Addressing Mine-Scarred Land in the Upper Mississippi River Mining District

April 27, 2017

PI: Geoffrey Siemering (University of Wisconsin)

Co-PIs: Kevin McSweeney (University of Illinois) and Troy Maggied (SW Wisconsin Regional Planning Commission)

Awarded: $15,591

The Upper Mississippi River Valley zinc-lead mining district comprises an area of approximately 4000 square miles covering southwestern Wisconsin, the northwest corner if Illinois and a small sliver of Iowa along the west bank of the Mississippi River. Over the past almost 200 years it is estimated that there have been over 1500 lead and zinc mining operations in the region. While most mining operations ceased by the early 1950s, their environmental legacies remain. These mines impacted the environment through disturbance at the site, ore smelting operations, and ore tailings disposal. Mine operation and decommissioning regulations during this time period were negligible to non-existent. These mines and mining materials continue to impact both the small towns and agricultural lands in this area. State and county agricultural extension specialists are frequently called upon to help area farmers deal with fields (clearly mine-impacted) where corn and soybean crops, “just don’t grow well.” In towns, it is not uncommon for mine shafts to extend underneath housing and for sinkholes to open up as the shaft supports collapse. Mine wastes may also compromise the safety of food for human consumption and animal feed due to elevated contaminant levels in plant tissue.

NCRCRD
North Central Regional Center for Rural Development

Addressing Mine-Scarred Land in the Upper Mississippi River Mining District

Final Report

(zinc toxicity in corn)

Co-Principal Investigator:
Geoff Siemering
Department of Soil Science
University of Wisconsin Madison
Email: gsiemering@wisc.edu

Co-Principal investigators
Troy Maggied, Executive Director
Southwestern Wisconsin Regional Planning Commission

Kevin McSweeney, Director
University of Illinois Arboretum

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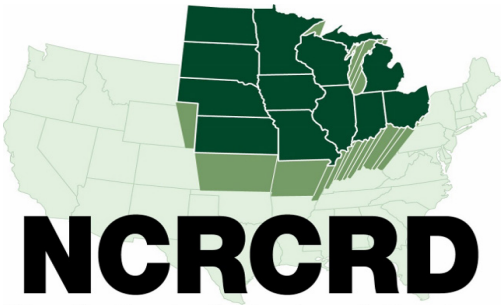

NCRCRD
North Central Regional Center for Rural Development

Michigan State University
Justin S. Morrill Hall of Agriculture
446 W. Circle Drive, Room 66
East Lansing, MI 48824-1039

Phone: 517.355.3373
Web: ncrcrd.org

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Project Goals and Activities

The goal of our efforts is to assist communities in the historic Upper Mississippi River Mining district in assessing and mitigating the hazards from toxic metal contamination resulting from past lead, zinc, and cadmium extraction activities. The main goal of this particular project was to develop a coalition proposal to the USEPA Brownfields Assessment program. This required the development of a coalition of local agencies and educating the community about the opportunities available through this federal program. While Brownfields are typically contaminated industrial or commercial properties and parcels in need of redevelopment, under the USEPA Brownfields program "mine-scarred" land is eligible for funding.

Project Accomplishments

1. Development of a coalition to pursue USEPA Brownfields Coalition Assessment Grant

This grant type allows for up to $600,000 in total funding. As this is a funding source not previously pursued by this region, considerable time was spent identifying and educating potential members about the program and crafting the proposal to leverage their strengths. As the mining district extends into Illinois, partners from both states participated. A multi-state application is unusual for a Brownfields proposal, but in this case both states are within USEPA Region 5 and have identical needs where economies of scale could clearly be realized.

Coalition members included:

- University of Wisconsin Extension (state, Iowa, Grant and Lafayette County)
- Southwestern Wisconsin Regional Planning Commission
- Southwest Badger Reclamation District
- University of Wisconsin Platteville
- Blackhawk Hills Regional Council (NW IL development agency)
- University of Illinois, Urbana-Champaign
- City of Galena, Illinois
- Grant County, WI public health department
- Iowa County, WI government
- Lafayete County, WI government

2. Grant preparation

The primary task of writing the proposal was done by Geoff Siemering at the University of Wisconsin Madison. Mr. Siemering holds a joint UW and UW-Extension appointment, has extensive contaminant transport research experience and is a member of the Wisconsin Brownfields policy advisory board. Mr. Maggied took the lead in coordinating with local coalition members. The program rules require that three non-academic units of local government for the coalition and the lead community group (SWWRPC) submit the application.

Challenges

While meeting the requirements of the Brownfields program, this proposal was substantially different from most proposals received by USEPA. Its design was not without precedent as a similar proposal was funded in California looking at historic mercury mines. Our proposal addressed a large land area (approx. 4000 square miles) with over 1800 potential sites, many of which are not easily located. A typical Brownfields proposal will address one discrete property within one municipality. As such, a larger proportion of our project budget needed to be expended on large scale planning activities. Also, Wisconsin law (unlike California) does not allow for easy site access to privately owned contaminated property.

Unfortunately, the proposal was not ultimately funded. Programmatic feedback identified the need to spend project funds on area-wide planning and lack of immediate site access as the two major deficiencies.

Future Opportunities

Shortly after submitting the USEPA Brownfields program proposal, two additional proposals were submitted and funded relating to specific pieces of our larger assessment efforts.

1. The Wisconsin Alumni Research Foundation provided funding for a graduate student for one year to do large scale planning efforts for the mining region relating to reclamation and reuse of mine-scarred land. These efforts will be directly applicable to future Brownfields and other proposals.
2. The University of Wisconsin-Consortium for Extension and Research in Agriculture and Natural Resources funded Mr. Siemering and a UW-Platteville researcher/UW state Extension specialist for two years to work explore potential interventions at mine scarred sites to boost agricultural production or establish pollinator islands at these sites.

Additionally, the Healthier Wisconsin Partnership Program provides funding to address health disparities in Wisconsin communities. The public health aspects of this Brownfields proposal will serve as the basis for a future proposal to this program.

