

## **Minutes of the 2014 NCERA-101 Business Meeting**

Sunday, April 13, 2014

### **Participants:**

Lars Aikala (Valoya Oy), Mark Blonquist (Apogee Inst.), A.J. Both (Rutgers Univ.), Keri Bouchard (Convicon), Bruce Bugbee (Utah State Univ.), Bobby Clegg (Syngenta), Eric Cook (Chena Hot Springs), Tricia Costello (Syngenta), Chris Currey (Iowa State Univ.), Matthieu de Carbonnel (Syngenta), Jay Dinwiddie (Syngenta), Nate DuRussel (Mich. State Univ.), Cecil Ellsworth (Univ. Alaska-Anchorage), Matthew Ezzo (EGC), Jonathan Frantz (Pioneer), Gary Gardner (Univ. Minn.), Barret Goodale (Chena Hot Springs), Celina Gómez (Purdue Univ.), Daniel Halldorf (Heliospectra), Alec Hay (Utah St. Univ.), Will Healy (Ball Hort), Ricardo Hernandez (Univ. Arizona), Chris Higgins (HortAmericas), Henry Imberti (Percival Scientific), Murat Kacira (Univ. Arizona), Ramesh Kanwar (Iowa State Univ.), Bernie Karl (Chena Hot Springs), Meriam Karlsson (Univ. Alaska-Fairbanks), Nick Klase (BML Horticulture), John Lea-Cox (Univ. Maryland), Mark Lefsrud (McGill Univ.), Joan Leonard (Ohio St. Univ.), Peter Ling (Ohio St. Univ.), Rod Madsen (Li-Cor), Gioia Massa (NASA KSC), Neil Mattson (Cornell Univ.), William Meng (Mich. State Univ.), Ken Meter (Crossroads Resource Center), Alicia Minzel (LiCor), Cary Mitchell (Purdue Univ.), Bob Morrow (Orbitec), Bill Mukanik (Convicon), Jake Nelson (Utah State Univ.), Genhua Niu (Texas AgriLife), Yosuke Okada (Chena Hot Springs), Derrick Oosterhuis (Univ. of Arkansas), Garrett Owen (Purdue Univ.), Dan Puckett (ACS), Sharon Reid (Convicon), Mark Romer (McGill Univ.), Erik Runkle (Mich. State Univ.), Carole Saravitz (NCSU Phytotron), Tim Shelford (Cornell Univ.), Gregg Short (GShort.com), Todd Smith (Duke Phytotron), Chase Snowden (Utah State Univ.), Christopher Steele (Heliospectra), Ryan Stewart (Brigham Young Univ.), Nancy Tarnai (Univ. Alaska-Fairbanks), Marc Theroux (Biochambers), Mark Thompson (DOW), Abhay Thosar (Philips Lighting), Marc van Iersel (Univ. Georgia), Sydney Wallace (Univ. Maryland), Jeff Werner (Chena Hot Springs), Martha Westphal (Univ. Alaska-Fairbanks), John Wierzchowski (EGC), Cameron Willingham (Univ. Alaska-Fairbanks), Dave Wilson (Stanford Univ.), Rachelle Winningham (Philips Lighting), Yang Yang (DOW), Zach Yohannes (Stanford Univ.), Neil Yorio (Lighting Science Group), H.P. Zhou (Syngenta).

### **Executive Officers:**

Chair: Henry Imberti (Percival Scientific), Vice-Chair: Meriam Karlsson (Univ. Alaska-Fairbanks), Secretary: Carole Saravitz (NCSU Phytotron), Past-Chair: Peter Ling (Ohio State University)

Henry Imberti called the meeting to order and asked if there were any announcements.

### **Announcements:**

Mark Lefsrud of McGill University announced that Montreal will be hosting the 2014 ASABE and CSBE | SCGAB Annual International Meeting from July 13 to 16, 2014.

Sunday, April 13, 2014

Gioia Massa announced that the ASHS meeting will be in Orlando Florida July 28 to 31, 2014. At the meeting, there will be a colloquium on the "Importance of Light Quality for High Value Plant Products and also a workshop on LED lighting. Members of NCERA101 will be speaking at both the colloquium and workshop.

**Administrator advisory report (Ramesh Kanwar)**

- Ramesh welcomed the 74 attendees to 2014 annual NCERA101 meeting. He said NCERA101 has broken history among multistate committees for longest living committee.
- He has been the advisor for 17 years and is happy to see the dedication the group has toward this committee. It is good to see so many members that used to come as graduate students that now are faculty.
- He thanked Meriam Karlsson for organizing the meeting at such a reasonable cost and commented that the staff was helpful and the facilities were excellent.
- Ramesh congratulated the group for preparing a very successful report for the midterm review. The review went very well.
- He commended the group for strong graduate student interest, participation from a wide audience including private industry, universities and federal agencies.
- Greenhouse and controlled environment technologies are booming around the world especially in India and China, with increased interest in specialized fruits and vegetables and NCERA101 could play an important role in its development.
- With its strong international ties, the committee should look for opportunities around the world such as: using distance education to offer certificate programs for greenhouse managers in developing countries. He suggested developing a 14 to 18 credit hour program using online classes to offer an international certificate. The group could collaborate and offer classes from different universities, and charge a fee for the classes.
- He would like to see NCERA101 help policy makers in DC. Help granting agencies with a proposal for what programs are needed for Federal programs. If a proposal could come out of this committee on how the plant scientists should work together, it would be helpful. Try to set aside time to discuss what policies we should promote that we could propose for funding
- At the end of the 5-year cycle, we will need to prepare for a new project. Ramesh will check to see when we must renew. During the renewal year the deadlines are as follows:

