



Community Engagement Approach to Managing Drought

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THE ISSUE

Louisiana is the most vulnerable U.S. state for natural hazards with drought accounting for 95% of predicted crop losses by 2050 (Mostafiz et al., 2022). Drought is the most expensive hazard for Louisianans.

Irrigation is an effective drought risk mitigation strategy for agriculture, but increasing drought frequency and intensity due to climate and land use changes requires efficiency to be sustainable. Current rate of withdrawals are not considered sustainable (Fig. 1).

The mid-South has increased its portion of national agricultural water consumption from 4.6% to 12.2% since 1985 (USGS, 2018). Aquifers located in intensively farmed areas of the mid-South have suffered from significant decline over time and increasing issues related to salinity.



Fig. 1: Delaying irrigation in cracking soils can greatly increase the irrigation volume applied.

Picture captured by Bruce Garner in West Carroll Parish.

PROJECT OVERVIEW

A significant drought occurred during the 2022 crop season that negatively impacted yields (Fig. 2). In response, the LSU AgCenter obtained funding to support the development of an irrigation scheduling web tool to help farmers plan their irrigations. The Drought Irrigation Response Tool (DIRT) is currently in development and supported by the community engagement process.

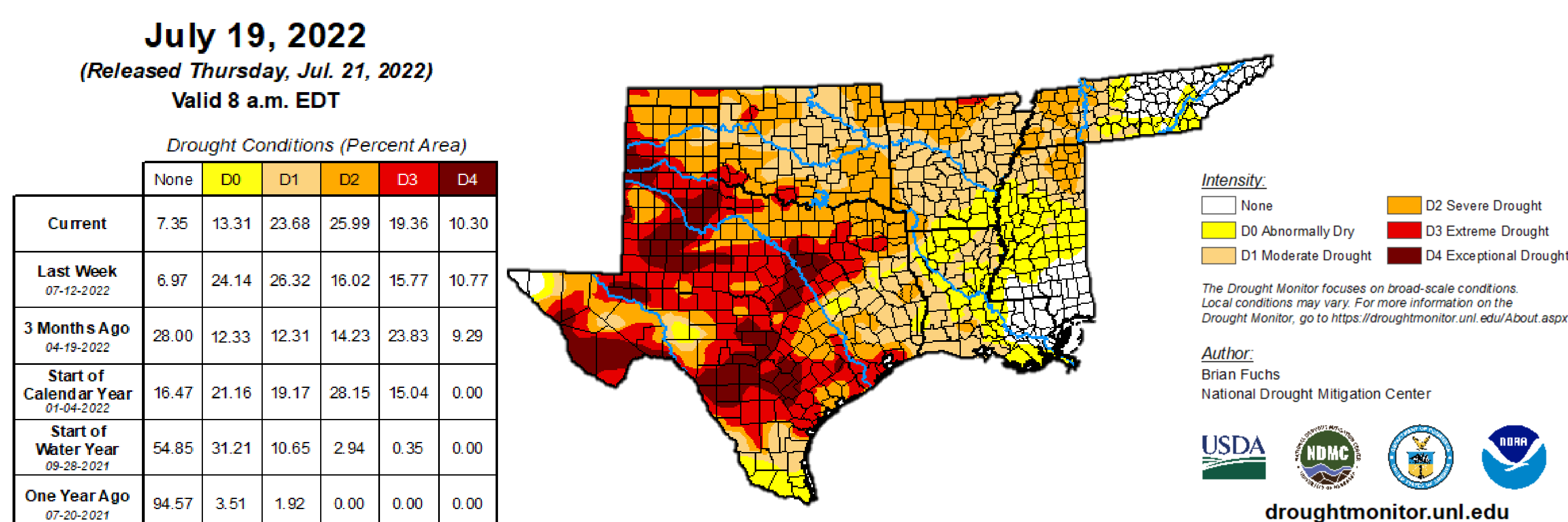


Fig. 2: Released weekly, the U.S. Drought Monitor map indicated some level of drought during the 2022 crop season across the mid-South.

EXTENSION GOAL Improve farmers' access to technical information that supports site-specific water use strategies, and developing, strengthening, and sustaining relationships with the community for future partnerships.

