Fourth International Legume Society Conference 2023

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Scientific Program

19-22 September Granada Conference Center



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Technical Secretariat:



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Fourth International Legume Society 202

Welcome

19-22 September

Granada Conference Center Granada Spain

Dear colleagues and friends,

It is our great pleasure to welcome you to Granada (Spain), to the 4th International Legume Society Conference, which will be held between the 19th and 22nd of September 2023. This International Conference, which follows our earlier conferences in Novi Sad (2013), Tróia (2016) and Poznań (2019), aims at stimulating knowledge exchange and interactions among researchers and stakeholders interested in promoting greater cultivation and use of grain and forage legumes, as a necessary path towards more sustainable food and feed systems and healthier diets.

The conference will cover a wide range of topics, organized in the following scientific sessions:

- Legume-based value chains: innovation and optimization.
- Legume-based cropping systems: performance, ecosystem services and profitability.
- Legumes for human and animal nutrition and health.
- Legume biodiversity and genetic resource exploitation.
- Genetics and omics-based legume crop improvement.
- Legume breeding: challenges, tools, strategies and achievements.
- Legume physiology, biochemistry and systems biology.
- Beneficial legume plant-microbe interactions.
- Understanding and enhancing legume crop tolerance to abiotic stresses.
- Understanding and enhancing legume crop tolerance to biotic stresses.

The conference will take place at the Granada Conference and Exhibition Centre, well equipped with the most advanced congress facilities, located in the heart of the city at walking distance to hotels and the monumental city center. Granada is a World Heritage city declared by UNESCO. Besides the world-renowned Alhambra Palace, Granada offers to visitors the beauty of its historic buildings and countless palaces, Arab town houses and gardens. Besides, Granada is close to the National Park of Sierra Nevada and the sunny Tropical Coast.

Recently, Granada has been awarded City of Science and Innovation. The University of Granada, one of the oldest and most prestigious seats for learning in Spain, the Health Science Technological Park, and the presence of several research Institutes from CSIC, result in a fascinating scientific atmosphere to promote and generate knowledge through many different areas, including key aspects focused in sustainable agriculture, nutrition and human health.

We hope this conference will provide a great opportunity for getting back to physical meetings as we used to live in the pre-covid19 age, with a vision for innovation and science-driven socio-economic change that is increasingly needed for more sustainable human development. We hope that you will enjoy not only the scientific program but also the Andalusian hospitality and the social activities that we will organize, to offer you an unforgettable stay in the beautiful city of Granada.

Dr. Paolo Annicchiarico President of the International Legume Society **Dr. Alfonso Clemente** Chairman of the Organizing Committee





Fourth International Legume Society 2023 Branada Conference Center Granada Conference Center Granada Spain

Local Committee

Members

Alfonso Clemente Experimental station of Zaidin (EEZ-CSIC), Granada, Spain

> **Cristina Delgado Andrade** EEZ-CSIC, Granada, Spain

Maria Jesús Delgado Igueño EEZ-CSIC, Granada, Spain

Jose Antonio Herrera Cervera University of Granada (UGR), Granada, Spain

Jose Carlos Jiménez López EEZ-CSIC, Granada, Spain

> **Raquel Olías Sánchez** EEZ-CSIC, Granada, Spain

Juan Sanjuan Pinilla EEZ-CSIC, Granada, Spain

Luis Rubio San Millán EEZ-CSIC, Granada, Spain





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Scientific Committee

Members

Paolo Annicchiarico CREA, Lodi, Italy

Alfonso Clemente EEZ-CSIC, Granada, Spain

Pete lannetta JHI, Dundee, United Kingdom

Kevin McPhee Montana State University, Bozeman, USA

Frédéric Muel Terres Inovia, Thivernal-Grignon, France

Diego Rubiales Institute for Sustainable Agriculture (IAS-CSIC), Cordoba, Spain

> **Christophe Salon** INRAE, Dijon, France

Maria Carlota Vaz Patto ITQB, Oeiras, Portugal

Tom Warketin University of Saskatchewan, Saskatoon, Canada

Christine Watson

SRUC, Aberdeen, United Kingdom



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Scientific Program

					Legend					
	Sessions		Catering	Official acts	A life for legumes	General Assen	nbly	Poster view	Football Cup	
					A Start			Service Process		
					Tuesday 19 th Septer	nber				
	15:30 16:00	16:00 16:10	16:10 16:15	16:15 16:45	16:45 17:30		17:30 18:00	18:00 18:15	18:15 18:45	20:00
				Session Cl	1. Legume-based value chains: innovatic hairs: Frédéric Muel (France), Sherrilyn Ph	on and optimization elps (France)				
		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		Key Speaker	Talks					
					DRY FRACTIONATION AS A TOOL TO SUSTAINAB CHAIN AND SUPPORT THE VALORIZATION OF MA Davide De Angelis (Italy)	BLY INNOVATE THE LEGUME VALUE Arginal Areas				
Plenary Room	Opening Ceremony	ILS. where do we stand?	e Legume Science journal presentation	Bálint Balázs (Hungary)	TRAIT PREFERENCES AND LENTILS VARIETAL & MULTISTAKEHOLDER APPROACH Dina Najjar (Morocco)	ADOPTION IN CENTRAL ETHIOPIA: A	Coffee break	Aleksandar Mikić , told by Petr Smykal (Chezh Republic) A life for legumes #1	al Noel Ellis (United Kingdom) A life for legumes #2: Legume Genetics	
					MAKING ROOM FOR LEGUMES: A CONSUMERS PER TION ON PROCESSED PRODUCTS Ana Inés Estevez Magnasco (Germany)	SPECTIVE ON LEGUMES INCORPORA-				
María de la O Restaurant										Welcome reception

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Wednesday 20th September

	09:00 09:30	09:30 10:15	10:15 10:45	10:45 11:15	11:15 11:45	11:45 12:30	12:30 13:00	13:00 14:45	14:45 15:15	15:15 16:00	16:00 16:30	16:30 17:00	17:00 18:30	20:00 22:00
	Session 2. Legume-based cropping system: performance, ecosystem services and profitability Chairs: Christine Watson (United Kingdom), Fred Stoddard (Finland)			Session Chai	Session 3. Legumes for human and animal nutrition and health Chairs: Alfonso Clemente (Spain), Claire Domoney (France)			Session 4. Biodiversity and genetic resource exploitation Chairs: Paolo Annicchiarico (Italy), Eric Bishop Von Wettberg (USA)						
	Key Speaker Christine Watson (United Kingdom)	Talks DOES WHEAT-SOYBEAN IN RELAY CROPPING OUTCOMPETE SEQUEN- TIAL DOUBLE CROPPING? DEVELOP- ING INNOVATIVE DIVERSIFICATION STRATEGIES Daniel Plaza Bonilla (Spain)	Flash presentations ROLE OF LEGUMES TO IMPROVE RESEILENCE OF SE AUSTRALIAN FARMING SYSTEMS Razlin Mohd Azman Halimi (Australia)		Key Speaker Karen A. Cichy (USA)	Talks MINING NATURAL DIVERSITY TO DISCOVER THE GENETIC BASIS OF QUALITY TRAITS IN PEA Ahmed Omar Warsame (United Kingdom)	Flash presentations CAN WE INCREASE THE OIL CONTENT OF COWPEA SEEDS? José Barrero (Australia)		Key Speaker Roberto Papa (Italy)	Talks LEVERAGING LANDRACE DIVERSI- TY: BRIDGING THE GAP BETWEEN KEY TRAITS AND GENOMIC LOCI FOR BREEDING IN COMMON BEAN Lorenzo Raggi (Italy)	Flash presentations EFFECTS OF CLIMATE CHANGE ON THE DISTRIBUTION OF LENS GENUS: A MODELLING APPROACH FOR IDENTIFYING CONSERVATION PRIORITIES Salma Rouichi (Morocco)			
		POTENTIAL OF GRAIN LEGUME PRODUCTION TO SUBSTITUTE ANI- MAL-BASED PROTEINS IN EUROPE Marioes Van Loon (Netherlands)	PARTICIPATORY PROJECT DESIGN TO INTRODUCE A NEW CROP IN SWEDEN Iris Dahlin (Sweden)			CREATING SAPONIN-FREE YELLOW PEA SEEDS BY CRISPR/CAS9-ENA- BLED MUTAGENESIS ON B-AMYRIN SYNTHASE Dae-Kyun Ro (Canada)	NARROW-LEAFED LUPIN (Lupinus angustifolius L.) β -CONGLUTIN SEED PROTEINS: POTENTIAL USE IN THE PREVENTION AND TREATMENT OF BREAST CANCER Julia Escudero Feliu (Spain)			GENETIC BASIS OF POD TRAITS Related to domestication and consumer preference in common bean Travis Parker (USA)	APPLIED GENOMICS FOR IDENTIFI- CATION OF CAUSATIVE MUTATIONS IN SOYBEAN Maria Škrabišová (Czech Republic)	_		
		COMPARING THE CROP SEQUENCES WITH LEGUMES AT RESEARCH AND COMMERCIAL SCALE Tony Swan (Australia)	INTERCROPPING WITH FABA BEAN IMPROVES MINERAL NUTRITION, GROWTH, AND YIELD OF WHEAT UNDER THE COMBINED STRESS OF WATER DEFICIT AND P LIMITATION Imane Chamkhi (Morocco)			PSSULTR4 IS THE ONLY VACUOLAR SULFATE TRANSPORTER IN PEA AND A KEY DETERMINANT OF SEED PROTEIN COMPOSITION EVEN UNDER SULFUR-SUFFICIENT CONDITIONS Fanélie Bachelet (France)	IN VIVO INTERNALIZATION DYNAMICS OF SOYBEAN PROTEASE ISOINHIBITORS, IBB1 AND IBBD2, OF THE BOWMAN-BIRK FAMILY IN HT29 COLORECTAL CANCER CELLS Alfonso Clemente (Spain)			EARLY LEGUME DOMESTICATION FAVORED FAST GROWTH AND RESOURCE-CAPTURE Rafael Rubio de Casas (Spain)	NUTRITIVE VALUE OF WILD LEGUME SPECIES GROWN IN A GRASSLAND AGRICULTURAL SYSTEM Brooke Micke (Sweden)			<u>e</u>
Plenary Room			GRAIN LEGUMES ENSURE REDUC- TION IN EMISSIONS OF ARABLE SECTOR TO MITIGATE CLIMATE Véronique Biarnès (France)	Coffee break			VARIATION IN RAFFINOSE FAMILY OLIGOSACCHARIDE PROFILE IN PEA SEEDS IMPACTS THE HUMAN GUT MICRO- BIOTA AND FERMENTATION METABOLITE COMPOSITION Aryana Zardkoohi-Burgos (United Kingdom)	Lunch			LEGUME AND HERB BASED SPECIAL SEED MIXTURES FOR GREENING THE TRAM TRACKS Tomas Vymyslicky (Czech Republic)	Coffee break	Poster view	ILS FOOTBALL C
			PRODUCTIVITY OF INTERCROPPING GRAIN LEGUME WITH WINTER CEREAL IN THE WESTERN MEDI- TERRANEAN Louise Blanc (Spain)				COMBINATION OF THREE NULL MUTATIONS IN Pisum sativum L. IMPACTS POSITIVELY ON DIGESTIBILITY Raquel Olias Sánchez (Spain)				CULTIVAR DIFFERENCES IN ROOT DEVELOPMENT AND DEPTH OF FORAGE LEGUMES Nawa Raj Dhamala (Denmark)			
			BETTER TOGETHER: INTERCROP- PING FIELD PEA (Pisum sativum) AND FABA BEANS (Vicia faba) FOR INCREASED PRODUCTIVITY AND RESILIENCE IN A NORTH WESTERN EUROPEAN CLIMATE Sheila Alves (Ireland)				EFFECTS OF PARTIAL SUBSTITUTION OF GRASS SILAGE WITH RED CLOVER SILAGE ON MILK PRODUCTION AND METHANE EMISSION IN DAIRY COWS Olli Pitkänen (Finland)				GENETICS OF DOMESTICATION IN COMMON BEAN (Phaseolus vulgaris L.): AN APPROACH FOR THE ANAL- YSIS OF CANDIDATE GENES VIA TILLING-BY-SEQUENCING Francesca Sparvoli (Italy)			
			BELOWGROUND INTERACTIONS – THE KEY TO FUTURE RESILIENT AND SUSTAINABLE LEGUME BASED CROPPING SYSTEMS? Dorte Bodin Dresbøll (Denmark)				CHEMOMETRIC ANALYSIS OF GRASS PEA (Lathyrus sativus L.) USING ATR-FTIR SPECTROSCOPY: PREDICTIVE MODELS FOR ODAP AND HOMOARGININE CONTENTS Elsa Mecha (Portugal)				CHARACTERIZATION OF A FABA BEAN DIVERSITY PANEL: PHENOTYPIC ANALYSIS AND GENOME-WIDE ASSOCIATIONS FOR AGRONOMIC AND SEED QUALITY TRAITS Åsa Grimberg (Sweden)			

