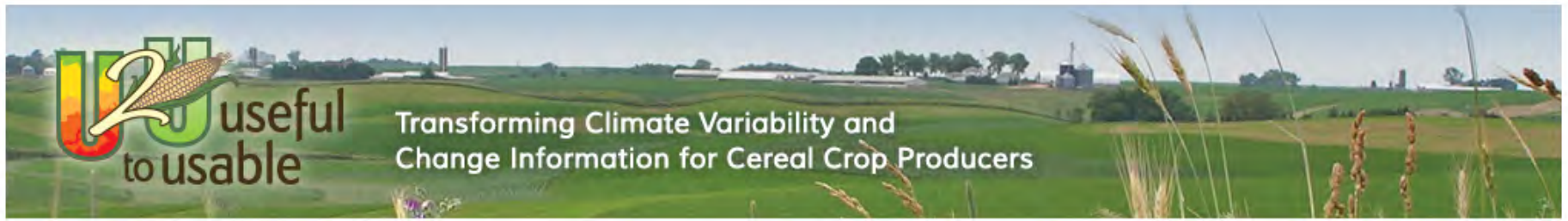
Climate Change beliefs matter!

Climate change beliefs **significantly** influence:

- perceived climate risks,
- willingness to use climate info,
- risk management practices,
- adaptation beliefs, and
- trusted info sources.

TABLE 1. Different climate change beliefs among key agricultural stakeholders.

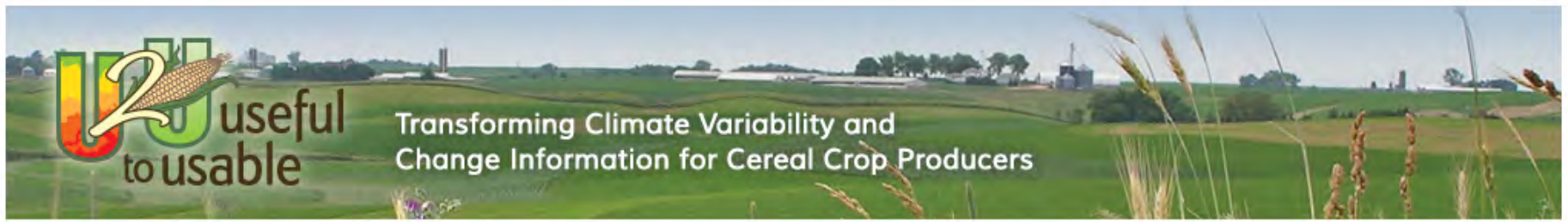
Survey question: There is increasing discussion about climate change and its potential impacts. Please select the statement that best reflects your beliefs about climate change.	CSCAP 2011 team survey (n = 121), 86% response rate	2012 U2U team survey (n = 33), 56% response rate	Climatologist survey (n = 19) 2012, 100% response rate	2012 extension educators survey across 12 Corn Belt states (n = 239), 35% response rate	2012 Ag advisors survey (n = 1605), 26% overall response rate	Farmer survey (n = 4778) 2012, 26% response rate
Climate change is occurring, and it is caused mostly by human activities.	50.4%	66.7%	53%	19.2%	12.3%	8%
Climate change is occurring, and it is caused more or less equally by natural changes in the environment and human activities.	30.6%	30.3%	37%	31.4%	37.8%	33%
Climate change is occurring, and it is caused mostly by natural changes in the environment.	10.7%	3%	5%	23.4%	24.9%	25%
There is not sufficient evidence to know with certainty whether climate change is occurring or not.	8.3%	0%	5%	24.7%	22.4%	31%
Climate change is not occurring.	0%	0%	0%	1.3%	2.6%	3.5%



Transforming Extension

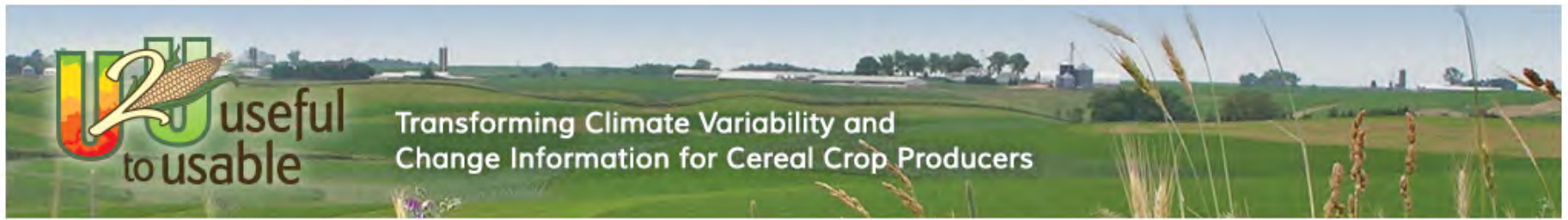
- **What does this mean for the future of Extension in addressing issues related to climate change and agriculture?**
 - *There needs to be more ongoing communication between land-grant university researchers (with and without Extension appointments) and Extension educators.*
 - *There needs to be a strong institutional commitment to ensure that both university researchers and Extension educators are rewarded in the tenure and promotion system for building these relationships.*
 - *Extension educators need to build stronger relationships with agricultural advisors and expand programs that emphasize agricultural advisors as recipients of university research and tools.*

What's next.....



2015 U2U Annual Meeting

- Our LAST annual meeting!
- Goal: Clear strategy for a strong finish
 - Wrap up remaining research efforts
 - Outreach and dissemination activities
 - DST development and transfer
 - Publications, knowledge transfer
 - End of project evaluation planning



This session

- Remaining updates/presentations
 - Latest updates on crop/climate/econ modeling research (Jeff Andresen)
 - Our current tools and upcoming enhancements (Chad Hart)
 - Sneak peak at our next tool (Ben Gramig)
 - U2U stakeholder engagement and project evaluation (Jenna Klink)
- Discussion – led by Otto Doering
 - Reflect on U2U team accomplishments relative to your expectations
 - Future funding and/or partnerships to maintain long-term access to U2U tools and data
 - Aspects of U2U that can be better promoted/communicated
 - Opportunities/issues the U2U team is well-positioned to address in the future
- Group photo and lunch!



Transforming Climate Variability and
Change Information for Cereal Crop Producers

U2U Tools

U2U Annual Meeting
Davenport, Iowa
May 19, 2015

Chad Hart
Iowa State University
chart@iastate.edu

Decision Support Tools



AgClimate View_{DST}

A convenient way to access customized historical climate and crop yield data for the U.S. Corn Belt. View graphs of monthly temperature and precipitation, plot corn and soybean yield trends, and compare climate and yields over the past 30 years.



Corn GDD_{DST}

Track real-time and historical GDD accumulations, assess spring and fall frost risk, and guide decisions related to planting, harvest, and seed selection. This innovative tool integrates corn development stages with weather and climate data for location-specific decision support tailored specifically to agricultural production.



Climate Patterns Viewer_{DST}

Discover how global climate patterns like the El Niño Southern Oscillation (ENSO) and Arctic Oscillation (AO) have historically affected local climate conditions and crop yields across the U.S. Corn Belt.



Corn Split N_{DST} (NEW!)

Determine the feasibility and profitability of using post-planting nitrogen application for corn production. This product combines historical data on crop growth and fieldwork conditions with economic considerations to determine best/worst /average scenarios of successfully completing nitrogen applications within a user-specified time period. Currently available for IA, IL, IN, KA, MO.



Probable Fieldwork Days_{DST}

This spreadsheet-based tool uses USDA data on Days Suitable for Fieldwork to determine the probability of completing in-field activities during a user-specified time period. This product is currently available for Illinois, Iowa, Kansas, and Missouri. (Hosted by the University of Missouri)



U2U Educational Resources

The U2U Educational Resources page includes everything you need to quickly learn about and disseminate U2U decision support tools.

AgClimate View



- Plot local temperature and precipitation variation as far back as 1980,
- Track county crop yields and trends, and
- Consider crop yields in the context of temperature, precipitation, and growing degree day data

Used in tandem with other decision resources, AgClimate View can help you find long-term correlations between climate trends and yields, while helping you put your recent crop experience into historical context.

Start by Selecting a Location



Select a Station

To get started, select a station near you. Do this by clicking on the map or using the search feature.

Search by Zip / County / Station X Q

Historical Weather Data

Select a Station

Climate Data

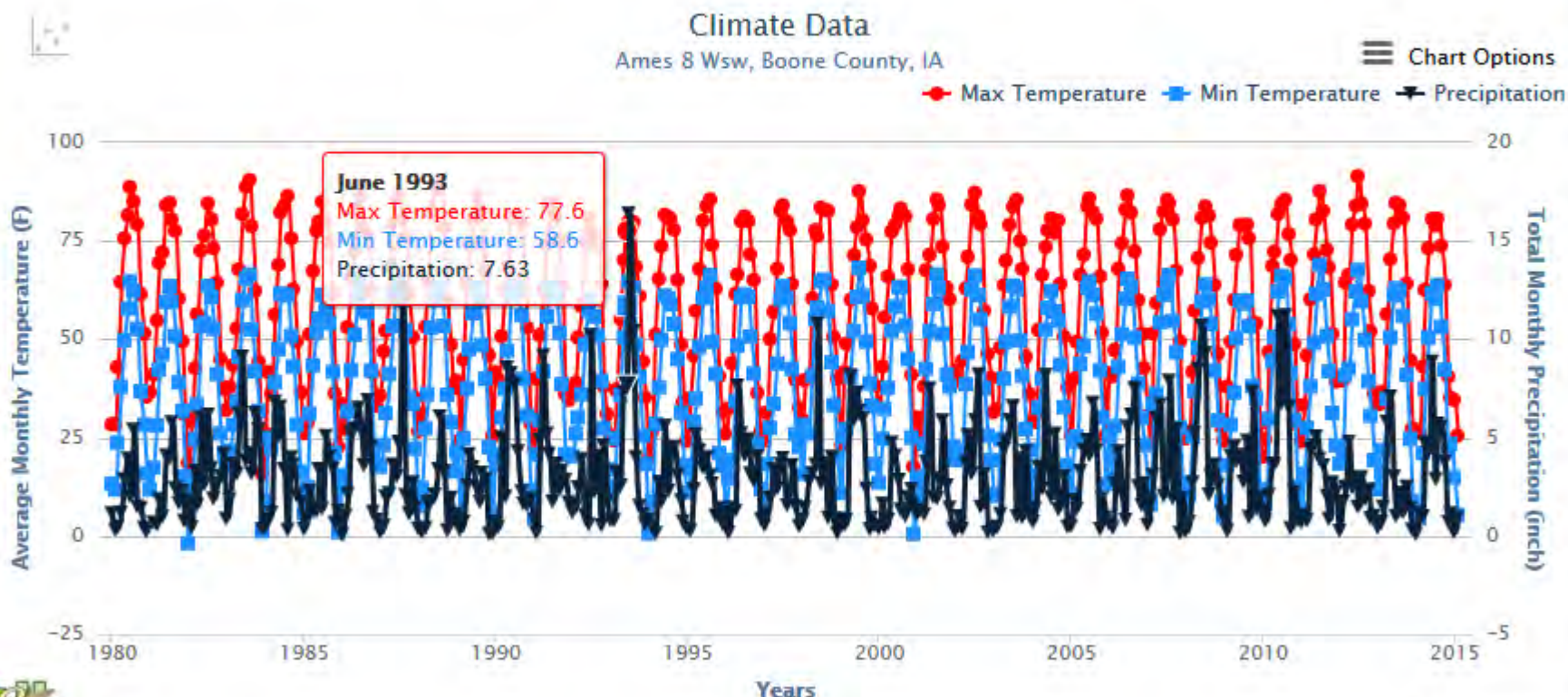
Climate Average

Yield Trend

Comparison

Custom Chart

This tab allows you to plot maximum and minimum temperatures and precipitation data for a specified date range.



- Add or remove lines on the chart by clicking on the corresponding items in the legend
- Print this graphic in a variety of formats using Chart Options
- Download all climate and crop data for this location using Download Data button below the chart

Crop Yields and Trends

Select a Station

Climate Data

Climate Average

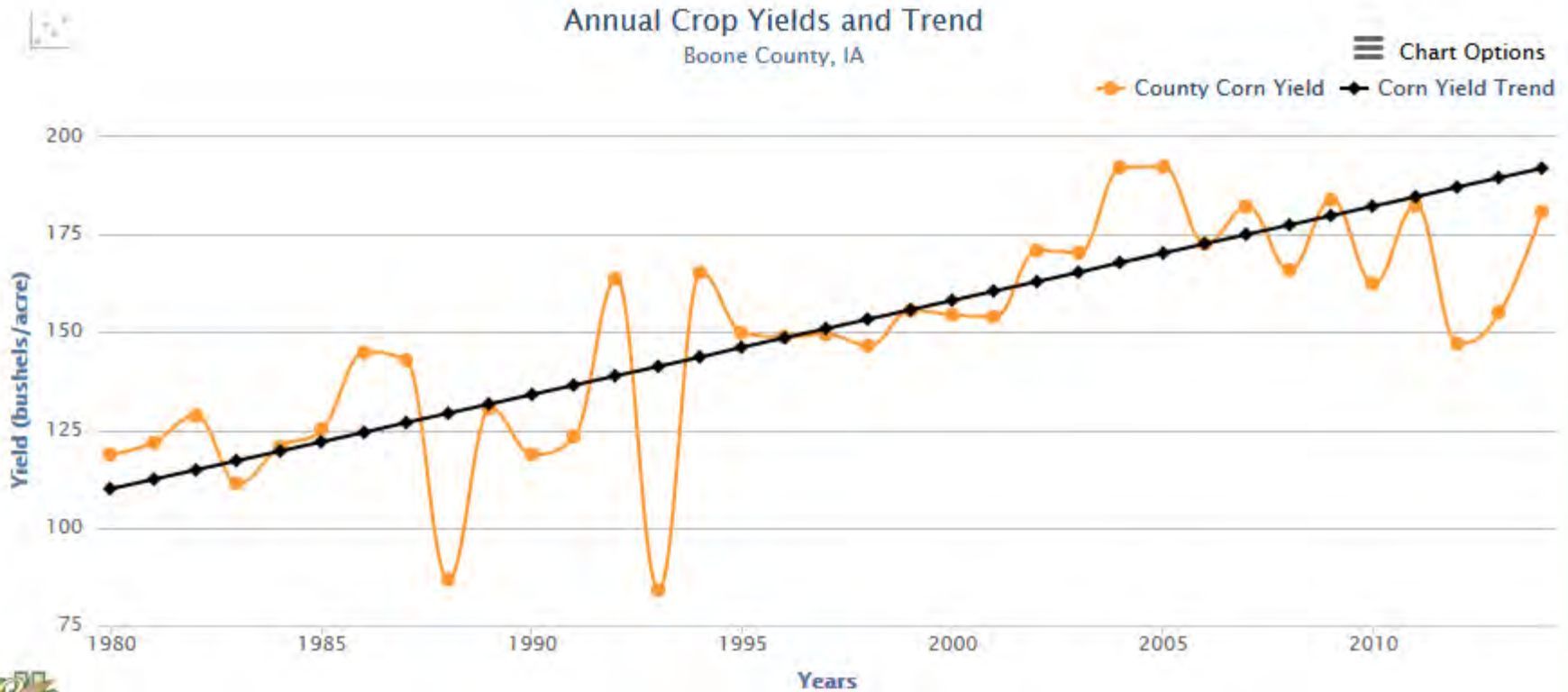
Yield Trend

Comparison

Custom Chart

This tab allows you to view annual county yields for a selected time period and the corresponding linear yield trend.

