

Part I: CURRICULUM VITAE

I. Personal

- 1961 Born in Kibutz Sha'ar Hagolan, Israel
1973 -1978 High-school education in Bik'at Kinarot
1978 – 1979 Pre-military-service- youth movement guide
1980 - 1982 Military service, Sergeant
Marital status: Married + 4

II. University Education and Additional Training

- 1988 – 1991 B.Sc. in Agriculture at the Hebrew University of Jerusalem, Israel, Faculty of Agriculture, Animal Sciences- specialization in ruminants.
1992 – 1995 M.Sc. in Ecozoology at the Technion- Israel Institute of Technology, Haifa, Israel. Department of Biology.
Title of thesis: The Reproductive system of the female salamander *S.S.infracinnulata* and its Adaptation to Water Availability in Different Habitats.
Supervision by: Prof. M. Warburg and Prof. G. Dgani
1996 – 2001 Ph.D. in Ecology at the Technion- Israel Institute of Technology, Haifa, Israel. Department of Biology
Title of thesis: Contribution of Invertebrate Groups to Leaf Litter Decomposition in Oak-Wood Soil.
Supervision: Prof. M. Warburg, Prof. G. Dgani and Prof. Z. Arad
2003 – 2004 Postdoctoral position at ARO, The Volcani Center, Beit Dagan, Israel. Department of Entomology with Dr. Ally Harari
Research subject: The effect of host plant volatiles on the attractant behavior of *Lobesia botrana* (Lepidoptera)

Additional Training

- 1984-1988 Aikido teacher, DAN2, Yoshinkan Dojo, Tokyo, Japan
2004 Pests inspector, Extension service, Ministry of Agriculture
2005 Biological Control Course, Bio-Bee
2004-2005 Teaching teachers certificate, Mofet Institute
2009 Permaculture Design Course
2011 Wine Aroma Analysis and Terruar, CFPPA, Beaune, France

III. Positions Held and Academic Status

- 2005 to date Research Scientist at the MIGAL- Galilee Technology Center, Northern R&D, Kiryat Shmona, Israel.
- 2009 Promoted to Senior Lecturer in Ohalo Academic College of Education.
- 2007-2011 Head of Science & Environment Education Department- Ohalo Academic College of Education.
- 2011- to date Academic consultant of oenology studies in Ohalo Academic College of Education.

IV. Training / Teaching Experience

- 1993-2000 Teaching Assistant at the Technion, Israel Institute of Technology, Haifa, Israel.
- 2000- to date Lecturer at Ohalo Academic College of Education- Introduction to Zoology.
- 2004- to date Lecturer at Ohalo Academic College of Education- Introduction to Ecology.
- 2004- to date Lecturer at Ohalo Academic College of Education- Biological control
- 2004- to date Lecturer at Ohalo Academic College of Education- Entomology
- 2004- to date Lecturer at Ohalo Academic College of Education- Environmental Education
- 2006- to date Lecturer in growers courses for the Ministry of Agriculture- Pomegranate pests, mealybugs dynamics and control, grapevine pests control, disease vectors, disease epidemiology and dynamic, Mango pests.
- 2008- to date Lecturer in growers courses for the organic organization- trap plants.

Students guidance: (only including guidance of M.Sc. and Ph.D. students)

- Ariel Kuperberg, M.Sc. title of thesis: "Potential trap plant for the Aphid *Aphis gossypii* in cucumber organic crop". In progress. Guidance with Dr. Liora Shaltiel, Northern R&D and Prof. Moshe Enbar, Haifa University.
- Raz Reut, M.Sc. title of thesis: "Effect of *Vitex agnus-castus* plant extracts on survival of Phytoplasma bacteria in the vector and the host-plant". 2013. Hebrew University of Jerusalem, Israel, Faculty of Agriculture. Guidance with Dr. Sgula Mutzafi, MIGAL Institute and Eduard Yudkevitz, Hebrew University of Jerusalem, Israel, Faculty of Agriculture.
- Tamar Sokolsky, M.Sc. title of thesis: "The spatial and temporal dispersing of vine mealybugs effect on GLRaV-3 virus spreading in vineyards". 2013. Hebrew University of Jerusalem, Israel, Faculty of Agriculture. Guidance with Dr. Yafit Cohen, ARO, The Volcani Center.

V. Membership in Scientific and Agricultural Committees

A. Local:

- 2006 to date The MIGAL- Galilee Technology Center, Northern R&D vine yard research management
- 2007 -2011 Academic Council, Ohalo Academic College

B. International:

- 2013 Program and Organization Committee of the International Workshop "*Lobesia botrana*: an old world pest on the move: Biology, Ecology and Pest Status in the Middle East, Europe, and the Americas". July 7th -July 11th 2013. Tel Hai College, Upper Galilee, Israel.

