

CURRICULUM VITAE  
AND LIST OF PUBLICATIONS  
**YOSEF MIZRAHI**

November 2009

## 1. PERSONAL DETAILS

Date of Birth: January 19, 1940  
 Place of Birth: Tel-Aviv, Israel  
 Marital Status: Married + 3 children  
 Military Service: August 1958-February 1961  
 Address & Telephone No.  
 (at work): Department of Life Sciences  
 Ben-Gurion University of the Negev, 1 Hashalom st.,  
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 URL: <http://www.bgu.ac.il/life/mizrahi.html>  
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 (at home): 58/25 Rambam St., Beer-Sheva 84243, Israel  
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## 2. EDUCATION

1961-1964: B.Sc., Faculty of Agriculture, The Hebrew University of Jerusalem, Graduated with Honors.

1965-1967: M.Sc., Department of Horticulture, Faculty of Agriculture, The Hebrew University of Jerusalem, Graduated with Honors.  
 Title of M.Sc. Thesis: "The Influence of High Soil Temperature on the Development of Apple Rootstocks."  
 Advisor: Prof. A. Gur.

1969-1972: Ph.D., Department of Botany, Faculty of Natural Sciences, The Hebrew University of Jerusalem.  
 Title of Ph.D. Thesis: "Mechanisms Involved in the Adaptation of the Plant Shoot to Root Stress."  
 Advisors: Prof. A. Richmond and Prof. Y. Vaadia

### 3. EMPLOYMENT HISTORY

#### Research and Teaching Experience

- 1963-1964: Research Assistant in the Department of Agricultural Microbiology, Faculty of Agriculture, The Hebrew University of Jerusalem.
- 1965-1967: Research and Teaching Assistant in the Department of Horticulture, Faculty of Agriculture, The Hebrew University of Jerusalem.
- 1967-1968: Scientist and Teaching Assistant in the Department of Horticulture, Faculty of Agriculture, The Hebrew University of Jerusalem.
- 1968-1973: Scientist in the Department of Plant Physiology, Negev Institute for Arid Zone Research, Beer-Sheva, Israel.  
**Tenured position as a scientist was obtained 1971.**
- 1969-1973: Instructor in plant physiology, Department of Biology, University of the Negev, Beer-Sheva.
- 1973 **Lecturer**, Department of Biology, Ben-Gurion University of the Negev, Beer-Sheva, Israel (on sabbatical leave from September 1973-1974, 1974-1975 as unpaid vacation)
- 1973-1975: Postdoctoral and Research Associate in the Department of Horticulture, Purdue University, West Lafayette, Indiana, U.S.A.
- 1975-2006: Senior Scientist at the The Institutes for Applied Research formerly the Negev Institute for Arid Zone Research, Ben-Gurion University of the Negev.
- 1975-1982: Research Subjects:  
 a) Flowering, Fruit-set, and Ripening in Jojoba (*Simmondsia chinensis*). This research included phenological observations, hormonal treatments, and determinations of endogenous hormone levels. Other subjects, carried out in cooperation with other scientists in the department, included Water and mineral relationships, mechanical harvesting, and hardening of rooted cuttings and tissue culture plantlets. All these subjects were treated from both the basic and applied points of view. **(Since the research was supported by a commercial firm, no publications were allowed.)**
- 1976: Teaching a course on "plant and soil water relationships," at the Biology Department, Ben-Gurion University of the Negev.
- 1979: Promoted to **Research Rank A** at the Institutes for Applied Research (equivalent to Associate Professor at a teaching Institute)

- 1978-1983: **Senior Lecturer** at the Department of Biology, Ben-Gurion University of the Negev, **Tenure was granted in 1978.**
- 1982-1983 Visiting Associate Scientist at Washington State University, Department of Horticulture in the framework of sabbatical leave from BGU.
- 1983-1991 **Associate Professor**, at the Department of Biology, Ben-Gurion University of the Negev.
- 1984-2008 Promoted to **Research Rank A+** at the Institutes for Applied Research (equivalent to Full Professor at a teaching Institute)
- 1986: Visiting Professor at the Institute of Botany, University of Bologna, Italy, teaching undergraduate course in English: "Plant Stress Physiology."
- August 1987- August 1988: Visiting Research Scientist at Yale University, Department of Biology in the framework of sabbatical leave from BGU.
- 1991-2008. **Full Professor**, at the Department of Life Sciences, Ben-Gurion University of the Negev.
- October 2008- present, **Professor Emeritus - Still active in cacti R&D.**
- 1994-1995 Visiting professor, at the School of Horticulture University of Western Sydney, Richmond, NSW, Australia, in the framework of sabbatical leave from BGU.
- 1995-1998 **Head- Department of Life Sciences BGU.**
- 2001-2002 Viting professor at the Center of Horticultutre and Plant Sciences (CHAPS) University of Western Sydney, Hawkesbury, Richmond NSW, Australia, in the framework of sabbatical leave from BGU.
- 2003- 2006 **Head- Institute of Agriculture and Applied Biology BGU.**
- November 2007-October 2008. **Final Sabbatical at: Big Island Hawaii, Sydney, Northern Territory & Queensland Australia, Okinawa Japan and the University of Cartagena in Spain. This final sabbatical dealt with Israeli new clones' adaptation to the various eco-zones and marketing of pitayas.**
- October 2008- Retired- Professor Emeritus. Still working on pitaya breeding and opened MIZRHAI AGREEGULTURAL COUNSULTATION firm (MAC).**

#### **4. PROFESSIONAL ACTIVITIES**

**a. Positions in academic administration**

- 1983-1985: Member of the Graduate Student Committee, Department of Biology.
- 1984-1985: Member of the Academic Committee, The University Salinity Center.
- 1986-1987: Member of Research Grade Committee, The Institutes for Applied Research.
- 1989-1990: Member of the Academic Committee of the University's Centers.
- 1992-2008: Member of the Committee for Academic Promotion, Department of Life Sciences.
- 1995-1998: **Chairman** - Department of Life Sciences at BGU.
- 1995-1999- Member of the University Research Grade Committee (Senate nomination).
- 1998- 2000: Member of the "Faculty Committee" elected by the faculty assembly.
- 1999-2001 Member of the High Committee for Academic Promotion (Senate nomination).
- 2002-2003: Member of the committee for Research Grade promotion at BGU.
- 2002-2005: Member of the Evaluation Budget Committee, nomination of the Senate.
- 2003- 2006: **Chairperson** - Institute of Agriculture and Applied Biology BGU

**b. Professional functions outside the university**

- 1979-1982: Director and Coordinator of Agricultural Research & Development in the Southern Region of Israel (Negev) on behalf of the Agricultural Research Organization, Ministry of Agriculture.
- 1985-1987: Director and Coordinator of R&D activity aimed at exporting fresh market open-field tomatoes from the Negev desert.
- 1989-2007: Chairman of the Research Grade Evaluation Committee for research grades, Ministry of Agriculture.
- 1988-1993: Israeli representative at the Natural Sciences and Health Committee of the Community of Mediterranean Universities (CMU).
- 1989-1995: Member of the Scientific Directorate of "Genes Bank for Agricultural Crops in Israel" Ministry of Science and Technology.

