

Portfolio/ Summary Biography of Professor Esmail Fallahi

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1) Biography Summary

Professor Dr. Esmail Fallahi “Essie” was born in Taleghan, Iran in 1951 in a farming family, growing fruits for many generations. He received his BS degree in Horticulture from Joundishapour University, Iran, holding first rank among all graduates. He received his MS degree in pomology from Washington State University, USA in 1976 and Ph.D. and post doctoral fellowship in Pomology from Oregon State University, USA in 1982. After working for 2 years as a member of pomology faculty at OSU, Essie joined the University of Arizona, USA as an assistant professor and research leader of pomology, where he conducted and published several research projects on citrus rootstocks, quality, mineral nutrition, and photosynthesis. He was pioneer in introducing low chill peaches to the desert climate of Arizona. In late 1989, Dr. Fallahi joined the University of Idaho as an Assistant Professor and Director of Pomology, and was tenured and promoted to Associate Professor of Pomology in 1993. In 1998, Dr. Fallahi was the only member in his department in 26 years who was nominated and received early promotion to Full Professor and Director of Pomology Program. In the last 30 years, Professor Fallahi has been a member and one of the American Society for Horticultural Science (ASHS) and ISHS leaders by serving on numerous committees, organizing symposia and workshops, and serving as an Associate Editor of ASHS for 6 years. Dr. Fallahi was elected President of the American Pomological Society in 2003 and 2004. He has also been on the editorial and advisory boards of several other national and international professional journals. Professor Fallahi has published over 220 articles, over 150 of them as refereed Journal articles and book chapters and over 120 as proceedings, abstracts, and pamphlets. As an invited speaker, he has presented over 130 lectures nationally (in the USA) and internationally. He has been invited for lecture and workshops and has traveled to many different regions of the world, including England, Germany, Italy, France, Australia, China, Chile, Brazil, Argentina, Iran, Armenia, Finland, Belgium, Switzerland, Turkey, Spain, Holland, and many other countries. Professor Fallahi has advised numerous students toward MS and Ph.D. and his students are leaders of horticulture in different parts of the world. Dr. Fallahi has

made numerous contributions to the fields of fruit bio-regulators, nutrition, rootstock physiology, cultivar development, precision horticulture, orchard and table grape vineyard high density and canopy systems, and blossom thinners. Use of pre-harvest minerals to predict fruit quality, and hydrogen cyanamide, Tergitol, Thinex, ATS, and lime sulfur for blossom thinning are among his research contributions. Dr. Fallahi was among the pioneers who researched the “retaining” effects of aminoethoxyvinyleglycine (AVG), particle films, and Apogee in apples, which all are commercially used worldwide. Professor Fallahi is the founder of Pomology and Viticulture Program in Idaho where he evaluated several cultivars of apples, wine and table grapes, peaches and nectarines, pluots, and alternative fruits. Among them, many are being planted at commercial scale. Thanks to Dr. Fallahi’s research, the Idaho table grape is becoming one of the fastest growing agricultural industries in Idaho and the Pacific Northwest USA.

Professor Fallahi was elected “**Fellow**” of the American Society for Horticultural Sciences and received **Governor Award of Excellence** in Agriculture Discover. These are the most prestigious awards at ASHS and State of Idaho, respectively and are bestowed on limited scientists who have made major contributions to horticulture/agriculture.

2) Specific Achievements: *High lights of Professor Fallahi’s Research*

Introduction: Dr. Fallahi has contributed to the horticultural sciences, in particular, fruit industry, tremendously. Dr. Fallahi’s contribution to the Idaho agriculture through his educational program that initiates both from his teaching and from his research discoveries in various areas of fruit crop science is unmatched. He is an invaluable resource of education for all fruit growers, Master Gardeners, students, and other members of the public in Idaho, PNW, and the nation.

