Evaluating and Advancing Knowledge Transfer in Organic

OUTCOMES FROM THE 2018 ORGANIC CONFLUENCES SUMMIT

The Organic Center™

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Acknowledgment

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Introduction

Organic farmers endeavor to farm in a sustainable manner by using techniques that decrease the use of off-farm inputs, reduce resource consumption, increase biodiversity and preserve productivity. Moreover, they must simultaneously tackle a diverse array of on-farm challenges including fertility management, weed and pest control, as well as agro-economic challenges such as yield constraints, crop failure and supply chain uncertainty.

While all farmers rely on technical assistance and educational support to maintain successful operations, organic farming is fundamentally different from conventional farming. Because the use of the majority of synthetic fertilizers and pesticides are prohibited by the National Organic Program, organic producers strive to utilize whole-system approaches in the management of their farms, relying on complex biological processes to build soil health and combat pests. In the past, this dichotomy between the information needs of organic growers and that of the conventional farming community limited the ability of the traditional extension system to successfully communicate and collaborate with organic farmers.

Assessments of cooperative extension to meet the needs of organic farmers were common from the mid-1990s through the early 2000s, coinciding with the formation and implementation of the United States National Organic Program. Surveys compiled during this period established that organic farmers were less likely to rely on traditional extension than conventional producers, and instead utilized other organic farmers as a primary source of information (Hassanein, 1999; Hassanein & Kloppenburg, 1995; Kloppenburg, 1991; Lyon, 1996; Nerbonne & Lentz, 2003; Padel, 2001). The lack of relevant information

was one of the leading factors identified that led farmers to abandon organic farming as it was consistently cited by farmers as a significant barrier in the transition to organic farming. (Rigby et al. 2001; Walz 1999; Lockeretz 1997). Additional research cited a number of challenges when working with local cooperative extension offices or government offices. For instance, many educators, cooperative extension agents and USDA personnel who did not work with organic producers regularly lacked a working understanding of organic agricultural rules, practices and needs of organic farmers. Additionally, existing research aimed at addressing those needs often harbored bias against organic farming practices in general (Egri 1999; Duram & Larson 2001; Agunga & Igodan, 2007; Lillard & Lindner, 2012; Middendorf, 2007; Swisher & Monaghan, 1995; Wheeler 2008).

Since the 2002 implementation of national organic standards, the organic sector has changed dramatically. Growth in the organic sector has reached almost $40 billion in organic food sales, up from $17 billion in 2005 (OTA 2016). The total number of organic farming operations has grown 16% between 2008 and 2014 (USDA National Agricultural Statistics Service Organic Survey). Organic farmers range from well-established to new and transitioning. They are a demographically diverse group, whose operations vary in size from a few acres to thousands of acres, and are found in all 50 states producing a greater variety of products than ever before.

The amount of research and information directly related to organic systems has also increased dramatically thanks in large part to research funding opportunities offered by USDA's National Institute of Food and Agriculture's Organic Research and Extension Initiative (OREI) and the Organic Transitions (ORG) grant programs. As the knowledge base of organic farming expanded, so have the volume, sources and availability of relevant information. A decade ago, farmers may have sought information from local extension agents, books, workshops or farmer networks. In contrast, recent literature suggests that information sources utilized by organic farmers have broadened to include traditional sources of information as well as an entirely new suite of educational tools utilizing websites, webinars, social media and email listservs provided through diverse organizations such as non-profits, universities, and governmental agencies (Jerkins & Ory 2016; Mishra & Williams 2009; Stephenson et al. 2012). Novel knowledge transfer enterprises have also been launched to meet the information needs of organic farmers, many of which include farmer, research and extension collaborations (Jerkins & Ory 2016). Although these substantial changes have taken place, the last decade has seen little assessment of the efficacy of current information systems in meeting the evolving needs of organic growers.

The combination of a rapidly evolving organic sector, availability of new organic farming information and novel information services demanded an updated exploration and assessment of the effectiveness of knowledge transfer in the organic sector.

The Organic Confluences Summit: Evaluating and Advancing Knowledge Transfer in Organic Production (May 21- 22, 2018, Washington, D.C.) brought together extension professionals representatives of relevant non-profit organizations, scientific experts, organic and conventional producers policymakers, industry participants and other stakeholders to help assess the current state of university extension and education as it relates to organic agricultural production. Conference participants engaged with and learned from a wide variety of panel discussions and lightning presentations before breaking out for small group discussions. The goals of this white paper are to provide the information presented at the Summit and to summarize challenges and recommendations identified by participants.

