**Giora Ben Ari August 2021**

**Part I: CURRICULUM VITAE**

1. **Personal**

Department of Fruit Tree Sciences, Institute of Plant Science

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Personal web–site: <https://www.agri.gov.il/en/people/958.aspx>

Google Scholar: <https://scholar.google.com/citations?hl=iw&user=Zt1RH6MAAAAJ>

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| **Dates** | **Description** |
| 1972 | Born in Israel |

1. **University Education and Additional Training**

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| **Dates** | **Description** |
| 1996 – 1999 | B.Sc. in Animal Science at the Hebrew University, Faculty of Agriculture, Israel |
| 1999 – 2005 | A direct PhD track in Genetics at the Hebrew University, Faculty of Agriculture, IsraelTitle of thesis: Discovery and characterization of SNPs in yeast and their application for the detection of genes (QTLs) and assessment of genetic variation.Supervision by: Prof. Jossi Hillel, Prof. Giora Simchen, Prof. Uri Lavi |
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| 2005 – 2008 | Postdoctoral position at University of Toronto with Dr. Mike TyersResearch subject: Signaling specificity of the MAPK pathways in *Saccharomyces cerevisiae* |

1. **Positions Held and Academic Status**

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| **Dates** | **Description** |
| 2009  | Research Scientist at the ARO, The Volcani Center, Institute of Plant Science |
| 2014 | Promoted to Rank B (equivalent to "Senior Lecturer") |
| 2020 - date | The Head of the Department of Fruit Tree Science, Institute of Plant Science, ARO. |

1. **Teaching Experience / Guiding Students**
2. Academic Contribution:

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| **Dates** | **Description** |
| 2011 - 2014 | Special course “DNA markers in life science.” program of the Hebrew University in Jerusalem for the foreign students. MSc level (in English) |
| 2013 - date | Lecturer at the Hebrew UniversityTitle of the course: DNA Sequences: Variation & Applications (73527). |
| 2013 - date | Lecturer at the Hebrew UniversityTitle of the course: Developmental biology of the olive tree (71415). |
| 2017 - date | Development and teaching of course “Biology of the olive tree (1400046)” at Tel Hai college, Israel 3.5 credit points. |

1. Guidance of M.Sc. Students (or B. Sci. internship)

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| **Graduation date** | **Name** | **Title of thesis** | **Guidance with** |
| 2009 – 2011 | \*Mr. Uri Boneh | Characterization and manipulation of the ABA signal transduction in *Vitis vinifera*. | Prof. Amnon Swartz. |
| 2010 - 2014 | \*Ms. Einat Gerzon | Study of the differences between two grapevine cultivars in a response to water deficit. | Prof. Amnon Swartz. |
| 2010 - 2015 | \*Mr. Amichai Shemer | Identification of excellent pollinator to ‘Barnea’ olives using paternity analysis by SSR markers. | Prof. Shimon Lavee. |
| 2011 - 2015 | \*Ms. Reut Rozman | The effect of roots and shoots on fruit metabolism of grape in drought stress. | Prof. Amnon Swartz. |
| 2013 - 2015 | \*Ms. Hee-Lee Bonfil | Identification of drought tolerant *Quercus ithaburensis* for planting in KKL gardens. | Prof. Shimon Lavee. |
| 2014 - 2017 | Mr. Ortal Bakhshian | Overcoming warmer winters in olives: Identification of breeding markers for better adopted cultivars and field treatments for current commercial cultivars | Prof. Alon Samech |
| 2017 – 2019 | \*Ms. Maya Shlosberg | Characterization of fruit development and accumulation of olive oil under heat conditions | Prof. Zohar Kerem |
| 2019 - date | \*Ms. Keren Wartmann | Effect of heat stress on olive flowering and fruit set |  |
| 2020 - date | Mr. Haim Engelen | Olive alternate bearing | Prof. Alon Samach |

\*under my direct supervision

1. Guidance of Ph.D. Students:

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| **Graduation date** | **Name** | **Title of thesis** | **Guidance with** |
| 2020 – date  | Mr. Dor Haim | Fruit load effect on flower induction | Dr. Avi Sadka |

1. Post-Docs and Visiting Scientists:

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| **Dates** | **Name** | **Research subject** |
| 2012-2013 | Dr. Carmit BursteinPD | Characterization of the olive abscission zone. |
| 2013-2014 | Dr. Mahital JamwalPD | Olive oil accumulation under heat stress. |
| 2015-2015 | Dr. Amit SadePD | Olive transcriptomic data analysis. |

XPD: Post-Doc working in my research team

1. Organization of Courses

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| **Dates** | **Description and role** |
| 2020  | Organizer of a week course for EU project participants on agronomic and economic aspects of olive farming. |
| 2021 | Organizer of a week course (part B) for EU project participants on agronomic and economic aspects of olive farming. |
| 2021 |  Organizer of "The International Olive Council (IOC) - Network of germplasm banks and phytosanitary management" course/meeting in Marrakesh July 2021.  |

1. **Activity in Scientific and Agricultural Committees**
2. International:

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| **Dates** | **Description and role** |
| 2014 - date  | The Israeli representative of olive genetic resources in the “International Olive Council (IOC)” |
| 2015 | Invited expert to china – Beijing University, Yunnan University, Daju farm, Sichuan olive farm, Guangyuan olive farm, Gansu olive farm, Qinchuan Conty olive farm. |

1. National:

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| **Dates** | **Description and role** |
| 2012-2015 | The Chief Scientist Research Proposal Evaluation Committee; Member |
| 2019 - date | Scientific Committee of The Israeli Olive Oil Council |