VI. Editorial Responsibilities

- 2010 Reviewer of manuscripts for Journal of Applied Entomology
- 2011 Reviewer of manuscripts for Entomologia Experimentalis et Applicata
- 2013 Editorial board, bulleting of IOBC-WPRS

VII. Participation in International Meetings

- 1998 The role of representative soil macro-invertebrates in decomposition of leaf litter in natural oak wood. VII Internat. Con. Ecol. Florence, Italy (Poster).
- 1999 8th International congress on the Zoogeography and Ecology, NAGREF, Kavala, Greece . (Speaker).
- 2005 IOBC "Integrated Protection and Production in Viticulture". Darfo Boario Terme- Erbusco, Italy. (Speaker).
- 2007 XI International Symposium on Scale Insect Studies. Oeiras, Portugal. (Participant)
- 2008 International Society of Chemical Ecology, 25th Anniversary Meeting, PennState University, Pennsylvania, USA. (Participant)
- 2011 Global Conference on Entomology-(GCE) Chiang Mai, Thailand. (Speaker).
- 2011 IOBC "Integrated Protection and Production in Viticulture". Staufen im Breisgau, Germany. (Speaker).
- 2012 ICVG "International council for the study of virus and virus-like diseases of the grapevine". Davis, California, USA. (Speaker).
- 2013 International Workshop "*Lobesia botrana*: an old world pest on the move: Biology, Ecology and Pest Status in the Middle East, Europe, and the Americas". Tel Hai College, Upper Galilee, Israel. (Organizing Committee Member and Speaker).

2013 IOBC "Integrated Protection and Production in Viticulture". Ascona Switzerland.
(Speaker).

2013 "XIV Congress of the European Society for Evolutionary Biology". Department of
Animal Biology (DBA), Faculty of Sciences of the University of Lisbon, P-1749-016
Lisbon, Portugal. (Poster).

VIII. Invitation by Professional Societies in Israel

2011 (**Invited lecture**) The annual meeting of the Israeli Lepidopterist's Society.

2013 (**Invited lecture**) The annual meeting of the Organic Agriculture Society, Israel.

IX. Membership in Professional Societies

The Entomological Society of Israel.

Israeli Lepidopterist's Society.

OILB/SROP Working Group "Integrated pest management in Vineyards".

Society of Chemical Ecology.

The Zoological Society of Israel.

The European Society for Evolutionary Biology.

The IOBC

X. Contribution to the Scientific Community

XI. Research Grants

(A) International Competitive Grants

2010 BARD Canada grant. Title: Microbial symbionts of grape pests and their role in
mediating interactions with plant pathogens and natural enemies. CoPI, 3 years. Budget:
300,000 CD, Researcher's part \$10,000/year.

(B) National Competitive Grants

1998 Chief Scientist of the Ministry of Science grant. Title: Are insect larvae the vectors of
the phytoplasma which infects the yellows diseases in the Golan Height grapevines.
PI, 3 years. Budget: 80,000 NIS/year, Researcher's part 80,000 NIS/year.

- 2003 Chief Scientist of the Ministry of Agriculture grant. Title: Evaluation of grape rootstocks as a source of resistance to phytoplasma diseases. CoPI, 3 years. Budget: 90,000 NIS/year; Researcher's part 80,000 NIS/year.
- 2005 Chief Scientist of the Ministry of Agriculture grant. Title: The use of plants in “attract and kill” method to reduce yellows disease vectors in vineyards. PI, 3 years. Budget: : 90,000 NIS/year; Researcher's part 90,000 NIS/year
- 2006 Chief Scientist of the Ministry of Agriculture grant. Title: Whole system approach in treating pomegranate pests for reducing insecticides use. PI, 2 years. Budget: 60,000 NIS/year; Researcher's part 60,000 NIS/year
- 2006 Chief Scientist of the Ministry of Agriculture grant. Title: Conservation and enhancement of the natural enemies of the Mediterranean vine mealybug. PI, 3 years. Budget: 80,000 NIS/year; Researcher's part 80,000 NIS/year
- 2006 Chief Scientist of the Ministry of Agriculture grant. Title: Identifying tree's factors affecting the attractant behavior of the Capnodis adult beetles. CoPI, 2 years. Budget: 80,000 NIS/year; Researcher's part 80,000 NIS/year
- 2007 Chief Scientist of the Ministry of Agriculture grant. Title: Identification of potential trap plants for organic crop pests- Aphis gossypii Golver as a model pest. PI, 3 years. Budget: 90,000 NIS/year; Researcher's part 90,000 NIS/year
- 2008 Chief Scientist of the Ministry of Agriculture grant. Title: Use of trap plant and plants volatiles to reduce the Hyalesthes obsoletus population, the vector of yellows disease in vines. PI, 3 years. Budget: 120,000 NIS/year; Researcher's part 70,000 NIS/year
- 2008 Chief Scientist of the Ministry of Agriculture grant. Title: Management of the vineyard mealybug by application of pheromone-based mating disruption. PI, 3 years. Budget: 90,000 NIS/year; Researcher's part 70,000 NIS/year
- 2008 Mofet Institute grant. Title: Creating meaningful learning with Wiki. PI, 1 year. Budget: 30,000 NIS/year; Researcher's part 10,000 NIS/year
- 2010 Chief Scientist of the Ministry of Agriculture grant. Title: Developing of an efficient lure for ants for reducing mealybug damage. PI, 1 year. Budget: 150,000 NIS/year; Researcher's part 140,000 NIS/year
- 2010 Chief Scientist of the Ministry of Agriculture grant. Title: Reduction of the leafroll damage in vineyards; Epidemiology and prevention. CoPI, 3 years. Budget: 750,000 NIS/year; Researcher's part 250,000 NIS/year.

