LIST OF PUBLICATIONS

1. Articles in reviewed journals

1.a Alchanatis, V. and Amir, I. (1990)
A pattern fit coefficient for water application.
_Irrigation and Drainage Systems_ 4:29-36.

2.a Amir, I. and Alchanatis, V. (1992)
Procedure for predicting and designing moving sprinkler application patterns.
_Irrigation Science_ 13:93-98.

Classification of tissue culture segments by color machine vision.
_Journal of Agricultural Engineering Research_ 55:299-311

Morphological control and mensuration of potato plantlets from tissue cultures.
_Plant, Cell, Tissue and Organ Culture_ 36:331-338.

Imaging techniques for chemical Application on Crops
_Physiological Plant Pathology_ 25(Suppl): 59S-69S

Maturity determination of fresh dates by near Infrared Spectrometry.
_Journal of the Science of Food and Agriculture_, 79:86-90

An image analysis system for measuring insect feeding effects caused by biopesticides.
_Journal of Agricultural Engineering Research_, 77:289-296

Image processing algorithms for tomatoes classification.
_Transactions of the ASAE_ 45 (3): 851-858

A machine vision system for evaluation of planter seed spatial distribution.

In-field assessment of single leaf nitrogen status by spectral reflectance measurements.
_Precision Agriculture_ 6(1):25:39

Weeds detection in multi-spectral images of cotton field

12.a Karplus, I., Alchanatis, V. and Zion, B. (2005)
Guidance of groups of guppies (Poecilia reticulata) to allow sorting by computer vision.
_Journal of Aquaculture Engineering_ 32:509-520

Estimation of leaf water potential by thermal imagery and spatial analysis
_Journal of Experimental Botany Vol. 56, No. 417, pp. 1843–1852_
Detection of bacteria with low-resolution Raman spectroscopy.
*Transaction of ASAE* 48(5): 1843-1850

A video and acoustic methodology to map bite placement at the patch scale using a video and acoustic methodology

Application of spectral features' ratios for improving classification in partially calibrated hyperspectral imagery: a case study of separating Mediterranean vegetation species
*Journal of Real-Time Image Processing, 1*(2): 143-152

Ornamental fish fry counting by image processing.
*Reviewed and approved for publication by an internal scientific committee and held until intellectual property rights established (through a patent application or commercial agreement).*

Use of thermal and visible imagery for estimating crop water status of irrigated grapevine

Spectrophotometric otoscope: A new tool in the diagnosis of otitis media
*Journal of Near Infrared Spectroscopy* 15, 209-215

Gas-exchange patterns of Mediterranean fruit fly pupae (diptera: tephritidae): a tool to forecast developmental stage.
*Florida Entomologist 90*(1): 71-79

Factors affecting the distribution of a predatory mite on greenhouse sweet pepper
*Experimental and Applied Acarology.* 2007

22.c Zion B., **Alchanatis V.**, and Ostrovsky, V. (2007)
Real-time underwater sorting of edible fish species.
*Computers and Electronics in Agriculture 56 (1):* 34-4

*Transactions of the ASABE 50*(6): 2303-2313

Classification of Guppies' (Poecilia reticulata) Gender by Computer Vision.
*Aquacultural Engineering*, 38(2): 97-104

Spatial decision support system for Medfly control in citrus.
*Computers and Electronics in Agriculture*, 62(2): 107-117
Study on temporal variation in citrus canopy using thermal imaging for citrus fruit detection.

27. Platonov, A., Thenkabail, P.S., Biradar, C.M., Cai, ., Gumma, M., Dheeravath, ., Cohen, Y.,
Alchanatis, V., Goldshlager, N., Ben-Dor, E., Vithanage, J., Manthrithilake, H., Kendjabaev, S. and
Water Productivity Mapping (WPM) Using Landsat ETM+ Data for the Irrigated Croplands
of the Syrdarya River Basin in Central Asia
*Sensors*, 8(12), 8156-8180; doi:10.3390/s8128156

Wavelet decomposition for reducing flux density effects on hyperspectral classification.