1990-1992 Scientific Adviser for "Earthwatch" Organization.

2002- present Member of the Academic Committee of the Hebrew University Botanical Garden.

### c. Memberships of committees

1984-present: Mariculture Steering Committee, Ministry of Energy and Infrastructure, State of Israel.

1985-1987: Directorate member of the R&D project of the Arava Valley, Ministry of Agriculture.

1983-1987 Member of the Scientific Committee of the Texas-Israel proposed Fund for Agricultural Research.

1983-1987: Member of the Vegetable Crops Committee, Ministry of Agriculture.

1985-1987: Referee for Scientific Funds- Member of Evaluating Committee of BARD (General Section which deals with all the basic proposals).

1988-2007. Chairperson of the promotion committee for the C and B Research Grads at the Ministry of Agriculture Israel

1996-1998 Member of rare fruits R&D committee Chief Scientist Ministry of Agriculture.

1996-1998 Member of the evaluation committee India - Israel biotechnology cooperation. Ministry of Science and Arts

1998 Member of the evaluation committee of the "Ecology center" at the Hebrew University of Jerusalem on behalf of MINERVA foundation.

1999-2001 Scientific director of Yehuda R&D on behalf Ministry of Science Culture and Sport.

2003-present Member of the Advisory Committee- Botanical Garden of the Hebrew University of Jerusalem.

2006- Member of the evaluation committee for plant sciences proposals - Chief Scientist Ministry of Agriculture.

2006- Member of the evaluation committee for plant sciences proposals -BARD

### d. 1. Past courses taught. Stopped teaching upon retirement October 2008.

1 Biological Principles of Practical Use- A (undergraduate course, lectures and desert trips in research stations and commercial companies with applied biological activities ).

2 Biological Principals in Practical Use B (as in A).

3.- Undergraduate Research Project for 8 credit points.

4. Post harvest biology for graduate students.

## 2 Research students, postdocotorates and Sabbaticals

1.	Ehud Kopeliovitch	-	Ph.D. together with Prof. Kedar of the Faculty of Agriculture, The Hebrew University of Jerusalem.
2.	Amit Dror	-	M.Sc. with Dr. E. Birnbaum
3.	Regina Zohar	-	M.Sc.
4.	Shoshana Didi	-	M.Sc. with Dr. S. Arad
5.	Ephraim Cohen	-	Ph.D.
6.	Daniel Teitel	-	Ph.D.
7.	Yosef Shaaltiel	-	M.. with Prof. Kedar
8.	Avinoam Nerd	-	Ph.D. with Dr. A. Benzioni
9.	Israel Rosolio	-	M.Sc.
10.	Offer Dubinski	-	M.Sc. with Dr. S. Arad
11.	Devora Weinberg	-	M.Sc.
12.	Ram Golan	-	M.Sc.
13.	Dvira Livne	-	M.S. with Dr. V. Kagan-Zur
14.	Rachel Abu	-	M.Sc. with Prof. S. Arad
15.	Ayala Meir	-	M.Sc. with Dr. V. Kagan-Zur
16.	Ety Peler	-	M.Sc. with Prof. S. Arad
17.	Daphna Meiron-Yaron	-	M.Sc. with Dr. V. Kagan-Zur
18.	Marcos Egea Gutierrez-Cortines	-	Ph.D.

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|-----|-----------------------|---|--|
| 19. | Julia Weiss           | - | Ph.D. with Dr A. Nerd  |
| 20. | Elisha Mizrahi        | - | M.Sc. with Dr A. Nerd  |
| 21. | Eran Raveh            | - | M.Sc. with Dr A. Nerd  |
| 22. | Miri Lapidot<br>Zvi   | - | M.Sc. With Drs V. Kagan Zur and D. Bar   |
| 23. | Ayelet Na'us (Keren)  | - | M.Sc.  |
| 24. | XingNong Wang         | - | Ph.D. with Prof. M. Friedlander  |
| 25. | Ronit Mesika          | - | M.Sc.  |
| 26. | Nili Berdugo-Bura     | - | M.Sc. With Dr A. Nerd  |
| 27. | Vered Irijimovitch    | - | M.Sc. with Dr A. Nerd  |
| 28. | Elli Aflalo           | - | M.Sc. with Dr A. Nerd  |
| 29. | Judith Lichtenzveig   | - | M.Sc. with Dr S. Abbo  |
| 30. | Annan Yaghmur<br>HUJ  | - | M.Sc. with Dr Nerd & Prof. N. Garti of the   |
| 31. | Nasser Abdi           | - | Ph.D. with Prof. Barry McGlasson<br>At the University of Western Sydney,<br>Hawkesbury NSW Australia |
| 32. | Eran raveh            | - | Ph.D. with Dr A. Nerd  |
| 33. | Hamutal Pompan        | - | M.Sc. with Prof. Dov Pasternak   |
| 34. | Neomi Tel-Ztur<br>Zvi | - | Ph.D. with Dr S. Abbo and Dr. Dudy Bar-  |
| 35. | Christiana Metz       | - | Ph.D. with Dr A. Nerd  |
| 36. | Andrea Schuchman      | - | M.Sc. with Prof. Yaakov Tal  |
| 37. | Yehoram Leshem        | - | M.Sc. with Dr. Nerd  |
| 38. | Raheli Ninio          | - | M.Sc. with Dr. Sitrit & Dr. Lewinson   |

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|-----|-------------------|---------|---------------------------|
| 39. | Rahel Davidovitch | -       | M.Sc. with Dr. Sitrit     |
| 40. | Guy Armosa        | -       | M.Sc. with Dr Sitrit      |
| 41. | Anna Haimov       |         | Ph.D.                     |
| 42. | Eran Yossov       |         | M.Sc.                     |
| 43. | Israel Wiess      | current | M.Sc. Continues for Ph.D. |
| 44. | Einat Vitner      |         | M.Sc. with Dr. Sitrit.    |
| 45. | Mordekhai Dudai   | current | Ph.D.                     |
| 46. | Tzippi Hillman    |         | M.Sc.                     |

