2/27/2025

USDA S-1084 Hemp Meeting

Dr. Babitha Jampala (LSU) host

8:48am:

LSU Experiment Station Welcome and Introduction

8:51 – NIFA/USDA were not able to join. They cannot address any questions – lots of uncertainty. They are at the Outlook Conference. No Updates.

Dr. Chris Smart provided an updated on federal activities after a trip to DC. All land-grant universities + stakeholders were at the meeting. Dr. Smart discussed a potential farm bill and current/future outlook for research institutions.

Lesley Oliver – We should be receiving communication from NIFA and be prepared to respond quickly. Projects may be terminated or altered but this project shouldn't be on their radar.

9:05 Dr. Bob Pearce - Multi-state variety trial update:

Manuscript published in Agronomy Journal for 2019-2021 trials.

2024 had 12 lines. Seed quality has improved tremendously since starting these trials. MTAs pose a significant challenge to conducting these trials; however, 16 universities participated.

Zack convened a virtual meeting on July 9th to discuss agronomy and sustainability group goals and moving forward. Can MTA process be improved? Can management be improved? Can seed be acquired a year in advance?

Dr. Pearce provided results on a seed longevity trial.

We discussed the future of these trials and the general consensus was that we should move away from dual-purpose trials and have dedicated grain and fiber, based on industry seed recommendations by location. Preparing to analyze and publish 2022-24 data and seeking volunteers.

Shattering and bird loss continue to be a problem.

Seed for 2025 season may be limited (European seed issues). Larry and Bob have leftover seed they may be able to provide. Bob is still willing to lead and the group is still willing to participate.

We discussed collecting more quality-related data for both grain and fiber.

Dr. Suchoff gave FFAR updates. Discussed the "hemp landscape", specific to fiber processing. There are three new FFAR-funded projects: two from Cornell and one from NC State. These will wrap up the initial $5 million budget. The future of the FFAR HRC is still undecided as no new members have joined and we are waiting on a farm bill, which will clarify FFAR's future.

Dr. Jones (OSU) SAS grant update: two projects focused on the bioeconomy.

11am Dr. Brandy Phipps (Central State University) – SAS project goals were to expand domestic markets for hemp and trout/increase education in ag workforce/improve economics and public health of Menominee Nation. Finished 3rd year of project. Producing their own feed ingredients. Plan to submit results to FDA for approval of hemp in trout feed.

There is current confusion regarding AAFCO/FDA/Kansas State MOUs.

BREAK for LUNCH.

Dr. James DeDecker – Updated on Midwestern hemp group. Discussion on how to leverage the data to effect change and be a true decision support tool.

Good discussion on cannabinoid testing and group's role in getting these data to policy makers.

2:09 pm – Dr. Marguerite Bolt – Hemp pest diagnoses in Midwestern hemp.

2:29pm – Taylere Herrmann – PhD student shared research on Downy mildew in USDA hemp germplasm.

3:00pm - Lucia Vignale – PhD student shared research on Evaluation of hemp powdery mildew susceptibility.

3:18 – Luis Monserrate – PhD student shared research onFiber and dual-purpose hemp trials.

3:37 – Buddhika Patalee – PhD student shared research onConsumer choices- understanding demographic/socioeconomic choices.

3:58 – Dr. Karla Gage- SIU fiber/grain production research updates. Weed management updates. Hemp is allelopathic, which growers may be able to leverage.

Close for day

Day 2 2/28/2025

9:06am

Breakout sessions were held together.

9:09 Agronomy and Sustainability with Dr. Zack Brym: Good milestone (publication), and a writing team for the next publication is being created.

Key takeaways: We continue to improve crop performance, getting into quality is in discussion. Data analysis is automated. Seed/establishment can still be challenges. Nutrient management is a newer area of group activities.

The group wants to get a better understanding of what fiber hemp processors are seeing in terms of weeds/foreign material in bales, what are the thresholds, and how is it quantified.

The group also felt that it is critical to understand how the processors are making agronomic recommendations, based on what information, and how the group can help.

Crop rotations seem to be the next major research area for the agronomy group.