Sunday, April 13, 2014

- Sept 15 - enter on line why we would like to renew this project
  - Oct 15 - enter objectives – what are the key objectives for the project?
  - Nov 15 - add a list of all participants
  - Dec 1 - should have complete project online.
- Ramesh will stay in touch about when to start renewal
  - The annual report for the committee is due in 60 days from today (June 13) and should highlight meeting attendance, multidisciplinary (industry, fed agency, & university) collaborations, training of future professionals (our mentoring role) & diverse work of the group. It is important to make sure impact statements is highly visible
  - Ramesh presented a PowerPoint from Experiment Station Directors and said it was available to anyone that is interested.
  - Priorities should focus on promoting sustainability and adapting to climate change for food systems, energy and fiber and support for use of energy from renewable resources. A global leadership role in improving human health, and heightening environmental stewardship is also important.
  - National priorities have not changed. Food security is still a high priority. For the Farm bill, agencies are providing matching funds (USDA is exempt). Formula funds are disappearing and competitive funds are increasing.
  - Ramesh will work on nominating NCERA101 for multi-state reward. We have many elements that should be recognized.

Henry thanked Ramesh for his commitment to NCERA101.

**NIFA (National Institute of Food and Agriculture) Representative Report (John Lea Cox)**

Dan Schmoltdt was not able to attend the meeting due to a travel ban. John Lea Cox presented a summary report.

The Farm Bill was approved 2 months ago and John provided a copy of the summary report from Mary Meyer (2013/2014 president of ASHS) for the minutes ([Appendix A](#)). Jonathan Moore was the advocate for ASHS.

There is good news for our group – increased capacity. The House appropriations committee supported research, but Senate numbers were lower. The Specialty Crop Research Initiative was authorized for \$275M over five the next 5 years (\$50M for FYs 14-15, \$55M for FYs 16-17, \$65M for FY 18). The dollars translate into graduate

Sunday, April 13, 2014

assistantships and collaborative projects. There was a big increase for AFRI programs and the number of RFPs that fit our group. AFRI is coming up fast – a Letter of Intent for this year was already due. If you did not get one in you will have to wait until next year. This may not be a bad thing, because this year you will need matching funds, and any awards that have the match will maintain the match for the life of the program. Next year the ARS land grants will not have to match, but there will still be a match for industry.

SCRI will go through a 2 panel review process –

- The 6-page stakeholder relevance statement goes to a blind industry review panel
- Must submit conflict of interest
- Industry has a stake in the primary review process (If you have a champion amongst industry or fit the RFPs closely you will have a better chance).
- Later there will be a scientific merit review
- Final proposals are due in June

There are other opportunities that will come through the Farm Bill.

- **Agricultural Research Initiative** –funded for 100 million for 5 years.
- **The Beginning Farmers and Ranchers** - \$100M total over five years - \$20M/yr. for FYs 14-18.
- The **National Clean Plant Network** - retains an annual base funding level of \$5M/yr., allowing for additional annual funds if permitted by the USDA secretary.
- **Hatch** will get \$224 million – this is an \$8 million increase over 2012

Dr. Sonny Ramaswamy, the new NIFA Director brings a fresh perspective to NIFA. It would be nice to get him to one of our meetings.

Henry thanked John for the update.

### **Approval of the Minutes from 2013 (Meriam Karlsson)**

Meriam reported that the minutes from the 2013 meeting at Purdue University have been posted on the website for many months and she had hard copies for anyone that would like to see them. Meriam requested any additions or corrections. There were none from the group. Mark Romer made a motion to approve the minutes in their present form, and Carole Saravitz seconded it. Henry Imberti called for a vote and the minutes were unanimously approved.

### **Membership Report (Mark Romer)**

Mark welcomed everyone to Fairbanks. This year marks the 39th annual meeting of the group and the first time meeting in Alaska. The success of the group is attributed to the hard work and volunteerism of its core members. This year we are particularly grateful to Meriam and the people from the University of Alaska that have contributed to this fantastic meeting. For those of you who have organized meetings, you know how much

Sunday, April 13, 2014

work is involved. We started talking about a meeting in Alaska about 10 years ago and when we stopped talking about it, Meriam suggested it. We would love to visit everyone and see everyone's facilities.

The group is very strong and we now have 167 official members. The official members are from 114 institutions, 35 US states, and 9 different countries (Appendix B). There is a net gain of 12 from last year and it is significantly from industry.

The list of new institutions added this year is:

- Dalhousie University
- Chena Hot Springs
- GShort
- Hort Americas
- iGROW Induction Lighting
- LI-COR Biosciences
- Philips Lighting
- Syngenta Biotechnology Inc.
- University of New Hampshire – Department of Biological Sciences

We are getting more interest from different sectors of industry. Many were previously graduate students or previously had an academic position. All are equal members of this group and we all take off our hats at the door in this group. We thank the very generous sponsorship to this group from the industry members of this group. Sponsorship helps keep costs for the meeting low and gives us the opportunity to support the future of the group through the support of students.

Some companies are celebrating 50 or more years in business - eg.: Convion, EGC. Others represent new technologies.

On a sad note, one of our founding fathers, Art Spomer passed away July 25, 2013. He was a great person to share a meeting with and will be missed.

Next year will be our 40<sup>th</sup> anniversary. Let's think of something special we can do to celebrate. As a component of next years meeting maybe we can do a tribute to the past 40 years and to the next 40 years. One suggestion Mark received was to give equal time to past memories and future promise.