1. Institutional:

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| **Dates** | **Description and role** |
| 2013 - date | PhD committees of three PhD students; Member |
| 2017 - date | The ARO scientific council; Member |
| 2017 - date | The ARO strategic communication committee; Member |
| 2020 - date | A member of two steering committees for Tenure-Truck researchers, ARO, Israel |
| 2021 | A member of three evaluation committees of a new researcher for the Department of Fruit Tree Science, ARO, Israel. |

1. **Contribution to the Scientific Community**
2. International:

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| **Dates** | **Description** |
| 2015 | Organizer of an International Workshop on: Olives from the 20th century to the 21st; Ramat Hanadiv, Israel. |
| 2016 | Invited expert to International Workshop on Olive and Jojoba at Jaipur in Rajasthan state of India |
| 2017 | Scientific committee and Chair of a Session on International Symposium on Flowering, Fruit Set and Alternate Bearing, Palermo, Italy.  |
| 2018 | Scientific committee on OliveBioteq18, Seville, Spain.  |
| 2019 | Israeli representative in a meeting of 22 countries at Cordoba, Spain for healthy and genetically identified olive plant material in the world. |
| 2020 | Coordination and organization of the EU program |
| 2021 | Invited expert by the International Olive Council to a meeting in Cordoba, Spain, on strategy planning for world Olive varieties catalog creation and a collaboration research on germplasm collections around the world.  |
| 2021 | Scientific Committee of The International Olive Council (IOC) network of germplasm banks and phytosanitary management" course/meeting in Marrakesh. |

1. National:

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| **Dates** | **Description** |
| 2017 | Organizer of Open Day "New olive cultivars from the Israeli olive breeding program", ARO, the Volcani Center, Israel |
| 2018 | Organizer of Open Day "New olive cultivars from the Israeli olive breeding program" in Mop Lachish. |
| 2019 | Organizing a meeting of all farmers interesting in developing the argan as a new crop tree in Israel, at ARO. |
| 2019 | Organizer of "New olive cultivars from the Israeli olive breeding program" Open Day in ARO, the Volcani Center, Israel, including exhibition and professional tasting of oils from the new olive cultivars. |
| 2020 | Organizing a meeting of all farmers interesting in developing the argan as a crop tree in Israel, at ARO. |
| 2020 | Organizing open day including a field trip for all farmers interesting in developing the argan as a crop tree in Israel. |
| 2021 | Organizer of "New olive cultivars from the Israeli olive breeding program" Open Day for chefs in ARO, the Volcani Center, Israel, including exhibition and professional tasting of oils from the new olive cultivars. |
| 2021 | Organizer of "New olive cultivars from the Israeli olive breeding program" Open Day for farmers in ARO, the Volcani Center, Israel, including exhibition and professional tasting of oils from the new olive cultivars. |

1. Institutional:

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| **Dates** | **Description** |
| 2014-2015 |  Organizer of the institutional seminars.  |
| 2020 | Organizer of a department scientific and discussion day for all researcher of the Department of Fruit Tree Sciences department at Tzuba, Israel. |
| 2021 | Organizer of a meeting with the director of ARO regarding the future of the trees breeding programs. |
| 2021 | ARO representative in all meetings of Shaham regarding their moving to ARO experimental farm. |
| 2021 | Department representative in several meeting with the director of ARO and Kidum unit regarding the relationships of ARO and the Israeli plant council on the trees breeding programs. |
| 2021 | Argan expert in a meeting with commercial company, Kidum unit and ARO vice director regarding investment in Argan farm project in Arizona USA. |

1. Outreach:

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| **Dates** | **Description** |
| 2019 | Interview in Gali Tzahal on the new olive cultivar - Lavee |
| 2019 | Photo interview in Ynet on the new olive cultivar - Lavee |

1. Editorial responsibilities:

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| **Dates** | **Description** |
| 2012 - 2015 | Editorial Board Member of Journal of Biological Research. |
| 2014 - date | Reviewer for: Plant Molecular Biology, The Horticulture Journal, Scientia Horticulturae (twice), International journal of fruit science, Israel Journal of Plant Sciences |
| 2017 - 2019 | Qualified Reviewer of three PhD theses The Hebrew University: Olive cold requirements.  |
| 2020 - 2021 | Guest editor of Plants – special issue on olive tree physiology - <https://www.mdpi.com/journal/plants/special_issues/olive_physiology>  |

1. Active Participation in Meetings
2. International:

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| --- | --- | --- | --- |
| **Date** | **Title of the Meeting** | **Place** | **Role** |
| 2011 | Plant abiotic stress tolerance mechanisms, water and global agriculture | Keystone, Colorado, USA | Poster |
| 2011 | Olive Bioteq | Chania, Crete, Greece | Participant |
| 2014 | IHC 2014, Abscission | Brisbane, Australia | Participant |
| 2015 | Olives from the 20th century to the 21st | Israel | Lecture |
| 2015 | Beijing University - The Israeli olive breeding program and olive research studies in Israel | China | Invited lecture |
| 2015 | Yunnan University - The Israeli olive breeding program and olive research studies in Israel | China | Invited lecture |
| 2015 | Daju farm - The Israeli olive breeding program and olive research studies in Israel | China | Invited lecture |
| 2015 | Sichuan olive farm - The Israeli olive breeding program and olive research studies in Israel | China | Invited lecture |
| 2015 | Guangyuan olive farm - The Israeli olive breeding program and olive research studies in Israel | China | Invited lecture |
| 2015 | Gansu olive farm - The Israeli olive breeding program and olive research studies in Israel | China | Invited lecture |
| 2015 | Qinchuan Conty olive farm. - The Israeli olive breeding program and olive research studies in Israel | China | Invited lecture |
| 2016 | International Workshop on Olive and Jojoba | Jaipur, India | Invited lecture |
| 2016 | VIII International Olive Symposium | Split, Croatia | Lecture  |
| 2017 | 1st International Symposium on Flowering, Fruit Set and Alternate Bearing | Palermo; Italy | Lecture |
| 2018 | OliveBioteq18 | Seville, Spain | Keynote presentation |
| 2019 | True healthy olive cultivars project seminar | Cordoba, Spain | Lecture |
| 2020 | True healthy olive cultivars project seminar | Cordoba, Spain | Lecture |
| 2020 | ARTOLIO project – First meeting | Webinar | Lecture |
| 2020 | ARTOLIO project – Second meeting | Webinar | Lecture |
| 2021 | ARTOLIO project – Third meeting | Webinar | Lecture |

