

Final Scientific/Technical Report

Title: The Biofuels Revolution: Understanding the Social, Cultural and Economic Impacts of Biofuels Development on Rural Communities

Award number: DE-FG02-07ER64476

Recipient: Kansas State University, Department of Sociology, Anthropology and Social Work

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Executive summary

In 2007, there was little empirical knowledge about the social, cultural and economic impacts of biofuels development on rural communities. The aim of this research was to help fill these lacunae through an in-depth analysis of the impacts of biofuels industry and ethanol plants on six rural communities in the Midwestern states of Kansas and Iowa. The goal of this project was to provide a better understanding of the social, cultural, and economic implications of biofuels development, and to contribute to more informed policy development regarding bioenergy. This project has contributed to policy debates about the social impacts of biofuels, as demonstrated in investigators' participation in three National Academies studies on the topic and several other national and international conferences and policy briefs on related topics.

Specific project objectives were:

1. To understand how the growth of biofuel production has affected and will affect Midwestern farmers and rural communities in terms of economic, demographic, and socio-cultural impacts.
2. To determine how state agencies, groundwater management districts, local governments and policy makers evaluate or manage bioenergy development in relation to competing demands for economic growth, diminishing water resources, and social considerations.
3. To determine the factors that influence the water management practices of agricultural producers in Kansas and Iowa (e.g. geographic setting, water management institutions, competing water-use demands as well as producers' attitudes, beliefs, and values) and how these influences relate to bioenergy feedstock production and biofuel processing.
4. To determine the relative importance of social-cultural, environmental and/or economic factors in the promotion of biofuels development and expansion in rural communities.

The research objectives were met through the completion of six detailed case studies of rural communities that are current or planned locations for ethanol biorefineries. Of the six case studies, two will be conducted on rural communities in Iowa and four will be conducted on rural communities in Kansas. A “multi-method” or “mixed method” research methodology (Brewer and Hunter, 1989; Creswell, 2003) was employed for each case study.

Comparison of goals and accomplishments

The project has met each four specific objectives. We have been successful conducting the research according to the design we specified, and each case studies revealed crucial information on the pre-determined objectives. As the project products (publications, presentation and other deliverables) indicate the scholarly knowledge on the social and community impact of biofuel production has greatly improved, the role and impact of various state agencies was clarified, and the connections between farming practices, land use and biofuel production were revealed. The participation of the principal investigators at high profile dissemination meetings show that the research was breaking new ground in this area, as the social, cultural and demographic impacts were largely hidden from policy makers and local stakeholders.

Project activities

1. General overview, methods, hypotheses

The methods used in the project included:

1. demographic analysis of each case study site,
2. field research involving in-depth personal interviews and focus groups with key informants and selected community groups,
3. a general population opinion survey of community residents, and
4. a content analysis of local newspapers and print media.

These methods were the most appropriate for gaining in depth information about how biofuels production affected each community separately. Six communities (4 in Kansas and two in Iowa) were chosen, based on the following criteria: variation in plant establishment date, plant size, ownership structure, community opposition/support, water availability/scarcity. See demographic details in table below:

Community	Population 2010	Percent Population Change 2000-10	Median Household Income 2009	Percent Below Poverty Line 2009	Plant Start Date	Ownership	Plant Capacity	Feedstock	No. Employees
Greene County, IA	10,366	-9.9	\$41,244	11.3	2009	Absentee	100 mgy	Corn	60
Russell, KS	4,506	-10.9	\$31,425	19.4	2001	Absentee	48 mgy	Milo/wheat starch	35*
Garnett, KS	3,415	-6.1	\$36,847	9.2	2005	Local	35 mgy	Corn	30
Liberal/ Hayne, KS	20,525	+1.9	\$39,392 (Liberal)	23.9	2007	Local	110 mgy	Milo/corn	50
Nevada, IA	6,658	+0.7	\$50,621	3.9	2006	Local	55 mgy	Corn	35
Phillipsburg, KS	2,581	-12.0	\$44,070	6.2	2006	Local	40 mgy	Milo/corn	31

We used four primary research methods to examine the impacts of the biofuels industry on these six communities. We completed demographic profiles for each community, summarizing demographic change from 1950 to 2005. Focus groups (9) and in-depth interviews (65) were conducted with farmers, plant workers, local government officials, environmental organization representatives, school administrators, community members, and business owners in six communities.