Monday, May 21, 2018

8:00–9:00am Registration, Coffee, and Breakfast

9:00–9:15am Welcome, Opening Remarks and Introductions

9:15–10:30am **Extension: Past, Present and Future**
Moderated by Jessica Shade, The Organic Center
Kathleen Delate Professor and Extension Specialist, Iowa State University
Laura Driscol Research Fellow, Berkeley Food Institute
Stephen Brown District Agriculture Agent, Cooperative Extension Service, University of Alaska Fairbanks
Alice Formiga eOrganic

10:30–10:45am Break

10:45–11:15am **Clicker Questions**

11:15am–12:15pm **Public-Private Partnerships**
Kevin Mahalko Grassworks, River Country RC&D, Dairy Grazing Apprenticeship, & Organic Valley
Chris Schreiner Oregon Tilth
Matt Dillon Clif Bar

12:15–1:00pm Lunch

1:00–2:15pm **Importance of Communication Among Diverse Stakeholders**
Alex Racellis University of Texas, Rio Grande Valley
Javier Zamora JSM Organics
Michael Wall Georgia Organics

2:15–3:30pm **Assessing the Effectiveness of Extension Requirements in Organic Agriculture Research Funding**
Mat Ngouajio USDA National Institute of Food and Agriculture
Vernon Grubinger University of Vermont and USDA's Northeast SARE
Erin Silva University of Wisconsin, Madison, OGRAIN (Organic Grain Resource and Information Network)

3:30–3:45pm Break

3:45–5:00pm **Information Transfer to Transitioning and Split Operations**
Andrew Barsness Farmer and National Young Farmers Coalition
Anders Gurda University of Vermont and USDA's Northeast SARE
Tucker Gretebeck Farmer, Organic Valley

5:00 pm Conference Adjourns for the day

Tuesday, May 22, 2018

8:00–9:00am Coffee and Breakfast

9:00–9:15am **Day 1 Recap and Day 2 Introduction**

9:15–10:30am **Innovation in Information Transfer: Lightning Session**

Nate Powell-Palm Farmer and Montana Organic Producers Co-op
Maureen Moutoux Montoux Orchard, Chesapeake CRAFT (Collaborative Regional Alliance for Farmer Training)
Chris Schreiner Oregon Tilth
Brise Tencer Organic Farming Research Foundation
Mike Menes True Organics
Suzanne Pender USDA Natural Resource Conservation Service (NRCS), Organic Communications
Lindsay Haines USDA Natural Resource Conservation Service (NRCS), Organic Champions Program
Steven Mirsky USDA Agricultural Research Service, Development of Decision Support Tools for Farmers
Erin Silva University of Wisconsin, Madison, OGRAIN (Organic Grain Resource and Information Network)

10:30–10:45am Break

10:45am–12:15pm **Break-out Discussions**

12:15–1:00pm **Synthesis Discussion and Development of Recommendations**

1:00pm Conference adjourns for the day

Panel Discussion — Extension: Past, Present and Future

Panel Discussions

The conference began with panel members exploring critical areas required to achieve effective information transfer to organic farmers.

Panel discussions **(1)** examined the past, present and potential future of the Cooperative Extension system as it pertains to organic farming; **(2)** discussed the role of public-private partnerships in augmenting organic agriculture extension and education; **(3)** highlighted the importance of effectively communicating to a wide range of diverse organic agricultural stakeholders; **(4)** assessed the effectiveness of extension requirements in organic agriculture research funding, and **(5)** considered tactics for reaching farmers considering transitioning to organic production.

The first panel, Extension: Past, Present and Future, covered the history of the extension system in the United States in the context of organic production, highlighting the historically patchy nature of extension availability to organic producers while highlighting the need for increased access to knowledge. Kathleen Delate (Professor and Extension Specialist, Iowa State University), Laura Driscoll (Research Fellow, Berkeley Food Institute),; Stephen Brown (District Agriculture Agent, Cooperative Extension Service, University of Alaska, Fairbanks), and Alice Formiga (eOrganic, Oregon State University) served as panelists. Many organic specialists at Land-Grant Universities (LGU) hold cooperative extension appointments, signifying LGU efforts in organic agriculture focused first on outreach, with more recent appointments in organic research (Delate & DeWitt 2004).