Henry thanked Mark for his contribution to the group and the incredible job he does keeping the group together and organized.

#### **Website Report (Carole Saravitz)**

Carole has been maintaining and updating the website. For new members, she reminded the group that the website moved to NC State University in 2010 and pointed out that the website could be found at [controlledenvironment.org](http://controlledenvironment.org), [NCR101.org](http://NCR101.org) and

Sunday, April 13, 2014

NCERA101.org. Not much has changed from last year, mainly just housekeeping. She suggested modernizing the design. The old format is well done, but dated. The page could easily be rearranged. She showed several of the current templates with an updated design.

There was a question about tracking visits to the website. Carole replied that we currently don't track visitors, but she would look into adding one. It was suggested that Google analytics is a good one.

Mark Romer asked for clarification about writing station reports and their significance. Carole said a station report is a summary of what has been done at your facility or lab during the past year. There is a link for guidelines with the general format on the home page of the website. She showed where to find the link on the website and suggested looking on the meeting page under the station reports tab for examples. Historically, we used to bring hard copies of our reports to the meeting and exchange the copies of our station reports. Now we can go to the website to read the station reports, but it is important for everyone to participate to keep our group strong. Submission of station reports is important for development of the NCERA101 Annual Report and as a way to exchange information among members. You can always email Carole with questions about station report or the website by clicking the link on the bottom of any of the web pages.

Gary Gardner suggested to change the publication page to subheadings with a link to a list of publications for each topic. We could then ask members for their references to list or possibly link copies to the page.

### **Student Poster Competition (Jonathan Frantz)**

Jonathan: Ramesh referred to the legacy of graduate students that have been supported by the group and moved on to positions in academia, government and industry.

Jonathan said he is one of those graduate students that got his start through the group and always enjoyed the way students, faculty, emeritus faculty, and industry have been able to interact on the same level. For the last few years, we have supported graduate students through subsidized meeting registration. This year registration was completely free for graduate students and last year, the registration fee was heavily subsidized. During this past year, a group worked together via email to discuss how we could further support graduate students. For future meeting hosts, we hope that registration can be free at domestic meetings. This can be done with the help of generous corporate sponsorships.

For the last few years, we have also had a poster competition for graduate students and we are continuing the tradition with first place \$300, second \$200 and third receiving \$100.

Sunday, April 13, 2014

The next proposal is to provide travel grants. The target is 4 per domestic meeting, and 5 for international. The dollar amount depends upon the number of applicants. The goal is \$500 for domestic and \$1000 of international meetings. The funds will come from corporate sponsorship and past year's surplus. The funds will be sent to the advisor about 2 months in advance. The process will begin with the student's advisor filling out an application that includes the student's CV, a letter of support from the advisor, and an abstract of the student's research submitted 3 to 4 months prior to the next meeting. An undergraduate could also be funded. The application will include an estimate of expenses for the trip and a summary of the student's aspirations after graduate school.

Applications will go to Jonathan and he will select 3 or 4 others to help evaluate applications. The check would be cut from the Utah State account. Students would be expected to present a poster in the competition at a domestic meeting and explain their research. This is a proposal right now and funds are coming from Pioneer, but others are welcome to contribute. If there are more contributions, we can increase the amount given.

Several members commented on this being a great idea. Bruce Bugbee commented that Jonathan was the perfect person to organize this because there is no conflict of interest, as he doesn't have graduate students at Pioneer. Jonathan started this while he was at USDA and the group appreciates him taking the lead.

Peter Ling asked how the award per student would be calculated? Jonathan said the awards would be flexible but likely there would be 6 to 7 students that could be funded at \$500 per student with the funding that is currently available.

Ramesh said it was commendable for the group to provide funds to students.

Mark Romer said he has gotten emails from early members of the group and they thought this was fantastic. They couldn't have imagined this 40 years ago. He thanked Jonathan for heading up the process.

Matthieu de Carbonnel said Syngenta was supportive of the student awards and may be able to contribute.

Henry Imberti thanked Jonathan for heading up the poster competition and the support of students.

Henry asked how many people were planning to present a station report. The show of hands was 19. Henry said he would pass around a sign up sheet for presenting a station report.

Sunday, April 13, 2014

Meriam thanked the sponsors and said they are listed on the banner in the meeting room:

EGC  
BioChambers  
Percival  
Convion  
Li-Cor  
Cycloptics Technologies  
Ball Horticultural Co  
Syngenta  
Pioneer  
Valoya Oy  
Orbitec  
Apogee  
Heliospectra  
HortAmericas  
Dow Agrosiences  
Chena Power  
Chena Hot Springs Resort  
Univ. of Alaska Reindeer Research Program

Meriam thanked also Martha Westphal, Nancy Tarnai & Cameron Willingham from Univ. of Alaska, as well as Bernie Karl, Diane Carrio, Jeff Werner and many others at Chena Hot Springs.

Morning Break

**Greenhouse Guidelines (AJ Both)**

The final version is not yet available, but the most recent version is in the meeting packet. The UK group has offered to pay for printing and is currently adding pictures before printing the high quality copies of the document. After it is printed, it will be distributed to our membership. The process is almost complete. Once they are available, the guidelines will also be down loaded to the website and then copies will be distributed as soon as possible.

The Greenhouse Guideline Committee members are in the process of making the document into a formal peer-reviewed publication for the journal, Plant Systems. It is an open source journal.

Gioia asked if a summary poster would be available. AJ answered, no because the information is so extensive. Once the guidelines are available, we can all let people at our institutions know where to down load them.