Corn Trend Soybean Trend



Created 5/13/2015

- Add or remove lines on the chart by clicking on the corresponding items in the legend
- Print this graphic in a variety of formats using Chart Options

Corn Growing Degree Days

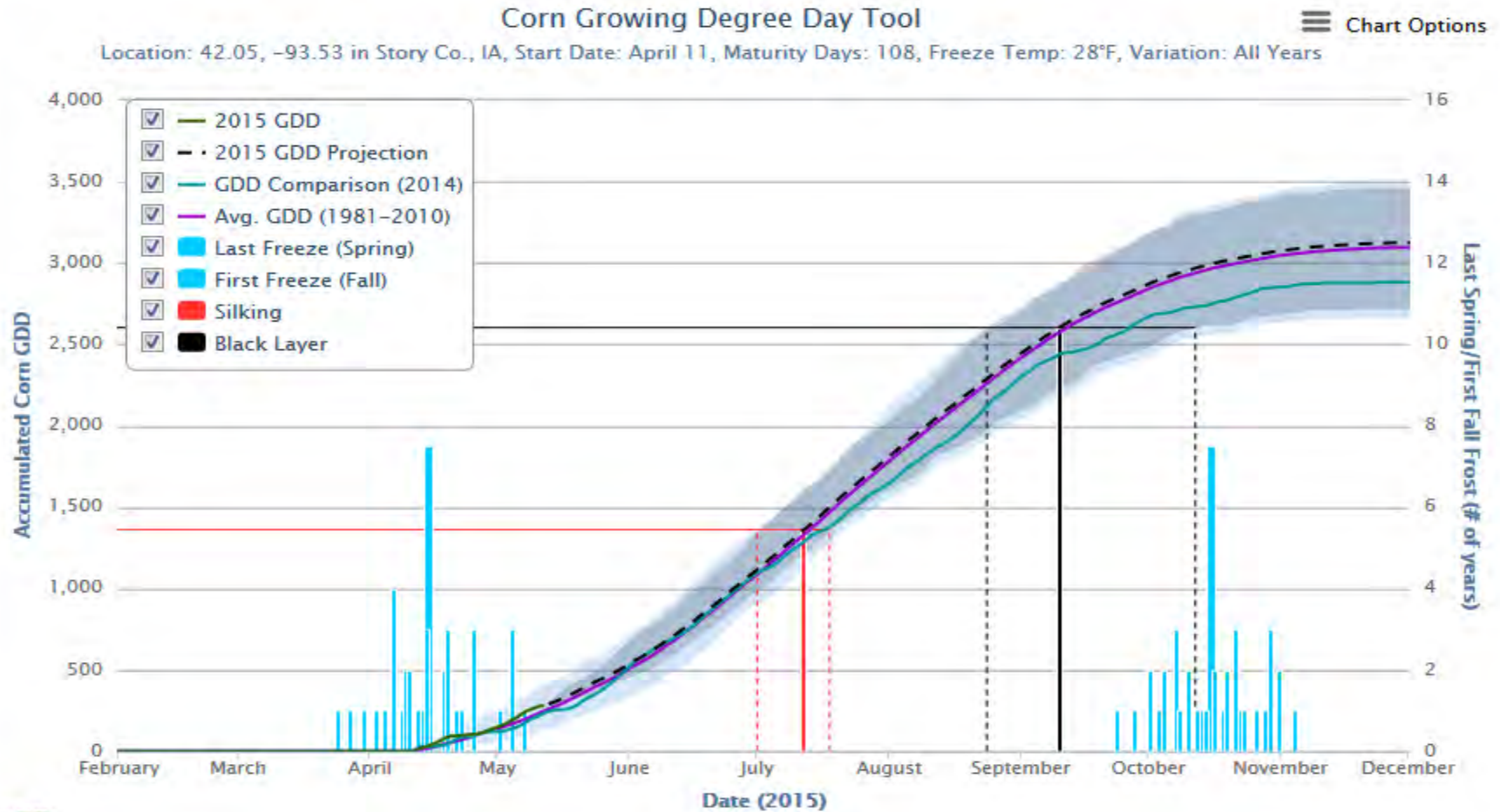


This tool puts current conditions into a 30-year historical perspective and offers trend projections through the end of the calendar year. Growing Degree Day (GDD) projections, combined with analysis of historical analog data, can help you make decisions about:

- Climate Risks – Identify the likelihood of reaching maturity before frosts/freezes.
- Activity Planning – Consider corn hybrid estimated physiological maturity requirements, along with GDD projections when making seed purchasing and other growing season decisions.
- Marketing – Look at historical and projected GDD when considering forward pricing and crop insurance purchases.

Seasonal Outlook

GDD Start: April 11 Comparison Years: 2014 Corn Maturity Days: 108 Silking GDDs: 1338
Freeze Temperature (°F): 28 Variation: All Years Current Day: Today Black Layer GDDs: 2594



GDD Base 50/86 (degrees F); Created: 05/13/2015

Climate Patterns Viewer



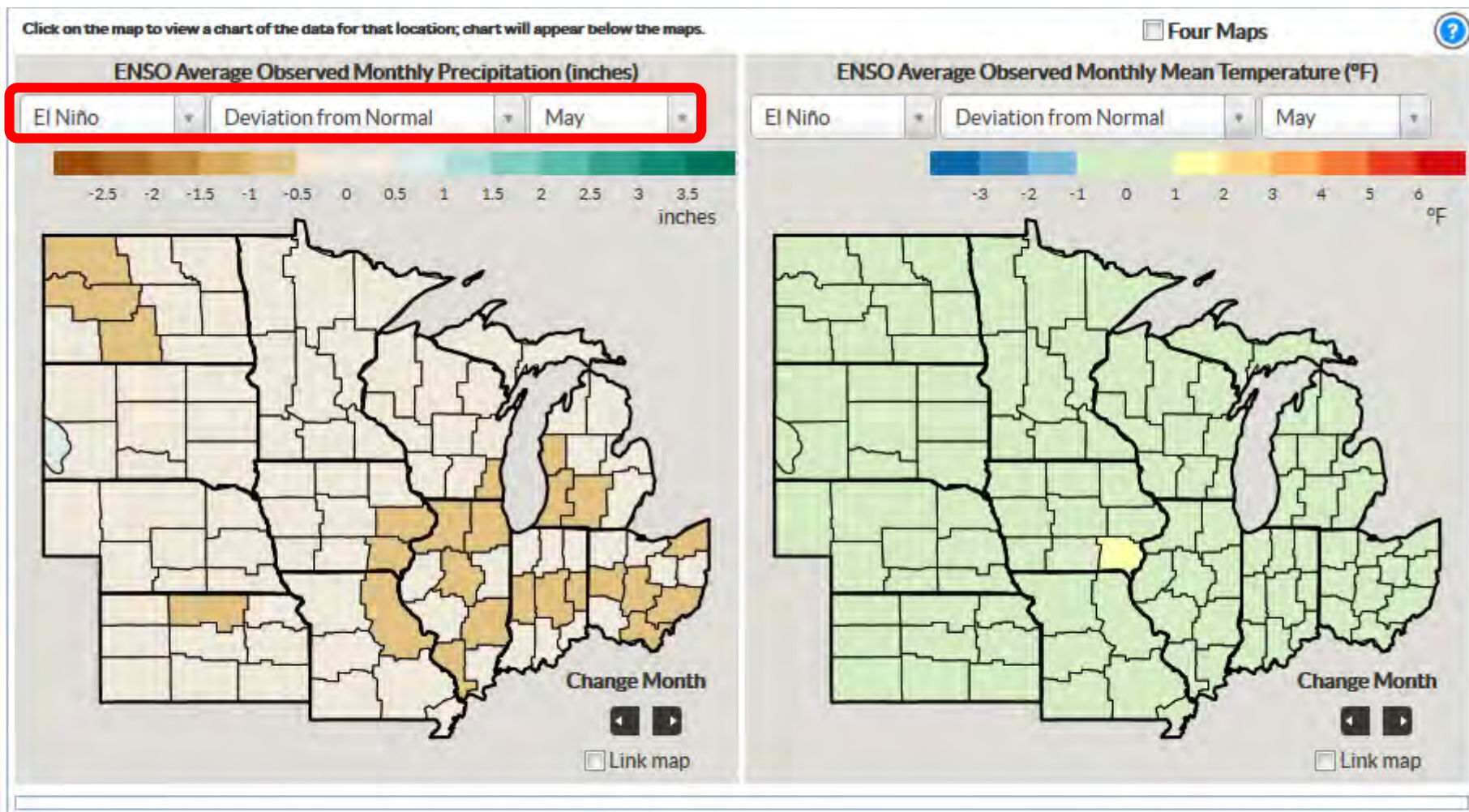
This tool provides a historical (1981-2010) look at how the El Niño Southern Oscillation (ENSO) and Arctic Oscillation (AO) have affected local climate conditions across the Corn Belt. You can explore the influence on:

- average monthly total precipitation,
- average monthly temperature,
- deviations of these variables from 1971-2000 normals, and
- deviations of these variables from neutral phases.

The maps can help you make decisions about:

- Climate Risks – Identify periods of more extreme weather.
- Activity Planning – Consider crop choice and irrigation needs.
- Marketing – Explore forward pricing alternatives.

Monthly Values by Input



Split Nitrogen Application



This tool is designed to help farmers and farm advisors understand the risks and benefits of using post-planting nitrogen (N) application for corn production. The tool combines historical weather and fieldwork data with economic considerations to determine the feasibility and profitability of completing a second (split) N application within a user-specified time period. This tool may help you with decisions that:

- Increase corn yields
- Reduce nitrogen costs
- Reduce nitrogen losses to the environment
- Affect the likelihood of completing in-season fieldwork.

Pick Your Location

Map

Feedback?

About SplitN

HELP

To get started, click on any location within the gray area of the map.



Details on Crop/Equipment



Map Scenario/Results

Feedback?

About SplitN

HELP

This tab allows you to customize inputs for your farm and view summarized results.

