ALIZA BENZIONI-Curiculum Vitae

PERSONAL DETAILS

Name:	Benzioni Aliza
Born:	Tel-Aviv, Israel September 9, 1936
Military service:	(1954-1956)
Address (work):	The Institutes for Applied Research POB 653, Beer-Sheva 84105. Tel: 07-6461970/68
Address (home):	5 Brosh Street, Omer. Tel: 07-6469678

EDUCATION

B.Sc.	1958-61: Department of Botany, Tel-Aviv University.
M.Sc.	1966-67:Department of Botany, Tel-Aviv University. Advisor: Prof. Yoav Weisel. Thesis: "Chloride influx and efflux in bean roots and their relation to the free space.
Ph.D.	1969-72: Dep.of Physiol.Natural Siences, The Hebrew Univ. Advisor: Dr. Yoash Vaadia.Thesis: "Malate Synthesis and Transport in Relation to Nitrate Reduction and Uptake."

EMPLOYMENT HISTORY

July-November 2004	Savvatical Inst. Exp. Botany with Prof. Jana passiblova
Feb-May 2003:	Sabbatical Katholic University Leuven Belgium with Prof.Van-Boven)
May-Aug 2000:	Sabbatical with jojoba association of Australia.
1999:	Sabbatical Tel-Aviv Univ. With Prof. Weisel
1992:	Sabbatical Univ. Sant-Diago Chile (three months)
1989-90:	Sabbatical at the Department Plant Science, College of Agriculture, University of Arizona.
1983-1984:	Sabbatical at the Department of Industrial Crops, Canberra Australia.
1973-75:	Lecturer, Department of Biology, BGU.
1963-73:	Research Assistant, Department of Plant Physiology, Negev Institute for Arid Zone Research
1979:	Sabbatical at the Department of Biochemistry, University of California, Davis, USA (four months).
1975-present	The Institutes for Applied Research

Ranks

Research Grade B	- 1975
Research Grade A	- 1980
Research Grade A+	- 1991
Professor	-1998

PROFESSIONAL ACTIVITIES

Academic administration within the University

1986-1989, 1991-1992:	Salinity Center: representative of the Institutes.
1984-88; 1991-92:	Deputy Head, Institute for Agriculture & Applied Biology, The Institutes for Applied Research

Professional functions outside the University

1988-89:	A member in the management Board of the Jojoba Growers Association
1988-89:	Member of the Committee for evaluating proposals in field crops (BARD)
1992-93:	Member of the Committee for Evaluation of Proposals (BARD, GIARA, Chief Scientist)
1991-96:	Project leader – Jojoba Research

International consulting

Egypt-	Developing of new industrial crops-jojoba and guayule
Kenya-GIARA	Development of agricultural techniques for vegetable production-Germplasm collection and evaluation of Kenyan indiginouse vegetables AID-CDR
Chile-	Advising on jojoba project: FONDEF 1994.
India	Rajastan: Advising in establishment of jojoba model farms in Rajastan
India	Gujarat: Advising on establishment and research on jojoba in Gujarat
Egypt:	consultant to Mr. Nabil El-Mogy: Jojoba plantations
Australia:	Advising to Jojoba Association on jojoba agromanagement.
China:	Advising to Henan province on jojoba industry development.

Memberships in Professional/Scientific Associations:

1970-1983.	American Society of Plant Physiology ASPP.
1987-present:	American Society of Plant Physiology ASPP.
1980-present:	Federation of European Society of Plant Physiology FESPP
1970-present:	Israel Society of Botany
1991-present:	American Association of Industrial Crops: AAIC

Teaching:

Courses taught

1967-73:	Instructor, plant physiology
1968-75:	Supervisor, laboratory course in cell biology
1972-75:	Lecturer, cell membranes
1974:	Lecturer, plant physiology in water and mineral nutrition
1975:	Lecturer, in a course on water stress
1979-1980:	Lecturer, mineral nutrition and fertilization
1984-1989:	Lecturer, mineral nutrition and fertilization
2002-2004:	Lectures, physiology of plants in arid land

Graduate students, trainees and postdoctorates

1) Graduate students

1982:	D. Prizem, M.Sc. cosuperviser to D.Siton. BGUN.
1983:	D. Shafat, M.Sc. BGUN.
1983:	Z. Magal, M.Sc. cosuperviser to M. Berlinger. BGUN.
1985:	A. Nerd, with Y. Mizrahi. Ph.D. BGUN.
1985:	D. Landstein, with S.Arad. M.Sc. BGUN.
1986	Z. Carmi, M.Sc. cosuperviser to Y. Amir. BGUN.

1988:	Y. Canfo, M.Sc. BGUN
1988:	M. Ventura, M.Sc. cosuperviser to D.Siton. BGUN.
1992:	I. Verner, M.Sc. University of Bonn, West Germany.
1997:	M.Rokni-Gura with D. Mills. M.Sc. BGUN.
1995:	M. Levinger. M.Sc. BGUN.
1995:	E. Mizrahi with D Bar-Zvi. Msc, PhD. BGUN.
2000:	L. Segev. with M. Berlinger. M.Sc. BGUN.
2000:	R. Friedman. With D. Mills. M.Sc. BGUN.
2000:	L. Segev. With S. Lapidot (vulkani) Ph.D.
2002:	O Katlan with David Mills
2003:	I. Baruch with David Mills

2) Trainees and postdoctorants

1989-1990	Dr. P.M. Kimani-Kenya-Effect of genetic background on pigeon pea physiological response to successive water stresses
1991:	Dr. Orlando offilas-Philippines-Flower production and fruit set in *Cucumis metuliferus,* characterization of jojoba clones.
1992-	Dr. Nancy Balantac-Philippines-Productivity in six multigenes of *Cucumis metuliferus,*
1993:	Mr. Manish Agrawal USA on jojba industry in Israel
1993:	Mr. Reuben Lazus a Student for M.Sc. in University of Bonn, West Germany.
1998-	Wei Shu- China on pentration of Rb into cuticles
1999:	Mr Bahbhesh Supovadia India on pollen dispesion in jojoba
2000:	Mr. Zou Ching tissue culture of jojoba.
2001:	Dr. Olga Smallyakova
2002:	Dr. Suria Prakash
2003:	Dr. Siva

SCIENTIFIC PUBLICATIONS

c. Chapters in collective volumes

1. Itai, C. and Benzioni, A. "Water stress and hormonal response." In: Water and Plant Life, Lange, Schulze and Kapan, Eds. Berlin, Springer Verlag, 1976, p. 225-242.

