

Report of a Network Coordinating Group on Oil and Protein Crops

First Meeting, 16-17 May 2006, Paris, France

Attending members:

Mike Ambrose (Chair)

G rard Duc

Sijka Angelova

Maria Jos  Suso (Co-opted for meeting for specific expertise)

1. Network Coordinating Group discussion

The Working Group on Grain Legume (WGGL) remains the only operative working group in this network although new initiatives from other potential groups relevant to the coverage of the network would be welcome. The NCG members had been unable to attend the meeting of NCG in Bonn at the end of March so this meeting was organised to address issues raised at that meeting. The discussion therefore focused on the operation, work plan, budget and future work plans for the working group.

1.1 Current work plan

The work plan proposed at the end of the 3rd meeting of the WGGL was considered realistic and achievable with the resources available within the group.

** Sharing of information about general genebank practices with special reference to regeneration procedures*

A task force of WGGL members had worked effectively and efficiently in planning and collating information concerning the regeneration protocols for GL species. This developed into an on-line consultation on the conservation, management and regeneration of grain legume genetic resources hosted by ECP/GR Secretariat and IPGRI website in the first part of 2005. The NCG expressed their appreciation to task force members and those associated with ECP/GR Secretariat in their contributions to making this a useful and successful operation. Preliminary analysis of the findings had been undertaken at IPGRI. The targeted mailing to encourage contributions to the on-line exercise was viewed as very successful, resulting as it had in submissions from 23 countries, thus ensuring that the issues raised and awareness was generated across the whole of the GL community and not just restricted to Europe.

** Sharing of germplasm for molecular diversity studies*

As outlined in section 4.1, an extended set of some 1900 *Pisum* accessions have been sourced from WGGL members. DNA samples have been prepared and the resulting data will be used to address questions of the structure of diversity held in European collection, putative duplicates and most original sample concept. This was viewed as a very successful action on behalf of the WGGL in collaboration and delivery into a large research initiative.

** Organisation of a short workshop on regeneration of allogamous GL species*

The meeting was held in Valladolid in Spain over 22-23rd September 2005 and was attended by twenty six people including an number of experts and interested parties from other regions including North Africa, Canada, Syria (ICARDA) and Mexico (CIMMYT). A report of the meeting, slides of the talks had been posted on the ECP/GR website within a few weeks of the meeting. Reports of the meeting had appeared in the Regional Office for Europe Newsletter, Grain Legumes 2006 (No. 45, p 6.) and the Spanish magazine Agricultura 2006 (Nº 882:136-137). The meeting was deemed very successful in disseminating the work of the on-line survey and in helping to identify remaining gaps. Important interactions and networking were achieved in the out of session periods that will be taken forward in the work of the WGGL.

** Monitor and collate cases of on-farm conservation of GL's*

This point had been covered as part of the on-line consultation exercise conducted in 2005. Sijka Angelova outlined particular cases that she was involved with in Bulgaria and others that she was aware of in the region. She offered to contact other WGGL members and collate the findings into a short report this summer.

** Documentation and information*

While progress in this area has been achieved, the efforts were still rather fragmented. In the absence of a current summary, the NCG decided that a review of the current status of the CCDB's relating to GL was needed urgently to feed the planning for Phase VIII.

** Full meeting of the WGGL 2007*

A formal approach had been made in February to the organisers of the AEP Grain Legume Conference (Lisbon Nov, 2007) for a session on genetic resources. During past conferences, this workshop had been well supported and a similar event during the 2007 conference would also be scheduled. The NCG agreed that scheduling a full meeting of the WGGL in the days immediately prior to the AEP conference was a good way of ensuring that the group had the additional opportunity to interact with a wide group of users of GL genetic resources. Tentative dates for the 4th WGGL meeting were fixed for 9-10th November 2007.

1.2 Budget

The budget requested in Phase VII for the short *ad hoc* meeting and a full meeting of the WGGL were still considered appropriate by the NCG and no further requests were noted.