1. National:

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| **Date** | **Title of the Meeting** | **Role** |
| 2011 | The Annual Meeting of the Israeli grapewine growers | Invited lecture |
| 2011 | The Annual Meeting of the Israeli olive growers – ARO, Israel | Invited lecture |
| 2014 | The Annual Meeting of the Israeli olive growers – ARO, Israel | Invited lecture |
| 2016 | Olive oil organoleptic meeting | Invited lecture |
| 2017 | Olive oil organoleptic meeting | Invited lecture |
| 2018 | Olive oil organoleptic meeting | Invited lecture |
| 2019 | Olive oil organoleptic meeting | Invited lecture |
| 2019 | The Annual Meeting of the Israeli olive growers – ARO, Israel  | Invited lecture |
| 2020 | Argan open day | Organize and lecture |
| 2021 | Olive oil organoleptic meeting | Invited lecture |
| 2021 | The Annual Meeting of the Israeli olive growers – ARO, Israel  | Invited lecture |
| 2021 | Olive oil organoleptic meeting | Invited lecture |

1. **Research Grants**
2. Internationally Peer Reviewed Grants:

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| --- | --- | --- | --- | --- | --- |
| **Year** | **Granting Source** | **Duration (years)** | **Role\*** | **Title (short)** | **Budget**  |
| **Total (US $ / year)** | **Researcher (US $ / year)** |
| 2016-2019 | Life – European Union | 3.5 | LPI | OLIVE4CLIMATE - LIFE. Sustainable olive-oil supply chain for climate change mitigation | 850,490 | 34,107 |
| 2020-2023 | ENI-CBC-MED – European Union | 2.5 | PI | ARTOLIO - Profitable and Sustainable artisanal oliveoil industry in the Mediterranean | 1,232,693 | 212,491 |

\*PI = Principal Investigator; LPI =Local Principal Investigator; CI = Cooperating Investigator

1. Nationally Peer Reviewed Grants:

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| --- | --- | --- | --- | --- | --- |
| **Year** | **Granting Source** | **Duration (years)** | **Role\*** | **Title (short)** | **Budget**  |
| **Total (US $ / year)** | **Researcher (US $ / year)**  |
| 2009 | Chief Sci. | 10 | \*\*CI/PI | olive breeding program | 80,021 | 26,668 |
| 2010 | Chief Sci. | 1 | PI | Regulators control drought stress in fruit trees | 37,222 | 27,916 |
| 2011 | Chief Sci. | 3 | PI | The effect of roots and shoots in grape drought stress | 40,127 | 22,573 |
| 2011 | Chief Sci. | 5 | CI | Abscission zones in plants | 197,520 | 26,815 |
| 2013 | KKL | 3 | CI | Identification of drought tolerant *Quercus ithaburensis*. | 18,770 | 9,385 |
| 2014 | Chief Sci. | 3 | PI | Abscission zones in olive | 42,904 | 26,815 |
| 2014 | Volcani Strategy Foundation | 1 | CI | Olive salt response | 92,210 | 9,221 |
| 2015 | Chief Sci. | 4 | CI | Overcoming warmer winters in olives | 53,630 | 9,117 |
| 2016 | Chief Sci. | 3 | CI | Olive project | 171,031 | 15,493 |
| 2016 | Chief Sci. | 3 | CI | Jojoba project | 237,448 | 5,164 |
| 2018 | Chief Sci. | 3 | PI | Olive oil yield and quality under high temperature conditions | 57,010 | 45,608 |

\*PI = Principal Investigator; CI = Cooperating Investigator

\*\* CI/PI = 6 years as CI and 4 years as PI

1. National Non-Peer Reviewed Grants:
2. Other Funds:

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| **Year** | **Granting Source** | **Duration (years)** | **Role\*** | **Title (short)** | **Budget**  |
| **Total (US $ / year)** | **Researcher (US $ / year)**  |
| 2021 | ICA | 1 | PI | olive breeding program | 13,607 | 16,607 |

\*PI = Principal Investigator

**Giora Ben Ari August 2021**

##### Part II: LIST OF PUBLICATIONS

Marks:

X \*                    Equal contribution as the first author

X \*\* Corresponding Author *(in cases where the researcher is the Corresponding Author)*

Marks (only for the first author):

XS                     Student under my supervision

XT                    Technician or research engineer working in my research team

XPD, XVS           Post-Doc or Visiting Scientist working in my research team

1. **Articles in Reviewed Journals**

1.  Sinvany-Villalobo G, Davydov O, **Ben-Ari G**, Zaltsman A, Raskind A and Adam Z. (2004).

Expression in multigene families. Analysis of chloroplast and mitochondrial proteases.

*Plant Physiol.* 135:1336-1345.

IF 6.305; Category: Plant Science; Rank 10/228 (Q1)

2. Hillel J, Gefel D, Kalman R, **Ben-Ari G**, David L, Orion O, Feldman MW, Bar-On H, Blum S, Raz I, Schaap T, Shpirer I, Lavi U, Shafrir E and Ziv E. (2005).

