



Novel and Sustainable Weed Management in Arid and Semi-Arid -Ecosystems, Rehovot, Israel, October 7-12, 2007

Local organizing and scientific committee:

- Rubin, Baruch - Chairman
- Eizenberg, Hanan - Chairman, Scientific Committee
- Gamliel, Abraham
- Gerstl, Zeev
- Goldwasser, Yaakov
- Gressel, Jonathan
- Hershenhorn, Joseph
- Joel, Daniel M.
- Kigel, Jaime
- Mingelgrin, Uri
- Mishael, Yael
- Resnick, Andy
- Sibony, Moshe
- Yaacoby, Tuvia



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Sponsors:

- The Hebrew University of Jerusalem
- The Faculty of Agricultural, Food and Environmental Sciences
- European Weed Research Society (EWRS)
- The Weed Science Society of Israel (WSSI)
- The Agricultural Research Organization (ARO)
- Israeli association of agrochemicals producers and importers
- Makhteshim Agan Industries Ltd.
- Israel Luxembourg Industries Ltd.
- Tarsis Ltd, Israel
- The Rehovot Municipality



Scientific Program

All conference sessions will take place in Ariowitsch Auditorium (on Rehovot campus).

Sunday, October 7

08:30-19:00 Arrival and registration at Reisfeld Residence

Registration desk will be open throughout the day.

09:15-16:45 Statistical Analysis Course by Prof. J. C. Streibig, EWRS Education and Training Working Group "Nonlinear regression problems in weed science with the free software R"

Course will take place in Computer Room 16 - Aaronsohn Building.

12:00-18:00 Poster mounting

19:00- Welcome Reception

Monday, October 8

Opening session

07:30-08:30 Registration at Ariowitsch Auditorium

Moderator: B. Rubin

08:30-09:00 Welcome address:

Prof. B. Rubin, Chairman of the Organizing Committee

Prof. E. Feinerman, Dean of the Faculty of Agricultural, Food and Environmental Sciences, The Hebrew University of Jerusalem, Rehovot

Dr. M. Quadranti, President of EWRS. Research and development in weed control: challenges and opportunities.



- 09:00-09:30** (1) **Keynote lecture:** Potential biotech solutions for intractable weed problems in our arid and semi-arid ecosystems, **J. Gressel**, Weizmann Institute of Science, Israel.

Biotechnology and Molecular Biology in Weed Science

Moderators J. Gressel and B. Rubin

- 09:30-10:00** (2) Transgenic herbicide-resistant crops and their impact on weeds and the environment, B. Rubin
- 10:00-10:30** *Coffee break*
- 10:30-10:50** (3) Transgenic mitigation to reduce risks of transgene flow from engineered crops into related weeds and other crop cultivars, H. Al-Ahmad and J. Gressel
- 10:50-11:10** (4) Inter-generic introgression from domesticated wheat (*Triticum aestivum*) to related wild and weedy species and ways to prevent it, S. Weissmann, M. Feldman and J. Gressel
- 11:10-11:20** Discussion

Application methods and formulations

Moderators: Y. Mishaël and A. Gamliel

- 11:20-11:40** (5) Exploiting clay/organic-molecules interactions for the preparation of enhanced herbicide formulations, G. Rytwo
- 11:40-12:00** (6) Controlled release herbicide formulations based on modified clay minerals, Y. Mishaël, Y. El-Nahhal, D. Ziv, A. Radian, S. Nir and B. Rubin (Invited)
- 12:00-12:20** (7) Application of new modified organo-clay formulations of alachlor and sulfosulfuron in the field, O. Rabinovitz, Y. Mishaël, S. Nir, C. Serban and B. Rubin



- 12:20-12:40 (8) Alternative weed control methods in LPS drip-irrigated crops, S. Kleifeld
- 12:40-12:50 Discussion
- 13:00-14:30 *Lunch at the Faculty Restaurant*