POTENTIAL OUTCOME Irrigators change their behavior by adopting more efficient irrigation techniques that reduce overall water use and create sustainability in natural resource allocation.

FROM OUTREACH TO SHARED LEADERSHIP

Integrating **community voice** is a crucial component of project development that results in an application that would better meet the community's needs and produce quantifiable environmental change.

The Carnegie Foundation recently developed a community engagement classification to help universities deepen service and strengthen bonds between campus and community. The classification provides a framework for future community-engagement initiatives, including community-engaged teaching, research, and scholarship.

While outreach is traditionally a one-way approach, engagement is a two-way collaboration that emphasizes creating reciprocal partnerships within extension programs to address societal needs (Fig 3). Community engagement allows key stakeholders to serve as co-creators of knowledge, programs, research, and scholarship that better meets the needs of communities across the globe.

Source: Principles of Community Engagement, Second Edition. NIH Publication No. 11-7782.

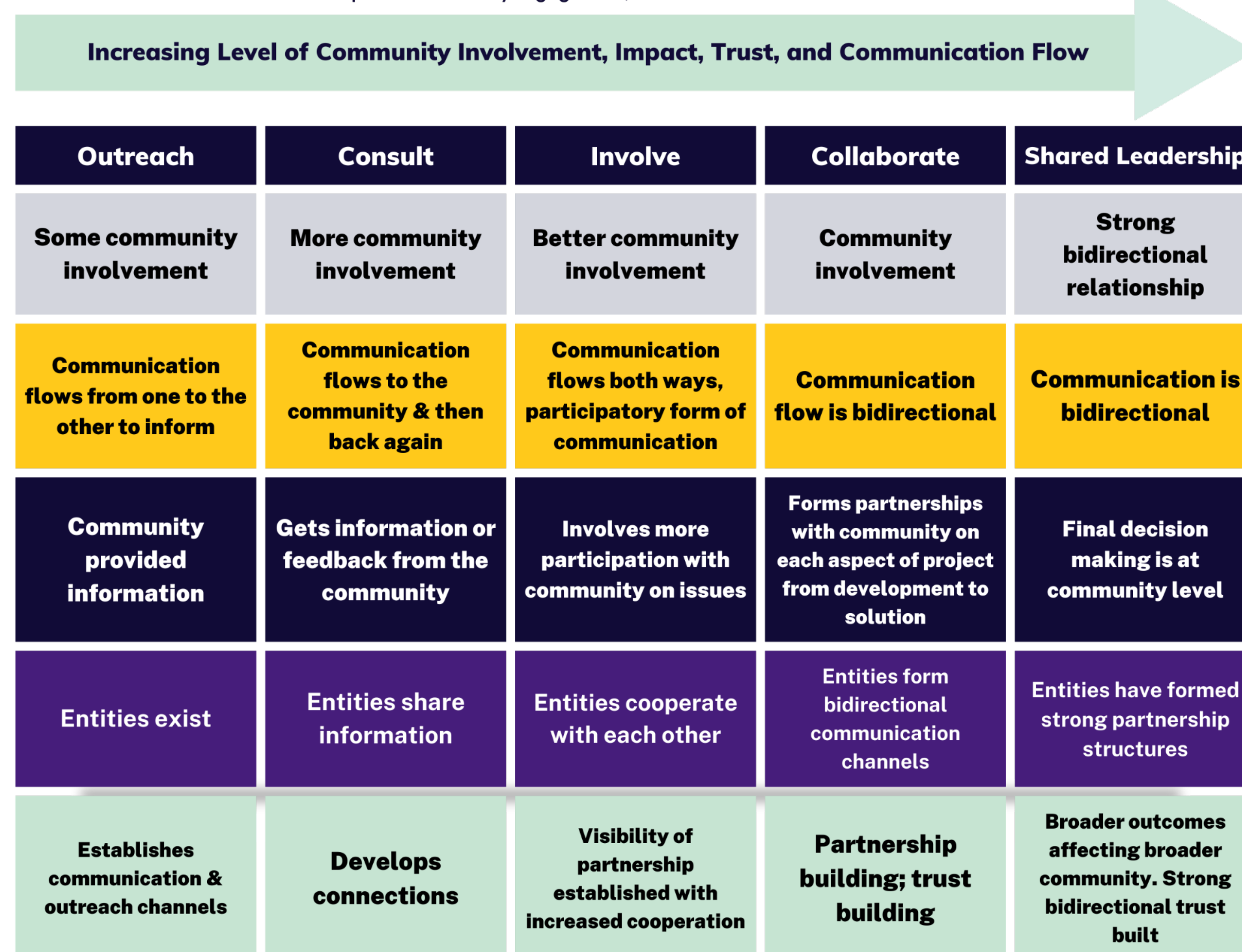


Fig 3: The Community Engagement Continuum was adapted from International Association for Public Participation as a framework for working with community to create societal change. This framework can be found in Principles of Community Engagement, 2nd Ed. NIH Publication No. 11-7782.

COMMUNITY-ENGAGED DEVELOPMENT PROCESS