Workforce Issues: Collaborating to Build Extension's Capacity

April 27, 2017

PI: Kenneth Sherin (South Dakota State University)

Co-PI: Cheryl Burkhart-Kriesel (University of Nebraska)

Awarded: $8,571

Globalization has laid the foundation for an increasing skills gap in the US labor market. Communities, regardless of their size and location, have to compete for skilled workers. Attracting and retaining talent, both in the foundational STEM (science, technology, engineering and math) areas as well as in vocational skills, is a subject of increasing concern. This has not gone unnoticed by Extension. Several states in the North Central region have been working on specific workforce issues within their state but there has been limited conversation about how these resources could be pooled or what gaps exist. Multi-state collaborations in this area offer obvious efficiencies and yet untapped opportunities for effectiveness. This project proposes to: 1) initiate a regional Extension dialogue on possible methods to support the development of local workforce skills at the community level; 2) start to identify and inventory key current workforce development resources, primarily within Extension and this region and possibly within other regions; 3) identify gaps, primarily programmatic but possibly in research, that would help communities better address workforce skill issues; 4) modify, if needed, possible resources for multi-state use and consider ways to make resources available in a “one-stop shop”; and 5) disseminate what the project learns and compiles through a 2017 pre-conference workshop at NACDEP.

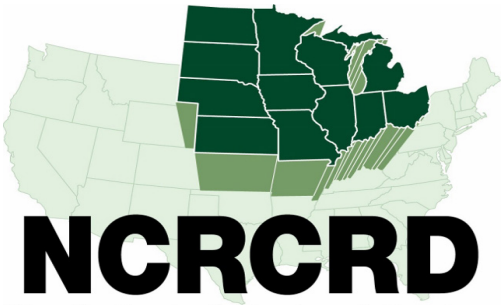
Workforce Issues: Collaborating to Build Extension's Capacity

2017

Kenneth Sherin, Extension Specialist/ Program Leader,
Community Vitality
South Dakota State University

and

Cheryl Burkhart Kriesel, Extension Specialist
Community Vitality
University of Nebraska Extension



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Background

Globalization and changes in the structure and nature of competition have created what is commonly referred to by employers as a skills gap in the national labor market. This mismatch between employer labor needs and the skills available employees bring to the workforce has not gone unnoticed by USDA National Institute of Food and Agriculture (NIFA) and the North Central Regional Community Rural Development Center (NCRCRD). In 2016 the NCRCRD, through its small grant program supported by NIFA, funded this grant proposal that would begin to bringing together Land-Grant Extension Community Development expertise in the area of workforce development.

Process and Outcomes

The goal of this effort was to form and energize the Workforce Development in Extension Workgroup (WDEW) so that a more unified and strategic effort could be developed within this issue area. Professionals were recruited through connections in informal networks and through two professional conferences, the Community Development Society (CDS) and the National Association of Community Development Extension Professionals (NACDEP) in 2016 and 2017. What started out as a regional North Central project quickly gained interest from Extension professionals from across the United States.

The group formed and grew over time and started holding regular video conference meetings to discuss goals and action items for this emerging effort. A major outcome was the benchmark survey initiated by the group to capture the current workforce development capacity of Cooperative Extension systems across the United States. It is understood that this listing is constantly evolving as new programs and projects are developed. The survey documented the institution, program name, target audience, program description, type of resource, impacts of the program, web link (if available), grant funded (if applicable), partners in the program, and contact information. The survey is located at: https://docs.google.com/forms/d/e/1FAIpQLSf8TVcS0DaelRQnxG6zowQiJHhKrOiHMj9S8y9l-BX1esnYXEw/viewform

Along with the survey, the group supported a presentation at the 2017 Community Development Society to increase awareness and encourage involvement by both Extension professionals and non-Extension professionals in their role as vital partners.

Another proposed outcome was a formal workshop during the 2017 NACDEP conference in Montana. A proposal was submitted by the group but the conference planning committee did not choose it as one of the formally recognized workshops. To compensate for this situation, the group went ahead and hosted an informal workshop or conversation during the pre-conference time slot and promoted this opportunity outside of the traditional conference venues and through referrals. Approximately a dozen professionals attended the two hour session and during that time the participants analyzed the survey entries to determine resource types and target audiences for the 30+ programs entered into the survey. The group also spent time to solidify group direction and it began to brainstorm educational and research opportunities. Short-term next steps were discussed and assignments were made.

One of the next steps included the development of a webinar series, tentatively co-hosted by either eXtension or the NCRCRD, that would highlight workforce best practices focused on specific target audiences. These audiences would include: youth/young adults; adults/aging workforce; community /local government leaders; formerly incarcerated; and immigrant populations. Individuals stepped up and volunteered to lead these targeted webinars. Arrangements are currently in progress to get the schedule set for these webinars in the spring of 2018. Estimated dollars of personnel time leveraged by the NCRCRD grant was approximately $10,700.

Workgroup Members

Work group members involved in this process included: Kenneth Sherin, SDSU Extension, Cheryl Burkhart-Kriesel, Nebraska Extension; Annie Cruz-Porter, Purdue University Extension; Pat Curry, University of Missouri Extension; Laura Fuller, Ohio State Extension; DeNae Gitonga, University of Missouri Extension; Melinda Grismer, Purdue University Center for Regional Development; John Gulick, University of Missouri Extension; Carolyn Hatch, formerly with the Purdue Center for Regional Development and now professor in Montreal, Canada; Tanya Hall, Purdue Extension; Debra Hansen, Washington State University Extension; Meagan Lannan, Montana Department of Labor and Industry; Ken Larimore, Illinois Extension; Heidi Marie Mouillesseaux-Kunzman, Cornell University Extension; Mark Peterson, University of Arkansas Extension; Milan Wall, The Heartland Center for Leadership Development; Katie Weaver, Montana State University Extension; and Carroll Welte, Nebraska Extension.

