XVI Symposium on Biological nitrogen fixation with NON-LEGUMES

IV Latinamerican Workshop of PGPR

XIX RELARE

Program/Programação

Foz do Iguaçu - PR

Organizer

Embrapa

Welcome,

On behalf of the Local Organizing Committee, we are honored to announce the XVI Symposium on Biological Nitrogen Fixation with Non-Legumes, together with the IV Latin-American workshop on PGPR and the XIX RELARE. The main goal of this meeting is to bring into discussion different aspects of the use of microbes and their interaction with crops, in order to meld basic and advanced research, focusing on biological products for the improvement of crop yields.

You will have the opportunity to discuss the latest developments in this field, increase networking, and meet and interact with companies and industry experts.

In this guide, you will find the Scientific Program, List of Poster Presentations and additional information regarding your stay in Foz do Iguaçu.

We wish you all a great meeting!
Local Organizing Committee

APRESENTAÇÃO

Bem-vindo (a),

É com grande satisfação que o Comitê Organizador Local promove o XVI Simpósio sobre Fixação Biológica de Nitrogênio em Não-Leguminosas, conjuntamente com o IV Workshop Latino-Americano de PGPR e a XIX RELARE. O objetivo principal deste evento é trazer para discussão os aspectos do uso microbiano e a sua interação com as culturas agrícolas, a fim de aliar a pesquisa básica e aplicada focando em produtos biológicos para aumentar o rendimento das culturas.

Nos próximos dias, você terá a oportunidade de discutir os últimos desenvolvimentos neste campo, aumentar o networking, além de conhecer e interagir com empresas e especialistas do setor.

Neste guia, você encontra a programação técnica e os trabalhos científicos que estão sendo apresentados na sessão pôster.

Desejamos um excelente evento!

Comitê Organizador Local

GENERAL INFORMATION

BADGES

Name badges must be worn the entire time as they allow the entrance to the symposia and lectures. Unidentified persons will not be able to access the Congress area, including the booth area.

POSTER SESSION

The abstracts are organized in numerical order according to the scientific session and submission system. Please check the number of your poster in the abstract book.

Posters from XVI Symposium on Biological Nitrogen Fixation with Non-Legumes sessions must be put up on the morning of August 27th, and must be removed on August 28th, at the end of the day, according to the scientific program. For XIX RELARE sessions, posters must be put up on the morning of August 30th, and must be removed on August 31st, at the end of the day, when the poster session is finished.

For XVI Symposium on Biological Nitrogen Fixation with Non-Legumes sessions, the presentation certificate will be given at the time of the poster session, on August 27th. For XIX RELARE sessions, the presentation certificate will be given at the time of the poster session, on August 30th.

SOCIAL DINNER

The social dinner will be held on August 30th (Thursday), starting at 8pm. All participants will receive a dinner ticket and there will be no extra sale. The card will be required for entrance.

RESTAURANT

The Golden Park International Hotel will offer lunch to the participants of the Symposium. The purchase can be made at the hotel reception. It will be a self-service system, including drink and dessert. The ticket costs R$ 52,00 (Brazilian real) per person (each day).

USEFUL TELEPHONE NUMBERS

PHARMACY

Nissei

Brasil Avenue, 938 +55 (45) 3521-6305

Droga Raia

Brasil Avenue, 864 +55 (45) 3527-2645

TAXI

Stop number 05, Bus Station	+55 (45) 3522-2700
Stop number 12	+55 (45) 3573-3153
Stop number 38	+55 (45) 3525-1542

EMERGENCY PHONE NUMBERS

Foz do Iguaçu Airport	+55 (45) 3521-4200
Bus Station	+55 (45) 3522-2590
Fire Brigade	193
Civil Defense	199
Ambulance	192
Federal Police	194
Military Police	190
Federal Highway Police	+55 (45) 3522-1328

INFORMAÇÕES GERAIS

IDENTIFICAÇÃO

Todos os participantes deverão utilizar o crachá nas dependências do evento. Não será permitida a entrada de pessoas sem identificação, inclusive na área de estandes.

SESSÃO PÔSTER

Os trabalhos foram organizados para apresentação em ordem numérica de acordo com as sessões. Portanto, solicitamos que o seu pôster seja fixado no número correspondente ao do guia (conforme segue).

Os pôsteres do XVI Simpósio sobre Fixação Biológica de Nitrogênio em Não Leguminosas deverão ser colocados na manhã do dia 27 de agosto e retirados no final do dia 28 de agosto, conforme a programação científica. Os pôsteres da XIX RELARE deverão ser colocados na manhã do dia 30 de agosto e retirados ao final do dia 31 de agosto, após o termino da sessão pôster. O apresentador deverá permanecer junto ao seu trabalho no horário programado.

Os certificados de apresentação serão entregues no horário da sessão pôster no dia 27 de agosto para as sessões do XVI Simpósio sobre Fixação Biológica de Nitrogênio em Não-Leguminosas e no dia 30 de agosto para os trabalhos da RELARE.

JANTAR DE CONFRATERNIZAÇÃO

O jantar será realizado no dia 30 de agosto (quinta-feira), a partir das 20h. Todos os participantes terão direito a um convite para o jantar e não haverá venda de convites extras. A apresentação do convite é obrigatória na entrada do evento.

RESTAURANTE

O Hotel Golden Park Internacional Foz do Iguaçu oferecerá almoço para os participantes do evento. A compra do ticket poderá ser feita na recepção do hotel. Sistema self-service, incluso bebida e sobremesa. Valor: R$ 52,00 por pessoa/dia.