Location: Story Co, Iowa; Crop Reporting District: Central (5)

Planting Date: May 15

Yield Goal: 168 bu/acre

Initial Nitrogen Application: 0 lbs

Apply N by what stage?: V8 V8 expected by Jun 30

Apply Nitrogen from: June 10 to: June 23

Yield penalty for not getting post-planting N applied: 58 bu/acre

Yield benefit from post-planting N application: 5 bu/acre

Reduced N applied due to post-planting N application: 30 lbs/acre

Yield penalties/benefits and reduced N usage are critical inputs. The provided default values should be adjusted with help from Univ. Extension specialists or crop consultants to ensure accuracy for your soil and climatic conditions. [More info](#)

Nitrogen Price (\$/lb): \$ 0.55 /lb

Corn Price (\$/bu): \$ 4.5 /bu

Sidedress Cost (\$/acre): \$ 15 /acre

Implement width (ft): 36

Implement speed (mph): 5

Field efficiency: 0.75

Acres worked per hour: 16

Acres: 1500

Calculated hours needed: 92

Hours in field per day:

- All daylight hours 15.2
- Custom hours

Days worked in 7: 6

Days in selected period: 14

Average days suitable in period: 7.7

Average hours suitable in period: 117

Economic Analysis



Economic Analysis | Acres Completed Summary | Crop Calendar Summary

Economic Analysis using 34 years of Field Work Days History

Scenarios	Acres	Units/acre	Dollars/unit	Total Dollars
Input Acres Completed (completed 1500 acres post-planting N application 26 years of 34 years, or 76% of years)				
Additional cost of post-planting fertilizer application	1500	1	\$15.00	\$(23,000)
Yield loss due to unfertilized acres	0	58	\$4.50	\$0
Yield gain due to post-planting fertilization	1500	5	\$4.50	\$34,000
Nitrogen saved (lb) due to post-planting fertilization	1500	30	\$0.55	\$25,000
Net Benefit of Post-planting N application on 1500 acres				\$36,000

Scenarios	Acres	Units/acre	Dollars/unit	Total Dollars
Average Acres Completed (completed an average of 1500 acres post-planting N application 26 years of 34 years, or 76% of years)				
Additional cost of post-planting fertilizer application	1500	1	\$15.00	\$(23,000)
Yield loss due to unfertilized acres	0	58	\$4.50	\$0
Yield gain due to post-planting fertilization	1500	5	\$4.50	\$34,000
Nitrogen saved (lb) due to post-planting fertilization	1500	30	\$0.55	\$25,000
Average Net Benefit of Post-planting N application on 1500 acres				\$36,000

Scenarios	Acres	Units/acre	Dollars/unit	Total Dollars
Worst Case (At least 445 acres of post-planting N application completed in all years)				
Additional cost of post-planting fertilizer application	445	1	\$15.00	\$(7,000)
Yield loss due to unfertilized acres	1055	58	\$4.50	\$(275,000)
Yield gain due to post-planting fertilization	445	5	\$4.50	\$10,000
Nitrogen saved (lb) due to post-planting fertilization	1500	30	\$0.55	\$25,000
Worst Case Net Benefit of Post-planting N application on 1500 acres				\$(247,000)

Best/Max Case (could have completed up to 2747 acres 1 year(s) of 34 years, or 3% of years)				
Up to 2747 acres of post-planting N application completed	2747			

Breakeven Number of Acres (Post-planting N revenue equal costs in 28 years of 34 years, or 82% of years)				
Number of acres (out of 1500 acres) requiring post-planting N application to breakeven	1366			

Acres Completed Summary



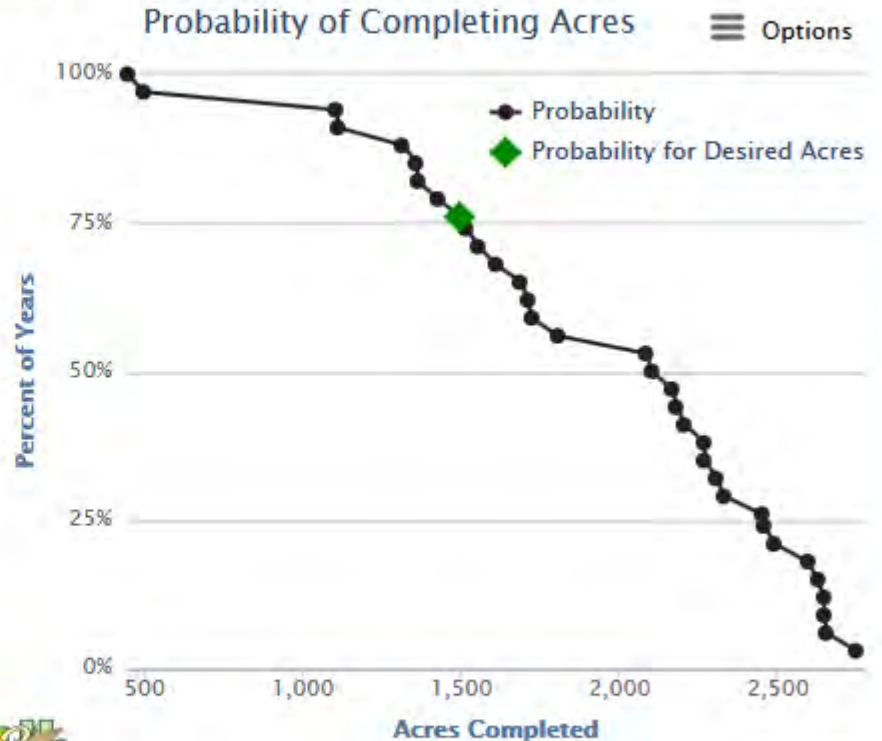
Economic Analysis | **Acres Completed Summary** | Crop Calendar Summary

Summary of Acres Completed using 34 years of Field Work Days History

Acres Completed if Start on Jun 10 and End on These Dates

Completion Percentile	Jun 16	Jun 23	Jun 30	Jul 07
50	966	2,102	3,127	4,026
60	926	1,718	2,707	3,936
70	832	1,566	2,492	3,613
76	772	1,500	2,453	3,448
80	685	1,414	2,229	3,330
85	664	1,361	1,998	3,167
90	603	1,194	1,876	2,924
95	283	924	1,485	2,046

Note: Percentiles are based on USDA Crop Progress & Condition Reports for each Crop Reporting District (CRD). Actual field work days are determined by weather, soil texture and drainage. Each point in the figure to the right is a single year for the selected CRD.



Created: 05/13/2015

Crop Calendar Summary



Economic Analysis | Acres Completed Summary | **Crop Calendar Summary**

Crop Calendar Summary

Corn Stage	Estimated GDD to reach Stage	Estimated Date of Stage	Occurs within this range for all years (1981 - 2014)
V2	273	Jun 04	May 30 - Jun 12
V4	441	Jun 14	Jun 07 - Jun 21
V6	609	Jun 22	Jun 15 - Jun 29
V8	777	Jun 30	Jun 23 - Jul 07
V10	945	Jul 07	Jun 30 - Jul 15

Note: post-planting application using ground vehicles for application should be completed by V10.



Educational Resources



DECISION DASHBOARD

MEDIA CENTER

NEWSLETTER

ABOUT US

Educational Resources

Welcome! This page includes everything you need to quickly learn about and disseminate U2U decision support tools.

Find all of our tools on the [Decision Dashboard](#).

Before getting started, check out the [Outreach Event Checklist](#).

Handouts

[Attendance list / sign-up sheet](#)

[2.5" x 8" Bookmark](#)

[Sample Evaluation Form](#)

[DST Overview Factsheet](#)

PowerPoints

[AgClimate View](#)

[Corn GDD](#)

[Climate Patterns Viewer](#)

[Corn Split N](#)

[Fieldwork Days Tool](#)

User Guides

[AgClimate View](#)

[Corn GDD](#)

[Climate Patterns Viewer](#)

[Corn Split N](#)

Video Tutorials

[Tool tips and tricks](#)

[AgClimate View](#)

[Corn GDD](#)

[Climate Patterns Viewer](#)

[Corn Split N](#)

Need more information? Have questions? [Contact us](#).

Request a [USB drive](#) pre-loaded with U2U educational resources.

Page last updated: 4/1/2015

DST Overviews



Decision Dashboard

Our Decision Dashboard is your source for weather, climate, drought and cropping data in the North Central Region. Featuring our **U2U_{DST} Suite** and a variety of tools from our regional partners, our dashboard is a one-stop decision resource for ag advisors, producers and decision makers.

AgClimate4U.org



AVAILABLE NOW

AgClimate View_{DST}

This tool provides easy-to-use historical climate and crop yield data for the Corn Belt.

Corn GDD_{DST}

Track real-time GDD accumulations and learn about climate risks for corn development.



Corn Split N_{DST}

Determine the feasibility and profitability of using post-planting nitrogen application for corn production.





Transforming Climate Variability and
Change Information for Cereal Crop Producers

Thank you for your time!

Any questions?



Irrigation Investment Calculator

- First Principles:
Transparent, replicable, customizable
- Started with simple structure from existing tool
- *Value added*
 - Expand geographical scope
 - Empirical parameters that are state-specific
 - Climate
 - Irrigated yields, water table depth, labor and energy costs

Crop Production Information									
16	Value of family and regular labor (\$/hr)		\$9.85					"Employee Wage Rates and Compensation Packages on Kansas Farms" Kansas State University (2012)	
17	Variable Cost per Acre Inch of Water		\$8.96					Average cost per acre-in water for Off-Farm Water (by state) Table 14, 2013 FRIS (Indiana shown)	
18	Value of irrigation labor (\$/hr)		\$12.23					Average Labor Rate per hour (by state) Table 16, 2013 FRIS (Indiana shown)	
			Dry Land Crop Rotation			With Irrigation Crop Rotation			
	Crops to be grown	Dry land Soybean	Dry land Corn Corn	Irrigated Soys	Irrigated Irr. Corn	Irrigated Wheat			
	Rotation	1.0	1.0	1.0	1.0	0.0			
	Percentage of Rotation	50.00%	50.00%	50.00%	50.00%	0.00%	irr. Coef.	USDA ERS Season-Average Price Forecasts: Corn, Soy, and Wheat for 2013-2014	
	Probability	\$9.00	\$3.80	\$9.00	\$3.80	\$8.20	corn	http://www.ers.usda.gov/data-products/season-average-price-forecasts.aspx	
	Average Year						0.41007		
0.69697	69.70%	Yields	45.0	139.0	57.0	196.0	86.0	NASS QuickStats 2013 Total Acres Planted/Bushels Harvested by state (Indiana shown)	
		Acre-inches	NA	NA	4.8	6.0	4.8	soy	Table 35 FRIS 2013 (Indiana shown)
	Dry Year							Table 36 FRIS 2013 (acre-ft)*12 (Indiana shown)	
0.12121	12.12%	Yields	40.3	104.3	51.0	147.1	60.0		
		Acre-inches	NA	NA	5.0	8.0	5.5		
	Wet Year								
0.18182	18.18%	Yields	43.7	148.8	57.9	209.8	60.0		
		Acre-inches	NA	NA	1.0	1.0	2.0		
	Must = 100%	Average Yield	44.90606061	138.8061	56.439596	195.72653	64.18181818		
	Average Year	Dry land Soybean	Dry land Corn Corn	Irrigated Soys	Irrigated Irr. Corn	Irrigated Wheat			
	Gross Income	\$409.50	\$540.36	\$513.00	\$761.95	\$409.20			
	Labor Hours (not including irrigation hours)	1.90	3.00	1.90	3.00	2.00		https://www.fieldtomarket.org/report/national-2/PNT1_NatReport_Socioeconomic_ImpactedLaborHours.pdf	
	Irrigation Labor Hours	0.00	0.00	0.50	0.50	0.00		Farm Management Guide from Kansas State University (February 2014) http://www.ksre.ksu.edu/bookstore/pubs/mf2601.pdf	
	Variable Expenses per Unit								
	Seed	\$75.00	\$124.00	\$75.00	\$124.00	\$44.00		2015 Purdue Crop Cost and Return Guide (Average Productivity Soil) (September 2013 Estimates)	
	Fertilizer	\$57.00	\$144.00	\$57.00	\$144.00	\$84.00		Assumes rotation of corn and soybeans	
	Chemicals	\$28.00	\$43.00	\$28.00	\$43.00	\$12.00		Assumes yield of 165, 50 bushels respectively	
	Drying Cost per Bu	\$0.30	\$0.00	\$0.00	\$60.15	\$0.00		Wheat yield 71 bu/acre	
	Irrigation Energy	\$0.00	\$0.00	\$22.56	\$22.56	\$22.56		2013 FRIS Table 12 (by state) "Total Energy Expenses for pumping, per irrigated acre in the open, assuming water from wells"	
	Irrigation Labor	\$0.00	\$0.00	\$6.12	\$6.12	\$0.00			
	Fuel & Oil	\$15.00	\$25.00	\$15.00	\$25.00	\$15.00			
	Repairs	\$18.00	\$22.00	\$26.44	\$32.83	\$26.44		2015 Purdue Crop Cost and Return Guide	
	Crop Insurance	\$23.00	\$28.00	\$11.50	\$11.50	\$3.00		Plus Table 24 2008 FRIS maintenance/repair cost per irrigated acre	
	Trucking	\$0.10	\$4.55	\$8.70	\$28.05	\$6.60		http://www.ksre.ksu.edu/irrigate/OOW/P07/OBrien.pdf soybeans	
	Marketing	\$0.05	\$2.28	\$7.11	\$2.85	\$10.03		http://www.ksre.ksu.edu/irrigate/OOW/P07/OBrien.pdf corn	
	Labor	\$18.34	\$28.95	\$18.34	\$28.95	\$19.30			
	Total Variable	\$241.16	\$483.94	\$268.50	\$528.19	\$236.20			
	Gross Margin per Crop	\$168.34	\$56.42	\$244.50	\$233.76	\$173.00			
	G. Margin per Rotation	\$84.17	\$28.21	\$122.25	\$116.88	\$0.00			
	Dry Year	Dry land Soybean	Dry land Corn Corn	Irrigated Soys	Irrigated Irr. Corn	Irrigated Wheat			
	Gross Income	\$362.70	\$396.34	\$459.42	\$558.87	\$372.00			
	Labor Hours (not including irrigation Labor Hours)	1.90	3.00	1.90	3.00	2.00			
	Irrigation Labor Hours	0.00	0.00	0.50	0.50	0.00			
	Variable Expenses per Unit								
	Seed	\$75.00	\$124.00	\$75.00	\$124.00	\$44.00			
	Fertilizer	\$57.00	\$144.00	\$57.00	\$144.00	\$84.00			
	Chemicals	\$28.00	\$43.00	\$28.00	\$43.00	\$12.00			
	Drying Cost per Bu	\$0.30	\$0.00	\$0.00	\$44.12	\$0.00			
	Irrigation Energy	\$0.00	\$0.00	\$22.56	\$22.56	\$22.56			
	Irrigation Labor	\$0.00	\$0.00	\$6.12	\$6.12	\$0.00			
	Fuel & Oil	\$15.00	\$25.00	\$15.00	\$25.00	\$15.00			
	Repairs	\$18.00	\$22.00	\$26.44	\$32.83	\$26.44			
	Crop Insurance	\$23.00	\$28.00	\$11.50	\$11.50	\$3.00			
	Trucking	\$0.10	\$4.03	\$10.43	\$5.10	\$14.71			
	Marketing	\$0.05	\$2.02	\$5.22	\$2.55	\$7.35			
	Labor	\$18.34	\$28.95	\$18.34	\$28.95	\$19.30			
	Total Variable	\$240.38	\$466.89	\$267.61	\$504.14	\$235.30			
	Gross Margin per Crop	\$122.32	-\$70.55	\$191.81	\$54.73	\$136.70			
	G. Margin per Rotation	\$61.16	-\$35.27	\$95.91	\$27.37	\$0.00			



Example Outputs

Example farm in Rock Island, IL

- 1200 acres total
- Evaluate 400 acre irrigation investment

Gross Margin With Rotation and Probability

		Dry Land Crop Rotation		Irrigated Crop Rotation		
		Soybean	Corn	Soys	Irr Corn	
Average Year		\$58.66	\$19.66	\$42.60	\$122.19	
Dry Year		\$7.41	-\$4.28	\$5.81	\$4.98	
Wet Year		\$15.46	\$7.14	\$11.47	\$36.13	
	Sub Totals:	\$81.54	\$22.53	\$59.89	\$163.30	
		Totals	\$104.07			\$223.18
		1200	\$124,880.36	Irrigated	400	\$89,272.71
				Dry Land	800	\$83,253.58
				Gross Margin Benefit with Irrigation		
					\$47,645.92	All Acres
					\$119.11	per Irrigated Acre



Map Scenario/Results

Feedback?