In addition to these members, Brent Elrod, National Program Leader – Community & Rural Development, USDA National Institute of Food and Agriculture functioned as an interested partner who connected with team members on a regular basis.

Future Direction

The individuals of the group have interest in continuing the discussion and growing the professional network for those involved in workforce development issues. Several ideas were discussed but the group also recognized the challenge of keeping the momentum to go forward without a grant to help with funding issues or a project/ presentation that the group could rally around.

As a new and growing group, face-to-face interactions are very valuable and time spans beyond a hour allow the group to have more meaningful conversations. A mix of distance and face-to-face interaction are truly needed to continue this work.

Some of the topics identified early on that need more discussion and action include:

- A more in-depth discussion on the identification of workforce resource strengths and both current/future gaps;
- Brainstorm future collaborations for new workforce development resources and research;
- Design/develop a platform to share workforce development resources and research; and
- Initiate a discussion on policies that impact workforce to help those working in the area to better understand current and possible future policy trends.

Publications

At the request of Dr. Mark Skidmore the group produced a summary document of the current findings in June, 2017. Dr. Skidmore and Rachel Welborn were meeting with key leaders from the U.S. Department of Labor at that time and were interested in sharing the summary. The same document was sent to Brent Elrod, a USDA NIFA representative, per his request, for his collection of information that was going to be provided to the White House Task Force on Agriculture and Rural Prosperity.

In addition the document was shared with Dr. Stuart Andreason from the Federal Reserve Bank of Atlanta. As a result, Dr. Andreason asked Sherin and Burkhart-Kriesel to expand the summary so it could be included in a book of case studies he is compiling on workforce development resources. The draft was completed and shared with Dr. Andreason in December of 2017.

Challenges and Barriers

Workforce development education and research can be fragmented within and across disciplines. It is also not found in any one particular program area. Getting information for instance, from Family

and Consumer Sciences centered workforce development programs as well as others, has been a challenge. The group acknowledges there are undoubtedly programs and resources not entered into the benchmark survey. Therefore, the group assumes that this is a work in progress.

Extension also has a history of having issues masked by other programming priorities. As the group conversations evolved, it quickly became obvious that Cooperative Extension is doing workforce development work, but it does not communicate this to the public in the language of workforce development. For instance, phrases like "workforce skills" or "workforce development" are not commonly used within the Extension nomenclature. The 4-H program is youth development but the skills and capacities gained in 4-H translate into workforce skills.

To maintain our place as a stakeholder at the workforce development table Extension will have to be able to publicly translate its efforts into workforce terms. This is a culture change that takes considerable time and effort. Many feel that this project offered a starting point to make that happen.

Using Agent Based Modelling to Understand and Enhance Rural Tourism Industry Collaboration

April 27, 2017

PI: Sarah Nicholls (Michigan State University)

Co-PIs: Jonathan Day (Purdue University), Bonnie Zoia (Michigan State University)

Awarded: $12,276

Unlike traditional primary and secondary sectors such as forestry, fishing and manufacturing, tourism is diverse and fragmented, made up of a diverse assortment of public, private and non-profit agencies and entities that operate under a range of missions and mandates, and at a variety of geographic scales. As such, tourism is a classic though often not recognized example of a complex system. The tourism industry is also plagued by a general lack of collaboration, cooperation and partnerships, especially in rural areas. The funds requested would be used as seed monies to assist in the development of a proposal to be submitted to the National Science Foundation that would explore and demonstrate the use of agent-based modelling in the understanding and enhancement of tourism industry collaboration in a rural context. The use of ABM will allow industry actors' behaviors, and the interactions between them, to be visualized and assessed. Resulting outcomes will enable researchers and practitioners to identify, understand and replicate the drivers of collaboration, as well as the settings in which collaboration is most likely to flourish.

Farmer to Non-Farmer: The Role of Farmer Identity on Conservation

April 27, 2017

PI: Eric Toman (Ohio State University)

CO-PI: J. Arbuckle (Iowa State University)

Awarded: $20,309

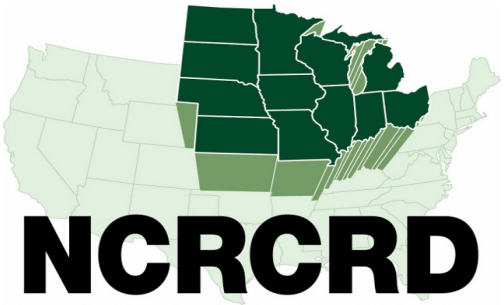
The need exists to better understand the full population of landowners, and the factors that influence their behaviors, to balance agriculture production and maintenance of ecosystem quality and services. To date, limited research has examined how a farmer's occupational identity influences land management decisions in the U.S. Occupational identity has the potential to provide a filter to help determine the factors that influence best management practice (BMP) adoption among different segments of the rural population. Utilizing postal surveys to rural landowners, we expect findings from the proposed research to help inform how to tailor programs that seek to advance adoption of BMPs. In addition, findings will advance theoretical understanding by providing further testing of a measure of occupational identity among rural landowners and its first quantitative assessment among U.S. landowners. As calls for increased efficiency and effectiveness from federal and state agencies to address environmental concerns escalates, there is a critical need for a closer examination of the relationship between non-operator landowners, with varying farmer occupational identities, and the tenant farmers in relation to barriers and incentives that exist to adopt BMPs.