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Thursday 21st September

	09:00 09:30	09:30 10:15	10:15 10:45	10:45 11:15	i 11:15 11:45	11:45 12:30	12:30 13:00	13:00 14:45	14:45 15:15	15:15 16:00	16:00 16:30	17:00 18:15	21:00
	Sessi Cha	on 5. Genetics and omics-l nir: Tom Warkentin (Canada	based crop improvement), Nadim Tajey (France)		Session 6. (Chair	Crop breeding: challenges, tools, s s: Antonio De Ron (Spain), Garry	s <mark>trategies and achievements</mark> Rosewarne (Australia)		Session Chairs: Cl	7. Physiology, biochemis pristophe Salon (France), N	t <mark>ry and systems biology</mark> loel Ellis (United Kingdom)		USU.
	Key Speaker	Talks	Flash presentations		Key Speaker	Talks	Flash presentations		Key Speaker	Talks	Flash presentations		
	Sukhjiwan Kaur (Australia)	A FABA BEAN PAN-GENOME FOR ADVANCING SUSTAINABLE PROTEIN SECURITY Alan Schulman (Finland)	DIVERGENCE IN GENOME STRUC- TURE AND FUNCTION UNDERPIN- NING ROOT SYSTEMS IN LEGUMES Yimg Sun (USA)		Isabel Roldán-Ruiz (Belgium)	BULK SELECTION AND EVOLUTION- ARY POPULATIONS AS LOW-COST BREEDING STRATEGIES TO COPE WITH INCREASING CLIMATE VARIA- TION: A FORMAL ASSESSMENT FOR PEA IN DIFFERENT TARGET REGIONS Paolo Annicchiarico (Italy)	CLIMATE-FRIENDLY PEA AND SOYBEAN BREEDING FOR WEST- ERN CANADA Tom Warketin (Canada)		Jérôme Verdier (France)	IDENTIFICATION OF MENDEL'S POD COLOUR CHARACTER IN PEA: CHARACTERISATION OF THE ALLELE CONDITIONING YELLOW POD COLOUR Julie Hofer (United Kingdom)	NUCLEOTIDE METABOLISM IN COMMON BEAN FRUITS DURING SEED FILLING PHASE Mercedes Díaz (Spain)		
		GENOMIC SELECTION FOR ALFALFA: THE CHALLENGE OF THE AUTOTETRAPLOID GENOME Nelson Nazzicari (Italy)	ALTERED FEEDBACK REGULATION OF SHOOT BRANCHING BOOSTS CROP YIELD IN FIELD PEA Simon Michelmore (Australia)			INFRARED THERMAL IMAGING TO Evaluate lentil wild genotypes for drought tolerance Navya Beera (Australia)	ACCELERATING LENTIL BREED- ING: THE EFFICIENCY OF A MOD- IFIED SINGLE SEED DESCENT BREEDING METHOD UNDER AN EXTENDED PHOTOPERIOD-BASED SPEED BREEDING Mohammed Mitache (Morocco)			ELUCIDATING THE ROLE OF NF-YB TRANSCRIPTION FACTORS IN PEA SEED DEVELOPMENT Yara Noureddine (France)	DOMESTICATION HAS ALTERED GENE EXPRESSION AND SECONDARY METABOLITES IN PEA SEED COAT Petr Smykal (Czech Republic)		
		GENETIC DISSECTION OF SEED PROTEIN CONCENTRATION IN PEA USING MULTIPLE DIVERSE MAPPING POPULATIONS Krishna Kishore Gali (Canada)	GENETIC BASIS OF MICROBIOME RECRUITMENT IN PEA ROOTS CHALLENGED BY ROOT ROT DISEASE Michael Schneider (Switzerland)			BREEDING BY EDITING-USING GENOME EDITING TO CREATE DETER- MINATE COWPEA VARIETIES Tal Sherman (Israel)	LEGUME CROP DEVELOPMENT CONSIDERATIONS FOR PLANT- BASED MEAT David Hunt (USA)			CHARACTERIZATION OF FACTORS CONTROLLING THE END OF FLOWERING IN PEA Cristina Ferrandiz (Spain)	PEXOPHAGY IN SUG- AR-STARVED EMBRYONIC AXES OF GERMINATING LUPIN (Lupinus spp.) SEEDS Karolina Wleklik (Poland)		
Plenary Room			UNRAVELING THE GENOMIC LANDSCAPE OF DELETERIOUS MUTATIONS IN COMMON BEANS Henry Alexander Cordoba Novaa (Canada)	Coffee break			MODELLING DEPLOYMENT OF 21st CENTURY BREEDING TECHNOLO- GIES TO MAXIMISE GENETIC GAIN Garry Rosewarne (Australia)	Lunch	*	* 	beta-CONGLUTINS' MOBILE ARM IS CRUCIAL IN THE NUTRACEUTICAL PROPERTIES OFBLUE LUPIN Julia Escudero Feliu (Spain)	ILS General Assembly	1
			SPATIO-TEMPORAL TRANSCRIP- TOME AND STORAGE COMPOUND PROFILES OF DEVELOPING FABA BEAN (Vicia faba) SEED TISSUES Åsa Grimberg (Sweden)				GENOMIC SELECTION FOR PEA GRAIN YIELD AND PROTEIN CONTENT: PREDICTIVE ABILITY FOR INDEPENDENT ITALIAN ENVIRONMENTS AND FOR TAR- GET AND NON-TARGET GENETIC BASES Margherita Crosta (Italy)				FREQUENCY OF OUTCROSSING AND ISOLATION DISTANCE IN FABA BEAN Kedar Adhikari (Australia)		
			NMR METABOLOME-GENOME WIDE ASSOCIATION STUDY REVEALS GENOMIC REGIONS CONTROLLING GRASS PEA METABOLIC QUALITY: IMPLICATIONS FOR PRECISION BREEDING AND IMPROVED DIETS Maria Carlota Vaz Patto (Portugal)				TOWARDS RELIABLE, INFORM- ATIVE, COST-EFFECTIVE GENO- TYPING TOOLS FOR THE TOOLBOX OF GRAIN LEGUME BREEDERS Grégoire Aubert (France)				PEA RESILIENCE TO WATER DEFICITS: TOLERANCE, ACCLIMATION, AND STRESS MEMORY OF THE NODULATED ROOT SYSTEM Marion Prudent (France)		
			CONTROL OF THE NUMBER OF FLOWERS AND ARCHITECTURE OF THE INFLORESCENCE OF LEGUMES BY RAX-TYPE MYB TRANSCRIPTION FACTORS Francisco Madueño (Spain)				GRAIN LEGUME RE-DIVERSIFICA- TION THROUGH TRANSDISCIPLI- NARY BREEDING APPROACHES Sebastian Kussman (Switzerland)				SHOULD WE MEASURE FORAGE LEGUME TOTAL CONDENSED TANNINS OR PROTEIN-PRECIPITATING POLYPHENOLICS? James Muir (USA)		
La soleá flamenco													Gala dinner

flamenco restaurant Fourth International Legume Society Conference 202 19-22 September • Granada Conference Center• Granada Spain



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Friday 22nd September

	09:00 09:30	09:30 10:15	10:15 10:45	10:45 11:15	11:15 11:45	11:45 12:15	12:15 12:45	13:00 14:45	14:45 15:15	15:15 16:00	16:00 16:30	16:30 17:00
	Sess Chairs: Pe	i <mark>on 8. Beneficial legume plant</mark> ete lannetta (United Kingdom), l	t- <mark>microbe interactions</mark> Maria Jesus Delgado (Spain)	100	Session Chairs: C	Session 9. Understanding and enhancing legume crop tolerance to abiotic stresses Chairs: Carlota Vaz Patto (Portugal), Isabelle Leieune-Hengut (France)			Session. 10 Understanding and enhancing legume crop tolerance to biotic stresses Chairs: Diego Rubiales (Spain), Marie-Laure Pilet-Navel (France)			
	Key Speaker	Talks	Flash presentations		Key Speaker	Talks	Flash presentations		Key Speaker	Talks	Flash presentations	
	Dulce Nombre Rodríguez Navarro (Spain)	GENETIC BASES OF VARIATION IN PLANT ARCHITECTURE AND RHIZOBIAL PARTNER CHOICE ALONG THE PEA DOMESTICATION GRADIENT Virginie Bourion (France)	CATCHING RHIZOBIA TO INTRODUCE HIGH PROTEIN CONTAINING SOYBEAN FOR A SUSTAINABLE AGRICULTURE IN EUROPE Sonia García Méndez (Belgium)		Kadambot Siddique (Australia)	TRANSCRIPTOMIC AND ECOPHYSIO- LOGICAL ANALYSES REVEALED CON- TRASTED SOYBEAN MINERAL NUTRI- TION UNDER INDIVIDUAL OR COMBINED HEAT AND WATER STRESSES Marion Prudent (France)	PROBING THE ROLE OF miRNAs IN THE EVOLUTION OF CLUSTER ROOTS IN WHITE LUPIN Soledad Traubenik (France)		Sabine Banniza (Canada)	MULTIPLE ALLELIC VARIANTS OF THE NOVEL ALAVRI EFFECTOR IN Ascochyta lentis PROVIDE INSIGHTS INTO HOST SPECIFICITY OF Ascochyta blight IN LENTIL Bernadette Henares (Australia)	EARLY INDICATION OF A SECOND SHIFT IN THE PATHOGENICITY OF Ascochyta fabae ISOLATES IN THE PATHOGEN POPULATION IN SOUTHERN AUSTRALIA Sara Blake (Australia)	
		DAT PROTEIN IS INVOLVED IN HOMOSERINE CATABOLISM AND CONTRIBUTES TO SYMBIOTIC PERFORMANCE AND COMPET- ITIVENESS IN THE Rhizobium leguminosarum/ Pisum sativum SYSTEM Marta Ballesteros (Spain)	NITROGEN FIXATION OF SOYBEAN AND LUPINE IN SWEDEN: DOES CULTIVAR MATTER? Fede Berckx (Sweden)			GWAS AS A STALWART AGENT IN THE ENDEAVOR TO UNDERSTANDING WATER STRESS RESILIENCE IN GRAIN LEGUMES Matilde Sanches (Portugal)	SILICON SUPPLEMENTATION IMPROVES SYMBIOTIC NITRO- GEN-FIXATION EFFICIENCY IN LENTIL UNDER DROUGHT STRESS Sajitha Biju (Australia)			ISOLATION AND IDENTIFICATION OF COMPOUNDS PRODUCED BY THE NECROTROPHIC FUNGI Ascochyta fabae UNDER IN VITRO GROWTH CONDITIONS ON ITS PRIMARY HOST AND OTHER RELATED LEGUME SPECIES Eleonora Barilli (Spain)	EXPLORING PHYTOTOXIC METAB- OLITES FROM <i>Colletotrichum spp</i> INVOLVED IN LEGUME DISEASES BY APPLYING TARGETED AND UNTARGETED METABOLOMICS Pierluigi Reveglia (Spain)	
		SEED-ASSOCIATED MICROBIOTA FROM LEGUMES: AN UNEXPLORED WORLD FULL OF NEW CHALLENG- ES AND OPPORTUNITIES Juan Ignacio Vilchez (Portugal)	BIOLOGICAL NITROGEN FIXATION BY SOYBEAN (<i>Glycine max</i> [L.] MERR.), A NOVEL, HIGH PROTEIN CROP IN SCOTLAND, REQUIRES INOCULATION WITH NON-NATIVE BRADYRHIZOBIA Chrizelle Krynauw (United Kingdom)			CHEMICAL DIVERSITY OF THE ROOT-SECRETED METABOLITES IN RESPONSE TO IRON DEFICIENCY IN THE FABACEAE FAMILY Ana Álvarez-Fernández (Spain)				A REPERTOIRE OF PISUM IMMUNE RECEPTORS SUPPORTED THE DIS- COVERY OF NEW DOWNY MILDEW RESISTANCE Sanu Arora (United Kingdom)	ALTERATION OF TRANSCRIPTOME PROFILE IN CHICKPEA POD WALL DUE TO SIMULATED HERBIVORY Sumita Acharjee (India)	
Plenary Room		E T B [1 N R	EVALUATION OF SYMBIOTIC POTEN- TIALS OF ADAPTED BRADYRHIZO- BIUM STRAINS ON SOYBEAN [Glycine max (L.) MERRILL] YIELD IN NORTHEAST GERMANY Richard Ansong Omari (Germany)	Coffee break			MINING AN INTERSPECIFIC CHICKPEA POPULATION FOR HEAT TOLERANCE Sophie Duchesne (Canada)	Lunch			HIGH-DENSITY LINKAGE MAPPING AND GENETIC DISSECTION OF RESISTANCE TO BROOMRAPE (Orobanche crenata FORSK.) IN PEA (Pisum sativum L.) Chiara Delvento (Italy)	Awards/Closing
			DNA METABARCODING FOR THE CHARACTERIZATION OF THE SOIL BACTERIAL AND FUNGAL COMMUNITIES UNDER ORGANIC AND CONVENTIONAL FARMING SYSTEMS Ana Campa (Spain)				PLASTICITY IN STOMATA MORPHOLOGY AND THEIR IMPLICATIONS FOR DROUGHT ADAPTATION IN FABA BEAN (Vicia faba) Tomke Susanne Wacker (Denmark)				TISSUE - SPECIFIC EXPRESSION PATTERNS OF RESISTANCE GENES: A COMPARATIVE STUDY OF LEGUME NLR IMMUNE RECEPTORS Rita Marques (Portugal)	
			BIOPROTECTIVE ROLE AND ENHANCEMENT OF BIOLOGICAL NITROGEN FIXATION BY SAPRO- PHYTIC FUNGI IN <i>Phaseolus vulgaris</i> PLANTS AFTER PENDIMETHALIN APPLICATION Miguel López Gómez (Spain)				ROOT METABOLIC ADAPTA- TION TO IRON DEFICIENCY IN SOYBEAN: THE IMPORTANCE OF COUMARINS SECRETION Jorge Rodríguez-Celma (Spain)				COMPARATIVE TRANSCRIPTOM- ICS REVEALS ACCESSION AND TIME-POINT-SPECIFIC GENE EXPRESSION PATTERNS IN GRASS PEA (Lathyrus sativus) UPON Erysiphe pisi INFECTION Carmen Santos (Portugal)	
				NATIVE TRICHODERMA STRAINS TO IMPROVE DEFENSE RESPONSE AND DEVELOPMENT OF DRY BEAN (Phaseolus vulgaris) Pedro Casquero (Spain)				SUGAR AND AMINO ACID EXHIBIT DIFFERENT SPATIAL PATTERNS OF EXUDATION IN RESPONSE TO WATER STRESS AND N NUTRI- TION IN <i>Pisum sativum</i> Aude Tixie (France)				A TRAIT-BASED APPROACH TO UNDERSTAND SOYBEAN AND LU- PIN COMPETITIVENESS AGAINST DIVERSE WEED COMMUNITY James Ajai (Sweden)