About SplitN

HELP

This tab allows you to customize inputs for your farm and view summarized results.

Capital Cost & Tax Information

Capital Costs & Loan Information

Year Purchased:

Purchase Price for Entire System Installed:

Tillable Acres without Irrigation:

Irrigated Acres System Covers:

Life of System in Years and Assumptions: (25 years or less)

Salvage Value of Investment at End of Evaluated Time Period:

Amount of Purchase Price Borrowed:

Annual Interest Rate for Borrowed Money:

Loan Terms in Years: (20 years or less)

Income Tax Information

Marginal Income Tax Rate: (Fed + State + Soc Sec)

"MACRS" Property Class: (3,5,7,10, or 20 years)

"ADS-SL" Years: (3,5,7,10,15,20, or 25 years)

Depreciation Method: (1=MACRS or 2=ADS-SL)

Additional First Year Depreciation: (Sec179 or Bonus)

Opportunity Cost of Capital:

Net Present Value Discounted After Tax Cash Flow: 0

Internal Rate of Return Before Tax: 0

Internal Rate of Return After Tax: 0

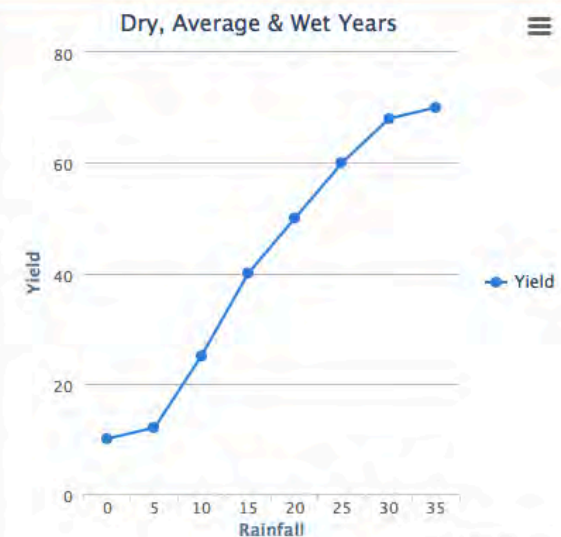
Crop Production Information

Value of family and regular labor (\$/hr):

Variable Cost per Acre Inch of Water:

Value of irrigation labor (\$/hr):

	Dry Land Crop Rotation		With Irrigation Crop Rotation			
	Soybean	Corn	Soybean	Corn	Wheat	
Crops to be Grown						
Rotation	1.0	1.0	1.0	3.0	0.0	
Percentage of Rotation	50%	50%	25%	75%	0%	
Probability	Price per Bu	\$13.00	\$4.45	\$13.00	\$4.45	\$6.20
Average Year ⚙️						
50%	Yields	51.4	172.6	52.0	176.0	66.0
	Acre-Inches	N/A	N/A	4.8	6.0	4.8
Dry Year ⚙️						
30%	Yields	42.5	136.0	60.0	215.0	60.0



Highcharts.com

Very preliminary layout from our programming superstars



Stakeholder engagement and project evaluation

Jenna Klink, Evaluation Specialist, University of Wisconsin
5.19.15 Davenport, IL





Morning Session – Advisory Committee & U2U team

Engaging stakeholders & evaluating...

- I. Tool development
- II. Outreach, dissemination
- III. End-of-project



PROJECT OUTCOMES

TARGET AUDIENCE = Advisors and early adopting farmers
(and eventually average farmers but via advisors not via direct outreach by U2U)
PRODUCTS = Decision Support Tools (DSTs) and other resources on website

1

EDUCATIONAL

- Aware of impact of climate on farm decisions & understanding level of risk
- Aware of U2U products
- Understand how U2U products fit into the decisions they make
- Trust U2U products
- Realize agronomic & economic value of incorporating U2U products into decision making
- Ability to use tools

2

ACTIONS

- Use U2U products
- Use U2U products in decision making/planning



Advisors make more & better recommendations based on climate data

3

VISION

- Farmers make more informed/better decisions
- Purposively use climate information in decision making



Associated long-term outcomes/impacts:

- Improved producer business resilience
- Decreased yield variability
- Increased profitability & cost savings
- Reduced business risks
- Reduced environmental impacts



Why evaluate? Learning & accountability

- Formative
 - ↑ impact
 - Collaborative tool development
- Summative
 - impact

Stakeholder feedback

- 2012 Producer and Advisor Climate Needs Assessment Surveys

- Focus groups & listening sessions

- Usability testing
 - Expert volunteers
 - Non-expert “professional” testers

User Testing®

- Low cost
- Trained testers
- **Narrated videos!**
- Written responses



https://mygeohub.org/groups/u2u/gdd

United States

Tips:

- Use white user location icon (📍) in upper right hand corner of map to zoom to current location of computer being used.
- Use the layer icon (☰) in the upper right hand corner of the map to control your viewing options.

User Testing

▶ 03:45 12:23 🔊 🔍

1.0x ▲ Rate User Tester ★★★★★ Send Video Download Video Report Problem

GDD Tablet Round 1

Click here to add notes...

Tested by [Collegebol_Will](#) (12/19/14 · #1309589E)

Annotations Clips Tasks Answers

3:46 Pause the video when I annotate.

7:42 He used the back button and ended up navigating away from the tool and landed on the U2U webpage. He never realized he was at the wrong URL for the rest of the video!

10:59 He is WAY off track at this point!

Export to Excel Put Clips in a Highlight Reel

Stakeholder feedback

- 2012 Producer and Advisor Climate Assessment Surveys
- Focus groups & listening sessions
- Usability testing
- Outreach evaluation



U2U DECISION SUPPORT TOOL FEEDBACK

1. For which tool are you providing feedback? Select One (Fill out one feedback postcard PER tool that you tested.)

<input type="checkbox"/> AgClimate View (ACV)	<input type="checkbox"/> Corn Growing Degree Day (GDD)
<input type="checkbox"/> Climate Patterns Viewer (CPV)	<input type="checkbox"/> Corn Split Nitrogen Application
2. Is this tool relevant to your work? Yes No
3. Why would you use this tool again? briefly, what do you see as the value of this tool?
4. What needs to be improved for you to use this tool again or promote it to others you know?
5. At any point in the next year, how unlikely or likely are you to use this tool in your work? Select One

<input type="checkbox"/> Very Unlikely	<input type="checkbox"/> Unlikely	<input type="checkbox"/> Somewhat Unlikely	<input type="checkbox"/> Undecided	<input type="checkbox"/> Somewhat Likely	<input type="checkbox"/> Likely	<input type="checkbox"/> Very Likely
--	-----------------------------------	--	------------------------------------	--	---------------------------------	--------------------------------------
6. Based on what you've seen, what other tools or products would you like to see developed in the future?



End-of-event outreach surveys

Collect likelihood to use tools, relevance, point of contact for various sign-ups:

- Quarterly e-newsletter
- Tool testing
- Sales kit

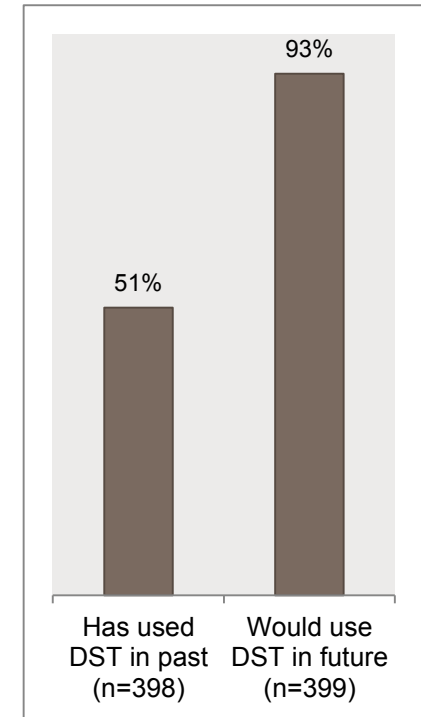
81% are at least somewhat likely to use at least one of the tools (n=549)

Each of the 4 tools have >2/3 likely to use in work in next year

GDD most popular in terms of “likelihood to use”

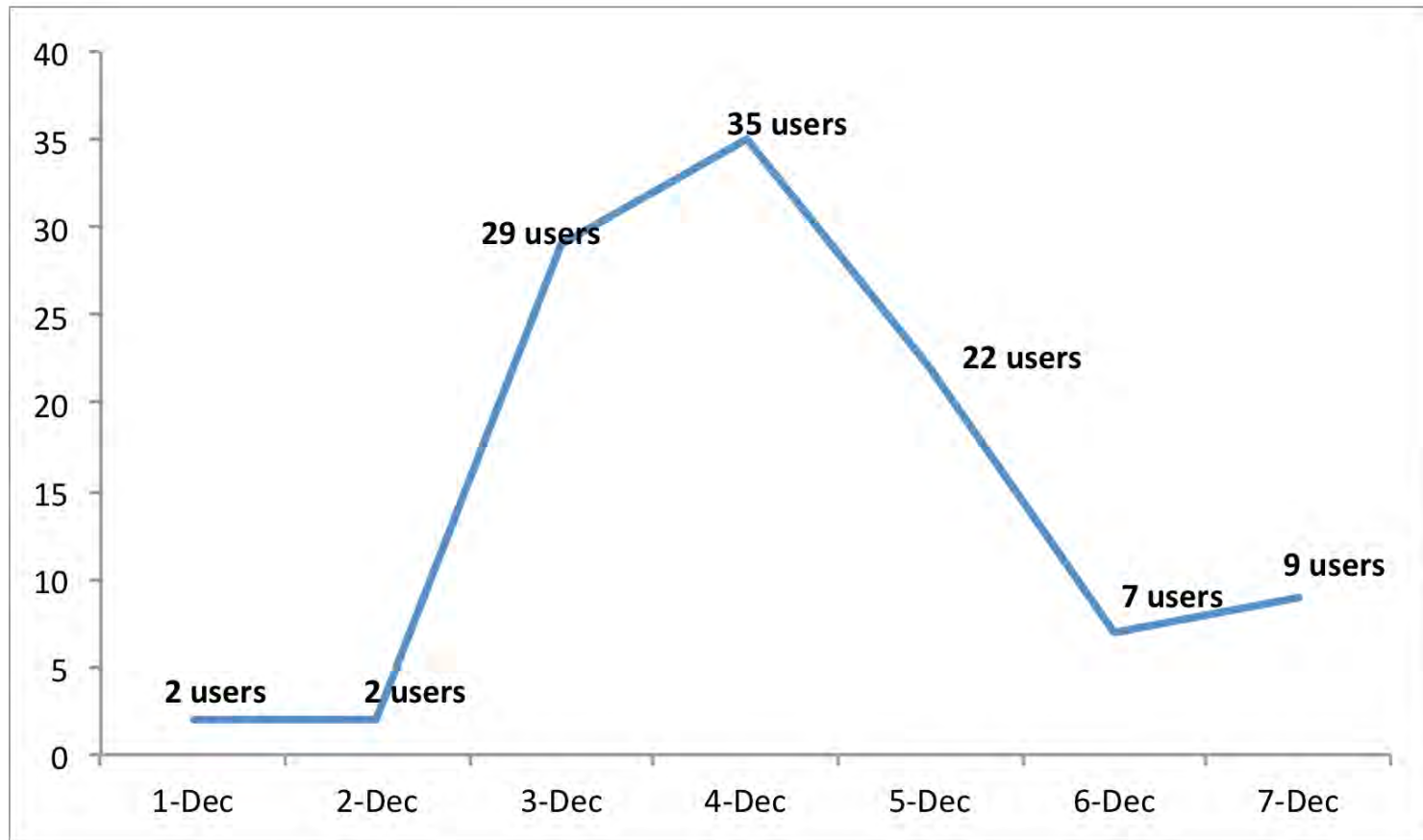
84% Will spread the word about U2U DSTs (n = 133)
This question was not asked on all surveys.

211 People have signed up for sales kits



EFFECT OF OUTREACH EVENTS ON DIRECTING PROSPECTIVE USERS TO U2U WEBSITE

Figure 1. Distribution of U2U website users in Iowa during the week of Iowa State Integrated Crop Management Conference [Conference date: 12/3/14]



*Around 100 in one week of
December.
Iowa=285 in month of March.*



CAMPAIGN REPORT

March 16, 2015

Deployment Report - March 12, 2015

6,417

TOTAL DEPLOYMENTS

6,235

SUCCESSFUL DELIVERS

1,795

TRACKABLE OPENS*

418

CLICKS

U2U useful to usable **Decision Support Tool Suite**
Unbiased, timely climate data for modern producers

FEATURED TOOL:
Com Growing Degree Day^{DST}
30-year historical perspective and climatology-based projections.