Farmer to non-farmer – the role of farmer identity on conservation

2017

Dr. Eric Toman and Dr. Theresa Groth
School of Environment and Natural Resources
The Ohio State University

J. Arbuckle
Department of Sociology
Iowa State University



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I. Abstract

The trend to multifunctional rural landscapes in developed countries is characterized, in part, by the contrasting values, land uses and land management practices of rural property owners. In agricultural regions, it seems these trends are, at least in part, an expression of the extent rural landowners identify as farmers. Investigation of these trends has been hampered by the absence of robust approaches to measuring occupational identity amongst rural landowners. As the non-farmer cohort of rural landowners increases, it is expected that occupational identity will be an increasingly important factor affecting rural landowner adoption of best management practices (BMPs). Initial research suggests a farmer's identity may be a strong indicator of likelihood of adoption of BMPs in Australia, a country that exhibits several similarities with the U.S. agricultural model (McGuire et al., 2015). To date, limited research has examined how occupational identity of the spectrum of rural landowners influences land management decisions in the U.S. As calls from federal and state agencies to address nutrient pollution increase, there is a critical need to establish improved methods to identify the barriers or incentives that influence adoption of BMPs. Specifically, there is a need for a closer examination between non-operator landowners with varying farmer occupational identities and the relationship to the tenant farmer in relation to BMP adoption. This project was designed to help address that gap by completing a survey of landholders in four counties in Iowa (Pocahontas and Wright counties) and Ohio (Henry and Paulding counties). Mail surveys were sent to a sample of 4,000 landowning residents in each location who owned more than 40 acres. The survey included general demographic items, support and behaviors relating to best management practices (e.g. filter strips, crop rotation, nutrient management, grass waterways), knowledge items, relationship to tenant farmer (if applicable), and a measure of the extent that participants identify as farmers (Farmer-Collective Occupational Identity Construct -F-COIC).

II. Background and purpose

Environmental outcomes (e.g. water quality or conservation outcomes) are influenced by a variety of decision-makers within the relevant watersheds or conservation districts – including both agricultural and non-agricultural interests. The need exists to better understand the full population of landowners, and the factors that influence their behaviors, to balance agriculture production and maintenance of ecosystem quality and services. The USDA estimates that 1.9 million non-operator landlords own 283.4 million acres (United States Department of Agriculture, 2015). Full-time farmers accounted for less than 50% of principal operators in the United States in 2012 (United States Department of Agriculture, 2014). Studies have typically focused on the action of the 'farmer' and provide less emphasis on the decisions of the 'non-farmer' (e.g., McGuire et al. 2013; McGuire et al. 2015; Shortle et al. 2012). This is problematic in the face of land turnover in which owner-operator farmers are being replaced by non-operator landlords. Work conducted on absentee landowners by Petrzelka and colleagues (Petrzelka, 2012; Petrzelka et al. 2009; Petrzelka & Marquart-Pyatt, 2011) identifies that most (85%) non-operator owners are not engaged in agricultural decision-making, yet this group has a strong interest in the conservation of the environment and wildlife. The non-operator landlords can, but seldom do, raise suggestions/concerns to influence those individuals farming their land. Not surprisingly, owner-operators are more likely than tenant-operators to implement sustainable agricultural practices (Sklenicka et al., 2015; Soule et al. 2000).

As the non-farmer cohort of rural landowners increases, it is expected that occupational identity will be an increasingly important factor affecting rural landowner adoption of best management practices (BMPs) (Gosnell et al. 2007; Mendham et al 2012). Prior research suggests a farmer's identity may be a strong indicator of likelihood of adoption of BMPs in Australia, a country that exhibits several similarities with the U.S. agricultural model (McGuire et al., 2015). However, to date, limited research has examined how occupational identity of the spectrum of rural landowners influences land management decisions in the U.S. Based on initial exploratory work, the Collective Occupational Identity Construct has the potential to help address this need.

The Collective Occupational Identity Construct (COIC) emerged from recent research on farmer occupational identity (Groth et al. 2015). The COIC is a theoretically derived measure of the extent an individual identifies as an agricultural producer. The COIC is based on a measure that has been extensively to examine occupational identity in other contexts (Ashmore et al. 2004). Developed and evaluated through research in Australia and exploratory research in the U.S., prior research suggested that the COIC may provide a useful approach to segmenting landowners.

The long-term goals of the research team are to contribute to the establishment and adoption of a theoretically sound construct to classify rural landowners based on their farmer occupational identity, and examine the connection and influence of that identity on adoption of BMPs.

III. Approach

Data was collected through a mail survey sent to 4,000 selected landowners. The survey included general demographic items, support and behaviors relating to best management practices (e.g. filter strips, crop rotation, nutrient management, grass waterways), knowledge items, relationship to tenant farmer (if applicable), and the COIC adapted to agricultural landowners (referred to as the Farmer-Collective Occupational Identity Construct or F-COIC).

We obtained mailing lists for each county from the relevant tax assessor's office. We omitted any entries that were not deemed appropriate (e.g. multiple properties owned, businesses) and combined entries in which there were multiple parcels owned by the same individual/s. We identified 1,000 landowners in each county who owned a cumulative of at least 40 acres. We followed a modified Dillman mail-out procedure consisting of an initial postcard notifying participants that they have been selected to participate in a study and will be receiving a survey soon (March 13th,2017);a survey packet containing a cover letter, survey and return envelope (March 19th ,2017);a reminder/ thank you postcard sent 2 weeks following the initial survey packet (April 4th,2017);and a second survey packet two weeks later (April 17th,2017). Completed surveys were entered into the Microsoft Excel as they are returned. The data was then imported into SPSS statistical software. Data cleaning commenced followed by analysis.

NCRCRD Data transformations

Responses for three continuous variables were recoded into ordinal variable (Tables 1, 2, and 3). Not Applicable responses were left as is.

Table 1: In a typicalmonth, what percentage of people you interact with socially are either full-time or part-time farmers?

Amount of interaction with full/part-time farmers	Number of respondents (n=930)	% of population
0-22%	344	37.0 %
21-40 %	137	14.7 %
41-60 %	227	24.4 %
61-80 %	158	17.0 %
81-100 %	64	6.9 %

*Groups based on evenly split time percentages

Table 2: How many acres of farmland do you own in total?

Number of acres owned	**Number of respondents (n=974)**	**% of population**
40-69	112	11.5%
70-109	177	18.2 %
110-169	188	19.3 %
170-359	292	30.0 %
360+	205	21.0 %

*Groups based on frequency diagram

Table 3: Estimate the average number of hours per week that you worked on farming/property related activities over the past 12 months.

