



FOURTH INTERNATIONAL LEGUME SOCIETY CONFERENCE BROUGHT TOGETHER LEADING EXPERTS IN ROOT ROT AND OTHER PULSE RESEARCH



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It was my great pleasure to attend the fourth International Legume Society Conference, which was held September 19-22, 2023, in Granada, Spain. This International Conference takes place every three years following with conferences that took place in Novi Sad (2013), Tróia (2016) and Poznań (2019) by the International Legume Society. It aimed to stimulate 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.

Delegates from 30 countries heard from speakers from across the globe on many different topics. The agenda consisted of scientific sessions in



Dr. Tom Warkentin, Chair of Pulse Crop Breeding and Genetics at the University of Saskatchewan, introduced this session at the 9th Workshop of International Legume Root Disease in Granada, Spain.

the following categories: 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 and Understanding and Enhancing Legume Crop Tolerance to Biotic Stresses. The conference took place at the Granada Conference and Exhibition Centre, in World Heritage Site city of Granada, Andalusia, Spain. Granada has been awarded

the title of city of Science and Innovation. Alberta Pulse Growers Commission (APG) was one of many stakeholders that sponsored the conference.

A pre-conference root rot workshop was also organized on September 18, 2023 and well attended by Canadian and international delegates. Several presentations dedicated to the problem of root rots across the globe were eye opening about the diversity and ability to cause disease by various fungal and viral pathogens in form of root rots worldwide, especially in UK, EU, and Australia. Such a gathering with niche focus on the issue of root rot is extremely important and valuable for Alberta Pulse Growers as root rots in pulses have been identified as a top priority by our pulse growers.

APG was first introduced to the pathogen *Aphanomyces euteiches* in 2013, and it was immediately identified as a serious threat to pulse production. This discovery was a catalyst to research efforts aimed at managing this and other root diseases.

Many ideas were brought forward regarding root rot mitigation by those in attendance at the conference in Granada and results of unpublished research were shared, which will help with filtering duplicate research from Alberta and generating newer ideas as well as connecting with subject matter expertise. Dr. Sabine Banniza, Professor and Strategic Research Chair in Pulse Crop Pathology at the University of Saskatchewan's Crop Development Centre, spoke on the topic "Understanding and enhancing legume crop tolerance to biotic stresses."

She explained that with the advent of gene technology, it is expected that genetics will solve major issues such as root rot. However, the host-pathogen systems are regulated by complex networks with many

interaction points with the pathogen rather than by single "major" resistance genes functioning as master switches as described in the gene-for-gene hypothesis. Hence, the gene-editing technology may not generate easy solutions for these complex systems, but they may become critical in the study of gene function.

Among other Canadian participants were Dr. Dae-Kyun, University of Calgary; Dr. Tom Warkentin, University of Saskatchewan; Dr. Syama Chatterton, Agriculture and Agri-Food Canada in Lethbridge; Albert Vanderberg, University of Saskatchewan; and staff from Saskatchewan Pulse Growers.

Ro presented on his APG-funded research on CRISPR/CAS-9 enabled mutagenesis on pea. Warkentin also presented on APG-funded research work advances in pea breeding. Overall, there were about 300 participants and all the major pulse crop countries sent representatives. There were several other presentations from Canadian researchers on various pulses including peas and lentils.

There was a fascinating scientific atmosphere to promote and generate knowledge through many different areas, including key aspects focused on sustainable agriculture, nutrition, and human health with focus on legume crops. I enjoyed not only the scientific program but also the Andalusian hospitality and the gathering of minds to generate knowledge through many different areas focused on pulses.



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