Fourth International Legume Society 2

19-22 September Granada Conference Center Granada Spain

Scientific Program

Tuesday 19th September

15:30-16:00h. Opening Ceremony 16:00-16:10h. ILS. Where do we stand?

Speaker:

Paolo Annicchiarico CREA's Centre for Animal Production and Aquaculture. Lodi. Italy

16:10-16:15h. Legume Science journal presentation

16:15-17:30h. Session 1. Legume-based value chains: innovation and optimization

Chairpersons:

Frédéric Muel Terres Inovia. Thivernal-Grignon. France

Sherrilyn Phelps

Invited speaker:

Bálint Balázs

Senior research fellow and managing director of ESSRG Nonprofit Ltd. Budapest. Hungary

Oral presentations:

DRY FRACTIONATION AS A TOOL TO SUSTAINABLY INNOVATE THE LEGUME VALUE CHAIN AND SUPPORT THE VAL-ORIZATION OF MARGINAL AREAS

Davide De Angelis (Italy)

TRAIT PREFERENCES AND LENTILS VA-RIETAL ADOPTION IN CENTRAL ETHIO-PIA: A MULTISTAKEHOLDER APPROACH

Dina Najjar (Morocco)

MAKING ROOM FOR LEGUMES: A CON-SUMERS PERSPECTIVE ON LEGUMES INCORPORATION ON PROCESSED PRODUCTS

Ana Ines Estevez Magnasco (Germany)

17:30-18:00h. Coffee break 18:00-18:15h. A life for legumes. #1

Speaker:

Aleksandar Mikić, told by Petr Smykal

Professor in Department of Botany, Faculty of Sciences, Palacky University, Czech Republic

18:15-18:45h. A life for legumes. #2

Invited speaker:

Noel Ellis

Senoir Scientist. John Innes Centre. Norwich Research Park. Norwich NR4 7UH. United Kingdom

20:00h. WELCOME RECEPTION

María de la O Restaurant

Wednesday 20th September

09:00-10:45h. Session 2. Legume-based cropping system: performance, ecosystem services and profitability

Chairperson:

Frederick Stoddard

Senior University Lecturer. Department of Agricultural Sciences of the University of Helsinki. Finland

Christine Watson

Professor of Agricultural Systems, SRUC, Aberdeen, United Kingdom.

Invited speaker:

CLOSING THE LEGUME GAP – FOR PEO-PLE, PLANET AND PROFIT

Christine Watson

Professor of Agricultural Systems, SRUC, Aberdeen, United Kingdom.

Oral presentations:

DOES WHEAT-SOYBEAN IN RELAY CROPPING OUTCOMPETE SEQUENTIAL DOUBLE CROPPING? DEVELOPING INNO-VATIVE DIVERSIFICATION STRATEGIES

Daniel Plaza Bonilla (Spain)

POTENTIAL OF GRAIN LEGUME PRODUCTION TO SUBSTITUTE ANI-MAL-BASED PROTEINS IN EUROPE Marloes Van Loon (Netherlands)



*All the sessions will be held in the Plenary Room (Sala Manuel de Falla)

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Fourth International Legume Society 2 Conference

COMPARING THE CROP SEQUENCES WITH LEGUMES AT RESEARCH AND COMMERCIAL SCALE

Tony Swan (Australia)

Flash presentations:

ROLE OF LEGUMES TO IMPROVE RE-SEILENCE OF SE AUSTRALIAN FARM-ING SYSTEMS

Razlin Mohd Azman Halimi (Australia)

PARTICIPATORY PROJECT DESIGN TO INTRODUCE A NEW CROP IN SWEDEN

Iris Dahlin (Sweden)

INTERCROPPING WITH FABA BEAN IMPROVES MINERAL NUTRITION, GROWTH, AND YIELD OF WHEAT UN-DER THE COMBINED STRESS OF WA-TER DEFICIT AND P LIMITATION

Imane Chamkhi (Morocco)

GRAIN LEGUMES ENSURE REDUCTION IN EMISSIONS OF ARABLE SECTOR TO MITIGATE CLIMATE

Véronique Biarnès (France)

PRODUCTIVITY OF INTERCROPPING GRAIN LEGUME WITH WINTER CEREAL IN THE WESTERN MEDITERRANEAN

Louise Blanc (Spain)

BETTER TOGETHER: INTERCROPPING FIELD PEA (*Pisum sativa*) AND FABA BEANS (*Vicia faba*) FOR INCREASED PRODUCTIVITY AND RESILIENCE IN A NORTH WESTERN EUROPEAN CLIMATE

Sheila Alves (Ireland)

BELOWGROUND INTERACTIONS – THE KEY TO FUTURE RESILIENT AND SUS-TAINABLE LEGUME BASED CROPPING SYSTEMS?

Dorte Bodin Dresbøll (Denmark)

10:45-11:15h. Coffee break

11:15-13:00h. Session 3. Legumes for human and animal nutrition and health

Chairpersons:

Alfonso Clemente EEZ-CSIC. Granada. Spain

Claire Domoney

Invited speaker:

IS CONVENIENCE AT ODDS WITH NU-TRITION AND HEALTH? COMPARING WHOLE BEANS WITH BEAN FLOURS Karen A. Cichy

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Research Plant Geneticist. Sugarbeet and Bean Research Unit. USDA- Agriculture Research Service. East Lansing. Michigan. USA

Oral presentations:

MINING NATURAL DIVERSITY TO DIS-COVER THE GENETIC BASIS OF QUALI-TY TRAITS IN PEA

Ahmed Omar Warsame (United Kingdom)

CREATING SAPONIN-FREE YELLOW PEA SEEDS BY CRISPR/CAS9-ENABLED MU-TAGENESIS ON B-AMYRIN SYNTHASE

Dae-Kyun Ro (Canada)

PsSULTR4 IS THE ONLY VACUOLAR SULFATE TRANSPORTER IN PEA AND A KEY DETERMINANT OF SEED PRO-TEIN COMPOSITION EVEN UNDER SULFUR-SUFFICIENT CONDITIONS

Fanélie Bachelet (France)

Flash presentations:

CAN WE INCREASE THE OIL CONTENT OF COWPEA SEEDS?

Jose Barrero (Australia)

NARROW-LEAFED LUPIN (Lupinus angustifolius.)β-CONGLUTIN SEED PROTEINS POTENTIAL USE IN THE PREVENTION AND TREATMENT OF BREAST CANCER

Julia Escudero Feliu (Spain)

IN VIVO INTERNALIZATION DYNAMICS OF SOYBEAN PROTEASE ISOINHIBI-TORS, IBB1 AND IBBD2, OF THE BOW-MAN-BIRK FAMILY IN HT29 COLOREC-TAL CANCER CELLS

Alfonso Clemente (Spain)

VARIATION IN RAFFINOSE FAMILY OLIGOSACCHARIDE PROFILE IN PEA SEEDS IMPACTS THE HUMAN GUT MICROBIOTA AND FERMENTATION ME-TABOLITE COMPOSITION

Aryana Zardkoohi-Burgos (United Kingdom)

Technical Secretariat: Fase200 C/Mczárabe 1 Edit. Parquei Local 2 - 18006 Grana tol. +34 958 20 35 11 - Fact +34 958 20 35 50 www.fase20.com - info@fase20.com *All the sessions will be held in the Plenary Room (Sala Manuel de Falla)



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COMBINATION OF THREE NULL MU-TATIONS IN Pisum sativum L. IMPACTS POSITIVELY ON DIGESTIBILITY

Raquel Olías Sánchez (Spain)

EFFECTS OF PARTIAL SUBSTITUTION OF GRASS SILAGE WITH RED CLOVER SILAGE ON MILK PRODUCTION AND METHANE EMISSION IN DAIRY COWS Olli Pitkänen (Finland)

CHEMOMETRIC ANALYSIS OF GRASS PEA (Lathyrus sativus L.) USING ATR-FTIR SPECTROSCOPY: PREDIC-TIVE MODELS FOR ODAP AND HO-MOARGININE CONTENTS

Elsa Mecha (Portugal)

13:00-14:45h. Lunch

14:45-16.30h. Session 4. Biodiversity and genetic resource exploitation

Paolo Annicchiarico

CREA's Centre for Animal Production and Aquaculture. Lodi. Italy

Eric Bishop-von Wettberg

Professor. University of Vermont. Burlington VT. USA

Invited speaker:

THE COMPLEX EVOLUTIONARY HISTO-RY OF COMMON BEAN

Roberto Papa Università delle Marche. Italy

Università delle Marche. Italy

Oral presentations:

LEVERAGING LANDRACE DIVERSI-TY: BRIDGING THE GAP BETWEEN KEY TRAITS AND GENOMIC LOCI FOR BREEDING IN COMMON BEAN

Lorenzo Raggi (Italy)

GENETIC BASIS OF POD TRAITS RELAT-ED TO DOMESTICATION AND CONSUM-ER PREFERENCE IN COMMON BEAN

Travis Parker (USA)

EARLY LEGUME DOMESTICATION FAVORED FAST GROWTH AND RE-SOURCE-CAPTURE

Rafael Rubio de Casas (Spain)

Flash presentations:

EFFECTS OF CLIMATE CHANGE ON THE DISTRIBUTION OF LENS GENUS: A MODELLING APPROACH FOR IDENTIFY-ING CONSERVATION PRIORITIES

Salma Rouichi (Morocco)

APPLIED GENOMICS FOR IDENTIFICA-TION OF CAUSATIVE MUTATIONS IN SOYBEAN

Maria Škrabišová (Czech Republic

NUTRITIVE VALUE OF WILD LEGUME SPECIES GROWN IN A GRASSLAND AG-RICULTURAL SYSTEM

Brooke Micke (Sweden)

LEGUME AND HERB BASED SPECIAL SEED MIXTURES FOR GREENING THE TRAM TRACKS

Tomas Vymyslicky (Czech Republic)

CULTIVAR DIFFERENCES IN ROOT DE-VELOPMENT AND DEPTH OF FORAGE LEGUMES

Nawa Raj Dhamala (Denmark)

GENETICS OF DOMESTICATION IN COMMON BEAN (*Phaseolus vulgaris* L.): AN APPROACH FOR THE ANALY-SIS OF CANDIDATE GENES VIA TILL-ING-BY-SEQUENCING

Francesca Sparvoli (Italy)

CHARACTERIZATION OF A FABA BEAN DIVERSITY PANEL: PHENOTYPIC ANALYSIS AND GENOME-WIDE ASSO-CIATIONS FOR AGRONOMIC AND SEED QUALITY TRAITS

Åsa Grimberg (Sweden)

16:30-17:00h. Coffee break

17:00-18:30h. Poster view

Poster zone

20:00-22:00h. ILS FOOTBALL CUP Football camp

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Thursday 21st September

09:00-10:45h. Session 5. Genetics and omics-based crop improvement

Chairpersons:

Tom Warkentin

Professor. Crop Development Centre/Department of Plant Sciences. University of Saskatchewan. Saskatchewan. Canada

Nadim Tayeh

Researcher and principal investigator. National Institute for Agriculture, Food and Environment (INRAE). Dijon. France.