TELEFONES ÚTEIS

FARMÁCIAS

Farmácia Nissei
Av. Brasil, 938 (45) 3521-6305

Droga Raia
Av. Brasil, 864 (45) 3527-2645

TÁXI

Ponto de Táxi Nº 12	(45) 3573-3153
Ponto de Táxi	(45) 3522-2700
Taxi - P. Nº 38	(45) 3525-1542

TELEFONES DE EMERGÊNCIA

Aeroporto Internacional de Foz do Iguaçu	(45) 3521-4200
Terminal Rodoviário	(45) 3522-2590
Bombeiros / SIATE:	193
Defesa Civil	199
Polícia Federal	194
Polícia Rodoviária Federal	(45) 3522-1328
Polícia Militar	190
SAMU	192

PROGRAM		
VI Symposium on Biological Nitrogen Fixation with Non-Legumes and IV Latin-American workshop on PGPR		
SUNDAY, AUGUST 26		
16:00	**REGISTRATION**	
18:00 - 18:30	**OPENING SESSION** **LAUNCH OF THE BOOK CAMINHOS, ESCOLHAS E CONQUISTAS** SOLON CORDEIRO DE ARAÚJO	
18:30 - 19:30	**OPENING LECTURE**	
	Life's involved on the research of microorganisms associated with plants - Part I	Robert Michael Boddey. Embrapa Agrobiologia, Brazil
	Life's involved on the research of microorganisms associated with plants - Part II	Fabio Oliveira Pedrosa. Universidade Federal do Paraná, Brazil
19:30	**COCKTAIL**	

MONDAY, AUGUST 27		
08:30 - 10:40	**Session 1: Nitrogen, Environment and Global Change** Chairman: Bruno José Rodrigues Alves. Embrapa Agrobiologia, Brazil.	
	8:30 - 9:10 - Key Note: Global vision of use of biological inputs in agriculture on the theme: Nitrogen, Environment and Global Changes.	Grahan O'Hara. Murdoch University, Australia
	9:10 - 9:40 - S1: Microorganisms associated with plants – overview of Brazilian agriculture and N2O emissions	Bruno José Rodrigues Alves. Embrapa Agrobiologia, Brazil.
	9:40 - 10:10 - S2: Plant growth-promoting bacteria from extreme environments to restore fertility of desert lands	Yoav Bashan. Bashan Foundation, USA
	10:10 - 10:40 - S3: Nitrogen cycling at the plant-soil interface	Thomas Hurek. Universität Bremen, Germany
10:40 - 11:10	**COFFEE BREAK**	

11:10 - 12:10	**Session 2: Evolution, Diversity and Ecology of PGP microorganisms** Chairman: Luc Rouws	
	11:10 - 11:40 - Maize Cultivar Induced Selection of Plant-Growth-Promoting Rhizobacteria	Eduardo Balsanelli
	11:40 - 12:10 - Whole genome based analysis of evolution and adaptive divergence in Indian and Brazilian strains of *Azospirillum brasilense*	Chhaya Singh
12:30 - 14:00	**LUNCH**	
14:00 - 16:00	**Session 2: Evolution, Diversity and Ecology of PGP microorganisms**	
	14:00 - 14:30 - Key Note: *Paenibacillus riograndensis*, a Gram Positive diazotroph PGPR with different mechanisms of action	Luciane Passaglia. UFRS, Brazil

14:00 - 16:00	**14:30 - 15:00 -** S1: Deciphering the molecular bases of the interaction between the diazotrophic endophyte *Kosakonia* sp. UYSO10 and sugarcane plants	Federico Batistoni. Clemente Stable, Uruguay.
	15:00 - 15:30 - S2: *Azoarcus* genome: new insights in the genus level	Euan K. James. The Hutton Institute, UK
	15:30 - 16:00 - S3: Structural and functional genomic characterization of *Nitrospirillum amazonense* strain CBAmC, a nitrogen-fixing bacterium isolated from surface-sterilized sugarcane stems	Stefan Schwab. Embrapa Agrobiologia - Brazil.
16:00 - 16:30	**COFFEE BREAK**	
16:30 - 18:10	**Session 3: What to seek in PGP** Chairmann: Jose Ivo Baldani	
	16:30 - 17:10 - Key Note: Nitrogen-fixing bacteria do not live alone	Ann M. Hirsch. UCLA - USA

16:30 - 18:10	**17:10 – 17:40 -** S1: Genome Wide Association Studies uncovers genes associated with plant growth promotion driven by endophytic bacteria (*Azoarcus olearius*)	Fernanda Amaral. University of Missouri, USA
	17:40 - 18:10 - S2: Importance of bacterial signals in the communication of PGP-microbes with host plants	Anton Hartmann. Germany
18:10 - 19:00	**Flash presentations from the poster session**	
	18:00 – 18:10 - Rhizospheric bacterial diversity in soils cultivated with tomato and bean plants after N-fertilisation.	Eulogio J. Bedmar. Universidad de Granada, Spain.
	18:10 – 18:20 - Transcriptome analyses of maize roots inoculated with *Herbaspirillum seropedicae*	Luiz Eduardo Souza da Silva Irineu. UENF, Brazil.