FREE online tool that uses real-time tracking to project corn growth.

- Identify likelihood of early and late frosts/freezes
- Estimate corn growth stages such as Silking and Black Layer dates
- Improve accuracy when considering forward pricing and crop insurance purchases

www.AgClimate4U.org/tools

What would your operation look like if you had climate data at your fingertips? The U2U Decision Support Tool Suite gives you the information you need throughout the growing cycle – empowering you to optimize inputs and enhance yields. Take the guesswork out of farming with the U2U^{DST} Suite.

Useful to Usable is an integrated research and extension project funded by the USDA to improve farm resilience and profitability in the North Central U.S. Our team of climatologists, agronomists, social scientists and computer specialists transforms climate data into usable products for the agricultural community. We pride ourselves on providing unbiased, transformative information to our hardworking farmers.

PARTNERS

PURDUE **IOWA STATE UNIVERSITY** **MICHIGAN STATE UNIVERSITY**

*USIM uses image downloads to track email opens. Because most email clients block image downloading by default, the actual email open rate is likely to be higher than the number shown.



Media campaign evaluation – 12K mail, 7K email

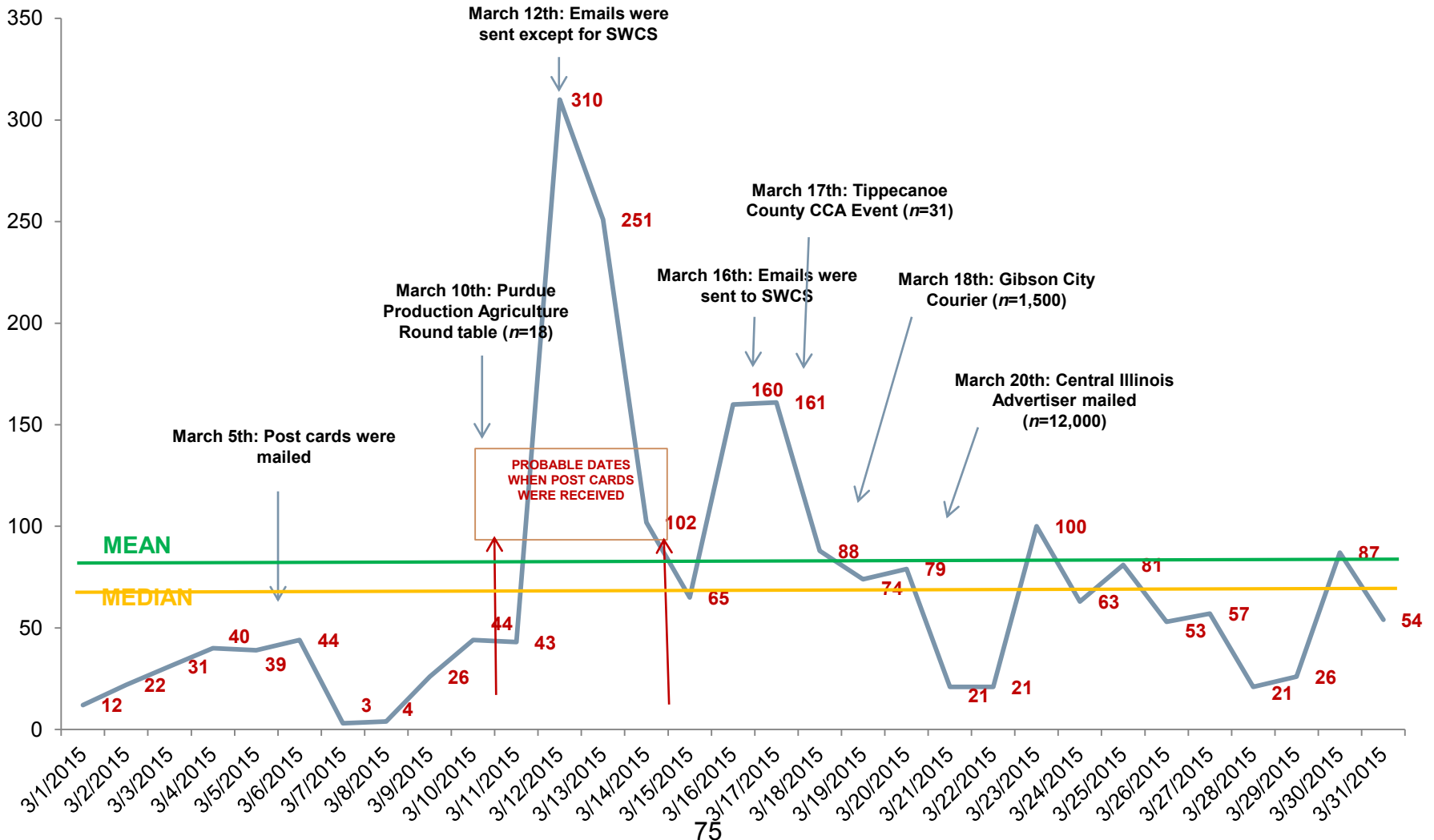
Campaign	Open rates	Click rates
U2U GDD March '15	22-34%	4-10%
<i>Typical Agriculture/Food service</i>	<i>26%</i>	<i>3.5%</i>
<i>Typical Software/Web app</i>	<i>23%</i>	<i>2.8%</i>
<i>Typical US International Media</i>	<i>10-15%</i>	<i>1-5%</i>

1. Ag Extension; 2. CCAs; 3. TSPs; 4. SWCS

46% open rates [email+mail] / 30% [email only] ... 32%/29% CCAs

Most successful quarter of the project based on web stats

Distribution of U2U website users in the 12-state Mid-Western region in March 2015



	Users
Website	Last 3 months: 4,283 Entire duration: 18,681
Decision Support Tools	Last 3 months Corn GDD: 1,564 ACV: 602 CPV: 562 Corn Split N: 556 Entire duration Corn GDD: 6,295 ACV: 2,216 Corn Split N: 1,515 CPV: 1,366

Roughly 1 of 5 in last 3 months was a returning, not new, visitor

Indiana, Minnesota, Iowa, Illinois, Nebraska top 5

To get started, click on any location within the gray area of the map.



qualtrics

AgClimate4U.org

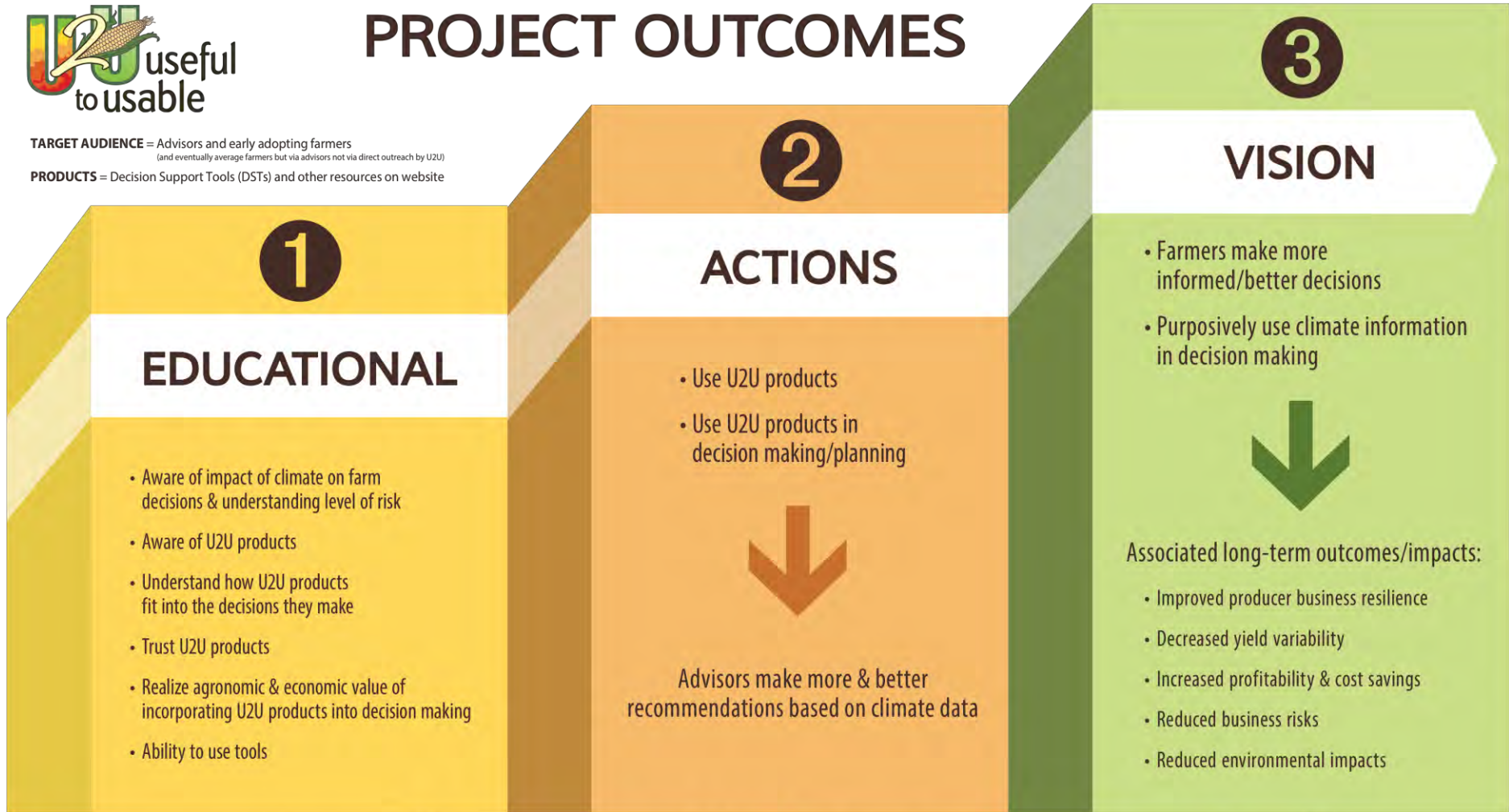
Corn GDD feedback:

1. Why would you use this tool again / briefly, what do you see as the value of this tool?
2. What needs to be improved for you to use this tool again or promote it to others you know?



PROJECT OUTCOMES

TARGET AUDIENCE = Advisors and early adopting farmers
(and eventually average farmers but via advisors not via direct outreach by U2U)
PRODUCTS = Decision Support Tools (DSTs) and other resources on website



The following are a list of some of U2U's short-term outcomes. Help us understand if U2U is being effective by telling us if you currently:

Question	Yes	Somewhat	No	Total Responses
Understand the risks that climate change and climate variability can pose to farms and commodity markets	14	4	1	19
Understand how U2U DSTs fit into farm decisions	14	5	0	19
Trust U2U products	12	7	0	19
See value (agronomic and/or economic) in incorporating U2U DSTs into decision making	15	4	0	19

How comfortable do you feel now / after the webinar? (n=19)
*Mean was “2” on all rows for the baseline (retrospective assessment-
 data not included here) 42-79% fairly+very (after)*

Question	Not at all	Not too	Fairly	Very	Mean
Using Corn GDD	11%	11%	42%	37%	3
Using AgClimate View	5%	16%	58%	21%	3
Using Corn Split N	5%	26%	53%	16%	3
Teaching others how to use Corn GDD	11%	26%	37%	26%	3
Teaching others how to use AgClimate View	5%	32%	47%	16%	3
Using Climate Patterns Viewer	11%	39%	33%	17%	3
Teaching others how to use Climate Patterns Viewer	16%	37%	26%	21%	3
Teaching others how to use Corn Split N	11%	47%	37%	5%	2



Upcoming evaluation plans

Our “cohort”

Random sample will assess our reach among farmers

Metrics: actual use, use in decisions, willingness to consider climate info in future

Stories/qualitative

Extension capacity? Advisory committee?



Thank you!

Jenna.klink@ces.uwex.edu

608.265.9023

Objective 4:

Jim Angel, Silvestre Garcia de Jalon, Chad Hart, Kim Kies, Vikram Koundinya, Rebecca Power, Linda Prokopy, Amber Schmechel, Hans Schmitz, Dennis Todey, Melissa Widhalm

Student support: Emily McKinney



Discussion – led by Otto Doering

- Reflect on U2U team accomplishments relative to your expectations
- Future funding and/or partnerships to maintain long-term access to U2U tools and data
- Aspects of U2U that can be better promoted/communicated
- Opportunities/issues the U2U team is well-positioned to address in the future



Transforming Climate Variability and
Change Information for Cereal Crop Producers

U2U Objective 4/5 Discussion

U2U Annual Meeting
Davenport, Iowa
May 19, 2015

Chad Hart
Iowa State University
chart@iastate.edu

Original Objective 4



Evaluate the effectiveness of the ACE DSTs, training methods and implementation approaches in four pilot states (Indiana, Iowa, Nebraska, and Michigan).

Task 1: Conduct outreach in 4 states

Task 2: Evaluation

- Output monitoring
- Extension readiness to deliver programming
- Program delivery quality
- Participant description and subgroup success
- Evaluating outcomes and impact

Original Objective 5



Broadly disseminate validated training materials, tools, and extension programs to ensure increased usefulness and usability of climate information.

Task 1: Regional expansion workshop

Task 2: Evaluation of workshop

Task 3: Dissemination through 4-H

Objective 4/5 in Action



Evaluate the effectiveness of the DSTs, training methods and implementation approaches in pilot opportunities across the region.