- 2011 Chief Scientist of the Ministry of Science grant. Title: Characterization of *Phytoplasma* sp. populations in wild and cultivated plant species around vineyards with Yellow's diseases. Co, 2 years. Budget: 250,000 NIS/year, Researcher's part 20,000 NIS/year.
- 2011 Mofet Institute grant. Title: Conservation biocontrol of vineyard pests via growing of nectariferous plants. CoPI, 2 year. Budget: 5,000 NIS/year.
- 2011 Chief Scientist of the Ministry of Agriculture grant. Title: Developing of pests control method based on combined visual stimuli to alter ovipositing site - the pomegranates butterfly *Virachola livia* as a model. PI, 2 years. Budget: 150,000 NIS/year; Researcher's part 150,000 NIS/year
- 2012 Chief Scientist of the Ministry of Agriculture grant. Title: Use of *Vitex agnus castus* L. as trap plant to reduce yellows disease infested vines- practical application in commercial plots. PI. 2 years. Budget: 75,000 NIS/year; Researcher's part 75,000 NIS/year.

(C) Other Research Grants**The Plant Council and the vine council Funds**

- 2005 The Plant Council and the vine council grant. Title: Improvement of monitoring and destruction of the *Capnodis* by attractant factors. PI, 2 years. Budget: 50,000 NIS/year; Researcher's part 50,000 NIS/year
- 2005 The Plant Council and the vine council grant. Title: mealybug and leafroll disease-learning factors affecting the virus spread. PI, 3 years. Budget: 50,000 NIS/year; Researcher's part 50,000 NIS/year
- 2007 The Plant Council and the vine council grant. Title: Development of IPM against *Coccoidea* (*Coccus mangiferae*, *Aonidiella aurantii*, *Aonidiella orientalis*) in Mango plantations. PI, 3 years. Budget: 40,000 NIS/year; Researcher's part 40,000 NIS/year
- 2008 The Plant Council and the vine council grant. Title: understanding the dynamic of *Virachola livia* in pomegranate. PI, 2 years. Budget: 50,000 NIS/year; Researcher's part 50,000 NIS/year
- 2008 The Plant Council and the vine council grant. Title: Spatial and temporal dynamic of moths in citrus plantations. PI, 2 years. Budget: 50,000 NIS/year; Researcher's part 50,000 NIS/year