18:10 - 19:00	**18:20 – 18:30 -** Genetic, physiological and metabolic characterization of Pseudomonas sp. strains exhibiting biofertilizer traits and broad-spectrum biocontrol potential	Samina Mehnaz. Chartered University, Pakistan.
	18:30 – 18:40 - Transcriptomic responses of *Burkholderia catarinensis* to a phytopathogenic fungus and wheat.	Evelise Bach. UFRS, Brazil.
	18:40 – 18:50 - Microbial prospection and combination of N_2-fixing and cell-wall degrading properties to increase sugarcane straw decomposition.	Rafael Luiz Frinhani Rocha. UENF, Brazil.
19:00 - 20:00	**Poster section:** all numbers	
FREE NIGHT		

TUESDAY, AUGUST 28		
08:00 - 10:10	**Session 4: The Holobiont Plant: multitrophi interactions** Chairman: Jean Luis Simões-Araújo	
	8:00 - 8:40 - Key Note: Regulatory cascades in rice-endophyte interactions	Barbara Reinhold-Hurek. Max Planck Institute, Germany.
	8:40 - 9:10 - S1: Communication between Plants and Beneficial Bacteria: what the plant genes can tell us?	Adriana Hermely. UFRJ – Brazil.
	9:10 - 9:40 - S2: The sugarcane microbiome profile unravels the structure, diversity and colonization pattern of plant-beneficial microbial communities	Rafael Soares Correa de Souza. Unicamp, Brazil.
	9:40 - 10:10 - S3: Roles of Copper microRNAs in planta microbe interactions.	Paulo Cavalcanti, UFRJ, Brazil.
10:10 - 10:40	**COFFEE BREAK**	

10:40 - 12:10	**Session 5: Bacterial and Plant Physiology** Chairman: Stefan Schwab	
	10:40 - 11:20 - Key Note: Old species, novel bacteria – innovations in PGPR's	Ray Dixon. John Innes Centre, UK.
	11:20 - 11:40 - S1: Metabolic pathways due to loss of GlnB signaling in *Azospirillum brasilense*: a proteomic approach.	Diana Alejandra Estigarriba. UFPR, Brazil.
	11:40 - 12:00 - S2: The PII interactome in *Azospirillum brasilense*.	Edileusa Cristina Marques Gerhardt. UFPR, Brazil.
	12:00 - 12: 20 - The effect of sugarcane apoplastic fluid on the global gene expression pattern of strain HRC54 of *Herbaspirillum seropedicae*.	Daniela Duarte Villarinho Pessoa. Embrapa Agrobiologia, RJ, Brazil.
12:20 - 14:00	**LUNCH**	

14:00 - 16:00	**Session 6: Applications of PGPR in Agriculture** Chairman: Mariangela Hungria	
	14:00 - 14:40 - Key Note: Interaction of Plant Growth-Promoting Bacteria and microalgae: from basic studies of plant–bacteria interaction to potential biotechnological applications.	Luz E. de-Bashan, Bashan Foundation, USA.
	14:40 - 15:10 - S1: Co-inoculation using the PGPR species of *Azospirillum brasilense* – Brazilian case	José Roberto Pereira Castro. Anpii
	15:10 - 15:40 - S2: A brief history of microbiology. The history of A. brasilense Az39 in agriculture.	Fabricio Cassan, Rio Quarto - Argentina.
	15:40 – 16:00 - S3: Induction of plant-stress tolerance and defense genes by *Azospirillum brasilense* cells or their metabolites in maize plants.	Marco Antonio Nogueira. Embrapa Soja, Brazil.
16:00 - 16:30	**COFFEE BREAK**	

16:30 - 18:00	**Flash presentations from the poster section**	
	16:30 - 16:40 - Characterization of bacteria associated to bamboo for use in plant micropropagation.	Cristina Belincanta. UFSC, Brazil.
	16:40 - 16:50 - *Rhizobium* sp. (BR 10268) colonizes internal sugarcane tissues, produces phytohormones and accelerates mini-sett germination.	Luc F. M. Rouws. Embrapa Agrobiologia, Brazil.
	16:50 - 17:00 - Increased plant growth promotion performance of *Herbaspirillum seropedicae* in the presence of the saprophytic fungus *Trichoderma longibrachiatum*.	Alice Ferreira Alves. UENF, Brazil.
	17:00 - 17:10 - Physiological keys to elucidate the differential response of Lotus spp.- *Fusarium solani* interaction.	Oscar A Ruiz. IIB-INTECH/ IFRGV, Argentina.

16:30 - 18:00	**17:10 - 17:20 -** Microbiome of maize seed: source of beneficial bacteria for germination and seedling growth?	Lidiane Figueiredo dos Santos. UENF, Brazil.
	17:20 - 17:40 - Co-inoculaiton, macronutrient contents and dry mass production in corn after two co-inoculated seasons.	Carolina Fedrigo Coneglian. UEM, Brazil.
	17:40 - 17:50 - Genome-guided isolation of a novel derivative of the antifungal metabolite burkholdin from the PGPR *Burkholderia catarinensis*.	Evelise Bach. UFRS, Brazil.
	17:50 – 18:00 - RNA-seq Reveals New Functions of NtrY/NtrX Two-component System of Herbaspirillum seropedicae.	Paloma Bonato. UFPR, Brazil.
18:00 - 18:30	**Close ceremony of this event and choice for the next host**	
WEDNESDAY, AUGUST 29		
Day Free		

PROGRAMAÇÃO - XIX RELARE		
QUINTA, 30 DE AGOSTO DE 2018		
08:30 - 10:10	**Sessão 7: Inovação tecnológica: do laboratório à indústria** Coordenador: Fábio Reis	
	8:30 - 9:10 - O marco legal de C&T&I e os mecanismos de incentivo à cooperação entre ICTs e empresas.	Gesil Sampaio Amarante Segundo. Universidade Estadual de Santa Cruz, Brasil
	9:10 - 9:40 – A visão do setor público para melhorar a parceria público-privada no campo da inovação tecnológica	Daniel Trento do Nascimento. Embrapa, Brasil
	9:10 - 10:10 - Conhecimento e investimento da empresa privada com a pesquisa pública para gerar produtos e serviços que tragam benefícios práticos para a agricultura.	Manoela Lima. BASF, Brasil
10:10 - 10:40	**INTERVALO**	