Sunday, April 13, 2014

### Instrument Package/Financial Report (Bruce Bugbee)

For those new to the group, the package was historically a set of calibration instruments that were shipped continuously to the various universities to calibrate member's equipment. Twenty years ago the package was in continuous use, but now it has had less use as a calibration package and is mainly used as reference instruments – particularly the spectroradiometer. The spectroradiometer has continued to be shipped around regularly. There was some instrument use in the past year, but there was no charge because we didn't need the funds.

To follow up on the discussions about where the graduate student awards are coming from, the corporate sponsors in the group have really stepped up and we have had surpluses for about the last 7 meetings in a row. Thanks to Cary Mitchell, Celina Gómez and the group at Purdue, we have approximately a \$5,000 surplus from last year's meeting and we are now approaching \$25,000 in the treasury for the group ([Appendix C](#)). Now that we have a surplus, we can afford as a group to be creative with the surplus funds available.

Options for investing our surplus funding:

- Use funds to help graduate students with meeting expenses.
  
- Purchase additional equipment such as:
  - A handheld spectroradiometer with a display monitor from Quibit systems. It is easy to ship and is easy to use.
  - A reference anemometer is another possibility.
  
- Web based summarization of controlled environment (CE) wisdom – we can use funds to start an open access forum for controlled environment research and tie it to our existing website. The industry is changing rapidly and few people look at paper copies anymore. Also, journal fees for open access copies can be very expensive and some journals will not allow sharing of prepublication copies.

AJ Both- How does the summarization of CE wisdom compare to what we have in the growth chamber manual? Should we update the growth chamber manual?

Bruce Bugbee - Yes we should update the handbook. The beauty of an electronic copy is that it is always a draft and can be constantly updated. We can hire someone to do formatting and we can then link it to or put the updated copy on our existing website.

Cary Mitchell– If there is increased interest in travel money for graduate students, should we go to something like matching funds by the student's department or major professor?

Sunday, April 13, 2014

Bruce Bugbee – Funding could go to the university and be paid as part of their travel authorization.

John Lea Cox – It seem like we are always 5 years behind the curve due to publishing time, how about investing funds to start a webinar series and ask individuals to present? It would allow us to stay current. The funds would go for the WebConnect.

Bruce Bugbee - Decagon instruments has a nice webinar series available that is not self-promotional. Apogee instruments is also starting on a webinar series on different topics than Decagon. Both of these are for profit companies, so our group would serve a different purpose.

John Lea Cox pointed out that our group has an incredible amount of wisdom that could be shared. We could make available a lot of information that never makes it into print.

Gary Gardner – A webinar is a great idea and would be a great way to provide information for students. Very few students have classes available that cover the fundamentals of how you control plant growth by controlling the environment. As a second part, we could then go into the instrumentation. Faculty and industry could collaborate on a webinar.

Faculty could provide the fundamentals and members from industry could provide the portion on instrumentation without endorsements.

Bruce Bugbee - Webinar may be easier to organize than open access papers. Bruce offered to take the lead and look into the possibility of a webinar series.

Bruce suggested we continue an email exchange about new instrumentation.

Video taping of the talks including the production costs was also suggested.

Henry Imberti suggested making the cost of the package just shipping and handling. (Current fee is \$300.)

Bruce Bugbee stressed the importance of using the instrument package to check the calibration of sensors in use in controlled environment facilities.

Neil Mattson - Do we rent the package to individuals outside of our group?

Bruce Bugbee - it is rare that someone completely outside the group has asked to rent one of the packages, but we have rented it for a higher price.

4 packages are available.

- Quantum sensor- The calibration package includes 3, LI-COR Quantum sensors (400 – 700 nm)

Sunday, April 13, 2014

- Spectroradiometer -StellarNet UV/Vis Spectroradiometer (300 – 850 nm) with an Apogee Instruments cosine corrected head and leveling plate and a few affiliated red/far-red sensors
- Humidity package - includes two reference Vaisala HMP45 humidity sensors that are connected to a dedicated micrologger with display
- Net radiation- for short and long wave radiation measurements. It has a Kipp & Zonen CNR1 net radiometer.

Todd Smith suggested making a video of the packages showing what you can test, the reasons to test and how to use the instruments.

Bruce thought it was a good idea.

#### **Future meetings (Mark Romer)**

Our next meeting will be a joint meeting with AERGC. AERGC is made up mainly of people who manage facilities. The joint meeting will be a chance to receive and share information between the 2 groups. Joan Leonard and Peter Ling will organize the meeting together.

Peter and Joan presented details on the 2015 meeting.

Peter said Joan has graciously accepted the lead role in organizing the group meeting.

Joan discussed the details for next year's joint meeting. The meeting will be in Columbus, Ohio, but the group will also tour the Wooster campus. She knew NCERA101 visited Wooster about 5 years ago, but there have been many upgrades. The meeting will be held **July 8 to 11, 2015**. The meeting will be later than our usual meeting time and a bit earlier than when AERGC usually meets. Joan gave a little background on AERGC. AERGC stands for The Association of Education and Research Greenhouse Curators. The group began in 1985 and next year will be AERGC's 30th anniversary. It is made up primarily of managers of plant growth facilities from universities, colleges, research institutions, botanical gardens and even a few zoos. It has membership of 277 and usually 100-125 members attend the annual meeting. With a little overlap, there should be about 175-200 at the joint meeting.

The meeting will be dovetailed with AmericanHort's (formerly referred to as OFA) annual convention and trade show, Cultivate (formerly known as OFA short course) in Columbus, Ohio on July 11-14, 2015. This is directly before our joint meeting and will overlap by one day. Cultivate will have a 12 acre trade show at the convention center. It is the largest floriculture show in the nation. There have been discussions about having some of the talks and tours overlap between our joint meeting and Cultivate. The accommodations for AmericanHort will also be at the OSU Blackwell facility. There are also dormitory services that can be used for additional housing.