Invited speaker:

SOWING THE FUTURE: PREDICTIONS, SIMULATION & SPEED BREEDING FOR LEGUMES

Sukhjiwan Kaur

Senior Research Scientist- Genomic and Predictive Breeding. Agriculture Victoria. Melbourne. Australia

Oral presentations:

A FABA BEAN PAN-GÉNOME FOR AD-VANCING SUSTAINABLE PROTEIN SE-CURITY

Alan Schulman (Finland)

GENOMIC SELECTION FOR ALFAL-FA: THE CHALLENGE OF THE AUTO-TETRAPLOID GENOME

Nelson Nazzicari (Italy)

GENETIC DISSECTION OF SEED PROTEIN CONCENTRATION IN PEA USING MULTI-PLE DIVERSE MAPPING POPULATIONS

Krishna Kishore Gali (Canada)

Flash presentations:

DIVERGENCE IN GENOME STRUCTURE AND FUNCTION UNDERPINNING ROOT SYSTEMS IN LEGUMES

Ying Sun (Usa)

ALTERED FEEDBACK REGULATION OF SHOOT BRANCHING BOOSTS CROP YIELD IN FIELD PEA

Simon Michelmore (Australia)

GENETIC BASIS OF MICROBIOME RE-CRUITMENT IN PEA ROOTS CHAL-LENGED BY ROOT ROT DISEASE

Michael Schneider Schneider (Switzerland)

UNRAVELING THE GENOMIC LAND-SCAPE OF DELETERIOUS MUTATIONS IN COMMON BEANS

Henry Alexander Cordoba Novoa (Canada)

SPATIO-TEMPORAL TRANSCRIPTOME AND STORAGE COMPOUND PROFILES OF DEVELOPING FABA BEAN (Vicia faba) SEED TISSUES

Åsa Grimberg (Sweden)

NMR METABOLOME-GENOME WIDE ASSOCIATION STUDY REVEALS GENOMIC REGIONS CONTROLLING GRASS PEA METABOLIC QUALITY: IM-PLICATIONS FOR PRECISION BREED-ING AND IMPROVED DIETS

Maria Carlota Vaz Patto (Portugal)

CONTROL OF THE NUMBER OF FLOW-ERS AND ARCHITECTURE OF THE IN-FLORESCENCE OF LEGUMES BY RAX-TYPE MYB TRANSCRIPTION FACTORS

Francisco Madueño (Spain)

10:45-11:15h. Coffee break

11:15-13:00h. Session 6. Crop breeding: challenges, tools, strategies and achievements

Chairperson:

Antonio M. De Ron

Ad Honorem Professor. Misión Biológica de Galicia (MBG), Spanish National Research Council (CSIC). Pontevedra. Spain

Garry Rosewarne

Research Director, Agriculture Victoria, Horsham Vic., Australia

Invited speaker:

BREEDING PERENNIAL LEGUMES: CHALLENGES AND OPPORTUNITIES

Isabel Roldán-Ruiz

Scientific Director. Plant Sciences Unit. Research Institute for Agriculture Fisheries and Food (ILVO). Belgium



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Oral presentations:

BULK SELECTION AND EVOLUTION-ARY POPULATIONS AS LOW-COST BREEDING STRATEGIES TO COPE WITH INCREASING CLIMATE VARIA-TION: A FORMAL ASSESSMENT FOR PEA IN DIFFERENT TARGET REGIONS

Paolo Annicchiarico (Italy)

INFRARED THERMAL IMAGING TO EVALUATE LENTIL WILD GENOTYPES FOR DROUGHT TOLERANCE

Navya Beera (Australia)

BREEDING BY EDITING-USING GE-NOME EDITING TO CREATE DETERMI-NATE COWPEA VARIETIES

Tal Sherman (Israel)

Flash presentations:

CLIMATE-FRIENDLY PEA AND SOYBEAN BREEDING FOR WESTERN CANADA

Tom Warketin (Canada)

ACCELERATING LENTIL BREEDING: THE EFFICIENCY OF A MODIFIED SIN-GLE SEED DESCENT BREEDING METH-OD UNDER AN EXTENDED PHOTOPER-IOD-BASED SPEED BREEDING

Mohammed Mitache (Morocco)

LEGUME CROP DEVELOPMENT CON-SIDERATIONS FOR PLANT-BASED MEAT David Hunt (USA)

MODELLING DEPLOYMENT OF 21st CENTURY BREEDING TECHNOLOGIES TO MAXIMISE GENETIC GAIN

Garry Rosewarne (Australia)

GENOMIC SELECTION FOR PEA GRAIN YIELD AND PROTEIN CONTENT: PRE-DICTIVE ABILITY FOR INDEPENDENT ITALIAN ENVIRONMENTS AND FOR TAR-GET AND NON-TARGET GENETIC BASES

Margherita Crosta (Italy)

TOWARDS RELIABLE, INFORMATIVE, COST-EFFECTIVE GENOTYPING TOOLS FOR THE TOOLBOX OF GRAIN LEGUME BREEDERS

Grégoire Aubert (France)

GRAIN LEGUME RE-DIVERSIFICA-TION THROUGH TRANSDISCIPLINARY BREEDING APPROACHES

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Sebastian Kussmann (Switzerland)

13:00-14:45h. Lunch

14:45–16:30h. Session 7. Physiology, biochemistry and systems biology

Chairpersons:

Christophe Salon Research Manager. INRAE. Dijon. France

Noel Ellis

Senoir Scientist. John Innes Centre. Norwich Research Park. Norwich NR4 7UH. United Kingdom

Invited speaker:

SEED AND SEEDLING PERFORMANC-ES UNDER HEAT STRESS Jérôme Verdier

INRAE Researcher at the Research Institute in Horticulture and Seeds (IRHS) located in Angers. France

Oral presentations:

IDENTIFICATION OF MENDEL'S POD COLOUR CHARACTER IN PEA: CHAR-ACTERISATION OF THE ALLELE CON-DITIONING YELLOW POD COLOUR

Julie Hofer (United Kingdom)

ELUCIDATING THE ROLE OF NF-YB TRANSCRIPTION FACTORS IN PEA SEED DEVELOPMENT

Yara Noureddine (France)

CHARACTERIZATION OF FACTORS CONTROLLING THE END OF FLOWER-ING IN PEA

Cristina Ferrandiz (Spain)

Flash presentations:

NUCLEOTIDE METABOLISM IN COM-MON BEAN FRUITS DURING SEED FILLING PHASE

Mercedes Díaz (Spain)

DOMESTICATION HAS ALTERED GENE EXPRESSION AND SECONDARY ME-TABOLITES IN PEA SEED COAT

Petr Smykal (Czech Republic)



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PEXOPHAGY IN SUGAR-STARVED EM-BRYONIC AXES OF GERMINATING LU-PIN (Lupinus spp.) SEEDS

Karolina Wleklik (Poland)

beta-CONGLUTINS' MOBILE ARM IS CRUCIAL IN THE NUTRACEUTICAL PROPERTIES OFBLUE LUPIN

Julia Escudero Feliu (Spain)

FREQUENCY OF OUTCROSSING AND ISOLATION DISTANCE IN FABA BEAN

Kedar Adhikari (Australia)

PEA RESILIENCE TO WATER DEFICITS: TOLERANCE, ACCLIMATION, AND STRESS MEMORY OF THE NODULATED ROOT SYSTEM

Marion Prudent (France)

SHOULD WE MEASURE FORAGE LEG-UME TOTAL CONDENSED TANNINS OR PROTEIN-PRECIPITATING POLYPHE-NOLICS?

James Muir (USA)

16:30–17:00h. Coffee break 17:00–18:15h. ILS General Assembly 21:00h. Gala Dinner & Flamenco Show

La Soleá flamenco restaurant

Friday 22nd September

09:00-10:45h. Session 8. Beneficial legume plant-microbe interactions

Chairpersons:

Pete lannetta

Department of Ecological Sciences. James Hutton Institute. Scotland. UK. Senior Scientist. CBFQ. Universidade Católica Portuguesa. Porto. Portugal

Maria Jesús Delgado

Senior Researcher. CSIC. Soil and Plant Microbiology Departament. Estación Experimental del Zaidín. Granada. Spain

Invited speaker:

ROLE OF BENEFICICIAL MICROBES IN LEGUME MANAGEMENT Dulce Nombre Rodríguez Navarro

Scientific Researcher. Sevilla. Spain

Oral presentations:

GENETIC BASES OF VARIATION IN PLANT ARCHITECTURE AND RHIZOBI-AL PARTNER CHOICE ALONG THE PEA DOMESTICATION GRADIENT

Virginie Bourion (France)

DAT PROTEIN IS INVOLVED IN HOMO-SERINE CATABOLISM AND CONTRIB-UTES TO SYMBIOTIC PERFORMANCE AND COMPETITIVENESS IN THE Rhizobium leguminosarum/Pisum sativum SYSTEM

Marta Ballesteros (Spain)

SEED-ASSOCIATED MICROBIOTA FROM LEGUMES: AN UNEXPLORED WORLD FULL OF NEW CHALLENGES AND OP-PORTUNITIES

Juan Ignacio Vílchez (Portugal)

Flash presentations:

CATCHING RHIZOBIA TO INTRODUCE HIGH PROTEIN CONTAINING SOYBEAN FOR A SUSTAINABLE AGRICULTURE IN EUROPE

Sonia García Méndez (Belgium)

NITROGEN FIXATION OF SOYBEAN AND LUPINE IN SWEDEN: DOES CUL-TIVAR MATTER?