10:40 - 12:10	**Sessão 8: Tecnologias de aplicação e formulações** Coordenador: Jerri Zilli	
	10:40 – 11:10 - Estágio tecnológico da produção de inoculantes no país	Luis Henrique de Barros Soares. Embrapa, Brasil
	11:10 – 11:40 - Estágio da aplicação de inoculantes no país: do tratamento industrial de sementes à aplicação foliar.	Mariangela Hungria. Embrapa Soja, Brasil
	11:40 – 12:10 - Uso de metabólitos microbianos como aditivos em inoculantes	Manuel Megías. Universidade de Sevilia, Espanha
12:10 - 14:00	**ALMOÇO**	
14:00 - 16:30	**Sessão 9: Panorama do uso de inoculantes no Brasil: perspectivas e desafios** Coordenador: Fábio Reis	
	14:00 -14:30 - Situação da aquisição, aplicação e preço dos inoculantes na última década	José Roberto Pereira Castro. Anpii
	14:30 – 15:00 - Base científica dos modelos de "agricultura fermentativa" disseminados pelo país: riscos e oportunidades	Fernando Hercos Valicente. Embrapa Milho e Sorgo.Brasil

14:00 - 16:30	**15:00 – 15:30 -** Base legal para a produção de inoculante na propriedade	Representantes do Ministério da Agricultura, Pecuária e do Abastecimento (MAPA): Hideraldo Jose Coelho Laucir Rodrigues Gonçalves
	15:30 – 16:00 - Inoculantes caseiros" – o que estamos inoculando? Por que os produtores têm adotado práticas de produção de inoculantes nas propriedades?	Rogério Aoyagui - Emagritec Biotecnologia Agrícola Sustentável/Grupo Agrosalgueiro
16:30 - 17:00	**INTERVALO**	
17:00 - 17:30	**Apresentação de novas tecnologias e produtos** Coordenador: Jerri Zilli	
	17h00 - 17h15 - Efeito de inoculantes com adição de metabólitos na promoção de crescimento de arroz irrigado em terras baixas	Maria Laura Turino Mattos
	17h15 - 17h30 - A inoculação com bactérias diazotróficas atende o potencial de rendimento da soja superior a 6.800 kg ha-1	Segundo Urquiaga

17:30 - 18:30	**Sessão de pôsteres**
19:30	**Jantar de confraternização**

SEXTA, 31 DE AGOSTO DE 2018		
08:30 - 10:00	**Sessão 10: Legislação brasileira para registro de estirpes e produtos inoculantes** Coordenador: Fábio Reis	
	8:30 - 9:00 - Proposta de alterações das regras oficiais e inclusão da recomendação de fungos micorrízicos e outros microrganismos	Orivaldo José Saggin Junior. Embrapa Agrobiologia, Brasil
	9:00 - 9:30 - Produção de inoculantes frente a legislação de acesso a recursos genéticos	Jerri Édson Zilli. Embrapa Agrobiologia, Brasil

08:30 - 10:00	**9:30 – 10: 00 -** Situação das coleções oficiais mantenedoras das bactérias da lista oficial de microrganismos e laboratório de controle de qualidade de inoculantes	Representantes do Ministério da Agricultura, Pecuária e do Abastecimento (MAPA): Hideraldo Jose Coelho Laucir Rodrigues Gonçalves
10:00 - 10:30	**INTERVALO**	
10:30 - 12:00	**Apresentação de novas tecnologias e produtos** Coordenador: Jerri Zilli	
	Eficiência Agronômica de Inoculante Micorrízico para as Culturas de Milho e Soja no Brasil	Admir Jose Giachini
	Quantas estirpes de rizóbio são necessárias em um inoculante para 31 espécies florestais?	Sergio Miana de Faria

10:30 - 12:00	Influência da inoculação com Aprinza® (Nitrospirillum amazonense) sobre o crescimento e produtividade da cana-de-açúcar	Fabiano Aparecido Rios
	Efeito do tratamento antecipado de sementes de soja com inoculantes e protetor biológico na produtividade em duas safras de cultivo	Fernando Bonafé Sei
12:00 - 13:30	**ALMOÇO**	
13:30 - 15:00	**Continuação da Apresentação de novas tecnologias e produtos** Coordenador: Fábio Reis	
	Identificación de Bradyrhlizobium spp. basada en sus perfiles proteicos obtenidos por Espectrometría de Masas MALDI-TOF	Gisela Santella

13:30 - 15:00	Efeito do ácido húmico e da trealose na conservação de bactérias inoculantes encapsuladas em alginato	Eliane Cristina Gruszka Vendruscolo
	¿Puede la calidad del agar influir en la recuperacion de Bradyrhizobios de semilla?	Gisela Santella
	Resposta agronômica de soja [Glycine max (L.) Merrill] à inoculação antecipada de sementes, sob condições agrícolas de cultivo	Pedro Henrique de Medeiros Buso
15:00 - 15:30	**INTERVALO**	
15:30 - 17:00	**Assembleia e eleição da nova diretoria e homenagens**	
17:00	**Cerimônia de encerramento**	