The group is going to work with Dr. Calvin Trostle to update the ASA hemp book.

9:40 Genetics and Breeding with Shelby: Access to germplasm is limited due to seed numbers and compliance. The group discussed the potential to help USDA increase seeds.

10:16 Economics with Tyler: Quality is a key missing aspect. Work is more consumer focused. Conference grant to work with policy makers? Regulatory process is still a major bottleneck. FDA/DEA have not been clear.

10:40 Pest management working through: Two objectives -pest disease and weed surveys in variety trials, and a website with curated images, data, etc.

Six states have rated insects and disease. Sampling protocol was improved. More trainings would be appreciated. Group wants to look at weed presence at harvest.

We ended with a discussion of the S1084 website. All agreed that it is a very important resource for stakeholders and policymakers. Cornell will manage the website.

Shelby has agreed to host in 2026 Summer.

Meeting adjourned 11:17am.

2025 S1084 Hemp Multistate Annual Meeting

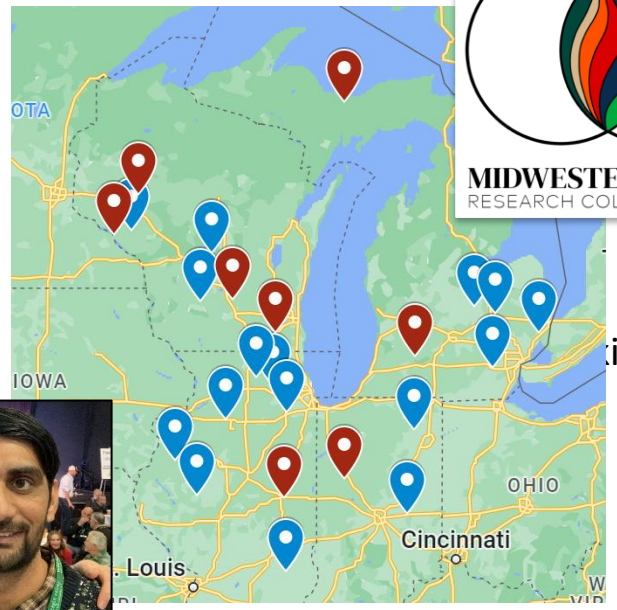
State Reports

Michigan State University

- Co-PI for Midwestern Hemp Research Collaborative (NIFA-SAC ‘23-’25)
  - 4 states (MI, WI, IL, IN), 8 university/non-profit locations, 30 hemp growers, suppliers
  - Grain & Fiber variety, N rate, planting date, and tillage by seeding rate trials

- MI lead for S-1084 Project
  - Agronomy and Sustainability committee
  - Variety trial and pest observations in ’24

- International Hemp Outreach
  - Fulbright Post-doc, Dr. Umair Ashraf, & Hemp Conference
  - Kenya Hemp Conference



istan

MIDWESTERN HEMP RESEARCH COLLABORATIVE

Hemp Research and Extension at NC State - 2024

RESEARCH

On-going:

USDA-AFRI funded work on fiber hemp fertility, plant density, and no-till weed management.

FFAR-funded work on fiber hemp harvest timing and development of microbial retting agents.

On-going fiber hemp variety trials.

IR-4 pesticide evaluations.

New:

Hurd analysis and grading; grain variety trials; optimization of fiber hemp seed production.

USDA ARS funding Andritz fiber opening equipment to allow for holistic ("dirt to shirt") fiber hemp research.

EXTENSION

Fiber hemp field days (2 in Coastal Plain and 1 in Mountains).

Extension publication on leguminous cover crops in cannabinoid hemp.

Extension Agent winter training event.