- 2008 The Plant Council and the vine council grant. Title: The pests *Pulvinaria vitis* L. and control methods. PI, 3 years. Budget: 30,000 NIS/year; Researcher's part 30,000 NIS/year
- 2009 The Plant Council and the vine council grant. Title: Integrated pest management efficacy in Mango orchards for controlling the Coccoidea: *Coccus mangiferae*, *Aonidiella aurantii* and *Aonidiella orientalis*. PI, 3 years. Budget: 50,000 NIS/year; Researcher's part 50,000 NIS/year.
- 2011 The Plant Council and the vine council grant. Title: Efficacy of the mating disruption method to control the vine mealybug in large plots and in different doses. PI, 3 years. Budget: 42,000 NIS/year; Researcher's part 42,000 NIS/year
- 2011 The Plant Council and the vine council grant. Title: Potential control of yellow disease pathogen phytoplasma in grapevines by *Vitex agnus castus* L. (Verbenaceae) extracts and as trap plant. PI, 3 years. Budget: 120,000 NIS/year; Researcher's part 120,000 NIS/year.
- 2012 The Plant Council and the vine council grant. Title: Developing rearing methods for the parasitoid wasp *Microterys flavus* and testing its efficiency in reducing the mango soft scale *Coccus mangiferae*. PI, 2 years. Budget: 50,000 NIS/year; Researcher's part 50,000 NIS/year.
- 2012 The Plant Council and the vine council grant. Title: Efficacy of oil spray in reducing the mango soft scale *Coccus mangiferae*. PI. 1 year. Budget: 50,000 NIS/year; Researcher's part 50,000 NIS/year.
- 2013 The Plant Council and the vine council grant. Title: Efficacy of oil spray in reducing the Coccoidea: *Aonidiella aurantii* in Avocado plantations. PI. 1 year. Budget: 30,000 NIS/year; Researcher's part 30,000 NIS/year.
- 2013 The Plant Council and the vine council grant. Title: Identification of trap plants and other attractants to lure the Ambrosia beetle *Euwallacia near fornicatus*. PI. 1 year. Budget: 150,000 NIS/year; Researcher's part 120,000 NIS/year.
- 2013 The Plant Council and the vine council grant. Title: Agro-technical management program for *Virachola livia* in pomegranate. PI, 3 years. Budget: 50,000 NIS/year; Researcher's part 50,000 NIS/year.
- 2013 The Plant Council and the vine council grant. Title: development of protocol to reduce the leafroll spread in vineyards. PI, 3 years. Budget: 60,000 NIS/year; Researcher's part 60,000 NIS/year.

Yad-Hanadiv

2012 Title: Conservation biocontrol of vineyard pests via growing of nectariferous plants.
CoPI, 2 year. Budget: 13,000 NIS/year.

IKA foundation-

2008 Ecological Laboratory of Integrated Crops-Pests Management. 50,000 \$

Private Companies

2012 Makhteshim-Agan grant. Title: Efficacy of the mating disruption method to control the vine mealybug in large plots and in different doses. PI. 2 years. Budget: 40,000 NIS/year; Researcher's part 40,000 NIS/year.

2012 Makhteshim-Agan grant. Title: EOS efficacy against the pests *Pulvinaria vitis* L. PI. 1 year. Budget: 12,500 NIS/year; Researcher's part 12,500 NIS/year.

2012 Agro-Merhav grant. Title: Insigar efficacy against the pests *Pulvinaria vitis* L. PI. 1 year. Budget: 12,500 NIS/year; Researcher's part 12,500 NIS/year.

2013 Stokton grant. Title: Formulating the *Vitex agnus castus* L. extract to attract the yellows disease vector. PI. 1 year. Budget: 40,000 NIS/year; Researcher's part 40,000 NIS/year.

XII. Awards and Scholarships

1992-1995 Magna cum laude M.Sc. Scholarship from the Technion- Israel Institute of Technology.

1996-2000 Magna cum laude Ph.D. Scholarship from the Technion- Israel Institute of Technology.

2003 The Blaustein Postdoctoral scholarship, Ben Gurion University of the Negev. (Declined)

2003 Postdoctoral scholarship, Chief Scientist of the Ministry of Science, ARO, The Volcani Center, Bet Dagan, Israel

Part II: LIST OF PUBLICATIONS

All publications have been classified into four major categories

The letter following each number indicates the appropriate category.

a	Publications exclusively within the candidate's research group (including graduate and post-graduate students, technicians, associated scientists, etc.)
b	Joint publications with other research group(s) in which the candidate plays the major role.
c	Joint publications with other research groups in which the candidate's contribution is comparable in weight to that (those) of the other research groups.
d	Joint publications with other research groups in which the candidate's group plays a secondary role.

All are Publications since the previous promotion**1. - Articles in reviewed journals**