2. Benzioni, A. "*Simmondsia chinensis*." In: CRC Handbook of Flowering, vol. IV. A.H. Halevy, Ed., Boca Raton, CRC Press, 1985, p. 331-335.

3. Benzioni, A. and Dunstone, R.L. Jojoba: adaptation to environmental stress and the implication for domestication. A review. Quat. Rev. Biol. 61:177-199 (1986).

4. Benzioni, A. and Forti, M. "Jojoba." In: Oil Crops of the World; Their Breeding and Utilization, G. Roebbelen, R.K. Downey and A. Ashri, Eds., New York, McGraw-Hill, 1989, p. 448-461.

5. Mills, D., A. Benzioni and M. Forti. Water relations of guayule and their effect on rubber production. In: New Crops for Food and Industry. (G.E. Wickens, N. Haq and D. Day, Eds., London, Chapman and Hall, 1989, p. 391-401.

6. Benzioni, A. 1995. Jojoba dometication and commercializationIn Israel:. In: Horticultural reviews. J. Janick (ed.). Portland, Oregon. John Wiley & Sons. Inc. 17:233-266.

7. Mills, D. Vankart S. and Benzioni A.1997. Micropropagation of Jojoba. In:Biotechnology in Agriculture And Forestry vol. 40. pp 370-393. Y. P. S. Bajaj (ed.) Spriger-Verlag Berlin, Heidelberg

d. Refereed articles in scientific journals

1. Benzioni, A., Itai, C. and Vaadia, Y. Water and salt stress, kinetin and protein synthesis in tobacco leaves. Plant Physiol.. 42:361-365 (1967).

2. Benzioni, A., Vaadia, Y. and Lips H.S. Correlations between nitrate reduction, protein synthesis and malate accumulation. Physiol. Plant. 23:1039-1049 (1970).

3. Benzioni, A., Vaadia, Y. and Lips, H.S. Nitrate uptake by roots as regulated by nitrate reduction products of the shoot. Physiol. Plant. 24:288-290 (1971).

4. Benzioni, A. and Itai, C. Short and long term effects of high temperatures (47-49°C) on tobacco leaves. I. Photosynthesis. Physiol. Plant. 27:216 (1972).

5. Itai, C. and Benzioni, A. Short and long term effects of high temperatures (47-49°) on tobacco leaves. II. O_2 uptake and amylolytic activity. Physiol. 28:490 (1973).

6. Itai, C., Benzioni, A. and Ordin, L. Correlative changes in endogenous hormone levels and shoot growth induced by short heat treatment to roots. Physiol. Plant. 29:355-360 (1973).

7. Benzioni, A. and Itai, C. Short and long term effects of high temperature (47-49°C) on tobacco leaves. III. Efflux and P incorporation into phospholipids. Physiol. Plant. 28:493-498 (1974).

8. Benzioni, A., Mizrahi, Y. and Richmond, A.E. Effect of kinetin on plant response to salinity. New Phytol. 73:315-319 (1974).

9. Ordin, L., Itai, C. and Benzioni, A. Effect of heat shock on plant growth and on lipid and beta-glucan synthetases. Physiol. Plant. 53:118 (1974).

10. Benzioni, A. and Itai, C. Preconditioning of tobacco leaves to heat shock by high temperature or NaCl. Physiol. Plant. 35:80-84 (1975).

11. Benzioni, A. and Heimer, Y.M. Temperature effect on nitrate reductase activity *in vivo*. Plant Science Letters 9:225-231 (1977).

12. Tal, M. and Benzioni, A. Ion imbalance in *Capsicum assuum, scabrous diminutive* a wilty mutant of pepper. I. Sodium flux. J. Exp. Bot. 28:1337-1341 (1977).

13. Benzioni, A. and Tal, M. Ion imbalance in *Capsicum assuum, scabrous diminutive* a wilty mutant of pepper. I. Rubidium flux. J. Exp. Bot. 29:879-884 (1978).

14. Itai, C., Benzioni, A. and Minz, S. Heat stress: effects of abscisic acid and kinetin on response and recovery of tobacco leaves. Plant Cell Physiol. 19(3):278-284 (1978).

15. Benzioni, A. Fruit development and wax biosynthesis in jojoba. New Phytol. 81:105-109 (1978).

16. Yaron, A., Benzioni, A. and More, I. Absorption and distribution of jojoba wax injected subutaneously into mice. Lipids 15:889-894 (1980).

17. Yaron, A., Samueloff V. and Benzioni, A. Absorption and distribution of orally administered jojoba wax in mice. Lipids 17:169-171 (1982).

18. Yaron, A., Benzioni, A., More, I., Mahler, D. and Meshorer, A. Physiological tolerance of jojoba wax in laboratory animals. J. Soc. Cos. Chem. 33:141-148 (1982).

19. Berlinger, M.J., Magal, Z. and Benzioni, A. 1984. The importance of pH in food selection by the tobacco white fly. Phytoparasitca 11:151-166.

20. Dunstone, R.L. Benzioni, A., Tonnet, M.L., Milthorpe, P. and Shani, A. 1985. Effect of temperature on the synthesis of jojoba wax. Aust. J. Plant Physiol. 12:355-362.

21. Benzioni, A. and Dunstone, R.L. 1985. Jojoba flower buds: A possible role for abscisic acid in controlling dormancy. Aust. J. Plant Physiol. 12:463-470.

22. Benzioni, A. The effect of water and fertilizer on growth and yield trials in Israel. Jojoba Happenings 13(4):8 ().

23. Nerd, A. and Benzioni, A. 1986 "The use of ethrel for mechanical picking of jojoba." Hassadeh 67:488-490. (In Hebrew).

24. Nerd, A., Benzioni, A. and Forti. M. 1986 Effect of irrigation and fertilization on jojoba yields. Hassadeh 66:2014-2017. (In Hebrew).