Number of hours worked	Number of respondents (n=879)	% of population
0	272	30.9%
0.1-5	240	27.3%
6-19	98	11.1%
20-44	152	17.3%
>45	104	11.8%

*Groups based on frequency diagram.

Missing values -F-COIC scale

More than 92.5% of respondents completed 10 of the 12 F-COIC items included in the survey. Non-response rates were higher for two items: "my agricultural production activities distinguish me from those who are not agricultural producers" (7.6%) and "estimate the average number of hours per week that you worked on farming/property related activities over the past 12 months" (11.9%). The research team was reluctant to exclude the items from scale development and evaluated a number of possible ways to address the issue of missing data. In a different survey item (i.e. not part of the F-COIC scale), respondents were asked to indicate if they were a full-time farmer, part-time farmer or non-farmer. Just under one-quarter of the respondents to this item said they were a full-time farmer (23.7%, n = 221), almost a fifth (18.7%, n = 175) identified as a part-time farmer and over half said they were a non-farmer (57.6%, n = 538). Given the small percentage of missing responses, we opted to follow the approach suggested by Vaske (2008) using the solution of random assignment within groups to avoid bias when replacing missing values.

The missing values for the items were replaced using the random assignment within group (i.e. full-time farmer, part-time farmer, non-farmer cohorts) solution, which utilizes the median of nearby points. Three points above and three points below the missing value were used to ascertain the new values sorted by cohort. A small number of cases (n=27) could not be replaced using this method.

Table 4: Items included in the F-COIC scale

Item number	Item	Dimension
1a	How many acres of farmland do you own in total?	Behavioral involvement
3c	I very much identify with agricultural producers where I own/rent farmland	Self-categorization
3d	In general, I am glad that I am an agricultural producer/farmland owner	Evaluation
3e	Being a part of the larger group of ag producers/farmland owners is an important reflection of who I am	Importance
3f	What happens to agricultural producers as a whole will have an effect on what happens in my life	Attachment & sense of interdependence
3g	I have a strong sense of belonging or attachment to agricultural producers	Attachment & sense of interdependence
3h	When someone criticizes agricultural producers, it feels like a personal insult	Attachment & sense of interdependence
3i	My regular social contacts and relationships are with agricultural producers	Social embeddedness
3j	My ag production/farmland activities distinguish me from those who are not agricultural producers	Self-categorization
3k	I consider myself to be like a typical agricultural producer in the area where I own/rent farmland	Self-categorization
7k	In a typical month, what percentage of people you interact with socially are either full-time or part-time farmers?*	Social embeddedness
14c	Estimate the average number of hours per week that you worked on farming/property related activities over the past 12 months.*	Behavioral involvement

*Items were recoded into a 5 point ordinal item

Reliability

Reliability is the ability of a measure to produce consistent results (Field, 2013). Scale reliability was evaluated through the use of statistical testing. A Cronbach alpha level of 0.7 was used as the threshold for including items in the scale and an inter-item correlation coefficient value of 0.3 as the threshold for determining that scale items were assessing different concepts (de Vaus, 1991). Items with inter-item correlations less than 0.3 were removed from the scale. Scale items that met the above criteria were analyzed using exploratory factor analysis to determine the number of components that the scale items were measuring. Data were analyzed using IBM SPSS 23 statistical analysis software.

Testing the internal consistency of the 12 survey items revealed an overall Cronbach alpha level of .834 using list wise deletion. Ten items exceeded the minimum reliability requirements having lower alpha levels if that item is deleted and corrected item-total correlations above the recommended 0.3 [Table below]; two items (1a & 14c) did not meet those specifications. These two items were the only two items designed to explore the F-COIC dimension of behavioral involvement. Without these items the revised 10-item scale had a Cronbach alpha levelof .866 (n=971);most items exceeded the minimum accepted levels and appear to form a reliable scale with the exception of one item (7k) in which the alpha level rose by .011 and is further scrutinized in factor analysis.

IV. Analysis and Discussion

Exploratory Factor Analysis

Principal components factor analysis (PCA) was conducted to confirm whether items should be included in the scale; 971 cases were included in the analysis. The correlation matrix revealed that one item (Item 7k in the table above) had a weak relationship and it was therefore removed from the scale before continued analysis.

PCA was then performed on the remaining 9 CIC survey items with oblique rotation; 971 valid cases were included in the analysis (DeVellis , 2003). Correlations were greater than 0.35 among most items. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .904[1], and all KMO values for individual items were greater than .887, which is well above the acceptable limit of 0.5 (Field, 2013). Two components had eigenvalues over Kaiser's criterion of 1. The first explained 51.7% of the variance and the second explained 11.5% of the variance. The scree plot justified retaining two components as two components were to the left of the point of inflexion. Multicollinearity was not detected – no items correlated very highly ($r > 0.8$) (Field, 2013). These results suggest that 6 F-COIC survey items represent aspects of a farmer occupational identity and three items (3i, 3d and 3j) are representing another aspect to be determined.

F-COIC

Overall, the revised 9-item scale includes five of the seven dimensions included in the original CIC scale assessing occupational identity. Two items (1a and 14c) addressing behavioral involvement of agricultural producers did not meet tests for reliability and were removed from the 12-item scale. One other item (7k) was also removed, but the dimension that item represented is still represented by another, more reliable scale item (3i).

Results for all items are included in the Appendix below.

[1] Per Hutcheson & Sofroniou (1999) in Field, A.P., 2013. Discovering statistics using IBM SPSS statistics, 4th ed. Sage Publications, Los Angeles, CA.