We completed community surveys in all six communities. A random sample of households from each case study community was selected for the community survey. Each sample was limited to households located within the city boundaries of the community in which the ethanol plant was located. The survey was targeted toward the head of household and self-administered by the respondent.

Each community survey was conducted by mail using a modified Dillman's Tailored Design method (Dillman, Smyth, and Melani Christian 2009). The surveys for Russell and Phillipsburg, Kansas and Nevada, Iowa were conducted between April and October 2008, while those for Liberal/Hayne and Garnett, Kansas and Greene County, Iowa, were conducted between June and July 2010. Prior to sending out the surveys, public notification of the survey was provided in the local newspaper. Sampled

households in each case study community were notified via a postcard that their residence had been selected through a random sample. An initial survey packet was then mailed to each sampled household which included a cover letter, survey questionnaire and business reply envelope. A postcard reminding non-respondents to complete and return the survey was sent two weeks after the initial mailing. Finally, a second survey packet was mailed to non-respondents one month after the initial mailing. After we excluded the surveys that were returned due to bad addresses, and those from households who asked to be removed from the list of participants, a total of 1088 surveys in six communities were completed. The response rate varied between communities from a high of 46% in Nevada, Iowa to a low of 22% in the community of Liberal /Hayne, Kansas. We included only city (i.e. not county) residents in the sample for each community, and sample size was determined to be a statistically significant representation for each community. We did not offer any incentives for participation in the survey; the survey was formatted as an 8 page booklet and took about 15 minutes to complete. The overall response rate for all six communities was 38.9%.

When comparing the demographic characteristics of the sample population to that of the characteristics of the communities in the 2000 US Census of Population and Housing, we found some difference between the samples and the populations as characterized in 2000. In all communities, the respondents were slightly older on average, included a higher proportion of men, and had higher incomes and levels of education than community residents overall. These differences may suggest that residents with a greater interest in the issues addressed in the survey responded at a higher rate. Therefore, our findings can only be generalizable to those residents who do have a greater interest and not necessarily to all residents in the communities.

The survey included scale questions that measured environmental attitudes and behaviors of residents across the six communities, including questions about importance of environmental issues, and both public and individual responsibility to address climate change, in order to determine whether there was any relationship between residents' perceptions about the biofuels industry and their environmental attitudes and behaviors. The rationale for the use of these scales was to test whether local perceptions of the benefits of biofuels reflected the predominant public discourses related to energy independence or to mitigation of climate change, respectively. Second, we wanted to explore whether community attachments within these rural communities affected environmental attitudes and behaviors of residents.

We examined the local and regional media for discussion when the plants were being proposed for each community, as well as during plant construction and operation. The content analysis was intended to understand the public discourse around the impacts of the plants on these communities.

2. Findings

Our findings demonstrate that these rural communities do bear a disproportionate share of the economic and environmental risks while the distribution of benefits is less equitable than proponents acknowledge.

Since WWII, rural communities across the Midwest have struggled with long-term economic and population decline as employment opportunities within agriculture have declined. At both national and local levels, the ethanol industry was widely promoted in the media and by politicians and local economic boosters as central to revitalizing these communities. Within this context, residents in many rural communities were hopeful that the biofuels industry would help reverse their decline.

Our study participants reported the optimism and pride they felt because their community had been chosen as the site for the new plant. In a community focus group, one participant explained the effect of the plant on the community as bringing “attitude change” with a new sense of optimism about the future of their community.

