

Purdue Farm Policy Study Group Meeting Summary

December 5, 2023

The following members were in attendance: Pete Clark, Sara Delbecq, Ken Foster, Bill Gelfius, Dave Hardin, John Hardin, Scott Harper, Stephanie Harper, David Howell, Levi Huffman, George Kakasuleff, Joe Kelsay, Lisa Koester, Randy Kron, Marshall Martin, Tom McKinney, Doug Mills, Doug Morehouse, Don Vilwock, Steve Warner, Christy Welch and Mike Yoder

Excused: JoAnn Brouillette, Kendall Culp, Otto Doering, Tim Foltz, Alan Kemper, Bryan Kirkpatrick, Danita Rodibaugh, Mark Townsend, and Rick Ward

NOTE: Please visit <https://purdue.ag/fpsg> to access presentation documents.

Agenda Items

1. Student Attendees

A group of interested Purdue undergraduates were able to join our discussions again this year. We will continue to host student attendees. These will likely be undergraduate students at December meetings and graduate students at July meetings.

2. Expanding Membership

We continue to seek increased diversify in the membership of the group across a wide range of factors. We have made several great additions in the past couple of years but continue to seek new members and their perspectives. Please forward names and contact information to Ken Foster (kfoster@purdue.edu) if you would like nominate an individual for membership. We also encourage you to invite such individuals as your guest to a future meeting. According to traditions of the group, members should be engaged in farming in the state of Indiana. The lunch and fees for any first-time attendees will be paid out of Purdue Farm Policy Study Group residual funds.

At this meeting we were pleased to host several new individuals: Tim Brusnahan and Adam Alson, Nels Ackerson, and Rachel Hyde.

2. Crop updates and go around

With a few exceptions, most everyone felt crops did better than expected considering the state of the weather during much of the growing season. A lot of members attributed improved genetics for the remarkable yields under mostly drought conditions.

3. Water Rights and Use Policy in Indiana: How the LEAP Project Reveals Gaps and Opportunities

In her comprehensive presentation to the Purdue Farm Policy Study Group, Dr. Jane Frankenberger meticulously dissected the intricate landscape of water rights and usage policies in Indiana, spotlighting the hotly debated LEAP Project in Lebanon as a case study. Within the LEAP District, the pressing issue of water scarcity spurred the Indiana Economic Development Commission to propose an ambitious solution—a 40-mile pipeline from the Wabash River in Tippecanoe County to alleviate the shortage. However, this proposal was met with significant resistance, leading to a temporary suspension of the project, with legislators, local officials, and the public expressing pronounced disagreement.

The overarching narrative revealed by Dr. Frankenberger extends beyond the immediate challenges faced by the LEAP District. Despite Indiana's generally bountiful water resources, the LEAP scenario exposes nuanced challenges and potential conflicts in effective water resource management. This intricacy is particularly evident when considering the unique impact the proposed pipeline could have on the Wabash River and Tippecanoe County compared to existing water users. Notably, existing users, mainly engaged in substantial crop irrigation, draw water from the Wabash River watershed, yet none transport water out of the watershed as LEAP proposes to do.

An interesting perspective highlighted in the presentation is the Indiana Economic Development Council's view of the water transfer as an extension of utilities. This conceptualization adds a layer of complexity to the discourse, blending economic development considerations with environmental and community concerns.

Public apprehension about the LEAP Project spans a spectrum of issues, ranging from its direct impact on current and future water users to potential ecological consequences on the river ecosystem. Dr. Frankenberger aptly pointed out that these concerns underscore the need for a more nuanced and robust approach to water policy.

Moreover, Dr. Frankenberger shed light on the existing regulatory framework governing water use in Indiana. Notably, the limited regulations, as outlined in the Water Resources Management Act enacted in 1983, focus on the registration of Significant Water Withdrawal Facilities but lack preemptive measures such as permits or advance notification for drilling wells. This regulatory landscape, she argued, necessitates a critical reevaluation to address contemporary challenges like those posed by the LEAP Project.

The discussion also extended to the broader environmental context, including the potential impacts of climate change on river flows. Dr. Frankenberger presented compelling data indicating that climate change could introduce greater variability in river flows by 2050, underscoring the need for adaptive water management strategies.

The uncertainty surrounding the impact of water withdrawals on aquatic species, especially in the absence of comprehensive studies, emerged as a key research gap. Dr. Frankenberger emphasized the need for further investigation into the potential consequences for fish and mussels, particularly in light of changing river dynamics. The recorded presentation by the Indiana Department of Natural Resources (INDR) on the state's laws (available at <https://research.purdue.edu/isf/events/index.php?view=5334>) was cited as a valuable resource.

As the presentation unfolded, Dr. Frankenberger underscored the necessity for enhanced groundwater depth monitoring across the state, pointing to the lack of data as a hindrance to informed decision-making. This call for improved monitoring aligns with the broader theme of the presentation—a plea for a proactive and data-driven approach to water resource management in Indiana.

In conclusion, Dr. Frankenberger provocatively questioned whether Indiana would seize the moment presented by the LEAP Project to enhance data collection and develop sensible oversight. The overarching message is clear: Indiana stands at a pivotal juncture where careful consideration, informed by comprehensive data and forward-looking policies, is imperative to ensure sustainable water management for future generations. The Water Shortage Plan created by INDR in 2015 (available at <https://www.in.gov/dnr/water/files/watshplan.pdf>) was referenced as a part of the call for improved water policy

4. An Overview of Subsurface Geological Sequestration of Carbon Dioxide

In Dr. Douglas Schmitt's presentation to the Purdue Farm Policy Study Group, he provided an extensive overview of subsurface geological sequestration of carbon dioxide. Dr. Schmitt delved into the intricate realm of carbon sequestration to mitigate industrial carbon footprints and associated factors. As a distinguished Professor in the Department of Earth, Atmospheric, and Planetary Sciences and Stephen and Karen Brand Endowed Chair of Unconventional Energy at Purdue University, Dr. Schmitt drew on his extensive experience, previously contributing to similar projects in Canada.