@ncstatehemp
dhsuchof@ncsu.edu

NC STATE UNIVERSITY
CROP AND SOIL SCIENCES

- USDA NIFA Supplemental and Alternative Crop Grant
  - Cultivar and crop management trials
  - Insect and disease observations
- North Central IPM working group
  - Educational materials for pest identification and management
  - Proposal submitted for 2025
- Purdue Food Science Collaboration
  - Post harvest quality
  - Development of super absorbent
- Extension & Outreach
  - Research field day
  - Large public outreach events (alumni fish fry, spring fest)
  - Grain and fiber production and products seminar

PURDUE UNIVERSITY | Extension

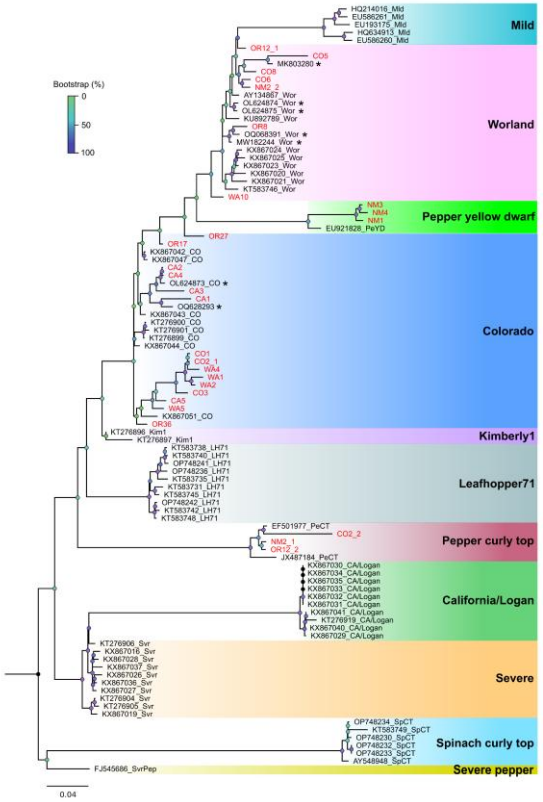
Indiana State Report

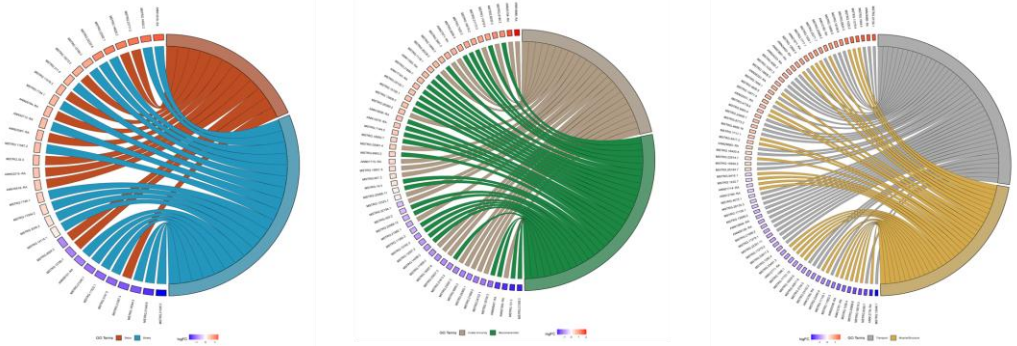
Texas A&M AgriLife Research & Extension

- Almost all commercial hemp production for flower/CBD is indoor.
- In 2024, ~200 “lot crop” permits, so ~50 active growers of any scale.
- Breeding efforts with Dr. Russ Jessup, Texas A&M, with initial releases by 2026.
- CRSPR-9 work for stopping THC production (Dr. Michael Thomson, Texas A&M, including Ph.D. student).
- All other work is focused only on fiber variety and agronomic trials (mostly the High Plains; Dr. Calvin Trostle).
- State legislature bills filed for total ban on any level of THC in consumables.

Colorado State University Updates

- High beet curly top virus (BCTV) infection in Colorado in 2024. BCTV strain analysis in Western U.S.
- Confirmed vector transmission of hop latent viroid (HLVd) by cannabis aphids and western flower thrips.
- Evaluated efficacy of chemical elicitors of plant defense signaling pathways in reducing HLVd infection.
- Completed hemp transcriptomics in response to aphid feeding in three hemp genotypes (chemotype III, IV and V).
- Cannabis research conference in Portland, Oregon, 2025.





