



XVI. International Lupin Conference

19.06.2023 – 23.06.2023

„Breeding, Cultivation and Use of Lupins for a Sustainable Agriculture
– Recent Developments“

Conference Program

**Monday,
19.06.**

REGISTRATION

16:00 – 19:00

Registration and Welcome snack

18:30

1. General Meeting of International Lupin Association (ILA)

**Tuesday,
20.06.**

WELCOME

08:00 – 9:00

Registration

09:15

Prof. Dr. Frank Ordon

Julius Kühn-Institute (JKI) Federal Research Centre for Cultivated Plants

09:30

Claudia Müller

Federal Ministry of Food and Agriculture (BMEL)

09:45

Dr. Margareta Büning-Fesel

Federal Office for Agriculture and Food (BLE)

10:00

General Lectures:

Dr. Thomas Eckhardt

Saatzucht Steinach, Germany

Sweet Lupin Cultivation in Germany: Development, Current Status
and Challenges

Dr. Brigitte Ruge-Wehling

Julius Kühn-Institute – Institute for Breeding Research on Agricultural Crops

Breeding Strategies in Lupin – Perspectives from the View of Plant Research

10:45

Coffee Break

11:15

Session 1: Lupin Cultivation and Farming worldwide

Chair: Herwart Böhm and Udo Prins

11:15



Erik von Baer
Semillas Baer, Chile

LUPIN, ETERNAL CHALLENGE. Critical analysis of its actual world development

11:45

Willemijn Cuijpers
Louis Bolk Institute, Netherlands

Effect of cross-pollination of sweet and bitter lupins on alkaloids, effect of pollinators on yield and pollinator diversity in lupins

12:05

Herwart Böhm
Thünen Institute, Germany

Intercropping for bioenergetic use: Andean lupin and maize

12:25

Muhammad Ihsan
Cholistan Institute of Desert Studies, Pakistan

Introduction and Evaluation of *Lupinus albus* Germplasm for Arid Areas of Pakistan

12:45



Likawent Yeheyis Engedaw
Amhara Agricultural Research Institute, Ethiopia

The Search for Commercial Sweet White Lupin (*Lupinus albus* L.) Adaptive to Ethiopian Growing Condition Seems Not Successful: What should be done?

13:05

Lunch Break

14:15

Session 2: Phenotypic and Genotypic Variability of Lupin

Chair: Ulrike Lohwasser and Haroldo Salvo Garrido

14:15



Michał Książkiewicz
Polish Academy of Sciences, Poland

Molecular control of vernalization and photoperiod responsiveness in lupins

14:45

Ulrike Lohwasser
Leibniz Institute of Plant Genetics and Crop Plant Research, Germany

Lupin genetic resources in gene banks for challenges in plant breeding and research

15:05

Matthew Nelson
Commonwealth Scientific and Industrial Research Organisation, Australia

Tracing historic migrations of white lupin through a global diversity panel

15:25

Helge Fluess
Julius Kühn Institute, Germany

Characterization of alkaloid levels and agronomic traits of narrow-leafed lupin (NLL) accessions based on phenotypic, molecular and metabolomic data

15:45 Ana Planchuelo
CREAN-IMBIV-CONICET-UNC, Argentina
Description of hybrids of *Lupinus arboreus* x *L. polyphyllus*, growing on Patagonian Andes of Argentina and Chile

16:05 Coffee Break

16:05 – 17:15 Poster presentation

18:00 Boat trip including local catering

**Wednesday,
21.06.**

EXCURSION

08:30 Departure from Hotel Radisson Blu, Rostock

1) **Julius Kühn-Institute – Institute for Breeding on Agricultural Crops**
Groß Lüsewitz –
Breeding Research

2) **Saatzucht Steinach GmbH & Co. KG**
Bocksee –
Company for lupin breeding

ProLupin GmbH (information desk)
Lupin Ingredients for Human Nutrition

Leibniz Institute for Plasma Science and Technology (information desk)
Seed Treatment by Plasma Technology

UFOP e.V. (information desk)
Union for the Promotion of Oil and Protein Plants

Barbecue organized by Saat zucht Steinach GmbH & Co KG and UFOP e.V.

**Thursday,
22.06.**

09:00

Session 3: Lupin 'Omics'

Chair: Helge Fließ and Grit Schwertfirm

09:00



Ling-Ling Gao

Commonwealth Scientific and Industrial Research Organisation, Australia

Transforming lupin from feed to food using functional omics

09:30

Karen Frick

University of Copenhagen, Denmark

Elucidating the alkaloid transport network from source to seed via MSI and LCM RNA-Seq

09:50

Reyes Benlloch

University of Valencia, Spain

A multiomic approach to understand white lupin floral transition

10:10

Laurence Marquès

University of Montpellier, France

The receptor kinase LaCCR1 of white lupin controls a systemic signaling of cluster root development

10:30

Coffee Break

11:00

Florian Haase

Julius Kühn-Institute, Germany

Increasing the cultivability of *Lupinus luteus*: anthracnose resistance and yield potential

11:20

J. Eduardo Martinez-Hernandez

Centre for Nutritional Genomics Agri-Aquaculture, Chile

De novo transcriptome analysis of *Lupinus luteus* reveals a systemic response to *Colletotrichum lupini*

11:40



Arineh Tahmasian

Commonwealth Scientific and Industrial Research Organisation, Australia

Targeted quantitative proteomics study of seed storage proteins across genetically diverse lupin varieties for identification of hypoallergenic resources