The Public-Private Partnerships panel examined the important role that industry has in ensuring that organic farmers have the knowledge and technology they need to succeed. Kevin Mahalko (Grassworks, River Country RC&D, Dairy Grazing Apprenticeship, and Organic Valley), Chris Schreiner (Oregon Tilth), and Matt Dillon (Clif Bar) showcased their efforts to achieve beneficial public-private partnerships, and discussed their importance in the technology transfer landscape.

Alexis Racelis (University of Texas, Rio Grande Valley), Javier Zamora (JSM Organics) and Michael Wall (Georgia Organics) illustrated the importance of communication among diverse stakeholders. They noted that because the organic sector includes farmers from a wide variety of backgrounds, it is important that knowledge transfer techniques not exclude underrepresented groups in the organic farming community. For example, providing information to organic growers in both English and Spanish is an easy way to increase accessibility of extension materials and events. The panelists shared their stories and experiences with organic information transfer, and explored the importance of inclusive communication.

The Assessing the effectiveness of extension requirements in organic agriculture research funding panel included National Program Leader Dr. Mathieu Ngouajio (USDA National Institute of Food and Agriculture, USDA Division of Plant Systems), Vernon Grubinger (University of Vermont and USDA's Northeast SARE), and Erin Silva (University of Wisconsin, Madison) as speakers. They detailed education and extension requirements to be competitive when applying for large-scale grants, and discussed their experiences implementing those requirements. Panelists and conference participants highlighted the importance in including extension requirements in large-scale research grants, noting that it was not a universal feature of all federal or private grants. Dr. Grubinger stated that "requiring extension involvement in applied organic research projects is a good way to assure a connection to farmers. If the connection is meaningful, it increases the likelihood that projects are relevant to farmers, and that new information generated will be useful and ultimately put into practice." The type of extension and the need for farmer engagement were also emphasized. For example, farmer participatory research that starts early in the development of a research project is key to ensuring that research projects are able to enhance the success of their projects and adoption of their findings. As Dr. Grubinger put it, "Extension is most effective when the extension/farmer roles span the life of a project that seamlessly integrates research and outreach. That way, farmers are involved throughout the process: from research planning, to feedback on findings, to engagement to support the application of new knowledge, and ultimately, to verification of changes in practices and/or conditions on farms."

The final panel of Day 1 was "Information Transfer to Transitioning and Split Operations", focused on farmers that were interested in transitioning to organic or raised organic and conventional crops. Anders Gurda (Pipeline Foods), Tucker Gretebeck (Farmer, Organic Valley) and Thea O'Carroll (YieldOrganic) noted that to succeed as a sector, organic must be able to recruit farmers who are new to organic techniques, and be amenable to farmers who are interested in producing both organic and conventional products. They shared their experiences of ways that extension and other information transfer sources can connect with farmers who currently use conventional techniques.

Three areas of sources for transitioning farmers were highlighted by panelists as critical for transitioning: other farmers, certifying agencies, and buyers and cooperatives. They also noted that additional resources were needed for farmers interested in transitioning: "information through clinics, conferences, and finding new channels of discovery are the most important to setting up a transitioning operation," said Gretebeck.

The panelists also noted that transitioning to organic had an emotional component, and a connection to the community. O'Carroll stated that "information transfer to transitioning farmers and split operations doesn't always come from the 'how to' behind accomplishing production." Gretebeck agreed with this statement, and shared his own experience: "To me, finding the enthusiasm of industry and the harnessing of their needs to be filled, are what makes a producer want to produce."

Dr. Erin Silva presents information about the Organic Grain Resource and Information Network (OGRAIN)

Lightning Session Presentations

The 2018 Confluences Lightning Presentation Session allowed presenters five minutes each to highlight existing examples of inventive information transfer. The session covered innovative programs, organizations, and companies pioneering new ways to connect farmers with useful information.

Below are summaries from the presentations.

Organic Farming Research Foundation (OFRF)

BRISE TENCER

Trustworthy and up-to-date, scientifically valid information on organic farming practices for beginning or transitioning farmers, geared toward specific regions, is still difficult to find, especially online, the medium of choice for young farmers. Farmers moving into organic production must often still rely on ad hoc and out-of-date information cobbled together from various sources and informal mentoring networks. To address this unmet need, OFRF, the University of California Sustainable Agriculture Research and Education Program (UC SAREP), and the Cal Poly San Luis Obispo Center for Sustainability are creating a free online training class entitled "Organic Specialty Crop Production for California." This self-guided course will provide instruction on key principles and practices of organic production. It will offer virtual field trips via video segments to highlight on-farm examples of practices and feature brief lectures by world-renowned university faculty and links to further resources for self-study.