### **Postdoctorates,**

- |    |                        |  |                    |
|----|------------------------|--|--------------------|
| 1. | Dr. Genady Goldman     |  | UCLA Fellowship    |
| 2. | Dr. Dan Pelah          |  | Vatat Fellowship   |
| 3. | Dr. Ram-Avtar Kaushik  |  | Vatat Fellowship   |
| 4. | Dr. Alex Chechelnitzki |  | Immigration fund   |
| 5. | Dr. Feiga Gutman       |  | Immigration fund   |
| 6. | Dr Slawomir Wybraniek  |  | From Cracow Poland |
| 7. | Dr. Noemi Tel-Zur      |  | UCLA Fellowship    |

### **Sabbaticals**

- |    |                     |  |                  |
|----|---------------------|--|------------------|
| 1. | Dr. Yitzhak Plazner |  | From NRC (Kamag) |
|----|---------------------|--|------------------|

### **e. Membership in Professional/Scientific Associations**

1967-2007: The Israel Botanical Society

1968-present: The American Society for Plant Physiology

1970-present: The Scandinavian Society for Plant Physiology

1984-present: The European Society for Plant Physiology

1986-2004: The American Society for Horticulture Science

1990-present: The International Society for Horticulture Science

1998-present The American Botanical Society.

2002-present The American Society for Economic Botany.

2003-2005. The American Society of Genetics.

## **5. AWARDS, HONORS, RESEARCH FELLOWSHIPS**

1980: The annual E.D. Bergmann Prize for Applied Research of Ben-Gurion University for my contribution to the development of a controlled ripening process in new tomato varieties.

1983: The National Food Processors Association, Washington D.C., Award (NEPA) for the best paper in the area of basic or applied research dealing with the effect of "preprocessing horticultural variables" on the quality of canned products, for my paper no. 29. (See list of publications).

1992- 2008. Incumbent - The Israel and Bernard Nichunsky Chair in Desert Agriculture.

2001 "Excellent Scientist" certificate on behalf of the Association of Exotic Fruit Growers in Israel.

2004, 2005, 2006 & 2007. Awarded "Excellent Teacher" in the Faculty of Natural Sciences BGU.

2007- Dedication of the Horticultural Reviews Volume 34.

2007 – Dedication of the book - Creating Markets for Economic Development of New Crops and New Uses, The proceedings of the Sixth National New Crops Symposium. J. Janick, & Anna Whipkey editors, ASHS Press, Alexandria, VA. This book was dedicated to Dr. Francis Nakayama of the UDA-URS and to me for our contributions in the area of new crops. This preface can also be seen on: <http://www.hort.purdue.edu/newcrop/ncnu07/pdfs/preface.pdf>

## 6. SCIENTIFIC PUBLICATIONS

### a. Articles in Reviewed Journals

1. Mizrahi, Y., Amir, J. and Richmond, A.E. (1970). The mode of action of kinetin in maintaining the protein content of detached *Tropaeolum majus* leaves. *New Phytol.* 69:355-361.
2. Mizrahi, Y., Blumenfeld, A. and Richmond, A.E. (1970). Abscisic acid and transpiration in leaves in relation to osmotic root stress. *Plant Physiol.* 46:169-171.
3. Mizrahi, Y., Blumenfeld, A., Bittner, S. and Richmond, A.E. (1971). Abscisic acid and cytokinin contents of leaves in relation to salinity and relative humidity. *Plant Physiol.* 48:752-755.
4. Mizrahi, Y., Blumenfeld, A. and Richmond, A.E. (1972). The role of abscisic acid and salination in the adaptive response of plants to reduced root aeration. *Plant Cell Physiol.* 13:15-21.
5. Mizrahi, Y. and Richmond, A.E. (1972). Hormonal modification of plant response to water stress. *Aust. J. Biol. Sci.* 25:427-442.
6. Gur, A., Bravdo, B. and Mizrahi, Y. (1972). Physiological responses of apple trees to supraoptimal root temperature. *Physiol. Plant.* 27:130-138.
7. Mizrahi, Y. and Richmond, A.E. (1972). Abscisic acid and mineral deprivation. *Plant Physiol.* 50:667-670.
8. Arad (Malis), S., Mizrahi, Y. and Richmond, A.E. (1973). Leaf water content and hormone effects on ribonuclease activity. *Plant Physiol.* 52:510-512.
9. Benzioni, A., Mizrahi, Y. and Richmond, A.E. (1974). Effect of kinetin on plant response to salinity. *New Phytol.* 73:315-319.
10. Mizrahi, Y., Scherings, S.G., Arad (Malis), S. and Richmond, A.E. (1974). Aspects of the effect of ABA on the water status of barley and wheat seedlings. *Physiol. Plant.* 31:44-50.
11. Mizrahi, Y., Dostal, H.C., McGlasson, W.B. and Cherry, J.H. (1975). Transplantation studies with fruit of normal and *rin* and *nor* mutant tomatoes. *Plant Physiol.* 55:1120-1122.
12. Mizrahi, Y., Dostal, H.C. and Cherry, J.H. (1975). Ethylene induced ripening in attached *rin* fruits, a non-ripening mutant of tomato. *HortSci.* 10:414-415.
13. Mizrahi, Y., Dostal, H.C., McGlasson, W.B. and Cherry, J.H. (1975). Effect of abscisic acid and benzyladenine on fruits of normal and *rin* mutant tomatoes. *Plant Physiol.* 56:544-546.