POSTERS - XVI SIMPÓSIO SOBRE FIXAÇÃO BIOLÓGICA DE NITROGÊNIO EM NÃO-LEGUMINOSAS E IV WORKSHOP LATINO-AMERICANO DE PGPR

SESSION 1: NITROGEN, ENVIRONMENT AND GLOBAL CHANGE

- Poster I.1 - Response of diazotrophic community to nitrogen fertilization in no-tillage system
- Poster I.2 - Rhizospheric bacterial diversity in soils cultivated with tomato and bean plants after N fertilisation
- Poster I.3 - Effect of three inputs combination in maize crop rhizosphere: evaluation of potential production and greenhouse gases fluxes
- Poster I.4 - Quantification of BNF in two subsequent ratoons of commercial sugarcane varieties using ^{15}N isotopic dilution technique
- Poster I.5 - Biomass production and contribution of BNF to five genotypes of elephant grass grown in naturally poor soils
- Poster I.6 - Inoculation of *Brachiaria* híbrida Mavuno with the plant growth-promoting bacterium
- Poster I.7 - Nitrous oxide emission in sorghum inoculated with *Azospirillum brasilense*

- Poster I.8 - Bacterial inoculation of grain-sorghum fertilized with urea coated with NH_3 volatilization inhibitor for yield improvement
- Poster I.9 - Microbial activity as a parameter for soil quality to Curitibanos region – SC

SESSION 2: EVOLUTION, DIVERSITY AND ECOLOGYOF PGP MICROORGANISMS

- Poster II.1 - Analysis of the growth and colonization of Streptomyces sp. UYFA156 when interacting with its host *Festuca arundinacea*
- Poster II.2 - Indigenous rhizobia from coal mining areas and their contribution to the promotion of growth of herbaceous legumes
- Poster II.3 - PGPR traits of isolates obtained from the rhizospheric bacterial community of Echinocactus platyacanthus
- Poster II.4 - Transcriptomic responses of *Burkholderia* catarinensis to a phytopathogenic fungus and wheat
- Poster II.5 - Characterization of bacteria associated to bamboo for use in plant micropropagation
- Poster II.6 - Characterization of plant growth-promoting bacteria associated with canola

- Poster II.7 - Diversity of arbuscular mycorrhizal fungi in areas of sugarcane Inoculation with nitrogen fixing bacteria
- Poster II.8 - Functional diversity of the microbial community in the rhizosphere of tomato in response to saline stress and inoculation with PGPB
- Poster II.9 - Culture collection of diazotrophic and plant-growth promoting bacteria of Embrapa soybean: providing strains for a sustainable agriculture
- Poster II.10 - Occurrence of diverse *Bradyrhizobium* spp. in roots and rhizospheres of two commercial Brazilian sugarcane cultivars
- Poster II.11 - Peanut and maize growth stage affects the rhizobacterial community structure
- Poster II.12 - Insights into the genomes of *Azospirillum brasilense* strains Ab-V5 and Ab-V6, used in commercial inoculants for grasses and legumes in Brazil
- Poster II.13 - Increased plant growth promotion performance of *Herbaspirillum seropedicae* in the presence of the saprophytic fungus *Trichoderma longibrachiatum*
- Poster II.14 - Diazotrophic bacteria isolated from sugar cane straw and its biotechnological potential
- Poster II.15 - Selection of growth promoting bacteria in relation to the production of AIA and nitrogen fixation

- Poster II.16 - Characterization of plant growth promoting bacteria isolated from wild rice grown in the Pantanal Sul Matogrossense
- Poster II.17 - Evaluation of IAA producer and phosphate solubilizer rhizosphere yeast Torulaspora globosa to promote lettuce growth in field conditions
- Poster II.18 - Potential of plant growth promotion and Pb2+ resistance by bacteria isolated of mining tailings
- Poster II.19 - Ecotypes theory for the identification of bacterial groups with potential PGPR traits in *Bacillus subtilis/amyloliquefaciens*
- Poster II.20 - Occurrence of diazotrophic bacteria in *Jacaratia corumbensis O. Kuntze* (Caricaceae)
- Poster II.21 - Errors in taxonomic attribution of genome sequences of *Paenibacillus polymyxa* deposited in Genbank
- Poster II.22 - *Paenibacillus gauderius* sp. nov., a nitrogen fixing species isolated from the rhizosphere of *Helianthus annuus L.*
- Poster II.23 - *Bacillus* spp. isolated from garlic and their potential to the growth promotion and biocontrol

SESSION 3:
WHAT TO SEEK IN PGP

- Poster III.1 - Transcriptome analyses of maize roots inoculated with *Herbaspirillum seropedicae*
- Poster III.2 - Genetic, physiological and metabolic characterization of Pseudomonas sp. strains exhibiting biofertilizer traits and broad-spectrum biocontrol potential
- Poster III.3 - Antioxidant activity of *Allium sativum* L. with yeasts and bacteria in Sclerotinia sclerotiorum control
- Poster III.4 - Microbial prospection and combination of N2-fixing and cell-wall degrading properties to increase sugarcane straw decomposition
- Poster III.5 - RNA-seq analysis of the *Cupriavidus-Mimosa* symbiotic interaction
- Poster III.6 - Highlighting the plant growth promoting and interaction mechanisms in the genome of the endophytic bacteria Kosakonia sp. UYSB139 and *Pantoea* sp. UYSB45
- Poster III.7 - *Rhizobium* sp. (BR 10268) colonizes internal sugarcane tissues, produces phytohormones and accelerates mini-sett germination
- Poster III.8 - Plant growth promoting capability of endophytic-diazotroph isolates associated with sweet sorghum (*Sorghum bicolor*)
- Poster III.9 - The effect of sugarcane apoplastic fluid on the proteome of HCC103 strain of *Herbaspirillum rubrisubalbicans*