This training will target beginning farmers, existing organic farmers, and farmers in transition to organic production. In 2015, OFRF surveyed California organic farmers and found that they desired training related to a) irrigation and drought management, b) soil health, biology, and nutrient cycling, c) weed management, d) disease management, and e) insect management. The training will consist of at least six learning modules including the above five priority areas and a learning module on economics and marketing, all focusing on organic orchard and vegetable production. These modules will include descriptive essays, video presentations, interviews with researchers, and virtual field trips to production and research sites.

Oregon Tilth

CHRIS SCHREINER

Through Oregon Tilth's partnership with the USDA Natural Resources Conservation Service (NRCS), they develop technical resources for USDA NRCS staff to supplement their working knowledge of organic production. Additionally, they support the agency's conservation assistance programs and education for organic producers. Their collaboration aims to link organic producers with cutting-edge conservation practices by distilling complex topics into learning resources, such as their "Cover crop implementation guides" "Best Practices Series,and other tools. Their annual webinar series features collaborations with USDA NRCS staff the goal of which is to bring to farmers a range of relevant research on conservation topics from non-ruminant pasture management to case studies of pollinator habitat.

Natural Resources Conservation Service Lexicon of Sustainability

SUZANNE PENDER

Suzanne Pender developed the NRCS communications strategy for organic information by creating a suite of NRCS outreach materials for farmers. Many of these materials were produced in partnership with "The Lexicon of Sustainability" and include a booklet, posters and video shorts, freely available upon request. Additional materials include online story maps, twitter campaigns, videos and exhibits. Learn more about these materials, and about getting the word out on NRCS assistance for organic farmers, at www.nrcs.usda.gov/organic.

U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)

LINDSAY HAINES

NRCS established a network of Organic Champions in 2017. They consist of field and state level NRCS staff with an interest and/or experience in organic agriculture. Their main focus is to be a resource for other NRCS staff in their respective states. State Conservationists decide on the roles. Some have expanded these roles to include outreach, education and partner relationships. This effort creates a new way to build the technical capacity of NRCS staff. Champions participate in monthly calls on timely organic system topics. Recent Champion survey results will be shared, along with goals for the future.

The Collaborative Regional Alliance for Farmer Training (CRAFT)

MAUREEN MOUTOUX

The Collaborative Regional Alliance for Farmer Training (CRAFT) is a farmer-led coalition organized by sustainable agriculture farmers in a self-selected geographic region. Participating farmers offer their time, talents and experience to help prepare the next generation of farmers.

The secret to CRAFT's success is simple--farmers learn most effectively from other farmers. CRAFT provides farmer-to-farmer learning and access to the social network and culture of local farmers. CRAFT farmer alliances are diverse, and focus on many things including internships, employment, mentoring, field days, technical assistance, workshops, conferences, social gatherings, strategic business planning courses, farm incubators and more.

CRAFT alliances are as diverse as the farmers who shape them, and emerge from the character of the region. Farmers in CRAFT follow organic, Biodynamic or other sustainable farming principles. They grow vegetables, livestock and grains, and often run community supported agriculture farms, and sell to other local direct markets including restaurants and wholesale markets.

Northeast Cover Crop Council

STEVEN MIRSKY

Dr. Mirsky is currently chair of the Northeast Cover Crop Council where he is head of the decision support tool committee. This group has built a national partnership with the regional cover crop councils, the goal of which is to develop a decision support platform and a suite of cover crop tools. This effort is part of a broader agenda to develop *An Information Ecology for Sustainable Agriculture*, and will include a system of open source decision support tools, open access databases and on-farm monitoring toolkits that are national in scope but site-specific in recommendation. To provide these sustainable solutions to farmers, there must be data management systems, decision support tools and farm performance monitoring. The system will be self-reinforcing, where decision support tools inform farm management and, in turn, are expanded or improved using data collected on-farm with low-cost sensors.

True Organic

MIKE MENES

True Organic helps connect farmers with fertility management tools through a variety of hands-on, interactive methods. Improving soil health is critical for organic farmers because it directly affects crop yield and sustainability. Many farmers employ traditional techniques such as compost and crop rotation, but there are many other innovative organic-compliant input options that can assist with on-farm fertility. However, realizing the success of these options remains in the capable hands of the grower, the agronomist and extension specialists. The interest of True Organic is to connect with these individuals in all relevant capacities including collaborative field trials, trade shows, industry events, state and local programs, and back to the farm where it all happens.

