

## Annual update

### Highlights of the first Leafy Veg project year (2007)

The Leafy Vegetable project is a EU funded project which aims at the improvement of the leafy vegetable collections present in European genebanks. To this end a consortium of thirteen partners was formed for a period of four years. The consortium exists of genebanks, research institutes, universities and breeding companies. In the first project year (2007) a number of activities started. A leafy vegetables database was constructed and data of 11536 lettuce, 1830 spinach, 1180 chicory and 216 accessions of minor leafy vegetables were collected and included in the database. Regeneration (seed production) and characterization activities also took place in the first project year and around 40% of the accessions involved in this project were regenerated and characterized by the partners.

Evaluation of the accessions was only started for lettuce and involved post harvest discolouration. Identification of accessions with unique selling point qualities for use in marketing activities was started.

For an efficient communication between the partners and between the partnership and society a Leafy Vegetable website was developed (<http://documents.plant.wur.nl/cgn/pgr/leafyveg/>). Furthermore ample PR activities took place resulting in five professional, eleven newspaper and nine web publications (see also Leafy Veg in the spotlight!). Last but not least the partners met twice during the first project year, namely at the start-up meeting in Wageningen (the Netherlands) and the first annual meeting in Angers (France).



### Highlights of the second project year (2008)

The development of the crop databases for spinach, *Cichorium* and minor leafy vegetables was finished and were made on-line available. Furthermore the international *Lactuca* database was updated. Project data were made available as downloadable files in the databases. A total of six characterization data files and five evaluation data files are currently included.

The status overview concerning safety duplication of the leafy vegetables collections of partners reached near completion in 2008. Two partners started with the actual arrangement of safety duplication in 2008.

In total 65% of all accessions involved in the project have been regenerated (62%) and/or characterized (68%) within the first two years of the project. All partners have initiated their evaluation processes according to the initial program, except chicory evaluation for sesquiterpenes components, which was postponed to 2009 and 2010. Both for pest/disease resistance and quality/abiotic characters, the 2008 evaluation targeted 83 % of the aim for lettuce, 99 % for spinach, 20 % for chicory and 136 % for minor crops.



Accessions for evaluation for utilisation and marketing were identified. Some activities (assessment of chicory) commenced earlier than planned. So far no accessions were identified which had significant enough unique selling point for use in marketing activities. One general meeting held at NordGen (Alnarp, Sweden) and one WP leader meeting held at Arche Noah (Schiltern, Austria) was organized; a project website was maintained and e-reports were produced in order to increase the flow of information between the partners. Furthermore a number of professional publications were written to promote the project.

### Highlights of the third project year (2009)

The passport data of a total of 17,530 accessions from 129 European leafy vegetable collections have been made publically available during the third project year from the four leafy vegetables databases which are present on the leafy veg website. Also a total number of 45 downloadable project data files are linked to the four leafy vegetables databases. Furthermore



safety duplication of accessions was realized for three project partners that previously lacked such an arrangement. Last but not least a workplan was developed and a start was made for the analysis of gaps within the newly established databases.

Next to these documentation and safety duplication activities in total 108% of all accessions involved in the project have now been regenerated (91%) and/or characterized (124%). For pest/disease resistance evaluation and quality/abiotic evaluation, the 2009 evaluation targeted 97% of the aims for lettuce, 90% for spinach, 99% for chicory and 116% for minor crops.

Many utilization and marketing activities have taken place in 2009. Arche Noah organized a trial with 15 old lettuce varieties, which were evaluated by the general public and by a group of organic farmers. There was no variety which had all desired qualities, but in general there was a keen interest among farmers and customers for the old and rare varieties. All of them, even the local supermarket asked for a continuing supply of some varieties. Next to Arche Noah in Austria also Garden Organic in the UK performed an evaluation trial for 10 accessions of Valerianella and 10 accessions of rocket. These accessions were evaluated by customers for flavour, appearance and pleasantness and by specialists from Garden Organic for bolting, yield and resistance to disease. Furthermore trails involving chicory and endive took place at ProSpecieRara (Switzerland). This material was also evaluated via a sensory analysis at the University of Bologna in which bitterness, astringency and taste and visual acceptability were evaluated. Also trails on lettuce and Valerianella landraces at the Agricultural Institute of Slovenia took place in which marketable yield was analysed.

Last but not least a general and a WP leader meeting were organized and a number of publications were written.

### Highlights of the fourth project year (2010)

New files with data generated in the project were linked to the four leafy vegetables databases. In each of the four databases all available data sets can be downloaded in Excel format from the main menu. In 2010 a new functionality that provides easy access to the project data has been implemented in each of the four databases. In the on-line search tool the option is now included to search only for accessions with project data. Moreover, in the accession information screen, a section has been added at the end that indicates whether research data of the accession are available or not.

Safety duplication of accessions was realized for three of the four project partners (INRA, Arche Noah and Garden Organic) that previously lacked such an arrangement. KIS is still in the process of formalizing such an agreement with the Czech genebank. The other project partners both had already organized their safety duplicates and continued to increase the number of safety duplicates during 2010 (CGN, WHRI, IPK, NordGen), or maintained only working collections for which they considered the arrangement of safety duplication unnecessary (Palacky, UNIBO, ProSpecieRara). A gap analysis of each of the four leafy vegetables databases was carried out and a draft manuscript about the composition of the databases and the results of the gap analyses was prepared for publication.



Regeneration, characterization and evaluation activities were completed in 2010. In total during the whole project period 131% of all accessions involved in the project were regenerated (111%) and/or characterized (152%). The last evaluations realised in 2010 for pest/disease resistance and quality/abiotic traits added to the previously carried out evaluations showed that in total during the entire project period 113 % of the aim for lettuce was reached, 104 % for spinach, 102 % for chicory and 114 % for minor crops.

Accessions of lettuce, chicory, endive, rocket and lambs lettuce (*Valerianella*) were assessed for their suitability for local markets in previous years of the project; for all crops a greater number of accessions were assessed than the target number in the original proposal. The results of the assessments have been collated this year by each partner and submitted to the relevant crop database.

This year the WP leaders meeting were organized in June in Aarau (Switzerland) and the annual project meeting in November in Montfavet (France). The project website was maintained and updated regularly and an e-report was produced. A number of publications were written in newspapers, journals and on the web. Also presentations were given in front of various audiences to promote the project to inform the scientific community and the general public about the findings of the project.