Evidence for a major gene affecting the transition from normoglycaemia to hyperglycaemia in Psammomys obesus.

*Heredity*. 95(2):158-165.

IF 3.179; Category: Ecology; Rank 47/165 (Q2)

3. **Ben-Ari G**, Zenvirth D, Sherman A, Simchen G, Lavi U and Hillel J. (2005).

Application of SNPs for assessing biodiversity and phylogeny among yeast strains.
*Heredity*. 95:493-501.

IF 3.179; Category: Ecology; Rank 47/165 (Q2)

4. Aviv T, Lin Z, **Ben-Ari G**, Smibert CA and Sicheri F. (2006).

Sequence-specific recognition of RNA hairpins by the SAM domain of Vts1p.

*Nat Struct Mol Biol*. 13:168-176.

IF 12.109; Category: Biochemistry & Molecular Biology; Rank 9/298 (Q1)

5. Lahav T, Atzmon G, Blum S, **Ben-Ari G**, Weigend S, Cahaner A, Lavi U and Hillel J. (2006).

Marker-assisted selection based on a multi-trait economic index in chicken: Experimental results and simulation.

*Anim Genet*. 37:482-488.

IF 2.244; Category: Agriculture, Dairy & Animal Science; Rank 7/61 (Q1)

6. **Ben-Ari G**, Zenvirth D, Sherman A, David L, Klutstein M, Lavi U, Hillel J and Simchen G. (2006).

Four linked genes participate in controlling sporulation efficiency in budding yeast.

*PLoS Genet*. 2:e195.

IF 5.224; Category: Genetics & Heredity; Rank 23/173 (Q1)

7. Strickfaden SC, Winters MJ, **Ben-Ari G**, Lamson RE, Tyers M and Pryciak PM. (2007).

A mechanism for cell-cycle regulation of MAP kinase signaling in a yeast differentiation pathway.

*Cell*. 128:519-531.

IF 36.216; Category: Biochemistry & Molecular Biology; Rank 1/298 (Q1)

8. Granevitze Z, Blum S, Cheng H, Vignal A, Morisson M, **Ben-Ari G**, David L, Feldman MW, Weigend SandHillel J. (2007).

Female-specific DNA sequences in the chicken genome.

*J Hered*. 98:238-242.

IF 2.618; Category: Genetics & Heredity; Rank 85/173 (Q2)

9.Kagan A, Faibel H, **Ben-Ari G**, Granevitze Z and Rapoport J. (2007).

Gender differences in ambulatory blood pressure monitoring profile in obese, overweight and normal subjects.

*J Hum Hypertens.* 21:128-134.

IF 1.935; Category: peripheral vascular disease; Rank 45/65 (Q3)

10. Goranov AI, Cook M, Ricicova M, **Ben-Ari G**, Gonzalez C, Hansen C, Tyers M and Amon A. (2009).

The rate of cell growth is governed by cell cycle stage.

*Genes Dev.* 23:1408-1422.

IF 8.99; Category: Developmental Biology; Rank 3/43 (Q1)

11. Boneh US, Biton IT, Zheng C, Schwartz A and **Ben-Ari G.\*\*** (2012).

Characterization of potential ABA receptors in *Vitis vinifera*.

*Plant Cell Reports*. 31:311-321.

IF 3.499; Category: Plant Sciences; Rank 35/228 (Q1)

12. Boneh US, Biton IT, Schwartz A and **Ben-Ari G.\*\*** (2012).

Characterization of the ABA signal transduction in Vitis vinifera.

*Plant science*. 187:89–96.

IF 3.785; Category: Plant Sciences; Rank 28/228 (Q1)

13. Carrillo E, **Ben-Ari** **G**, Wilderhain J, Tyers M, Grammentz D and Lee T (2012).

Characterizing roles of Met31 and Met32 in coordinating Met4-activated transcription in the absence of Met30.

*Molecular Biology of the Cell*. 23:1928-1942.

IF 3.905; Category: Cell Biology; Rank 82/193 (Q2)

14. Biton IT, Shevtsov S, Ostersetzer O, Mani YT, Lavee S, Avidan B and **Ben-Ari G.\*\*** (2012).

Assessment of the genetic structure and hybrid-vigor in olive (Olea europaea L.) by microsatellites.

*Plant breeding*. 131:767-774.

IF 1.832; Category: Agronomy; Rank 45/123 (Q2)

15. Merims D, Golan Shemesh D, Nahari H, Arharov O, **Ben Ari G** and Ben Israel J. (2015).

Differences in diagnosis, follow-up and treatment of patients with dementia living in the peripheral areas compared with the central areas of Israel.

*Dementia*. 14(4):483-493.

IF 2.238; Category: Gerontology; Rank 12/36 (Q2)

16. Merims D, Nahari H, **Ben-Ari G**, Jamal S, Vigder C and Ben-Israel J. (2013).

Wandering in a dementia special care unit: behavioral aspects and the risk of falling.

*Isr Med Assoc J.* 15:364-367.

IF 0.828; Category: Medicine, General & Internal; Rank 125/160 (Q4)

17. Sabag M, **Ben Ari G**, Zviran T, Biton I, Goren M, Dahan Y, Sadka A and Irihimovitch V. (2013).

PaKRP, a cyclin-dependent kinase inhibitor from avocado, may facilitate exit from the cell cycle during fruit growth.

*Plant science.* 213:18-29.

IF 3.785; Category: Plant Sciences; Rank 28/228 (Q1)

18. **Ben-Ari G\*\***, Biton IT, Mani YT, Avidan B and Lavee S. (2014).

The diversity in performance of commercial olive clones selected from the autochthonous cv. Souri population for intensive irrigated cultivation.