Organic Grain Resource and Information Network (OGRAIN)

ERIN SILVA

OGRAIN (the Organic Grain Resource and Information Network) is an initiative of Dr. Erin Silva's Organic Research and Extension Program at the University of Wisconsin-Madison. Partly funded by a USDA Beginning Farmer and Rancher Development Program grant, OGRAIN focuses on providing beginning and transitioning organic grain farmers with the tools and information needed to successfully implement organic practices and grow organic crops. One of OGRAIN's primary strategies to achieve this goal is to support a community of organic grain farmers, where peer-to-peer learning is facilitated against a backdrop of research-based information generated by Land Grant Universities. OGRAIN also benefits from the involvement of strong industry partners across the U.S., further providing their unique contributions essential to the long-term strength of the organic grain supply chain. OGRAIN uses a multipronged approach to information dissemination, including a two-day winter conference, a summer field clinic, on-farm field days, an active discussion-based listserv, and a website housing fact sheets, videos, and resource lists (https://ograin.triforce.cals.wisc.edu/).

Discussion Session Outcomes

The conference wrapped up with small group discussions allowing participants to ask questions targeted at tackling the challenges addressed during the conference and developing recommendations for improving the outlook for organic crop production. Below is a summary, of the points brought up in the discussions that provide guidance for developing an organic-focused extension framework.

Strengths in Organic Extension

Many participants in the discussion sections pointed out several strengths of the organic extension system. Examples include the focus on serving farmers, lack of conflicts of interest and, as one participant put it, "They aren't trying to sell you something." Others noted they are objective, community based, connected to networks and are usually willing to help connect you with someone who can help if they can't. Additionally, they are supported by specialists, have a connection to academia and are adaptable.

There was acknowledgement that organic extension is improving. Once participant stated, "Extension interest, investment and knowledge in organic ARE getting better!"

However, this is happening slowly in some areas. In other areas, there is little if any growth in organic extension.

In areas where organic is more prevalent, we are seeing the biggest improvement in organic extension. Moreover, extension personnel are responsible to their client, the farmer. As more of their clients become organic farmers, focus areas are shiftingBut, because organic is expanding so rapidly, the shift in extension's focus to organic is lagging behind demand. However, it will take time for extension priorities to shift to organic production needs. In the meantime, organic growers will remain at a disadvantage.

Increasing involvement of graduate students is another trend that is moving the needle of organic extension.

For example, graduate students with interests in organic are joining a range of university research labs, creating a cascading effect on the need for organic knowledge and research. As these students continue their careers, we should expect to see a greater academic and applied focus in the organic research and extension sectors. Discussions also highlighted the need for increased education to lower grade levels such as providing school-age children with opportunities to visit organic farms, which may in turn encourage future generations of farmers.

The need for regional-specific information was voiced multiple times in the discussion sections.
This would be strength of the extension system, if enough knowledgeable agents were available in each region. However, with the regional disparities in organic knowledge, this type of regional specialization is often not achieved.

Challenges to Organic Extension

Conference participants also noted several challenges to organic extension. Some people perceived a bias toward conventional agriculture. One participant said, "This is the flip side of being a community based system – it is hard to break out of the expectations of your community." Another noted that it can be difficult to build trust. "If you go too far outside of the expected norms, you're considered a wacko!"

Participants also noted that because of the limited number of extension agents, extension staff are generalists and organic farmers need more specialists. They also noted that extension is limited by a lack of supporting alternative research, is bounded geographically, has problems with a lack of recruitment, and does not have enough institutional support for organic education. Additionally, many of the extension agents who are the most helpful to organic farmers are self-motivated, and lack the support of the larger extension system. When those individuals retire or switch positions, their replacements may not have the same interests in organic.

Some participants noted that traditional extension was too focused on academic research, and did not include enough focus on farmer experiences. Because there has not been enough published about organic agriculture – especially regionally specific information – farmer knowledge should be incorporated into discussions about management systems. "Extension agents don't view farmers as educators," noted one participant. "Especially in organic, farmers are sometimes doing more science in their fields than any academic!"

Regarding institutional change leading to additional extension support of organic crop production, participants suggested ensuring farmers are provided the opportunity to offer meaningful feedback relating to the effectiveness of extension services available. Grower communication to universities can have an impact, and the link between farmers and the extension institution can help ensure that farmer needs are being met. "Farmers should unite to request a change in direction toward organic," said one participant. "It's the growers and public who have the power to change the focus of extension – not the extension agents themselves."