The project team utilized a community-engaged development process to capture feedback from stakeholders throughout the project's development. Opportunities to collect feedback included:

FOCUS GROUP SESSIONS Six focus group sessions were initiated throughout DIRT's development, virtually and in-person, at various locations across Louisiana. During the sessions, the specialist outlined the project's progress before opening the meeting for feedback and discussion. Detailed notes were captured during each session, discussed during project team meetings, and changes were implemented based as a result.

MEETING SURVEYS Each stakeholder completed a pre- and post-meeting reflection to capture additional comments not stated during the meeting and assess collaboration and integration of community voice using an instrument adapted from the Carnegie community partner evaluation utilized in the last Carnegie Community Engagement application.

PRELIMINARY FINDINGS

Evaluation results (Fig. 4, Table 1, Table 2) demonstrated that stakeholders who participated (n=17) increased:

- Awareness of AgCenter irrigation resources (60% to 86%)
- Awareness of AgCenter irrigation technologies (58% to 83%)
- AgCenter credibility for irrigation information (87% to 96%)
- Academia's value in their expertise (83% to 86%)
- AgCenter's perception as a collaborative partner (83% to 93%)
- Community involvement in impactful decisions (78% to 87%)
- AgCenter's positive impact on them (87% to 97%)

Community Engagement Continuum

Source: Principles of Community Engagement, Second Edition. NIH Publication No. 11-7782.