9th Annual
CANNABIS
RESEARCH
CONFERENCE
OCTOBER 1-3, 2025
PORTLAND, OREGON

Illinois – Southern Illinois University

- S1084 Cultivar Trials (**Gage** & **Leme**)
- *Integrated Weed Management In Hemp: A Multistate Effort To Evaluate Practices And Develop Recommendations*. USDA-NIFA-CPPM, project No. NYG-632533 (Sosnoskie, **Gage**, Flessner, Hatterman-Valenti, Cutulle)
- Accumulation of cadmium in the roots, stems, and leaves of *Cannabis sativa* L. (**Leme**)
- The interaction of methyl jasmonate and organic nitrogen fertilizer (**Leme**)
- Are plant biostimulants helping cannabis recovery after high-stress training? The phytochemical and physiological effects of humic and phytic acid in *Cannabis* (**Leme**)
- The secondary metabolite production and growth responses of *Cannabis* to thigmomorphogenesis in a controlled environment setting (**Leme**)
- Investigating the independent and synergetic effects of mechanical vibration and ultrasonic priming on cannabis seeds germination and development (**Leme**)
- The foliar and drench application of silica sources (silicic acid and wollastonite) (**Leme**)
- Induced water-deficit stress and the upregulation of secondary metabolites biosynthesis in *Cannabis* (**Leme**)
- Far-red signaling in the regulation of photosynthesis and activation of photoprotective response in high light-induced photoinhibition (**Leme**)

S1084 Oregon State Report - 2024

Breeding, Genetics, and Genomics

- used a hemp population segregating for the day-neutral “autoflower” trait to identify a mutation in a candidate gene that has not previously reported.
- Continue to collect hemp germplasm and utilize germplasm to developed new hemp populations. These populations are being used to train genomic selection models for marker development of traits of interest
- Continue breeding efforts on fiber, grain and floral hemp

Agronomy and Sustainability

- host field days, monthly grower meetings, publish extension bulletins and webpages on wide ranging hemp topics related to CBD, grain, and fiber production, monitor commercial fields for insect pest (e.g. corn earworm) and diseases (e.g. beet curly top virus and powdery mildew).

Sustainable Pest Management

- Completing study ON identifying diseases affected hemp in production sites in Oregon and Washington
- Current research involves greenhouse testing of pathogens to determine impact with nematode X Fusarium interactions

Economic Viability

- work with commercial partners in production and primary processing supply chain segments to experiment or demonstrate solutions to industry problems from harvest timing and THC compliance to novel fiber processing for the manufacture of construction materials

S-1084 Related Hemp Research – Kentucky

- Agronomy
  - Grain and Fiber Cultivar Evaluations
  - Best Management Practices
    - Planting date
    - Seeding depth
    - Plant population
  - Seed/seedling vigor testing
  - Seedling root development
  - Integrated Pest Management
    - Fusarium head blight
    - Corn Ear Worm
- Plant Pathology
- Economics
  - Unraveling the Reintroduction of Hemp in the United States: A Case Study of the Supply and Demand During the (Re) Birth of an Industry
  - CBD Oil Concentration and Hemp Flower Drying Preferences of US Consumers
  - What Makes Hemp Economically Attractive? A Case of Kentucky Hemp Farmers
  - Determinants of behavior towards hemp-based products: an application of the theory of planned behavior
  - Consumer Confusion About Product Names Commonly Used to Describe Hemp-Based Oils

Martin-Gatton
College of Agriculture,
Food and Environment
University of Kentucky

Breeding and Management of Hemp

Larry Smart, Chris Smart, Virginia Moore, Joss Rose, Neil Mattson

School of Integrative Plant Science, Cornell University

- Breeding of late flowering, low THC fiber cultivars
- Breeding of zero-THC, CBG-dominant grain cultivars
- Breeding of late flowering CBD cultivars for the South
- Biology, epidemiology and population biology of hemp pathogens
- Management of soil borne pathogens using seed treatments
- Characterization of genetic resistance to powdery mildew, Septoria leaf spot, and downy mildew
- Characterization of lighting quality and planting media for CEA production of CBD
- Identification of cover crop and intercropping systems