*HortScience*.49:425-429.

IF 0.906; Category: Horticulture; Rank 17/36 (Q2)

19. Shemer AS, Biton IT, Many YT, Vaknin Y, Lavee S, Avidan B and **Ben-Ari G.\*\*** (2014).

The olive cultivar 'Picual' is an optimal pollen donor for 'Barnea'

*Scientia Horticulturae*.172:278-284.

IF 1.961; Category: Horticulture; Rank 5/36 (Q1)

20. Biton IT, Doron-Faigenboim A, Jamwal MPD, Mani YT, Eshed R, Rosen A, Sherman A, Ophir R, Lavee S, Avidan B and **Ben-Ari G.\*\*** (2014).

Development of a large set of SNP markers for assessing phylogenetic relationships among the olive cultivars composing the Israeli olive germplasm collection.

*Molecular Breeding*. 35:107.

IF 1.862; Category: Horticulture; Rank 6/36 (Q1)

**Since previous promotion**

21. Gerzon ES, Biton IT, Yaniv Y, Zemach H, Netzer Y, Schwartz A, Fait A and **Ben-Ari G.\*\*** (2015).

Grapevine anatomy as a possible determinant of isohydric or anisohydric behavior.

*American Journal of Enology and Viticulture.* 66:340-347.

IF 2.253; Category: Horticulture; Rank 10/38 (Q2)

22. Barazani O, Keren-Keiserman A, Westberg E, Hanin N, Dag A, **Ben-Ari G**, Fragman-Sapir O, Tugendhaft Y, Kerem Z, Kadereit J.W. (2016).

Genetic variation of naturally growing olive trees in Israel: from abandoned groves to feral and wild?

*BMC Plant Biology*. 16:261.

IF 4.215; Category: Plant Sciences; Rank 34/251 (Q1)

23. Zur N, Shlizerman L, **Ben-Ari G**, Sadka A. (2017).

Use of Magnetic Resonance Imaging (MRI) to Study and Predict Fruit Splitting in Citrus.

*The* *Horticulture Journal*. 86(2):151-158.

IF 0.959; Category: Horticulture; Rank 25/38 (Q3)

24. Haberman A, Bakhshian O, Cerezo-Medina S, [Paltiel J](https://www.ncbi.nlm.nih.gov/pubmed/?term=Paltiel%20J%5BAuthor%5D&cauthor=true&cauthor_uid=28103403), Adler C, **Ben-Ari G**, Mercado JA, Pliego-Alfaro F, Lavee S, Samach A. (2017).

A possible role for FT-encoding genes in interpreting environmental and internal cues affecting olive (Olea europaea L.) flower induction.

*Plant Cell Environ.* 40(8):1263-1280.

IF 7.228; Category: Plant Sciences; Rank 11/251 (Q1)

25. Goldental-Cohen SS, Burstein CPD, Biton IT, Ben Sasson SS, Sadeh APD, Many YT, Doron-Faigenboim A, Zemach H, Mugira Y, Schneider D, Birger R, Meir S, Philosoph-Hadas S, Irihomovitch V, Avidan B, Lavee S, **Ben-Ari G.\*\*** (2017).

Ethephon induced oxidative stress in the olive leaf abscission zone enables development of a selective abscission compound.

*BMC Plant Biology*. 17(1):87.

IF 4.215; Category: Plant Sciences; Rank 34/251 (Q1)

26. Gabay G, Dahan Y, Izhaki Y, Isaacson T, Elkind Y, **Ben-Ari G**, Flaishman M. (2017).

Identification of QTLs associated with spring vegetative budbreak time after dormancy release in pear (Pyrus communis L.).

*Plant breeding*. 136(5):749-758.

IF 1.832; Category: Agronomy; Rank 45/123 (Q2)

27. Gabay G, Dahan Y, Izhaki Y, Faigenboim A, **Ben-Ari G**, Elkind Y, Flaishman M. (2018).

High-resolution genetic linkage map of European pear (Pyrus communis) and QTL fine-mapping of vegetative budbreak time.

*BMC Plant Biology*. 18:175.

IF 4.215; Category: Plant Sciences; Rank 34/251 (Q1)

28. Goldental-Cohen SS, Biton IT, Many YT, Tavrizov K, Douro A.M, Zemach H, Tonutti P, Kerem Z, Avidan B, Sperling O, **Ben-Ari G.**\*\* (2019).

Removal of flowers or inflorescences affects ‘Barnea’ olive fruitlet post-anthesis abscission.

*The Journal of Horticultural Science and Biotechnology*. 94:4, 488-498.

IF 1.641; Category: Horticulture; Rank 15/38 (Q2)

29. Goldental-Cohen SS, Biton IT, Many YT, Ben-Sason SS, Zemach H, Avidan B, **Ben-Ari G.\*\*** (2019).

Green Olive Browning Differ Between Cultivars.

*Frontiers in Plant Science*. 10:1260.

IF 5.753; Category: Plant Sciences; Rank 17/251 (Q1)

30. Nissim YT, Shloberg MS, Biton IT, Many YT, Doron-Faigenboim A, Zemach H, Hovav R, Kerem Z, Avidan B, **Ben-Ari G.\*\*** (2020).

High temperature environment reduces olive oil yield and quality.

*PLoS One*. 15(4):e0231956

IF 3.24; Category: Multidisciplinary Sciences; Rank 26/129 (Q1)

31. Biton IT, Many YT, Mazen A, **Ben-Ari G.\*\*** (2020).

Compatibility between ”Arbequina” and “Souri” Olive Cultivars May Increase Souri Fruit Set.

*Agronomy*. 10(60):910.