Sunday, April 13, 2014

There are 5 plant growth facilities on the OSU, Columbus campus. Three facilities are in the College of Agriculture and the other 2 are for biotechnology support and are in Biological Sciences.

Peter Ling said the Wooster campus has facilities under construction now. Agronomy greenhouses will open in October 2014. There is also a new BSL3 facility that is now functioning as a BSL1. A new agricultural engineering building will break ground this year. There are also 3 acres of commercial greenhouses on the south side of campus that we can tour. There will be a lot of new things for the group to see.

Joan Leonard said it would be challenging to merge the 2 agendas. There will be separate business meetings. The meeting will incorporate poster sessions for students and there will be tours. There will be modified station reports to accommodate both groups. A select group of longer station reports was suggested for presentation to the group. The agenda is subject to discussion. Joan will coordinate with the organizers of Cultivate and possibly have some sessions at the convention center.

Mark Romer - One of the areas AERGC should explore at their meeting this summer is: What can NCERA101 contribute that would benefit the AERGC group? Should we talk about the greenhouse guidelines?

Joan would like to hear about the greenhouse guidelines, LED lighting, and the instrument package. Joan rented the package after attending our meeting last year and thinks others from AERGC would be interested.

Mark Romer asked if AERGC would like to hear about instrumentation and how to use it correctly.

Joan thought AERGC members would like to hear about retrofitting and decision-making during facility renovations. What components go in together? Maybe discuss LEDs as a panel.

There was concern about vendors needing to set up for Cultivate. How will the vendors have time to setup and present?

Joan said we could have sessions that the commercial members may be less interested in during the times they need to be at Cultivate.

John Lea Cox said that some members of NCERA101 present at Cultivate (OFA short course). How will the 2 meetings mesh together?

Sunday, April 13, 2014

Joan and Peter have been speaking with Steve Carver about meshing both our joint meeting and Cultivate schedules. Joan envisions having half of a day of our meeting down at the convention center in conjunction with Cultivate.

John Lea Cox suggested having a special session on lighting systems.

**International Meeting (Mark Romer)**

Mark Romer spoke about the planning of our 5th international meeting. Mark credited Ramesh with helping to get the process started for our first international meeting and thanked him for the support he has provided. Mark pointed out that we were able to have a successful first international meeting in Norwich, UK despite 9/11 and now we are organizing our 5<sup>th</sup> international meeting. Mark is not sure if it will be spring or fall, but the commitment to have the meeting has been renewed by CSIRO. No need to look for a backup city. The current proposal is to have the meeting in Canberra. Tony Agostino in Canberra and Denis Greer in Wagga Wagga will be the organizers in Australia. We will meet in Canberra and have first night registration and mixer, followed by 3 days of sessions. We will have 24 speakers and each of the 3 groups (NCERA101, UK-CEUG, and ACEWC) will work on one third of the talks for the scientific program. Following the talks, we will tour the local facilities in Canberra at the Australian Plant Phenomics Facility which has been completely renovated, the Canberra phytotron which celebrated 50 years in 2012 and then we would then go down to Wagga Wagga to see the National Wine And Grape Industry Centre (NWGIC) and Dennis Greer's lab. There is the potential for a post conference tour in other areas around the continent. One place might be Adelaide, where the Plant Accelerator is located. Mark welcomed suggestions for places to visit and said he would pass any along to the organizers.

Two committees are organizing the international meeting: one that is working on the scientific content and another on funding. Mark thanked the members that are serving on the 2 committees. Mark asked AJ Both to come up and talk about scientific program.

Scientific Program- AJ said the host would make a final decision on the theme for the meeting. The Australian group has proposed "The Growth Chamber of the Future" or "Advances in Controlled Environment Agriculture" as possible themes. UK-CEUG has made suggestions too. In 2016, UK-CEUG will be celebrating their 50th anniversary. They proposed presenting a history of the UK-CEUG group to commemorate their anniversary. UK-CEUG proposed Energy Savings and how it relates to LED lighting technology as a main theme. AJ will take our suggestions back to the Australian group to help them make the final decision on the theme. Having a theme in place is important so we can start looking for speakers and funding opportunities for the speakers to travel to Australia. It is hoped that we can get some funding to help faculty and students travel expenses.

AJ opened the floor for suggestions for the theme for the Australian Meeting.

Sunday, April 13, 2014

Ramesh said there are 2 potential funding possibilities:

- USDA- NIFA programs. Last time they gave us approximately \$10,000. One of USDA's objects to develop collaborations and global impacts as it affects food security.
- NSF is also a possibility. NSF's objective is to identify collaborative science with the other countries that can come out of the meeting. NSF may be able to fully fund 10 scientists to travel to the conference to speak.

Ramesh suggested that we invite the director of NIFA, Dr. Sonny Ramaswamy to meeting in Ohio. He may be able to provide funding at a higher level for food security issues.

Erik Runkle said he and Roberto Lopez were organizing the International Lighting Symposium in May 2016 to be held in Michigan and he would like for that to be considered to prevent overlap. The last lighting conference was held 2 years ago in the Netherlands and attracted 260 people. He does not want our joint conference and the lighting conference to compete.