The primary objective of these sequestration initiatives is to curtail the carbon emissions of diverse industries, ranging from electrical power generation and oil refining to steel and cement production. Notably, projects and proposed projects in Indiana focus on hydrogen production in ammonia fertilizer manufacturing. Carbon generated from these sources is intended to be stored at extreme depths in the Earth, measured in miles.

Dr. Schmitt outlined the sequestration process, involving the injection of carbon dioxide into deep porous brine-filled sedimentary layers. Confining shale and limestone layers above secure the carbon dioxide in place, eventually leading to mineralization over centuries. Much of Indiana lie atop the Mount Simon formation which stands out for its suitability due to extensive porous layers capped by limestone and with a relative absence of oil and gas exploration in certain regions, minimizing the risk of potential carbon dioxide escape. In addition, the porous brine-filled sandstone layers tend to be nearer the surface in western and northwestern Indiana leading to lower injection costs.

Concerns about pipeline safety were raised, particularly in cases where the carbon dioxide production site differs from the sequestration location, necessitating lengthy pipelines. Dr. Schmitt cited the Weyburn-Midale Carbon Capture and Sequestration project in North Dakota as an example, where carbon dioxide is transported 200 miles to Saskatchewan, Canada.

The presentation included references to three other projects globally, showcasing various scales of carbon sequestration efforts. Dr. Schmitt emphasized the importance of adhering to EPA regulations for Class VI wells used in geologic sequestration. Indiana already boasts four approved Class I wells, injecting hazardous and non-hazardous fluid wastes into confined rock formations. See: <https://www.epa.gov/uic/class-i-industrial-and-municipal-waste-disposal-wells>

In wrapping up, Dr. Schmitt explored the potential risks and benefits of carbon sequestration. Risks included surface infrastructure leaks, underground storage leakage through old boreholes, and seismic

activity that ruptures the capstone. Substantial seismic investigations are required before any such project to map the subsurface structures. On the positive side, he highlighted the capacity of these technologies to sequester substantial amounts of carbon dioxide reliably and irreversibly, offering a long-term solution.

The subsequent discussion also briefly touched upon recent Indiana policy actions that clarified property owners' rights, particularly in terms of "reverse" mineral rights. These policies provide some empowerment for local landowners with some control over project approval in their areas, adding a layer of community involvement to the complex landscape of carbon sequestration.

5. Future Purdue Extension Strategies

Dr. Angie Abbott, Interim Associate Dean in the College of Agriculture at Purdue University and Director of Purdue Extension, outlined plans for the development of a future sustainable strategy for Purdue Extension. Emphasizing the formation of a task force, chaired by Dr. Linda Prokopy, the Head of the Department of Horticulture and Landscape Architecture, Dr. Abbott highlighted the inclusion of Purdue Extension personnel and external stakeholders in the task force. The group has been actively seeking input from Extension stakeholders, with a commitment to ongoing feedback collection. The task force is set to provide recommendations to Dr. Abbott and Dean Bernie Engle, who will formulate final strategies for reorganization and delivery. Dean Engle is tentatively scheduled to present at our summer meeting on this and other relevant topics.

Driven by declining federal funding and changes in how information is accessed, the need for revisiting Extension's future is paramount. Despite recently increased state funding, financial challenges persist, impacting staffing and necessitating innovative approaches. Currently, some county-level positions are kept open to provide sufficient resources to fund filled positions. Turnover at the county level is great so that there are always some positions open, but the turnover is driven by low salaries for highly-trained capable professionals. Several years ago, to accommodate the need to staff positions requirements for County Extension Educator positions were lowered from a master's degree to a bachelor's degree, but retention and hiring remain serious challenges to a sustainable Extension model.

In the subsequent group discussion, participants explored potential shifts in Extension's focus, considering reallocating resources from agriculture to address community needs beyond traditional agriculture support. It was pointed out that most commercial farmers obtain their information from private sources whose personnel are often trained by the Purdue College of Agriculture. Members of the group expressed overwhelming support for early childhood and 4-H programs as a part of any future model of Extension. Other encouragement was to focus on addressing problems that hinder economic development and human well-being in Indiana communities. Discussion also included leveraging digital tools like chatbots for basic information delivery and emphasizing a blank slate approach to explore alternative strategies. If you have additional feedback, feel free to contact Dr. Abbott and Dr. Prokopy. The overarching goal remains not to reduce staffing but to develop a sustainable model that recognizes and rewards excellence in Purdue Extension.

6. Future meeting dates

Barring unforeseen circumstances, the following will be the dates for the group's next two meetings: July 16, 2024 and December 10, 2024. It is understood that the later July date may conflict with some county fairs, but we are also trying to avoid last year's conflict with the Agricultural Economics Farm Tour and Master Farmer Awards program.

7. Future Topics

The following topics were suggested for future meetings:

- Land use and land use policy
- Early Childhood Education in rural communities
- More information about the actual LEAP project
- Conservation Stewardship Program in the Inflation Reduction Act
- Labor Markets and Trade to facilitate growth
- Indiana's lagging education and training attainment: causes, implications, potential remedies
- Affordable housing

If you have thoughts on these or other topics of interest, then please forward those to Ken Foster (kfoster@purdue.edu).

5. Adjournment at 3 pm

Respectfully Submitted,



Ken Foster
Professor – Agricultural Economics
Director – Purdue Farm Policy Study Group