During his three decades of tireless work, dedication, and research discoveries, Idaho’s name is on the top of horticultural scientific communities in the nation and worldwide. Ground breaking and pioneering in introduction of new cultivars of many fruits including apples, grapes, peaches, and alternative fruits, and establishment of the fast-growing and brand new table grape industry, and numerous discoveries in the areas of fruit nutrition, rootstock introduction, growth bio-regulators, are among the high lights of Professor Fallahi’s achievements and unmatched contributions:

A) Research on Mineral Nutritional Physiology and Fruit Quality Predictions:

Dr. Fallahi has been conducting research in the area of fruit nutrition for over 30 years. Dr. Fallahi and his team have published several models to predict fruit

quality, using preharvest mineral concentrations of different tissues. Use of preharvest minerals for prediction of postharvest fruit quality now has a major application among fruit packinghouses, mineral nutrition laboratories, and researchers. Among the models that Dr. Fallahi and his team published, the "Ranking Minerals to Predict Quality" and "DRIS" are well-known models worldwide. With Ranking Model, one can predict quality of apples using preharvest mineral status of leaves and fruits regardless of annual variations. Also, after conducting experiments over several years, Dr. Fallahi and his team have recently developed thresholds for leaf and fruit nitrogen to obtain highest quality fruit in 'Fuji' apple. The thresholds are developed based on both ground application and fertigation of nitrogen through a micro-jet sprinkler system. He also discovered that nitrogen increases evolved ethylene and respiration, while reduces fruit red color in apple fruits. This finding has a major impact on growers and assists them with their decision making in their harvest and storage strategies. Because fruit growers often associate green color with immaturity and leave the fruit on the tree longer to develop better color. Therefore, if the green color is due to excess nitrogen application, internal maturity (ethylene and respiration) will increase and will lead to higher internal break down.

B) Research and Discoveries on the Influence of Deciduous Fruit Rootstocks on Fruit Quality:

Dr. Fallahi and his team have conducted numerous research projects on rootstock physiology of pome fruits in the last 30 years. Their earlier work revealed that pears on *Pyrus betulifolia* are more susceptible to corkspot than on other pear rootstocks. He also studied various nutritional, postharvest and tree growth characteristics of 'Starkspur Golden Delicious' on OAR-1 rootstock for the first time and found that the scion fruits on this rootstock have better color with lower ethylene production. Dr. Fallahi and his team have also studied precocity, fruit quality, and leaf and fruit nutrition of 'Fuji' and 'Delicious' apples on various rootstocks. In their recent work, Dr. Fallahi and his team found that 'Fuji' apple trees on Ottwa-3 showed higher leaf photosynthesis than those on other rootstocks, while trees on Bud 9 had the least level of photosynthesis.

C) Research and Discoveries on Bio-Regulators and Blossom Thinners:

Dr. Fallahi has been a leader in tree fruit bio-regulators and blossom thinning research. He also used hydrogen cyanamide to reduce dormancy of peaches and found that application of this chemical in November would result in earlier bloom in 'Florda Prince', and fruits could be harvested much earlier than fruits from non-sprayed trees. Dr. Fallahi and his team have also discovered that hydrogen cyanamide can be an excellent blossom thinner for peaches. Dr. Fallahi extensively tested the blossom thinning effects of hydrogen cyanamide on plums, peaches, apricot, and different cultivars of apples in the Pacific Northwest, and found that this chemical was superior to several other blossom thinners. Dr. Fallahi and his team have also discovered or assisted in discovering the blossom thinning effects of several other blossom thinners such as pelargonic acid (Thinnex), endothalic acid (endothal), sulcarbamide (Wilthin), and other

chemicals for both pome and stone fruit and published several refereed papers (see the C.V). Dr. Fallahi and his team have found that lime sulfur and Natural Cal are excellent organic blossom thinners for stone and pome fruits. Recently, Dr. Fallahi has found that Tergitol TMN-6 is an excellent blossom thinner for peaches, plums, and 'Rome Beauty' apple, and can reduce the cost of hand thinning by 80%. Dr. Fallahi's new discovery in blossom thinning is opening new horizons and hope for all stone fruit grower who are paying \$800-\$1200 for the cost of hand thinning.

Dr. Fallahi has been conducting research on other fruit growth bioregulators for over two decades. Following his extensive research work and effort of colleagues from other universities, Aminoethoxyvinylglycine (AVG) with trade name of "Retain" received registration for use on apples in 1997. This chemical retains fruit on the tree longer and prolongs storage life of apples. Dr. Fallahi was among the team of scientists who studied physiological effects of Apogee, a GA inhibiting compounds, and particle film Surround on apples, and these compounds are now registered. Dr. Fallahi and his team have also worked and published extensively on timing and concentrations of GA in combination with other bioregulators on table grape production and quality. He recently found that CPPU (a cytokinin type compound) increases fruit-stem removal force is in 'Bing' cherry and provides a longer shipping ability.