Diversity in the Organic Sector

While improving communication across different sectors in the organic community is necessary to drive useful organic agriculture research, underrepresented groups must also be included to ensure all stakeholder needs are taken into account. For instance, the number of U.S. farm operations owned and operated by minorities has increased significantly. Between 2007 and 2012, farms with owner operators who identify as Hispanic, African American and Asian increased by 21%, 12% and 21%, respectively. Minority farmers may experience unique barriers inhibiting information transfer. They may rely on alternative resources or networks to obtain informa¬tion than a farmer in the majority, and face challenges such as language and historic cultural barriers inhibiting information access. As the organic sector grows in size and diversity, it is important that knowledge transfer techniques are inclusive.

For example, participants noted that rural communities, and especially marginalized populations, can be skeptical of most federal agriculture-related programs. As Michael Wall of Georgia Organics put it, "For programs that urge farmers to buy into the USDA's National Organic Program, trust is key and difficult to obtain." He followed up by noting that "trust is possible to earn through long-term and sustained interactions. That means you have to show up, meet people where there are, and just be there without asking anyone for anything."

Additionally, engaging underrepresented groups will not move the needle when it comes to diversity in organic agriculture unless the knowledge transfer management reflects this diversity. Including underrepresented groups in leadership and organizational roles is critical for achieving a system that does not inadvertently sideline people outside of the traditional white, male farmer mold.

Extension Requirements in Organic Agriculture Research Funding

Clear lines of communication among scientists, farmers, policymakers, regulators, non-profits and industry are essential to ensure the existing organic agricultural research establishment is effectively and efficiently meeting the needs of the organic community. This includes disseminating results from research through effective outlets in a form easily understandable and implementable by the intended audience. Researchers should work closely with extension agents not just to disseminate the results but to determine if and how those results may impact practical decisions on the farm and the probable results. Results should also be disseminated via documents, manuals, or websites designed to be quickly and easily understandable to farmers.

Organic farmers represent a range of demographic and geographic diversity in the commodities that they produce and their experience as farmers. Not surprisingly, research has shown that organic and sustainable farmers seek educational materials from a wide variety of sources. Today's organic farmers are likely to uti¬lize traditional sources of information as well as an entirely new suite of educational tools including websites, webinars, social media and e-mail listservs provided through diverse organizations including non-profits, universities, and governmental agencies. As such, research should be accompanied by a multifaceted plan to disseminate results via a diversity of venues and media in an understandable manner. For example, results can be disseminated via websites such as eOrganic or YouTube, and social media platforms such as Facebook, as well as by traditional forms including presentations at farmer conferences, field days, printed manuals, publication articles and mailed documents for those who do not have access to or who choose not to utilize media via the web.

In addition to government funding for organic research, conference attendees noted that more participation in funding organic research and extension programs from industry members is needed. One participant observed, "We complain that Monsanto® and other conventional industry entities fund extension to its advantage. We need to do the same." Examples of programs that have been done in tandem with organic industry members were hailed as having high success rates – both because of increased funding support as well as the applicability and communication partnership of including industry in the research system.

One suggestion from the discussion sessions was that we frame the need for additional organic research funding in terms of public benefits and ecosystem services. "Organic is helping all farmers and people who live on this planet, so it requires public funding and support," said one participant.

Regional Disparities

There are significant regional disparities in organic extension quality and availability. Organic farmers in areas with fewer organic farms face particular hardships.

The Cooperative Extension System is a nationwide network of locally based offices servicing the exceptionally diverse U.S. farm needs. Conversations at the Organic Confluences Conference made it clear the quality and quantity of information extension agents are willing and able to provide to organic growers in their region vary drastically. In places like Salinas, CA, a hotbed for organic production, organic extension agents are highly qualified. Organic producers in this area have their own dedicated organic extension agent. In contrast, extension services in the Southeast have very little knowledge of organic agriculture, and thus are unable to service organic farmers in those areas.

Some participants noted that they had one extension agent for large regions, and the agent was expected to serve the needs of many diverse producers. "It's no surprise they don't know anything about organic," noted one participant. "They're supposed to be experts on dairy, tree crops, grains, specialty crops, and everything in between, so they don't have time for organic on top of all that."

Participants also said that while extension services are still lacking in many places, extension for organic producers has been improving as the demand for organic-focused information grows. For instance, over the last couple years, organic growers from northern California have felt that organic-specific resources and assistance provided by their local extension agent have been growing to meet the need.

