

Brief summary of minutes of annual meeting

NCERA-101 Business Meeting Summary

Meeting started at 7:18 pm, September 12th, 2022

Introduction and Welcoming Remarks from meeting host Dr. Murat Kacira, (University of Arizona)

Introduction of the NCERA-101 Executive Officers by Dr. Murat Kacira (University of Arizona)

Chair: Dr. Murat Kacira (University of Arizona)

Chair Elect: Marc Theroux (BioChambers)

Secretary: Dr. Ricardo Hernandez (North Carolina State University)

Recognition of Industry Sponsors by Dr. Murat Kacira (University of Arizona)

The following sponsors were acknowledged:

CONVIRON	DRAMM
ARGUS	BAYER
IUNU	RED SEA FARMS
Inside GROWER	KOIDRA
CURRENT	BIORA
PERCIVAL	HORTAMERICAS
CANDIDUS	FLUENCE
BRIGHT FARMS	ENV. GROWTH CHAMBERS
NATURE SWET TOMATOES	LI-COR
APOGEE	BIOCHAMBERS
HETTICH	LIGHT4FOOD
CORTEVA	ASTROSPACE
VALOYA	

Approval of Minutes from 2021 by Dr. Ricardo Hernandez (North Carolina State University)

Approval was requested at 7:20 pm, motion to approve the minutes by Dr. Bruce Bugbee (Utah State University). Motion Seconded by Dr. Marc van Iersel (University of Georgia), Minutes approved unanimously.

Announcements of Other Relevant Conferences (All)

- 2023 Greensys- Cancun MX, October 22-27 (<http://www.greensys2021.org/>)
- 2023 ASHS – Orlando FL, 31-July to 4-August (<https://ashs.org/>)
- 2023-International workshop on VF- China
- 2024 X International Symposium on Light in Horticulture, Seoul Korea, May 19-22 (<https://www.ishs.org/symposium/716>)

Additional meetings suggested by attendees:

Resilience harvest conference, ARI institute long beach CA - Suggested by Dr. Mark Lefsrud (McGill University)

ASBE Omaha Nebraska- Suggested by Dr. Mark Lefsrud (McGill University)

Administrative Advisor's Report by Dr. Rameshwar Kanwar (Iowa State University)

- Congratulations to Dr. Murat Kacira (University of Arizona) and his team for organizing this International Conference and this year’s annual meeting of the NCERA 101 Committee in Tucson. Great reception and Tour programs.
- It is good to know that some of you are having NIFA CIG grants to conduct your research. These activities, you can highlight in your annual reports.
- Annual report of today’s committee report will be due within 60 days of this meeting – by November 11, 2022. Newer annual reporting guidelines described under #7 are here: <https://www.ncra-saes.org/multistate-handbook>.
- NCERA 101 Committee’s mid-term review will take place in 2023, Dr. Kanwar will take care of it.
- The NCRA had announced the release of RFA *on Climate Change last year*, designed to enhance our NC multistate research program. This year’s deadlines have already passed but we could keep an eye on the future. Please reach out to either your AES director or Chris and Jeff in the NCRA office with any questions (christina.hamilton@wisc.edu and jjacobsn@msu.edu).
- Consider resubmitting the nomination for the NCEREA 101 Committee for the **Excellence in Multistate Research Award**. Here are the instructions from the 2022 award: http://escop.info/wp-content/uploads/2017/04/ESCOP_RESEARCH_AWARD_2022.pdf. 2023 call hasn’t been formally released yet.

To proceed with efforts for the Excellence in Multistate Research Award a committee will be established led by Dr. AJ Both (Rutgers University). Dr. Murat Kacira (University of Arizona) and Marc Theroux (BioChambers) offered to be part of the committee.

Membership Report was presented by Dr. Mark Romer (McGill University)

- 47th anniversary of this group, several international members attended the meeting.
- Regretting to report the passing of Dr. Lou Albright and Dr. Judy Thomas,
- To become a member contact Dr. Marc Romer (mark.romer@mcgill.ca) requirements include participating, sponsorship and come to at least one meeting.