Yet, there was some surprise and disappointment among participants that more jobs had not been created. After the initial construction phase that brought hundreds of mostly temporary jobs into the community to build the plant, the number of permanent jobs averages around forty per plant. The demand for jobs was evident when 300 people applied for the 35 fulltime positions available at the ethanol plant in Nevada, Iowa.

While believing that their town would have been “worse off” without the plant, many study participants were disappointed that the plant had not generated greater economic multiplier effects within the community. Participants reported that the small number of employment opportunities meant that the plant was not sufficient to attract newcomers into the community, which could have boosted house sales and helped reverse declining school populations. Instead, many of the jobs went to locals who simply traded a commute to work for local employment. City leaders reported seeing few benefits flow onto Main Street, namely new businesses. In open ended comments in the community survey, residents’ opinions about local benefits were quite diverse, with some expressing relief that new jobs were being created, while others wondered who benefits from the plant, and why jobs were not more available for locals.

Many study participants believed that the major beneficiaries of the ethanol industry were farmers. Yet, our interviews and focus groups with farmers revealed that this view was an oversimplification. Ethanol did add a new market for corn farmers, but many livestock producers felt that the ethanol industry had driven up their input costs. Many farmers and local officials expressed frustration that ethanol plants were not selling their dried distillers grains (DDGs), a bi-product of ethanol production that is used as an animal feed locally, as had been initially promised by some of the ethanol plants. Cheap DDGs could help support local livestock producers and even contribute to local economic development by encouraging other livestock, dairy or poultry producers to the area, which was one of the promised benefits of the plant. Rather, the plants typically sold their DDGs to whatever national or international market would give them the best price.

Assessing the overall economic risks and benefits of ethanol plants is complicated by the extent of local public investment that ethanol plants have received. In the midst of the “speculation mentality” that existed among rural communities in mid 2000s, many local governments across the Midwest offered an array of economic incentives in the hope of attracting an ethanol plant to their community. Responses

from our case study communities suggest that this strategy was broadly popular since 70 percent of respondents in the community survey agreed that public funds should be used to attract new businesses to the area. Yet, it was not clear to residents that tax incentives and public investments, such as the provision or maintenance of new infrastructure to support the plant, could add up to millions of dollars in lost revenue or additional costs to the community.

In addition many residents were unaware that local governments were providing generous incentive packages to ethanol plants, some of which would have been built in their community irrespective of the incentives. In Nevada, Iowa, for example, the local economic development council worked with the city council to offer a suite of economic incentives to the plant, Lincolnway Energy (LWE), which included a 20 year abatement on property taxes and \$1.2 million in road and water improvements for the plant. Yet, LWE's Board had made it clear that it would locate in Nevada regardless of economic incentives because the location provided the plant with prime access to feedstock supplies and infrastructural requirements.

The ethanol plants did also strain local infrastructure, imposing costs that rural counties are not necessarily well positioned to assume. One of the primary concerns raised by about a third of survey respondents was that the local plant had increased wear and tear on local roads. In Iowa, the ethanol industry has significantly boosted the number of heavy trucks on the road, which has increased the deterioration of the rural transportation infrastructure and added to maintenance costs. This burden is felt most acutely by rural counties, since they are responsible for maintaining most of this infrastructure and are already overburdened. Yet, our interviews revealed that assessment of a plant's impact on local infrastructure was rarely conducted and that future costs to municipalities, such as road maintenance or water and sewer systems, were seldom calculated. In open-ended comments on the community survey, residents from every community expressed concerns about the tax burden brought about by the plant.