25. Nerd, A. and Benzioni, A. 1988. Effect of water deficit on vegetative growth and fruit development in jojoba. J. Am. Hort. Sci. 113:440-444.

26. Benzioni, A. and Dunstone, R.L. 1988. Effect of air and soil temperatures on water balance of jojoba grown under controlled environment. Physiol. Plant. 74:107-112.

27. Nerd, A. and Benzioni, A. 1988 Effect of water status, genetic background, gender and fertilizer on flowering in jojoba. Adv. Hortsci. 2:48-51.

28. Benzioni, A., Mills, D. and Forti, M. 1989. Effect of irrigation regimes on the water status, vegetative growth and rubber production of guayule plants. Exp. Agric. 25:189-197.

29. Mills, D., Benzioni, A. and Forti, M. 1989. Performance of U.S.D.A. guayule lines in the northern Negev of Israel. Econ. Bot. 43:378-385.

30. Mills, D., I. Werner, and A. Benzioni. 1990. Survival, regrowth and rubber production of clipped guayule plants: effect of irrigation regimes, season and line. J. Hortic. Sci. 65:583-588.

31. Benzioni, A. and Mills, D. 1991. The effect of water status and season on the incorporation of $^{14}CO_2$ and [^{14}C]-acetate into resin and rubber in guayule. Physiol. Plant. 81:45-50.

32. Benzioni, A, Mendlinger, S., Ventura, M. and Huyskens, S. 1991. *Cucumis metuliferus*, a new crop. 1. The effect of sowing dates, salinity and temperatures on germination, flowering and yield. HortScience 26:1051-1053.

33. Benzioni, A., Nerd, A., Rosengärtner and Mills, D. 1992. The effect of NaCl salinity on growth and developemnt of jojoba clones: I. Young Plants. J. Plant Physiol. 139:731-736.

34. Mills, D. and Benzioni, A. 1992. The effect of NaCl salinity on growth and development of jojoba clones: Nodal Segments Grown *In Vitro*. J. Plant Physiol. 139:737-741.

35. Mendlinger, S., Benzioni, A., Ventura, M. and Huyskens, S. 1992. Fruit development and postharvest physiology of *Cucumis metuliferus* Mey.. a new crop plant. J. Hortic. Res. 67: 489-493.

36. Huyskens, S., Mendlinger, S., Benzioni, A. and Ventura, M. 1992. Optimization of agrotechniques in cultivation of *Momordica charantia* (Karela). J. Hortic. Res. 67:259-264.

37. Benzioni, A., Palzkill, D. A. and Nelson, J.M. 1993. Flower bud dormancy, ABA concentration, and survival during frost of jojoba genotypes under water stress. J. Amer. Soc. Hort. Sci. 117: 976-980.

38. Huyskens, S., Mendlinger, S., Benzioni, A. and Ventura, M. 1993. Optimization of agrotechniques in cultivation of *Luffa acutangula.* J. Hort. Sci. 69:989-994.

39. Kimani, P. M., Benzioni, A. and Ventura, M. 1994. Genetic variation in pigeon pea (*Cajanus cajan*(L) Mill sp.) in response to successive cycles of water stress. Plant and Soil 158:193-201.

40. Benzioni, A. Ventura, M, and De-Malach, Y. 1996. Long-term effect of irrigation with saline water on the development and productivity of jojoba clones. J.Hort.Sci. 71: 835-846.

41. Benzioni, A. and Ventura M. 1998. Effect of distance between female and male jojoba plants on fruit set. Ind. Crops and Products. 8 :145-149.

42. Benzioni, A. and Ventura M. 1998.Effect of phosphorus concentration in irrigation water on the development of jojoba cuttings. J. of Plant Nutrition. 21:2697-2706.

43 Benzioni, A., E. Shiloh and Ventura M.1999. Yield parameters in young jojoba plants and their relation to actual yield in later years. Ind. Crops and Products. 10. 85-89.

44. Mills D., G. Zhang and Benzioni A. 2001. Effect of Different Salts and of ABA on Growth and Mineral Uptake in Jojoba Shoots grown in vitro. J. Plant Physiol. 158:1031-1039.

45. Mills D., Friedman R & Benzioni A. 2001.Growth of jojoba shoots during the micropropagation elongation stage in ventilated vessels. Israel J. of Plant Science. 49:197-202

46. Eshel A., Strinivasa Rao Ch., Benzioni A and waisel Y. 2001. Allomorphic relationships in young faba bean seedlings. Plant and Soil 233:161-166.

47. Benzioni A. Vaknin Y. 2002. Effect of Female and Male Genotypes and Environment on Wax Composition of Jojoba. JAOCS. 70:297-302.

48. Ela Mizrahi-Aviv, Mills D, Benzioni A and Bar-Zvi D 2002**.** Cloning and Molecular Characterization of the Salt-Regulated Jojoba *ScRab* cDNA Encoding a Small GTP-Binding Protein. DNA Sequence:13 296-300.

49. Vaknin Y. Mills D. and Benzioni A. 2003. Pollen production and pollen viability in male jojoba plants. Ind. Crops and Products. 18:117-123.

50. Mills D., Zhou YQ. And Benzioni A.2004. Improvement of jojoba shoot multiplication in vitro by ventilation. In Vitro Plant. 40: 396-402.

51. Benzioni A. Mills D. Van Boven M. and Cokelaere M. 2004. Effect of genotype and environment on the concentration of simmondsin and its derivaties in jojoba seed and foliage. . Ind. Crops and Products. (in press).

52. Ela Mizrahi-Aviv, Mills D, Benzioni A and Bar-Zvi D. 2005. Salinity inhibit post transcriptional processing of chloroplast 16S rRNA in shoot cultures of jojoba (Simmondsia chinensis). Plant and Cell Reports (in press).

e. Published scientific reports.

