## Summary of 2020 S1074 Annual Meeting Minutes

The 2021 S1074 Annual Meeting was held online through zoom on 25th and 26th of May 2021. This meeting consisted of four main sessions: On Day 1, the following session: *Nutrient Imbalances briefing*, and *Precision Animal Management* were held. On Day 2, the following sessions: *Renewable Natural Gas from a Farm Perspective*, and *S1074 business meeting and discussion*.

* **First session on next steps in addressing nutrient imbalance**, which was held at 10:30 pm pacific time on the 25th of May 2021 and chaired by Mahmoud Sharara and Erin Cortus. This session consisted of two presentations and a workshop activity. The Manuresheds group invited to participate in this session. The Manuresheds group is made up of NRCS researcher team and affiliates working on national manure issues as part of the Long-Term Agro-Ecosystem Research (LTAR).
	+ A presentation on tracking farm-scale feasible nutrient balances tool and effort in the State of New York to utilize nutrient balances to improve N and P use on dairy farms was given by Quirine Ketterings (U Cornell). Dr. Ketterings reported on positive impacts of this tool on reducing nutrient imports to the region, and how this tool had impact on adaptive management policy.
	+ A talk and update by Sheri Spiegal on the NRCS national-team working to optimize manure recycling on a national scale by targeting regional manure production and utilization (manuresheds concept). She highlighted the team’s research identifying key manuresheds across the country and opportunities to reduce their N and P imbalances.
	+ Two separate breakout sessions, led by Sharara and Cortus, were created to invite participants to brainstorm scenarios of nutrient imbalance and how technology, policy, and relationships can be leveraged to overcome these imbalances. Also, participants were invited to brainstorm on practitioners and stakeholders that need to be engaged to address these imbalances.
	+ During the final wrap-up session, Sheri Spiegal (NRCS) led the group in a discussion of next steps and how the S-1074 and Manuresheds groups can collaborate and coordinate efforts to address these challenges. Few areas of need were identified including the need to engage agricultural economists to help evaluate the economic aspects of developing and adopting new manure treatment and utilization technologies.
* **The second session on Precision Animal Management** was moderated by Shafiqur Rahman with guest presenter Dr. Tammi Brown-Brandl (University of Nebraska-Lincoln). The session covered advances in monitoring animal behavior and the development of data analysis and predictive tools to assess animal welfare and anticipate disease or stress issues. The presentation covered various sensors and data collection hardware choices, as well as research and development needs in this area.
* **The third session on anaerobic digestion, *Renewable Natural Gas from a Farm Perspective*,** was moderated by Zong Liu and hosted a guest speaker - Mr. Mark Hill, Co-CEO of the Novilla RNG. He covered AD basics, grids, RNG/CNG, and the developers’ business models, etc. It was followed by 20-25 minutes questions and answers. These questions were most about AD operations and gas generation/purification, developer business models, regulations and policies, carbon credits, and other related finical aid programs. Due to the great interest and engagement by attendees, S1074 committee is considering a follow-up webinar this year to address outstanding questions and provide updates.
* **The fourth and final session, S1074 Business Meeting (May 26, 2021) was attended by 17 committee members (**See Table 1 below**).**

**Table 1.** S-1074 member attendees virtually, May 26, 2021.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name**  | **State** | **Institution** | **email** |
| Ken Casey | Texas | Texas Agrilife Research | kdcasey@ag.tamu.edu |
| Lide Chen | Idaho | University of Idaho | lchen@uidaho.edu |
| John J. Classen | North Carolina | N.C. State Univ. | classen@ncsu.edu |
| Erin L. Cortus | Minnesota | University of Minnesota | ecortus@umn.edu |
| Kevin Janni | Minnesota | University of Minnesota | kjanni@umn.edu |
| Zong Liu | Texas | Texas A&M University | zongliu@tamu.edu |
| Deanne Meyer | California | UC Davis  | dmeyer@ucdavis.edu |
| Wendy Powers | California | University of California | Wendy.powers@ucop.edu |
| Mahmoud Sharara | North Carolina | N.C. State Univ. | msharar@ncsu.edu |
| Jun Zhu | Arkansas | University of Arkansas | junzhu@uark.edu |
| Jacek Koziel | Iowa | Iowa State University | koziel@iastate.edu |
| Lingying Zhao | Ohio | The Ohio State University | zhao.119@osu.edu |
| Teng Lim | Missouri | University of Missouri | limt@missouri.edu |
| Steven Safferman | Michigan | Michigan State University | steves@msu.edu |
| Lilong Chai | Georgia | University of Georgia  | lchai@uga.edu |
| Xufei Yang | South Dakota | South Dakota State University  | Xufei.Yang@sdstate.edu |
| Shafiqur Rahman | North DokotaND | North Dakota State University  | s.rahman@ndsu.edu |