Our community level research revealed that biofuels development may generate localized environmental risks to specific rural communities. In our survey, 25 percent of respondents were concerned about water resources used by the ethanol plant. Yet, among participants from Russell, Kansas, a drought-prone region, 57 percent of respondents were concerned about water resources, and 67 percent of those surveyed said this was the most critical issue related to the plant.. The semi-arid region of western Kansas relies primarily on the Ogallala aquifer for its water supply and the long term viability of the aquifer is threatened due to overuse from feedlots, irrigated agriculture (increasingly corn), and residential and industrial uses. These tensions over water use by ethanol plants were amplified when the region suffered a long-term drought from 2001-2006 and residents were put on water restrictions. Related concerns were expressed in open-ended comments in the survey.

Community residents also face health and safety risks from exposure to air and water pollution from ethanol plants. We examined environmental violations by ethanol plants in Iowa and Kansas and found that a number of plants had been cited for violating environmental standards for air and water quality. In fact, 21 of the 26 plants in Iowa had at least one citation for air quality exceedances and several plants had as many as seven. Citations for violations were on par for both local and absentee owned

plants, challenging the view that locally owned plants are more community and environmentally conscious.

Our study also found that many residents were largely unaware of the impacts that the local plant might have on their community because of a lack of information and engagement between city leaders and residents. As outlined above, many community leaders responded enthusiastically to the hype around ethanol and competed to have a plant built in their locale. Community impact assessments designed to understand what specific benefits and burdens the plant might impose on their community and how they might be mitigated were rarely conducted and were superficial at best. Some survey respondents expressed their frustration at the lack of public information about the plants effects, and the lack of public engagement on the matter. In Liberal, Kansas, residents were concerned about the impacts that the new ethanol plant would have on traffic and water usage and the landscape.

In sum, our case study research highlights several important local impacts experienced by rural communities involved in ethanol production. Yet, despite concerns about the distribution of economic benefits, quality of life issues and the effect of ethanol plants on the local environment, it is important to acknowledge that the majority of study participants responded positively to the development of ethanol plants, espousing the discourse about positive economic benefits while ignoring or minimizing their negative social or environmental impacts. We found that many respondents assumed that the plant brought local economic benefits to their community, although they did not have any direct experience or evidence to support these assumptions. Similarly, in interviews most informants assumed that there were no environmental problems, or discounted their importance. Many interviewees minimized the environmental risks because of the perceived economic benefits the plant brought to the community. Our media content analysis also documented the overwhelmingly positive reporting on the plants by the local press, while any coverage that was at all critical of the biofuels industry was drawn from reprints from national news, mirroring the bandwagon effect documented elsewhere.

The unqualified belief in local benefits coming from the biofuels industry is perhaps unsurprising since the economic alternative for many of these communities has been industries considered far less environmentally benign than ethanol plants, including hog confinement lots, beef feedlots, oil refineries, asphalt manufacturing, and meat packing plants. Within a context of declining job opportunities and population loss, many rural communities feel they have few choices in terms of economic development and the perceived need for any kind of economic growth acts to curtail criticism of an industry's negative impacts. However, residents who did experience direct negative impacts, such as restrictions on residential water availability in some Kansas communities, were more critical of biofuels industry and circumspect about the industry's benefits.

Our research also sought to understand the role that plant ownership might play in improving the community economic and environmental benefits related to the ethanol industry. A wealth of social science research demonstrates that communities predominately made up of small, locally owned firms are associated with higher levels of social, economic, and political well-being than comparable communities dominated by large absentee owned firms. Economists hypothesize that locally owned ethanol plants are more beneficial since the money from the plant is more likely to re-circulate within

the local economy than with absentee-owned plants. Yet, our community survey found that residents from the six communities were actually less likely to have high support for locally owned plants than those with an absentee owner, and more likely to show low support. Qualitative data from our interviews help to explain what may appear to be an anomaly.

Interviews with community leaders suggest that local ownership can directly benefit those locals who have the resources to invest in the plant (if the plant is profitable), but overall ownership is irrelevant in terms of the benefits that an ethanol plant may or may not bring to broader sections of the community. For example, regardless of ownership, local residents do not benefit from lower gas prices nor was there any evidence that farmers received better prices from local versus absentee owned plants.

