**Minutes of Annual Meeting**

Meeting called to order at 1:10 pm in Capital Reef Room – Downtown Marriott Salt Lake City, Utah – 6 Nov 2021

Presentation by Vance Owens – USDA-NIFA

* AFRI New Investigator Webinar -
* PRS - Peer Review Service (Volunteer for these)

Group agreed to record session via Zoom application:

Discussion about 2022 meeting location:

* Option 1: Nebraska - 3rd week in June -
* Option 2: ITRC meeting in Denmark (Note: this option was chosen later)
  + concerns about USDA traveling international
  + Need a meeting Chair for 2022 (Keenan volunteered to be Chair)

Mention that the WERA 11 website should be updated to include history. Current website hosted by Oregon State University:

<https://horticulture.oregonstate.edu/beaverturf/wera-11-western-regional-turfgrass-research-group>

Meeting Chair (Paul) mentioned that each organization needs to send a state report within 60 days of this meeting.

* These reports should highlight research impact / what publications have been made / Grants coming out of group collaborations - impact of our meetings

State Reports:

Washington

Michael Neff:

* Grass Breeding (no-burn KBG) and Breeding & Ecology Farm
* Goal to release varieties PVP to support
  + Release of ‘Matchless’
* Two sites:
  + WSU Spillmann Farm
  + New Farm
* Breeding efforts:
  + KBG breeding
  + Prairie Junegrass
  + Tufted Hairgrass
  + Western Wheatgrass - native grass
  + Teff - C4 annual - food / forage / ornamental
* Funding from Turfgrass Seed Commission
* Stakeholder advisory board & checkoff funds
* Warm season grass collection has begun with a desire to work with warm season grasses in the future

Arizona

Kai Umeda

* + - * Covid impacts resulted in more online activities
        + 2018/2019 - sports turf field day - 400 attendees
        + 2020 - cancelled
        + 2021 event in Nov:

200 signed up already for this event

* + - * + Pesticide training:

200 virtual in 2020; historically in person events had ~ 100 attendees

2021 - hybrid event is planned

Interest in Native Grasses for ground cover

Water issues important

* + Research

Weeds - methiozolin work to control P. annua in bentgrass

Goosegrass becoming an issue - herbicide evaluation a priority

Dallasgrass becoming an issue - especially around lakes and ponds - may be coming in on irrigation water (canal water)

Irrigation rates - ground cover alternative - Kurapia (50% water use compared to bermudagrass)

Turfgrass grub work is beginning

New M.S. student starting to look at molecular composition of grub species - confirm species

Working on LED light traps

compare to traditional black lights

* + Staff - looking to replace Dr. Kopek
    - There have been a number of retirements

USDA-Arizona

Des Serba

* Began in February
* Installing new location / ground prep / irrigation installation, etc.
* Focus on C4 and Native Grasses for SW
* Field experiments are starting
  + Bermudagrass trial starting
* Collaborating with AZ State Univ.
  + Assessing morphological characteristics for breeding
* Germplasm exchange is of high interest to the AZ USDA breeding program
  + Also capacity to test varieties in desert climate
* Collected Zoysiagrass germplasm
  + Currently in greenhouse for later field establishment
* Marta @ UC Riverside expressed interest in collaborating with USDA in AZ
* M. Neff @ WSU - also expressed potential collaboration on C4 breeding
* Potential to collaborate with group in TX

Utah

* Ricardo Ramirez
* Kelly Kopp
* Trialing programs - intermountain West creates a unique trialing location
  + NTEP - especially drought trialing
  + TWCA
  + A-list
  + Also private companies
* SLC - developed turf trade program
  + pressure to remove turf - due to drought - CO river - most extreme drought ever - lowest level recorded for Great Salt Lake levels
  + Irrigation related rebate program - anyone in state can receive tools and seed mixtures
  + Shaun Bushman / Paul Harris / Paul Johnson
    - assisting with municipal golf courses - wheat grasses to reduce water (Crested / intermediate / etc.)
    - Soil sensor work - to assist with drought restrictions - city supporting golf courses - golf industry had budget surplus because of covid increasing golf play
  + Kelly busy as ever because of recent drought
    - Projects looking at how to do extension and research related to irrigation
    - Looking at day vs night irrigation
      * Data suggests that day irrigation does not actually evaporate (i.e. could not be a benefit to irrigate at night)
    - Clover and KBG : nutrient status / drought status- rhizobacteria
    - Zoysiagrass research to begin - focus on cold tolerance (goal to reduce water)
      * SLC cold, but climate is warming…
    - Upcoming work
      * Life cycle analysis of landscape compositions
      * Carbon work - quantifying ecosystem services
        + retain storm water / carbon / nutrient retention
      * Funding coming to look at artificial turf
      * Drainage lysimeters
    - Extension work
      * Irrigation audits in the 1000s - SLC area mainly - expanding to statewide
      * Trainings ongoing
    - Requests to organize irrigation budgets for municipal areas - getting legislative attention
* Undergrad students
* ~ 10 turfgrass undergrads & a few grad students
  + - SCRI proposal to look at the state of industry at a national level
    - Logan, UT zone 5 / SLC zone 6
      * Relate to cold hardiness of Zoysiagrass
      * Buffalograss survives in Logan - hard to establish
      * Bermudagrass (because of common) on noxious weed list
        + Comments from group - about winter dormancy
* Ricardo Ramirez- entomology update
  + Publication looking larval ID using barcoding
  + Billbug outbreaks and water stress - relationship tied to soil moisture
  + NTEP data to look for drought tolerant relationship with grub population
  + Predator impacts on billbugs - found that predators did deter egg laying of billbugs