C) Research on Irrigation:

Dr. Fallahi also has conducted long-term research and has found the minimum levels of irrigation that can produce outstanding quality fruits, particularly apples under Idaho climatic conditions. This discover has been saving fruit growers as much as 60% cost of irrigation as compared to the traditional methods, while producing superior quality fruit for export market.

D) Research and Discoveries on Citrus Rootstock and Fruit Quality:

Dr. Fallahi and his team found that the use of sour orange rootstock would improve, while rough lemon reduces soluble solids of the scion cultivars. They also found that Macrophylla rootstock, although resulted in smaller tree canopy, it is susceptible to sieve tube necrosis in lemons. Dr. Fallahi and his team also extensively studied effects of various citrus rootstocks on photosynthesis, fruit quality, mineral nutrition, and yield of grape fruit, lemon, tangerines, and oranges, and results are published in several papers in the J. Amer Soc. Hort. Sci.

E) Research Discoveries on Alternative Fruits, Table and Wine Grapes, and Establishment of the New Table Grape Industry in Idaho and the Pacific Northwest:

Dr. Fallahi founded the Viticulture Research in Idaho, USA in 1990. He has been evaluating adaptability and quality performance of several table and wine grapes in Idaho. As a result of his life-time dedication, the new table grape industry in Idaho is a fast-growing agribusiness. Also, thanks to Dr. Fallahi's research, several new cultivar clones of wine grapes such as 'Viognier', 'Valdapenase',

'Chardonnay 29' and 'Chardonnay 49' have become the most popular wine grape cultivars grown in Idaho and the Pacific Northwest.

Several alternative fruits have been evaluated and introduced to the State of Idaho by Dr. Fallahi for the first time, and some are becoming commercially planted.

F) Research on Cultivar Introduction:

Dr. Fallahi established the first experimental Fuji orchard in Idaho. Before that, it was generally believed that Idaho is too cold to produce 'Fuji' apples. Thanks to Dr. Fallahi's long-term research discoveries and recommendations during the last 19 years, new 'Fuji and Gala apple cultivars are becoming the most profitable apples for the State of Idaho. These discoveries were timely and economically critical for Idaho growers. Because, Red Delicious apple market was forced to slow down and go bankrupt in many cases due to China's huge production. Now, Fuji and Gala apples that Dr. Fallahi has recommended are grown in thousands of acres in Idaho and the industry is thriving.

Pioneering introduction of several new Fuji and Gala apple cultivars, 85 other apple cultivars, over 65 new peach and nectarine cultivars (ranging from early to late-maturing cultivars), 86 table grape selections and cultivars, and establishment of the fast-growing and brand new table grape industry, introduction of numerous alternative fruits, introduction and evaluation of 53 new wine grape clones and cultivars to the state of Idaho for the first time are among the high lights of Professor Fallahi's achievements and contributions.

As a result of Dr. Fallahi's research and recommendations, thousands of acres of these fruits are growing in the Pacific Northwest region in the USA and other regions with similar climate conditions.

G) Graduate Student, Teaching, and Public Services:

Dr. Fallahi has advised several Ph.D. and MS students who are now leaders of horticulture in different parts of the world. Although Dr. Fallahi has always been a full time researcher, he has given numerous lectures, field days to fruit growers and shown them results of his experiments. Dr. Fallahi voluntary teaches fruit production, pruning, and grafting to fruit growers in the Pacific Northwest and over 200 Master Gardeners every winter. Annual Pomology Field Day that Dr. Fallahi sponsors every September attracts at least 500 people from the Northwest and California, USA every year and is an extremely popular event.

3) Noteworthy Contributions to the International Society for Horticultural Sciences (ISHS)

Professor Fallahi has served ISHS in numerous ways. His service to the ISHS includes, but not limited to: Commission of ISHS Irrigation, Nutrition,

Photosynthesis, Postharvest physiology, Organizing Committee of 3rd ISHS International Fruit Symposium in Canada, Scientific and Editorial Committees of 4th ISHS International Fruit Symposium in Canada, Editor and Scientific Committees of 4th International Fruit Nutrition Symposium in Chile, Chair of one fruit Session of the ISHS Horticultural Horticulture Congress in Toronto, Canada, Judge of the ISHS posters at Horticultural Congress in Canada. Dr. Fallahi is being invited as keynote speaker to several countries every year.

Dr. Fallahi has served as a “distance graduate advisor” and/external reviewer to several MS and Ph.D. graduate students in Australia, South Africa, Finland, Iran, and Morocco. He has conducted numerous joint projects with scientists at different countries, including Finland, Iran, Chile, and Canada.