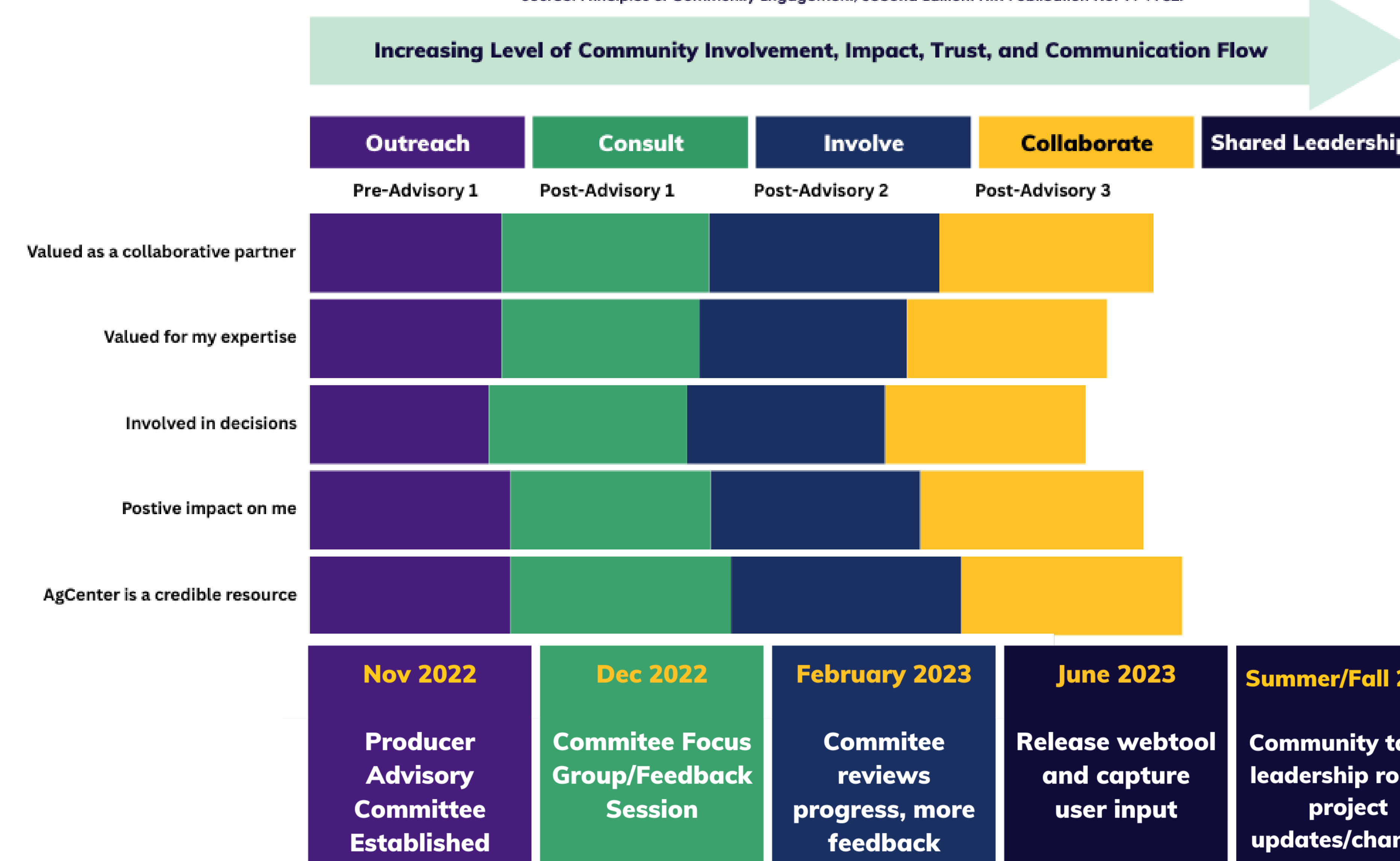


Table 1. [Left] Stakeholders that participated in an advisory session rated the AgCenter more favorable across multiple factors, including credibility and impact, felt more valued as a collaborative partner, and gained awareness of irrigation resources and technologies provided by the AgCenter.

Table 2. [Right] Stakeholders that participated in multiple sessions continued to rate the AgCenter more favorably as a credible resource (96% to 100%), collaborative partner (90% to 100%) and felt more valued as a community expert (86% to 90%).

Evaluation Scale Item	Pre-Advisory Process Score	Post Advisory Process Score	Table 2. Anticipated benefits of using the webtool:	Post Advisory 3 Score
The AgCenter is a credible resource for irrigation information	4.36/5 (87%)	4.80/5 (96%)	Save water	92.0%
I will use AgCenter resources when making irrigation decisions	3.80/5 (76%)	4.00/5 (90%)	Save money	92.0%
I will connect with AgCenter when making irrigation decisions	3.91/5 (78%)	4.10/5 (83%)	Save time	80.0%
The AgCenter values me as a collaborative partner	4.18/5 (84%)	4.50/5 (93%)	Reduced fuel or electricity consumption	84.0%
The AgCenter values my expertise	4.18/5 (84%)	4.30/5 (87%)	Improved crop yields	92.0%
The AgCenter has had a positive impact on me	4.36/5 (87%)	4.56/5 (97%)	Reduction in over-pumping wells	88.0%
The AgCenter involves me in decisions that impact my community	3.91/5 (78%)	4.30/5 (87%)		
I am aware of irrigation training/resources provided by the AgCenter	3.00/5 (60%)	4.30/5 (86%)		
I am aware of irrigation technologies developed by the AgCenter	2.91/5 (58%)	4.10/5 (83%)		

NEXT STEPS

Upon DIRT's release, the community-driven collaborative approach to the application's development will continue to create stronger partnerships with stakeholders while creating a webtool that will better meet the needs of irrigators. This process will build a shared leadership that will partake in the identification of mutual goals for future collaborations with the community.

REFERENCES

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