Fede Berckx (Sweden)

BIOLOGICAL NITROGEN FIXATION BY SOYBEAN (*Glycine max*[L.] MERR.), A NOVEL, HIGH PROTEIN CROP IN SCOT-LAND, REQUIRES INOCULATION WITH NON-NATIVE BRADYRHIZOBIA

Chrizelle Krynauw (United Kingdom)

EVALUATION OF SYMBIOTIC POTEN-TIALS OF ADAPTED BRADYRHIZOBIUM STRAINS ON SOYBEAN [Glycine max (L.) MERRILL] YIELD IN NORTHEAST GERMANY

Richard Ansong Omari (Germany)

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DNA METABARCODING FOR THE CHARACTERIZATION OF THE SOIL BACTERIAL AND FUNGAL COMMUNI-TIES UNDER ORGANIC AND CONVEN-TIONAL FARMING SYSTEMS

Ana Campa (Spain)

BIOPROTECTIVE ROLE AND ENHANCE-MENT OF BIOLOGICAL NITROGEN FIXATION BY SAPROPHYTIC FUNGI IN Phaseolus vulgaris PLANTS AFTER PENDIMETHALIN APPLICATION

Miguel López Gómez (Spain)

NATIVE TRICHODERMA STRAINS TO IMPROVE DEFENSE RESPONSE AND DEVELOPMENT OF DRY BEAN (*Phaseolus vulgaris*)

Pedro Casquero (Spain)

10:45-11:15h. Coffee break

11:15-13:00h. Session 9. Understanding and enhancing legume crop tolerance to abiotic stresses

Chairpersons:

Maria Carlota Vaz Patto ITQB. Oeiras. Portugal

Isabelle Lejeune-Henaut

Invited speaker:

ENHANCING ABIOTIC STRESS TOL-ERANCE IN GRAIN LEGUMES: PHYS-IOLOGICAL AND MOLECULAR AP-PROACHES

Kadambot Siddique

Hackett Professor of Agriculture Chair and Director, The University of Western Australia, Perth, Australia

Oral presentations:

TRANSCRIPTOMIC AND ECOPHYS-IOLOGICAL ANALYSES REVEALED CONTRASTED SOYBEAN MINERAL NU-TRITION UNDER INDIVIDUAL OR COM-BINED HEAT AND WATER STRESSESA

Marion Prudent (France)

GWAS AS A STALWART AGENT IN THE ENDEAVOR TO UNDERSTANDING WA-

TER STRESS RESILIENCE IN GRAIN LEGUMES

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Matilde Sanches (Portugal)

CHEMICAL DIVERSITY OF THE ROOT-SECRETED METABOLITES IN RESPONSE TO IRON DEFICIENCY IN THE FABACEAE FAMILY

Ana Álvarez-Fernández (Spain)

Flash presentations:

PROBING THE ROLE OF miRNAs IN THE EVOLUTION OF CLUSTER ROOTS IN WHITE LUPIN Soledad Traubenik (France)

SILICON SUPPLEMENTATION IM-PROVES SYMBIOTIC NITROGEN-FIX-ATION EFFICIENCY IN LENTIL UNDER DROUGHT STRESS

Sajitha Biju (Australia)

MINING AN INTERSPECIFIC CHICKPEA POPULATION FOR HEAT TOLERANCE

Sophie Duchesne (Canada)

PLASTICITY IN STOMATA MORPHOL-OGY AND THEIR IMPLICATIONS FOR DROUGHT ADAPTATION IN FABA BEAN (Vicia faba)

Tomke Susanne Wacker (Denmark)

ROOT METABOLIC ADAPTATION TO IRON DEFICIENCY IN SOYBEAN: THE IMPOR-TANCE OF COUMARINS SECRETION

Jorge Rodríguez-Celma (Spain)

SUGAR AND AMINO ACID EXHIBIT DIF-FERENT SPATIAL PATTERNS OF EXUDA-TION IN RESPONSE TO WATER STRESS AND N NUTRITION IN Pisum sativum

Aude Tixier (France)

13:00-14:45h. Lunch

14:45-16:30h. Session 10. Understanding and enhancing legume crop tolerance to biotic stresses

Chairpersons:

Diego Rubiales IAS-CSIC. Córdoba. Spain



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Marie-Laure Pilet-Nayel

Research Director - INRAE. Institute of Genetics. Environment and Plant Protection. Rennes. France

Invited speaker:

CAN'T YOU JUST GENE-EDIT THAT PLANT TO MAKE MY PULSE CROP DIS-EASE RESISTANT?

Sabine Banniza

Professor and Strategic Research Chair in Pulse Crop Pathology. Crop Development Centre. University of Saskatchewan. Canada

Oral presentations:

MULTIPLE ALLELIC VARIANTS OF THE NOVEL ALAVR1 EFFECTOR IN Ascochvta lentis PROVIDE INSIGHTS INTO HOŠT SPECIFICITY OF Ascochyta blight IN LENTIL

Bernadette Henares (Australia)

ISOLATION AND IDENTIFICATION OF COMPOUNDS PRODUCED BY THE NE-CROTROPHIC FUNGI Ascochyta fabae UNDER IN VITRO GROWTH CONDI-TIONS ON ITS PRIMARY HOST AND OTHER RELATED LEGUME SPECIES

Eleonora Barilli (Spain)

A REPERTOIRE OF PISUM IMMUNE RE-CEPTORS SUPPORTED THE DISCOVERY OF NEW DOWNY MILDEW RESISTANCE

Sanu Arora (United Kingdom)

Flash presentations:

EARLY INDICATION OF A SECOND SHIFT IN THE PATHOGENICITY OF Ascochyta fabae ISOLATES IN THE PATHOGEN POPULATION IN SOUTHERN AUSTRALIA Sara Blake (Australia)

EXPLORING PHYTOTOXIC METABO-LITES FROM Colletotrichum spp. IN-VOLVED IN LEGUME DISEASES BY AP-PLYING TARGETED AND UNTARGETED METABOLOMICS

Pierluigi Reveglia Reveglia (Spain)

ALTERATION OF TRANSCRIPTOME PROFILE IN CHICKPEA POD WALL DUE TO SIMULATED HERBIVORY

Sumita Acharjee (India)

HIGH-DENSITY LINKAGE MAPPING AND GENETIC DISSECTION OF RESIST-ANCE TO BROOMRAPE (Orobanche crenata FORSK.) IN PEA (Pisum sativum L.)

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Chiara Delvento (Italy)

TISSUE - SPECIFIC EXPRESSION PATTERNS OF RESISTANCE GENES: A COMPARATIVE STUDY OF LEGUME NLR IMMUNE RECEPTORS

Rita Margues (Portugal)

COMPARATIVE TRANSCRIPTOM-ICS REVEALS ACCESSION AND TIME-POINT-SPECIFIC GENE EXPRES-SION PATTERNS IN GRASS PEA (Lathyrus sativus) UPON Erysiphe pisi INFECTIÓN

Carmen Santos (Portugal)

A TRAIT-BASED APPROACH TO UN-DERSTAND SOYBEAN AND LUPIN COMPETITIVENESS AGAINST DIVERSE WEED COMMUNITY

James Ajal (Sweden)

16:30-17:00h. Awards/Closing

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Posters

Session 2. Legume-based cropping systems: performance, ecosystem services and profitability

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16	CROP DIVERSIFICATION IN MEDITERRANEAN NO-TILL RAINFED AREAS – A STRATEGY TOWARDS N EFFICIENT CROPPING SYSTEMS?	Genís Si- mon-Miquel	Spain
25	SOIL MICROBIAL DIVERSITY MEDIATED BY LEGUME CROP MEA- SURED BY BIOLOG® ECOPLATES™ AND API-ZYM	María Carmen Asensio Man- zanera	Spain
44	PARTICIPATORY PROJECT DESIGN TO INTRODUCE A NEW CROP IN SWEDEN	Iris Dahlin	Sweden
49	EFFECT OF INTERCROPPING CHICKPEA (<i>Cicer arietinum</i>) WITH A COMPANION PLANT ON WEED CONTROL DURING EARLY GROWTH	Margaux Guy	France
52	INTERCROPPING OF FABA BEANS AND PEAS IN ORGANIC FARM- ING SYSTEMS	Dylan Wall- man	Sweden
56	INTERCROPPING WITH FABA BEAN IMPROVES MINERAL NUTRI- TION, GROWTH, AND YIELD OF WHEAT UNDER THE COMBINED STRESS OF WATER DEFICIT AND P LIMITATION	Cherki Ghou- Iam	Marocco
64	BARLEY – PEA INTERCROPPING: EFFECT OF SOWING DENSITY ON HAY YIELD	Abel Barrios	Spain
71	INTRODUCING SOYBEAN IN CROP ROTATIONS FOR CLIMATE CHANGE MITIGATION IN NORTH-EAST EUROPE	Monika Toleikiene	Lithuania
83	CEREAL-MAIZE VS. LEGUME-MAIZE DOUBLE-CROPPING: IM- PACT ON CROP PRODUCTIVITY AND NITROGEN DYNAMICS UN- DER IRRIGATED MEDITERRANEAN CONDITIONS	María Alon- so-Ayuso	Spain
88	YIELD RESPONSE OF TWO CHICKPEA (<i>Cicer arietinum</i> L.) CUL- TIVARS TO Rhizobium INOCULATION AND P-FERTILIZER AP- PLICATION	John Ogola	South African Republic
99	MIXED INTERCROPPING BETWEEN FOUR LENTIL AND THREE HULL-LESS BARLEY VARIETIES: PERFORMANCE UNDER SWISS CLIMATIC CONDITIONS	Filippo Car- menati	Switzer- land
130	GRAIN LEGUMES ENSURE REDUCTION IN EMISSIONS OF ARA- BLE SECTOR TO MITIGATE CLIMATE	Véronique Biarnès	France
136	PRODUCTIVITY OF INTERCROPPING GRAIN LEGUME WITH WIN- TER CEREAL IN THE WESTERN MEDITERRANEAN	Louise Blanc	Spain
137	INTERCROPPING OF VETCH (<i>Vicia sativa</i> L.) AND CEREALS FOR GRAIN AND PROTEIN PRODUCTION	Herwart Bölm	Germany



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164	THE EFFECT OF INTERCROPPING WITH HAIRY VETCH ON THE GRAIN YIELD AND QUALITY OF WINTER WHEAT	Merili Toom	Estonia
186	USE OF INTERCROPPING TO CONTROL WEEDS IN FABA BEAN	Ángel Ville- gas-Fernán- dez	Spain
198	BETTER TOGETHER: INTERCROPPING FIELD PEA (<i>Pisum sativa</i>) AND FABA BEANS (<i>Vicia faba</i>) FOR INCREASED PRODUCTIVITY AND RESILIENCE IN A NORTH WESTERN EUROPEAN CLIMATE	Sheila Alves	Ireland
199	HOW TO ENHANCE LEGUME N2 FIXATION AND N ACCUMULA- TION IN COMPLEX RAPESEED-SERVICE PLANT INTERCROPS?	Xavier Bous- selin	France
207	NITROGEN NUTRITION INDEX: A KEY INDICATOR OF THE AGRO- NOMIC DIAGNOSIS IN PEA	Véronique Biarnés	France
213	EFFECT OF CUTTING STAGE ON BIOMASS YIELD, PROTEIN YIELD AND PROTEIN CONTENT OF DIFFERENT VETCH SPECIES AS WINTER CATCH CROP IN NORTHERN GERMANY	Sina Step- czynski	Germany
219	PRODUCTIVITY OF STOCKED AND PLANT-BASED LE- GUME-BASED ORGANIC ROTATIONS	Kairsty Topp	United Kingdom
220	THE IMPORTANCE OF MANAGEMENT ON THE PRODUCTIVITY OF CEREAL-PEA INTERCROPS	Kairsty Topp	United Kingdom
222	WINTER LEGUME-CEREAL INTERCROPPING: A SUSTAINABLE WAY TO INCREASE AGROECOSYSTEM RESILIENCE	Riccardo Zustovi	Belgium
239	DEVELOPING GRASS PEA-CEREAL INTERCROPPING SYSTEMS FOR SWITZERLAND AND GERMANY	Tamara Leb- recht	Switzer- land
240	INVESTIGATING MIXED CROPPING SYSTEMS WITH PEA AND LENTILS FOR CLIMATE-SMART AND DEMAND ORIENTED AGRI- CULTURE	Seraina Vonzun	Switzer- land
241	BELOWGROUND INTERACTIONS – THE KEY TO FUTURE RESIL- IENT AND SUSTAINABLE LEGUME BASED CROPPING SYSTEMS?	Dorte Bodin Dresbøll	Denmark
248	LONG-TERM LEGUME-BASED CROPPED SYSTEMS FOR 'ECO- LOGICAL INTENSIFICATION'	Pietro lan- netta	United Kingdom
253	PULSE-OAT MIXTURES: PROSPECTS IN FOOD PRODUCTION AND ENRICHED CROP ROTATIONS	Yannik Schlup	Switzer- land
255	ASSESSING THE IMPACT OF REDUCED PRIMARY INOCULUM CARRYOVER ON THE SPATIOTEMPORAL SPREAD OF ASCO- CHYTA BLIGHT IN CHICKPEAS: A SIMULATION MODELLING AP- PROACH	Mohamed Cassim Mo- hamed Za- keel	Australia