Herbicide behavior in soils: bio-remediation and methyl bromide alternatives

Moderators: E. Capri, Z. Gerstl and U. Mingelgrin

- 14:30-14:50 (9) Current status of 1,3 D and other M.B. alternatives in E.U., P. Tsakonas and J. Dawson (Invited)
- 14:50-15:10 (10) Fumigant risk assessment in Europe. The case of sulfuryl fluoride, O. J. Magrans (Invited)
- 15:10-15:30 (11) Environmental impact indicators for herbicides: aggregation from field to country, S. Vergucht and W. Steurbaut (Invited)
- 15:30-15:50 (12) Modelling complex crop rotations in a GIS based risk assessment, M. Balderacchi and M. Trevisan (Invited)
- 15:50-16:10 (13) Phytoremediation of atrazine-polluted water with *Pistia stratiotes*, C. Del-Campo, B. Rubin and E. Tel-Or
- 16:10-16:20 Discussion
- 16:20-16:50 *Coffee break*

Weed management in arid and semi arid farming systems: dry-land crops, irrigated crops and site specific weed management

Moderators: H. Eizenberg and Y. Goldwasser

- 16:50-17:20 (14) Optical methods for weed detection for site specific weed management, V. Alhanatis (Invited)



- 17:20-17:40** (15) Development of integrated approach for weed detection in cotton, for site specific weed management, R. Efron, V. Alchanatis, Y. Cohen, A. Levi, H. Eizenberg, Z. Yehuda and U. Shani
- 17:40-18:00** (16) Site specific weed management application in Israel: from satellite to the field - an overview, S. Mey-Tal
- 18:00-18:20** (17) Evaluation of herbicides for selective weed control in grafted watermelons, R. Cohen, H. Eizenberg, M. Edelstien, C. Horev, T. Lande, A. Porat, G. Achdari and J. Hershenhorn
- 18:20-18:40** (18) The vegetation management in the archaeological site of Eleusis, M. Papafotiou , I. Kanellou and G. Economo
- 18:40-19:00** (19) Integrated weed management in cotton in India, S. Singh and S. S. Punia
- 19:00-19:10** Discussion
- 20:00** Graduate Students Evening: Visit to Tel-Aviv/Jaffa.

Tuesday, October 9

Moderator: H. Eizenberg

- 08:30-09:15** (20) **Keynote lecture:** Status on physical and cultural weed control methods for field crops in Europe, B. Melander, Faculty of Agricultural Science, Denmark

Bio-control, organic farming and allelopathy in weed management

Moderators: B. Melander and J. Hershenhorn

- 09:15-09:45** (21) Potential use of essential oils as bio-herbicides: ecology, physiology and agro-technology aspects, N. Dudai (Invited)
- 09:45-10:05** (22) Three years of evaluation of mulch materials for weed control in tomato, A. Cirujeda, J. Aibar J, A. Anzalone, M. León and C. Zaragoza
- 10:05-10:35** *Coffee break*



- 10:35-10:55** (23) Cover crops for weed suppression in orchards, J. Abrahams and Y. Goldwasser
- 10:55-11:15** (24) Weed infestation and water availability for summer crops following winter cover crops in organic farming, S. Shahal, Y. Saranga, M. Sibony and B. Rubin
- 11:15-11:35** (25) Enhancing mycoherbicide activity, S. Meir, Y. Hershkovitz, C. Larroche, H. Al-Ahmad, Z. Amsellem and J. Gressel
- 11:35-11:55** (26) A mobile field robot for weed control in maize crops, A. Cirujeda, D. Abadía, J. Peña, S. González, T. Seco, J. Aibar, J. Paniagua and C. Zaragoza
- 11:55-12:05** Discussion

Meetings of EWRS Working Groups

- 12:10-12:35** Parasitic weeds
- 12:35-13:00** Weed management in arid and semi-arid climate
- 13:00-14:30** *Lunch at the Faculty Restaurant*

Invasive weeds: biology, control and quarantine regulations

Weed biology, ecology and modeling

Moderators: S. Brunel, T. Yaacoby and J. Kigel

- 14:30-15:00** (27) EPPO Pest Risk Analysis of *Solanum elaeagnifolium* and international management measure proposed, S. Brunel (Invited)
- 15:00 -15:20** (28) Crownbeard (*Verbesina encelioides*) physiology, geographical distribution and response to herbicides in Israel, R. Sade, T. Yaacoby and B. Rubin
- 15:20 -15:40** (29) Invasive alien species (IAS) current situation in Israel, T. Yaacoby