1. **a. Sharon, R.**, Degani, G. and Wargurg, M.R. (1996).
Oogenesis and the ovarian cycle in *Salamandra salamandra infraimmaculata* (Amphibia; Urodela; Salamandridae), in fringe areas of the taxon's distribution.
J. Morphol. 231:149-160. IF 1.5; RANK *Biology* 42/85
2. **a. Degani, G., Sharon, R.** and Warburg, M.R. (1997).
Ovarian steroid levels in *Salamandra salamandra infraimmaculata* during the reproductive cycle.
Gen. & Comp. Endocrinol. 106:356-360. IF 3.3; RANK *Biology* 17/85
3. **a. Sharon, R.**, Degani, G. and Wargurg, M.R. (2000).
Ovarian cycle pattern of female *Salamandra salamandra infraimmaculata* in two habitats in Northern Israel.
J. Herpetol. 34(3):463-465. IF 1.1; RANK *Zoology* 67/146
4. **a. Sharon, R.**, Degani, G. and Wargurg, M.R. (2001).
Comparing the soil macro-fauna in two oak wood forests: does community structure differ under similar ambient conditions?.
Pedobiologia 45: 355-366. IF 1.8; RANK *Ecology* 65/134
5. **b. Sharon, R.**, Zahavi T., Soroker V. and Harari A. (2003).
Attraction of *Lobesia botrana* to grapevine cultivars: A field study.
Phytoparasitica 31:305-306 . IF 0.9; RANK *Entomology* 38/86
6. **d. Orenstein, S., Zahavi, T., Nestel, D., Sharon, R.** Barkalifa, M and Weintraub, P.G.. (2003).
Spatial dispersion patterns of potential leafhopper and planthopper (Homoptera) vectors of phytoplasma, and their associated phytoplasmas, in wine vineyards.
Ann. appl. Biol. 142:341-348. IF 2.2; RANK *Entomology* 7/86
7. **b. Sharon, R.**, Soroker, V., Wesley, D., Zahavi, T., Harari, A.R., and Weintraub, P.G. (2005).

- Vitex agnus-castus* is a preferred host plant for *Hyalesthes obsoletus*.
J. Chemical Ecol. 31: 1051-1063. IF 2.7; RANK *Entomology* 5/8oology
8. c. Cohen, M., Flam, R., **Sharon, R.**, Ifrach, H., Yeheskely-Hayon, D. and Warburg, M. (2005).
 The Evolutionary Significance of Intra-cohort Cannibalism in Larvae of a Xeric Habitat Salamander: An Inter-cohort Comparison.
Current Herpetology 24 (2): 55-66. IF 1.1; RANK *Zoology* 66/146
9. c. Cohen, M., Yeheskeli-Hayon, D., Warburg, M. R., Davidson, D., Halevi, G. and **Sharon, R.** (2006).
 Differential growth identified in salamander larvae half-sib cohorts: a survival strategy?
Development, Growth & Differentiation 48: 537-548. IF 2.2; RANK *Zoology* 20/146
10. b. **Sharon, R.**, Zahavi, T., Soroker, V. and Harari, A. R. (2009).
 The effect of grape vine cultivars on *Lobesia botrana* (Lepidoptera: Tortricidae) population levels.
Journal of Pest Science 82: 187-193. IF 1.5; RANK *Entomology* 27/86
11. b. **Sharon, R.**, Peles S., Gordon, D. and Harari, A.R. (2010)
 Intraspecific attraction and host tree selection by adult *Capnodis tenebrionis*.
Israel Journal of Plant Sciences 58:53-60. IF 0.3; RANK *Entomology* 49/74
12. a. Peled, Y., Bar-Shalom, O. and **Sharon, R.** (2012)
 Characterization of Pre-service Teachers' Attitude to Feedback in a Wiki-environment Framework.
Interactive Learning Environments 1-16. IF 1.16; RANK *Science Education* 15/33
13. c. Sokolsky, T**, Cohen, Y., Zahavi, T., Sapir, G. and **Sharon, R.** (2013)
 Potential efficiency of grapevine leafroll disease management strategies using simulation and real spatio-temporal disease infestation data
Aust. J. Grape and Wine research. IF 2.5; RANK *Agriculture* 4/57
14. c. Zahavi, T., **Sharon, R.**, Sapir, G, Mawasi, M., Dafny-Yelin, M. and Naor, V. (2013).
 The long term effect of Stolbur phytoplasma on grapevines in the Golan Heights.
Aust. J. Grape and Wine research (Accepted November 2012). IF 2.5; RANK *Agriculture* 4/57

2.- Articles in non-reviewed journals (in Hebrew)

1. b. **Sharon, R.**, Zahavi, T., Soroker, V., Harari, A. and Weintroub, P. (2006)
Vitex agnus castus as trap plant to reduce *H. obsoletus* population.
Journal of the Organic and Biology Agriculture Organization 8:23-25