When a number of ethanol companies began to go bankrupt in 2008, some community leaders felt that absentee owned plants were preferable because they presented fewer local economic risks. A representative of a locally owned plant in western Kansas explained the fear that the plant management felt at potentially losing millions of dollars of local money that would be impossible to get back if lost. Similarly, a community leader from Greene County, Iowa argued that there would be less risk and more security for the community with an absentee owned plant than with a locally owned plant, especially during a period of instability within the industry. In sum, our research suggests that local ownership within the US ethanol industry offers little potential for mitigating the negative economic and environmental effects of biofuels on rural communities.

Products:

Peer-reviewed publications

- Takahashi, B. and T. Selfa. "Pro-Environmental Behavior in Rural Agricultural Communities: Examining the roles of environmental attitudes, community satisfaction, and community attachment." *Environment and Behavior*, In Review
- Selfa, T. and C. Bain. Forthcoming. *Biofuels and Rural Communities: Promises, Pitfalls and Uneven Local Impacts*. *Rural America in a Globalizing World: Problems and Prospects for the 2010s*. In C. Bailey, L. Jensen and E. Ransom (eds). West Virginia Press.
- Goe, W. Richard and Anirban Mukherjee. (forthcoming). "The Implications of Corn-Based Ethanol Production for Non-Metropolitan Development in the North Central Region of the U.S." To be published in Gary P. Green (ed.), *Handbook of Rural Development*. Northampton, MA: Edward Elgar.
- Bain, C. and T. Selfa. 2012. "Framing and Reframing the Environmental Risks and Economic Benefits of Ethanol Production in Iowa." *Agriculture and Human Values*. DOI: 10.1007/s10460-012-9401-y
- Bain, C., A. Prokos, and H. Liu. (2012). *Community Support of Ethanol Plants: Does Local Ownership Matter?* *Rural Sociology*. 77(2): 143-170.

- Selfa, T.. 2012. "Depopulation And Energy Production: The Dynamics of Conflicting Landscape Visions: an American perspective" Pp. 273-298 in *The Political Ecology of Depopulation: Inequality, Landscape, and People*. A. Paniagua, R. Bryant and T. Kizos, Editors. Spain: Rolde Foundation, CEDDAR.
- Bain, C., A. Prokos, and *H. Liu. (2012). Community Support of Ethanol Plants: Does Local Ownership Matter? *Rural Sociology*. 77(2): 143-170.
- Bain, C. (2011). Constructing the Local: An Assessment of Ethanol Plant Ownership in Iowa. *Biomass and Bioenergy*. 35(4): 1400-1407.
- László J. Kulcsár and Benjamin C. Bolender (2011) "If You Build It, Will They Come? Biofuel Plants and Demographic Trends in the Midwest" *Population and Environment* 32, pp. 318-331.
- Selfa, T. Committee on Economic and Environmental Impacts of Increasing Biofuels Production. National Research Council of the National Academy of Science. 2011. *Renewable Fuels Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy*. Washington, DC: National Academies Press.
- Selfa, T., L. Kulcsár, C. Bain, R. Goe and G. Middendorf. 2011. "Biofuels Bonanza? Exploring Community Perceptions of the Promises and Perils of Biofuels Production," *Biomass and Bioenergy*, Special issue on Sociopolitical Dimensions of U.S. Bioenergy Development. Vol. 34: 1379-89.
- Selfa, T. 2010. "Global Benefits, Local Burdens? The Paradox of Governing Biofuels Production in Kansas and Iowa." *Renewable Agriculture and Food Systems*, Special Issue on Sustainable Agriculture Systems in a Resource Limited Future. Vol. 25: 129-142.