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Session 3. Legumes for human and animal nutrition and health							
N	TITLE	SPEAKER	COUNTRY				
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8	CAN WE INCREASE THE OIL CONTENT OF COWPEA SEEDS?	Jose Barrero	Australia				
13	MUNG4FE; IRON ENRICHED MUNGBEANS FOR EAST AFRICA	Ramakrish- nan Madha- van Nair	India				
20	EFFECT OF EXTRUSION PROCESS ON FUNCTIONALITY AND STARCH DIGESTIBILITY OF PULSE FLOURS	Ning Wang	Canada				
27	EFFECTIVENESS OF DRY-FRACTIONATED PEA PROTEIN CON- CENTRATE TO PREPARE GLUTEN-FREE FOCACCIA FLATBREAD WITH OPTIMAL SENSORY, TEXTURAL AND NUTRITIONAL PROFILE	Antonella Pasqualone	Italy				
42	MICRONUTRIENT FORTIFICATION OF LENTIL USING HOT EX- TRUSION TECHNOLOGY	Rajib Podder	Canada				
43	NARROW-LEAFED LUPIN (Lupinus angustifolius L.) β -CONGLUTIN SEED PROTEINS POTENTIAL USE IN THE PREVENTION AND TREATMENT OF BREAST CANCER	Julia Escude- ro Feliu	Spain				
60	MINING NATURAL DIVERSITY TO DISCOVER THE GENETIC BASIS OF QUALITY TRAITS IN PEA	Ahmed Omar Warsame	United Kingdom				
78	IN VIVO INTERNALIZATION DYNAMICS OF SOYBEAN PROTEASE ISOINHIBITORS, IBB1 AND IBBD2, OF THE BOWMAN-BIRK FAMI- LY IN HT29 COLORECTAL CANCER CELLS	Alfonso Cle- mente	Spain				
79	BIFIDOGENIC PROPERTIES OF NON-FRUCTOSYLATED GALAC- TOOLIGOSACCHARIDES FROM PEA (<i>Pisum sativum</i>) USING IN- FANT FECAL HOMOGENATES	Maria del Carmen Marin-Man- zano	Spain				
80	GLYCATION AFFECTS DIFFERENTLY THE MAIN SOYBEAN BOW- MAN-BIRK ISOINHIBITORS, IBB1 AND IBBD2, ALTERING THEIR AN- TIPROLIFERATIVE PROPERTIES AGAINST COLON CANCER CELLS	Alfonso Cle- mente	Spain				
82	THE POSSIBILITY OF INCREASING THE PROTEIN CONTENT OF FABA BEAN SEEDS	Lea Narits	Estonia				
95	GENETIC IMPROVEMENT OF PEA TO ENHANCE NUTRITIONAL VALUE	Tracey Ray- ner	United Kingdom				
97	EFFECT OF CONVENTIONAL vs ORGANIC FARMING SYSTEM ON THE SEED COMPOSITION OF COMMON BEAN (<i>Phaseolus vulgaris</i> L.)	Juan José Ferreira	Spain				
107	PANNONIAN (Vicia pannonica) AND HAIRY VETCH (VICIA VILLO-SA) AS PIG FEED	Stephanie Witten	Germany				
109	EVALUATION OF THE NUTRITIONAL, ORGANOLEPTIC AND BIO- ACTIVE PROFILE OF CHICK-PEA BASED BISCUITS AFTER IN VI- TRO GASTROINTESTINAL DIGESTION	Cristina Del- gado Andrade	Spain				







115	VARIATION IN RAFFINOSE FAMILY OLIGOSACCHARIDE PROFILE IN PEA SEEDS IMPACTS THE HUMAN GUT MICROBIOTA AND FERMENTATION METABOLITE COMPOSITION	Aryana Zard- koohi-Burgos	United Kingdom
127	COVERAGE OF DAILY MINERAL REQUIREMENTS OF SOME WATER STRESS TOLERANT BEAN LINES AFTER SOAKING AND BOILING	Silvia Lisciani	Italy
143	GASTRONOMIC VALORIZATION OF BITTER VETCH FOR HUMAN CONSUMPTION IN MADRID	Almudena Lázaro Láza- ro	Spain
144	COOKABILITY OF TWO DOZEN PEA ACCESSIONS	Bjørn Due- holm	Sweden
154	STATUS OF HEAVY METALS AND POTENTIALLY TOXIC ELE- MENTS IN THE FRENCH BEAN IN THE MARKET OF THE CITY OF ZAGREB	Marko Petek	Croatia
162	CHEMICAL COMPOSITION (MAIN INGREDIENTS AND ANTI-NUTRI- TIONAL FACTORS) OF COMMON VETCH (<i>Vicia sativa</i> L.) VARIETIES	Karen Aulrich	Germany
163	NUTRITIONAL COMPOSITION, IN VITRO GASTROINTESTINAL BEHAVIOUR AND BIOACTIVITY OF LENTIL GERM, A LENTIL PRO- CESSING BYPRODUCT	Cristina Martínez Vil- laluenga	Spain
166	PREPROCESSING OF FAVA BEANS ENHANCES PROTEIN DI- GESTIBILITY AND THE FORMATION OF RESISTANT BIOACTIVE PEPTIDES IN EXTRUDED FLOURS	Cristina Martínez Vil- laluenga	Spain
167	COMBINATION OF THREE NULL MUTATIONS IN <i>Pisum sativum</i> L. IMPACTS POSITIVELY ON DIGESTIBILITY	Raquel Olías Sánchez	Spain
173	EFFECTS OF PARTIAL SUBSTITUTION OF GRASS SILAGE WITH RED CLOVER SILAGE ON MILK PRODUCTION AND METHANE EMISSION IN DAIRY COWS	Olli Pitkänen	Finland
209	CHEMOMETRIC ANALYSIS OF GRASS PEA (<i>Lathyrus sativus</i> L.) USING ATR-FTIR SPECTROSCOPY: PREDICTIVE MODELS FOR ODAP AND HOMOARGININE CONTENTS	Elsa Mecha	Portugal
216	THE IMPACT OF PLANT NUTRIENTS ON THE PERFORMANCE AND QUALITY OF LEGUMES	Kristian Holst Laursen	Denmark

Session 4. Biodiversity and genetic resource exploitation

Ν	TITLE	SPEAKER	COUNTRY
19	RNA-SEQ ANALYSIS OF THE ASIATIC VIGNA TO EXAMINE DIFFER- ENTIAL GENE EXPRESSION DURING GERMINATION AND EARLY PLANT DEVELOPMENT	Eric von Wett- berg	USA
58	EFFECTS OF CLIMATE CHANGE ON THE DISTRIBUTION OF Lens GENUS: A MODELLING APPROACH FOR IDENTIFYING CONSERVA- TION PRIORITIES	Salma Rouichi	Morocco
61	CHARACTERIZATION OF SPANISH CHICKPEA GENOTYPES (<i>Cicer</i> <i>arietinum</i> L.): PROXIMATE, MINERAL COMPOSITION AND PHENO- LIC COMPOUNDS	Dulce Nom- bre	Spain





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70	PECTS FOR GENBANK GENOMICS TO PAN-GENOMICS	Murukarthick Jayakodi	Germany
100	SELECTION OF SNAP BEAN GENOTYPES FOR EUROPEAN OR- GANIC FARMING BASED ON YIELD STABILITY	Juan José Ferreira	Spain
101	APPLIED GENOMICS FOR IDENTIFICATION OF CAUSATIVE MUTA- TIONS IN SOYBEAN	Mária Škrabišová	Czech Re- public
111	DIVERSITY EXPLORATION AND APPLICATION POTENTIAL OF BOWMAN-BIRK PROTEASE INHIBITORS IN SUB-SAHARAN AC- CESSIONS OF Vigna unguiculata (L.) WALP	Davide Pan- zeri	Italy
122	PHENOTIPING FABA BEAN LANDRACES FOR AGRONOMIC TRAITS AND BROOMRAPE RESISTANCE UNDER ANDALUSIAN ENVIRONMENT	Eva María Córdoba Jiménez	Spain
124	ACCUCALC: AN EASY-TO-USE PYTHON PACKAGE FOR SOYBEAN GENOMICS AND BREEDING	Jana Biová	Czech Re- public
134	NUTRITIVE VALUE OF WILD LEGUME SPECIES GROWN IN A GRASSLAND AGRICULTURAL SYSTEM	Brooke Micke	Sweden
169	LEGUME AND HERB BASED SPECIAL SEED MIXTURES FOR GREENING THE TRAM TRACKS	Tomas Vy- myslicky	Czech Re- public
170	CULTIVAR DIFFERENCES IN ROOT DEVELOPMENT AND DEPTH OF FORAGE LEGUMES	Nawa Raj Dhamala	Denmark
175	GENETICS OF DOMESTICATION IN COMMON BEAN (<i>Phaseolus vulgaris</i> L.): AN APPROACH FOR THE ANALYSIS OF CANDIDATE GENES VIA TILLING-BY-SEQUENCING	Francesca Sparvoli	Italy
182	CHARACTERIZATION OF A FABA BEAN DIVERSITY PANEL: PHE- NOTYPIC ANALYSIS AND GENOME-WIDE ASSOCIATIONS FOR AGRONOMIC AND SEED QUALITY TRAITS	Åsa Grimberg	Sweden
185	GENETIC BASIS OF PORTUGUESE COMMON BEAN (<i>Phaseolus vulgaris L.</i>) METABOLOMIC PROFILE FOR ENHANCING NUTRI- TIONAL QUALITY	Susana Leitão	Portugal
195	VULNERABILITY OF CHICKPEA LANDRACES TO INCREASED VIRULENCE IN DIDYMELLA RABIEI POPULATIONS	Seid Kemal	Marocco
221	ALLELE MINING OF GERMPLASM COLLECTIONS IN COWPEA: PROGRESS AND CHALLENGES	María Muñoz-Am- atriain	Spain
225	GENETIC DIVERSITY OF WORLD-WIDE COWPEA LANDRACES USING SSR MARKERS	Marcia Ra- quel Gomes de Carvalho	Portugal
237	AN EXTENSIVE INVESTIGATION OF A GENE BANK POPULATION OF PEA (<i>Pisum sativum</i> L.) WITH EMPHASIS ON NUTRITIONAL QUALITY, DROUGHT TOLERANCE AND MORPHOLOGICAL DIVER- SITY, THROUGH THE COMBINATION OF PHENOTYPI	Jens Axel Knuhtsen	Denmark
252	FIELD PHENOTYPING OF LEGUME GERMPLASM COLLECTIONS	Sofia Ghitar- rini	Italy
259	IMPROVING GENETIC DIVERSITY AND BIOTIC STRESS RESISTANCE IN CHICKPEA USING WILD RELATIVES	Lars Kam- phuis	Australia



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Session 5. Genetics and omics-based crop improvement							
N	TITLE	SPEAKER	COUNTRY				
9	GENOME-WIDE ASSOCIATION STUDIES OF NUTRIENTS AND TRACE ELEMENTS IN COMMON BEAN	Klaudija Carović-Stanko	Croatia				
23	CONSTRUCTION OF AN IMPROVED GENETIC MAP OF A MULTI- TRAIT LENTIL RECOMBINANT INBRED LINE POPULATION: AN IMPORTANT STEP TOWARDS OTL MAPPING AND VALIDATION	Abdelmonim Zeroual	Morocco				
50	RNA-SEQ BASED GENE EXPRESSION ANALYSIS OF SEED PRO- TEIN AND SULFUR AMINO ACID ACCUMULATION IN DEVELOP- ING PEA SEEDS	Junsheng Zhou	Canada				
59	DIVERGENCE IN GENOME STRUCTURE AND FUNCTION UNDERPIN- NING ROOT SYSTEMS IN LEGUMES	Ying Sun	USA				
74	CONSTRUCTION OF A HIGH-DENSITY GENETIC MAP FOR FABA BEAN (<i>Vicia faba</i> L.) AND FINE MAPPING OF QTLS FOR PEST AND DISEASE RESISTANCE	Lorena Bar- ea Martín- Castaño	Spain				
75	GENOME-WIDE ASSOCIATION STUDY OF POD DEHISCENCE IN Vicia faba L	Natalia Guti- errez Leiva	Spain				
81	ALTERED FEEDBACK REGULATION OF SHOOT BRANCHING BOOSTS CROP YIELD IN FIELD PEA	Simon Mi- chelmore	Australia				
84	DEVELOPMENT OF CAPS MARKERS FOR GENOMIC SELECTION OF PEMV RESISTANT PEA LINES AND COMPARING APHID INFES- TATIONS IN PEA ACCESSIONS SHOWING HIGH VARIABILITY	Michaela Ludvíková	Czech Re- public				
86	TRANSCRIPTOME ANALYSIS OF Vicia faba L. FLOWER STYLES	Ines Casi- miro-Soriguer	Spain				
89	HIGH-DENSITY OTL MAPPING OF ARCHITECTURAL, PHENOLOG- ICAL AND YIELD RELATED TRAITS IN FABA BEAN (<i>Vicia faba</i> L.)	David Aguilar	Spain				
98	TOWARDS THE GENETIC BASIS OF CLUSTER ROOTS DEVELOP- MENT IN LUPINS	Hélène Pidon	France				
102	ANALYSIS OF THE METABOLIC PROFILES AND GENE EXPRES- SION PATTERNS OF CRUCIAL GENETIC ELEMENTS WITHIN THE ANTIOXIDANT METABOLITE BIOSYNTHESIS PATHWAYS IN MUNGBEAN SPROUTS	Jungmin Ha	South Ko- rea				
103	GENETIC BASIS OF MICROBIOME RECRUITMENT IN PEA ROOTS CHALLENGED BY ROOT ROT DISEASE	Michael Schneider	Switzer- land				
114	GENOME-WIDE IDENTIFICATION OF GENES ASSOCIATED WITH RESISTANCE TO AFLATOXIN B1 Production IN PEANUT (<i>Arachis</i> <i>hypogaea</i> L.)	Tae-Hwan Jun	South Ko- rea				
119	THE PREVALENCE OF VICINE AND CONVICINE IN GENUS VICIA	Laura Vot- tonen	Finland				
121	IMPROVING THE UNDERSTANDING OF PISUM SATIVUM RESIS- TANCE TO ERYSIPHE PISI PROVIDED BY ER2 AND ER3 RESIS- TANCE GENES, VIA RNA-SEQ ANALYSIS	Manuel Alejan- dro Jiménez Vaquero	Spain				