1.3 Discussion of issues arising from the Bonn meeting

NCG regretted that representation of the Oil and Protein Network Coordination Group had been possible at the Bonn meeting. The NCG expressed their thanks to the ECP/GR Secretariat for all the pre-meeting papers and for making available a draft of the parallel sessions dealing with network specific issues and the recommendations and conclusions of the meeting.

AEGIS

The NCG noted the important work undertaken within this project and the stimulation to those WG's currently engaged in the project. The development of the framework was supported in outline but there was a strong feeling from within the Group that the strength of ECP/GR was its inclusivity. There were dangers foreseen in calling for obligations that may not be readily met across member countries that a two tier system may start to develop which could be divisive.

EURISCO

The NCG supported the developments that had been on going within the Documentation and Information Network during Phase VII. Difficulties were envisaged in extending the coverage of EURISCO to cover *in situ* resources but the aim of integration within a single system was desirable and should be pursued. The current difficulties with the system were known to the group and would no doubt be resolved in the near future. The NCG supported the continuation of effort in relation to CCDB's and there associated expertise.

Increase inter-regional cooperation

The NCG strongly supported this point and is actively engaged in initiatives that are contributing to this effort (see 4).

1.4 Promotion and profile raising of the WGGL

The NCG discussed activities relating to raising awareness of the existence and work of the WGGL. It was felt that the short articles written following meetings in the Regional Office for Europe Newsletter and the AEP journal Grain Legumes were well placed for their target audience. These and mention of the WGGL in talks would be collated for the mid term report to the Steering Committee. It was felt that more could be made of the WGGL web page in terms of links to relevant initiatives with which the group was associated with such as the EU Grain Legumes Genetic Improvement Programme. These links should be reciprocal. Mike Ambrose undertook to deal with these.

Maria José Suso mentioned that there was a forthcoming meeting relating to the IT to be held in Madrid next month and she undertook to approach the organisers to see whether it would be possible to provide information on the work of the WGGL at the meeting.

1.5 Future work plans

A discussion on future work plans took the form of a brain storming session on issues and initiatives that will help shape future discussions within the group and the future work plans of the WGGL. The discussion is summarised as a series of bullet points.

Evaluation of regeneration methods (**Priority action.** See 2.)

- *Ex situ* on-farm complementation
 - Pooled populations
 - Use of male sterility
 - Role of floral structure
- Development of lists of new characters and associated descriptors

Integration of informatics (**Priority action**)

- Facilitate and monitor database projects which feature GL germplasm as an integral feature
- Broker communication between IPIS, GERMINATE and SIREGAL to ensure complementarity between systems and approaches and EURISCO
- Recommend a better profile given to recombinant inbred populations, mutant collections within CCDBs and EURISCO

New characterisation (new traits)

- Climate change. Adaptive traits, drought, freezing, heat
- Interaction with pollinators
- Screening for *Aphanomyces* resistance in *Pisum*
- Resistance/ tolerance to aphids and bruchids
- Bioenergy. Biomass and starch production, N use and water use efficiency

Further characterisation (classical traits)

- Lodging in *Pisum*. Easy to score- inclusive. Scored high on breeders priority list. Need to agree descriptor states.
- Seed quality
- Orobanche resistance

Phenotyping of core collection (see 4.3. M. Ambrose to co-ordinate)

DNA collections (**Priority action.** G. Duc to co-ordinate)

- Collate capacity across the WGGL/ methodologies
- Current programmes for *Pisum* and *Vicia*. What of the others?

Adaptation to new crop management systems

- Intercropping
- Low input systems
- Participatory breeding (on-farm conservation)

2. Ad hoc Meeting conservation, management and regeneration of GL Genetic Resources

The discussion focused on the follow up actions listed at the end of the report of the workshop. It was still considered important to continue with the agreed targets. Maria José Suso would contact ECP/GR Secretariat to request assistance with the cross tabulation of the results of all the returned information from the on-line survey. This had not been available at the time of the meeting. Once this had been done, it was agreed that a publication would be written of the results to raise the profile and significance of the findings. It was agreed that we should aim for publication of the work in GRACE in the first instance.

