



Solanaceae Coordinated Agricultural Project



SolCAP Solanaceae Coordinated Agricultural Advisory Board Meeting		
January 15, 2012	10:15AM – 11AM Closed Door	Town and Country Resort, San Diego, CA
Meeting	4 th Annual SolCAP Advisory Board Meeting	
Leader	Dr. Glenn Bryan	
Attendees	Glenn Bryan, The James Hutton Institute, Scotland	
	David B. Neale, UC Davis	
	Deana Namuth Covert, University of Nebraska-Lincoln	
	Tom Osborn, Monsanto	
	Michael Coe, Cedar Lake Research Group, SolCAP Assessment	
	Bob Dietrich, Syngenta	
	James Giovannoni, Boyce Thompson Institute for Plant Research	
	Craig Wood, eXtension	
Not Able to Attend	Caius Rommens, Simplot Company	
	Charles Rivara, California Tomato Research Institute	
	Rene Klein Lankhorst, EuSOL	
	Deb Lewis, Ohio State University Extension	
SolCAP Advisory Board Discussion with SolCAP Executive Committee and Participants		
11AM (Open Session)	Presenter: Glenn Bryan	
Attendees	Advisory Board (listed above)	
	David Douches, MSU	
	Robin Buell, MSU	
	Allen Van Deynze, UC Davis	
	David Francis, Ohio State Univ.	
	Lukas Mueller, Cornell Univ.	
	Walter De Jong, Cornell Univ.	
	Heather Merk, Ohio State Univ.	
	Joyce Van Eck, BTI Cornell University	
	John McQueen, Oregon State Univ.	
	Kelly Zarka, MSU	
	Sung-Chur Sim, Ohio State Univ.	
	Ed Kaleikau, USDA/NIFA	

SolCAP Advisory Board Discussion with SolCAP Executive Committee and Participants

Discussion A (Entire SolCAP Project related)

The Advisory Board noted that the SolCAP Team has met and exceeded their objectives in many ways. A tremendous amount of progress has been achieved on all fronts. The SolCAP project has developed many tools and resources for the community. The outputs from SolCAP are dramatic and are having extensive global impact. It was noted that SolCAP research has been mentioned at various meetings and conferences all over the world. Additionally, SolCAP was recognized as a recipient of the 2011 U.S. Department of Agriculture (USDA) Secretary's Honor Award. The group gave Dr. Ed Kaleikau and the USDA credit for the visionary funding of CAP programs and the outcomes over the years have greatly enhanced the breeding and genomics communities.

Conclusions

The group agreed that the SolCAP Project is going extremely well and the data is of excellent quality. The board does not have any concerns about the science.

Discussion B (Extension related)

The Advisory board stated that the work of Heather Merk and David Francis is commendable and the Plant Breeding Genomics CoP has established itself as a viable growing resource.

The Advisory Board discussed issues of the PBG CoP's sustainability, focus of content and assessment/evaluation. They commented on the success of the numerous webinars and extensive assessment that was collected.

Conclusions

The Advisory Board suggested that the group look into the AG Idea Program as a funding opportunity. AG*IDEA, an affiliate of the Great Plains IDEA, is a national consortium of land grant universities offering programs and courses in agriculture disciplines. A typical AG*IDEA online course includes students from around the world and all walks of life. AG*IDEA students are working professionals, educators, innovators, researchers, family members and community leaders. The fully-online degrees, certificates and courses of AG*IDEA provide flexibility, enabling students to balance career advancement with professional, social and financial commitments. A percentage of the tuition would go to the CoP.

Funding opportunities through industry support was discussed. eXtension already has an advertising platform in place. A company, for example, Illumina, could have its logo displayed on the PBGCoP website for a fee. The CoP could also request content such as webinars, or demonstration videos and charge the company to have content on the site.

Once the content on the site builds, the SolCAP group discussed having various portals, e.g. a breeder's portal, a grower's portal, an educator's portal, etc. This would help users find the content that is most appropriate for their education level. SolCAP was funded to focus on professional breeders, therefore currently the content will focus on that area.

Discussion D (Research related Objective 3,4,5)

There was a discussion regarding the Sol Genomics Network (SGN). The trait data which is part of Objective 3 has been done very well. The ability of the breeders to access the data is crucial. Usability tests on SGN were suggested, however, the board members familiar with SGN find it easy to use. The importance of long term support for SGN needs to be communicated to the funding agencies at all times.

Objective 4 focuses on developing genomic resources and how to spend the flexible funds. The board is impressed with the money that has been saved and the money that is available. These funds should be focused on in such a way as to provide maximum benefit to U.S. growers and to provide the most useful resources for plant breeders.

Discussion E (Questions for Advisory Board)

The SolCAP Executive Committee presented the Advisory Board with several questions for consideration.

The following are the questions along with the conclusions

Germplasm storage – how can we help fund cost of archiving community populations?

For potato, the populations are maintained by the breeder. These populations are important to their research and they intend on maintaining them. The funding for this is through the breeders individual funding sources.

For tomato, it is easier to maintain seed collections of the populations and there are some seed bank storage facilities. Breeders are also maintaining their populations through seed storage.

There was a discussion on looking into the possibilities of storing large quantities of quality DNA for future analysis if needed.

GWS vs Association: what is more valuable to our stakeholders – validated marker-trait linkage or validated GWS models? For tomato, where hybrids are sold, should GWS models be based on inbred evaluation or hybrid evaluation?

It was stated that it was important to provide the best resources and tools for breeders. The next SolCAP workshops should have a discussion on GWS vs Association mapping and what would be the best for future analysis.

Marker Number and Recombination – how many markers do we really need?

Tomato – We need to have a better understanding of the relationship between recombination and physical distance and how the markers sit in relation to the physical map.

It was concluded that in tomato, recombination is the limiting factor, so that is why we created sub-panels of 384 markers.

Potato needs to make some decisions on how many markers they want to go forward with. We really want markers that identify haplotypes for particular alleles of genes, and we are a long way from this right now. GBS should help with this in the future, especially when longer Illumina read lengths come in later this year. The analysis of GBS in tetraploids, however, could be a highly difficult undertaking. SolCAP should engage with partners elsewhere (Dundee, Wageningen etc.) to discuss the best ways to use GBS in future and how to analyze data. It may be possible to work towards a ‘universal’ data set for GBS incorporating germplasm from USA, Europe and South America.

Centralized location for doing the Genotyping?

SolCAP wanted to utilize existing facilities. Illumina iSCAN – MSU, Illumina Bead Express platform – OSU, K-Bio to give the community a 3rd option.

Is there a value in designing a breeder SNP chip for potato?

We need to conduct QTL analysis of SNP genotyped populations and validate first.

Is there a need for more SNPs to examine a broad germplasm panel in potato? GBS?

A core collection from the potato gene bank is being SNP genotyped this spring. GBS is currently being evaluated.

Additional tools needed by the community?

Can we create a RIL population for potato?

International collaborations?

It would be nice to collaborate with groups that have purchased the chips in other countries and share information.

There are challenges in tetraploid mapping and QTL analysis. Software needs to be modified with new SNP marker set. The Tetraploid Map software is being upgraded for use with the Infinium data and should be available later this year.

Discussion E (SolCAP as a whole)

SolCAP has met and exceeded their objectives and the board is pleased with the progress.