V. Conclusion

Overall, although F-COIC was found to be a valid and reliable construct in the Australian context,it did not appear to work as well in the mid-western U.S. This suggests that while there are similarities between the Australian and American contexts more analysis is needed to identify if a construct can be developed that would allow for direct comparison of rural landowners across different contexts. The proposed research included some additional general survey items revolving around being a rural resident (removing the aspect of farming from the statement). This is an important next step in identifying ways to improve the F-COIC construct. Perhaps in light of rural landscapes becoming more multi-functional, a construct less focused on farmers and more on the rurality of a location will prove to be more effective. Future research will examine the feasibility of a modified scale.

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Community Entrepreneurial Development Project

March 17, 2017

PI: Francis Gublo (Michigan State University)

Co-PIs: Narjes, C. and Hancock, C. (University of Nebraska), and Hayes, A. (Michigan State University)

Awarded: $12,000

Project Abstract: Creating entrepreneurial communities encompasses many elements from community knowledge and mindset to tools and resources to help entrepreneurs grow their endeavor. It has been well documented that helping entrepreneurs is a cost effective way for rural communities to grow and sustain their economy. Although there is no “template” to implement a successful program we feel that Extension faculty can learn and improve educational offerings by sharing best practices.

Michigan State University Extension “Creating Entrepreneurial Communities” (CEC) Team, will partner with the Nebraska “Extension Entrepreneurial Community Activation Process” Team to learn from each other and share best practices which will improve both program offerings and provide educational webinars to others in the North Central Region.

Refining Rural Food Deserts by Transportation Networks

February 23, 2017

PI: Kim, H.J. and Newmark, G. (Kansas State University)

Collaborators: Procter, D. and Knopp Daniels, N. (Kansas State University), Muske, G. (North Dakota State University), Capouch, L. (North Dakota Assoc. of Rural Electric Cooperatives)

Award: $24,803

Project Abstract: A critical concern for the sustainability of rural communities is access to food. Food access promotes the health of rural residents as well as the stability of rural areas. These concerns are particularly pressing for weaker social groups with limited means to travel, such as older adults, disabled persons, and low-income households. Effective public policy to enhance rural food access needs to be based on a rigorous understanding of the actual travel and activity behaviors of rural residents. To date, these patterns have been unexplored with the result that policymaking continues to rely on simple, distance-based models of food deserts imported from urban environments – models which may not translate fully to the very different rural context where longer, chained-trips are common. This research seeks to explore the food access patterns of rural residents to better inform public policy. Specifically, this study aims (a) to reframe rural food access within the context of rural travel behavior that considers the distribution of food outlets using a GIS-based spatial network model; and (b) to understand rural food access barriers and disparities. This study will examine the grocery-related travel of rural residents in the twelve-state NCRCRD region, with additional focus on communities in Kansas and North Dakota, by combining the highly-detailed, geocoded information on trip and activity behavior from the National Household Travel Survey (NHTS) with a full GIS mapping of food outlet location data. This quantitative work will be complemented by focus groups conducted through community extension programs in Kansas and North Dakota.

Food Council Development in Rural Communities: A Toolkit for Extension Educators

January 19, 2017

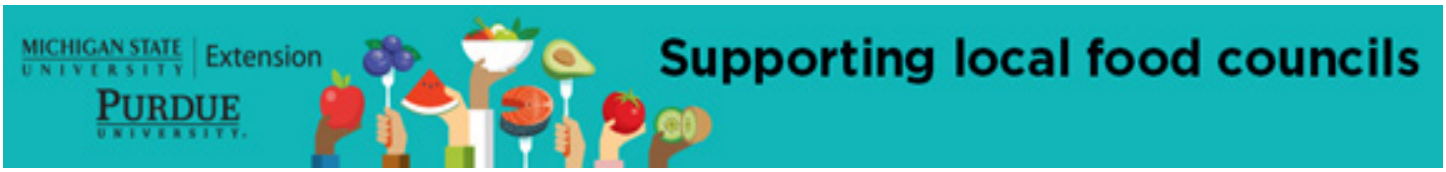
PI: Kendra Wills (Michigan State University)

Co-PI: Jodee Ellett (Purdue University)

Award: $11,000

The rural Midwest is scattered with small towns affected by poverty, hunger and a lack of community services and events. Local food efforts have begun to address some of these issues in rural communities. New farmers markets create greater access to healthier foods. Young food and farming entrepreneurs build the economic base and enhance quality of life. Extension often takes a leadership role in small/rural communities and the diversity of demands on an Educator can be broad. Agricultural and food issues can be complex and controversial in some communities and the need for Extension to have a facilitative leadership role is increasing. We seek to enhance this new role for Extension by creating and piloting a food council development curriculum that will guide our new and seasoned Educators in a six-month process with an engaged group of community members and leaders. This peer-reviewed guidebook will have information relevant to local food and food council development, areas of further study for the convening group and meeting outlines for the six-month development process. We will pilot this guidebook in two rural communities (Michigan and Indiana) and revise accordingly. Evaluation of this guidebook will come from the pilot community groups in the project. We will survey the group at the onset and after completion of the pilot to determine efficacy and impact.

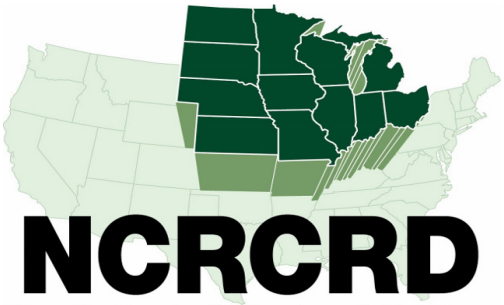
NCRCRD
North Central Regional Center for Rural Development



Principal Investigater:
Kendra Wills
Community Food Systems Educator
Michigan State University Extension
Grand Rapids, MI 49503
willsk@anr.msu.edu

Co-Principal Investigator:
Jodee Ellett
Local Foods Coordinator
Purdue University Extension
West Lafayette, IN 47907
jellett@purdue.edu

October 2017



NCRCRD
North Central Regional Center for Rural Development

Michigan State University
Justin S. Morrill Hall of Agriculture
446 W. Circle Drive, Room 66
East Lansing, MI 48824-1039

Phone: 517.355.3373
Web: ncrcrd.org

The North Central Regional Center for Rural Development (NCRCRD) is one of four regional centers in the United States that work to improve the quality of life in rural communities. With funding from the USDA National Institute of Food and Agriculture and the land-grant universities in our 12-state region, the NCRCRD helps Extension professionals, researchers and other partners address issues that affect rural areas across the region. The center provides leadership in rural development by linking research with education and community outreach to facilitate, integrate, link and coordinate research and action for rural America.