** Senior author was a student under my guidance

2. **b. Sharon, R.**, Soroker, V., Harari, A. and Zahavi, T. (2008)
Vitex agnus castus as trap plant in Push and pull strategy to reduce the Yellows disease vector population.
Journal of the vine council 4:22-23.
3. **b. Sharon, R.**, Sela, L., Peretz, S., Peles, S. and Harari, A. (2008)
 Pomegranate pests.
Haklaei Israel 36: 34-37.
4. **b. Sharon, R.**, Peles, S., Peretz, S. and Harari, A. (2009)
 Mating disruption and net cover methods against *Cryptoblabes gnidiella* (Pyrilidae) and *Lobesia botrana* (Tortricidae) in pomegranate orchards.
Yevul Sie- Journal of Advanced Agriculture 39:24-30.
5. **b. Sharon, R.**, Akunis, O., Holand, D., Ytzhaki, N., Hatib, K. and Tzori-Fain, E. (2010).
 Net cover against fruit pests in pomegranate and persimmon orchards.
Alon Hanotea 64:16-20.
6. **b. Sharon, R.**, Sokolski, T., Sapir, G., Cohen, Y., Harari, A., Harcavi, A. and Zahavi, T. (2011)
 Presence of the vine mealybug in young vineyards.
Alon Hanotea 65: 25-28
7. **c. Zahavi, T.**, Naor, V., Brodoloy, R., Mawassi, M., Sapir, G. and **Sharon, R.** (2011)
 Vine recovery from the yellows disease.
Alon Hanotea 65: 29-33
8. **b. Sharon, R.**, Peles, S., Sofer-Arad, C., Noi, M., Lahav, C. and Draishpon, Y. (2012).
 Environmental friendly control of *Aonidiella aurantii* and *Aonidiella orientalis* in Mango plantation.
Alon Hanotea 66: 20-23
9. **c. Iasur-Kruh L.**, Taha-Salaima L., Zchori-Fein E., **Sharon R.**, Drobi S. and Zahavi T. (2013)
 Who is inside the vine mealybug.
Alon Hanotea 67: 41-43

3. - Articles of symposia proceedings (indicated with * when reviewed).

1. **a. Sharon, R.**, Degani, G. and Warburg, M.R. (1996).
 Environmental effects on reproduction in *Salamndra salamndra infraimmaculata* in north Israel.
Six Internat. Con. Isr. Ecol. Envir. Qual. Scien. VI B:527-529.
2. **a*. Sharon, R.**, Degani, G. and Wargurg, M.R. (1999).

Contribution of different soil macro-invertebrate taxa to forest leaf litter decomposition rate as affected by season.

6th IMSMTC Barcelona, Spain. 198-200.

3. **b***. Zahavi, T., Peles, S., Harari, A., Soroker, V. and **Sharon, R.** (2007)
Push and pull strategy to reduce *H. obsoletus* population in vineyards by *Vitex agnus castus* as trap plant.
Bulletin of Insectology **60** (2): 297-298
4. **c***. Zahavi, T., **Sharon, R.**, Mawassi, M. and Naor, V. (2009).
Long term effects of stolbur phytoplasma on grapevines in Israel.
ICVG 16th Meeting of the International Council for the Study of Virus and Virus-like Diseases of the Grapevine. Dijon, France pp. 147-148.
5. **c**. Cohen, Y., **Sharon, R.**, Sokolski, T., Zahavi, T. (2011)
Modified Hot-Spot analysis for spatio-temporal analysis: a case study of the leaf-roll virus expansion in vineyards.
6. **a***. Peled, Y., Bar-Shalom, O., **Sharon, R.** (2011)
Characterization of Pre-service Teachers' Attitude to Feedback in a Wiki-environment Framework.
SITE 2011--Society for Information Technology & Teacher Education International Conference, Nashville, Tennessee, USA; March 7-11
7. **b. Sharon, R.**, Zahavi, T., Sokolski, T., Sofer-Arad, C. Sapir, G. Mawassi, M., and Cohen, Y. (2012)
The combined effect of preliminary infested vines, spatial spread pattern and the VMB population level on the Grapevine leafroll disease infestation rate.
Proceeding of the 17th Congress of ICVG, Davis, California, USA. 182-183
8. **c**. Dafni-Yalin, M., Orbach, D., Zahavi, T., Mawassi, M., Weintraub, P., **Sharon, R.** And Naor V. (2012)
Stolbur type II phytoplasma in north Israel vineyards: what is the plant source?
Proceeding of the 17th Congress of ICVG, Davis, California, USA. 228-229
9. **c***. Sokolsky, T., Cohen, Y., Zahavi T., Sapir, G., Sharon, R. (2013)
Risk assessment of Grapevine leafroll disease for site- specific disease spread control.
Precision Agriculture 2013: Proceedings of the 9th European Conference on Precision Agriculture.

Part III: LIST OF MAJOR ACHIEVEMENTS**1. General contribution to agricultural science.**

My research interests focus on finding ecological solutions to insect pest damage by combining theory and applied approaches. These include the understanding of the pests spatial-temporal dynamics, phenology and mating behavior, natural enemies, epidemiology of vectored mediated diseases, and attractant such as trap plants, pheromone, kairomone and visual cues.

