As several COST participants are involved in both WGs 1 and 2, we decided to merge them for the break-out sessions. The methodology employed was to go task by task as stated within the MoU.

WG1: Genetic Resources and Breeding, Genetics and Genomics

Task 1: Compile phenotypic evaluation protocols and develop innovative protocols. Monika Hoffer (Germany) sent a questionnaire in January 2013 in which each team should indicate which type of traits are used for the phenotypic characterisation of cherry genetic materials. She received many answers and she will make a presentation of the synthesis of this questionnaire in the next MC and all WG meeting in 2014.

Concerning the development of innovative protocols, Martin Jensen said some words about a National Danish project that he coordinates and which has been recently approved: ‘NMR metabolomics assisted development of resistant sour cherry cultivars’. The major aim is to develop a model to predict resistance to Blumerella and Monilia in sour cherry by using NMR metabolomic profiling. Martin offered the possibility to COST participants to analyse samples of their own varieties or selections.

Finally, an interesting discussion was held concerning the development of protocols for the evaluation of resistance/tolerance to the main sweet cherry and sour cherry diseases. Indeed, this topic will be covered in a meeting held in Plovdiv, Bulgaria, in late May 2014. Mirko Schuster made a very interesting presentation about his experience in this field, in particular by working on resistance to leaf spot and monilia. Whereas an efficient test of artificial inoculation had been established for leaf spot, it remains to be proposed for monilia screening, both in the field and in the greenhouse.

Task 2: Prioritise the characterisation of the most promising genetic resources for breeders. Daniela Giovanini (Italy), who is the responsible of the Prunus group within ECPGR (European Consultative Panel on Genetic Resources), was appointed responsible for this Task during the first MC and all WG meeting in Palermo. Recently, Daniela sent two documents to the COST mailing list. The first one explained the objectives of this Task and the second was a questionnaire to be filled by COST participants. Daniela made a presentation in order to explain this Task. Several points were mentioned:

- Mirko Schuster advised to incorporate, within the genetic materials to be characterized and exchanged, some interesting breeding materials with very special characteristics. However,
the number of these accessions should not be too high in order not to reduce the genetic diversity of the studied sample

- Petya Gercheva indicated that a similar but deeper work had been accomplished on grapevine within another COST Action of which she is the Rapporteur. Something very interesting was that up to 25 to 60% of mistakes had been detected in the germplasm resources collections thanks to the genotyping of accessions. Elisabeth Schüller made a short presentation of the STSM that she had conducted in East Malling (UK) on the subject ‘Genetic fingerprinting of old Austrian cherry cultivars’. One interesting result was the finding that several cultivars had identical genetic fingerprints. Gérard Charlot and José Quero Garcia confirmed that they had observed the same results in two independent studies. ...
- Ana Wunsch suggested the use of the 6K SNP chip developed within the US project RosBREED to genotype the accessions gathered by each country. One alternative proposed was to first check the presence of synonymies by using a small set of SSRs before using the chip. These different strategies will be discussed during the meeting to be held in Budapest in March 2014.
- Elisabeth Schüller raised the question of the necessity of exchanging virus-free materials.
- Sezai Ercisli proposed to start by a very thorough morphological description of the collections before doing the molecular analyses. He also reminded that some countries may provide accessions coming from other countries.

**Task 3:** Optimise current methodologies for pollination and germination of cherry seeds. Martin Jensen (Denmark) was appointed responsible for this Task. He circulated a questionnaire in July 2013. Martin Jensen made a summary of the answers he had already gathered, a bit more than 10 for sweet cherry and a bit less than 10 for sour cherry. He confirmed the high value of the information exchanged, which could be the basis for a chapter within the final COST publication. One proposition was to send out the questionnaires to countries outside the COST area.

**Task 4:** Set the basis for a coordinated European MAS strategy. Felicidad Fernandez (UK) and José Quero Garcia were appointed as responsible for this Task. José Quero Garcia made a presentation of a draft questionnaire that will soon be sent to the COST mailing list.

**Task 5:** Select candidate sites to conduct multi-location trials. Hugo Magein (Belgium) was appointed responsible for this Task. He sent a questionnaire by mid-march 2013 and up to date only 8 groups have answered to his questionnaire. José Quero Garcia asked to the meeting participants to try to answer to Hugo’s questionnaire, which is not too long, and which will be a very good basis to know what kind of trials are being conducted all over Europe and how new multi-location trials could be implemented. He reminded that multi-location trials have already been initiated for two sweet cherry mapping progenies. In the presentation one potential site was missing: Forli, in Italy (under the supervision of Daniela Giovannini).