- Poster III.10 - Isolation, characterization and selection of endophytic bacteria from nut grass (*Cyperus rotundus* L.) rhizomes
- Poster III.11 - An efficient barley and wheat colonization is achieved by Paraburkholderia tropica after seed inoculation
- Poster III.12 - Efficacy of *Azospirillum brasilense* on biological control of garlic (*Allium sativum* L.) phytopathogens
- Poster III.13 - Physiological keys to elucidate the differential response of Lotus spp.- *Fusarium solani* interaction
- Poster III.14 - Interspecific communication in vitro between *Bradyrhizobium* and *Azospirillum* via acyl-homoserine lactones mediators
- Poster III.15 - Effect of heterologous AHLs on the phosphate solubilizing ability of *Serratia* sp S119 and Enterobacter sp J49
- Poster III.16 - Cumulative effect of co-inoculation with *Bradyrhizobium* and *Azospirillum* on corn yield and biometric components

SESSION 4:
THE HOLOBIONT PLANT: MULTITROPHI INTERACTIONS

- Poster IV.1 - Transcriptome analysis of *Gluconacetobacter diazotrophicus* PAL5 strain in response to iron
- Poster IV.2 - Microbiome of maize seed: source of beneficial bacteria for germination and seedling growth?
- Poster IV.3 - Genes involved in Nitrogen signaling and metabolism in sugarcane associated with beneficial diazotrophic bacteria
- Poster IV.4 - Expression profile of nitrogen regulation during maize association with diazotrophic bacteria
- Poster IV.5 - Transcriptome and proteome approaches for the diazotroph *Nitrospirillum amazonense* grown in sugarcane apoplast fluid
- Poster IV.6 - Genome-wide association analysis reveals candidate genes for tropical maize responsiveness to *Azospirillum brasilense*
- Poster IV.7 - Transcritptome profile of the interaction between mild phytopathogen *Herbaspirillum rubrisubalbicans* M1 and *Sorghum bicolor*
- Poster IV.8 - LncRNA involved in the response to nitrogen deficiency stress and diazotrophic bacteria in maize

SESSION 5:
BACTERIAL AND PLANT PHYSIOLOGY

- Poster V.1 - The PII interactome in *Azospirillum brasilense*
- Poster V.2 - The GlnR regulon in *Paenibacillus Paenibacillus riograndensis*
- Poster V.3 - The genetic relationship between *Azospirillum brasilense* and maize during the inhibition of indole-acetic production by the plant
- Poster V.4 - A mechanism for the regulation of *Herbaspirillum seropedicae* NifA by its GAF domain in response to ammonium levels
- Poster V.5 - Effect of biochar on the microbial enzymes activity of soil with eucalyptus
- Poster V.6 - Responses to elevated c-di-GMP levels in *Azospirillum brasilense* Az39
- Poster V.7 - Quorum sensing and other communication strategies in A. brasilense
- Poster V.8 - Role of PQQ cofactor of *Serratia* sp. S119 in the modulation of bacterial antioxidant mechanisms
- Poster V.9 - Construction and characterization of *Azospirillum brasilense* strains containing nifA gene deleted in the GAF domain
- Poster V.10 - Characterization of ipdC, flcA and narL-like mutant strains of *Azospirillum brasilense* in the interaction with grasses

- Poster V.11 - Maize root exudates improves the response to *Azospirillum brasilense* Ab-V5 inoculation

SESSION 6:
APPLICATIONS OF PGPR IN AGRICULTURE

- Poster VI.1 - Root architecture of pre-sprouted sugarcane seedlings inoculated with five strains of diazotrophic bacteria
- Poster VI.2 - Biomass accumulation in sugarcane inoculated with diazotrophic bacteria at two levels of N and P
- Poster VI.3 - Colonization of maize and tomato seedlings by plant growth-promoting *Bacillus* sp. (ZK) and *Rhizobium* sp. (8.1.2.1)
- Poster VI.4 - ^{15}N influx and growth of contrasting sugarcane genotypes inoculated with plant growth promoting diazotrophic bacteria
- Poster VI.5 - Influence of the substrate on pre-sprouted seedling of sugarcane inoculated with a mixture of diazotrophs
- Poster VI.6 - Effects of maize inoculation with ethylenediamine-resistant mutants of Pseudomonas sp
- Poster VI.7 - Isolation and characterization of plant growth promoting rhizobacteria and their effects on growth of tomato seedlings
- Poster VI.8 - Application of *Gluconacetobacter diazotrophicus* increases

tolerance of red rice variety to water stress

- Poster VI.9 - Self-regulation of exopolysaccharide production in *Gluconacetobacter diazotrophicus* by a tyrosine kinase
- Poster VI.10 - Paraburkholderia tropica is able to growth in chemostat under N_2-fixing conditions
- Poster VI.11 - Effect of isolated indigenous PGPR and chemical fertilizers on growth and productivity of pepper (*Capsicum annum* cv Calafyuco INTA)
- Poster VI.12 - Can *Herbaspirillum seropedicae* alleviate plant water stress?
- Poster VI.13 - Effect of the association of endophytic bacteria in Urochloa ruziziensis submitted to osmotic stress
- Poster VI.14 - Effect of *Azospirillum brasilense* on nitrogen use efficiency in maize under limited nitrogen supply
- Poster VI.15 - Growth-promoting bacteria associated with nitrogen top-dressing in the agronomic performance of maize in the second harvest
- Poster VI.16 - Genome-guided isolation of a novel derivative of the antifungal metabolite burkholdin from the PGPR *Burkholderia catarinensis*
- Poster VI.17 - Integrating high-throughput phenotyping to monitor nitrogen stress mitigation processes induced by diazotrophs in sorghum
- Poster VI.18 - Bacteria that promote plant growth of Panicum maximum