Conference presentations

- Selfa, T. 2012. Panelist on Standards and Laws. "Bioenergy Futures: Technical Feasibility Meet Social Sustainability. Michigan State University. Nov. 29-Dec.1.
- Bain, C. (2012). "Biofuels in the US Heartland: What Role can they play in Building Sustainable and Resilient Rural Communities?" *Growing the Bioeconomy*. Banff, Canada. October 2-5.
- Bain, C. and T. Selfa (2012). "Building resilient rural social-ecological systems: is there a role for biofuels?" XIII World Congress of Rural Sociology. Lisbon, Portugal. July/August.
- Selfa, T. 2011 "Depopulation and Energy Production: Conflicting Landscape Visions." *European Society for Rural Sociology*, Aug. 22-26. Chania, Crete.
- Selfa, T., L. Kulcsar, and C. Bain. 2011. "Environmental Impacts and Community Support of Ethanol Plants in Iowa and Kansas." *Rural Sociology Society Meetings*. July 28-31. Boise, ID.
- Selfa, T. 2011. "Developing Certification Standards for Socially Sustainable Biofuels: Challenges and Opportunities." *Agriculture, Food and Human Values Society Meeting*, June 9-12. Missoula, MT.
- Selfa, T. 2011. "Developing Certification Standards and Indicators for Socially Sustainable Biofuels: Challenges and Opportunities." *Woody Biomass Energy Research Symposium for the Northern Forest*, University of Vermont, April 28-30, 2011.

- Bain, C. (2010). "Biofuels and Local Environmental Vulnerabilities: The Environmental Impact of Ethanol Production in Iowa." Annual meeting of the Rural Sociological Society. Atlanta, GA. August.
- Bain, C. (2010). "Biofuels, Climate Changes, and Local Environmental Vulnerabilities." International Sociological Association XVII World Congress of Sociology, Gothenburg, Sweden. July.
- Liu, H.,* C. Bain and A. Prokos. (2010). "Community Support of Ethanol Plants: Does Local Ownership Matter?" Annual meeting of the Midwest Sociological Society. Chicago. April.
- Selfa, T. and L. Kulcsar. 2010. "Energy Landscapes in the American Great Plains: Global and Local Challenges." Rural Sociological Society meetings. August 12-16. Atlanta, GA.
- 2010. T. Selfa "Governing Energy Landscapes in the American Great Plains: Global Benefits, Local Burdens?" International Sociological Association Environment Section RC24 July 11-17. Gothenberg, Sweden.
- Selfa., T. 2009. "Panel Presentation on Global Climate Change, Landscape Change and Local Community Response" Rural Sociology Society Meetings. July 30-August 2. Madison, WI.
- Bain, C. (2009). "Ethanol and the Global Climate Change Debate: What About Local Environmental Vulnerabilities?" Annual meeting of the Rural Sociological Society. Madison, WI. July/August.
- Bain, C. and H. Liu* and M. Petrehn*. (2009). "Environmental Sustainability and Rural Communities: What Role for Locally Controlled Ethanol Production?" Annual meeting of the Agriculture, Food, and Human Values Society, College Park. PA. May.
- Iaroi, Albert, Gerad Middendorf, Theresa Selfa. 2008. "Conflicting Environmental Claims: Analysis of the Media Discourse Surrounding Biofuels Development in Russell, Kansas. Poster presented at the Symposium on The Sustainability of Biofuels Production and Processing in the Central Plains in Manhattan, KS, September 16, 2008.
- Selfa, Theresa, Laszlo Kulcsar, Richard Goe and Gerad Middendorf. 2008. "The Biofuels Revolution? The Promises and Perils of Biofuels Development for Rural Communities in Kansas." Paper presented at the Symposium on The Sustainability of Biofuels Production and Processing in the Central Plains in Manhattan, KS, September 16, 2008.
- Iaroi, Albert, Gerad Middendorf and Theresa Selfa. 2008. "Environmental Discourse and Biofuels Development." Paper presented at the annual meetings of the Rural Sociological Society in Manchester, New Hampshire, July 28-31, 2008.
- Selfa, Theresa, Laszlo Kulcsar Gerad Middendorf and Richard Goe. 2008. "Understanding the Promises and Perils of Biofuels Development for Rural Communities." Paper presented at the annual meetings of the Rural Sociological Society in Manchester, New Hampshire, July 28-31, 2008.
- Selfa, Theresa, Laszlo Kulcsar, Gerad Middendorf and Richard Goe. 2008. "The Biofuels Revolution? The Promises and Perils of Biofuels Development for Rural Communities in Kansas." Paper presented at the annual meetings of International Symposium on Society and Resource Management (ISSRM), Burlington, Vermont, June 10-13, 2008.