1. Richmond, A., Benzioni, A. and Vaadia, Y. Physiological adaptation of plants to moisture and osmotic stress. Third annual report for the period September 30, 1968.
2. Benzioni, A. Fruit development and wax biosynthesis of jojoba plants as affected by irrigation. In: *Simmondsia* wax production in Israel; progress report for the period 1.7.77-30.9.77. Compiled by Meir Forti. Report No. BGUN-RDA-162-77, Oct. 1977.
3. Benzioni, A., Yaron, A. and Heiman, O. Development, wax accumulation and wax biosynthesis of maturing jojoba seeds. In: *Simmondsia* wax production in Israel; progress report for the period 1.7.77-30.9.77. Compiled by Meir Forti. Report No. BGUN-RDA-162-77, Oct. 1977.
4. Benzioni, A., Mizrahi, Y. and Heiman, O. Effects of mineral and water regime and fertilization on vegetative growth, floral bud dormancy and fruit set 1979. In: Report No. BGUN-RDA-219-79.
5. Yaron, A., Benzioni, A. and More, I. Jojoba wax absorption and metabolism in mice. In: Report No. BGUN-RDA-224-79; p. 1-24.
6. Yaron, A., Benzioni, A. and More, I. Penetration of radiolabeled wax into excised pig skin. In: Report No. BGUN-RDA-224-79; p. 29-38.

7. Benzioni, A. and Mizrahi, Y. Effects of water and fertilization regime on vegetative growth, floral bud dormancy and fruit set and development of jojoba plants; annual report 1979. Report No. BGUN-RDA-267-80.
8. Nerd, A. and Benzioni, A. Effect of ethrel on the efficiency of mechanized fruit harvesting, leaf abscission, flower bud degeneration and growth in jojoba. In: *Simmondsia* wax production in Israel. Compiled by M. Forti, 1981.
9. Nerd, A. and Benzioni, A. Water use, water status, growth and development of jojoba under different water and fertilization. In: *Simmondsia* wax production in Israel. Compiled by M. Forti, 1981.
10. Benzioni, A., Mizrahi, Y. and Nerd, A. Effect of water and fertilization regime on floral-bud dormancy, fruit set and vegetative growth of jojoba plants. I. Summary of experiments for the years 1978-1980 on plants growing in Beer-Sheva. In: *Simmondsia* wax production in Israel; annual report for the period 1.1.80-31.12.80. Compiled by M. Forti. Report No. BGUN-RDA-308-81, p. 4-14.
11. Sitton, D. and Benzioni, A. Senna growth and sennoside levels. Report No. BGUN-ARI-56-82.
12. Benzioni, A. and Nerd, A. Effect of water and fertilization regime on floral bud dormancy, fruit set, vegetative growth, stomatal behavior, and water potential. 1981. Report No. BGUN-ARI-74-82.
13. Nerd, A. and Benzioni, A. Effect of ethrel on the efficiency of mechanized fruit harvesting, leaf abscission, flower-bud degeneration and growth in jojoba. 1982. Report No. BGUN-ARI-74-82.
14. Benzioni, A. and Shaft, D. 1983. Reproductive characteristics of jojoba: storage, *in vitro* germinability and dispersion of pollen, receptiveness of stigmata and their compatibility with pollen. In: Studies on factors controlling growth and development in jojoba; concluding report for Jan. 82-June 83. Benzioni, A., Nerd, A. and Forti, M. Report No. BGUN-ARI-34-83. p. 9-24.
15. Nerd, A. and Benzioni, A. 1983. Effect of irrigation and fertilization on yield and size of jojoba plants in Omer (summary for 1980-1983). In: Studies on factors controlling growth and development in jojoba; concluding report for Jan. 82-June 83. Part I. Benzioni, A., Nerd, A. and Forti, M. Report No. BGUN-ARI-34-83. p. 1-8.
16. Nerd, A. and Benzioni, A. Effect of water regimes on water status, growth, yield and carbohydrate turnover of jojoba plants. In: Studies on factors controlling growth and development in jojoba; concluding report for Jan. 82-June 83. Benzioni, A., Nerd, A. and Forti, M. Report No. BGUN-ARI-34-83. p. 25-39.
17. Sitton, D., Prizam, D. and Benzioni, A. Effect of irrigation regimes, light and timing of harvest on senna yield. Report No. BGUN-ARI-3-84. (In Hebrew).
18. Nerd, A. and Benzioni, A. The effect of irrigation regime and fertilization on the breaking of floral bud dormancy and on the flowering pattern in different genetic populations of jojoba (Omer 1980-1983). In: Studies on factors controlling growth and development in jojoba; concluding report for 1980-1983. Report No. BGUN-ARI-38-84, p. 1-22.
19. Sitton, D., Benzioni, A. and DeMalach, Y. Development of senna as a new crop for the Negev. Report No. BGUN-ARI-59-84. (In Hebrew).