My ultimate goal in these studies is to reduce the damage caused by various pest species through the exploitation of the pest behavior via the ecological approach. Manipulations of the pest behavior and ecological factors in specific junctions lead to a reduction in its population development and limiting its spreading in the field with the end results of substantial decrease in pest population and in damage to crop. In accordance with this goal, my “basic science” studies are aimed at generating the ground for my research in the “applied science”.

During my M.Sc., I studied the ecology and sexual behavior of the Salamander *Salamandra salamandra infraimmaculata*. This study has led to the understanding of the Salamander population dynamics and water availability influence (1-1, 2, 3, 8, 9; 3-1), including the methods to be applied for conservation of biodiversity. This study has shed light on salamander oogenesis in a semi-arid region and the conflict between early and late ovoviviparous in a larvae cannibalistic species and is useful in understanding the timing conflict in semi-arid area in general. My studies were part of the founded knowledge that helped the development of winter ponds for amphibian in the Carmel and are summarized in a chapter in the book "Salandra salamdra at the southern limit of its distribution" by Degani G. (1996).

During my Ph.D., I studied the ecology of decomposers including chemical ecology aspects. This study has led to the better understanding of the natural oak forests population dynamics and soil effects on biodiversity of natural decomposers (1-4; 3-2). Few new species were discovered (a paper by Gershon Levi) and the specimens collected are part of Israel zoology collection in Tel Aviv University.

During my postdoctoral training, I investigated the grapevine variety effect on the moth *Lobesia botrana* preference and damage (1-5, 10). The results of this study have led to a change in the research direction of various teams that examined the chemical components of the different host varieties.

During the last years as northern R&D researcher I studied pest-plant relationships. I focus on pest-plant-pathogen relationship and pest-plant attractant cues.

One system that I work on is yellow disease in vines where the phytoplasma (the pathogen) is vectored by cicads (*Hyalesthes obsoletus*). I found together with Dr Tirtza Zahavi the yellows disease vector host plant and develop the understanding of the vine-pest-pathogen relationship. I found the attractiveness of VAC to the yellows disease vector and now work on using this knowledge to develop the use of trap plant as an ecological solution (1-6 , 7, 14; 2-1, 2, 7; 3-3, 4, 8). This study has elucidated the vine-pest-pathogen relationship and is now at the base of 3 on going researches of several groups of colleagues: 1) the role of the VAC extracts as bacteria inhibitors, 2) the endo-symbiont in the vector (2-9), 3) the recovery effect in vines (1-14). Reut Raz, a M.Sc student (joint supervising with Dr. Segula Mutzafi, MIGAL and Dr Eduard Yudkevits, Agriculture faculty, Hebrew University), studied the effect of VAC extracts on the phytoplasma in plants and in the vector (papers are now being written).

Another system of pest-plant-pathogen relationships I study is the relationship between leafroll disease in vines, the leafroll virus and the mealybug (*Planococcus ficus*) and the soft scale *Pulvinaria vitis* as vectors of the pathogen. First, together with Dr Tirtza Zahavi and Prof Zvi Mendel, we studied the dynamic of the mealybugs, ants roll (with Dr ytshak Martinez) and the effect of natural enemies on their dispersal (1-14.; 2-6; 3-5, 7, 9). Based on this knowledge, together with Dr Yafit Cohen, Dr Tirtza Zahavi and M.Sc. student Tamar Sokolski, we now study the spatial and temporal dispersing of vine mealybugs effect on GLRaV-3 virus spreading in vineyards. The combination of geostatistics and ecology study lead to creating a model based on empiric data and simulations (3-9). Another paper is now written.

Working on These systems and relating systems evolve the roll of chemical attractants (most of those works are done together with Dr ally Harari) such as pheromones for *Planococcus ficus* (1-in prep) that attract also the predator *Cryptolaemus motrouzieri* (BARD was submitted), kairomones for *Capnodis tenebrionis* (1-11), *Lobesia botrana* (1-5,10; 2-4), *Hyalesthes obsoletus* (see above) and *Aphis gossypii* and visual cues for *Dendrorix (Virachola) livia* that leads to the use of mating disruption methods, trap plants, augmentation of natural enemies and physical prevention.