Task 1: Conduct outreach on DSTs

- Over 100 events in 8 states, reaching over 6,000 participants

Task 2: Evaluation

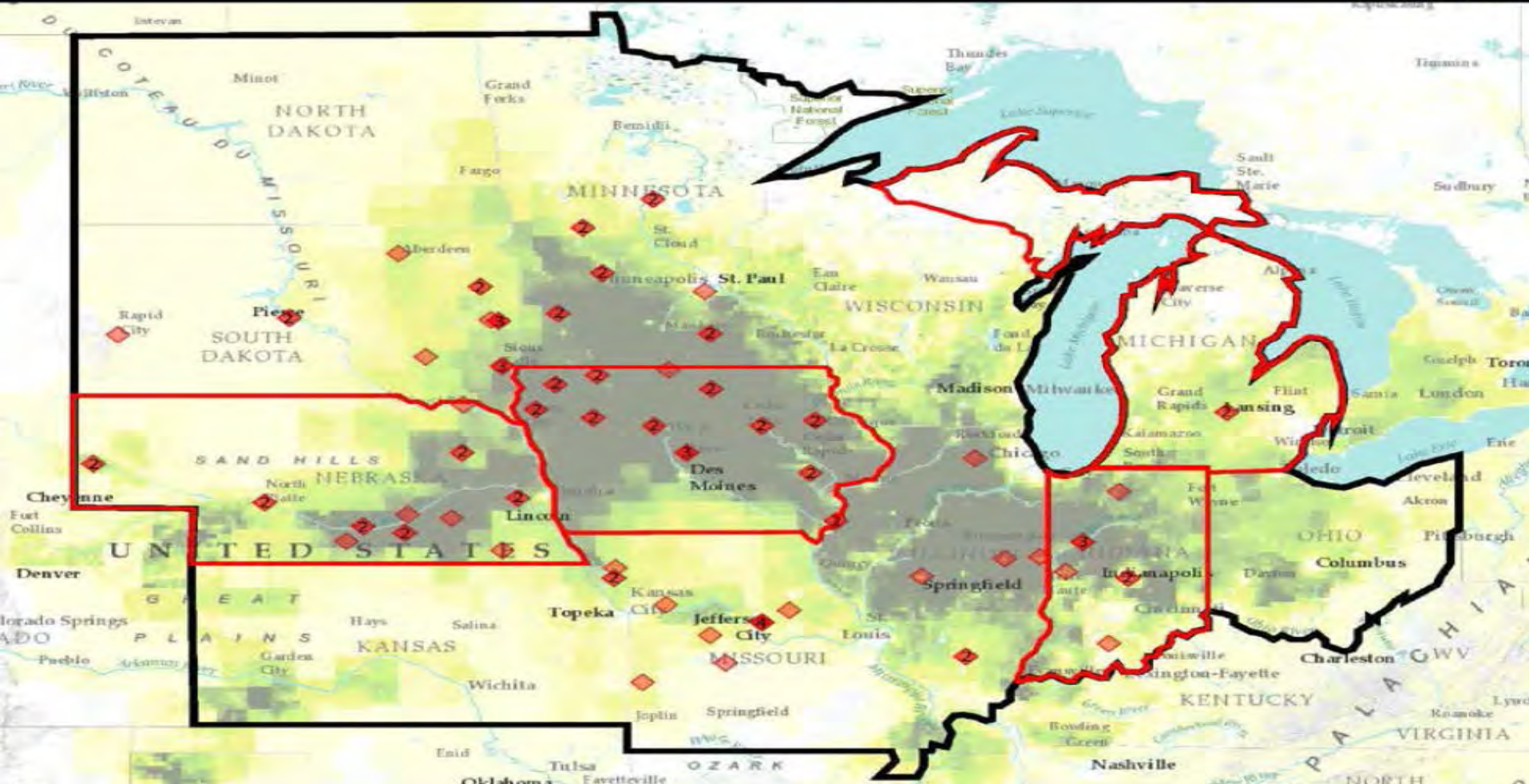
- Post-event surveys for several events
- Audience targeting based on Obj. 2 information

Outreach Events



U2U Presentations on Decision Support Tools to Farmers and Advisors

As of February 2015



Participant Reaction

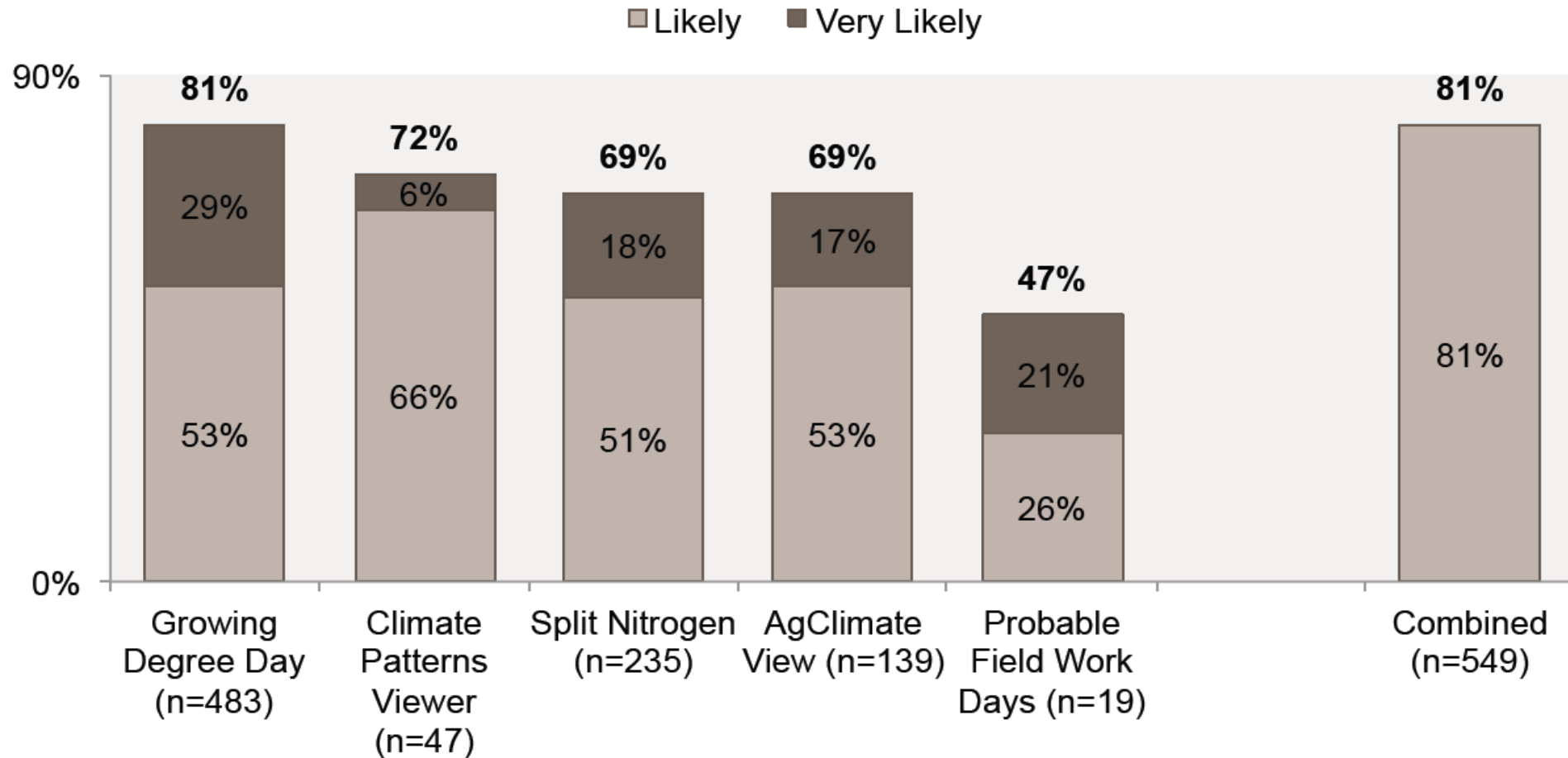


Figure 18. Show above are the percent of respondents who are likely and very likely to use each U2U tool, with the overall percent of “at least somewhat likely” displayed above each bar. The bar on the far right represents the percentage of respondents who are at least somewhat likely to use at least one of the tools.

Educational Resources



DECISION DASHBOARD

MEDIA CENTER

NEWSLETTER

ABOUT US

Educational Resources

Welcome! This page includes everything you need to quickly learn about and disseminate U2U decision support tools.

Find all of our tools on the [Decision Dashboard](#).

Before getting started, check out the [Outreach Event Checklist](#).

Handouts

[Attendance list / sign-up sheet](#)

[2.5" x 8" Bookmark](#)

[Sample Evaluation Form](#)

[DST Overview Factsheet](#)

PowerPoints

[AgClimate View](#)

[Corn GDD](#)

[Climate Patterns Viewer](#)

[Corn Split N](#)

[Fieldwork Days Tool](#)

User Guides

[AgClimate View](#)

[Corn GDD](#)

[Climate Patterns Viewer](#)

[Corn Split N](#)

Video Tutorials

[Tool tips and tricks](#)

[AgClimate View](#)

[Corn GDD](#)

[Climate Patterns Viewer](#)

[Corn Split N](#)

Need more information? Have questions? [Contact us](#).

Request a [USB drive](#) pre-loaded with U2U educational resources.

Page last updated: 4/1/2015

Over 140 people have signed up for our educational resources kit

Ag Media/Direct Mail



INTRODUCING
Decision Support Tool Suite
Unbiased, timely climate data for modern producers

Learn more about our FREE online tools
www.AgClimate4U.org/tools



Timing is everything. Are you ready?

www.AgClimate4U.org

Connection with CS-CAP



In our original proposal, U2U was going to construct a regional team of extension educators.



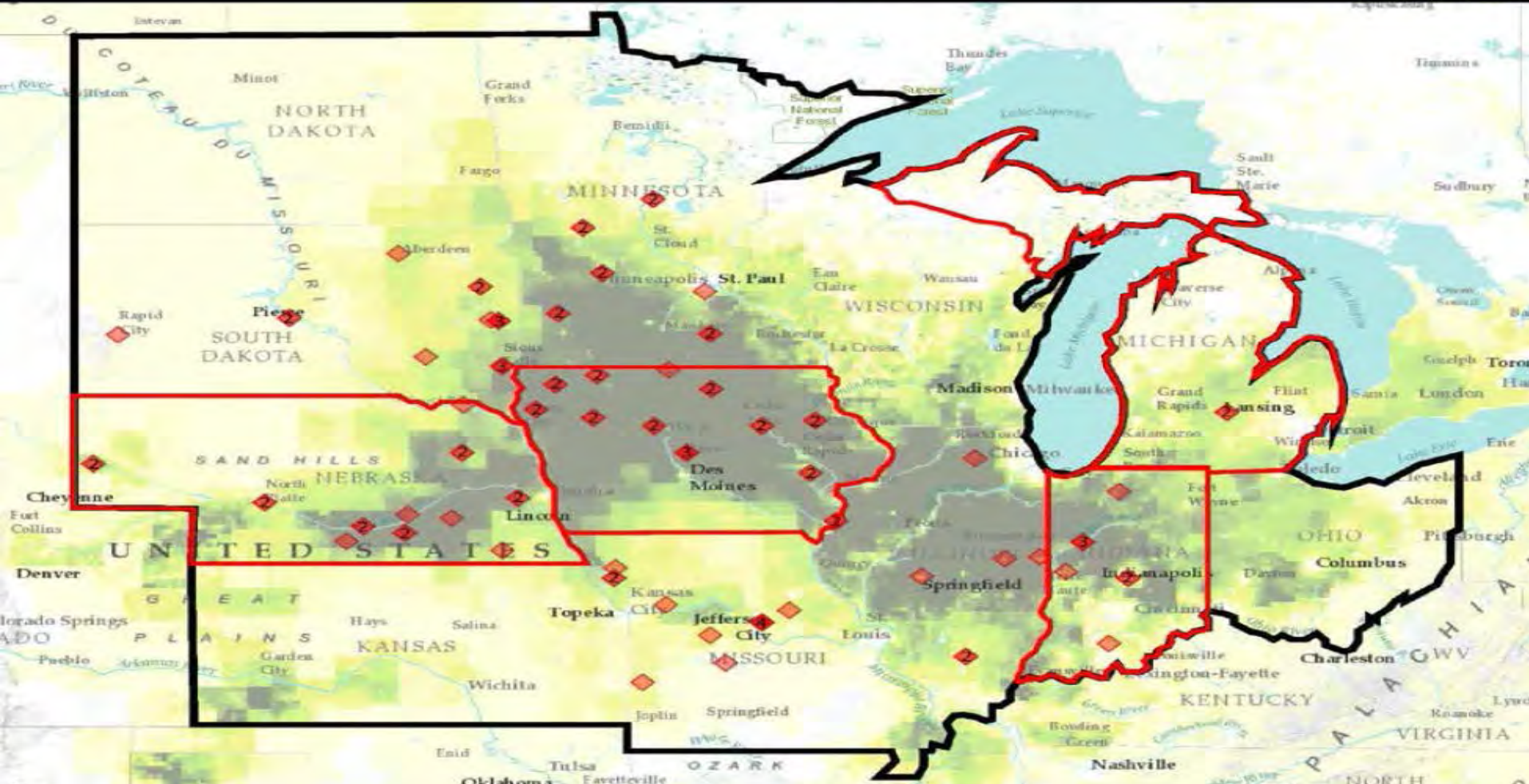
Unbeknownst to us, CS-CAP had already done that. No need to re-invent the wheel (or in this case, the team).

Outreach Events



U2U Presentations on Decision Support Tools to Farmers and Advisors

As of February 2015





Transforming Climate Variability and
Change Information for Cereal Crop Producers

Thank you for your time!

Any questions?