There are also differences in farmer networks from one region to another. Some conference attendees noted that they had an extensive network of organic farmers and communicators in their area, while others said they had trouble connecting with other organic farmers. One attendee from the South said that there were "few sources of information and other farmers don't want to talk about their growing process because they see other farmers as competitors." Some participants were curious about who should be responsible for leveling the regional disparities that exist in the availability of support to organic and transitioning farmers, and whether the federal government could play a larger role in doing this. One idea raised was to have federally funded specialists in each state who would answer organic certification and production questions.

Organic Networks

The importance of organic networks and partnerships was frequently noted in the Confluences discussion sessions. Both within and outside of the traditional extension system, participants talked about how these types of networks could create a scaffolding for farmers who grow crops in areas not surrounded by other organic farms. This approach could enable knowledge to be leveraged and expanded rather than duplicated. Partnerships among extension agents, communication and education non-profits, grower groups, industry members and others would be critical to building these networks.

Developing a network of cooperation between extension agents, industry members, educational non-profits, and other non-traditional forms of information transfer to organic farmers may have a cumulative effect on the quality of organic extension. While there are some excellent examples of public-private partnerships, there is a need for more cohesive collaboration among institutions providing resources for organic farmers. Other, less traditional partnerships could include collaborations with libraries, schools and Master Gardener programs to share organic farmer success stories and showcase local farms.

Historically this sort of network would have been seen at community farmer gatherings, or on farm "twilight" meetings hosted by local extension. This could be updated to create a virtual gathering using social media, listservs, or a wiki for knowledge management. However, understanding how these should be managed by region or nationally would impact their usefulness. In general, people flagged the need for more regionally specific knowledge, while also highlighting the need for inter-regional collaboration and knowledge sharing. Interaction with non-local individuals and groups would be especially beneficial for organic farmers located in areas with low organic farm density, as there may be few local resources for these producers.

However, not all organic farmers are interested in sharing through a collaborative network. Participants noted that some farmers may be guarded or competitive. "Ultimately, farmers need to make a living and want to make a better living than before – competition is the reality of being in a business," it was pointed out.

Educator Experience

The organic agricultural experience of level extension agents still creates a significant barrier. Participants felt that "train-the-trainer" programs were necessary to increase agent organic farming systems knowledge. However, in many areas there are organizations already dedicated to education and training in organic systems. It may not be necessary for extension services to duplicate resources. Rather, farmers may simply be looking for directions to access appropriate resources.

Cultural Barriers

Organic producers and cooperative extension agents each face a number of cultural barriers when working with one another. Because extension agents tend to operate locally, they must be cognizant of the needs, views and feelings of their constituents. This can pose a problem if the bulk of their work is in the conventional realm. As a result, seasoned agents may harbor bias against organic production. Several discussion sections brought up the need for additional diplomacy between organic and conventional farmers and extension agents. As one participant explained, "Organic farmers can feel discriminated against or not welcome, and conventional farmers may feel stigmatized."

Resources for Organic Farmers

All the discussion groups noted there needs to be a better aggregation and evaluation of resources for organic growers. Organic growers often do not know where to find information or the relative quality of the resources. While there exists many sources of organic production information available using an internet search, there appeared to be a lack of an aggregated, credible review of areas that match their current interest presented in a succinct manner. "There are too many sources of information," said one participant. "We have dozens of weak transfer points instead of a couple of trusted fire hoses." Distilling this information may be a role that could be taken on by extension agents. As one participant explained "Extension agents don't need to be experts in organic, but they need to be able to direct farmers to the appropriate resources." This is especially important for farmers considering transition because they are more likely to go to their extension agent and be otherwise unaware of resources outside of the extension system.

Organic educational materials also need to be curated in a way that is accessible and helpful to interested farmers. For example, some information is relevant on a national scale, while other information is more helpful regionally. Unfortunately, there is currently no cohesive clearinghouse where organic farmers can find the information they are looking for quickly. Developing an easily accessible, single repository that allows farmers to search for answers to their questions will be critical as more tools and information become available for organic farmers.

Resources for advanced farmers were cited as one of the areas that need more attention. "There is a lot of beginner information out there, but a gap exists when it comes to more advanced topics or details," said one participant. Participants also discussed the need for marketing, economic, infrastructure, and certification information. For example, one attendee said that "(organic growers) don't have marketing channels set up and they think it's risky to find a new market." Another person addressed the lack of infrastructure, stating that "it is difficult for (organic) growers to find infrastructure to deal with their supply because a producer might have to drive a load of grain over 200 miles to find an elevator that can deal with organic. Most elevators are set up for conventional [production]."