**Task 6:** Evaluate the potential of recent NGS technologies for the fine characterization of the cherry genome

**Task 7:** Investigate the potential use of ‘omics’ approaches in the breeding programmes
It was decided to merge Tasks 6 and 7. **Angel Fernandez** (Spain) and **Haibo Xuan** (Germany) were appointed as responsible for these Tasks. This Task has not been initiated for the moment. The project coordinated by Martin Jensen (see Task 1) could be a good example of the potential application of ‘omics’ in breeding programmes.

**WG2: Crop Production and Postharvest physiology**

**Sub-group 1: Agronomy and physiology**

**Task 8:** Study the impact of climate change on flowering phenology and fruit productivity. Bénédicte Wenden has been appointed responsible for this Task. She has already started the analyses of flowering dates sent by different countries. She will make a presentation in the meeting to be held in Norway, in May 2014. She will contact the meeting organizer, Mekjell Meland, as well as other potential interested participants, in order to establish the draft programme for this meeting. An invitation email for this meeting will soon be sent to the COST mailing list.

**Task 9:** Develop harmonized protocols for important fruit traits such as cracking tolerance and double fruits. This Task will be particularly linked to Task 1 of WG1. Two main traits have been targeted although others could be integrated. The first one is cracking tolerance and for this group a potential group could be leaded by Moritz Knoche. Action Chair or WG leader will contact him. The second trait, the occurrence of double fruits, is particularly linked to Task 8 since the predicted increases in T° due to climate change will most likely aggravate this phenomenon. Gregorio Lopez-Ortega will lead a group on this subject and will send a questionnaire to determine first which will be the interested people.

**Task 10:** Compile trials conducted on training systems and pruning for the promotion of high-density orchards. This Task has not been initiated yet but Gérard Charlot and Jef Vercamen accepted to work together to prepare a questionnaire which will be soon sent to COST mailing list. The necessity of organizing both a training school and a meeting on these subjects was highlighted.

**Task 11:** Produce a synthesis on current initiatives to study the nutritional status of orchards. This Task had to be leaded by Alesandro Roversi but he retired recently. Eduardo Gratacos pointed the need to study the status of orchards in a more global way, not being only limited to nutritional aspects. A call for volunteers to work on this subject was made. One idea could be to link this Task to other Tasks within this sub-group, such as Task 10 or 12.

**Task 12:** Investigate the impact of novel methods on fruit quality and orchard productivity (cover-plastic roofs, nets...). This Task has not been initiated yet but Elzbieta Rozpara and Mekjell Meland accepted to take the lead. They will interact soon in order to propose ideas of how to advance.

**Sub-group 2: Agronomy and physiology**

**Task 13:** Review results on the control of post-harvest cherry diseases. Test novel methods to avoid using anti-fungal products. Not initiated. This Task could be leaded by Daniel Valero, who recently got
the funds for a National project dealing on this subject. He will be soon contacted by the Action Chair or WG leader.

**Task 14:** Optimise methods to maintain better fruit quality during storage

**Task 15:** Improve acceptability of stored cherries by the consumer

**Task 16:** Produce reliable and simple protocols for the characterization of mechanical properties of cherries, which could be used by breeders

Tasks 14 to 16 have not been initiated. For the moment, two important activities have been planned within this sub-group, but they are more related with the characterization of fruit quality and fruit nutritional properties for the consumer than with storage properties. The first achievement has been the preparation by Ana Cristina Santos of the outline for the writing of a technical paper dealing with the determination of cherry fruit quality. She asked what were the methods used in the different European groups and which people would be interesting in collaborating in this activity. She has recently received many positive answers. The second activity consists in the organization of two summer schools (2014 and 2015) including demonstration techniques. The first could be organized in Portugal and the second one in Cyprus (coordinated by Ana Cristina Santos and George Manganaris, respectively). Concerning Tasks 14 and 16, which are quite linked, since one of the methods to optimize fruit storage will be to improve the fruit’s mechanical properties, one suggestion was to incorporate research groups from Southern hemisphere countries such as Chile (Prof. Juan Pablo Zoffoli) or Argentina (Prof. Ariel Vicente), which have sound experience in this field, since their production is heavily oriented to export to long-distant markets. These researchers will be contacted by Action Chair or WG leader in order to seek for their participation into this Action, at least in the writing of specific book chapters for the Action’s final publication.