IF 3.417 Category: Plant Sciences; Rank 57/251 (Q1)

32. Nissim YT, Shloberg MS, Biton IT, Many YT, Doron-Faigenboim A, Hovav R, Kerem Z, Avidan B, **Ben-Ari G.\*\*** (2020).

A High Temperature Environment Regulates the Olive Oil Biosynthesis Network.

*Plants*. 9(9):1135.

IF 3.935; Category: Plant Sciences; Rank 47/251 (Q1)

**Five Selected publications:**

Publication 1.29: <https://www.frontiersin.org/articles/10.3389/fpls.2019.01260/full>

Publication 1.30: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0231956>

Publication 1.31: <https://www.mdpi.com/2073-4395/10/6/910>

Publication 1.32: <https://www.mdpi.com/2223-7747/9/9/1135>

Publication 2.4: <https://www.mdpi.com/2073-4395/11/8/1492>

1. **Books and Invited Reviews**

1. **Ben-Ari G**, David L, Blum S, Twito T, Vignal A, Weigend S, Feldman MW, Lavi U, Hillel J.

Single nucleotide polymorphism (SNPs) in chicken: resources and possible applications.

*Cytogenet Genome Res.* 109:433-438.

IF 1.423; Category: Genetics & Heredity; Rank 179/193 (Q4)

2. **Ben-Ari G.**\*\* (2012).

The ABA signal transduction mechanism in commercial crops: learning from Arabidopsis.

*Plant Cell Reports*. 31:1357–1369.

IF 3.499; Category: Plant Sciences; Rank 35/228 (Q1)

3.Lavee S, Avidan B, **Ben-Ari G.\*\*** (2014).

Trends in breeding new olive varieties in Israel for quality and economic management.

*Agricultural Sciences*. 5:701-709.

IF 0.82; Category: Agriculture, Multidisciplinary Sciences; Rank 34/57 (Q3)

**Since previous promotion**

4. **Ben-Ari G\*\***, Biton I, Many Y, Namdar D, Samach A. (2021).

Elevated temperatures negatively affect olive productive cycle and oil quality.

*Agronomy*. 11(8):1492.

IF 3.417 Category: Plant Sciences; Rank 57/251 (Q1)

1. **Book Chapters**

1. **Ben-Ari G**, Lavi U. (2010).

Marker-Assisted Selection in plant breeding.

In: Plant Biotechnology and Agriculture Prospects for the 21st Century (Altman A. and Hasagawa P.M. eds.).

pp.163-184. Elsevier Publishers Co. San Diego, CA, USA.

1. **Articles in Reviewed Journals in Hebrew**

1. Bonfil HS, Shimon L, Benjamin A, Zeidan S, Aizenband A, Mani YT, Yaniv Y, Biton IT, Wallach Y, Moshelion M, **Ben-Ari G.\*\*** (2015).

Physiological methods for resistance characterization of Tabor oaks and their progenies to drought stress.

*Ecology and Environment*. 6(4):319-328 (Hebrew).

**Since previous promotion**

2. Merims D, **Ben-Ari G.**, Boguslavsky T. (2021).

The effect of quality index on depression diagnostic of Jews and Arabs patients during aftercare brain concussion.

*Harefuaa.* February 2021:76-80.

1. **Articles in Non-Reviewed Journals in Hebrew and English**

1. Shemer AS, Biton IT, Vaknin Y, Lavee S, Avidan B, **Ben-Ari G.\*\*** (2012).

Identification of the best pollinator to the olive cultivar Barnea.

*Alon Hanotea*. 66:28-31 (Hebrew).

2. Gerzon ES, Biton IT, Yaniv Y, Fait A, **Ben-Ari G.\*\*** (2012).

Drought stress response strategies of grape cultivars.

*Alon Hanotea*. 66:40-45 (Hebrew).

3. **Ben-Ari G**, Biton IT, Mani YT, Shevtsov S, Ostersetzer O, Lavee S, and Avidan B. (2013).

The Israeli olive breeding program.

*Alon Hanotea*. 67:34-37 (Hebrew).

4. Avidan B, Mani YT, Lavee S, **Ben-Ari G.** (2013).

The effect of harvest time, growth condition, seed size and cold treatment on germination in olive.

*Alon Hanotea*. 67:20-24 (Hebrew).

5. Avidan B, **Ben-Ari G**, Mani YT, Lavee S (2014).

The diversity in performance of commercial olive clones selected from the autochthonous cv. Souri population for intensive irrigated cultivation.

*Alon Hanotea*. 7:16-22 (Hebrew).

6. Avidan B, Mani YT, Biton IT, Ben Sasson SS, Lavee S, and **Ben-Ari** **G.\*\*** (2015).

Morphological and genetic diversity characterization of the international olive germplasm in Israel.

*Alon Hanotea*. 13 (Hebrew).

7. **Ben-Ari** **G.\*\*** (2018)

The improvement of olive trees.

*IsraelAgri.* <http://www.israelagri.com/?CategoryID=522&ArticleID=1539>

8. **Ben-Ari** **G.\*\*** (2019).

Green marketing.

*Yevul Sie.* 7:22-24 (Hebrew)

1. **Articles in Symposia Proceedings (including Acta Horticulturae)**
2. Goldental-Cohen SS, Burstein CPD, Biton IT, Ben Sasson SS, Sadeh APD, Many YT, Doron-Faigenboim A, Zemach H, Mugira Y, Schneider D, Birger R, Meir S, Philosoph-Hadas S, Irihomovitch V, Avidan B, Lavee S, **Ben-Ari G.**\*\* (2018).

Anatomical and molecular differences between the olive fruit and leaf abscission zone enable development of a selective abscission compound.

*Acta Hort.* 1199:127-132.