4) Noteworthy Contributions to the American Society for Horticultural Sciences (ASHS)

Elected Fellow of the American Society for Horticultural Sciences. This is the highest and most prestigious award presented to a very limited number of Horticultural Scientists worldwide.

President of the American Pomological Society, 2003 and 2004. This is the oldest scientific pomology society (155 years old).

Associate Editor of the American Society for Horticultural Sciences HortTechnology, Tree Fruits. Elected in 1996 and again in 2000 for total of 6 years for both deciduous and tropical fruits.

Chairman of the American Pomological Society U.P.Hedrick Award Committee, 2002-present.

Outstanding Extension Award Committee, American Society for Horticultural Science, 2004-2007.

Chair, Nomination Committee, American Pomological Society, 2004-present.

Chairman of the American Society for Horticultural Science Graduate Student Activities Committee, 2003-2006.

American Society for Horticultural Science Technical Committee. 1999-2003.

Chairman of over 25 different oral fruit sessions during the ASHS annual conferences between 1985 and 2006.

American Pomological Society Wilder’s Award Committee.

American Society for Horticultural Science Fruit Publication Award Committee, 2000-2001.

American Pomological Society Membership Committee, 2000-Present.

American Pomological Society Sheppard Awards Committee, 2000-Present.

Editorial Board of Jordan Journal of Agricultural Sciences, 2005-present.

Vice President of the American Pomological Society, 2001-2003.

Member at Large on the Executive Board of American Pomological Society, 1998-2002.

American Pomological Society Advisory Board, 1997-1999.

Chairman, American Society for Horticultural Science Growth Regulator Working Group, 1996-1997; Co-chair in 1995.

Chairman, American Society for Horticultural Science Pomology Working Group, in 1997-1998; Co-chair in 1996.

Chairman, American Society for Horticultural Sciences Nutrition Working Group, 1994, Co-chair in 1993.

American Society for Horticultural Sciences Cross-Commodity Publication Awards Committee Member, 1994.

Committee Member of the Topic and Speaker Selection for the 90th annual meetings of the American Society for Horticultural Sciences Nutrition Group in Tennessee, 1995.

Recruiting members for the ASHS from many countries of the world during his invited presentations.

Active Member of the American society for horticultural science in the following working groups

- Pomology Working Group

- Nutrition Working Group

- Growth Regulators in Fruit and Nut Production Working Group

- Postharvest Physiology Working Group

- Rootstock and Genetic Working Group

- Small Fruit Working Group

5) Noteworthy Contributions at the University of Idaho and Regional Professional Societies:

Election Committee member of Payette County Extension Agent. 2001.
Committee member of the Foreign Student Recruitment, 2000 to present.
Liaison of the College of Agriculture to the Idaho Apple Commission and the Idaho Cherry Commission, 1990-Present
Chairman/Coordinator of Parma R&E Center Motor Pool Committee, No safety-related accident happened during this period (1990-1999).
Selection Committee member of Payette County Educator/Director, 1999.
Committee member of Farm Worker Selection Committee at Parma R&E Center, 1998.
Member of the Water Quality Advisory Committee for the Snake - Payette Rivers Hydrologic Units, 1993-1995.
Representative of Department of PSES, Plant Science Division in the University of Idaho College of Agriculture Committee for Tenure and Promotion, 1991-1994.
Member of the Parma R/E Center Farm Operations Manager Selection Committee, 1992
Chairman, Department of PSES Seminar Committee, 1998-Present.
Chairman, Promotion Committee (to Professor) of Dr. Shree Singh, 2000.
Committee member of Potato/Onion Scientific Aide position, 2000.
Department of PSES Internal Advisory Committee, 1998-present.
Department of PSES Promotion and Tenure Ad-Hoc Committee, 1999.
Member of PSES Graduate Student Recruiting Committee, 1999-Present.
Committee member of Graduate Student Progress Review, Department of Plant, Soil, and Entomological Sciences, 1993-Present.
Chair, Research Support Scientist Position for Pomology, 1995, 1997, &1999.
Committee member of the Weed Science Scientific Aide Position, 1995.
Mentor and Reviewer of packages of several candidates for promotion and tenure.
Member of University of Idaho Plant Science Internal Advisory Committee
Department of PSES Promotion and Tenure Ad-Hoc Committee, 1999.
Committee member of U of I Graduate Student Progress Review, Department of Plant, Soil, and Entomological Sciences, 1993-2000
Chairman of Horticulture Group for CSREES Review Team of the PSES Department, 2003