BRS Zuri

- Poster VI.19 - *Azospirillum brasilense* Vi22 and its potential as a sunflower growth promoter
- Poster VI.20 - Survival evaluation of *Azospirillum brasilense* FP2 in wheat seeds treated with agrochemicals and cell protectors
- Poster VI.21 - Growth of micropropagated sugarcane seedlings inoculated with fifteen strains of diazotrophic bacteria
- Poster VI.22 - Growth evaluation of the sugarcane varieties RB966928 and RB975201 inoculated with a mixture of diazotrophic bacteria
- Poster VI.23 - Responses of inoculated soybean and wheat to metabolites from *Rhizobium* tropici
- Poster VI.24 - Growth of sugarcane variety CTC9003 inoculated with five strains of diazotrophic bacteria
- Poster VI.25 - Agronomic evaluation of *Herbaspirillum seropedicae* as inoculant that improves maize yields in Brazil
- Poster VI.26 - Root development of micropropagated sugarcane inoculated with different species of diazotrophic bacteria
- Poster VI.27 - Morphological changes in maize roots induced by inoculation with *Azospirillum brasilense* and/or its metabolites
- Poster VI.28 - Agronomic efficiency of diazotrophic bacteria for nitrogen fixation in irrigated rice BRS Pampa

- Poster VI.29 - Polymeric CMC/starch mixtures as alternative carriers of bacterial formulations for sugarcane inoculation
- Poster VI.30 - Genetic control and heterosis for maize-*Azospirillum brasilense* association
- Poster VI.31 - Beans (*Phaseolus vulgaris* L.) development and productivity after furrow inoculation: greenhouse and field trials
- Poster VI.32 - Agronomic efficiency of soybean bioinductive inoculants and fertilizers in the lowlands of Rio Grande do Sul
- Poster VI.33 - Understanding the apoplast bacterial community from sugarcane inoculated with a consortium of five diazotrophic bacteria
- Poster VI.34 - Selection of Bradyhizobium strains that benefit different sugarcane growth variables
- Poster VI.35 - Evaluations of sugarcane variety CTC9001 inoculated with five diazotrophic bacteria on nitrate assimilation
- Poster VI.36 - Survival and viability of *Azospirillum brasilense* Ab-V5 immobilized on injection-molded biodegradable plastic and effect on tomato seedlings
- Poster VI.37 - Pseudomonas fluorescens Rt6M10 and *Azospirillum brasilense* AZ39 inoculation increases yield and fruit quality of two tomato varieties for industry
- Poster VI.38 - Initial growth of sugarcane genotypes in response the biostimulant containing endophytic diazotrophic bacteria and Humic Acids

- Poster VI.39 - Phosphate solubilization, indole acetic acid synthesis and effect on soybean (*Glycine max*) biomass inoculated with *Pochonia* spp
- Poster VI.40 - Growth promotion in legumes, *Glycine max* and *Vigna unguiculata*, by *Pochonia chlamydosporia* isolate in field
- Poster VI.41 - Effect of different strains and concentrations of *Bacillus* and *Azospirillum* on maize grown under hydroponic and field conditions
- Poster VI.42 - Maize growth under low and high N-levels and inoculated with four different strains of diazotrophic bacteria
- Poster VI.43 - Inoculation of wheat seeds with plant growth promoting bacteria
- Poster VI.44 - Development of low-cost biofertilizers targeted to the urban, periurban and peripheral agriculture: a social technology
- Poster VI.45 - Productive characteristics of grass-paiaguás inoculated with plant growth-promoting bacteria and N-fertilizer
- Poster VI.46 - Elongation of leaves and tillering of grass-xaraes inoculated with plant growth-promoting bacteria and fertilization nitrogen
- Poster VI.47 - Co-cultivation of plant growth promoting bacteria and their incidence on symbiotic performance in *Glicyne max*
- Poster VI.48 - Evaluation of the bacterial isolate *Burkholderia* sp. 10N6 in the promotion of plant growth in different cultures
- Poster VI.49 - *Azospirillum brasilense* seed inoculation (*Urochloa ruziziensis* and/or upland rice) on microbial activity, soil fertility and yield

- Poster VI.50 - Response of the C4 energy *Pennisetum purpureum* variety PCEA to inoculation with diazotrophic bacteria
- Poster VI.51 - Yield of maize grown at different technological levels submitted to inoculation with *Azospirillum*
- Poster VI.52 - Growth and contribution of BNF to different species of Brachiaria inoculated with *Azospirillum brasilense*
- Poster VI.53 - Normalized difference vegetation index of maize inoculated with *Azospirillum* at different levels of technology
- Poster VI.54 - Eucalyptus monoculture reduces the bacterial diversity of grasslands from different soil types in Brazil's Pampa biome
- Poster VI.55 - Yeasts as plant growth promoter for beans (*Phaseolus vulgaris* L.)
- Poster VI.56 - Potential use of Dark Septate to promote the plant growth
- Poster VI.57 - Effect of seed inoculation on Paiaguás grass tolerance to water deficit stress
- Poster VI.58 - Growth promotion of strawberry plants inoculated with microorganisms
- Poster VI.59 - Plant growth promoting microorganisms effects on banana plant in vitro growth
- Poster VI.60 - Growth stimulation of perennial ryegrass by plant growth promoting bacteria under limited nutritional conditions