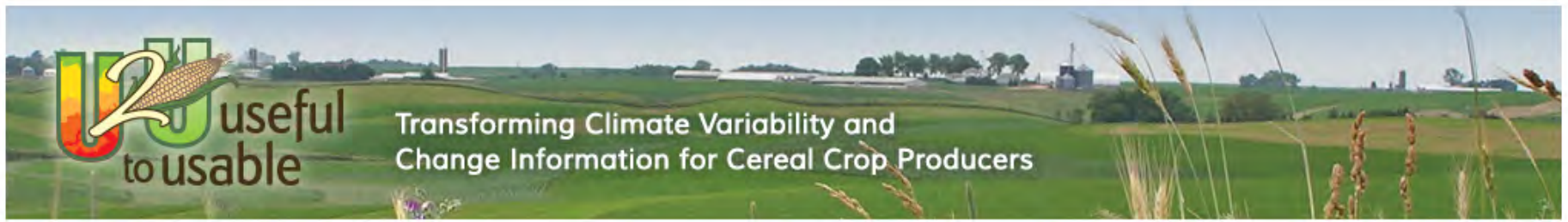
Climate data helping farmers?

Evaluating usability & adoption of Decision Support Tools

Jenna Klink, Evaluation Specialist, University of Wisconsin

5.19.15 Davenport, IL





Afternoon Session – U2U & CSCAP teams

Obj 4/5 Extension and outreach plan

Evaluation most specifically tied to the outreach

- Outreach Event Checklist,
- Smartsheet – outreach tracking,
- Data Update 1-pager on outreach survey results that we share on Obj 4 calls,
- Google Analytics graphs tied to outreach events,
- Example of individual reports we send to presenters,
- Personnel Map



PROJECT OUTCOMES

TARGET AUDIENCE = Advisors and early adopting farmers
(and eventually average farmers but via advisors not via direct outreach by U2U)

PRODUCTS = Decision Support Tools (DSTs) and other resources on website

1

EDUCATIONAL

- Aware of impact of climate on farm decisions & understanding level of risk
- Aware of U2U products
- Understand how U2U products fit into the decisions they make
- Trust U2U products
- Realize agronomic & economic value of incorporating U2U products into decision making
- Ability to use tools

2

ACTIONS

- Use U2U products
- Use U2U products in decision making/planning



Advisors make more & better recommendations based on climate data

3

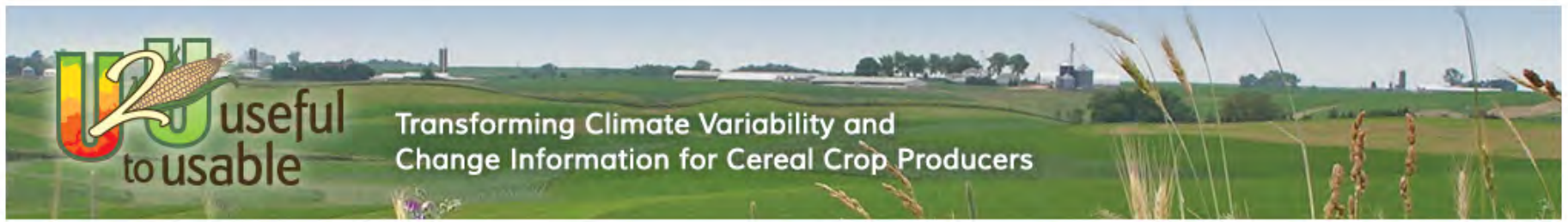
VISION

- Farmers make more informed/better decisions
- Purposively use climate information in decision making



Associated long-term outcomes/impacts:

- Improved producer business resilience
- Decreased yield variability
- Increased profitability & cost savings
- Reduced business risks
- Reduced environmental impacts



Why evaluate? Learning & accountability

- Formative
 - ↑ impact
 - Collaborative tool development
- Summative
 - ✓ impact



USE THIS CHECKLIST:

- ✓ Every time a Decision Support Tool is presented
- ✓ At an event that may expand someone's interest in considering climate information in decision making

Why are we doing this? This process allows us to:

- ✓ Ensure important messages are conveyed
- ✓ Gather important information like sign-ups for sales kit, testing tools, etc.
- ✓ Measure intermediate outcomes such as likelihood to use tools presented in the next year

1 BEFORE THE EVENT

- Contact Jenna Klink one week before your event**
jklink@wisc.edu; 608-265-9023 (5-10 min conversation)

Jenna will prepare a customized evaluation survey for your upcoming event.

Note: it is possible to do an online post-survey if you have the attendance list and if online is preferred.

- Visit Sales Kit web page: agclimate4u.org/kit**
 - Review all outreach materials
 - Download and customize PowerPoint templates
 - Watch tutorial videos
 - Print sign-in sheet and selected outreach materials
 - Contact Melissa for bookmarks

2 DURING THE EVENT

- Pass around our sign-in/attendance sheet**
This is how attendees get added to U2U's quarterly e-newsletter list, and we also need this information for later evaluation purposes.
Note: Attendees can opt-out of newsletter on sign-in sheet.
- Describe option to receive sales kit flash drive**
Available to *any* attendee that will spread message
- Distribute short evaluation survey at end of event**
Attendees can indicate here if they want a sales kit or to test tools

3 AFTER THE EVENT

- Mail sign-in sheets and evaluation surveys to Jenna Klink**
- Add your event to the "U2U Outreach Tracking" Smartsheet**
Contact Melissa Widhalm or Jenna Klink for assistance.



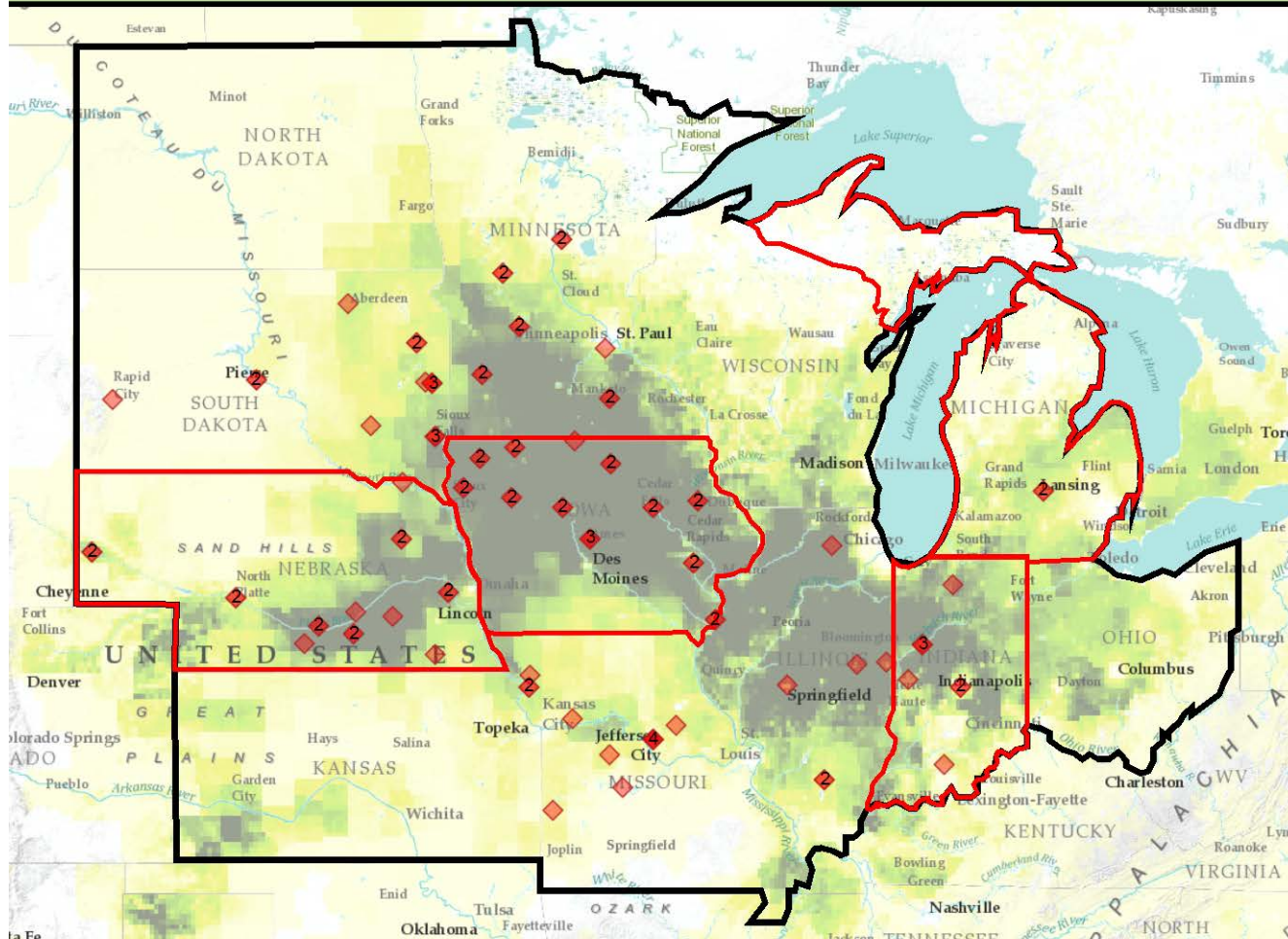
United States Department of Agriculture
National Institute of Food and Agriculture

2011-68002-30220 from the USDA National Institute of Food and Agriculture.

		Name of "event"	Location	U2U Team Member	Date of event
85		Nebraska Crop Production Clinic - Norfolk	Norfolk, NE	Tapan Pathak	01/21/15
88		2015 Iowa Crop Advantage Series	Fort Dodge, IA	Chad Hart	01/21/15
87		Illinois Crop Management Conference	Mount Vernon, IL	Jim Angel	01/22/15
88		Nebraska Crop Production Clinic - Mead	Mead, NE	Tapan Pathak	01/22/15
88		2015 Iowa Crop Advantage Series	Waterloo, IA	Chad Hart	01/22/15
90		Extension Brookings Crops Meeting	Brookings, SD	Dennis Today	01/23/15
91		2015 Iowa Crop Advantage Series	LeMars, IA	Chad Hart	01/27/15
92		2015 Iowa Crop Advantage Series	Iowa City, IA	Chad Hart	01/28/15
93		Illinois Crop Management Conference	Springfield, IL	Jim Angel	01/29/15
94		Illinois Crop Management Conference	Champaign, IL	Jim Angel	02/05/15
95		Illinois Crop Management Conference	Malta, IL	Jim Angel	02/12/15
98		Commercial Applicator Training for Pesticide Applicators	Rapid City, SD	Dennis Today	02/12/15
97		Commercial Applicator Training for Pesticide Applicators	Aberdeen, SD	Laura Edwards	Jan-Feb 2015
98		Commercial Applicator Training for Pesticide Applicators	Watertown, SD	Laura Edwards	Jan-Feb 2015
99		Commercial Applicator Training for Pesticide Applicators	Brookings, SD	Dennis Today	Jan-Feb 2015

U2U Presentations on Decision Support Tools to Farmers and Advisors

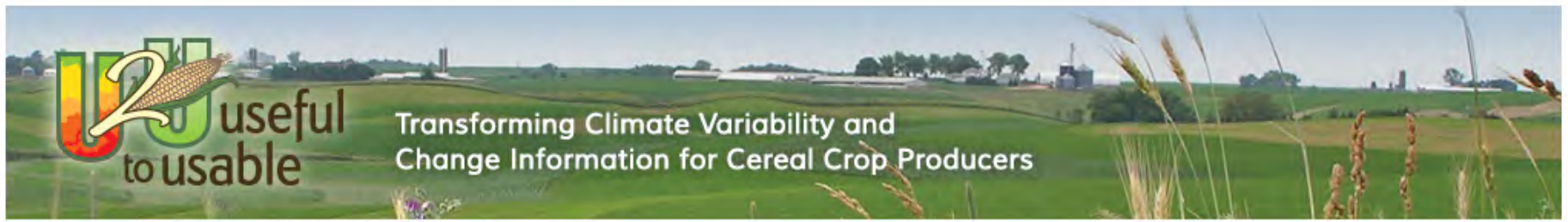
As of February 2015



The number on top of a given marker represents the total number of outreach events held in that location. The states outlined in red are the pilot states as indicated by the initial proposal. The green shading refers to corn production: more corn is produced in the darker green areas.

This map represents 98 outreach events for the U2U Project from July 2013 to February 2015. At 64 of these events, over 6,400 farmers and advisors were reached.

[At least 3 regional webinars held are not displayed here but reached attendees from at least 7 states (IA, MI, MN, ND, OH, SD, WI)]



End-of-event outreach surveys

Collect likelihood to use tools, relevance, point of contact for various sign-ups:

- Quarterly e-newsletter
- Tool testing
- Sales kit

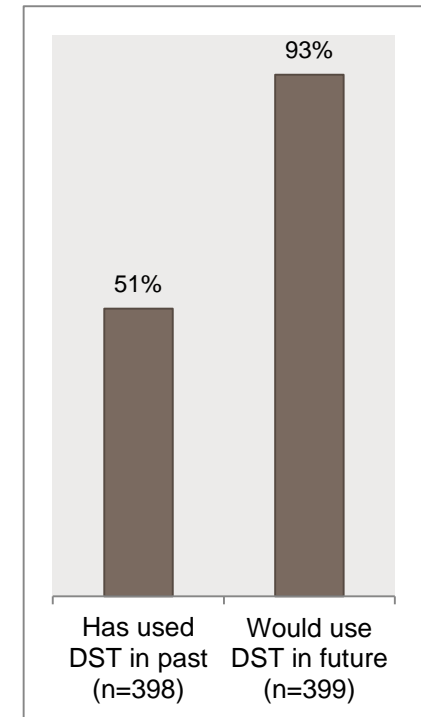
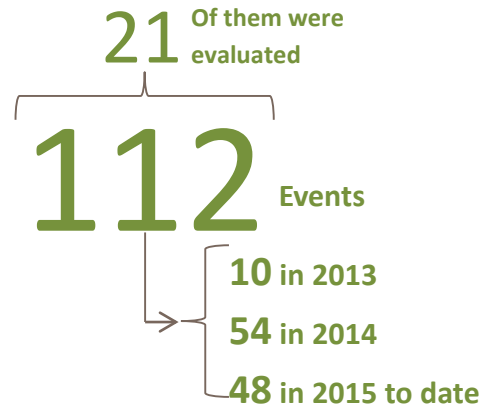
81% are at least somewhat likely to use at least one of the tools (n=549)

Each of the 4 tools have >2/3 likely to use in work in next year

GDD most popular in terms of “likelihood to use”

84% Will spread the word about U2U DSTs (n = 133)
This question was not asked on all surveys.