Iowa

Shui Zhang Fei

* N. Christians will be retiring soon - hopefully be replaced soon
* Adam Thom will be seeking tenure
* Ben Pease went into industry - new technician has been brought on board
* C3 grasses as ground cover - perennial grasses as ground cover in Maize production - able to secure an interdisciplinary grant
* Poa bulbosa as C3 ground cover
  + - Working with Cold Hardiness USDA-SCRI grant
* Looking for students in breeding & genetics
  + - Covid 19 reduced activity
    - Undergrad enrollment ~ 35 at the moment (steady over last 3 years w/ 100% placement) - at peak ~ 150 students
* Most golf or sports turf

Oregon

Clint Mattox

* 6 undergrad students – many internships are out of state
* OSU Research program currently participates in 3 USDA-SCRI grants
* Lots of Extension work with an emphasis on School IPM extension
* Research program has 6 members in addition to PI: Alec Kowalewski:
  + Brian McDonald
    - Focuses on Fungicide management trials and farm maintenance
  + Clint Mattox
    - Focuses on fungicide alternatives, USDA-SCRI annual bluegrass study, tall fescue fertility
  + Emily Braithwaite
    - Focuses on USDA-SCRI Low Input Turf, Public School IPM
  + Wrennie Wang
    - Focuses on Epichloe endophytes, carbon sequestration studies
  + Chas Schmid
    - Focuses on long term effects of aerification and topdressing, effects of PGRs on aerification recovery, NTEP trials
  + Cole Stover
    - New graduate student – will focus on USDA-SCRI Winter Turf Injury Grant

Oregon State University

Navneet Kaur

* + - * Seed crop entomologists
      * Alternative to Chlorpyrifos for grass seed crops
      * most seed crops insects are root eating insects
        + Working on biocontrol options
        + microbial controls options

Survey of grass seed fields

Soil borne arthropods

* + - * + Sod web-worm

ID native species of nematodes that are attacking the sod web-worm

* + - * Endophyte - mediated insect research
        + Oregon Seed Council funding research
        + USDA grant pending to further research endophytes
        + Research ways (following NZ model) to use endophytes in industry
        + Working on multi-state project working on endophytes
      * Extension - published “Grass Seed Pests”
        + 2 technicians on the team and some undergrad workers

California

Marta Pudzianowska

* Jim Baird - only tenured faculty member
  + Pawel Petelewicz & Marco Schiavon went to University of Florida
  + Mingying Xiang went to West Texas A&M University
  + Matteo Serena, previously New Mexico State University, joined team
  + UC Riverside is conducting or planning 56 projects in 2021
    - 30 on Golf Courses
  + Lots of water issues - no water available - some golf courses were only able to water greens and tees
  + Dormancy issues – when C4 grasses are grown, some folks get messages from HOA regarding color of lawn in spite of the fact that the lawn uses less water
  + Bermudagrass and Kikuyugrass breeding
    - Currently kikuyugrass still on noxious weed list
  + Breeding Focusing on winter green color
    - 11 studies focused on breeding
    - testing Zoysia developed at Texas A&M in N. CA
  + Started testing St. Augustinegrass / Seashore Paspalum, along
    - with bermudagrass and zoysiagrass within SCRI project
  + Matteo – is working on wetting agents
  + Pawel Orlinski – is working on weed control
  + Homeowners mostly interested in cool-season grasses, lacking knowledge about warm-season grasses, recently some questions and interest in zoysiagrass and bermudagrass has appeared
  + Several NTEP trials started and continued in 2019-2021,testing cool- and warm-season grasses
    - including USGA/NTEP water use trial of C4 grasses and other deficit irrigation/low maintenance trials.
  + Pest management - diseases (Dr. Baird - Spring Dead Spot / Fairy Ring / Nematodes / Snow Mold)
  + Support from Dr. Ole Becker  on nematodes research and Prof. Adam Lukaszewski on breeding
  + Matteo - participating in SCRI project - using AI to monitor irrigation management
  + Extension Field Days:
    - 2020 virtual - recorded and available online -
      * <https://ucanr.edu/sites/turfgrassfieldday/Past_Field_Days/2020_Virtual_Turfgrass_Field_Day/>
    - 2021 - in person field day (ca. 200 attendees) - industry heavy participation
  + Extension events also for homeowners
  + 2019 / 2021 - 9 articles have been published