2. Achievements in applied research specifying major contribution to agriculture or the environment in Israel.

My main contribution to agriculture and the environment in Israel is the providing of environmentally friendly solutions to agricultural pests. I concentrate on vineyards, pomegranate and sub-tropical crops. I apply the accumulating knowledge from one crop to the other. Thus, mating disruption approach that is commercially applied in vineyards against moth was tested

for the first time, in collaboration with Dr. Ally Harari, in pomegranates and is now in commercial use. Another use of the mating disruption approach was recently tested, in collaboration with Dr Tirtza Zahavi and Dr. Ally Harari, against mealybugs in vineyards and received in 2012 license for commercial use. Trap plant approach against the yellow disease vector is in a plot model stage and if successful will be used commercially. Our developed bioassay was tested against *Aphis gossypii*, a major pest in cucumber crop and against *Dendrox livia* a major pest in pomegranate.

Pomegranate crop- During the last 5 years I was involved together with Dr. Harari in studying the damage caused by the pomegranate's key pests including mealybugs, aphids and various lepidopterans. Along with the establishment of the mating disruption methods against *Cryptoblabes gnidiella* and *Lobesia botrana*, we studied the phenology of the butterfly pest *Dendrox livia*, which lays its eggs on fruits and that of the moth *Euzopherodes vapidella* whose eggs are oviposited on the tree's stem and branches. We learnt that in the first half of the season most eggs of *D. livia* are not fertile and that *E. vapidella* acts as a secondary factor, attacking weak or dying trees due to other pathological agents. These findings have led to significant decrease in the use of insecticides in the pomegranate orchards. We found that the female of *Dendrox livia* is attracted to green fruits and are now working on developing alternative ovipositing sites for *Dendrox livia* using visual cue and kairomone attractant.

Vineyards- The two major threats in wine vineyards are the yellow disease and the leafroll disease. During the last years together with Dr Tirtza Zahavi I was involved in working on applicative solution to these diseases.

Collaboration with other colleges has led to a better understanding of the leafroll disease virus-vector infection spreading. I described for the first time the two vectors (*p. ficus*, *p. vitis*) life cycles and quantified the damage. We describe the factors affecting disease spread. We develop a model to slow the dispersal of the virus in new vineyards that include prediction of spreading pattern that enable precision of uprooting vines, efficient application of insecticides and introduced efficient prevention methods. These findings are now serves as the basic protocol applied in new vine plantations to reduce the leafroll disease spread.

Together with Dr Tirtza Zahavi I tested friendly insecticides against the two vectors of the leafroll disease. One (MD for mealybugs) was licensed in 2012, another was licensed in 2013 and one other is now in the process of licensing. We started last year to move toward an aerial commercial solution by applying the mealybugs mating disruption dispensers to wide areas that include table grape vineyards and wine vineyards. We also test the accumulation effect of augmentation of natural enemies against those two vectors. together with Tamar Keisar we are

testing the effect of land manipulation and the use of cover plants to encourage the natural enemies and biodiversity.

Together with other colleges we describe the yellow disease vector-pathogen (bacteria) relationship. We discovered a potential trap plant and isolated the chemical attractant substrate; we now apply the trap plant method in the vineyard with first successful results in reducing the damage. As there is no other solution this might be the first applicative method against this major threat. For the long run solutions we work on using the inhibiting extracts in cultured vines with commercial company and the use of endosymbionts as probs. The endosymbiont found in the vector is now under applicative study to develop an insecticide for the diseased plants.

Mango- I studied the damage caused by the mango's key pests including the mango soft scale *Coccus mangiferae* / *Milviscutulus mangiferae* (Green) and the coccid *Aonidiella orientalis* and *Aonidiella aurantii*. After studying the life cycle of those pests I (together with the extension service team- Noi M. and Lahav C.) found that a single application in the precise timing of oil or early application of neonikotinoid can reduce the level of the coccid to low threshold without the need for application of Methidathion that was previously applied. Methidathion, the only previously method used, is prohibited from 2014 in exported Mango fruits. I now work on the use of oils combined with augmentation of parasitoids against the mango soft scale. We identified the existing natural enemies of the mango soft scale, established a culture of one species and now evaluate the efficacy of the parasitoid in eliminating the pests in my lab. These findings have led to significant decrease in the use of insecticides in the Mango orchards and the insecticides that are used are more environmentally friendly. Using these studies I produced a protocol, solely based on monitoring timing, friendly methods and limited applications. Similar work is now starting in Avocado plantation- this crop was considered pests free but recently it is suffering from repeated attacks of coccids and bark beetle (*Ambrosia Euwallacia fornicates* with the fungi *Fusarium* sp.).

Banana- I studied the damage caused by the citrus mealybug *Planococcus citri* Risso and the aphid *Pentalonia nigronervosa* Coquerel in Banana plantation covered with net and organic plantations. Together with my team we found an agro-technical solution for the presence of the mealybugs in the fruits. These findings open the way for organic banana growing without the use of insecticides.