29. Alchanatis V., Cohen, Y., Cohen, S., Moller, M., Sprinstin, M., Meron, M., Tsipris, J.,
Evaluation of different approaches for estimating and mapping water crop status variability in
 cotton with thermal imaging.

30. Ben-Gal A., Agam N., Alchanatis V., Cohen Y., Yermiyahu U., Tzippori Y., Presnov E.,
Evaluating Water Stress in Irrigated Olives: Correlation of Soil Water Status, Tree Water
Status, and Thermal Imagery.

Image Fusion of Visible and Thermal Images for Fruit Detection.

Fruit Visibility Analysis for Robotic Citrus Harvesting.

SWIR-based spectral indices for assessing nitrogen content in potato fields.

34. Cai, X., Thenkabail, P. S., Biradar, C. M., Platonov, A., Gumma, M., Dheeravath, V.,
Cohen, Y., Goldshlager, N., Ben-Dor, E., Alchanatis, V., Vithanage, J. and Markandu, A.
(2009).
Water productivity mapping using remote sensing data of various resolutions to support
"more crop per drop".

35. Shenderey C., Shmulevich I., Alchanatis V., Egozi, H., Hoffman, A., Ostrovsky, V., Lurie,
NIRS detection of Moldy Core in Apples.
*Food and Bioprocess Technology*, 3(1): 79-86, doi: 10.1007/s11947-009-0256-1

36. Cohen, Y., Alchanatis V., Zusman, Y., Dar, Z., Bonfil, D.J., Karnieli, A., Zilberman, A.,
Leaf nitrogen estimation in potato based on spectral data and on simulated bands of the
VENμS satellite.
*Precision Agriculture*, DOI 10.1007/s11119-009-9147-8

**Five selected publications**


Publication 29: [http://dx.doi.org/10.1007/s11119-009-9111-7](http://dx.doi.org/10.1007/s11119-009-9111-7)

Publication 31: [http://dx.doi.org/10.1016/j.biosystemseng.2009.02.009](http://dx.doi.org/10.1016/j.biosystemseng.2009.02.009)

**Articles in other reviewed journals**


**Book chapters**

4. Patents


*Provisional Patent Application (in the U.S.A)*


5. Articles in non-reviewed journals


*Machinery and Engineering, April 2000, pp. 7-10*

*Machinery and Engineering, June 2000, pp. 26-28*


*Agricultural Mechanization and Engineering, 40*


*Agricultural Mechanization and Engineering, May 2006*

*Agricultural Mechanization and Engineering, May 2006*


Developing Spatial Decision Support System for Medfly Control in Israel. (in Hebrew).

*Gan, Sade Va'Meshek, August, 2007*

Technologies for Fish Growers: From Ornamental Fish in Greenhouses to Edible Fish in the Open Sea. (in Hebrew).
*Fisherries and Fishbreeding in Israel, 2006/4: 1058-1063*

Thermal imaging for irrigation scheduling
*Israel Agriculture 2009. pp. 4-5*

*‘Alon Hanotea’ vol. 62 August-September 2008, pp. 28-32*

Thermal imaging to improve irrigation in grapevines. (in Hebrew).

Evaluation of palm trees water status using thermal imaging (in Hebrew).
*‘Alon Hanotea’ vol. 64 January 2010, pp. 38-42.*

6. Articles of symposia proceedings

Design and control of water application patterns from moving irrigation machines.
*Proceedings of 5th International Irrigation Conference, p. 141-152.*

Geometric and color features for tissue culture classification.
*Proceedings of 8th Israeli Symposium on Artificial Intelligence and Computer Vision, p. 205-221.*

High Speed Inspection of Carrots with a Pipelined Image Processing System
*ASAE International meeting, June 18-23, Chicago, IL. Paper #953170*
4. A Selectable Wavelength Imaging Sensor for Multispectral Inspection of Agricultural Products

5. System and method for pre-harvest maturity determination of fresh dates by near Infrared Spectroscopy


8. Nitrogen status detection of corn leaves by reflectance technique.

9. An image analysis of Spodoptera littoralis feeding behavior following ingestion of the insecticidal nematode Steinernema riobrave in an alginate gel carrier.