New Mexico

Bernd Leinauer

* Elena / Guillermo remain on the research team
  + 3 Barenbrug industry trials
  + C4 NTEP
  + USGA - bicarbonate study
    - Are bicarbonates really an issue?
    - Are there any products that can help?
      * Delayed due to Covid - 1st year starting now
    - Also working on C3 grasses
    - NASA grant / chili pepper / spinach - how plants perform on treated effluent water & impact on nutritional value
    - No grad students at the moment
    - Published - 4 journal articles this year
    - Extension
      * Master Gardener Program - online b/c of Covid
        + Some municipalities do not have high speed internet
      * In person events to pick up again likely
      * 2 GC projects
        + Sub-surface irrigation (12 tee boxes - 4 different products)
        + 2 Poa annua control trials (poa cure / cumyluron)
    - Reporting contact hours
    - Building new soccer field on campus
      * Leslie identified 34 weed species
    - Teaching - 1 or 2 students on campus
  + Western IPM Grant
    - collaborating with Oregon State on Herbicide Alternative Grant

Hawaii

Cheng

* The weed control specialist retired
* Lots of insects / nematode work
* Horticulture position opening unknown - frozen at the moment
  + Turfgrass management will be a component
  + Only one person who focuses on turfgrass
* Undergrads - no specific turf program although there are some classes related to turfgrass management
* Research
* Weed control on golf courses in the past
* Currently 3 grad students working on GC and landscape pests
* Trials on GCs looking at insect work in landscape beds
* Coffee Leaf Rust (2nd largest crop in HI) - rust an issue since 2020
  + Extension program
    - * Webinars due to Covid
      * 4 webinars (one per week)
      * 320 people attended
  + Teaching - undergrad class on turf pest management

Nebraska

Keenan Amundsen

* Fred Baxendale passed away
* Program
  + B. Kreuser no longer with the program
  + Only Roch and Keenan remain in the program
    - * + Keenan focuses on genetics / breeding - not general turfgrass
        + Not sure when Roch will be replaced
      * Undergrad major: Plant and Landscape Systems
        + Turf Management an option - 18 undergrads - consistent

highest was about 45 students

6 grads / 1 post-doc (actually housed in MD)

* + - * + 3 more full time folks
        + 74 acre turf farm - Meed, NB (45 minutes from campus)
        + New turf farm on campus - 7 acres of managed turf demonstration plots
        + Extension - virtual conference last year - no field day
        + 2022 likely a conference and field day will take place
      * Research
        + Roch - O.M. research / weed specialist

New M.S. student - studying how water infiltrates soil – using UV tracer dye

* + - * + 3 NTEP trials
        + Buffalograss breeding

High throughput DNA sequencing

* + - * + Diploid Buffalograss genome and breeding

No winter dormancy

Developing diploid buffalograss

seeded for drought affected areas

* + - * + Collaborating to work on grass genome - creeping & colonial genome
        + Dollar spot

genetic tools to assess prevalence of fungicide resistance

USDA-Oklahoma

Nick Boerman

* + - * Hired last Nov.
      * Previous breeder worked with TX bluegrass
      * Worked on forage
      * Hybrids with KBG -
      * Restarting program
        + building up
        + heat and drought tolerance
        + Cottony fiber on seed of TX bluegrass a focus

focus on studying agronomic sides

Cross with KBG to reduce cottony effects

* + - * + Want to focus on TX Bluegrass root architecture
        + Working on C4 (Side Oats)

End of State Reports.

Next agenda item: Discussion about collaboration:

* Cooperative Projects: Goal of WERA group
  + Potential SCRI projects
    - Breeding Project studies
    - Water Use studies
    - Salt Tolerance studies
    - Drought tolerant studies
    - Cold tolerant studies
    - Use USDA diversity panels

SCRI Grant Proposal Idea:

**Idea: Focus on C4 grasses**

* + - * Could do projects in different states - similar to NTEP
  + Quantify light / Irrigation / Dormancy / Mowing Quality
  + Mention to include consumer preference panel

Discussion about C4 research and in particular – behavior of C4 grasses in different areas of the USA.

* Low light in spring may play more of a role than temperature
* Kai notes that bermudagrass goes dormant in HI even though temps are warm (cloudy conditions may influence dormancy)
* Shui Zhang Fei notes that buffalograss goes dormant later under the street lights

**Idea: Focus on Breeding**

* Michael (WSU)
  + C3 breeding
  + Need stakeholder support
    - Can obtain letters of support
    - Matching Funds may influence USDA collaborators
  + Potentially working on vernalization genes / flowering times
  + C4 grass breeding collaboration - cold tolerance
    - Cold tolerant bermudagrass growing in WA
* Shui Zhang Fei
  + Can collaborate in Iowa for testing
* Keenan will likely seek cooperatives to evaluate varieties

Agreement to collaborate in the future with the potential to write a grant moving forward.

Meeting adjourned @ 5:03 pm