20. Sitton, D., Benzioni, A. and De Malach, Y. New medicinal plants for industry: development of senna as an irrigated crop in the Negev; interim report October-December 1984. Report No. BGUN-ARI-11-85a, Jan. 1985. (In Hebrew).
21. Sitton, D., Benzioni, A., De Malach, Y. and Segal, Y. Study of factors in the cultivation of senna and its development as an irrigated crop; progress report September-October 1984. Report No. BGUN-ARI-11-85b, Jan. 1985. (In Hebrew).
22. Arad, S., Benzioni, A., Lerman, S. and Mendlinger, S. Melon collapse: I. Field experiments on the influence of irrigation, fertilization and calcium sprays. II. Development of nondestructive diagnostic methods; concluding report April 1983 - September 1984. Report No. BGUN-ARI-15-85, Feb. 1985. (In Hebrew).
23. Sitton, D., Benzioni, A. and De Malach, Y. Study of factors in the cultivation of senna and its development as an irrigated crop; annual report April 1984-March 1985. Report No. BGUN-ARI-27-85, Mar. 1985. (In Hebrew).
24. Sitton, D., Benzioni, A. and De Malach, Y. New medicinal plants for industry: development of senna as an irrigated crop in the Negev; annual report April 1984-March 1985. Report No. BGUN-ARI-35-85, Apr. 1985. (In Hebrew).
25. Benzioni, A., Nerd, A. and Forti, M. Studies on factors controlling growth and development in jojoba; annual report April 1984-March 1985. Report No. BGUN-ARI-44-85, June 1985.
26. Arad (Malis), S. and Benzioni, A. Study of the relationship between the firmness of tomato fruit and change in the pectin fraction and in cellulose during ripening and storage; annual report April 1984-April 1985. Report No. BGUN-ARI-62-85, Aug. 1985. (In Hebrew).
27. Mills, D., Benzioni, A. and Forti, M. Transplantation of guayule in experimental plots in Omer; interim report June 1985-September 1985. Report No. BGUN-ARI-74-85, Oct. 1985. (In Hebrew).
28. Benzioni, A., Arad, S. and Mendlinger, S. Collapse of honeydew melons: greenhouse experiments to determine the ripening process on the vine and in storage; annual report October 1984-September 1985. Report No. BGUN-ARI-77-85, Oct. 1985. (In Hebrew).
29. Sitton, D., Benzioni, A. and Segal, Y. Examination of factors affecting the growth of senna and its development as an irrigated crop; interim report April-December 1985. Report No. BGUN-ARI-94-85, Dec. 1985. (In Hebrew).
30. Mills, D., Benzioni, A., and Forti, M. Establishment of an experimental guayule plot and methods for resin and rubber determination; interim report April-December 1985. Report No. BGUN-ARI-13-86, Jan. 1986. (In Hebrew).
31. Mills, D., Benzioni, A. and Forti, M. "Guayule, a potential source of natural rubber." In: New crops for arid lands; fourth annual report Feb. 1985-Jan. 1986 (Forti, M., compiler). Report No. BGUN-ARI-32-86, May 1986, p. 5-34.
32. Mills, D., Benzioni, A. and Forti, M. Establishment of a guayule field for supply of raw materials for technological studies; final report Apr. 1985- Apr. 1986. Report No. BGUN-ARI-43-86, July 1986.
33. Benzioni, A. Collapse of honeydew melons: field and greenhouse experiments for determination of the causes of fruit collapse; annual report October 1985-September 1986. Report No. BGUN-ARI-57-86, Sept. 1986. (In Hebrew).
34. Sitton, D., Benzioni, A. and Segal, Y. Development of senna as an irrigated crop in the Negev; annual report. Report No. BGUN-ARI-50-86, August 1986. (In Hebrew).

35. Sitton, D., Ventura, M., Abugoz, S., Benzioni, A. and De Malach, Y. Examination of factors in the cultivation of senna and its development as an irrigated crop; interim report May-December 1986. Report No. BGUN-ARI-10-87. Feb. 1987. (In Hebrew).
36. Mills, D., A. Benzioni, M. Forti, 1987. Guayule, a potential source of natural rubber. In: New Crops for Arid Lands. Fifth Annual Report, no. BGUN-ARI-33-87. The Institutes for Applied Research, Ben-Gurtion University of the Negev, Beer-Sheva, Israel.
37. Mills, D., Benzioni, A. and Forti, M. New crops for arid lands: guayule - a potential source of natural rubber; fifth annual report March 1986-February 1987. Feb. 1987. Report No. BGUN-ARI-38-87, June 1987.
38. Benzioni, A. and Mendlinger, S. Developemnt and optimization of agrotechniques for tropical vegetable production; progress report August 1987-January 1988. Report No. BGUN-ARI-6-88, Jan. 1988.
39. Mills, D., A. Benzioni, M. Forti. New Crops for Arid Lands: guayule - a potential source of natural rubber; sixth annual report March 1987-February 1988. Report, No. BGUN-ARI-25-88, March 1988.
40. Sitton, D., Ventura, M., Abugoz, S., Benzioni, A. and De Malach, Y. Examination of factors in the cultivation of *senna* and its development as an irrigated crop;concluding report April-December 1986. Report No. BGUN-ARI-26-88, Feb. 1988. (In Hebrew).
41. Benzioni, A. Test of new iron chelates as source of iron to plants; final report March-May 1988. Report No. BGUN-ARI-55-88.
42. Nerd, A. and Benzioni, A. Effect of irrigation with saline water on growth and yield in jojoba; interim report April-September 1988. Report No. BGUN-ARI-77-88, Sept. 1988. (In Hebrew).
43. Benzioni, A. Mendlinger, S., Chweya, K., Huyskens, S. and Ventura, M. Optimization of agromanagement in the cultivation of new vegetables for the local and export markets; annual report No BGUN-ARI-97-88. August 1987 July 1988.
44. Benzioni, A. and Mendlinger. Preliminary testing of species and varieties of novel vegetables; semiannual report April-September 1988. Report No. BGUN-ARI-98-88, Nov. 1988. (In Hebrew).
45. Benzioni, A. Mendlinger, S., Huyskens, S. and Chweya, J. Optimization of agrotechniues in cultivation of new vegetables for the local and export markets; semiannual report July-December 1988. Report No. BGUN-ARI-5-89, Feb. 1988. (In Hebrew).
46. Benzioni, A. and Mendlinger, S. Preliminary testing of species and varieties of novel vegetables; annual report April 1988-March 1989. Report No. BGUN-ARI-17-89, Apr. 1989 (In Hebrew).
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81. Benzioni, A. and Ventura M. Dormancy and flowering in jojoba. Report for the period 1.3.1993-1.2.94. Report No. BGUN-ARI-37-94. (In Hebrew).

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83. Benzioni, A., Ventura M. and Shiloh E. Selection and testing of jojoba clones. report for the period 1.3.94-1.3.95. Report No. BGUN-ARI-14-95. .
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Lectures and Presentations at meetings and invited seminars

a) Invited plenary lectures at conference meetings

1. Benzioni, A., 1988. Water status and its control in Jojoba (*Simmondsia chinensis* L.). In: Baldwin, A.R. (ed.). Proceedings. Seventh International Conference on Jojoba and its Use: Production, Processing and Utilization of Jojoba. Phoenix, Arizona, January 17-22, 1988. American Oil Chemists' Society, Champaign, Illinois, pp. 20-35.