10. Sex determination and quality sorting of Guppy fish by computer vision.

11. Image processing algorithms for tomatoes classification

12. A machine vision system for evaluation of planter seed spatial distribution

13. Prediction Of Nitrogen Stress Using Reflectance Techniques

14. Image processing algorithms for automatic grading of flower bulbs (Ranunculus)
Fish Species Recognition in Pond Water by Computer Vision  

Classifier Selection for Agricultural Sorting Systems  

Sorting guppies (Poecilia reticulata) by computer vision.  

Thermal imaging for irrigation scheduling  
IL-SPRS conference, Shfayim, Israel.

A hierarchical classifier for adaptive sorting of agricultural produce  
Annual meeting of the Israeli Society of Agricultural Engineering, 5 February 2004, Bet Dagan

On-line Feature and Classifier Selection for Agricultural Sorting Systems  
IASTED 2004, August 2004, Marbella, Spain

Combination of color pattern projection and stereoscopic vision for measuring chicken filets thickness  
IEM 2004, 16-17 May 2004, Ashkelon, Israel

A photogrammetric method for enhancing the detection of bone fragments and other hazard materials in chicken filets  
XXth Congress International Society for Photogrammetry and Remote Sensing, 12 - 23 July 2004, Istanbul, Turkey

Mapping of leaf water potential using thermal images for site-specific irrigation.  
7th International Conference on Precision Agriculture and other Precision Resources, 25-28 July, 2004, Minnesota Minneapolis, USA.

On-line Hierarchical Classifier for Agricultural Sorting Systems.  
IASSE conference, San Fransisco, US. Pp. 114-117

On-Line Feature and Classifier Selection for Agricultural Produce  
Proceedings of Artificial Intelligence and Soft Computing – ASC 2004, 1-3 September 2004, Marbella, Spain

Development of a Selective Fish Harvesting System for Ponds.  
The 8th Annual Dan Popper Symposium, Eilat, Israel.

Social Facilitation of Learning in Mixed Species.


38.b **Alchanatis, V.,** M. Möller, Cohen, Y., S. Cohen, M. Meron, J. Tsipris, A. Naor, and Z. Harit. 2007
Integrated thermal and visible imaging for crop water stress assessment in a wine-grape vineyard.
*Dahlia Greidinger Symposium - Advances technologies for monitoring nutrient and water availability to plants. March 2007, Haifa, Israel.*

*39.b **Sela, E., Y. Cohen, V. Alchanatis, Y. Saranga, S. Cohen, M. Möller, M. Meron, A. Bosak, J. Tsipris and V. Orolov. 2007**
Thermal imaging for estimating and mapping crop water stress in cotton.

*40.b **Alchanatis V.,** Safren O. and Levi O. 2007
Prediction of apple yield using hyperspectral images.
*European Conference in Precision Agriculture, June 2007, Skiathos, Greece. Pages: 143-150.*

Developing a Learning Mechanism for SDSS for Medfly Control in Citrus.
*European Conference in Precision Agriculture, June 2007, Skiathos, Greece. Pages: 723-730.*

Nitrogen prediction in potato petioles based on spectral data and hyperspectral images.
*European Conference in Precision Agriculture, June 2007, Skiathos, Greece. Pages: 143-150.*

43.c **Barnea S, Filin S, Alchanatis V. (2007)**
A supervised approach for object extraction from terrestrial laser point clouds demonstrated on trees
*PIA07 Photogrammetric Image Analysis, 19-21 September 2007, Munich, Germany*

Developing an action threshold for the persea mite on avocado

45.c **Zion B., Alchanatis, V., Ostrofsky, V., Barki A and Karplus I. (2008).**
Technologies for Ornamental Fish Growers.

