

## PROJECT PROPOSALS ECPGR *Allium* WORKING GROUP FOR PHASE VIII

### Background and justification

In 2001 the *Allium* WG held a meeting to discuss the conservation of the vegetatively propagated *Allium* crops. The WG recognized the benefits of cryopreservation for the long term conservation of vegetative germplasm and recommended that work on garlic and shallot be progressed. In the development of the AEGIS project *Allium* was chosen as one of the 4 crops to be studied as exemplars for the development of European collections. The AEGIS *Allium* group chose to concentrate their efforts on the development of an AEGIS strategy for the vegetatively propagated *Allium* taxa and in particular on garlic. A majority of the AEGIS *Allium* group are also ECPGR National *Allium* Coordinators and members of the *Allium* Working Group. The *Allium* Working Group in Phase VII was a low priority rated working group. The WG partners agreed to use a majority of the WG funds in support of a meeting to discuss and make recommendations on the report of the AEGIS *Allium* group. A majority of the formal WG activities have concentrated on the vegetatively propagated taxa. These priorities fitted well under the ECPGR Phase VII priority areas for the use of documentation and characterisation/evaluation to improve the conservation of European germplasm. The *Allium* WG recommendations and AEGIS *Allium* group strategy led to the development of an EU GENRES project, EURALLIVEG, coordinated by Dr Keller to assess clonal duplicates in collections using the European *Allium* database; to fingerprint the accessions in order to define unique clonal material as European Accession; to use in-vitro culture to remove viral infection from accessions and produce the material required for cryopreservation; develop a proto European collection of garlic in cryopreservation. The EURALLIVEG proposal was successful and started work in April 2007.

A significant aspect of EURALLIVEG is the use of a commercial company, Array-On, for the fingerprinting work. Molecular fingerprinting for garlic and shallot had been carried out prior to the project by PRI/CGN and IPK, the latter in collaboration with Array-On. The EURALLIVEG project partners are the curators for >75% of the garlic collections in ECPGR, so although the project will provide significant impetus to the development of European collections there are collections that are currently not involved in the work, namely Spain and Portugal.

### Objectives of the project

The objective of the *Allium* WG project for Phase VIII is to involve the national programmes of Portugal and Spain in the molecular fingerprinting of European garlic collections in order to identify the unique clonal material that will potentially form the base of future AEGIS collections.

### Workplan

#### Activities of the project participants

The AEGIS *Allium* group will meet in Radzikov in July 2008 to discuss how to progress their strategy taking account of the 1<sup>st</sup> year results from the EURALLIVEG project. A part of this meeting will be the definition of a detailed plan to include a majority of European garlic accessions in the molecular fingerprinting evaluation. The plan involves the curators of the garlic collections in Portugal and Spain being supported to provide freeze dried tissues of their collections to the Array-On company for the fingerprinting process.

The Array-On company will carry out the fingerprinting work and present the results to the EURALLIVEG project team. It is essential for the curators from Portugal and Spain to be involved in the discussion and evaluation of the complete EURALLIVEG/ECPGR fingerprinting results.

#### Expected outputs and milestones

The *Allium* WG project will add significant value to the EURALLIVEG project through the inclusion of a wider genepool to the fingerprinting analysis. The overall project results will represent data from >90% of the European garlic collections and therefore make any

subsequent recommendations on the identification of European Accessions and European Duplicates far more valid. It will provide all the national programmes involved with a clear picture of the uniqueness of their national collection providing invaluable information for decisions to be taken at the national level with regards to the identification of Most Appropriate Accessions under the AEGIS framework.

#### Timetable

The material from the 2 collections needs to be prepared and analyzed at the same time, so by necessity a majority of the funds will be spent in 2009. The analysis of the results in conjunction with the results from the EURALLIVEG screening will take place in 2010.

	<b>Activity</b>	<b>Output</b>	<b>Milestone</b>	<b>Time</b>	<b>Comment</b>
1a	Garlic project	prepare leaf samples	leaves collected & freeze dried	April/May2009	ESP & BPGV, PRT
1b	Garlic project	rapid carriage of samples to IPK Gatersleben	samples arrive in IPK Gatersleben	May 2009	ESP & BPGV, PRT
1c	Garlic project	DNA isolation	DNA ready for use	June 2009	IPK Gatersleben
1d	Garlic project	molecular fingerprinting	relevant No. accessions fingerprinted	July/August 2009	Array-On, Gatersleben
2	AEGIS	discussion of results re AEGIS & EURALLIVEG	MAAs identified for garlic	2010	All members of vegetative group
3	Meeting of <i>Allium</i> WG	mid-term review of work plan		Autumn 2011	WG members

#### Budget

The cost of leaf sample preparation and rapid transport of the samples is fixed at €250 & €50 respectively. The remainder of the budget, as agreed by the SC (100, 115 & 125%), will determine how many samples we can introduce into the Array-On fingerprinting analysis. The Sc budget decision will also determine the level of attendance at the *Allium* Working Group meeting. The Other Inputs shown below relate to direct work equivalents in the EURALLIVEG project to WG activities 1 & 2.

<b><i>Allium</i> Working Group</b>				
<b>BUDGET ITEM</b>	<b>FUNDING in €</b>			
	<b>Other inputs*</b>	<b>ECPGR 100%</b>	<b>ECPGR 115%</b>	<b>ECPGR 125%</b>
Activity 1: Garlic project (No. accessions fingerprinted based on funds available)	336,000	7,840 (125 accessions)	9,016 (145 accessions)	9,800 (158 accessions)
Activity 2: meeting with EURALLIVEG (3 members)	11,000	2460	2460	2460
Meeting of the <i>Allium</i> Working Group		11,060 (9 members)	14,587 (12 members)	16,940 (14 members)
<b>Sub-total</b>	<b>347,000</b>	<b>21,360</b>	<b>26,063</b>	<b>29,200</b>

\* EURALLIVEG is a 4 year EU GENRES project (2007-2011) including 7 partners funded at €1,089,000 on a 50:50 basis by national programmes:EU. The budget covers inputs in documentation, molecular fingerprinting, in-vitro preparation of explants & cryopreservation.

#### **Project coordination and administrative structure**

The project will be coordinated by Dr Astley (*Allium* WG Chair) and Dr Keller (*Allium* WG Vice Chair & EURALLIVEG Coordinator).