2. Benzioni, A., 1992. Jojoba: past, present and future. Conference for New Crops. Jerusalem, Israel.

b) Presentation of Papers at Conferences

1. 1966: Benzioni, A., Itai, C. and Vaadia, Y. Salinity and water stress, kinetin and amino acid incorporation in tobacco leaf discs. Proc. Isr. Bot. Soc. Israel
2. 1967: Benzioni, A. and Vaadia, Y. Chloride fluxes in bean root in relation to free space. Proc. Isr. Bot. Soc. Israel
3. 1973: Itai, C., Benzioni, A. and Ordin, L. Growth regulation of root-heat stressed plants. Proc. 5th Annual Symposium on Desert Physiology. New Zealand.
4. 1973: Benzioni, A. and Itai, C. Effects of short exposure of leaves to high temperature on photosynthesis. Isr. J. Bot. 22:207. Israel.
5. 1974: Itai, C. and Benzioni, A. Regulation of senescence and related process. Proc. 8th International Conference of Plant Growth Substances. Science Council of Japan. Japan.
6. 1974: Itai, C. and Benzioni, A. Regulation of plant response to high temperatures. In: Mechanisms of regulation of plant growth. R.L. Bieleski, A. R. Ferguson, M.M. Creswell, eds. bulletin 12. The Royal Society of New Zealand, Wellington; pp. 477-482. New Zealand.
7. 1982: Benzioni, A. and Mizrahi, Y. Effects of water and fertilization regime on floral bud dormancy, fruit set and vegetative growth of jojoba plants. In: Puebla, M., (ed.), Jojoba Proceedings of the 4th International Conference on Jojoba, Hermosillo, Mexico. November 1980, International Council on Jojoba, pp. 162-170.
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10. 1985: Benzioni, A. and Dunstone, R.L. "Environmental and hormonal effects on flowering of jojoba." In: Jojoba. Proceedings of the Sixth International Conference on Jojoba and its Uses. J. Wisniak and J. Zabicky, Eds., Beer-Sheva, Ben-Gurion University of the Negev, p. 171-178. Israel.
11. 1985: Benzioni, A. and Nerd, A. "Effect of irrigation and fertilization on vegetative growth and yield of jojoba in relation to water status of the plants." In: Jojoba. Proceedings of the Sixth International Conference and its Uses. J. Wisniak and J. Zabicky, Eds., Beer-Sheva, Ben-Gurion University of the Negev, p. 201-212. Israel.
12. 1985: Dunstone, R.L. Tonnet, M.L., Benzioni, A. and Milthorpe, P.L. "Effect of temperature on wax content and composition: In: Jojoba. Proceedings of the Sixth International Conference on Jojoba and its Uses. J. Wisniak and J. Zabicky, Eds., Beer-Sheva, Ben-Gurion University of the Negev, p. 179-184. Israel.
13. 1985: Forti, M., Nerd, A. and Benzioni, A. "Effect of genetic background on flowering pattern, growth and yield of jojoba." In: Jojoba. Proceedings of the Sixth International Conference on Jojoba and its Uses. J. Wisniak and J. Zabicky, Eds., Beer-Sheva, Ben-Gurion University of the Negev, p. 293-298. Israel.
14. 1985: Nerd, A. and Benzioni, A. "Effects of water deficits and of fruit filling on vegetative growth of jojoba." In: Jojoba. Proceedings of the Sixth International Conference on Jojoba and its Uses. J. Wisniak, and J. Zabicky, Eds., Beer-Sheva, Ben-Gurion University of the Negev, p. 193-200. Israel.
15. 1985: Yaron, A., Benzioni, A. More, I. and Meshorer, A. "Physiological effects of jojoba oil in laboratory animals." In: Jojoba. Proceedings of the Sixth International Conference on Jojoba and its Uses. J. Wisniak and J. Zabicky, Eds. Beer-Sheva, Ben-Gurion University of the Negev, p. 337-342. Israel.
16. 1986: Mills, D. and Benzioni, A. Guayule irrigation trials and line tests in the northern Negev of Israel. Guayule Rubber Society, Inc. The Sixth Annual Conference, College Station, Texas, U.S.A.
17. 1986: Guayule - a potential source of natural rubber. CALAR Scientific Meeting II, 1986, Alexandria, Egypt.
18. 1986: Guayule irrigation trials and line tests in the northern Negev of Israel. Guayule Rubber Society, Inc. The Sixth Annual Conference, 1986. College Station, Texas, U.S.A.
19. 1987. Mills, D. and Benzioni, A. Water relations of guayule and their effect on rubber production. International Symposium on new crops for food and industry, Southampton, United Kingdom.
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23. 1989: Benzioni, A. New industrial crops for arid lands: Jojoba as a model case. In: Workshop Luso-Israelita Sobre A Agricultura Intensiva em Zonas Aridas E. Semi Aridas. Lisboa 1989. p. 89-96.
24. 1990: Benzioni, A., Palzkil, D. and Nelson, J. 1990. Effect of water stress and genotype on jojoba flower buds: breaking of dormancy ABA content and survival during frost. Eighth International Conference on Jojoba and its Uses. Asuncion, Paraguay, June 17-22, 1990.
25. 1990: D. Mills and A. Benzioni. Effect of environmental conditions on rubber and resin production in guayule. Israel Botanical Society Annual Meeting, Tel Aviv, Israel.
26. 1990: D. Mills, A. Benzioni. In vitro salt tolerance of Jojoba clones. VII International Congress on Plant Tissue and Cell culture, Amsterdam, Holland.
27. 1990: D. Mills, A. Benzioni, and A. Nerd. *In vitro* and *ex vitro* salt tolerance of *Simmondsia chinensis*. XXIII International Horticultural Congress, Firenze, Italy.
28. 1990: Benzioni, A., Nerd, A., Rosegärtner, I. and Mills, D. The effect of NaCl salinity on growth and development of 4 jojoba lcones grown in tissue culture or in a net house - Abstracts, 8th International Conference on Jojoba and Its Uses. Asunción, Paaraguay, June 17-22.
29. 1991. Benzioni, A., Mendlinger, S., Ventura, M. and Huyskens, S. Fruit development and post harvest physiology of *Cucumis metuliferus* Mey, A New Crops. Second National Symposium, New Crops, Indianopolis, US.A.
30. 1990. . Huyskens, S., Mendlinger, S., Benzioni, A. and Ventura, M. Optimization of agrotechniques in cultivation of endemic tropical vegetables . xxiii International Horticultural Congress. Fierenz, Italy Aug. 27-Sep.
31. 1992. Benzioni, A. Adoption process of jojoba in Israel: Past, present and uture.International conference on development of new crops. Jerusalem, israel, March 8-12.
32. 1992. Huyskens, S., Mendlinger, S., Benzioni, A. and Ventura, M. Optimization of agrotechniques in cultivation of *Luffa acutangula.* Israel Botanical Society Annual Meeting, Bet-Dagan, Israel, April 14.
33. 1992. Benzioni, A., Palzkill, D. A. and Nelson, J.M. 1993. Flower bud dormancy, ABA concentration, and survival during frost of jojoba genotypes under water stress. Israel Botanical Society Annual Meeting, Bet-Dagan, Israel, April 14.
34. 1992. Benzioni, A. Jojoba in Israel: Past presnt and future. The association for the advancment of industrial crops. St. Luis USA. Oct. 4-5.
35. 1993. Benzioni, A. and Ventura, M. Effects of ethylene application on fruit postharvest characteristics of *Cucumis metuliferus* Mey. Postharvest handling od tropcial fruit. Chiang-Mai. Thailand.July 18-24.
36. 1993. Rokni Gura, M. Benzioni, A. and Mills D. The effect of salt stress on developmental pattern of jojoba plantlets in tissue culture. Israel Botanical Society and the society for tissue culture Annual Meeting. Jerusalem, Israel, Feb.24.
37. 1994. Rokni Gura, M. Mills D. and Benzioni, A. The effect of NaCl salinity on growth and development of nodal segments of jojoba (*Simmondsia chinensis*)clones grown in vitro. VIIIth Int. Congress of plant Tissue and Cell Culture Firenza June 12-17.
38. 1994. Benzioni A., E. Shiloh and M.Ventura. Performance and characteristics of some Israeli clones: growth, flowering and yields. Ninth International