The production of revised guidelines for regeneration protocols that addressed the findings of the meeting for more species specific and practical information where it was available should be progressed this year so as to maintain momentum. The NCG was of the view that these could be developed as a web document with the entry level being the species. A common structure to all entries would aid clarity. As a web document it would also be easy to update and revise as new data became available.

A strong theme at the workshop had been the increase in complementarity between in situ and on-farm conservation for allogamous GL species. This is an area that clearly links to the *In situ* and On-farm Conservation thematic Network and the NCG was of the view that it would be a worthwhile exercise to develop a small exemplar project to go forward to the Steering Committee for one off funding. Maria José Suso undertook to draft a short preliminary project outline for discussion by the NCG prior to communicating with the ECP/GR Secretariat as to its suitability prior to its submission to the Steering Committee.

3. EU GENRES 870/2004

The NCG discussed the possibility of developing a proposal focused on grain legumes for submission to the 2nd call for proposals. The general view was that none of us were in a position to coordinate such a proposal due to either time or institutional stability and that grain legumes were too narrow a framework such a proposal. It was noted that activities within the group were reflected in a range of funded initiatives that linked the resources into ongoing research projects. These represented a wiser investment of time and resources than regulation 870/2004 from the WGGL at the present time.

4. Grain Legume initiatives

4.1 EU Grain Legume Integrated Project (GLIP)

Mike Ambrose has been involved with coordinating WGGL member in providing *Pisum* germplasm to the EU Grain Legume Integrated Project. DNA samples derived from single plants from accession have been prepared and will be used in diversity screening using a set of 70 molecular markers anchored to the genetic map. The data generated will be made available to those who submitted material and publicly at the end of the project. Contributions from seven European collections had resulted in 1900 accessions being made available. DNA samples had been completed in April of this year. Marker work was not due for completion until into 2007. This has been a valuable contribution to the project and a good example of contributing to one of the four ECP/GR Phase VII priorities.

4.2 Global Challenge: *Vicia faba* molecular characterisation

Gerard Duc outlined a project coordinated at ICARDA that would result in 50 SNP markers being scored across 1000 *Vicia faba* accessions selected for maximum diversity from the collections held in Spain, France and ICARDA. This was a one year project and would result in the formation of a core collection for *Vicia*.

4.3 *Pisum* germplasm resources international consortium (PeaGRIC)

Mike Ambrose reported in a meeting held at the John Innes Centre in Norwich. This meeting brought together key players from ICARDA, USDA-ARS and ATFCC-AUS to discuss the formation of an International consortium for *Pisum* germplasm resources. This was instigated to address a need, in the absence of a CGIAR centre with a mandate for *Pisum*. The consortium would be open to all those with resources that wished to participate and would focus on coordinating input into the growing number of GL research projects internationally and ensuring greater integration in the area of informatics development linked to GL resources. One of the main priorities initially would be to raise the issue of developing an international core collection for *Pisum* out of the various core collections initiatives that have already been developed. A draft document of the consortium would be circulated publicly during the summer of 2006.

5. Interaction with EU GLIP Technology Transfer Platform (TTP)

The NCG were grateful to Gérard Duc for organising a session with Catherine Goldstein who is the manager of the TTP to discuss communication and interactions. While the EU GLIP project is primarily Europe based, the TTP is aiming at the international GL community. Germplasm and data generated within the EU GLIP project is one of the key outputs for researchers and breeders. This already utilises contributions made by WGGL members. The delivery of outputs is an area where the WGGL could usefully have input and be promoted. It was agreed that the TTP website will host a link to the WGGL web page and WGGL would aim reciprocate this arrangement as part of its devised web page. The discussion was very much on the need for two way dialogue between TTP and the WGGL and Catherine would outline information relating to genetic resources where the WGGL could assist.