

**GCP ARM 2009**  
**Brainstorming II—Weds 23<sup>rd</sup> Sep (1345-1515)**  
**Training for applied molecular breeding**  
**Carmen de Vicente (Minutes taken by Theresa Fulton)**

Session 1:

MC:

Receives many questions from breeders, how to choose one method over the other, etc. What should training approaches be – courses, one on one, what kind?

ONdoye: Molecular biologists seem unaware of the various breeding strategies. Breeders know to select methods, based on specific traits etc. Both need to work together, and molecular geneticists must be pro-active approaching breeders.

MC: But addressing breeders, what is the gap from them knowing how to take advantage of new resources being developed, ie. new genomic information?

Unknown: Are breeders aware of the resources? Maybe not.

J Danson: Most breeders don't know where and when they can use molecular tools. Don't know what these tools can do for them. Workshops seem to be so much information, too complicated. And breeders don't understand the importance of things like good phenotyping, so that it can be combined with genotype data.

MMalosetti: Need to tie together the molecular information with the breeding practices

MC: But still, do breeders know when to use AB-QTL vs MARS, for example? Do they know how to take advantage of resources like the Toolbox?

O Ndoye: People don't know what kind of populations to build to be able to use markers.

MC: ... So "population development" needs to be addressed in education

ONdoye: Yes, because breeders don't know what kinds of populations will give more polymorphisms

TF: But molecular biologists don't know anything about population development. Maybe basic genetics, plant breeding needs to be addressed.

JDanson: There must be lab technicians to inform about the techniques available to breeders so they understand how to develop the populations as needed

TF: don't follow how molecular technical help helps the breeder understand what to do

TF/MC: seems basic genetics is needed

Session 2:

N Cissé: Practical applications are not addressed in standard training– when to genotype, what type of scheme, population should you use, MARS, etc. .

MC: We recently realized that people understand different things when a concept is used (for example, “MARS”). Will be putting up sample flowcharts and definitions soon.

EOkogbenin: 1) People hear of a technology, but then hear of another, and get confused. 2) Shouldn't push particular methodology/platform on a breeder if it isn't applicable to his/her particular program

MC: We hope that the “business plan development service of the MBP” will help the breeders plan a project and assess whether markers are cost-effective etc

KBanthe: Training courses not quite enough, steps are too complex. And then the people go home and the facilities are not there. Maybe need to focus on only specific institutions and bring them up to a basic level first.

N Roux: Need to train specificities based on crops. Clonally propagated crops, for example, are different. Would help to develop guidelines, for example, techniques like embryo rescue are conducted different in different places.

Unknown: breeders also need to standardize their techniques, processes. And need better facilities.

TF: but now there are so many resources – FTA cards, GSS, you don't even need to be able to extract DNA.

MC: This is indeed what the GCP is hoping to change: people don't need to have to do everything themselves. Breeders don't need to be technicians.

Session 3:

Unknown: seems like people's/students' knowledge are so across the board; needs to be considered in developing training courses.

MC: Or perhaps should be addressed with internships and mentorship opportunities. Hard to teach overall things in courses, and people are often afraid to ask questions.

B Sagredo: 1) Really need to consider things specific to a trait. 2) Seems not to be any training or info on association mapping yet. 3) GSS very helpful, but still some small problems to overcome, such as the hurdles to send samples.

J Ehlers: Internships are a good idea, but need to be as part of a breeding program. Too often they do some project that is divorced from a larger breeding program, hard to integrate what they learned.

P Roberts: There is a problem of training courses, where the backgrounds are so different, and basic genetics lacking.

TF: Even with interns, if people don't have basic genetics, its wasted.

Fred: Maybe we need to accept that some people are not qualified. For the courses selection must be more strict about minimum requirements. And give tests throughout to see if people understand and are capable to benefit.

E Parkes: Shouldshare learning materials ahead, can test throughout the course – she went to one where they were made to WORK. Learned a lot.

T Hash: Can give materials ahead, post on the web, or burn a CD and give to them, test.

James Gethi: Courses need to be specific, for example, data analysis, hands-on, with experts to advise.

C Egesi: It is desirable to have an agreement on who GCP is training, so you can develop a common curriculum and common expectations.

Unknown: could be good to couple training bringing together breeders and molecular people(TF likes this).