211 People have signed up for sales kits





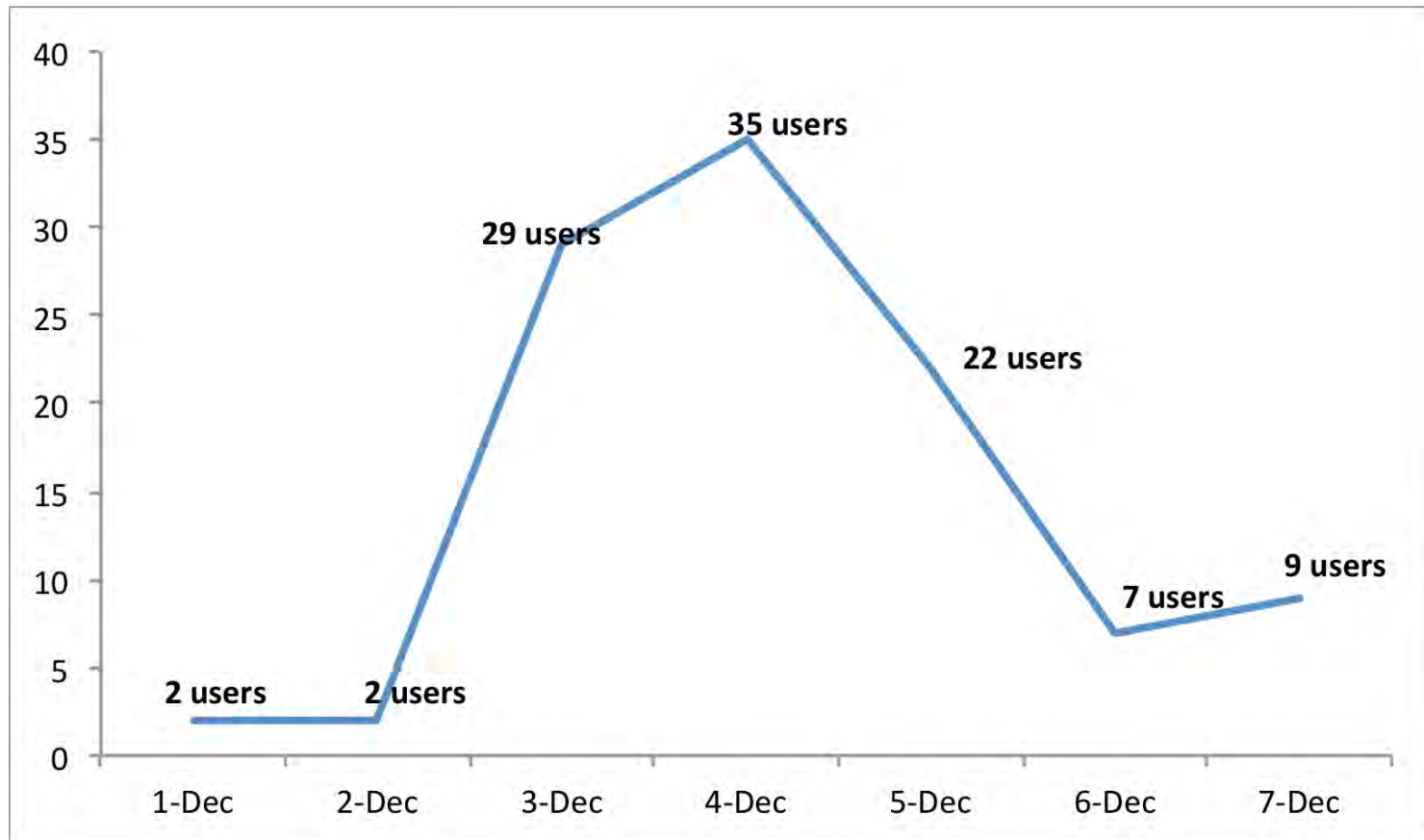
TIPPECANOE COUNTY CCA EVENT SURVEY RESULTS

**LAFAYETTE, IN: MARCH 17, 2015
PRESENTER: HANS SCHMITZ**

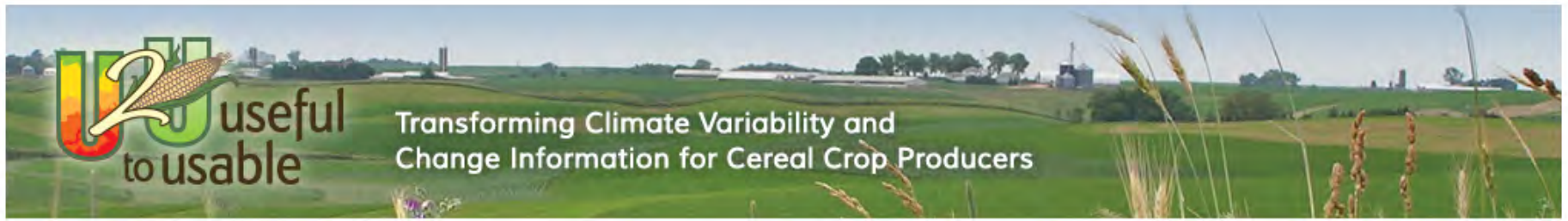
This report includes results from the CCA event in Tippecanoe County on March 17, 2015 led by Hans Schmitz. The sample size was $n = 20$.

EFFECT OF OUTREACH EVENTS ON DIRECTING PROSPECTIVE USERS TO U2U WEBSITE

Figure 1. Distribution of U2U website users in Iowa during the week of Iowa State Integrated Crop Management Conference [Conference date: 12/3/14]



*Around 100 in one week of
December.
Iowa=285 in month of March.*



Gaps

Lowest traffic to state Google Analytics:

North Dakota, Kansas, Ohio, South Dakota

States with least outreach:

Wisconsin, Ohio, Kansas (not many in ND or MI)



PROJECT OUTCOMES

TARGET AUDIENCE = Advisors and early adopting farmers
(and eventually average farmers but via advisors not via direct outreach by U2U)

PRODUCTS = Decision Support Tools (DSTs) and other resources on website

1

EDUCATIONAL

- Aware of impact of climate on farm decisions & understanding level of risk
- Aware of U2U products
- Understand how U2U products fit into the decisions they make
- Trust U2U products
- Realize agronomic & economic value of incorporating U2U products into decision making
- Ability to use tools

2

ACTIONS

- Use U2U products
- Use U2U products in decision making/planning



Advisors make more & better recommendations based on climate data

3

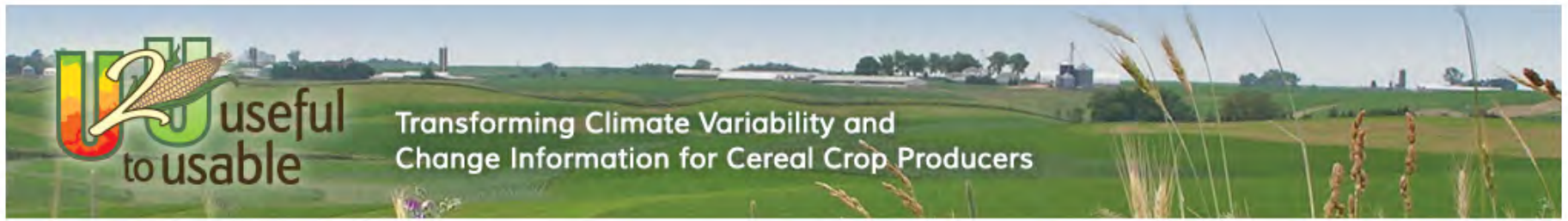
VISION

- Farmers make more informed/better decisions
- Purposively use climate information in decision making



Associated long-term outcomes/impacts:

- Improved producer business resilience
- Decreased yield variability
- Increased profitability & cost savings
- Reduced business risks
- Reduced environmental impacts



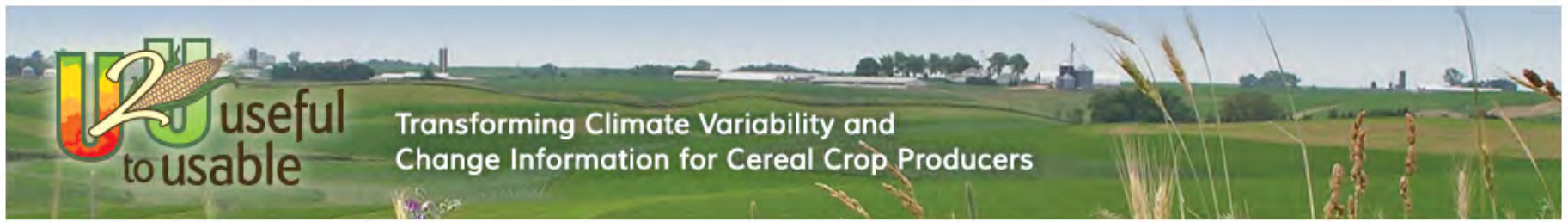
The users

Our “cohort”

Random sample will assess our reach among farmers

Metrics: actual use, use in decisions, willingness to consider climate info in future

Stories/qualitative



Thank you!

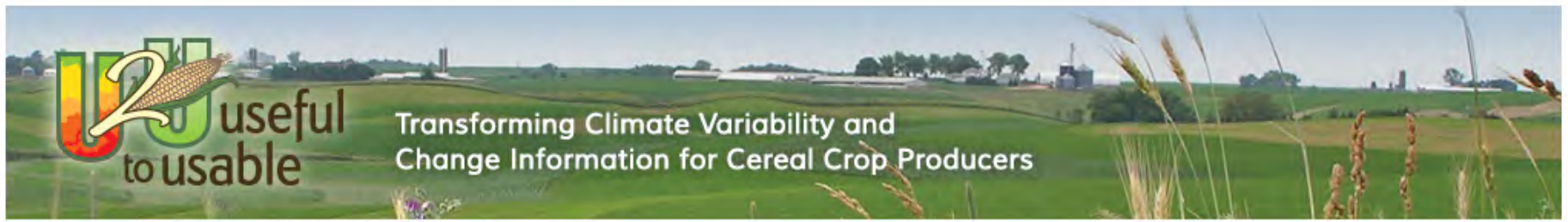
Jenna.klink@ces.uwex.edu

608.265.9023

Objective 4:

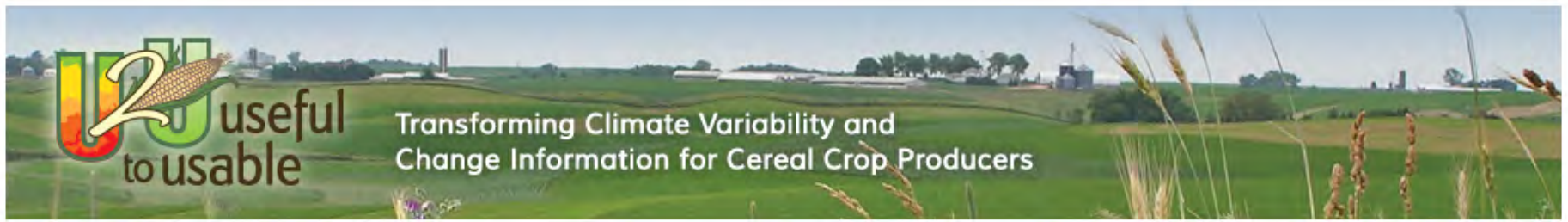
Jim Angel, Silvestre Garcia de Jalon, Chad Hart, Kim Kies, Vikram Koundinya, Rebecca Power, Linda Prokopy, Amber Schmechel, Hans Schmitz, Dennis Todey, Melissa Widhalm

Student support: Emily McKinney



Personnel Map

<http://bit.ly/1zWS3ha>



Discussion – led by Chad Hart

- How do you see U2U tools fitting into your existing programming?
- Are you aware of upcoming events at which U2U should have a presence?
- Suggested improvements to existing U2U educational resources?
- Other general feedback (about U2U tools, resources, etc.)

DST transfer / future of U2U tools

- What will be hosted at the RCCs?
 - *Entire website?*
 - *Data Dashboard?*
 - *Educational Resources?*
 - *Background/history of U2U?*
- What will become of the AgClimate4U.org?
 - *How long will the site live on?*
- How to maintain the branding and marketing success of U2U, tools?

DST transfer / future of U2U tools

- Should both RCCs co-host all the tools?
 - *Synchronizing changes; ensuring consistency*
 - *RCC hosting recognition, logo*
 - *Dual support; dual effort?*
- Liberty to make changes
 - *Adding locations*
 - *Adding data (temp, precip, GDD)*
 - *Adding new variables*
 - *Crop yield information*
 - *Adding requested beta features (e.g., Seasonal Outlook)*
- If changes are made, data is added, does U2U brand, logo continue? Who is vetting that brand?

DST transfer / future of U2U tools

- Support for maintaining site
 - *What is something breaks, fails?*
 - *RCCs leveraging funding for expansion*
 - *Who to refer tool/resource questions to?*
 - *MOU opportunity between NOAA and USDA?*
- Will the transition be progressive to launch or all-inclusive?
- What is the vision for these tools in 2017?
 - *Appearance?*
 - *URL?*
 - *Branding?*
 - *Continued collaboration?*