Membership NumberMarch 2021 173
March 2022 173

- Additions 8
- Deletions..... 8
- Net Gain(Loss) 0

Membership Composition	<u>Institutions</u>	<u>Members</u>
● Phytotrons & Controlled Environment Facilities	7.....	9
● University Departments, Agr. Exp. Stations	67.....	86
● Government Organizations & Contractors.....	12.....	
● Industry Representatives	56.....	66
Total Number of Institutions / Members	142	173
Total Number of Countries	9	
Total Number of US States.....	33	

New Institutions: Dept of Environmental Horticulture (York College of Pennsylvania); Dept of Biological & Agricultural Engineering (Texas A&M University); Tropical Plant & Soil Sciences Dept (University of Hawaii); Biora by MineARC Systems; Orbital Farm; Holistic Industries; Maui Greens Inc.

Website Report (Dr. Carole Saravitz, North Carolina State University)

Website Summary, November 2021 to September 2022, <https://www.controlledenvironments.org/>

Website location	Page views	% page-views
Landing page	3404	25.15 %
Meetings	3145	23.24 %
Growth-chamber-handbook	1101	8.14 %
Members	598	4.42 %
Activities	366	2.70 %
Officers	264	1.95 %
Station reports	261	1.93 %
Past-meetings	255	1.88 %
Reporting guidelines	251	1.85 %
Lighting	185	1.37 %

- Any website comments, questions, suggestions, send them to Dr. Saravitz’s (NCSU) email (carole@ncsu.edu)
- Dr. Saravitz (NCSU) suggested to send any new published articles to add to the website “publication”

Student Grant/support Update (Dr. Ricardo Hernandez, North Carolina State University)

- Twenty travel grants of \$ 450 each awarded to participating students
 - Poster competition support (in meeting competition) with 3 cash prizes of \$750, \$500, \$250 for 1st, 2nd and 3rd.
- For a total of \$10,000 dollars investment to the future scientists in CE, this is in large thanks to our industry supporters.
- Poster winners
 - Third place, Nick McClintic, Arizona State University, Investigating application frequencies of plant growth promoting microorganisms' effect on lettuce (*Lactuca sativa*) seedlings, Poster 109
 - Second Place, John Ertle, The Ohio State University, Nighttime Dim Lighting Enhances Lettuce Leaf Conductance but Does Not Reduce Tipburn Under Tipburn-inducing Indoor Farm Conditions, Poster 211
 - First place, Sangjun Jeong, Texas A&M, The Involvement of Light Intensity in Interactive Effects between Far-red and Temperature on Plant Growth and Morphology, Poster 101

Instrument Package & Financial Report by Dr. Bugbee (Utah State University)

- \$35,000 travel grant money in the account, pay out \$10,000 this year for students.

- Comments on quantum sensor calibration: Dr. Bugbee has sent quantum calibration sensors to several colleagues, other instruments have not been rented. The instrument package has not been used.
- New development: Quantum sensors drifting a lot (5% at year), not a clear reason and results could not be reproduced. Dr. Erik Runkle (Michigan State University) mentioned that new sensors do not show the drift if purchased on or after 2016.
- A recommendation is to make sure you have newer sensors (not older than 10 years) and continue to calibrate sensors often.
- Clear sky calculator is often under used; from this calculator you can use it to tell if your sensor has a problem.
- Dr. AJ Both (Rutgers University) asked Dr. Bugbee what actions were taken to reduce the drift of quantum sensors. Dr. Bugbee uses different materials for the sensors to make sensor better sealed to prevent moisture.
- Dr. Marc Van Iersel (University of Georgia) commented that he had issues with old LI-COR sensors, they were having issues on a day to day basis.
- Please email Dr. Bruce Bugbee (bruce.bugbee@usu.edu) if you have questions about quantum calibration.
- ePAR sensors are also included in the instrument package, Apogee has agreed to donate some for the package