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125	CANDIDATE GENES ASSOCIATED WITH SEED WEIGHT IN COMMON BEAN IDENTIFIED THROUGH GENOME-WIDE ASSOCIATION AND GENE EXPRESSION ANALYSIS	Maria Jurado Cañas	Spain	
149	DIGITAL PHENOTYPING FOR BETTER BEANS: PHENOTYPIC AND GE- NETIC ANALYSIS OF COMMON BEAN GROWTH AND DEVELOPMENT	Quinn Sturby	Canada	No Contra
155	UNRAVELING THE GENOMIC LANDSCAPE OF DELETERIOUS MUTATIONS IN COMMON BEANS	Henry Alex- ander Cordo- ba Novoa	Canada	
156	GENETICS OF Ascochyta blight RESISTANCE IN CHICKPEA	Judith Atieno	Australia	
176	SPATIO-TEMPORAL TRANSCRIPTOME AND STORAGE COM- POUND PROFILES OF DEVELOPING FABA BEAN (<i>Vicia faba</i>) SEED TISSUES	Åsa Grimberg	Sweden	
178	UNRAVELING GENE EXPRESSION SIGNATURES DURING THE TRANSITION FROM VEGETATIVE TO INFLORESCENCE MERI- STEM IN THE COMMON BEAN	Ana María González Fernández	Spain	
183	INSIGHTS FROM TRANSCRIPTOMIC ANALYSIS OF FIBER-RELAT- ED GENES INVOLVED IN POD DEVELOPMENT OF COMMON BEAN	Ana María Santos Carro	Spain	
193	NMR METABOLOME-GENOME WIDE ASSOCIATION STUDY RE- VEALS GENOMIC REGIONS CONTROLLING GRASS PEA META- BOLIC QUALITY: IMPLICATIONS FOR PRECISION BREEDING AND IMPROVED DIETS	Maria Carlota Vaz Patto	Portugal	
202	INCREASING THE CULTIVABILITY OF <i>Lupinus luteus</i> IN GERMA- NY BY COMBINATION OF CLASSICAL AND INNOVATIVE BREED- ING APPROACHES - ANTHRACNOSE RESISTANCE AND YIELD POTENTIAL	Florian Haase	Germany	
211	MAPPING OF DROUGHT TOLERANCE RELATED OTLS AND GENE EXPRESSION ANALYSIS IN LENTIL (<i>Lens culinaris</i> MEDIK.)	Carlos Polan- co	Spain	
212	TRANSLATIONAL RESEARCH OPPORTUNITIES IN GRAIN LE- GUMES: WHERE ARE WE?	Nadim Tayeh	France	
217	IMPROVING LEGUME PERFORMANCE FOR MORE SUSTAINABLE AGRICULTURAL PRACTICES: FUL AND AP2 GENES EFFECT ON POD YIELD AND ROOT DEVELOPMENT	Irene Marti- nez Fernan- dez	Spain	
218	TRANSCRIPTOMICS OF WILD LENTILS IN ASCOCHYTA BLIGHT EARLY RESPONSE	Ana Isabel González Cordero	Spain	
233	EXPLOITATION OF PLANT GENETIC RESOURCES FOR SUSTAIN- ABLE SWEETNESS OF <i>Lupinus angustifolius</i>	Lucas Erd- mann	Germany	- Town
238	CONTROL OF THE NUMBER OF FLOWERS AND ARCHITECTURE OF THE INFLORESCENCE OF LEGUMES BY RAX-TYPE MYB TRANSCRIPTION FACTORS	Francisco Madueño	Spain	
256	ELUCIDATION OF GENETIC REGULATION OF VICINE AND CONVICINE IN FABA BEAN	Samson Ug- wuanyi	Germany	





Session 6 Cron breeding: challenges tools

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and achievements						
N	TITLE	SPEAKER	COUNTRY			
39	ACCELERATING LENTIL BREEDING: THE EFFICIENCY OF A MODIFIED SINGLE SEED DESCENT BREEDING METHOD UNDER AN EXTENDED PHOTOPERIOD-BASED SPEED BREEDING	Mohammed Mitache	Morocco			
48	CLIMATE-FRIENDLY PEA AND SOYBEAN BREEDING FOR WEST- ERN CANADA	Tom Warketin	Canada			
54	DESIGNING CLIMATE SMART LEGUMES FOR SUSTAINABLE LIVELIHOOD SYSTEMS FOR DROUGHT PRONE ECOLOGIES	Ajaz Ahmad Lone	India			
65	BREEDING RESEARCH NEWS FROM THE FAMOUS GÖTTINGEN WINTER FABA BEAN	Alex Wind- horst	Germany			
66	LEGUME CROP DEVELOPMENT CONSIDERATIONS FOR PLANT- BASED MEAT	David Hunt	USA			
73	POLLEN PRODUCTION, POLLEN VIABILITY AND AUTOFERTILITY IN FABA BEAN (<i>Vicia faba</i> L.) AND THEIR RELATIONSHIP WITH PATERNAL SUCCESS OF FABA BEAN GENOTYPES	Lisa Brünjes	Germany			
93	DEVELOPMENT OF MULTIPLE STRESS-RESISTANT KABULI CHICKPEA GERMPLASM FOR DIVERSE GROWING REGIONS	Aladdin Ham- wieh	Egypt			
110	MODELLING DEPLOYMENT OF 21st CENTURY BREEDING TECH- NOLOGIES TO MAXIMISE GENETIC GAIN	Garry Rosewarne	Australia			
112	ASSESMENT OF PEA FLOWERING BY USING HIGH THROUGHPUT FIELD PHENOTYPING	Corina Oppliger	Switzer- Iand			
129	LEGUME INNOVATION: TRANSCRIPTOMIC PROFILING BASED ON RNA-SEQ ANALYSIS OF RESISTANT AND SUSCEPTIBLE <i>Vicia</i> <i>ervilia</i> GERMPLASM REVEALS MOLECULAR MECHANISMS IN- VOLVED IN THE RESPONSE TO OROBANCHE CRENATA	Clara Isabel González Verdejo	Spain			
131	PRECISION BREEDING FOR RED CLOVER: OPTIMIZING PHY- TOESTROGENS LEVELS WITH ASSOCIATED MARKERS	Oldrich Trneny	Czech Re- public			
171	ASSOCIATION ANALYSIS (GWAS) OF PEA (<i>Pisum sativum</i> L.) AND IDENTIFICATION OF SNP MARKERS FOR GENOMIC SELECTION OF ECONOMICALLY IMPORTANT TRAITS	Radmila Dostálová	Czech Re- public			
179	UNDER THE LIGHT OF NIRS: EXPLOITING MULTIVARIATE STA- TISTICAL METHODS TO PREDICT PROTEIN AND OIL CONTENT IN FABA BEAN SEEDS	Antonio Lip- polis	Nether- lands			
180	DEVELOPMENT AND CHARACTERIZATION OF AN EMS-MUTAG- ENIZED COMMON BEAN POPULATION AND IDENTIFICATION OF MUTANTS ALTERED IN REPRODUCTIVE DEVELOPMENT	Marta San- talla Ferradás	Spain			
189	IDENTIFICATION OF A PRIORI INBRED INDIVIDUALS IN FABA BEAN (<i>Vicia faba</i> L.) POPULATIONS AND PREDICTION OF THEIR GENETIC VALUE FOR BREEDING	Henri Laugel	Germany			





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197	MODERNIZING FABA BEAN FOR MAXIMUM GLOBAL BENEFITS - A PROGRESS REPORT FROM CANADA	Albert Van- denberg	Canada
201	GENOMIC SELECTION FOR PEA GRAIN YIELD AND PROTEIN CON- TENT: PREDICTIVE ABILITY FOR INDEPENDENT ITALIAN ENVI- RONMENTS AND FOR TARGET AND NON-TARGET GENETIC BASES	Margherita Crosta	Italy
203	TOWARDS RELIABLE, INFORMATIVE, COST-EFFECTIVE GENO- TYPING TOOLS FOR THE TOOLBOX OF GRAIN LEGUME BREEDERS	Grégoire Au- bert	France
214	GENETIC BASIS OF GRASS PEA AGRONOMIC TRAITS FOR PRE- CISION BREEDING TOWARD CLIMATE CHANGE MORE ADAPTED VARIETIES	Letice Gonçalves	Portugal
223	INVESTIGATING INTERSPECIFIC LENTIL GERMPLASM: NEAR-IN- FRARED SPECTROSCOPY FOR PROTEIN AND AMINO ACID PRO- FILE AND QUANTITATIVE TRAIT LOCUS ANALYSIS	Noah Jen- drasheske	Canada
229	FEASIBILITY STUDY OF CHICKPEA CULTIVATION IN FLANDERS	Gerda Cnos	Belgium
232	INTRODUCING LEGUME GENERATION	Donal Mur- phy-Bokern	Germany
243	GRAIN LEGUME RE-DIVERSIFICATION THROUGH TRANSDISCI- PLINARY BREEDING APPROACHES	Sebastian Kussmann	Switzer- land
251	PIGEONPEA BREEDING NETWORK TARGETING PRIORITIZED MAR- KET SEGMENTS IN EASTERN AND SOUTHERN AFRICA: ACHIVE- MENTS & OPPORTUNITIES	Ganga Rao Nadigatla	Kenya
254	FOOD LEGUMES EXPLOITATION: VARIETAL COMPARISON AND AG- RONOMIC INNOVATIVE TOOLS TO IMPROVE THE BREEDING AND THE PERFOMANCE	Andrea Toso- roni	Italy
258	SELECTION FOR HIGH AND STABLE YIELD IN SOYBEAN BREEDING LINES USING DIGITAL PHENOTYPING METHODS	Beat Keller	Switzer- land
260	PHENOTYPIC AND GENOMIC-BASED GENETIC DIVERSITY ANAL- YSES IDENTIFY USEFUL ACCESSIONS FOR THE IMPROVEMENT OF PROTEIN CONTENT IN NORWEGIAN CULTIVATED PEA (<i>Pisum</i>	Stefano Zanotto	Norway

Session 7. Physiology, biochemistry and systems biology

Ν	TITLE	SPEAKER	COUNTRY
14	NUCLEOTIDE METABOLISM IN COMMON BEAN FRUITS DURING SEED FILLING PHASE	Mercedes Díaz	Spain
15	PHOSPHATASE HAD GENE SUPERFAMILY DURING GERMINA- TION IN COMMON BEAN	Pedro Pie- dras	Spain
22	DOMESTICATION HAS ALTERED GENE EXPRESSION AND SEC- ONDARY METABOLITES IN PEA SEED COAT	Petr Smykal	Czech Re- public
28	PEXOPHAGY IN SUGAR-STARVED EMBRYONIC AXES OF GERMI- NATING LUPIN (<i>Lupinus</i> spp.) SEEDS	Karolina Wleklik	Poland