46.c **Bulanon, D.M., Burks, T.F. and Alchanatis, V. (2007)**
Study on Fruit Visibility for Robotic Harvesting

47.c **Bulanon, D.M., Burks, T.F. and Alchanatis, V. (2008)**
Analysis of the Thermal Temporal Variation in the Citrus Canopy
*ASABE 2008 Annual meeting, Providence, Rhode Island, June 29 – July 2, 2008 Paper No. 083024.*

Image processing algorithms for table olives classification
*EuroAgEng conference on Agricultural Engineering, June 22-26, 2008 – Crete, Greece.*

*This article was reviewed before publication.*


53.c Rud, R., Shoshany, M., Alchanatis, V. (2009) Spectral and spatial analysis in the blue range spectrum for detecting salinity effects on agricultural crops. *6th EARSeL SIG IS workshop on imaging spectroscopy: Innovative tool for scientific and commercial environmental applications. 16 - 19 March 2009, Tel-Aviv University, Tel-Aviv, Israel*

54.c Almog, O., Shoshany, M., Alchanatis, V. (2009) Improving accuracy and reliability of classification of hyperspectral data based on wavelet decomposition. *6th EARSeL SIG IS workshop on imaging spectroscopy: Innovative tool for scientific and commercial environmental applications. 16 - 19 March 2009, Tel-Aviv University, Tel-Aviv, Israel*

55.d Herrmann, I. Karnieli, A., Bonfil, D.J., Cohen, Y. and Alchanatis, V. (2009) Ground and aerial hyperspectral data relations to nitrogen content and dry weight of potato plants. *6th EARSeL SIG IS workshop on imaging spectroscopy: Innovative tool for scientific and commercial environmental applications. 16 - 19 March 2009, Tel-Aviv University, Tel-Aviv, Israel*

57.b Wachs, J. P., H. I., Stern, T., Burks and V. Alchanatis (2009)
Apple detection in natural tree canopies from multimodal images
*7th ECPA, European Conference on Precision Agriculture, July 6-8, 2009 – Wageningen, the Netherlands

Evaluation of palm trees water availability using remote thermal imaging
7th ECPA, European Conference on Precision Agriculture, July 6-8, 2009 – Wageningen, the Netherlands

Development of an integrated approach for weed detection in cotton, for site specific weed management
7th ECPA, European Conference on Precision Agriculture, July 6-8, 2009 – Wageningen, the Netherlands

60.c Ignat, T., Schmilovitch, Z., Mizrach, A., Alchanatis, V., Fefoldi, J., and Falik, E. (2009)
Non-destructive methods for pepper maturity determination
Synergy and Technical Development 2009 Gödöllő, Hungary

*** Won first price for best paper

7. Abstracts

Improved agrotechnology by detecting plant status with NNIR spectrometry (in Hebrew).
*Mechanisation and Engineering, April 2000, p. 46

Electronic measurement of insects feeding effects caused by biopesticides.
*Society of Invertebrate Pathology, 33rd Annual Meeting, 13-18 August 2000, Guanajuato, Mexico

Precision Horticulture - tree specific management of orchards.
The European Conference of Precision Agriculture, June 2001, Montpellier, France.

Evaluation of feeding behavior with computerized electronic systems in lepidopterous larvae infested with entomopathogenic nematodes.

Social facilitation of learning in mixed species.
*International conference on behaviour and ecology of freshwater fish: linking ecology and individual behaviour, Freshwater Center, Silkeborg, Denmark.

Development of a 2-dimensional video-acoustic tool for monitoring bite placement
*the XIX International Grassland Congress p. 489

* This article was reviewed before publication.

NIRS Detection of Moldy Core in Apples.
_Presented at 2006 CIGR, Bonn, Germany. Book of Abstracts 237-238_

_Presented at the 2006 CIGR Section VI International Symposium on FUTURE OF FOOD ENGINEERING, Warsaw, Poland, 26-28, April 2006_

Quality Indices Determination of Apples by NIRS.
_2006 CIGR Section VI International Symposium on FUTURE OF FOOD ENGINEERING, Warsaw, Poland._

NIRS Detection of Moldy Core in Apples.
_Presented at 2006 CIGR, Bonn, Germany. Book of Abstracts 237-238_