1. Cohen-Goldental SS, Biton IT, Zemach H, Many YT, Tonutti P, Kerem Z, **Ben-Ari, G.**\*\* (2018).

Fruitlet abscission in olive (*Olea europaea* L.).

*Acta Hort.* 1229:215-220.

1. **Granted Patents and Registered Cultivars**

**Ben-Ari G**, Many Y, Avidan B, Lavee S. (2020).

A new olive cultivar – Lavees.

Application for plant breeders' rights number 4935/20.

**Giora Ben-Ari August 2021**

Part III: DESCRIPTION OF MAJOR ACHIEVEMENTS

**Contributions to Agricultural and/or Environmental Sciences**

 Upon receiving my position at the Volcani Institute in 2009, I began work on the various mechanisms of plants in response to drought, concentrating particularly on those of grapes. When the researcher directing the Israeli olive breeding program retired, I was asked to take over this program and shift my research efforts to issues concerning olive culture and genetics. I used my early experience in molecular biology, mainly with DNA markers and high-throughput data analysis to join the small community of researchers using molecular biology to study various facets of olive oil production. I established the first phylogenetic analysis of a germplasm collection based on SNPs markers and used transcriptomic analyses to understand the mechanism of fruit abscission, flower and fruit development and olive oil biosynthesis. In recent years, I have studied the effects of high temperatures on fruit set, fruit development, oil synthesis and oil quality.

**Response to drought**

**Grape:** The main hormone active in response to drought stress in grapes is Abscisic acid (ABA). I characterized ABA signal transduction in grapes in-vitro and in-vivo. In addition I investigated the isohydric and anisohydric strategies in the response of grapes to conditions of drought, and characterized the contribution of the roots in comparison with the contribution of shoots in this response. I characterized the complexity of the interactions between various components in achieving a wide range of combinatorial control by the plant in the fine-tuning of ABA signal transduction in response to developmental and environmental cues. I also developed a methodology for identifying gene families within the genome sequence of fully sequenced organisms (Publications 1-11, 1-12, 1-21, 2-2 and 5-2).

**Oaks:** I also characterized the drought stress response of several types of Mount Tabor oaks and their progenies, by analyzing growth patterns under drought conditions of progenies collected from old trees, which grew naturally in dry areas of Israel (4-1).

**Olives:** Lately, I have begun characterizing the response of 100 olive cultivars to conditions of prolonged drought. Characterization was carried out at the new Israeli Center of Research Excellence (iCORE) at the faculty of agriculture of the Hebrew University (Unpublished data)

**DNA variation between olive cultivars**

Simple Sequence Repeats (SSRs) markers were used to analyze the genetic relationships between the main commercial olive cultivars. Genetic distances between cultivars were determined based on SSR genotype data and were used for evaluating the possible effects of heterosis in various F1 populations. Significant effects of heterosis were examined as expressed in several traits including oil content (1-14).

In another study, I used next generation sequencing technology for the identification of 145,974 Single Nucleotide Polymorphism (SNPs) loci. A subset of 138 SNPs was then used to analyze the genetic relationships between the 119 cultivars assemble at the Israeli germplasm collection.Based on the analysis of several trees of identical cultivars sampled from different nurseries, the SNP markers proved to be a reliable criterion for cultivar identification (1-20). Lately, I created a database including 67 - 88% of the genome sequencing of each of the ten most important olive cultivars. We are using this database to characterize variation in specific genes of interest (Unpublished data).

**Morphological variation between olive cultivars**

In order to deepen our knowledge of olive tree physiology, I used our germplasm collection to characterize phenotypic variation in several agriculturally important traits. I characterized the variation in the following traits: fruit size, oil content, flowering and ripening timing, number of flowers and fruits in each inflorescence, leaf and fruit abscission force before and after ethephon treatment and browning level after mechanical wounding of the fruit. These characterizations served as tools aiding me in further studies of the physiology of these traits, which are of critical importance to the profitability of olive culture (1-25, 1-28, 5-6, 6-1, 6-2).

**Climate change effects on olive oil production and quality**

Global warming is predicted to have a negative effect on plant growth due to the damaging effect of high temperatures. In order to address the effect of high temperature environments on olive oil yield and quality, I compared its effect on the fruit development of five olive cultivars. I found that the effects of a high temperature environment are genotype dependent and in general, high temperatures during fruit development negatively affected three important traits: fruit weight, oil concentration and oil quality. None of the tested cultivars exhibited complete heat stress tolerance. I suggested that different olive cultivars have developed a variety of mechanisms in dealing with high temperatures. In order to elucidate the mechanism of these responses, I explored the molecular mechanism resulting in the negative effect of a high temperature environment on oil yield and quality. I found that heat-shock protein expression was induced by the high temperature environment, but the degree of induction was cultivar dependent. We demonstrated that the resistant cultivar exhibited a larger degree of induction than the heat sensitive cultivar. Many genes involved in olive oil biosynthesis were found to be repressed in response to high temperatures. Two genes were characterized as markers for the heat tolerant cultivar. These results may contribute to identifying or developing a more heat tolerant cultivar, which will be able to produce high yield and quality oil under conditions of global warming (1-30, 1-32, 2-4).

**Achievements in Applied Research**

 During the last 10 years, I have been a part of the team carrying out the Israeli olive breeding program, and during the last six years, I have lead the program. I am determined to use the skills I have acquired in physiology, histology and molecular analyses to advance olive cultivation in Israel and the world to increased yields, improved oil quality and hence profitability. My team is developing new olive cultivars suited to current climatic and technological conditions. We have studied the compatibility between olive cultivars to optimize fertilization and ensure efficient and high fruit set in the olive groves. Our studies of the fruit and leaf abscission mechanism in the olive tree have enabled us to develop a commercial protocol for mechanical harvest of table olives.