- Bain, C. and M. Hoffman*. (2008). "Constructing the Local: Ethanol Plant Ownership in Iowa." Annual meeting of the Rural Sociological Society. Manchester, NH. July, 2008.
- Selfa, T. 2008. "From Breadbasket to Biomass: Conflicting Claims of Sustainability in the American Great Plains." International Sociological Association Meeting, Environment Section RC24, Barcelona, Spain, Sept. 5-8.
- Selfa, T. and U. Sarmistha. 2008. "Biofueling Rural Development: Promises and Challenges at Local and Global Scales." Rural Sociology Society Meetings, Manchester, NH. July 28-31.
- 2008. T. Selfa, L. Kulcsar, G. Middendorf, R. Goe. 2008 "Biofuels Revolution? Understanding the Promises and Perils of Biofuels Development for Rural Communities in Kansas," ISSRM Special Session on Social Dimensions of Biofuels, Burlington, Vermont. June 10-13.

Other public dissemination

- Selfa, T. 2013. "Socioeconomic Impacts of Biofuels Production: Examples from the U.S. and Colombia." Presentation for The Nexus of Biofuels Energy, Climate Change and Health, Roundtable on Environmental Health Sciences, Research and Medicine Institute of Medicine of the National Academies, 24-25 January.
- "Rising Use of Corn Stresses MidWest Aquifer.: Scientific American January 28, 2013 <http://www.scientificamerican.com/article.cfm?id=rising-use-of-corn-ethanol-stresses-midwestern-aquifers>
- Selfa, T. 2011. Invited Social Scientist "Land for bioenergy: Ecological, Economic and Societal Aspects." Workshop Organized by ESSP (Earth System Science Partnership), Lorenz Center, Leiden, Netherlands. 11-14 November 2011.
- Selfa, T. 2011. "Biomass Energy in Vermont: A Discussion of our Community's Energy Future." A panel discussion, Bennington College, Bennington, Vermont. March 9.
- Bain, C. (2011). Presenter and participant. "Land for Bioenergy: Ecological, Economic and Societal Aspects Workshop." Lorentz Center, Leiden, The Netherlands. November 14-17.
- Bain, C. (2011). "Community Perceptions of the Promises and Perils of Biofuels Production in the Midwest." Biofuels/Renewable Energy and Public Policy Roundtable with delegation from the Organisation for Economic Co-operation and Development (OECD) sponsored by the USDA. Iowa State University. October.
- Selfa, T. 2009. T. "Community Impacts of Biofuels." High Plains Energy/Community Resource Development Team Webinar. August 28.
- Selfa, T. 2009. "Local Community Impacts Associated with Biofuels." Panel on the Bioeconomy, North Central Mini Land Grant Summit. Ohio State University, July 13-14, 2009.
- Bain, C. (2009) "Social and Community Level Impacts of Biofuel Production in the Upper Midwest". National Academy of Sciences workshop on Expanding Biofuel Production: Sustainability and the Transition to Advanced Biofuels, Lessons from the Upper Midwest for Sustainability. Madison, Wisconsin. June.