**S1074 Business Meeting Minutes:**

1. **Welcome and opening comments:**
* The 2021 S-1074 annual meeting was called to order at 2:00 pm (Central time) by S-1074 Chair, Lide Chen. Table 1 shows the participants list.
1. **General introduction of attendees**
* Lide Chen, University of Idaho, research focuses on manure nutrient cycling and waste management
* John Classen, N.C. State University. John's research focuses on nutrient recovery and sustainable systems. Also working on graduate education.
* Shafiqur Rahman, North Dakota State University. Shafi is working on waste management and utilization, anaerobic digestion, nanotechnology for reducing GHG and H2S, and anaerobic digestion
* Deanne Meyer, UC Davis. Deanne’s work focuses on nutrient close on dairy farm, characterizing the newer stream coming out of the system with an advance treatment system for nitrogen recovery
* Erin Cortus, University of Minnesota. Erin is working on sustainability and sustainability matrix, and air quality
* Lingying Zhao, The Ohio State University. Lingying’s research focuses on air quality, ventilation, sustainable Ag systems
* Jacek Koziel, Iowa State University, is working on transdisciplinary research on the nexus of food, energy, and water. Also, air quality, mainly the smelly thing.
* Jun Zhu, University of Arkansas. Jun is working on animal manure management treatment technology and value recovery.
* Ken Casey, Texas Agrilife Research. Ken’s research focuses on air quality issues (GHG emissions) from feedlot and dairy and waste management system and land application
* Kevin Janni, University of Minnesota. Kevin is in the phase of retirement. Right now, teaching is the main focus, along with the publication of previous works
* Lilong Chai, University of Georgia, Lilong is working in animal environment management, precision farming, air quality
* Mahmoud Sharara, NC State University, Manure management and value-adding to manure on poultry and swine manure, modeling
* Steven Safferman, Michigan State University, Fate and transport of nutrients, AD, Agricultural and urban environment, treatment system
* Temg Lim, University of Missouri, waste management, air quality, and biosecurity
* Wendy Powers, UC system. Wendy is an administrative advisor for this group. Limited research on manure management.
* Xufei Yang, South Dakota State University, Xufei’s research focuses on manure management, air quality
* Zong Liu, Texas A&M University. Zong is working on manure and mortality composting
1. **S-1074 Administrative Advisor update - Wendy Powers**
* S-1074 Administrative Advisor Wendy Powers is glad to know that A NIFA representative is assigned to this group.
* Wendy also reported that this group project has been selected for the “2021 Experiment Station Section Award for Excellence in Multistate Research” for the southern region for the national competition. The committee would review the nomination in July.
* She has received the reviews and mentioned that representation on the committee from the southern states needs to include in the future. Also, another concern is that the administrative advisor is not from the southern state. However, all committee members express their support for Wendy to continue as administrative advisor for this group due to her involvement and familiarity of work in this group
* Need to make sure the official rep is listed correctly and represent the region adequately
* For renewing this project, it is important to have representation from the western and southern states. Also, she expressed the need for projects that are making progress and answer to “So What?”
* Wendy also informed the opportunity of research funding due to “Endless Frontier Act”, Climate Change, etc. and this group needs to generate ideas. A new innovation director for NSF, Farm of the future, would enhance new funding opportunity for this group
* Due to large infrastructure bills, significant funding for Ag. Experiment station upgrade is likely to happen and this might be the only opportunity for Agriculture for any major development.
* Also, capacity and competitive grants are likely to increase
* Annual report should submit within 30-60 days after the annual meeting. Each institution should submit an institutional report and it should be emphasized on the impact of the work and publications since the last report.
1. INFEWS-er Update (Dr. Erin Cortus)
* INFEWS-er is NSF funded graduate education project in the nexus of food, energy, and water”
* This is the final year of INFEWS-er project funded by NSF, although one year extension with no-cost is possible. In last few years several challenges and cohort modules have been developed. Other S-1074 committee members including Deanne, Rich, Erin, Becky, Jactone are on the project too.
* Erin mentioned cohort challenges and cohort modules that have been developed. Further modules development are progressing and making them available on the virtual resource center is in progress.
1. List serv for reaching official and non-official participants
* There is a need to update the official and non-officials participants list. Google drive list and NIMSS participants list should be verified for official participants. “S1074 Roster” needs to be updated
1. Election of S1074 secretary
* Shafi nominated Mahmoud for secretary of the S-1074. John Classen seconded. Mahmoud was elected as secretary of the S-1074.
* Officers for the S-1074 multi-state research committee for 2021-2022 will be: Chair – Zong Liu, Vice chair – Shafiqur Rahman; Secretary – Mahmoud Sharara; Past chair – Lide Chen
1. S-1074 Annual Report
* Wendy mentioned the annual report should contain (1) basic information of the project, (2) list of all participants, (3) summary of the meeting minutes, (4) accomplishments, (5) impact statements, and (6) publications.
* Annual report needs to be submitted to USDA within 60 days after the face-to-face meeting.
* Last year's report template would be used for the upcoming annual report.
1. **Next Focus Issue Discussion**: Topics and ideas for further investigation and tasks for 2020-2021 are as follows:
* The plan is to continue work on Nutrient Imbalance under the hypothesis that nutrient imports and exports to regions or watersheds are causing imbalances.
* Air quality
* Watershed
* Biosecurity and new generation oh livestock housing
* Urban environment

We need to refine topics and seek feedback from the committee members to refine issues that are interest of this committee

1. 2021-2022 S1074 webinars and activities
* Same as the last year, the webinars will be planned at 10 am (Central time) on 3rd Friday in September (17), November Nov. 19), February (Feb. 18t), and April (Apr. 22). A two-hour block will be set for each webinar. Invitations will be sent out by Zong Liu to everyone on the list serv by the end of June 2021.
1. Other business: NONE
2. Adjourn at 3 pm (CT)