Resources are also lacking for small, uncertified organic farmers who sell less than $5,000 in organic products per year (gross sales). Small organic farms and businesses with gross agricultural income from organic sales of less than $5,000 per year are exempt from certification, and may be less informed about best organic practices. “If you aren’t certified, you can easily fall out of the loop,” said one participant. “You aren’t aware of changes to the organic regulations, and you aren’t necessarily following organic procedures even though you think you are.”

Participants also noted the language of farmer resources and organic policies are not always understandable. There should be better translation of scientific jargon-filled papers or dense regulatory policies so they are more easily accessible and understandable to their target audiences. One participant spoke of the need to “put things into more plan language. Right now a lot is written in a way that is foreign in a day-to-day practical sense.”

Outside the Traditional Extension Box

Outside of traditional extension agents, organic farmers are meeting their needs in a variety of ways. For example, the organic industry has moved to fill the gap in traditional extension for organic farmers, and serves as an educational service for many industry-linked farms. Non-profits and certifiers are also providing educational services to organic farmers.

Training programs involving farmers in leadership positions were consistently noted as the most effective information transfer systems. Train-the-trainer programs were brought up in every discussion section as being important. For example, one participant noted,,“If we don’t have organic farmers training the trainers, then we will have conventionally minded organic trainers and they won’t be able to teach anything besides input substitution.” Discussion groups emphasized that there are many people outside of the traditional extension system that are experts in how to grow effectively within the organic standards, such as experienced organic farmers. As one attendee said,“There are a lot of people on the ground who could represent organic. We need to get these people trained so they can be good local resources.”

Other educational programs highlighted as being especially effective included mentorship and apprenticeship programs, field days and programs allowing one-on-one personal attention. Programs that allow for farm walk-throughs with experienced farmers can be especially valuable for developing organic farmers. However, there are not a lot of resources for this kind of attention, and there is a lack of experienced organic farmers in many areas.

Another area raised during the discussion sessions focused on farmers who are used to farming alone and not used to being part of a farmer network. Discussions examined how to reach out to these solo-farmers through advertisements, word of mouth and social media.

When it comes to farmer information transfer, especially in situations where management changes are needed to achieve best practices, multiple introductions with clear, concise messaging are key. Farmers need to be exposed to new ideas and techniques multiple times before they will change their practices. “It takes a while for things to take root,” said one participant. “Sometimes there is so much information that it can be overwhelming. Less can be more.”

Conclusion

Information transfer to organic farmers offers unique opportunities and challenges, because of the distinctive constraints placed on organic farming, the demographics of organic farmers, and the variable spread of organic farming throughout the United States. The rapid growth of the organic industry over the past decade has led to many innovative information transfer initiatives for organic growers, both within the traditional Cooperative Extension system and outside, with independent organizations and new farmer-focused partnerships. Successful communication systems for organic growers include online platforms such as eOrganic, open source decision support platforms, free online trainings, public-private partnerships, multimedia educational resources, and farmer-led train-the-trainer and peer-to-peer learning programs.

However, there are several challenges for scaling these systems to ensure that organic farmers across regions and demographics have access to the information they need to employ best practices and/or transition to organic management. This conference identified several leverage points that could be addressed to help improve the framework for information transfer to organic farmers. Specifically, conference speakers and participants highlighted the need for:

- **Additional training about organic practices for extension agents across the nation.**
- **Educational material and events that are inclusive to farmers from a diversity of backgrounds, and involvement of underrepresented communities in trainer leadership.**
- **Ensuring that extension requirements in granting guidelines encourage effective results communication and require farmer engagement from the naissance of the project idea through to the implementation of the findings.**

- Additional public-private partnerships that allow increased focus and funding for organic extension.
- Additional research, development, and communication of regional knowledge, networks, and tools.
- Developing a network of cooperation between extension agents, industry members, educational non-profits, and other non-traditional forms of information transfer to organic farmers.
- An aggregated repository of organic educational materials that is curated for credibility and usability.
- Additional organic train-the-trainer materials and events.

While several independent initiatives have begun cropping up to address these challenges, incorporating them into the current Cooperative Extension systems would be especially advantageous because it would complement the current strengths of the extension network. Our hope is that this white paper will help guide the expansion, improvement, and growth of organic education, research, and extension services to support organic and transitioning farmers.

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