Conference on Jojoba and its Uses. pp.30-36. Catamarca, Argentina, September 26-30.

39. 1994. Benzioni, A., M. Ventura, and Y. De-Malach. Long-term effect of irrigation with saline water on the developmennt and productivity of jojoba clones. Ninth International Conference on Jojoba and its Uses. pp. 4-8. Catamarca, Argentina, September 26-30.

41. 1995. Benzioni A., Mendlinger S. and Ventura M. Improvement of the appearance and taste of kiwano fruits for export to the ornamental and consumer market. pp 293-299. in Int. Symposium on Strategies for Market Oriented Greenhouse Production.Abu-Hadia and R.K.Jones eds. Alexandria March 11-15. Egypt. Drukerji P.I. Jansen BV, Aalmark Leiden, Netherland.

42. 1997. Mizrahi E. D. Mills, A. Benzioni and D. Bar-Zvi. Cloning of NaCl-regulated genes from jojoba by different display reverse transcriptase PCR (DDRT- PCR). The Israel Soc. of Botany and Molecular biology of Plants.11 Feb.. Tel-aviv.

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44. 1999. Benzioni, A. E. Shiloh and M. Ventura. Yield parameters in young jojoba plants and their relation to actual yield in later years. The Association for Advancement of Industrial crops, Oct. 17-21. Eugene, Oregon

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46. 2000: Mills D., S. Wenkart, R. Friedman and A. Benzioni. Towards a new protocol for micropropagation of jojoba (Simmondsia chinensis). 2000 - The Era of Biotechnology. Beer-Sheva, Israel.

47. Benzioni A. and Mills D. 2001. Israeli jojoba clones: Performabce of first selected and new clones,in relation to vegetative and reproductive parameters. National-Seminar on Production, Marketing @Processing Feb. 19-20 Jaipur India

48. Strinivasa Rao Ch., Benzioni A Eshel A. and waisel Y. 2000.Root morphology, shoot growth and mineral acquisition by faba beans as influenced by salinity. Indian Society of Soil Science . 27-30 Dec. Nagpur, India.

49. Strinivasa Rao Ch., Benzioni A Eshel A. and waisel Y. 2000.Root morphology, shoot growth and mineral acquisition by faba beans as influenced by salinity. Indian Society of Soil Science . 27-30 Dec. Nagpur, India.

50. Mills D., Zhou Y., Friedman R,. and Benzioni A. 2001. Response of jojoba propagules to ventilation in the first two stages of micropropagation. 98th Intern Conf. ASHS. Sacramento

51. 2001: Benzioni A., Mills D., Vankert S. and Zhou Yanqing. Effect of ventilation on performance of different jojoba clones: multiplication stage. 1st international symposium on Acclimation and Establishment of Micropropagated Plants 19-22 September, Haldiki Greece. Acta Hort. 616 ISHS 2003.

52.

PATENTS

1998: 125,556/2 - Z. Wiesman, A. Markus, A. Benzioni, D. Mills. Fertilizers Composition; Issued in Israel

1999: WO 00/05953 –. Z. Weisman, A. Markus, A. Benzioni, D. Mills. An Ajuvant for acceleration foliar penetration of Agro-materials though plant cuticles. Issued world-wide

RESEARCH GRANTS

1983:	National Council for Research & Development	$5,000
1973-83:	From Negev Jojoba Project (M.Forti compiler: approx	$100000
1985:	Dead Sea Works Ltd.	$1,500
1985-90:	CALAR I - with D. Mills (D.Pasternak compiler) approx.	$ 80,000
1987-90:	GIARA - with S. Mendlinger	DM 300,000
1987:	Ramat-Negev	I.S. 2000
1988:	Advanced Products	I.S.1760
1988:	Salinity Center: approx.	$5,000
1988:	Jewish Agency (fruit quality)	$50,000
1988:	Jewish Agency (jojoba)	$25,000
1988:	Jewish Agency (new vegetables)	$15,000
1990-1995:	CALAR II (D.Pasternak compiler) aprox.	$60,000
1989-1993:	AID/CDR with S. Mendlinger and J. Chewya	$120,000
1991	Moria foundation.with R. Shiloh	$30,000
1991-1993	Ministry of Agriculture (Jojoba project)	I.S 180,000
1992-1994:	Moria foundation with D. Mills	$60,000
1994-1996:	FONDEF: Chile government	$65,000
1994-1996:	Ministry of Agriculture (Jojoba project)	I.S.140,000
1998-1999:	Ministry of Agriculture (Jojoba project)	I.S.40,000
1998-2000:	Salinity center (With D.Mills and D Bar-Zvi)	
$21,000		
1999:	Jojoba growers	I.S.87,000
2000-2001:	MCY	I.S.22000
2000-2001:	Hazerim	I.S.22000

