

PROCEEDINGS OF THE

20th INTERNATIONAL SUNFLOWER CONFERENCE



Novi Sad, Serbia
June 20-23, 2022

Proceedings of the

20th International Sunflower Conference



Novi Sad, Vojvodina, Serbia
June 20-23, 2022

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Proceedings of the 20th International Sunflower Conference
Novi sad, Serbia, June 20-23, 2022

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The proceedings of the 20th International Sunflower Conference contain 153 contributions from scientists of 30 countries. They include plenary lectures, oral talks and regular communications presented with posters, among which, selected contributions were emphasized with short oral talks. The manuscripts are classified by research areas in ten separate sections. They offer a thorough review of the current state of the art of sunflower research and production around the world. The Organizing Committee is grateful to Tanja Vunjak and Aleksandar Vojisavljević for their excellent editorial assistance in the preparation of these Proceedings.

ISC2022 Organizing committee



Conference program

Sunday, 19 June

16.00-21.00	Registration
19.00-21.00	Welcome Reception

Monday, 20 June

8.00-17.00	Registration	
9.00-9.30	Opening Ceremony	
9.30- 10.15	Invited talk Section 1: Dr. Felicity Vear (France)	
10.15-11.00	Coffee break	
11.00-12.00	Section 1: Breeding – New/old breeding goals and challenges	Section 2: Oils and proteins – Innovations for increased quality and feedstock supply
	Oral and short oral presentations	Oral and short oral presentations
12.00-13.30	Lunch	
13.30-14.30	Invited talks Section 3: Dr. C.C. Jan (China) Section 4: Dr. Sreten Terzić (IFVCNS, Serbia)	
14.30-15.00	Coffee break	
15.00-16.00	Section 3: Confectionery sunflower – Emerging crop	Section 4: Genetic resources – Investment for the future
	Oral and short oral presentations	Oral and short oral presentations
16.00-17.00	Poster session – Sections 1, 2, 3, 4	
18.00-21.00	Novi Sad and Petrovaradin fortress tour	

Tuesday, 21 June

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10.30-11.00	Coffee break	
11.00-12.00	Section 5: Biotic stress resistance – New and emerging pests and diseases	Section 6: Crop production and modeling – Yield stability in changing environment
	Oral and short oral presentations	Oral and short oral presentations
12.00-13.30	Lunch	
13.30-14.30	Invited talks Section 7: Dr. Nicolas Langlade (INRAE, France) Section 8: Etienne Pilorgé (Terres Inovia, France)	
14.30-15.00	Coffee break	
15.00-16.00	Section 7: Abiotic stress resistance – Challenges of changing environment	Section 8: Economy and market – Trends and prospects
	Oral and short oral presentations	Oral and short oral presentations
16.00-17.00	Poster session – Sections 5, 6, 7, 8	

Wednesday, 22 June

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10.30-11.00	Coffee break	
11.00-12.00	Section 9: Broomrape – Constant challenge	Section 10: Bees and seeds – Exploring new venues for increased yield and seed production
	Oral and short oral presentations	Oral and short oral presentations
12.00-13.30	Lunch	
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14.30-15.00	Coffee break	
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15.00-16.30	ISA Assembly	
16.30-17.00	Closing ceremony	
20.00-24.00	Gala Dinner Pustavoit Award Presentation Ceremony IFVCNS Best Poster Award Presentation	

Thursday, 23 June

9.00-15.00	Field day
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THE EFFECT OF LEGUMES AND SUNFLOWER INTERCROPPING ON SOIL COMPACTION

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Abstract

Soil compaction is important cause of its degradation that leads to decreased water and nutrient accessibility to plants. As a consequence, root growth is reduced, resulting in yield decrease. Cover crops and intercrops can have positive effects on soil compaction, but cropping management adaption is required. In sunflower production soil compaction is not frequently analyzed, but under the current and projected changes of climate more attention must be given to this problem. Therefore, the aim of this research was to assess the effect of intercropping of sunflower and legumes on soil compaction. Three different NS sunflower hybrids were intercropped with common vetch, red clover or alfalfa, whereas sole cropping of sunflower was control. Trial was set up at Institute of Field and Vegetable Crops, Rimski Šančevi, Serbia. Soil compaction was analyzed based on resistance to penetration of the penetrometer cone into the soil, and the soil water content (Vol%). Penetration resistance was determined using an Eijkelkamp Penetrometer up to 80 cm, and data processing was done with Penetroviewer 6.03 software. The lowest percentage of soil moisture, at depth up to 20 cm, was measured in alfalfa and sunflower intercrop (21.7%), and the highest on the control plot (26.8%), as a result of absence of intercropping system. The lowest Cone index (CI) was determined on the alfalfa and sunflower intercrop (2.3), and the highest in red clover and sunflower (3.1). The highest value of specific soil resistance in the 0-20 cm depth was found in common vetch and sunflower intercrop (2.81 MPa). Increased compaction was observed for the same intercrop in the 20-40 cm layer (4.15 MPa). The lowest specific resistance (1.33 MPa), at the depth of 0-20 cm, was measured in alfalfa and sunflower intercrop, with a slight increase in the deeper layers, while plow pan was also observed. Among the tested sunflower-legume intercrops, alfalfa showed the best performances on reducing soil compaction due to its narrow crown and a deep tap root. The necessity to pay more attention to selection of suitable plant species with different root architecture, which will reduce compaction, and lead to development of favorable water-air regimen, arises.

Keywords: intercropping; sunflower; legumes; soil compaction; penetrometer; soil degradation.

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