14. Poovaiah, B.W., Mizrahi, Y., Dostal, H.C., Cherry, J.H. and Leopold, A.C. (1975). Water permeability during tomato fruit development in normal and *rin* non-ripening mutant. *Plant Physiol.* 56:813-815.
15. Mizrahi, Y., Dostal, H.C, McGlasson, W.B. and Cherry, J.H. (1976). Stock-scion interactions of normal and fruit ripening mutant *rin* and *nor* in tomato. *Physiol. Plant.* 35:232-235.
16. Mizrahi, Y., Dostal, H.C. and Cherry, J.H. (1976). Protein differences between fruits of *rin*, a non-ripening tomato mutant, and a normal variety. *Planta* 130:223-224.
17. Gur, A., Hepner, J. and Mizrahi, Y. (1976). The influence of root temperature on apple trees. I. Growth responses related to the application of potassium fertilizer. *J. Hort. Sci.* 51:181-193.
18. Gur, A., Mizrahi, Y. and Samish, R.M. (1976). The influence of root temperature on apple trees. II. Clonal differences in susceptibility to damage caused by supraoptimal root temperature. *J. Hort. Sci.* 51:195-202.
19. Mizrahi, Y., Dostal, H.C. and Cherry, J.H. (1976). Descriptive physiology and biochemistry of the abnormally ripening tomato fruit (*Lycopersicon esculentum* Mill) C.V. Snowball. *Physiol. Plant.* 38:309-312.
20. Bittner, S., Gorodetsky, M., Har-Paz, I., Mizrahi, Y. and Richmond, A.E. (1977). Synthesis and biological effects of aromatic analogs of abscisic acid. *Phytochemistry* 16:1143-1151.
21. Kopeliovitch, E., Rabinowitch, H.D., Mizrahi, Y. and Kedar, N. (1979). The potential of ripening mutants for extending shelf-life of the tomato fruit. *Euphytica* 28:99-104.
22. Heimer, Y.M., Mizrahi, Y. and Bachrach, U. (1979). Ornithine decarboxylase activity in rapidly proliferating plant cells. *FEBS Letters* 104:146-148.
23. Kopeliovitch, E., Mizrahi, Y., Rabinowitch, H.D. and Kedar, N. (1980). Physiology of the tomato mutant *alcobaca*. *Plant Physiol.* 48:307-311.
24. Kopeliovitch, E., Rabinowitch, H.D., Mizrahi, Y. and Kedar, N. (1980). Mode of inheritance of *alcobaca*, a tomato fruit ripening mutation. *Euphytica* 30:223-225.
25. Mizrahi, Y., Zohar, R. and Arad (Malis), S. (1982). Effect of NaCl on fruit ripening of the non-ripening tomato mutants *nor* and *rin*. *Plant Physiol.* 69:467-501.
26. Heimer, Y.M. and Mizrahi, Y. (1982). Characterization of ornithine decarboxylase of tobacco cells and tomato ovaries. *Biochem. J.* 201:373-376.

27. Mizrahi, Y. and Heimer, Y.M. (1982). Auxin-induced increased activity of ornithine decarboxylase in tomato ovaries. *Physiol. Plant.* 54:367-368.
28. Mizrahi, Y. (1982). Effect of salinity on tomato fruit ripening. *Plant Physiol.* 69:966-970.
29. Kopeliovitch, E., Mizrahi, Y., Rabinowitch, H.D. and Kedar, N. (1982). Effect of the fruit-ripening mutant genes *rin* and *nor* on the flavor of tomato fruit. *J. Am. Soc. HortSci.* 107:361-364.
30. Cohen, E., Heimer, Y.M. and Mizrahi, Y. (1982). Ornithine decarboxylase and arginine decarboxylase activities in meristematic tissues of tomato and potato plants. *Plant Physiol.* 70:544-546.
31. Cohen, E., Arad (Malis), S., Heimer, Y.M. and Mizrahi, Y. (1982). Participation of ornithine decarboxylase in early stages of tomato fruit development. *Plant Physiol.* 70:540-543.
32. Arad (Malis), S., Didi, S., Mizrahi, Y. and Kopeliovitch, E. (1983). Pectic substances: changes in soft and firm tomato cultivars and in non-ripening mutants. *J. Hort.Sci.* 58:111-116.
33. Arad, (Malis), S. and Mizrahi, Y. (1983). Stress-induced ripening of the non-ripening tomato mutant *nor*. *Physiol. Plant.* 59:213-217.
34. Cohen, E., Arad (Malis), S., Heimer, Y.M. and Mizrahi, Y. (1983). Polyamine biosynthetic enzymes in *Chlorella*: characterization of ornithine and arginine decarboxylase. *Plant Cell Physiol.* 24:1003-1010.
35. Cohen, E., Arad (Malis), S., Heimer, Y.M. and Mizrahi, Y. (1984). Polyamine biosynthetic enzymes in the cell cycle of *Chlorella*.: Correlation between ODC and DNA synthesis at different light intensities. *Plant Physiol.* 74:383-388.
36. Teitel, D.C., Arad (Malis), S., Birnbaum, E. and Mizrahi, Y. (1984). Growth and development of tomato fruits *in vivo* and *in vitro*. *Plant Growth Regulation* 3:179-189.
37. Veluthambi, K., Rhee, J.K., Mizrahi, Y. and Poovaiah, B.W. (1985). Correlation between lack of receptacle growth to auxin and accumulation of a specific polypeptide in a strawberry (*Fragaria ananassa* Duch.) variant genotype. *Plant & Cell Physiol.* 26:317-324.
38. Raghothama, K.G., Mizrahi, Y. and Poovaiah, B.W. (1985). Effect of calmodulin antagonists on auxin induced elongation. *Plant Physiol.* 79:28-33.
39. Teitel, D.C., Cohen, E., Arad, S. (Malis), Birnbaum, E. and Mizrahi, Y. (1985). The possible involvement of polyamines in the development of tomato fruits *in vitro*. *Plant Growth Regulation* 3:309-317.

40. Mizrahi, Y. and Pasternak, D. (1985). Effect of salinity on quality of various agricultural crops. *Plant and Soil*. 89:301-307.
41. Teitel, D.C., Arad (Malis), S., Birnbaum, E. and Mizrahi, Y. (1986). Nitrate reductase activity in tomato fruits grown *in vivo* and *in vitro*. *Plant Growth Regulation* 4 :357-362.
42. Kagan-Zur, V. and Mizrahi, Y. 1987. Fruit ripening in tetraploid tomato (*Lycopersicon esculentum* Mill.). *J. of Hort. Sci.* 62:243-248.
43. Mizrahi, Y., Taleisnik, E., Zohar, Y., Offenbach, R., Kagan-Zur, V., Matan, E. and Golan, R. (1988). Saline irrigation regime for improving tomato fruit quality without reducing yield. *J. Am. Soc. Hort. Sci.* 113:202-205.
44. Nerd, A., Aronson, J.A. and Mizrahi, Y. (1990). Introduction and domestication of rare fruits and nut trees for desert areas. In: *Advances in New Crops* Eds. J. Janick and J.E. Simon Timber Press, Portland, Oregon, USA. pp. 355-363.
45. Nerd, A., Karady, A. and Mizrahi, Y. 1989. Irrigation, fertilization and polyethylene covers influence bud development in prickly pear. *HortScience* 24:773-775.
46. Mizrahi, Y., Applewhite, P.B. and Galston, A.W. 1989. Polyamine binding to proteins in oat and *Petunia* protoplasts. *Plant Physiol.* 91:738-743.
47. Egea-Cortines, M., Cohen, E., Arad, S. and Mizrahi, Y. (1990). Effect of difluoromethylornithine on the growth of pollinated and naphthalene acetic acid induced tomato ovaries. In: Flores, H.E. and Arteca, R.N. Eds., *Polyamines and ethylene: Biosynthesis, physiology and interactions*. American Society of Plant Physiologists, Rockville, MD (This is a reviewed paper). pp. 325-328.
48. Kagan-Zur, V., Mills, D. and Mizrahi, Y. (1990). Callus formation from tomato endosperm. *Acta Horticulturae*. 280:139-142.
49. Kagan-Zur, V., Zamir, D., Navot, N. and Mizrahi, Y. 1991: A tomato triploid hybrid whose double genome parent is the male. *J. Amer. Soc. Hort. Sci.* 116: (2):342-345.
50. Nerd, A., Karady, A. and Mizrahi, Y. (1991). Out-of-season prickly pear: fruit characteristics and effect of fertilization and short drought periods on productivity. *HortScience*. 26:527-529.
- 51\*. Kagan-Zur, V., Yaron-Miron, D. and Mizrahi, Y. (1991). A study of triploid tomato fruits attributes *J. Amer. Soc. Hort. Sci.* 116: (2):228-231.
- 52\*. Nerd, A., Karady, A. and Mizrahi, Y. (1991). Salt tolerance of prickly pear cactus, *Opuntia ficus-indica*. *Plant and Soil*. 137:201-207.