- Selfa, T. 2009. Invited Panelist for National Academy of Sciences Workshop on Expanding Biofuels Production: Sustainability and the Transition to Advanced Biofuels Lessons from the Upper Midwest for Sustainability. Madison, WI. June 23-25.
- Selfa, T., L. Kulcsar, G. Middendorf, R. Goe and C. Bain. 2009. "Impacts of Biofuels on Rural Communities: Preliminary Findings from Communities in Kansas and Iowa." Session on ELSI and Sustainability, Department of Energy Genomics: GTL Grantee Workshop. Washington, DC. Feb. 8-11, 2009.
- Selfa, T. 2008. Invited Presenter for Workshop on "Sustainability of Biofuels: State of the Science and Future Directions." U.S. Department of Energy/Office of Science and the U.S. Department of Agriculture, Joint Sponsors, Bethesda, Maryland. Oct. 27-29.
- Selfa, T. S. Dissanyake, M. Boland, C. Shoemaker. 2008. Panel Discussion on Research and Extramural Funding, New Faculty Institute, Kansas State University. Oct. 2.
- Selfa, T. L. Kulcsar, G. Middendorf, R. Goe. 2008. "The Biofuels Revolution? The Promises and Perils of Biofuels Development for Rural Communities in Kansas," Keynote at Sustainability of Biofuels Symposium, Kansas State University, September 16. Available at <http://www.kcare.ksu.edu/>
- Selfa, T. 2008. Invited Social Scientist for "Workshop on Economics, Environmental and Social Dimensions, Issues and Implications of Bioenergy Production," Office of Biological and Environmental Research, DOE & USDA-CSREES, Joint Sponsors, June 20-22.
- Bain, C. (2008) "Community Attitudes, Perspectives, and Impacts Associated with Ethanol Plants." Sustainability of Biofuels Symposium. Kansas State University. September.
- Bain, C. (2008) "Constructing Local Ownership. An Assessment of Ethanol Plant Ownership in Iowa." Growing the Bioeconomy: From Foundational Science to Sustainable Practice. Iowa State University. September.
- Bain, C. (2008) "The Social Dimensions of the Bioeconomy." Biofuels and the Rural Economy: A roundtable workshop sponsored by The Center for Towncraft. Perry, IA. May.

Additional products and activities

Editorial Service

- Halvorsen, K.E., T. Selfa, D.R. Becker, and C. Hinrichs, Invited Co-Editors. 2011. Biomass and Bioenergy, Special issue on Sociopolitical Dimensions of U.S. Bioenergy Development. Vol. 34

Research Networks: Grants Funded

- NSF PIRE (Program on International Research and Education). "Sustainability, Ecosystem Services, and Bioenergy Development across the Americas." K. Halvorsen, PI., D. Shonnard, C. Bailey, R. Donovan, B. Solomon, J. Sutherland, A. Mayer, S. Sweitz, A. L. Mayer, T. Selfa, J. Becerril, M. Ruz, co-PIs. \$5M Aug. 2012-July 2017

- USDA Coordinated Agricultural Project. “Northeast Woody Warm Season Biomass Consortium Energy and Biofuels production for Distributed Generation.” T. Richard, PI; T. Selfa co-PI; \$5 M. Aug. 2012-July 2017.
- USDA Biomass Research and Development. “Distributed On Farm Bioenergy, Biofuels, and Biochemicals Development and Production via Integrated Catalytic Thermolysis.” A. Boateng, PI.; T. Selfa Senior Personnel \$5M. Nov. 2012-Oct. 2015
- NSF SES Research Coordination Network. D. Shonnard, PI. Steering Committee : Conner Bailey, Richard Donovan, Barry Solomon, Kathleen Halvorsen, John Sutherland, Alex Mayer, Samuel Sweitz, Audrey L. Mayer, Wallace Tyner, T. Selfa , Javier Becerril, Mario Ruz. “A Research Coordination Effort on Pan American Biofuels and Bioenergy Sustainability.” \$749,996

Program Review

- T. Selfa. US Department of Energy Biomass Program, Sustainability Platform Portfolio Review, April 2011.