Developing Spatial Decision Support System for Medfly Control in Israel.
_Annual ISAE conference, May, 2006, Tel-Aviv, Israel._

Crop Water Stress Assessment Using Integrated Thermal and Visible Imaging
_Annual ISAE conference, May, 2006, Tel-Aviv, Israel._

Nitrogen prediction in potato petioles based on spectral data and hyperspectral images.
_The Annual Conference of the Israeli Geographical Association (IGA), December 2006, Tel-Aviv, Israel._

Thermal imaging for estimating and mapping crop water stress in cotton.
_Annual Conference of the Israeli Geographical Association (IGA), December 2006, Tel-Aviv, Israel._

Developing a Learning Mechanism for SDSS for Medfly Control in Citrus.
_Annual Conference of the Israeli Geographical Association (IGA), December 2006, Tel-Aviv, Israel._
Selective weed spraying
*Annual conference of the Israeli association of weeds science, September 2007, Rehovot, Israel*

Enhancement of Sensing Technologies for Selective Tree Fruit Identification and Targeting in Robotic Harvesting Systems
*Israeli Conference on Robotics, 19-20 November, 2008, Herzelyia, Israel*

Crop water status evaluation using thermal imaging
*Israeli conference on agricultural engineering and soil sciences, December 25, 2008, Technion, Haifa, Israel*

Evaluating Water Stress in Irrigated Olives using thermal imaging: What is the optimal time for image acquisition?
*Israeli conference on agricultural engineering and soil sciences, December 25, 2008, Technion, Haifa, Israel*

Online Sorting of Madjhol Dates According to TSS and Water Content by Near Infrared Spectrometry
*Israeli conference on agricultural engineering and soil sciences, December 25, 2008, Technion, Haifa, Israel*

22. b **Herrmann, I., A. Karnieli, D. J. Bonfil, Y. Cohen and V. Alchanatis (2009).**
SWIR-based Spectral Indices for Assessing Nitrogen Content in Potato Fields.
*Israeli conference on agricultural engineering and soil sciences, December 25, 2008, Technion, Haifa, Israel*

Thermal imagery for CWSI mapping in commercial cotton fields in Izrael valley.
*Israeli conference on agricultural engineering and soil sciences, December 25, 2008, Technion, Haifa, Israel*

An integrated approach for selective weed management.
*Israeli conference on agricultural engineering and soil sciences, December 25, 2008, Technion, Haifa, Israel*

Evaluating Water Stress in Irrigated Olives: Correlation of Soil Water Status, Tree Water Status and Thermal Imagery.
Evaluating water status in irrigated grapevines and olives
*7th ECPA, European Conference on Precision Agriculture, July 6-8, 2009 – Wageningen, the Netherlands*

**8. Final Research reports**

Design and control of water distribution pattern from linear move irrigation machines.
*Publication No. 356. Final report of project 152-0556, Dep. of Agricultural Engineering, Technion.*

Imaging of potato shoots for automated mass micropropagation.
*Final report of BARD project No. IL-1465-88.*

3.c Searcy, S.W., Peleg, K., **Alchanatis, V.** and Picus M. (1997).
Adaptive sorting of fresh produce.
*Final report of BARD project No. US-2199-92 C.*

Sterilization of plant material with Ozone.
*Final report of Chief Scientist of the Ministry of Agriculture project No.0105-463*

Development of a quality sorting system based on vision and firmness.
*Final report of Chief Scientist of the Ministry of Agriculture project No.463-0130-96*

Design and implementation of a multi-purpose agricultural robot
*Final report of the Israel Ministry of Science and Arts, Joint program with Japan 6100296*

Expert sensor for site-specific application of agricultural chemicals
*Final report of BARD project No. US-2415-94R*

Machine vision for automatic inspection of geophytes
*Final scientific report of Chief Scientist of the Ministry of Agriculture project No.463-0142*

Prediction of nitrogen stress by reflectance techniques
*Final scientific BARD project report No. IL-2817-97*

Determination of optimal operating parameters of planters by machine vision
*Final scientific report of Chief Scientist of the Ministry of Agriculture project No. 463-0183*


