

## **Minutes: Advanced Technologies Committee meeting (closed)**

Hyderabad, India

Friday 28 June 2019

### **Present:**

Bert van Duijn, Brigitte Hamman Bopper, Sebastian, Birte, Giovanny Lopez, Mailén Ariela Martinez, Tomoko Sakata, Nikolay Priyatkin, Francisco Gomes, Devaraja Achar

Membership changes: Giovanni Lopez (Netherlands) has joined. Brigitte has resigned as Vice-Chair but will remain a member of the ATC, and Francisco is now the new Vice-Chair.

Bert made a call for any members who wanted to be part of a working group.

Bert reported back on progress made with an initiative of the EComm – to look into ways in which the functioning of the TComms could be improved. He had been asked to join the working group tasked with addressing this, and in order to tackle it, he needed to know where to start. This was the reason behind the survey of TComm members which was conducted last year. The responses were anonymous but could be identified to the level of the TComm to which they belonged. The results were presented to the EComm in February, and conclusions still need to be drawn. Bert gave a brief summary: most TComm members were happy, and money was the biggest issue – Tcomms wanted more freedom to decide for themselves how their allocated funds could be spent. Reasons varied as to why members had joined, and the reasons did not relate to levels of activity.

### **Project Progress:**

X-ray-based: Henry and Francisco lead this group. Literature is to be taken care of by Henry, and Francisco will take care of an overview of all the 3D-imaging options currently available

Nano-technology: progress has been slow. Will comprise a literature over-view, focusing on seed testing and seed technology, establishing whether there is currently a role for nano-technology. Brigitte, Sebastian and Devaraja will compile the over-view.

Multi-spectral imaging: It was suggested that an update be compiled for STI, by Birte.

Modelling: Kent Bradford will retire at the end of this year but will remain a committee member. He and Tomoko have collected all papers related to models and seed physiology (about 400 papers). These will be grouped and divided among those working on the project, and a review will be compiled assessing the usefulness of the models with regard to ISTA.

Workshops: Very successful workshop was held in Brazil, organised by Francisco. There was a large student participation. There has been a request for more ATC workshops – one will be held in Italy, after the annual meeting in Verona, location probably Bologna. Focus will be on imaging. Workshops in China and Russia have also been requested and are being considered. China has indicated that a seminar, with about 400 participants, would suit their needs. Speakers will come from the ATC committee as well as from outside the TComm. Aim is for China in 2020 and Russia in 2021.

Giovanni suggested a molecular tools workshop, and Bert suggested he compile a proposal for such. All are welcome to suggest topics, but the suggestor should provide a proposal. There was a discussion on the need for clarity with regard to all workshops, in terms of the aims and purpose of

each workshop. Currently, those attending the workshops show a large diversity in terms of competency of the technologies dealt with, and so it is important to understand the audiences. There was also the suggestion that a workshop specifically targeted toward the other TComm members be offered. Bert also made the point that the point of many of these workshops is to connect people that would otherwise never be reached, to ISTA. Sometimes the purpose of a workshop can primarily be simply to promote ISTA.

#### **Special Projects (ISTA-funded):**

Bert and Birte gave brief explanations of the projects that have received funding from ISTA. These projects, and any data gathered, will be discussed at the workshop in Italy. Bert pointed out that 2 of the 3 projects funded involve the ATC.

Bert encouraged proposals for the next round of funding. Deadline was February. Projects do not have to be research-based – it can be an idea for the recruitment of members for example.

#### **Open Meeting: 30 July, Hyderabad, India**

Bert welcomed everyone (about 35 people present).

Three items were on the agenda for discussion:

1. The workshop in Italy
2. Special projects (ISTA-funded)
3. Invitation to give feedback on topics not covered

1: This was already being organised, from May 30 – June 4. Probably in Bologna. Will be a general seed imaging workshop. Bert gave a quick over-view of the types of audiences that have attended workshops so far.

2. Birte presented her Multi-spectral imaging project and how it fitted in with the Purity TComm's involvement. There will be a report-back to EComm and TComm every 6 months. Discussions will also take place between the two TComms. Seed-lots provided mainly by Industry, and Industry involvement will be actively sought.

Questions posed to Birte:

Q: Could it be used for determination of “other seed”? A: samples were still available from conventional routine methods, and so possible to explore that relationship. Can also use these samples to train the system. Project will involve a PhD student familiar with the system (which is reason for need of funding).

Q: Does each machine have to be trained? Machines will not be the same, and so lab results will not be the same – how will this work? A: cannot address this at this stage. Once proof-of-concept established, validation will be next stage. Joel added that for this particular function of the machine, there is a True Value to which the machine can be compared (Pure seed). The possible use of reference samples was suggested. Joel also pointed out that most equipment is designed to use on untreated seed, and that treated seed will present a new challenge.

Q: can the technology be used for seed health determination? A: will be limited and case-dependant.

Q: what are the expectations with regard to level of accuracy? A: this needs to be discussed and determined. Brief discussion on application of the technology as a pre-sort took place. Could give initial idea of expectations of a particular seed-lot.

Q: is the long-term goal the introduction of MSI into the Purity chapter? A: yes, this the goal.

Birte ended off by pointing out that it will be as important to indicate where technologies can *not* be used, as where they can.

There was a comment that even in labs with a high level of automation, there is still the need for intervention by analysts, who need to identify gaps and mitigate. Bert added that the point of all these technologies is to assist the analysts, and not to replace them.

Whether or not the ATC should be involved in setting clear guidelines for manufacturers in terms of ISTA wishes was discussed.

The need for inclusion of mass (as opposed to seed number) was discussed – currently, many of the requirements for Purity testing use mass and not number. It was also pointed out that the “inert matter” portion will be difficult to deal with.

Bert asked of the group if the feeling was that we need to delve more into molecular advances, and the response was in favour. A working group will be compiled in order to begin to address this.

The idea of looking into insects was raised – a large number of recent papers deal with seeds and insects. It was thought imaging might play a role here as well.

The meeting was adjourned after there were no remaining thoughts on Visions of the Future.