- 15:40-16:10** (30) Weed biology between old knowledge and new challenges, M. Sattin (Invited)
- 16:10-17:00** *Coffee break and poster viewing*
- 17:00-17:30** *Poster discussion: Moderator:* Y. Goldwasser
- 17:30-18:00** (31) A hydrothermal model of weed seed germination using *Bromus tectorum* L., P. S. Allen and S E. Meyer (Invited)
- 18:00-18:20** (32) Reducing the persistent seedbank of plant invader- *Acacia saligna*, application and implication. O. Cohen, J. Riov, J. Katan, A. Gamliel and P. Bar (Kutiel)
- 18:20-18:40** (33) Invasion and integrated management of *Lantana camara* L. under agroclimatic conditions of Eritrea and India, N. N. Angiras.
- 18:40-18:50** Discussion
- 18:50-19:00** *Instructions and information regarding the field trip*

Wednesday, October 10

Full day field trip

- 06:30** Departure from Reisfeld Residence
Hi tech agriculture in the Arava Valley
Swimming at the Dead Sea
Breakfast and Lunch will be provided.
- 19:00** Hebrew University of Jerusalem's Mt. Scopus campus; Dinner in restaurant overlooking the Old City of Jerusalem



Thursday, October 11

Moderator: T. Yaacoby

08:30-09:15 **(34) Keynote lecture:** Strigolactones: chemistry, biological activities, distribution in the plant kingdom, and regulation of production by plant nutrients, **K. Yoneyama**, Utsunomiya University, Japan

Parasitic weeds

Moderators: M. Vurro and D. M. Joel

09:15-09:35 **(35)** Integrated *Striga* spp. weed management under smallholder agriculture, F. Kanampiu (Invited)

09:35-09:55 **(36)** *Orobanch* spp. distribution in Greece: host range, biogeography, inter- and intra- specific variability, G. Economou, D. Lyra and F. Triantos

09:55-10:15 **(37)** Broomrapes (*Orobanch* spp.): new threat to tomato, linseed and pulse crops production in Tigray region, northern Ethiopia, T. Araya and K. Meles

10:15-10:30 **(38)** Parasitic plant *Orobanch palaestina* Reut. as a potential threat to agriculture in Israel, E. Dor, H. Eizenberg, D. M. Joel, T. Lande, G. Achdari, E. Smirnov and J. Hershenhorn

1030-11:00 *Coffee break*

11:00-11:20 **(39)** Drip irrigation to improve biological control of broomrapes, M. Vurro and A. Boari (invited)

11:20-11:40 **(40)** PIKEET: A new Decision Support System for *Orobanch aegyptiaca* control in tomato, H. Eizenberg, T. Lande, G. Achdari, S. Bringher, I. Smirenov and J. Hershenhorn (Invited)

11:40-1200 **(41)** Struggling towards an effective biological control of broomrape, J. Hershenhorn



- 12:00-12:20** (42) The study of genetic aspects in parasitic weeds of the genus *Orobancha*, D. Plakhine, Y. Tadmor, I. Levin and D. M. Joel
- 12:20-12:40** (43) Parasitic weeds their potential threat to crop production and management in north-eastern region of Nigeria, N. Gworgwor
- 12:40-12:50** Discussion
- 13:00-14:30** *Lunch at the Faculty Restaurant*

Herbicide resistant weeds and crops

Moderators: A. Fischer and M. Sibony

- 14:30-15:00** (44) A technical review and management recommendations concerning glyphosate-resistant weeds, R. Garnett, N. Müllerder, M. Obermeier-Starke and M-P. Plancke (Invited)
- 15:00-15:20** (45) Glyphosate-resistant johnsongrass (*Sorghum halepense*) in Argentina: Current status and collaborative action for its prevention and management, B. E. Valverde, J. Gressel, S. Passalacqua, J. C. Rodríguez and A. Fischer (Invited)
- 15:20-15:40** (46) Response of glyphosate-resistant (Roundup Ready®) crops to glyphosate, H. Yasuor, J. Riov and B. Rubin
- 15:40-16:00** (47) Glyphosate-resistant crops as a tool for the management of troublesome weeds, G. Tsuk, H. Yasuor, M. Sibony and B. Rubin
- 16:00-16:30** *Coffee break*
- 16:30-17:00** (48) Metabolic herbicide resistance evolution: Late watergrass (*Echinochloa phyllopogon*), a case study, A. Fischer and H. Yasuor (Invited)
- 17:00-17:20** (49) Triazinone-resistant *Chenopodium album* due to two different *psbA* mutations, E. Mechant, T. De Marex, O. Hermann, R. Olssen and R. Bulcke