- 53\*. Nerd, A., Lapidot, M. and Mizrahi, Y. (1992). White sapote (*Casimiroa edulis*); Performance under culture salinities and environmental stress conditions in field studies. *Scientia Horticulturae*. 51:213-222.
- 54\*. Kagan-Zur, V., Livne, D. and Mizrahi, Y. (1992). Analysis of effects of auxin on fruit size of tetraploid and diploid tomato fruits. *J. Hort. Sci.* 67(6): 817-825
- 55\*. Egea-Cortines, M. and Mizrahi, Y. (1992). The effect of difluoromethylornithine on polyamine levels in pollinated and in auxin-induced tomato fruits. *Plant Growth Regulation*. 12: 287-292
- 56\*. Egea-Cortines, M., Cohen, E., Arad (Malis), S., Bagni, N. and Mizrahi, Y. (1993). Polyamine levels in pollinated and auxin-induced fruit of the tomato (*Lycopersicon esculentum*) during development. *Physiol. Plant*. 87: 14-20.
- 57\*. Nerd, A., Mesika, R. and Mizrahi, Y. (1993). The effect of N fertilization on autumn flowering and N metabolism in prickly pear. *J. Hort. Sci.* 68: 337-342.
- 58\*. Kagan-Zur, V., and Mizrahi, Y. (1993). Long shelf-life small sized (cocktail) tomatoes can be picked in bunches. *Scientia Horticulturae* 56: 31-41.
- 59\*. Nerd, A., Raveh, E. and Mizrahi, Y. (1993). Adaptation of five columnar cactus species to various conditions in the Negev Desert of Israel. *Econ. Bot.* 43 (3): 31-41
- 60\*. Weiss, J., Nerd, A., and Mizrahi, Y. (1993). Vegetative parthenocarpy in the cactus pear *Opuntia ficus-indica* (L.) Mill. *Annals of Botany* 72: 521-526.
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## b. Invited papers and chapters in Books

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## 7. LECTURES AND PRESENTATIONS AT MEETINGS AND INVITED SEMINARS

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52. Mizrahi, Y., Nerd, A., Soloway, E. The activity in the plot of new fruit and nut trees at Qetura; annual report September 1987-October 1988. Report No. BGUN-ARI-100-88, Nov. 1988. (In Hebrew).
53. Mizrahi, Y., Nerd, A. The activity in the plot of new fruit and nut trees at Ramat Negev; annual report January-December 1988. Report No. BGUN-ARI-106-88, Dec. 1988. (In Hebrew).
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57. Mills, D., Kagan-Zur, V., Wenkart, S. and Mizrahi, Y. (1989). Production of triploid tomato plants. Annual report, April 1988-March 1989. The Institutes for Applied Research, Ben-Gurion University of the Negev, Beer-Sheva. Report No. BGUN-ARI-9-89.
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August 1988-July 1989. The Institutes for Applied Research, Ben-Gurion University of the Negev, Beer-Sheva. Report No. BGUN-ARI-40-89.

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66. Mizrahi, Y. and Nerd, A. (1990). New approach to ease food production problems in arid and semiarid lands by introduction and domestication of highly nutritious fruit and nut trees. Semiannual report, January-June 1990.. The Institutes for Applied Research, Ben-Gurion University of the Negev, Beer-Sheva. Report No. BGUN-ARI-29-90.
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72. Nerd, A.; Mizrahi, Y. Yehib (*Cordeauxia edulis*) as a new crop for desert areas; report for the period October 1990-December 1991. Report No. BGUN-ARI-16-92; Feb. 1992.
73. Mizrahi, Y.; Nerd, A. Introduction of white sapote (*Casimiroa edulis*) as a new export crop for Israel; progress report March 1992. Report No. BGUN-ARI-17-92; March 1992.
74. Mizrahi, Y.; Nerd, A.; Bangerth, F.; Mbewe, M. New subtropical fruit and nut crops for saline and arid lands; annual report January -December 1991. Report No. BGUN-ARI-23-90; April 1992.
75. Mizrahi, Y.; Nerd, A. New approach to ease food production problems in arid and semiarid lands by introduction and domestication of highly nutritious fruit and nut trees; annual report January-December 1991. Report No. BGUN-ARI-27-92; May 1992.
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80. Nerd, A.; Mizrahi, Y. Introduction and development of white sapote as a new orchard crop for export; concluding report 1991-1992. Report No. BGUN-ARI-64-92; Dec. 1992. (In Hebrew).
81. Mizrahi, Y.; Nerd, A.; Raveh, E. Pitaya for fruit production under protected conditions: effect of shading on the development of two species of *Hylocereus*; annual report 1992. Report No. BGUN-ARI-10-93; Feb. 1993.
82. Mizrahi, Y.; Nerd, A. A new approach to easing food production problems in arid and

- semiarid lands by introduction and domestication of highly nutritious fruit and nut trees; annual report 1992. Report No. BGUN-ARI-17-93; March 1993.
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  86. Nerd, A.; Raveh, E.; Mizrahi, Y. Development of creeping cacti of the genera *Hylocereus* and *Selenicereus* as an orchard crop under protected conditions for export purposes; annual report for the period 1991-92. Report No. BGUN-ARI-69-93; Sept. 1993. (In Hebrew).
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  88. Mizrahi, Y.; Nerd, A. A new approach to easing food production problems in arid and semiarid lands by introduction and domestication of highly nutritious fruit and nut trees; annual report 1993. Report No. BGUN-ARI-18-94; March 1994.
  89. Nerd, A.; Weiss, J.; Mizrahi, Y. Development of prickly pear for export: effect of hormonal treatments at the bud stage on seediness and fruit quality; annual report for 1993. Report No. BGUN-ARI-20-94; Apr. 1994. (In Hebrew).
  90. Mizrahi, Y.; Nerd, A. Introduction and development of white sapote as a new orchard crop for export: fruit characteristics and shelf life; annual report for 1993. Report No. BGUN-ARI-26-94; Apr. 1994. (In Hebrew).
  91. Mizrahi, Y.; Raveh, E.; Nerd, A. Development of the cacti *Hylocereus* and *Selenicereus* as orchard crops in a growth house for export purposes; annual report for 1993. Report No. BGUN-ARI-28-94; Apr. 1994. (In Hebrew).
  92. Nerd, A.; Mizrahi, Y. Introduction of new fruit trees; concluding report until December 1993. Report No. BGUN-ARI-69-94; Aug. 1994. (In Hebrew).
  93. Mizrahi, Y.; Nerd, A.; Bangerth, F.; Mbewe, M. New subtropical fruit and nut crops for saline and arid lands; final report January 1990-December 1993. Report No. BGUN-ARI-78-94; Oct. 1994.