This material is based on work supported by annual base funding through the National Institute of Food and Agriculture, U.S. Department of Agriculture. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture or other funders.

Mission of the North Central Regional Center for Rural Development: Strengthening the ability of the land-grant university system to execute its rural development mission. Michigan State University is an affirmative-action, equal opportunity employer.

Project Goals and Activities

The goal of the project was to establish professional development resources for Extension and community development professionals to learn how to better support and facilitate the formation and sustainability of food councils.

Food councils that are developed and supported by Extension benefit from a stable organization with a breadth of resources, knowledge and skills to ensure success. Working with community members, leaders and groups, a food council can develop leadership within the community to tackle difficult and complex food system issues that reflect local need. The program areas of Extension all touch parts of the food system, but Extension staff are not necessarily addressing system issues in their everyday work environment.

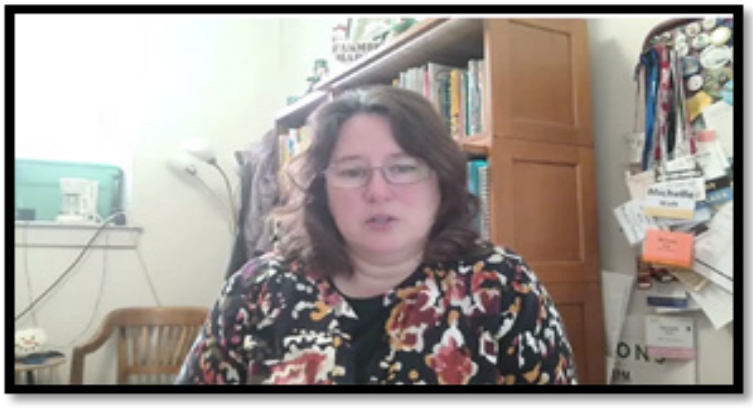
This project created a resource that Extension staff need across all program areas. After participating in this project, each Extension agent/educator will be able to engage more effectively with local food councils. Food system work is often a longer-term engagement process that works to enhance community vitality, create local leadership and open the door for further entrepreneurial and community development action.

To accomplish our goal, we developed a curriculum outline and it was reviewed by peers, including the food policy council experts at The Center for a Livable Future at Johns Hopkins University in Baltimore, Maryland. We engaged our technology resource experts at both Purdue University and MSU to learn how we could record and use content from presenters online and upload and enhance the delivery of the course at a low cost. We then reached out through two large, national food systems listservs (the eXtension Community of Practice in Community and Regional Food Systems (CRFS) and the North American Food Systems Network), as well as, the Michigan and Indiana networks to identify experts and Extension peers that were able to present content for the course. We scheduled, recorded and edited all of the 'Expert' and 'Testimonial' videos for the course content in addition to the written and online materials to include our Desire to Learn (D2L) course titled, Supporting Local Food Councils.

Once assembled, we reached out through our Indiana, Michigan and national networks to find reviewers for the course modules. We presented a poster at the National Association of Community Development Extension Professionals (NACDEP) in June 2017 and were able to engage a number of food systems professionals in the review process through this event. Many of these professionals are interested in taking the course and sharing it with their networks once it is launched to the public.

In addition, we developed and field-tested some of the materials with the Lake County Community Food Council in Michigan and the Gary, IN and the Northwest Indiana (NWI) Food Councils. Both organizations serve rural food desert communities within the North Central Region.

Michelle Walk, MSU Extension Community Food Systems Educator, provided three testimonial videos for the course. Michelle works with a food council in the Upper Peninsula.



Project Accomplishments

Supporting Local Food Councils is an online, free course available to anyone through the MSU D2L website: https://d2l.msu.edu/d2l/loginh/. Participants are able to create a profile in the MSU system with a community login to access the course.

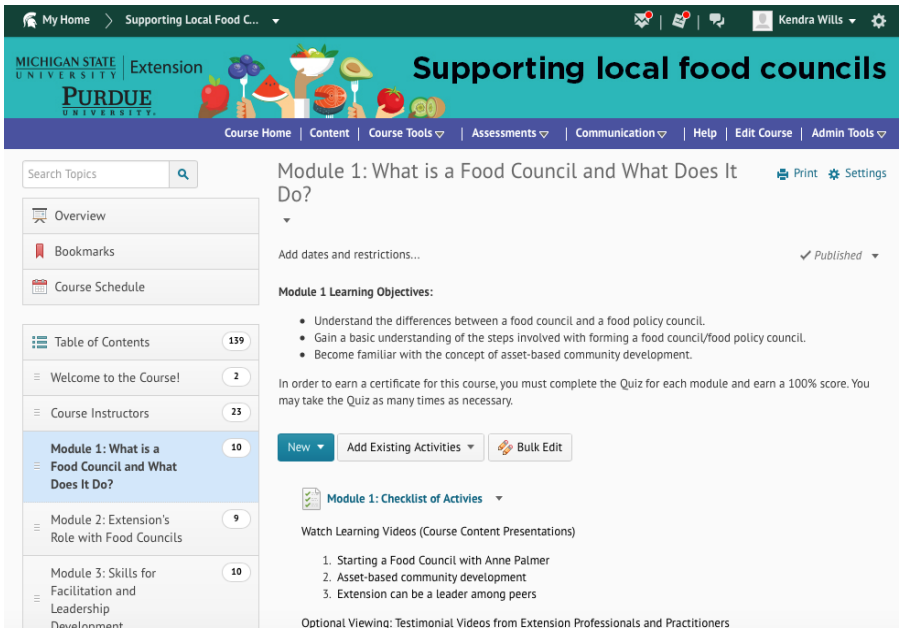
The course has 15 learning modules that includes: video presentations, downloadable written materials and external links to provide a breadth of materials for professionals supporting food councils. The following is a list of the course learning modules:

1. What is a food council and what does it do?
2. Extension's role with food councils
3. Skills for meeting facilitation and leadership development
4. Understanding community food systems
5. Holding the first meeting
6. Establishing a communications framework
7. Conducting a community food assessment
8. Developing a mission and vision for your council
9. Food policy and planning
10. Organization and legal structures
11. Events planning and management
12. Funding your council
13. Evaluation and reporting
14. Creating a sustainable food council
15. Creating a regional or statewide food council network

We recorded (remote and in-person) and edited 52 videos from 23 speakers, who work in 11 different states. Clients are able to take one or all modules, but to earn a certificate of completion, all modules must be completed and receive 100% correct score on all module quizzes. (Quizzes may be taken as many times as necessary to earn the 100% correct score.) The course will take 20-25 hours to complete. The certificate could be used in annual reporting (and goal setting) for Extension and community development professionals.

Expert and Testimonial presenters in Supporting Local Food Councils course:

- Amanda Edmunds, Executive Director of Growing Hope and Chairperson of the Washtenaw County (Michigan) Food Policy Council
- Anne Palmer, Johns Hopkins University
- Barbara LaClair, Consultant, Kansas
- Becky Bowen, North Carolina State University
- Brian Raison, The Ohio State University
- Caitlyn Glatting, University of Florida
- Carmen DeRusha, Purdue University Extension
- Emily Toner, Purdue University Extension
- Garrett Zeigler, Michigan State University Extension
- Heather Manzo, Penn State University Extension
- J.R. Reynolds, Good Food Battle Creek (Michigan)
- Julia Darnton, Michigan State University Extension
- Karen Bassarab, Johns Hopkins University
- Kendra Gibson, Michigan State University Extension
- Kibibi Blount-Dorn, Detroit Food Policy Council
- Kimberly Hodgson, American Planning Association Food System Interest Group
- Kris Parker, Purdue University Extension
- Liz Gensler, Michigan State University Center for Regional Food Systems
- Lyndsay Ploehn, Purdue University Extension
- Mark Winne, Johns Hopkins University
- Michelle Walk, Michigan State University Extension
- Terry McClean, Michigan State University Extension
- Tiffany Torres, University of Florida



The image above is a screen capture from the D2L Supporting Local Food Councils course. Each module contains a course content video presentation, testimonial videos, course readings, relevant tools (additional readings or web resources), and a quiz.

Review of Content

Extension and food council professionals, with a range of experience, from across the U.S., were asked to pilot test the Supporting Local Food Councils online course in September 2017. Sixteen (16) experts completed a portion of the review process and 13 experts completed our entire pilot testing process and evaluation. Several of our pilot testers were also course instructors and this review process allowed them to see their content in context with the other learning modules and presenters.

- Mariel Borgman, Michigan State University Extension
- Liz Gensler, Michigan State University Center for Regional Food Systems
- Kendra Gibson, Michigan State University Extension
- Caitlyn Glatting, University of Florida
- Vickie Hadley, Purdue University
- Joanna Lelekacs, North Carolina State University
- Kathryn Macomber, University of Missouri
- Heather Manzo, Penn State University
- Anne Palmer, Johns Hopkins
- Erin Peot, University of Wisconsin Extension
- Lyndsay Ploehn, Purdue University
- Brian Raison, Ohio State University
- Janet Reed, Purdue University
- Lisa Uganski, Ottawa County Health Department and Chairperson of the Ottawa County Food Policy Council
- Michelle Walk, Michigan State University Extension
- Kaitlin Wojciak, Michigan State University Extension

Results of content review

Our pilot students' experience with food councils ranged from: less than one year (1 person); 1-3 years (6 people) to more than three years (6 people). Summary of evaluation results:

- 100% or 13/13 said they would recommend the course to others.
- 76% or 10/13 said they plan to use some of the course resources/tools in their local food council work.
- 84% said the readings were helpful and they plan to refer to them in the future.
- 69% said they did not have any technical difficulties with the course materials or D2L system.
- Four (4) people said they did experience difficulty.

Marketing Plan

We plan to officially launch the Supporting Local Food Councils to the public in November or December 2017 or January 2018. We are working with MSU Extension to develop a web site landing page and registration process for the course. Please note that all of our course materials and marketing materials will credit NCRCRD for supporting this project.

Once the website and registration process is ready, we will market the course through the Community, Local and Regional Food Systems eXtension Community of Practice to inform local food Extension staff about this new resource.

Indiana Food Council Workshop

On September 25, 2017, we hosted a statewide food council workshop at Purdue Extension with Mark Winne in Indianapolis, Indiana. Mark spent a full day and evening with more than 40 food council members from across Indiana to boost their knowledge and understanding of goals, facilitation processes, ideas for getting things done, and a discussion of how Extension can facilitate the formation of a statewide council. Participants found the workshop useful.

This professional development course is critical for Indiana. There are at least seven emerging and established food councils that affect much of our geography: Elkhart County Food Council, St. Joe County Food Council, Marshall County Food Council, Northwest Indiana Food Council, Northeast Indiana Local Food Network, Indy Food Council and the Bloomington Food Policy Council. Richmond, Brown County, Evansville, Muncie and others are also working on developing a food council. Having this educational resource available at the time these food councils are forming is a critical item for viability.

Project Sustainability

The PI, Kendra Wills, will continue to serve as the point person of contact for the D2L course and will work to maintain the course content in collaboration with Michigan State University Extension. Both the PI and Co-PI will collaborate on the development of Journal articles documenting the project and its results. Course participants will be asked to complete an online survey on how they have used the course in their work. The evaluation results will serve as a foundation for the Journal articles.