

# CURRICULUM VITAE

Name: Anke Gehringer, PhD  
Date of Birth: 10.07.1977  
Place of Birth: Aschaffenburg  
Nationality: German

## Employment

**Since 07/2015** Pioneer Hi-Bred Spain Agroservicios, S.L., Seville, Spain  
Research Scientist, Sunflower Breeding

**03/2013 – 06/2015** Pioneer Hi-Bred Northern Europe, Greven, Germany  
Research Scientist, Corn Breeding and Molecular Breeding Support

**09/2009 – 02/2013** Pioneer Hi-Bred Termelo, Hódmezővásárhely, Hungary  
Research Scientist, Molecular Breeding Support and Corn Breeding

**11/2006 – 08/2009** Pioneer Hi-Bred Termelo, Hódmezővásárhely, Hungary  
Senior Research Associate, Corn Breeding

**02/2003 - 11/2006** Institute of Crop Science and Plant Breeding I, School of Agricultural Sciences, Justus Liebig University, Giessen, Germany  
PhD student, Doctorate

Doctoral Thesis 'Development of camelina (*Camelina sativa* Crtz.) genotypes and winter rapeseed (*Brassica napus* L.) hybrids for marginal locations', funded by the German Research Foundation (DFG)

Teaching Supervision of field and laboratory practical classes for students and technical trainees

- MSc practical 'Crop Science – Seeds'
- Laboratory practicals in quality analysis (NIRS, NMR, GC)
- Field practicals 'Winter rapeseed breeding'

## **Education**

- 10/1997 – 09/2002** Study of Agricultural Sciences, Justus Liebig University, Giessen, Germany  
Main subject: plant production  
Diploma (equivalent to MSc) in Agricultural Sciences.  
Thesis: 'Molecular mapping of a resistance gene against Barley Yellow Mosaic Virus in barley from the Japanese origin 'Nishino Gold''
- 09/1988 – 06/1997** A-levels, June 1997, Secondary School: Hanns-Seidel-Gymnasium, Hösbach, Germany

## **Activities during Studies**

- 02/2001 – 04/2001** Practical course: Sheep farming in Mid-Canterbury, New Zealand
- 04/1998 – 06/2001** Student temporary job, Syngenta Agro GmbH, section: registration

## **Additional Skills**

- Languages German (mother language)  
English (fluent)  
Hungarian (fluent)  
Spanish (Basics)
- Computer MS Office (Word, Excel, PowerPoint), SPSS for Windows, Windows QTL Cartographer;

## **Publications**

- Friedt, W., A. Gehringer, R. Baetzel, M. Müller, F. Ordon, and W. Lühs, 2003: Development of winter oilseed rape hybrids suited for sustainable oilcrop production. Proc. 11th Intern. Rapeseed Congr., 6-10 July 2003, Copenhagen, Denmark, Vol. 1, pp. 350-353.
- Gehringer, A., W. Lühs, R. Snowdon und W. Friedt, 2004: Molekulare Ansätze in der Züchtung von Leindotter (*Camelina sativa* Crtz.): „Low input“-Genotypen für periphere Regionen. Vortr. Pflanzenzüchtg. 64, 178-180.
- Gehringer, A., W. Lühs, R. Snowdon, and W. Friedt, 2004: Molecular tools to facilitate breeding of false flax (*Camelina sativa* Crtz.) 'low-input' genotypes. In: J. Vollmann, H. Grausgruber, and P. Ruckebauer (eds.): Genetic Variation for Plant Breeding, p. 327. Proc. 17th EUCARPIA General Congr., 8-11 September 2004, Tulln, Austria. BOKU – University of Natural Resources and Applied Life Sciences, Vienna, Austria.
- Gehringer, A., W. Lühs, R. Snowdon and W. Friedt, 2004: Agronomic value and genetic relationship of *Camelina sativa* low-input genotypes. Proc. 34th Annual Conference of the Ecological Society (GfÖ, Gesellschaft für Ökologie), 13-17 September 2004, Giessen, Germany. Poster abstract P17/18-04, p. 340.
- Gehringer, A., W. Lühs, T. Spiller and W. Friedt, 2004: Low-input oilseed rape (*Brassica napus*) for marginal agricultural conditions. Proc. 34th Annual Conference of the Ecological Society (GfÖ, Gesellschaft für Ökologie), 13-17 September 2004, Giessen, Germany. Poster abstract P17/18-05, p. 341.
- Gehringer, A., W. Friedt, W. Lühs and R.J. Snowdon, 2006: Genetic mapping of agronomic traits in false flax (*Camelina sativa* subsp. *sativa*). GENOME 49 (12): 1555-1563.
- Gehringer, A., R. Snowdon, T. Spiller, P. Basunanda, W. Friedt, 2007: New Oilseed Rape (*Brassica napus*) Hybrids with High Levels of Heterosis for Seed Yield under Nutrient-poor Conditions. Breeding Sciences 57: 315-320.

## **Summary Doctoral Thesis**

In this study the productive efficiency and stability of winter oilseed rape (*Brassica napus* L.) and camelina (*Camelina sativa* Crtz.) genotypes has been tested for production under low-input conditions (reduced N-fertilization and plant protection) in the Lahn-Dill region (Hesse, Germany). Furthermore these studies aimed at the identification of superior varieties and breeding lines regarding adaptability to marginal conditions (locations, N-fertilization) as a starting material for subsequent breeding programmes.

The crop species *Camelina sativa* is basically suitable for low input production systems because of its good adaptability to adverse environmental conditions and its comparatively short vegetation time. On the basis of the achieved selection progress concerning productivity further improvements of the major agronomic and quality characteristics should be possible by breeding. In this study a first genetic map for *C. sativa* was constructed using AFLP and 3 Brassica SSR markers in a population of recombinant inbred lines resulting from a cross of phenotypically distinct parents. The map was used to localize QTLs for different agronomical traits of interest (1,000 seed weight, seed yield, oil content, and plant height) and additional promising lines from the yield tests with improved yield performance could be selected. The results represent a starting point for future marker-assisted camelina breeding.

Oilseed rape is the most important oil crop in Europe and in particular, winter rape is very well suitable for low input production systems, since it produces the highest grain yield of all adapted oil crops even under less intensive agronomical conditions. Today, the high yield potential of oilseed rape is successfully exploited by hybrid breeding. In this study a value of up to 43% mid-parent heterosis for seed yield could be observed among selected test hybrids compared to that of their parental DH lines particularly at the nutrient poor site. This demonstrates the suitability and adaptability of highly heterotic rapeseed hybrids on marginal locations and suggests the existence of a strong heterotic effect on nutrient uptake efficiency.

But regarding renewable fuels not only rapeseed with 00-quality attracts attentions. In this context high erucic acid rapeseed (HEAR) cultivars with a large increase in oil yield per hectare and a considerably improved nutrient efficiency may be an interesting alternative for bio-fuel production. In this study three new hybrid combinations were found to combine high seed yields with very high oil content, enabling oil yield per hectare gains of up to 20% compared to existing 00 rapeseed and open-pollinated HEAR cultivars. Furthermore high oil yields in the HEAR hybrids were also achieved under reduced nitrogen input. Such high-performing erucic acid hybrid cultivars could potentially play an important role in the generation of renewable energy on less productive soils or in low-input production systems, considerably improving the environmental sustainability of bio-fuel production in comparison to conventional bio-diesel.