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- 17:20-17:40** (50) Elucidation of the molecular bases for the resistance to ACCase inhibiting herbicides in grass weeds, O. Hochberg, M. Sibony, A. Tal and B. Rubin
- 17:40-18:00** (51) Current status of herbicide resistance in *Phalaris minor* and management strategies in rice-wheat cropping systems in India, A. Kumar and R. K. Malik
- 18:00-18:20** (52) Herbicide resistance evolution and management in Central and Southern Italy, A. Collavo, G. Pignata, L. Scarabel, A. Frezza and M. Sattin
- 18:20-18:30** Discussion
- 18:30-18:45** Conference discussion
- 19:30** Closing ceremony, banquet, and traditional folklore show

Posters

- (53) The success or failure of soil solarization in weed control – a review, O. Cohen and B. Rubin
- (54) First results on chemical weed control in olive oil orchard of southern Italy optimizing the use of flazasulfuron, M. Fracchiolla, C. Lasorella, D. Caramia and M. Montemurro.
- (55) The role of water resources management in weed control- a case study of cotton crop in greece, G. Economou, V. Kotoulas, V. Vlachos, I. Travlos and A. Karamanos
- (56) Factors affecting the efficacy of *Orobanche cumana* control in sunflower, J. Ephrath, J. Hershenhorn and H. Eizenberg.
- (57) Effect of glyphosate on *Orobanche aegyptiaca* parasitism in tomato (*Lycopersicon esculentum* Mill.), T. Araya, M. Sibony and B. Rubin
- (58) Differences in sensitivity to glyphosate of common weeds in maize in temperate zone, J. Soukup, K. Nováková, P. Hamouz, and M. Jursík
- (59) Fat-hen (*Chenopodium album* L.) resistant to metamiltron: monitoring methods, T. De-Marez, E. Mechant, O. Hermann, R. Olssen and R. Bulcke



- (60) Clay-polycation composites as bases for imazapyr controlled release formulations, A. Radian and Y. Mishael
- (61) Herbicide Controlled Release Formulations based on Solubilization in Micelles Adsorbed on Clay, D. Ziv and Y. Mishael
- (62) Controlled release of Bromoxynil: Influence of pH., Y. El-Nahhal
- (63) *Solanum eleagnifolium*, a serious threat for the Greek agroecosystems, E. Kotoula-Syka
- (64) The influence of soil type and nutrition intensity to herbicides breakdown, S. Tóth, M. Danilovi_, A. Sústriková, A. Pavli_inová
- (65) The influence of bacterial preparates to herbicides breakdown, S. Tóth, M. Danilovi_, A. Sústriková, A. Pavli_inová
- (66) Factors effecting bromoxynil application in sweet corn (*Zea mays*), O. Stern, B. Rubin B, J. Hershenhorn, E. Dor and H. Eizenberg
- (67) The side-looking spectral signature of Maize (*Zea mays*); a preliminary study, R. Aviram.
- (68) Field dodder extracts obtain significant antioxidant activity, A. I. Jusupova and M. K. Murzakhmetova
- (69) The influence of different agro-technics to herbicides breakdown, M. Danilovi_, S. Tóth and M. Pe_ta
- (70) Weed dispersal in wheat fields by sheep stubble grazing, I. Schoenbaum, J. Kigel, S. Landau and D. Barkai
- (71) Effect of herbicides on different categories of weeds in Japanese mint (*Mentha arvensis*) in eastern India, R. C. Samui and D. Debtanu
- (72) Rotation: a key factor in weed management in Israeli semi-arid and arid wheat fields. I. Mufradi, D. J. Bonfill, S. Asido and B. Rubin.