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PRESENT ACTIVITIES

1. Effects of salinity on differentiation and growth, CO_2 fixation, protein synthesis, salt uptake flowering yield and oil production in *Simmondsia chinensis* (jojoba)
2. Effects of irrigation, fertilization and genetic variability on flowering, fruit set, fruit development, vegetative growth and yields of different new vegetables
3. Jojoba pollen: viability storage and commercial application using electrostatic device
4. Selection and characterization of new high yielding clones of jojoba
5. Research on flower bud dormancy and flowering of jojoba clones.
6. Studies on simmondsin concentration as affected by genotype salinity and location.
7. Studies on compositional changes during germination and seed development in jojoba.

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Synopsis:

a) Research on fluxes of chloride in high or low chloride roots. We found compatmentation in the tissue with an added measurable compartment in high salt roots.(1966).

b) Researches on interaction between stresses like salt stress or water stress and cytokinins levels on metabolic processes in plants. It was found that strees reduced protein synthesis. Kinetin pretreatment partially restored protein synthesis (1967).

c) It was demonstrated that KNO_3 is taken up by plant roots and translocated to the shoot where NO_3^- is reduced into organic compounds. The remaining K^+ together with an organic acid (usually malate), is translocated as a potassium salt from the shoot to the root where malate would exchange for nitrate.
The mechanism by which secondary products of nitrate reduction in the shoot control nitrate uptake in the roots was formulated and is known till now as "Benzioni model" (1970-1972).

d) Long and short term effects of "temperature shock" on lipids synthesis ,leucine incorporation into proteins, phosphate incorporation onto phospholipids, membrane integrity, nitrate reductase activity, photosynthesis, levels of endogenouse hormones and growth were studied. It was found that the effect was reversible to some degree and that the primary effect on membrane integrity was the main cause for the heat effect. Preconditioning of plants to heat shock by hormone application, high temperatures or salinity was only slightly effective (1972-1977).

e) Accumulation of Na^+ in a wilty pepper mutant leaves was found to higher than in the normal pepper. It was shown that the mutant was defected by an impaired Na^+/K^+ carrier or had an increased leakiness of its membranes (1977-78).

f) Researches on jojoba.

1) Studies on toxicity of jojoba wax administered subcutaneously or orally. 14C jojoba oil was prepared for this study and tests were performed on laboratory animals. No histopathological changes were found in rats or guinee pigs injected daily. Also blood analysis was very slightly affected. A very small amount of the wax was absorbed and found in different organs. These studies encouraged use of the wax in cosmetic industry (1980-82).
2) Studies on fruit development and wax biosynthsis (1978).
3) Studies on fertilizer requirements of the crop. The contribution of fertilization to yield was established and a protocol to farmers was established (1977-1984).
4) Studies on water relations of jojoba and its effect on growth and yield. A preliminary protocol for irrigation practices in commercial plantations was established (1977-1983).
5) Effects of salinity on growth and production of jojoba clones was studied in tissue culture, pots and in the field. Clones and practices for use of brackish water in jojoba plantations was established (1990-99).
6) Selection and testing of jojoba clones for Israel. Better yielding jojoba clones were vegetatively propagated and tested. This research put Israel in the first line in jojoba yields and today we have the best producing clones world-wide. Our clones are well characterized in respect to their morphology, physiological characters wax % and composition, Flowering demands fruit set etc (1978-2000).

7) Research on the effect of genotypes (male and female) and of temperature and salinity on wax composition. We found that wax composition is a result of genotype and environment(1984-5).
8) A study on the effect of ventilation and salinity on acclimation of jojoba in tissue culture already enables us to produce plantlets free from deseases that will be suitable for establishment of clean mother plantations and of export of Israeli clones (1998-2000).
9) Research on effect of distances between males and females on fruit set. It was shown that shortage of pollen for fertilization of female flower buds may exist (1995-1999).
10) Studies on the pollen biology, storability and compatability with female clones: We developed a method for harvesting pollen, cleaning them and storing for long periods. We did not find incompatability between males and females (1988-2000).
11) A method for electrostatic pollination is developed (1999-2000).
12) Studies on flower bud dormancy and cold demands of different genotypes and their relation to frost damages: It was found that in order to break dormancy specific cold demands must be met and water status must be good. These conditions "set on" the buds but also causes them to be susceptible to frost. (1984-1998).
13) Studies on simmondsin concentration as affected by genotype salinity and location.
14) Studies on compositional changes during germination and seed development in jojoba.

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Our research in jojoba resulted in the establishment of a successful industry: At the moment about 800 Hactar of plantations exist and Israel is one of the leading producers in the world.

g) Guayule: Researches were aimed at examining Guayule as a new Industrial crop for Israel: In the frame of this research we studied effects of irrigation regimes on water relations of the plant, on rubber accumulation and on vegetative growth.
We also studied the performance of several USDA lines in our conditions.
We studied the effect of clipping (harvesting) at different ages and seasons on survival regrowth and rubber accumulation.
The effect of water status and season on $^{14}CO_2$ incorporation into resin and rubber was also studied.
Our final conclusion was that Guayule can be grown successfully in Israel but (like in the USA) the growth and amount of rubber obtainable are much too low to make it a profitable crop (1988-90).

g) New vegetables:
    1) Kiwano:Introduction of the plant, studies on agrotechniques like sowing times, stands etc. preparation of seeds, fruit shelf life and other aspects of fruit quality. For the last ten years kiwano is grown commercially in the Arava valley and is exported to Europe.
    2) Karela: Agrotechniques were studied as well as storage and fruit quality. The crop is not commercial at the moment but due to its therapuetical ingredients may become of renewed interest.
    3) Lufa acatungula: Agrotechniques and harvesting were studied. Rsearch was not continued.
    4) We also tested preliminary many other potential crops but lack of funding caused us to discontinue)

New vegetables were studied between 1989-1995.