

NAASC's novel approaches for ICAR 2021, with accompanying mean survey scores from attendees (N=379 respondents of ~1000 attendees)

Scoring scale: 4=excellent, 3= good, 2= average, 1=poor

1. inclusion of 36 community-proposed & led mini-symposia (score: 3.40),
2. selecting invited plenary & keynote speakers, including through community nomination, that hadn't been featured at ICAR or ASPB meeting in 5+ years (score: 3.35),
3. developing new plenary session topics around bigger mechanistic themes; a balance of fundamental discoveries with work that showcases applied research; & a focus on the broad set of tools of high utility available for Arabidopsis that enable translation to important crop species (score: 3.23),
4. diversifying speakers in sessions & engaging non-traditional speakers including the prioritization of balanced demographics in speakers (gender & career stage, score: 3.37),
5. dramatically increasing the number of opportunities (N=300+) for participants to present their work (score: 3.29),
6. discussion sessions during concurrent symposia (score: 3.11).

DETAILS OF APPROACHES

Novel Approach #1: inclusion of community-proposed & led mini-symposia

- Organizers held a community competition & received nearly 100 applications for 36 slots; the solicitation encouraged diverse applications by gender, career stage, institution, & geographic location. It also encouraged collaborative efforts between institutions.
- The variety of proposals was extensive & resulted in the most diverse program in ICAR history with respect to topics & speaker demographics (gender, career stage).
- Example comments on community sessions: "The topics were exciting & diverse. Sometimes the sessions are a bit samey-samey from year to year, so it was a joy to hear about totally new systems, approaches, & topics." "Liked the breadth of topics covered & provided a good opportunity for people to speak." "This was the most amazing thing. It made the conference a real community initiative."
- This new approach was so widely-liked & successful that ICAR 2022 organizers have adopted it in their programming.

Novel approach #2: a variety of new ways to select the 23 invited speakers to ensure that new voices & science topics were featured

- NAASC excluded from consideration any plenary or keynote speakers that had been featured at ICAR or ASPB annual meetings over the previous 5 years.
- Speaker ideas gathered via: community surveys, from an external advisory board, consulting the DiversifyPlantSci online database, & by surveying recent plant biology publications.

Novel approach #3: First, we developed an invited speaker list of those we would like to have speak, regardless of topic, & once confirmed, we grouped them into sessions

- Our rationale for this approach was multifold: it put emphasis on finding speakers that the audience is really excited to hear, because they have a new breakthrough to present. Sometimes these breakthroughs are so new, they will not fit into a preconceived "theme".

ICAR 2020/2021-Virtual was organized by the North American Arabidopsis Steering Committee (NAASC)

- It enabled us to address our diversity, equity & inclusion objectives, because we could manage this up front at a global level. We devised creative & integrated session themes that were not narrowly focused. The result was a novel & exciting program.

Novel approach #4: a focus on career stage & gender balance & diversity of speakers & session chairs

- We included a separate selection process for proposals submitted by students & postdoctoral scholars to fill a pre-set minimum of 25% of chair slots. Ultimately, the 59 session chairs were comprised of 32% students or postdocs, 32% junior (pre-tenure) faculty, 31% post-tenure faculty, & 5% other; & 64% of session chairs identified as women.

Novel approach #5: based on frequent community survey input that opportunities to present one's work is a top priority for ICAR participants

- ICAR 2021 featured more than 300 speakers, a nearly 2.5-fold increase compared to the last US-based ICAR in 2017 that featured 122 speakers.
- ICAR 2021 provided significantly more leadership opportunities for the community: 92% of speakers were invited by the community.
- The trade-off to having many more speakers and sessions was the necessity to choose which sessions to attend. A benefit of the virtual format was that all talks were recorded and were available 1 week prior to the conference & accessible to attendees for 6 weeks following.
- Example comments: "I enjoyed seeing a wide range of speakers, including graduate students & post-doctoral fellows." "It was a bit overwhelming, too many to choose from. Being able to watch afterwards helps." "I liked hearing many things, & having a chance to follow up on the snippets by chats or by looking up papers (& sometimes rewatching talks)."

Novel approach #6: 20-25' discussion sessions led by session chairs. Added by organizers after pivoting to virtual setting with the objective to maintain interactivity. The intent was to enable greater community discussions, even in an online, virtual setting.

- Virtual discussions were expected to be more difficult than when done in-person due to technical & time-zone challenges. Survey respondents scored this approach as "good".
- Organizers also enabled additional 1-hour small group discussions for any session members that wanted to continue following the schedule session time.
- Comments included "When this worked well, it was great. I loved hearing the speakers talk with one another & 'riff' off each other's thoughts." "The virtual discussions were really well done in this setting. In a live venue I do prefer having questions after each talk." "The "room" discussion after the session was quite useful & some lasted one hour!"

Outcomes

The ICAR 2021 organizers (NAASC) developed novel programming approaches to promote early-career scientists & community leadership; the result was the most diverse program in ICAR history. With 23 of the 300+ speakers invited by the organizers, the program prioritized community proposed/led sessions & speakers & devoted 92% of the program to community-proposed sessions which featured students, postdocs & junior (pre-tenure) faculty in 67% of the speaking slots. The 300+ platform speakers included (by self-definition) invited speakers (52% women), community mini-symposium chairs (59% women) & community session speakers (52% women). The community response to our novel approaches was overwhelmingly positive. Novel approach #4, the survey's

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second highest rated approach, was our focus on career stage & gender balance & diversity of speakers & session organizers. We included a separate selection process for proposals submitted by students & postdoctoral scholars to fill a pre-set minimum of 25% of chair slots. Ultimately, the 59 session chairs were comprised of 32% students or postdocs, 32% junior (pre-tenure) faculty, 31% post-tenure faculty, & 5% other; & 64% of session chairs identified as women. A minority of respondents did not appreciate, or agree with, the focus on diversity by gender or career stage; these comments could be summarized as "one should focus on the science & not any personal attribute." When the demographics of ICAR participants were compared to those given a platform to speak, we saw that there was balanced representation by reported gender: Women: 51%:52% attendees: speakers; Men: 44%:44% attendees: speakers; Decline to state: 5%:3% attendees: speakers, Non-binary/gender queer: 1%:1% attendees: speakers.

However, while there was greater representation by early career speakers than at a typical ICAR, early-career speakers remained somewhat under-represented compared to their attendance levels. Career stage: Students & Postdocs: 56%:40% attendees: speakers; Faculty: 36%:53% attendees: speakers (Jr. Faculty: 13%:27%, Sr. Faculty: 23%:26%), Other title: 7%:8% attendees: speakers. Example comments: "Very varied, & very often interesting to people from different backgrounds. It was nice to give the power to the community." "Great, I appreciate the effort that went into bringing in diverse speakers." "That's the way it should be [referring to gender parity]." "I like the fact that you focused on career stage, especially for young researchers & ECR, in order to increase their visibility & create the opportunity to extend their professional network."

A demographic that continues to show imbalance is racial & ethnic diversity of conference attendees, which may, in part, reflect the make-up of the plant science community at large. Attendees self-reported racial/ethnic status across nearly 40 categories; when grouped to 7 major categories this became: 49% (included White in some aspect); 32% (included Asian in some aspect); 9% (preferred not to answer), 6% (included Hispanic or Latinx in some aspect), 4% (included Black or African, in some aspect), 0.5% (wrote in multiple categories), 0.3% (wrote in a new, single category).

There is clearly more effort & focus needed to enable equal participation & leadership in the plant sciences across several axes including: racial & ethnic background, geographic location, career stage, LGBTQ identification, among others.