Suggestions for themes include:

- Mark Lefsrud suggested we look at growth of less conventional crops such as medical marijuana. AJ Both thought we could not because we need federal funding.
- One other area that was suggested is the economics of moving to LED lighting from research to application. AJ thought it could be a focus area.
- John Lea Cox suggested a theme of implementing plant growth systems.
- Gary Gardner suggested environmental and energy impacts. This could cover topics such as LED lighting and insulating plastics that can conserve heat loss. The different sessions could revolve around the different parameters as well as impacts including economics.
- Marc van Iersel suggested the theme "From Science to Impact". It would be a good opportunity to discuss all the scientific work we do and how we can move it into something that will benefit society.
- The use of water in controlled environment was also suggested.
- Jonathan Franz suggested discussing the energy footprint.

Sunday, April 13, 2014

- John Lea Cox suggested how we take systems, data and translate it into knowledge that can be used to educate.
- Cary Mitchell summed up the discussion by suggesting economic viability or importance, environmental footprints, profitability, technical capability and how this rolls into life cycle impact in controlled environment.

Mark Romer suggested that people email to Marc van Iersel or AJ Both with suggestions.

Marc van Iersel discussed funding for the international meeting. -The funding committee consists of Marc van Iersel, Mark Lefsrud, Cheri Kubota, & Ray Wheeler. They haven't been able to do much yet because there is no program in place. They have identified several opportunities such as NSF & AFRI, but they have not been able to write proposals because they need to be able to explain the program. Marc would like to have a program in place this Fall so they can start submitting proposals during the next funding cycle. He would like to have money in place before the meeting instead of having to reimburse the speakers and moderators. Ray Wheeler is working with NASA to try to get funding allocated for travel to Australia. The bottom line is we need a program (theme) before we can submit proposals. The decision has been made to integrate the funding committee with the program committee so they can stay in the loop with the theme. Marc feels that the proposed topics would be themes that we can tie into NSF and AFRI. Last time we submitted only one proposal, but Mark thinks we should submit more. We should be able to submit 8 proposals.

John Lea Cox asked if the program and funding committees were made up of equal numbers from the 3 groups?

Mark Romer said we are not discussing funding with CSIRO only scientific program. Our main focus is to help speakers provided by our group with funding and help CSIRO with programming.

Cary Mitchell said faculty from land grants maybe able to get funding if they are a session chair or keynote speaker. This could be a significant contribution to the cost for a speaker or session chair. You need to have an invitation 6 months in advance to apply within their university.

Marc van Iersel suggested that we should think about inviting speakers from outside the group. This would give us a chance to hear and talk to researchers that we normally don't meet. It would enhance our research and the program.

Mark Romer commented that we are only supplying one third of the speakers so there will be many that we have not heard before.

Sunday, April 13, 2014

Marc van Iersel said we would need to make sure we have funding for speakers from outside the group.

**Future Meetings (Henry Imberti)**

Henry asked if there were any volunteers to host the meeting for 2017? Henry said Nicole Waterland from University of West Virginia said she would host sometime in the future, but he was not sure when. Carl Sams at The University of Tennessee was suggested as a host.

Mark Romer suggested having an industry member organize a meeting. He mentioned that AERGC was having an industry member host this year. Our group has also had fantastic industry support and may be ready to have someone from industry host. This would allow us to expand the places we could hold our meeting. He thought we could work out the details for an industry member to host.

**New Members (Henry Imberti)**

Henry wanted to recognize new members to the group and asked for the new members to stand up and introduce themselves.

- Lars Aikala of Valoya Oy in Finland
- Nick Klase of BML (Customized LED lighting systems) in Austin, TX
- Matthieu de Carbonnel (& collaborators) of Syngenta, RTP, NC

Meriam made a few announcements:

- One sponsor that she did not mention earlier is Lighting Science Group from Florida. They are listed in the meeting information and on the banners in the meeting room.
- Group photo will be at 1:00 and it will be outside. Martha Westphal will lead us to the place for the photo.
- One schedule change - ASHS working group will meet this afternoon at 4:00 pm.

Jonathan asked the students to stand by their poster during the 3:00 break. There will be 3 judges: Jonathan Franz, Chris Curry, and Henry Imberti.

Meeting was discontinued for lunch and group photo.

**Election of the New Secretary (Henry Imberti)**

Henry nominated Gioia Massa to be secretary for 2014/2105 and Mark Romer seconded the nomination. The group unanimously elected Gioia secretary.

Henry thanked Marc van Iersel, Peter Ling & Mark Romer for their support during his year as chair.



Sunday, April 13, 2014

Henry passed the gavel to Meriam.

**Other Business**

Cary Mitchell suggested we meet or potentially merge with Greenhouse technology NE1335.

It was agreed that maybe we can try to have a joint meeting with NE1335 in 2017.

Gary Gardner suggested we meet together regularly, but not necessarily merge.

**Motion to adjourn**

Mark Romer made a motion and Gary Gardner seconded it.

The Business Meeting was adjourned at approximately 2:14 PM.

(The agenda for the 2014 Meeting can be found in Appendix D.)

(A list of Poster Competition Winners can be found in Appendix E.)

Respectfully submitted,

Carole Saravitz

## Appendices

### Appendix A.

#### **What the 2014 Farm Bill means for ASHS members:**

2014 promises to be a banner year for specialty crop research! All program items ASHS advocated for in this new farm bill, plus appropriations for Fiscal Year 2014, are included and funded! This highlights the effectiveness of our advocacy efforts, as well as collaborative initiatives with other horticulture groups. As a result, these numbers clearly reflect Congress' recognition of research's invaluable role for U.S. agriculture and our entire economy.