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40	beta-CONGLUTINS' MOBILE ARM IS CRUCIAL IN THE NUTRA- CEUTICAL PROPERTIES OFBLUE LUPIN	Jose Carlos Jiménez López	Spain
51	FREQUENCY OF OUTCROSSING AND ISOLATION DISTANCE IN FABA BEAN	Kedar Adhikari	Australia
132	PEA RESILIENCE TO WATER DEFICITS: TOLERANCE, ACCLIMA- TION, AND STRESS MEMORY OF THE NODULATED ROOT SYSTEM	Marion Pru- dent	France
148	SHOULD WE MEASURE FORAGE LEGUME TOTAL CONDENSED TANNINS OR PROTEIN-PRECIPITATING POLYPHENOLICS?	James Muir	USA
188	REACTIVE OXYGEN SPECIES PRODUCTION AND ANTIOXIDANT ACTIVITY DURING PEA SEED COAT DEVELOPMENT	Jana Sekani- nová	Czech Re- public
226	ROLE OF THE SMALL INTERFERING RNAS IN EPIGENETIC REG- ULATION OF NODULE DEVELOPMENT IN MEDICAGO TRUNCAT- ULA	Francisco Sanchez-Ro- driguez	France
227	PROSPECTS FOR THE USE OF MAGNETIC RESONANCE IMAGING IN LEGUME BIOLOGY AND BREEDING	Ljudmilla Borisjuk	Germany

Session 8. Beneficial legume plant-microbe interactions

N	TITLE	SPEAKER	COUNTRY
37	CATCHING RHIZOBIA TO INTRODUCE HIGH PROTEIN CONTAIN- ING SOYBEAN FOR A SUSTAINABLE AGRICULTURE IN EUROPE	Sofie Goor- machtig	Belgium
41	NITROGEN FIXATION OF SOYBEAN AND LUPINE IN SWEDEN: DOES CULTIVAR MATTER?	Fede Berckx	Sweden
69	DNA METABARCODING FOR THE CHARACTERIZATION OF THE SOIL BACTERIAL AND FUNGAL COMMUNITIES UNDER ORGANIC AND CONVENTIONAL FARMING SYSTEMS	Ana Campa	Spain
104	NATIVE TRICHODERMA STRAINS TO IMPROVE DEFENSE RE- SPONSE AND DEVELOPMENT OF DRY BEAN (<i>Phaseolus vulgaris</i>)	Pedro Cas- quero	Spain
106	BIOPROTECTIVE ROLE AND ENHANCEMENT OF BIOLOGICAL NI- TROGEN FIXATION BY SAPROPHYTIC FUNGI IN <i>Phaseolus vulgaris</i> PLANTS AFTER PENDIMETHALIN APPLICATION	Miguel López Gómez	Spain
108	SELECTION OF NATIVE NITROGEN-FIXING RHIZOBIA FOR IM- PROVED LEGUME-CACAO CO-CULTURE IN ECUADOR	Juan Sanjuan Pinilla	Spain
118	BIOLOGICAL NITROGEN FIXATION BY SOYBEAN (<i>Glycine max</i> [L.] MERR.), A NOVEL, HIGH PROTEIN CROP IN SCOTLAND, RE- QUIRES INOCULATION WITH NON-NATIVE BRADYRHIZOBIA	Chrizelle Krynauw	United Kingdom
138	NOVEL SYMBIOTIC MICROBIOTA ON SEVERAL LEGUMES AT THE MBG-CSIC (SPAIN)	A. Paula Rodiño	Spain





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EVALUATION OF SYMBIOTIC POTENTIALS OF ADAPTED BRADYRHIZOBIUM STRAINS ON SOYBEAN [Glycine max(L.) MER-RILL] YIELD IN NORTHEAST GERMANY

Richard Ansong Omari

Germany

Session 9. Understanding and enhancing legume crop tolerance to abiotic stresses

N	TITLE	SPEAKER	COUNTRY
57	GENETIC VARIATION FOR DROUGHT TOLERANCE IN SOYBEAN AND SELECTION OPPORTUNITIES	Luciano Pecetti	Italy
105	DROUGHT RESPONSE, SEED QUALITY AND YIELD OF BIOFORTI- FIED COMMON BEANS IN A CONTEST OF CLIMATIC CHANGE	Alessia Losa	Italy
120	SILICON SUPPLEMENTATION IMPROVES SYMBIOTIC NITRO- GEN-FIXATION EFFICIENCY IN LENTIL UNDER DROUGHT STRESS	Sajitha Biju	Australia
158	SCREENING A DIVERSITY PANEL OF PEA AGAINST DROUGHT AND WATERLOGGING	Cecilia Ham- menhag	Sweden
161	MINING AN INTERSPECIFIC CHICKPEA POPULATION FOR HEAT TOLERANCE	Sophie Duch- esne	Canada
168	DROUFGHT STRESS INDUCED CHANGES IN SPATIAL HETERO- GENITY OF COMMON BEAN LEAF PHYSIOLOGICL TRAITS	Boris Laza- revic	Croatia
184	PLASTICITY IN STOMATA MORPHOLOGY AND THEIR IMPLICA- TIONS FOR DROUGHT ADAPTATION IN FABA BEAN (<i>Vicia faba</i>)	Tomke Susanne Wacker	Denmark
187	PHISIOLOGICAL CHARACTERIZATION OF DROUGHT RESIST- ANCE AMONG LENTIL CULTIVARS	Andrea Fernández Gutierrez	Spain
196	ROOT METABOLIC ADAPTATION TO IRON DEFICIENCY IN SOY- BEAN: THE IMPORTANCE OF COUMARINS SECRETION	Jorge Rodríguez Celma	Spain
206	TOOLS TO HELP BREEDING FOR FROST TOLERANCE OF WIN- TER GRAIN LEGUMES	Adrien Sonnet	France
210	SUGAR AND AMINO ACID EXHIBIT DIFFERENT SPATIAL PAT- TERNS OF EXUDATION IN RESPONSE TO WATER STRESS AND N NUTRITION IN <i>Pisum sativum</i>	Aude Tixier	France
235	COMBINED BIOSTIMULANT EFFECT OF Bacillus SP. AND BOTAN- ICAL EXTRACT RICH IN HYDROXYTYROSOL ON CHICKPEA UN- DER DROUGHT INDUCED CONDITIONS	José Ramón Fernández	Spain
247	THE EFFECTS OF SULFUR DEFICIENCY AND DROUGHT STRESS ON GENERAL PERFORMANCE AND SYMBIOTIC NITROGEN FIXA- TION IN PEAS (<i>Pisum sativum</i> L.)	Asger Sten Eskildsen	Denmark





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IDENTIFYING DIVERSITY FOR DROUGHT STRESS TOLERANCE IN FABA BEAN (Vicia faba L.) BY DIGITAL AND PHYSIOLOGICAL PHENOTYPING

Germany

Session 10. Understanding and enhancing legume crop tolerance to biotic stresses

N	TITLE	SPEAKER	COUNTRY	
18	IDENTIFICATION OF NEW CHICKPEA GENETIC RESOURCES RE- SISTANT TO Fusarium wilt UNDER MULTI-ENVIRONMENTSTawffiq Is- tanbuli			
29	EARLY INDICATION OF A SECOND SHIFT IN THE PATHOGENICITYOF Ascochyta fabaeISOLATES IN THE PATHOGEN POPULATIONSara BlakeIN SOUTHERN AUSTRALIA		Australia	
31	INTEGRATIVE GENETICS AND GENOMICS FOR MULTI-PEST RE- SISTANCE IN GRAIN LEGUMES	Marie-Laure Pilet-Nayel	France	
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19-22 September Granada Conference Center **Granada Spain**

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Dates and Venue

- Date: from 19th till 22nd of September, 2023.
- Venue: Granada Conference & Exhibition Centre

Fourth International Legume Society 202

• Address: P.º del Violón, 18006 Granada

Technical Secretary

Attendance of the participants

The Technical Secretariat will be located in the Level 0 of the Granada Conference & Exhibition Centre. During the Conference, the Technical Secretariat will be in charge, among others, of the following functions:

- Documentation delivery.
- Registration.
- Attendance to the speakers and committee members.

Open hours of the technical secretary

- Monday, September 18th: from 08.00 till 13.00h and from 14.00 till 18.00h
- Tuesday, September 19th: from 13.45 till 18.30h
- Wednesday, September 20th: from 8.30 till 13.00 and from 14.45 till 19.30h
- Thursday, September 21st: from 8.30 till 13.00 and from 14.45 till 18.15h
- Friday, September 22nd: from 8.30 till 17.00h.

Important information

- The Technical Secretariat will be situated in the Level 0 of Conference Centre.
- The documentation can be received at the Technical Secretariat from Monday 18th September from 08.00h. Please, after receiving it, check out if you have all the documents on your name.
- The Conference participants must have their accreditation card in a visible place to access the venue and the scientific sessions.
- Mobile phones must remain in silent mode in all rooms with scientific activities.
- Any variation of the official program or novelty that may arise will be announced in a timely manner through the Technical Secretariat itself.
- Showing to the auxiliary staff the invitations or tickets of any act will be obligatory to be able to access all the social acts that require it.

Abstracts

For more information, please consult the abstract submission and presentation guidelines.

Submission of the presentations

The submission of the presentations will be organized in the Technical Secretariat. Presentations must be delivered at least 2 hours before the start of your session. It is advisable to deliver your presentations (on a USB stick) as soon as you arrive at the venue, even if your presentation takes place the next day.

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Presentation submission hours

- Monday 18th September: from 08.00 till 13.00h and from 14.00 till 18.00h
- Tuesday 19th September: from 14.00 till 18.30h
- Wednesday 20th September: from 9.00 till 13.00 and from 14.45 till 19.30h
- Thursday 21st September: from 9.00 till 13.00 and from 14.45 till 18.15h
- Friday 22nd September: from 9.00 till 17.00h.

Access to the programme activities

Conference participants must carry their accreditation card in a visible place to access the scientific sessions.

Certificates

All certificates will be available by accessing the "Private area" section on the Conference website in the "My certificates" section.

- Abstract certificate: They can be downloaded one week after the end of the Conference.
- Certificate of collaboration: They will be available for speakers one week after the end date of the Conference.





ILS Football Cup-Granada 2023

One of the most popular social events of ILS is its football tournament.

The ILS Football Cup- Granada 2023 will be held on Wednesday, September 20th from 20.00- 22.00 h in the sport facilities of the University of Granada.

You can participate either as supporter, referee or football player in one of the following teams:



The designed logo has been maintained of the different football teams from our colleague Aleksandar Mikic as a deserved tribute.

The registration as player or supporter must be completed via our website before 8th of September. The tournament will be played in a football-7 format with semifinals, followed by third place game and the final. The games will last 20 minutes each.

Further information about team players and captains, schedule, semifinals draw and bus transport will be supplied.





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Gala Dinner

- Date: Thursday, 21st September 2023
- Venue: La soleá flamenco restaurant (https://tablaolasolea.com/en).
- Time: the bus will pick you up at the Conference centre at 20:30 and bring you back to the Conference centre after the flamenco show ends.

We are delighted to announce you a very special gala dinner at ILS4. The gala dinner will be carried out on 21st September in the flamenco restaurant "La soleá". This is a first-class restaurant where you will enjoy a menu prepared by the chef of La soleá in an emblematic place in Granada, the Plaza de Toros, a monumental building in bullfighting golden age at the beginning of the 20th century. After the gala dinner, you will enjoy the best flamenco show in Granada.

La Soleá, flamenco style that origins our Tablao, is the main cante jondo, the song of aloneless, the purest and most personal expression of Flamenco art, together with guitar and clapping, offers the most beautiful and emblematic show and dance of Flamenco. Thanks to its multicultural origin, and visceral expression, full-strength and power, Flamenco is a visceral, unique and unrepeatable show. Each show is a different experience where we live Flamenco with our whole body, from the heart, from the soul.





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Registration

Registration fee	Early registration before May 31 st 2023	Standard registration after June 1 st 2023	After September 19th (on-site registration)
Regular fee	475€	550€	650€
Regular Registration + Satellite meeting fee	545€	620€	720€
Satellite meeting fee (*)	70€	70€	-

*21% of VAT included.

General Conditions

Registration Regular fee for the Conference includes:

- Documentation of the Conference with the book of abstracts in electronic form and the access to the commercial exhibition.
- Access to scientific sessions.
- Lunch (from Wednesday to Friday).
- Welcome cocktail.
- Coffee breaks.
- The cost of $50 \in +VAT$ for three years subscription to the Legume Society, for each participant.
- ILS football cup, with transportation.

Satellite meeting fee incluides:

- Access to scientific sessions.
- Lunch.
- Coffee breaks.
- Only valid for program access on 18 September 2023.
- Registration and Abstract submission for oral or poster presentation before 30 May 2023.

Registration does not include:

- The gala dinner.
- Transportation.





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Small things that matter.















