**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