**--FOOD SECURITY = NATIONAL SECURITY!**

**--A WIN FOR HORTICULTURE RESEARCH IS A WIN FOR ASHS!**

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Funding levels for programs of importance to ASHS include:

**--Specialty Crop Research Initiative (SCRI)** will receive \$275M over five years with budget protection beyond FY2018. (2008 Farm Bill provided for \$230M over 5 years)

SCRI's five-year breakdown: \$50M for FYs 14-15  
\$55M for FYs 16-17  
\$65M for FY 18

--For SCRI, the new farm bill provides an additional \$125M authorization for five years solely for an "*Emergency Citrus Disease Research & Extension Program*". This additional funding will NOT be taken out of the original \$275M allocated for other specialty crop research projects.

Sunday, April 13, 2014

--**Agriculture & Food Research Initiative (AFRI)** gets \$316M for FY2014, a big \$52M increase from two years ago.

--**The Organic Agriculture Research & Education Initiative (OREI)** retains its funding level at \$100M over five years.....\$20M each year.

-- **The Beginning Farmers / Ranchers Development Program** also has \$100M total over five years -- \$20M/yr. for FYs 14-18.

--ASHS is a major supporter of **The National Clean Plant Network** program. It retains an annual base funding level of \$5M/yr., allowing for additional annual funds if permitted by the USDA Secretary. Clean Plant Network's budget is now merged with Plant Pest & Disease Management.

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### **Formula / Extension Research:**

--Those crucial land-grant funding programs get a boost for FY14:

Hatch gets \$244M....an \$8M increase from 2012

Smith-Lever Extension gets \$300M....a \$6M increase from 2012

Evans-Allen (1890) schools get \$52.4M...a \$1.5M increase from 2012  
Extension for 1890 schools get \$44M...a \$1.3M increase

--**The Sustainable Agriculture Research and Education Program (SARE)** gets almost \$23M for FY14, an \$8.2M increase with a combined research and extension budget.

Another farm bill provision ASHS supported is:

### **The Foundation for Food & Agriculture Research:**

Sunday, April 13, 2014

A NIFA program providing tax incentives for private sector contributions to competitive research grants funded by USDA. Program funding total is \$200M, which will cover the entire period of this new farm bill -- FY14-18.

**SCRI Dual Panel Review Arrangement / Matching Waivers:**

The new farm bill ushers in a dual panel grant review process for SCRI. This allows greater collaborative review procedures among research scientists, specialty crop industries, and other stakeholders. ASHS was instrumental getting language inserted in the farm bill's Research Title stipulating relevance review panels first, followed by scientific merit review panels.

**In the 2014 Farm Bill: Sect. 7128 - Non-Federal Matching:**

The Conference substitute adopts the House provision with an amendment. The amendment requires at least a 100 percent match from the recipient of competitive grants under certain covered laws but exempts grants awarded to a research agency of the USDA and entities, including their partners, that are eligible to receive capacity funds. The amendment authorizes the Secretary to waive the match requirement if the grant involves research or extension activities that the NAREEE Advisory Board has determined is a national priority specific to a statutory purpose of the program under which the grant is awarded. The match policy will apply to new grants awarded after October 1, 2014. (Section 7128).

We are hoping this means matching fund waivers for land-grant colleges.

**Appendix -B**  
**NCERA-101 Membership Summary** ..... March 2014  
Mark Romer, *List Curator*

<u>Membership Number</u> .....	June 2013 .....	155
	March 2014 .....	167
• Additions .....	17	
• Deletions.....	5	
• Net Gain (Loss) .....	12	

Membership Composition  
Members

Institutions

• Phytotrons & Controlled Environment Facilities .....	12 .....	19
• University Departments, Agr. Exp. Stations.....	54 .....	76
• Government Organizations & Contractors .....	12 .....	14
• Industry Representatives .....	36 .....	58
Total Number of Institutions / Members .....	114 .....	167
Total Number of Countries .....	9	
Total Number of US States .....	35	

New Institutions in 2014:

- CANADA  
Dalhousie University – Department of Engineering
- USA  
Chena Hot Springs Resort  
GShort.com LLC  
Hort Americas LLC  
iGROW Induction Lighting  
LI-COR Biosciences  
Philips Lighting  
Syngenta Biotechnology Inc.  
University of New Hampshire – Department of Biological Sciences

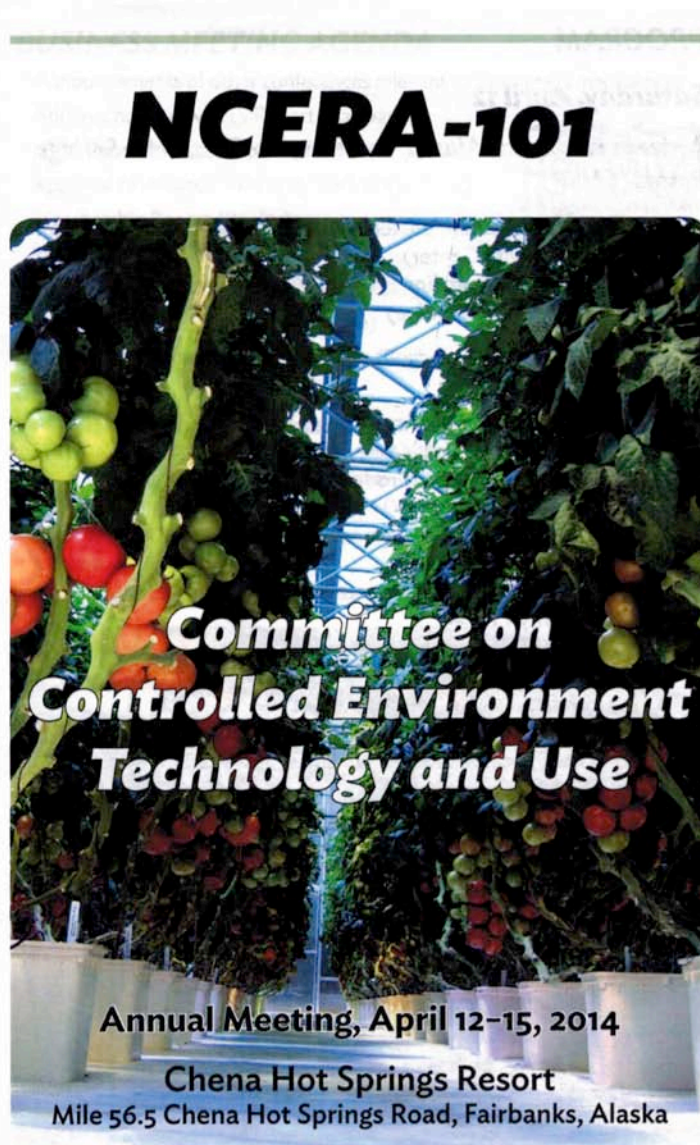
Of Special Note – The passing of **L. Art Spomer** – July 25, 2013  
Founding Member of NCR-101 Committee & Emeritus Professor  
University of Illinois - Department of Natural Resources and Environmental  
Sciences