12:00

Lunch Break

13:30

Session 4: Genetic Improvement

Chair: Matthew Nelson and Laurence Marquès



13:30



Wallace Cowling

University of Western Australia, Australia

Breeding for diversity in the narrow gene pool of cultivated lupins

- 14:00 Fernando Geu-Flores
University of Copenhagen, Denmark
Lupin alkaloid biosynthesis and transport
- 14:20 Christine Arncken
Research Institute of Organic Agriculture FiBL, Switzerland
Organic breeding of white lupin for regionally produced, plant-based protein foods in Switzerland
- 14:40  Yu Aili
Commonwealth Scientific and Industrial Research Organisation, Australia
Using genetics to enhance the flavour of lupins
- 15:00  Haihua Lao
Murdoch University, Australia
Unravelling grain development to reduce seed coat thickness for lupin
- 15:20 Agnieszka Nielsen
Traitomic, Denmark
Induced genetic variation: Precision breeding utilizing conventional breeding technologies

15:40 Coffee Break

16:15

Session 5: Biotic and Abiotic Stress

Chair: Michal Książkiewicz and Christiane Struck

- 16:15  Paolo Annicchiarico
Concil for Agricultural Research and Economics, Italy
White lupin tolerance to key stresses and breeding for regional adaptation
- 16:45 Grit Schwertfirm
Bavarian State Research Center for Agriculture, Germany
Breeding research for sustainable cultivation of white lupin (*Lupinus albus*)
- 17:05 Andrés Patyi
Research Institute of Organic Agriculture FiBL, Switzerland
Development and validation of molecular markers tagging anthracnose resistance in white lupin (*Lupinus albus*, L.)
- 17:25 Grace Armijo
Centre for Nutritional Genomics Agri-Aquaculture, Chile
Unravelling the specific defense mechanism of *Lupinus luteus* to anthracnose mediated by LluR1 gene
- 17:45 Nicola Wannicke
Leibniz Institute for Plasma Science and Technology, Germany
Plasma-processed air as a possible alternative seed treatment against *Phoma glomerata* and *Pleiochaeta setosa* on blue lupin

19:30

Conference Dinner

Farewell and Poster Award

**Friday,
23.06.**

09:00

Session 6: Lupin Ingredients and Biochemistry

Chair: Peter Eisner and Fernando Geu-Flores

09:00



Michael Wink

University Heidelberg, Germany

Why and how do lupins produce alkaloids?

9:30

Anna Maria Engel

German Federal Institute for Risk Assessment, Germany

Insights into the transfer of quinolizidine alkaloids from blue sweet lupins (*Lupinus angustifolius*) into the milk dairy cows

9:50

Magdalena Kroc

Institute of Plant Genetics Polish Academy of Sciences, Poland

Understanding the biosynthesis and accumulation of quinolizidine alkaloids in atypical accessions of narrow-leafed lupin

10:10

Davide Mancinotti

University of Copenhagen, Denmark

The causal mutation leading to sweetness in modern white lupin cultivars

10:30

Tatjana Hildebrandt

University of Cologne, Germany

Amino acid metabolism in *Lupinus albus*

10:50

Coffee Break

11:15

Session 7: Feed, Food and Non-Food Uses

Chair: Fred Eickmeyer and Anne Zaar

11:15



Peter Eisner

Fraunhofer Institute for Process Engineering and Packaging, Germany

Lupin proteins and fibers - high valuable ingredients for modern foods

11:45

David McNaughton

Soya UK Ltd, United Kingdom

CAN LUPINS COMPETE WITH SOYA IN THE FEED MARKET?

The ongoing search for a volume market

12:05



Jose C. Jimenez-Lopez

Spanish National Research Council, Spain

Narrow-leafed lupin (*Lupinus angustifolius* L.) β -conglutin seed proteins as potential new natural treatment against breast cancer

12:25



Małgorzata Kasprowicz-Potocka

Poznan University of Life Science, Poland

Supplementation of exogenous phytase in diets with yellow lupine and extruded full-fat soybean seeds on growing pigs` results and post-slaughter parameters

12:45 Christina Opaluwa
Fraunhofer Institute for Process Engineering and Packaging, Germany
Microparticulation of lupin protein as fat replacer – Effects of thermomechanical treatment on the aggregation behavior

13:05 Lunch break

14:30 Workshops I - III

Workshop I: Genomics and Genome Editing

Chair: Helge Fluess

14:30 Talks (10min)
tba
Julius Kuehn-Institute SB, Germany
Genome Editing in Lupins

Workshop II: Sustainable Sweetness

Chair: Anne Zaar & Michael Wink

14:30 Talks (10min)
Anne Zaar
Julius Kuehn-Institute SB, Germany
Bitter lupin (*Lupinus angustifolius* L.) as a protein source for human nutrition

Workshop III: Utilization of Lupin

Chair: Fred Eickmeyer

14:30 Talks (10min)
Elena Villacres
Instituto Nacional de Investigaciones Agropecuarias, Ecuador
Technological challenges to improve the nutritional composition of lupin and its application in baking

Fred Eickmeyer
ESKUSA, Germany
Utilization of lupins beyond feed and food (Talk 10min)

16:00 Closing remarks

16:00 Podium Discussion and Closing Remarks

16:30 2. General Meeting of International Lupin Association (ILA)