

Summer school on Integrated Weed Management: Principles and implementation

22-25 June 2017

The EWRS working groups on Optimizing herbicide use in an IWM context and Weed resistance in collaboration with the Greek Weed Science Society and the American Farm School (AFS)/Perottis College in Thessaloniki, Greece are organizing a summer school for MSC and PhD students with a main focus on weed science as well as young career weed science researchers. Participants from the Greater Balkan area (Slovenia, Croatia, Serbia, Bosnia-Herzegovina, Montenegro, Macedonia, Albania, Greece, Rumania, Bulgaria and Turkey) will be given preference.

Venue: American Farm School/Perrotis College, Thessaloniki, Greece

Chairman:

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Lecturers:

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Background

Since the early 1960'ies weed management in most parts of the world has relied heavily on the use of herbicides. Herbicides are relatively cheap, they are a very effective and reliable tool for controlling weeds and they are easy to apply. With the steadily increasing number of cases of evolved herbicide resistance and the complete lack of new herbicidal modes of action to manage the resistant genotypes the situation has changed and

herbicides are no longer the reliable tool they used to be. In the EU the situation is further aggravated by the fact that many older herbicides are not re-authorized due to the new and stricter criteria in Regulation 1107/2009. Finally, new weed species are emerging in many countries posing new challenges to weed management.

This has led to a renewed interest in developing and adopting integrated weed management strategies and this was acknowledged in Directive 2009/128/EC that developed a set of eight principles of IPM that all Member States are obliged to implement. Integrated weed management implies that all available weed control methods are considered (not excluding the use of herbicides) and integrated into strategies that prevent the build-up of large populations of weeds and reduced the reliance on herbicides. A truly integrated approach should focus on preventing the establishment of weeds, minimize the interference of weeds on crop yields and quality and limit the return of seeds or other vegetative organs to the soil seedbank or in the case of perennial weeds the vegetative organ bank.

The course provides a state-of-the-art update on mechanical and chemical control methods including weed resistance and examines the integration of preventive/cultural, non-chemical and chemical control techniques into a weed management strategy in annual and perennial crops with a clear focus on the Balkan region and the weed management issues this region is facing.

The course will run over 3 days (+ 1 day for a field excursion) and consist of a mixture of lectures, journal clubs and group work. The participants will be given 3-5 scientific papers that they are supposed to have read prior to the course. Some of these papers will be discussed in the journal clubs.

Programme

Day	Topic	Content
22 June		
9:00-9:30	Introduction	Introduction Presentation of the lecturers and participants (round the table) IPM/IWM: Origin and definitions
9:30-11:00	Optimizing herbicide efficacy and dose <i>Lecturer: Per Kudsk</i>	Herbicide grouping: important for understanding the interaction with biotic and abiotic parameters How to study the effect of biotic and abiotic parameters on herbicide efficacy The role of biotic factors (weed flora, weed growth stage, crop competitiveness) The role of abiotic parameters (soil texture, soil moisture, light, temperature, air humidity, precipitation, dew, wind, application technique, adjuvants/formulation, mixture with other pesticides)
11:00-11:30	Coffee break	
11:30-13:00	An update on cultural weed control methods <i>Lecturer: Ilias Travlos</i>	Preventing introduction and spread of weed seeds Soil tillage/false seedbed Sowing time and crop density Spatial arrangement Destruction of weed seeds Biodiversity/Seed predation
13:00-14:00	Recent developments in physical weed control/tillage operations <i>Lecturer: Ileana Bogdan</i>	Newest developments in physical weed control. Sensor-guided tools What will the future bring? How to integrate physical weed control into IWM strategies
14:00-15:00	Lunch	
15:00-16:00	Allelopathy and cover crops <i>Lecturer: Christos Vasilikiotis</i>	Theory or reality? Which chemical compounds are involved? Competition or allelopathy? Cover crops as part of an IWM strategy
16:00-17:30	Herbicide resistance <i>Lecturer: Roland Beffa</i>	Status Herbicide resistance mechanisms The dose debate Crops and types of herbicides
17:30-18:30	IWM and herbicide resistance management <i>Lecturer: Demosthenis Chachalis</i>	Specific focus to glyphosate resistance Current situation, crops, and weed species Detection tools, future problems Strategies for herbicide resistance management
18.30-19:00	End of day 1 and introduction to day 2	

Day	Topic	Content
23 June		
9:00-10:30	Herbicides and risk of water pollution <i>Lecturer: Spiros Vizantinopoulos</i>	Factors influencing the movement of herbicides to surface and ground water, European scenarios and models of prediction of the movement of herbicides to surface and ground water, Best Management practices to reduce spray drift, Guidelines for reduction of the pollution of surface and ground water from point sources of herbicides, Monitoring studies for herbicides
10:30-11:00	Coffee break	
11.00-12.30	Site specific farming <i>Lecturer: Athanasios Gertsis</i>	Prospects of site specific farming Applications for weed management
12:30-13:30	Journal club	Students are supposed to have read two scientific papers. Two of the students will be asked to present the main conclusions of the papers and to initiate the discussion with questions prepared beforehand
13:30-14:30	Lunch	
14:30-15:30	Integrated weed management: A case of maize <i>Lecturer: Milena Simic</i>	Examples of successful IWM implementation in maize
15:30-16.00	Coffee break	
16:00-17:00	Integrated weed management: A case of rice <i>Lecturer: Husrev Mennan</i>	Cultivar selection and agronomic practices to control weeds, Weedy rice control by using IMI tolerant rice cultivars (advantages and disadvantages), Problem and herbicide resistant weed species
17.00-18:30	Visiting field experiments at the American Farm School/Perottis College field station	
18:30-19:00	End of day 2 and introduction to day 3	

Day	Topic	Content
24 June		
9:00-10:00	Integrated weed management <i>Lecturer: Per Kudsk</i>	What does IWM imply? What does research tell us about IWM and IWM implementation? Examples of successful IWM implementation How does herbicides fit into IWM
10:00-10:30	Introduction to group work	
10:30-11:30	Coffee break	
11:30-13:30	Group work: Round 1	
13:30-14:30	Lunch	
14:30-16:00	Group work: Round 2	
16:00-16:30	Coffee break	
16:30-18:00	Presentation of group work	
18:00-18:30	Closing	Last minute questions and feedback from participants
25 June		
Full day	Excursion (not compulsory)	