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96. Nerd, A.; Nobel, P.; Mizrahi, Y. Development of prickly pear cultivation: distribution and assimilation of nitrate in the prickly pear *Opuntia ficus-indica*; annual report for 1994. Report No. BGUN-ARI-12-95; Feb. 1995. (In Hebrew).
97. Nerd, A.; Mizrahi, Y. Introduction of new fruit trees; report for the year 1994. Report No. BGUN-ARI-28-95; Apr. 1995. (In Hebrew).
98. Mizrahi, Y.; Nerd, A. A new approach to easing food production problems in arid and semiarid lands by introduction and domestication of highly nutritious fruit and nut trees; final report 1994. Report No. BGUN-ARI-55-95; Aug. 1995.
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100. Nerd, A.; Mizrahi, Y. Development of prickly pear cultivation—effect of the temperature on dormancy break of buds in the spring; annual report for 1995. Report No. BGUN-ARI-82-95; Dec. 1995. (In Hebrew).
101. Nerd, A.; Mouyal, J.; Mizrahi, Y. Introduction and development of new tree crops for export; report for the year 1994-1995. Report No. BGUN-ARI-13-96; Jan. 1996. (In Hebrew).
102. Nerd, A.; Mizrahi, Y. New fruit and nut trees program: Introduction and domestication of African species; annual report January-December 1995. Report No. BGUN-ARI-3-96; Jan. 1996.
103. Mizrahi, Y.; Nerd, A. Introduction and development of white sapota as a new orchard crop for export: flower types and flowering time; report for the year 1995. Report No. BGUN-ARI-2-96; Jan. 1996. (In Hebrew).
104. Nerd, A.; Raveh, E.; Mouyal, J.; Mizrahi, Y. Development of climbing cacti *Selenicereus* and *Hylocereus* as orchard crops in closed structures for export; report for the year 1995. Report No. BGUN-ARI-14-96; Jan. 1996. (In Hebrew).
105. Mizrahi, Y.; Aflalou, E.D.; Nerd, A. Introduction and development of nopalitos as a vegetable crop; report for the year 1995. Report No. BGUN-ARI-24-96; March 1996. (In Hebrew).

106. Mizrahi, Y.; Mills, D.; Nerd, A. Yehib (*Cordeauxia edulis*) as a new crop for desert areas; concluding report. Report No. BGUN-ARI-59-96; Oct. 1996.
107. Mizrahi, Y.; Nerd, A. Fleischer Family—New Fruit Crops Research Laboratory; annual report 1996. Report No. BGUN-ARI-63-96; Nov. 1996.
  9. Goldman, G.; Nerd, A.; Mizrahi, Y. New fruit and nut trees for the Negev - development of Marula, a promising multipurpose crop; concluding report December 1996. Report No. BGUN-ARI-67-96; December 1996.
110. Mizrahi, Y.; Nerd, A. Fleischer Family—New Fruit Crops Research Laboratory; annual report 1996. Report No. BGUN-ARI-63-96; Nov. 1996.
111. Mizrahi, Y.; Nerd, A. Introduction and development of white sapota as a new orchard crop for export; report for the 1996 season. Report No. BGUN-ARI-74-96; Dec. 1996. (In Hebrew).
112. Mizrahi, Y.; Nerd, A. Fleischer Family—New Fruit Crops Research Laboratory; annual report for 1997. Report No. BGUN-ARI-52-97; Dec. 1997.
113. Mizrahi, Y.; Nerd, A. Yehib and other African species as new crops for desert areas; annual report 1997. Report No. BGUN-ARI-51-97; Dec. 1997.
114. Nerd, A.; Mizrahi, Y. Capturing high water Use efficiency in cold hardy fruit cacti; concluding report for 1997. Report No. BGUN-ARI-23-98; Dec. 1997.
115. Nerd, A.; Mizrahi, Y. Introduction and development of new fruit and nut trees for export; concluding report up to December 1996. Report No. BGUN-ARI-26-97; Sept. 1997. (In Hebrew).
116. Nerd, A.; Mizrahi, Y. Introduction and development of nopalitos a as water-saving vegetable for export; concluding report 1995-97. Report No. BGUN-ARI-5-98; Feb. 1998. (In Hebrew).
117. Mizrahi, Y.; Nerd, A. Development of new orchard crops for desert areas; concluding report January-December 1997. Report No. BGUN-ARI-12-98; Feb. 1998.
118. Mizrahi, Y.; Nerd, A. Development of pitaya cactus apple for export; annual report January-December 1997. Report No. BGUN-ARI-13-98; Mar. 1998. (In Hebrew).
119. Nerd, A.; Mizrahi, Y. Development of creeping cactus of the genus *Hylocereus* under protected conditions for export; annual report January-December 1997. Report No. BGUN-ARI-4-98; Feb. 1998. (In Hebrew).