Reporting Guidelines

- ASABE Standards efforts, Dr. Mark Lefsrud (McGill University)
 - PAFS – 30 - S653 Heating, Ventilating and Air Conditioning (HVAC) for Indoor Plant Growth without sunlight. *Published ANSI/ASABE/ASHRAE EP 653. October 2021.* This received a special recognition (Dr. Ed Harwood, rest-in-peace)
 - ES-311 - S642 - *Recommended Methods of Measurements and Testing for LED Radiation Products for Plant Growth and Development. Published. Dr. AJ Both (Rutgers University) mentioned that they are working on the revision and the revision should be out soon.*
 - ES-311 - S640 - Definition of Metrics of Radiation for Plant Growth (Controlled Environment Horticulture) Applications. Renewed. New committee created to modify and include ePAR.
 - ES-311 - X644 Performance Criteria for Optical Radiation Devices and Systems Installed for Plant Growth and Development. On hold (covid and other issues) and anticipated to published in 2024 (TBD). A new committee will be formed and they are looking for new members, Rachelle Winningham (rachelle.nono@signify.com) asked for a leader for this standards, if interested please email Rachelle
- Controlled environment research data sharing task force, Dr. N. Mattson (Cornell University), Dr. Erico Mattos (Candidus) gave the update.
 - <https://ceaod.github.io>
 - Controlled Environment Agriculture Open Data Project (CEAOD)

- Task force members: Dr. Kubota (Ohio State University), Dr. Mattos (Candidus), Dr. Harbick (USDA-ARS), Mr. Tran (Koidra), Dr. Yang (Purdue University), Dr. Yelton (Plenty)
- Why submit your data?: Comprehensive, public data in the field of Controlled Environment Agriculture (CEA) is scarce. Increased access to public CEA data has the potential to lead to new machine learning (ML) and data analytics tools that can propel the CEA industry forward. Public dissemination of data is an important component of many scientific journals and federal grants (i.e. data management plan).
- Dr. Erik Runkle (Michigan State University) asked if light quality was one of the variables to input, Dr. Erico Mattos (Candidus) didn't know.

Future Meetings:

- 2023- UC Davis hosted by Dr. Shamim Ahamed (UC Davis)
Current Date: April 19-21, 2023
Location: UC Davis Conference center
Accommodation: Hyatt Place at the University
Tour: UC Davis CEA Facilities and working with the local industry
The format will be like regular annual meeting
Dr. Carole Saravitz (NCSU) requested pictures and date on an email to listed as tentative in the website
- 2024- Iowa State University, Dr. Chris Curry
- 2025- Karma Verde, Mexico, Leo Lobato
- 2026- University of Georgia, Dr. Rhuanito Ferrarez and Dr. Marc van Iersel

Election of New Secretary

- Incoming secretary 2023 nominations
Marc Theorex (Biochambers) asked to nominate Dr. Neal Mattson (Cornell University), Dr. Mark Romer (McGill University) seconded the nomination. Vote to elect Dr. Neal Mattson, unanimous to elect Neal Mattson.

NCERA-101 Award Discussion

- Dr. Mark Romer (McGill University) suggested to again offer an award to celebrate facilities, intuitions, industries. This was delayed from 2018 due to pandemic. He requested volunteers to develop an award plaque. Also, an interesting background photo for the plaque. He also requested for volunteers for a committee to do the work (concise wording of the award and concise presentation of the granted awardee).
Title: Award for significant organization contributions for CE sciences
Dr. Mark Romer asked for volunteers to contact him via email (mark.romer@mcgill.ca).
Dr. Erik Runkle suggested to have a process, with a nomination, then based on submissions, the committee will review the nominations to select the winner.
Dr. Gary Gardner (University of Minnesota) seconded Erik's suggestion, and asked the executive committee to find an award committee of 3 people.

- The motion to empower the executive committee to form a sub-committee to determine the nature of the award and determine the criteria and provide a recommendation. Seconded by Dr. Ray Wheeler (NASA), motion was approved unanimously.

New Business open discussion

- Dr. AJ Both (Rutgers University) mentioned that Kenneth Trend (Koidra) will develop a data driven grower book that is to be posted online. This will be launched soon, and he has asked to encourage critics of the first draft of the book to improve it.
- Dr. Rameshwar Kanwar (Iowa State University) mentioned that the Department of State, NIFA, Dutch investment, and FFAR are potential opportunities for CEA research funding. Dr. Rameshwar Kanwar will reconnect, and the Executive Committee will follow up.

Passing of the Gavel to Marc Theroux (Biochambers) new Chair

Recognition comments from Marc Theroux to Murat Kacira's contribution to renewing the group.

ADJOURN