Recent projects in our lab have included study of the Argan tree's physiology and genetics in order to enable the domestication of this species for commercial production of its oil. We are working in collaboration with several Israeli growers to develop farming practices and select high quality genetic material in order to maximize the suitability of this tree for our semi-arid climate and high temperatures. This year we have achieved the first commercial plantings of genetically improved stock developed under our guidance. We hope continued study of this newly domesticated species in our laboratory and in the field will provide a new source of income for Israeli growers.

**Olive breeding program**

The Israeli olive breeding program aims to develop improved oil and table olive cultivars. The current breeding program under my leadership is directed towards developing new varieties resistant to diseases and pests and adapted to high-yield intensive cultivation methods (2-3, 5-3, 5-4, 5-7). I have recently registered a new olive cultivar, 'Lavee', characterized by large fruit and high oil content. It can serve as both a table olive, or an oil producing cultivar. The program on commercial fermentation of 'Lavee' olives is carried out in cooperation with the Yavne canning factory. I organized several Open Days for sampling of new potential oil cultivars, and 'Lavee' received high evaluation and interest from the Israeli growers. Currently, commercial tree nurseries are producing seedlings and will begin distributing them to growers. Implementation level: The 'Lavee' cultivar is already planted in about 5 hectares of six commercial farms.

I actively participate in an international group representing 22 countries in a new project, "True Healthy Olive Cultivar (THOC)" organized by the International Olive Council (IOC). This project aims to provide authenticated and disease-free stock of 191 olive cultivars from the world core collection, representing the popular cultivars among the participated countries. I act as representative of Israel in this project and have recently brought plant material from 20 cultivars for study at the Volcani Institute. Currently I am closely collaborating with the Israeli Agricultural Extension Service to construct a certified greenhouse for this germplasm collection in Israel. I plan to establish the Israeli nuclear stock to provide Israeli greenhouses with clean plant material for propagation.

**Compatibility between olive cultivars**

The olive (*Olea europaea* L.) is a wind-pollinated, preferentially allogamous species. It is characterized by a homomorphic diallelic self‐incompatibility (DSI) system. This system prevents self-fertilization and regulates compatibility between cultivars, so that cultivars bearing the same incompatibility group are indeed incompatible. I found varying efficiency of fertilization between compatible pairs of cultivars, indicating that an optimal pollen donor can be determined for each cultivar. In a recent study, I found that the olive cultivar ‘Picual’ is an optimal pollen donor for ‘Barnea’ (1-19, 5-1). I also found that compatibility between 'Arbequina' and 'Souri' olive cultivars increases 'Souri' fruit set and under field conditions, 'Souri' fruit set was 8.36% when pollinized by an 'Arbequina' tree in close proximity. This was significantly higher than the fruit set of 5.6% achieved for 'Souri' trees without the nearby 'Arbequina' pollen donors (1-31). My findings were disseminated in several talks to farmers and nursery owners and they are widely implemented, especially in newly planted orchards. Implementation level: According to my recommendations, cultivars for at least 6 multi-cultivars new planted commercial orchards were chosen in the last four years. In addition, at least 20 farmers in the Galilee added 'Arbequina' trees to their 'Souri' orchards.

**Table olive harvest**

The table olive industry relies primarily on hand harvesting of the 'Manzanillo' cultivar. Increased harvesting costs have focused industry-wide interest on identifying an abscission agent that can be used with mechanical harvesting technologies to increase harvesting efficiency and minimize the dependence on manual labor. I identified ROS as the inducer of defoliation in response to ethephon treatment. Adding an antioxidant (vitamin C) to the ethephon, induced fruit abscission without defoliation (1-25). A second project related to table olives was identifying "browning resistant" olive cultivars. The browning process of olive fruit after induced mechanical injury was characterized in 106 olive cultivars. I found cuticle thickness to be an indicator of table olive cultivars suitable for mechanical harvest and suggested that a shift to browning resistant cultivars will enable the mechanical harvest of table olives without affecting fruit quality (1-29). Implementation level: Olive growers in Israel and in other countries (personal notes from California and Spain) are adding vitamin C to the ethephon and using mechanical harvest (about 100 hectares total). We are now establishing a commercial plot of table olive trees with browning resistant cultivars to commercially test their resistance during field conditions of mechanical harvest.

**Carbon footprint:** In recent years, I have represented Israel in the European project OLIVE4CLIMATE. Within the framework of this project, we developed a carbon credit certification standard for sustainable olive grove management. This standard is already producing tangible results: in Italy for example, "green marketing" is attracting farmers who are interested in government subsidies available to encourage the shift to sustainable olive grove management as defined by our parameters. In Israel as well, since publishing the results of this project (5-8). Innovation level: I received inquiries from several growers interested in sustainable agricultural methods (about 10 hectares total).

**Introduction of new useful crop – Argan tree**

The Argan (*Argania spinose*) is endemic to semi desert areas of southwestern Morocco. Dr. Einat Sadot's group has developed a protocol for rooting the Argan with an efficiency of 40-100%. This has enabled planting commercial clonal Argan orchards. In cooperation with commercial Argan growers in Israel, we are testing the performance of different Argan types under various conditions in order to identify those, which can be registered as superior cultivars. In June 2020, I organized a field trip to several Argan groves in Israel. More than 50 farmers participated, and many expressed interest in being part of this project. There are still many agricultural, genetic and technological challenges ahead of us, but hopefully, within the next few years, Israel will become a significant producer of Argan oil. Implementation level: So far, five farmers already planted their Argan plots with our plant materials and The Israeli Agricultural Extension Service (Shaham) also planted a new plot with our plant material (total of 3 hectares).