120. Gutman, F.; Chichelnitsky, A.; Mizrahi, Y.; Nerd, A. New fruit and nut trees for the Negev: development of marula, a promising multipurpose crop; annual report January-December 1997. Report No. BGUN-ARI-1-98; Jan. 1998.
121. Gutman, F.; Mizrahi, Y.; Nerd, A. New fruit and nut trees for the Negev: Developmnt of marula, a promising multipurpose crop; annual report January-December 1998. Report No. BGUN-ARI-1-99; Jan.1999.
122. Mizrahi, Y.; Nerd, A. Development of crawling cacti as a fresh fruit crop for export; concluding report for 1998. Report No. BGUN-ARI-8-99; March 1999. (In Hebrew).
123. Mizrahi, Y.; Nerd, A. Development of pitaya, cactus apple, as a new crop for export; concluding report for 1998. Report No. BGUN-ARI-9-99; March 1999. (In Hebrew).
124. Mizrahi, Y.; Nerd, A. New Fruit Crops Research Laboratory Fleischer Family; report the period 1996-1998. Report No. BGUN-ARI-16-99; Apr. 1999.
125. Nerd, A.; Sitrit, Y.; Mizrahi, Y. Exploiting high water use efficiency in cold-hardy prickly pear; final report for the year 1998/99. Report No. BGUN-ARI-40-99; Oct. 1999.
126. Gutman, F.; Nerd, A.; Mizrahi, Y. Identification of *Cereus peruvianus* clones and determination of relationships with other *Cereus* cacti using RAPD; annual report 1999. Report No. BGUN-ARI-46-99; Nov. 1999.
127. Nerd, A.; Mizrahi, Y. Fruit ripening and clone selection in the cactus *Cereus peruvianus* (koubo) - a new exotic fruit crop for Israel; report for 1998. Report No. BGUN-ARI-47-99; Oct. 1999.
128. Nerd, A.; Mizrahi, Y. Development of species of crawling cactus for export: yellow pitaya; annual report for 1998/9. Report No. BGUN-ARI-27-2000; July 2000. (In Hebrew).

**Stopped reporting since 2000 on endless reports to many research agencies.**

## 8. GRANTS FUNDED

**All years my research was funded, see Reports section.**

LIST OF FUNDED PROJECTS FROM - 1987

1. New approach to obtain high quality tomato fruits  
 No. 86312701  
 1.9.87-31.3.88 - NIS16,000  
 1.4.88-31.3.89 - NIS.25,000  
 Ministry of Agriculture
  
2. New subtropical fruit and nut crops for saline and arid lands  
 No. 863382  
 1.6.86-31.12.89  
 DM600,000  
 GIARA West Germany  
 Renewed from 1.1.91 - 31.12.93 - DM.500,000
  
3. Introduction and development of new fruits and nuts for export from the Negev  
 No. 86317301  
 17.7.87- 31.7.88 \$40,000 -  
 1.8.88 - 31.7.89 \$37,500  
 1.8.89-31.7.90 - \$40,000  
 PEF - Israel Endowment Fund
  
4. New fruits and nut crops for arid lands (in Botswana)  
 No. 86334301  
 1.9.85-31.8.88  
 \$150,000  
 US AID CDR
  
5. *Opuntia ficus-indica* new crop for export  
 No. 86451201 NIS11,200  
 No. 86451101 NIS 4,800  
 1.4.88-31.3.89 - NIS4,800  
 1.4.89-31.3.90 - NIS16,000  
 1.1.91-1.1.92 - NIS20,000  
 1.1.92-1.1.93 - NIS20,000  
 1.1.93-1.1.94- NIS40,000  
 1.1.94-1.1.95- NIS40,000  
 1.1.95-1.1.96- NIS40,000  
  
 Ministry of Agriculture
  
6. Yehib (*Cordeauxia edulis*) as a new crop for desert areas  
 No. 31700009  
 1.10.87-30.11.88 - \$23,475

1.10.88-31.9.89 - \$20,000  
 1.10.89-31.9.90 - \$20,000  
 1.10.90-31.9.91 - \$15,000  
 1.10.91-1.10.92 - \$10,000  
 Freedom from Hunger Campaign, New Jersey

7. Triploid tomatoes for export  
 No. 86318401  
 1.8.87 - 31.7.88 - \$15,000  
 1.7.88 - 30.6.89 - \$50,000  
 1.7.89 - 30.6.90 - \$40,000  
 1.7.90 - 30.6.91 - \$30,000  
 PEF Israel Endowment Fund
8. Production of triploid tomato plants from endosperm  
 No. 86356101  
 1.4.88 - 31.3.89  
 \$25,000  
 The Jewish Agency
9. New approach for production of high quality long-shelf-life tomato fruits by the use of various dosages of nonripening tomato mutants *rin* and *nor*.  
 No. 86360101  
 NIS35,000  
 Ministry of Agriculture
10. Regulation of tomato ripening and post harvest storage.  
 No. 86-3622101  
 \$100,000 for 3 years  
 1989-1992  
 BARD
11. New approach to ease food production problems in arid and semiarid lands by introduction and domestication of highly nutritious fruit and nut trees.  
 No. 86366201  
 \$500,000 for five years.  
 1989-1994  
 Rich Foundation
12. Spotting and identification of triploid plants in commercial tomato plots.  
 together with Dr. Kagan-Zur  
 No. 86385101  
 NIS.20,000 1.8.90-31.3.91  
 Ministry of Agriculture, Israel
13. A study of the agricultural potential of triploid tomato plants in commercial greenhouses.

No. 86384101  
 Together with Dr. Kagan-Zur  
 NIS.20,000 1.8.90-31.3.91  
 Ministry of Agriculture, Israel

14. Production of triploid tomato genotypes by regeneration of callus, derived from endosperm cultures. No. 86383101  
 Together with Dr. Kagan-Zur and Dr. David Mills  
 NIS.20,000 1.8.90-31.3.91  
 Ministry of Agriculture, Israel
15. Commercialization of white sapote, cactus apple and crawling pitaya in the Negev Desert of Israel.  
 15.10.92-15.10.95 - \$100,000 per year  
 Meyrhoff Foundation via Negev Farming
16. Cultivar tests of white sapote  
 1.1.91-1.1.94 - NIS20,000 per year  
 Ministry of Agriculture
17. Nopalitos ( Cactus cladod used as a vegetable) New crop for Israel  
 1.10. 93-31.3.94 \$26,000 Sadot ( private firm)
18. Introduction of new fruit tree crops to the Negev  
 1.1.93- 31.12.95. 40,000 NIS/year. Ministry of Agriculture.
19. *Nopalea cochenillifera* as a vegetable cactus with high water use efficiency.  
 1.1.94- 31.12.97. 40,000 NIS/year. Ministry of Agriculture.
20. *Hylocereus and Selenicereus* sp as new fruit crops for export grown in net-houses.  
 1.1.93- 31.12.95. 40,000 NIS/year. Ministry of Agriculture.
21. *Cereus peruvianus* (applecactus) -outdoor grown columnar cactus as new fruit crop.  
 1.1.95-31.12.98 40,000 NIS/year. Ministry of Agriculture
22. *Hylocereus and Selenicereus* sp as new fruit crops for export grown in net-houses.  
 1.1.93- 31.12.95. 60,000 NIS/year. Ministry of Agriculture.
23. Introduction and development of new exotic fruit trees for the Israeli Negev Desert.  
 1.1.96-31.12.2000. \$50,000/year The Fliescher Foundation.
24. Introduction and development of marula - *Sclerocarya birrea* sbsp *caffra* as new industrial and fresh fruit for export.  
 1.1.95 - 31.12 98 \$25,000/year Pulier Foundation.