**Appendix C.**

**NCERA-101 Instrument Account  
Budget Report**

2013 balance	\$ 19,673
Purdue surplus	<u>\$ 4,988</u>
2014 balance	\$ 24,661

Appendix D.



**PROGRAM**

***Saturday, April 12***

***Arrive in Fairbanks, Alaska, and travel to Chena Hot Springs Resort (CHSR)***

**3 -9 PM** • Registration, poster and exhibitor set up (Activitorium and Activity Center)

**6 PM** • Informal group dinner (Arctic Chena Room, not included)

Sunday, April 13, 2014

in the registration fee)

**Sunday, April 13**

**7-10 AM** • Registration (Activitorium)

**7:30-8:30 AM** • Breakfast (Activitorium)

**8:00 AM** • Welcome and introductions of participants  
(Activitorium)

**9 AM** • NCERA-101 business meeting (see separate agenda, below)

**10 -10:00 AM** • Break. View posters and visit the exhibitors  
(Activity Center)

**10:30 AM**• NCERA-101 business meeting

**NOON** • Lunch (Activitorium)

**1 PM** • Group photo

**1:30 - 3 PM** • NCERA-101 business meeting

**3-3:30 PM** • Break. View posters and visit the exhibitors  
(Activity Center)

**3:30 -5 PM** • Station reports and information exchange

**6 PM** • Welcome reception (Arctic Chena Room)

**7 -9 PM**• Dinner (Arctic Chena Room)

**WELCOME** • (UAF Chancellor Brian Rogers, Vice Provost Extension & Outreach Fred Schlutt, Interim Dean School of Natural Resources/Director Agricultural & Forestry Experiment Station Stephen Sparrow)

**MR. BILL STEVENS**, Athabaskan fiddler, with Lisa Yeager  
accompanying on guitar

**9 PM** • ASHS Growth Chamber and Controlled Environment Working Group Meeting  
(Activitorium)

**BUSINESS MEETING AGENDA**

Announcements of other conferences relevant to the group's membership

Administrative Advisor's Report (Kanwar)

NIFA Representative Report (TBD)

Approval of minutes from 2013 (Karlsson)

Membership Report (Romer)

Website Report (Saravitz)

Instrument Package & Financial report (Bugbee)

Student Poster Competition & Travel Awards (Frantz)

Greenhouse Guidelines Update (Both)

Future Meetings:

- 2015 -Joint Annual Meeting with AERGC (Ling/Leonard)
- 2016 -Joint International Meeting in Australia (Romer)
  - » Meeting Planning Committee Update (Both)
  - » Funding Planning Committee Update (van Iersel)



Sunday, April 13, 2014

***Monday, April 14***

**7:30-8:30 AM** • Breakfast (Activitorium) 8:00-10 AM • Station reports and information exchange (Activitorium)

**10-10:30 AM** • Break. View posters and visit the exhibitors (Activity Center)

**10:30-NOON** • Station reports and information exchange

**NOON** • Lunch (Activitorium)

Heather and Steve Brice, world champion ice carvers

**1:30 -5 PM** • Tour of the CHSR powerplant, ice museum, greenhouses, high tunnel and fodder plant

**6:00 PM** • Dinner (Arctic Chena Room) Student poster competition awards

***Tuesday, April 15***

**7-8 AM** • Breakfast (Activitorium)

**8:30 AM** • Travel to Fairbanks on tour bus (load your luggage on the bus)

**10 AM** • Morris Thompson Cultural and Visitors Center

Opportunity to view the exhibit: How we live-the people and the land.

**NOON** • Lunch (Big Daddy's BBQ, 107 Wickersham Street, Fairbanks)

**1:30 PM** • Tour the University of Alaska Fairbanks campus, Reindeer Research Program facilities, and greenhouses

**6 PM** • All Alaska Grown dinner (Pike's Waterfront Lodge, The Binkley Room)

**Annual Meeting adjourned**

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<http://snras.blogspot.com>

**Appendix E.**

**The Poster Competition winners**

- 1<sup>st</sup> place - Oingwu Meng , Michigan State University
- 2<sup>nd</sup> place - Garrett Owen, Purdue University
- 3<sup>rd</sup>place - Celina Gomez, Purdue University