- Poster VI.61 - Evaluation of growth promoting activity of two strains identified as *Bacillus amyloliquefaciens* in tomato culture
- Poster VI.62 - Genomic studies of microorganisms in phytoremediation of contaminated soils with hydrocarbons under *Populus* sp. culture
- Poster VI.63 - Evaluation of the inhibition capacity of five different PGPRs on the pathogenic fungi *Rhizoctonia solani*
- Poster VI.64 - Preliminary assay on the biocontrol capacity of two *Bacillus* species on the causal agents of two limiting soil borne diseases of onion crops
- Poster VI.65 - Selection of *Bacillus* spp. for biological control of diseases and growth promotion of soybean
- Poster VI.66 - Root-promoting rhizobacteria in *Acacia mearnsii* cuttings
- Poster VI.67 - Lettuce and rhizosphere microbiome responses to Pseudomonas species
- Poster VI.68 - Physiological aspects of *Methylobacterium mesophilicum* endophyte inhibition of Xylella fastidiosa phytopathogen
- Poster VI.69 - *Rhizobium* strains in the biological control of the phytopathogenic fungi Sclerotium (Athelia) rolfsii on the common bean
- Poster VI.70 - Co-inoculaiton, macronutrient contents and dry mass production in corn after two co-inoculated seasons

- Poster VI.71 - Evaluation of the antagonistic activity of metabolites produced by the culture of *Bacillus halotolerans* to control *Rhizoctonia solani*
- Poster VI.72 - Beneficial microorganisms in sugarcane pre-sprouted seedling production
- Poster VI.73 - Response of the inoculation of *Azospirillum brasilense* strains AbV5 and AbV6 in wheat lines
- Poster VI.74 - Comparative effect of single and dual inoculations of *Azospirillum brasilense* and *Bacillus* sp. on root growth of maize seedlings
- Poster VI.75 - Inoculation of plant growth promoting bacteria (PGPR) increases the protein and macronutrient content in rice (*Oryza sativa* L.)
- Poster VI.76 - Assessment of PCR with specific primers target to A. brasilense Az39 in complex samples
- Poster VI.77 - Extraction of N in sugarcane under increased N-fertilizer use and inoculation with five diazotrophs
- Poster VI.78 - Benefits of co-inoculation of *Bradyrhizobium* japonicum BR 1602 and plant growth-promoting rhizobacteria in *Calopogonium mucunoides*
- Poster VI.79 - Biosolubilization efficiency of *Azospirillum brasilense* and *Bacillus* sp. in single and mixed cultures

- Poster VI.80 - Revegetation approaches of degraded soils by open-pit mining through useful plants and beneficial microorganisms
- Poster VI.81 - The influence of microorganisms on the productivity and quality of radish plants
- Poster VI.82 - Functional activities of *Bacillus* isolated from bromeliads and growth promoting activity of maize exposed to drought stress
- Poster VI.83 - Inoculation of a native bacterial consortium improves yield and milling quality in rice (*Oryza sativa* L.)
- Poster VI.84 - Organic fertilization and *Bacillus subtilis* inoculation influence the growth of *Mentha arvensis* L.
- Poster VI.85 - Maize induced selection of plant-growth-promoting rhizobacteria

POSTERES - XIX RELARE

- Poster 1 - Avaliação da eficiência do uso da coinoculação em soja no tratamento de semente e sulco de plantio em três safras de cultivo
- Poster 2 - Avaliação da sobrevivência de *Bradyrhizobium* em sementes de soja na presença de agrotóxicos
- Poster 3 - Avaliação econômica da co-inoculação do feijoeiro-comum com *Rhizobium tropici* e *Azospirillum brasilense*
- Poster 4 - Benefícios da inoculação de cana-de-açúcar com Aprinza® (*Nitrospirillum amazonense*)
- Poster 5 – Caracterização molecular das estirpes Abv-5 e Abv-6 de *Azospirillum brasilense*
- Poster 6 - Desenvolvimento da cultura do feijão (*Phaseolus vulgaris* L.) em diferentes sistemas de abertura de sulco
- Poster 7 - Efecto de *Bacillus* y *Paenibacillus* en la diversidad florística de pastizales alto andinos de Ayacucho – Perú
- Poster 8 - Eficiência agronômica da co-inoculação com *Azospirillum* e cianobactérias em milho
- Poster 9 - Eficiência agronômica da co-inoculação com rizóbios, azospirillum e microalgas em feijoeiro
- Poster 10 - Eficiência simbiótica de estirpes em genótipos de soja submetidos a excesso hídrico

- Poster 11 - Uso de bactérias promotoras de crescimento de plantas visando o controle de fungos que atacam culturas agrícolas
- Poster 12 - Portfólio de serviços oferecidos ao setor produtivo pelo Centro de Recursos Biológicos Johanna Döbereiner (CRB-JD)
- Poster 13 - Pré-inoculação de soja com o inoculante Signum em sementes tratadas
- Poster 14 - Produtividade e intensidade de emissões de N2O na soja inoculada com diferentes estirpes comerciais de *Bradyrhizobium* spp.
- Poster 15 - Serviços prestados pela "Coleção de Culturas de Microrganismos Multifuncionais da Embrapa Soja" para o setor privado
- Poster 16 - Validação in house dos métodos oficiais para a análise da qualidade de inoculantes de soja