25. Introduction of the cacti *Hylocereus* sp. and *Selenicereus megalanthus* as new exotic export fruit crops for Israel \$18,000 for 96-97 \$14,000 for 97-98 H. Stern-Helen Zoref Foundation
26. *Hylocereus* and *Selenicereus* sp as new fruit crops for export grown in net-houses. 1.1.97- 31.12.99. 60,000 NIS/year. Ministry of Agriculture.
27. Cold tolerance in *Opuntia ficus-indica* 1996-1998 \$18,750/year for 3 years ILAC
28. Development of *Cereus peruvianus* as new fruit crop for export. 40,000 Ministry of Agriculture + Moetzet Ha'pe'rot (Fruit Board of Israel).
29. Pitaya Fruits R&D Activity Dictated by Export Market Needs, 330,000 NIS for 1999-2000 and 270,000 NIS for 2000-2001. Financed by the Chief Scientist Ministry of Agriculture.
30. Breeding Pitayas for the export market. 1999 - 60,000NIS; 2000- 30,000NIS. Moetzet Ha'pe'rot (Fruit Board of Israel).
31. Development of desert fruit crops. \$30,000/year 1998-2008. Finnish Funds for Sustainable Desert Agriculture.
32. Development of Phytech equipment for optimization of Pitaya agromanagment. UCLA Cooperation Program. \$23,000 for 10/1998-10/1999.
33. Fruit ripening and clone selection in the cactus *Cereus peruvianus* "Koubo", a new exotic fruit crop for Israel. \$18,000/year for 1998-1999. . Harry Stern BGU Fund.
34. Possible solutions to marketing problems posed by concentrated fruit ripening in *Hylocereus* spp. \$24,000/year 1999-2001. Harry Stern BGU Fund.
35. Marketing problems in Pitayas -possible solutions. \$25,000/year 2000-2004. Ben Gufen Fund.
36. Development of pitayas as new export fruit crop from Israel -Chief Scientist Ministry of Agriculture Israel 2000-2002. Total 840.000 NIS
37. Sustainable new fruit crops for desert areas 1998- 2003 Finnish Department for Foreign Affairs \$35,000/year.
38. Effect of water regimes on plant development, fruiting and water relations in three vine cacti crops. 2001-2003. BARD with Prof. P. Nobel of UCLA +Nerd, A. and Ben-Ahser J. of BGU. \$180,000.

39. Marketing derived R&D for exporting Pitayas (Vine cacti) together with Dr. Nerd, A. and Yaron Sitrit. 2003 and 2005, 250,000 NIS/year.
40. Diabetes Activity in Nopalea cochenillifera cladodes. Ministry of Science. 2002-2005, 100,000 NIS/Year. Together with Dr. Yaron, Sitrit and Amnon Sintov.
41. Avoiding ripening waves of vine cacti. \$30,000 for 2002-2003, by Fleischer family fund.
42. Elongation of shelf-life in Pitayas- 90,000/year 2005-2006. Moetzet Hatzmahim With Dr. sitrit.

## ACHIEVEMENTS IN APPLIED RESEARCH

1. The major reason for the very low yields of jojoba in our area (flower bud dormancy) was determined and an efficient agricultural solution to this problem was proposed which involves irrigation and fertilization. Today all jojoba plantations are fertigated to optimize yields.
2. The hypothesis that non-ripening tomato mutants can be used for the prolongation of tomato shelf life was shown to be true. From a practical point of view, the problem of shelf life has been solved. These cultivars have been passed on to commercial seed companies and offered to Israeli farmers as new varieties for export as early as 1982. This achievement is the result of a joint project between me, as a plant physiologist, and Prof. Kedar of the Faculty of Agriculture, The Hebrew University of Jerusalem, a tomato breeder and geneticist. Today all Israeli cultivars are hybrids of these non-ripening mutants. These Israeli hybrids are exported for seeds all over the world.
3. Saline water irrigation has been proved to yield high-quality tomato and melon fruits. This finding was the basis for the establishment of the "Desert sweet" lines successfully grown today for export in the Israeli Negev Desert.
4. Prickly pear ripens in most of Israel at the end of July-beginning of August, hence earning a low price per unit. By physiological manipulation through irrigation and fertilization we were able to induce second flowering wave in September. In warm areas, fruit can ripen in winter and earn very high prices as "out-of-season crop". These techniques are used today mainly by farmers in Pithat-Shalom.(Publication 49).
5. The first semi commercial orchards of cactus apple (*Cereus peruvianus*) and Pitahaya *Hylocereus and Selenicereus* sp both newly introduced fruit species were planted in 1993 at four locations in the southern part of Israel. In 1996 10 tons of pitahaya were exported to Europe and around 1 ton of cactus apple was sold in the domestic market. Both yielded a good income to the growers, and prospects for their development into export crops with low water requirements( i.e., high water use efficiency) are excellent. To date over **500 Dunams** of Pitahaya and **100 Dunams** of cactus apple (named by AGREXCO as Koubo- Trade name) are planted around the country and both are sold for prime prices both in Europe and the domestic market. Three new hybrid clones of Pitaya were registered lately, Venus, Golden and Dragon Egg S-75.
6. Two Australian Companies, American Company in Hawaii and Japanese company from Okinawa are using clones and know-how developed by us to grow Vine cacti as new crops in their area. Contracts were signed for future Royalties.
7. **Desert Exotic Company** was established on August 1999 in **Ein Habesor** in the Western Negev. This company produces various exotic food products made of the exotic fruits we introduced. The emphasis at this moment is on liqueurs made of marula, koubo and cactus pear. Samples were sent on October 2000 to various

foreign countries for market analysis. Dr. Genady Goldman who worked in my lab for 4 years developed the food technology know-how.

8. In 2007 the Southern Arava R & D took a decision to develop the Marula as new crop for arid areas. It can tolerate extreme high temperatures and low humidity on saline environment. 4.4 hectares of grafted trees from selected clones were planted. All around Israel in 2009 there are over 7 hectares of these clones under the hands of various farmers.

## **ACADEMIC PROMOTIONS**

### **DEPARTMENT OF LIFE SCIENCES**

Lecturer	1973
Senior lecturer	1978
Associate Professor	1983
Full Professor	1991

### **THE INSTITUTES FOR APPLIED RESEARCH and AGRICULTURE RESEARCH ORGANIZATION (ARO)**

Scientist (Rank 'C')	1972
Senior Scientist (Rank 'B')	1975
Senior Scientist (Rank 'A')	1979 (also at ARO)
Senior Scientist (Rank 'A+')	1984