6) Membership and Participation (in other Professional Societies):

Convener (Chairman) for all Fruit Sessions at the International Society for Upcoming Horticultural Congress in South Korea
Member of International Society for Horticultural Science (ISHS)
International Dwarf Tree Fruit Association
Member of the Iranian Society for Horticultural Science
Honorary member of Iranian Horticultural Society
Editorial Board of the 5th International Fruit Nutrition Conference; Chile, 2004-2005

Board of Editors of the Journal of Small Fruit, 1997-Present
Board of Editors, Journal of Fruits, published in France, 1999-present
Board of Editors, Journal of Agricultural Science, Published in Oman, Jordon, 2005- present
Board of Editors, Journal of Plant Nutrition, 1997-Present
Chairman of the Northwest Center for Small Fruit Research Physiology and Production Working Group, 2000-2002; Co-chair 1999
Chairman of the Idaho State Horticulture Society Program Committee
Editorial Board of Journal of Agricultural Technology, Published in Iran.
Editorial and Advisory Board of 1st International Foliar Nutrition Tree Fruit and Perennial Fruit Plants held in Bolzano, Italy. Reviewed all submitted papers 2001-2003.
Scientific and Editorial Committee for the Fifth International Symposium on Tree Fruit and Grape Nutrition, 2004-2005 in Chile
Chairman of “International Symposium on the World’s Fruit Nutrition Problems”, B.C., Canada, 2000.
Co-chairman and Organizing Committee member of the “Fourth International Symposium of Mineral Nutrition of Deciduous Fruit and Grapes” held in British Columbia, Canada, 2000.
Editor of the Proceeding of the Fourth International Symposium on Mineral Nutrition of Deciduous Fruit and Grapes. 2000
Editor for “International Symposium on the World’s Fruit Nutrition Problems” papers, 2000-2003.
Co-Editor of the First National Symposium on Organic Tree Fruits. 2001-Present.
Idaho State Horticultural Society member
Washington State Horticultural Society member
Oregon State Horticultural Society member
Utah State Horticultural Society member
Sigma Xi, the Scientific Research Society
Pacific Northwest Fruit Tester’s Association

7) Research Funding:

Dr. Fallahi has secured over \$2.8 million in grants and materials for his research projects in the last 10 years..

8) Important Publications (Samples)

Please see CV

9) Awards in Horticulture

Dr. Fallahi has made great contributions to the science of horticulture and fruit growers of Idaho, the nation and rest of the world through his discoveries in fruit

nutrition, bio-regulators, rootstock physiology in deciduous fruits, blossom thinning and fruit bio-regulators, and irrigation, and research on wine and table grapes during the last 32 years. Among his many noteworthy services are his volunteer teaching to fruit growers, horticulturists, and Master Gardeners. Also, establishing a new table grape industry and new peaches, alternative fruits, and new cultivars of apples in Idaho is a direct result of Dr. Fallahi's life-time research. The following are a partial list of awards that Dr. Fallahi has received for his outstanding services to horticulture:

Recipient of Governor's Award of Excellence in Technical Innovation/Discovery by Governor Otter of Idaho in 2008. This is the most prestigious award of the State of Idaho.

Declaration of September 13 as "Dr. Esmail Fallahi's Day" in Idaho by the Governor of Idaho to appreciate Dr. Fallahi's contributions in research and discoveries. Sept 13 is Dr. Fallahi's birthday.

"Fellow" of the American Society for Horticultural Sciences. 2006.

Award of Outstanding Apple Researcher from the Latin American Fruit Growers association in Mexico, 2006

Recipient of a Citation of Appreciation award for serving as Outstanding President from the American Pomological Society, July 2004.

Recipient of the Outstanding Service as Vice-President, American Pomological Society, August 2002.

Recipient of the American Society for Horticultural Science Distinguished Associate Editor Award for Rendering Outstanding Service to the Society between 1999 through 2001.

Recipient of the "Paul How Shepard Award" for the best scientific paper published in the Journal of the American Pomological Science. This award was presented by the President of the Society at the 150th year celebration and Annual Meeting of American Pomological Society in July 1999.

Recipient of the American Pomological Society Ulysses P. Hedrick Award for the 2nd Best fruit in the Journal of American Pomological Society, October 2003.

Recipient of Group Honor Award for Excellence from the United States Department of Agriculture for Cooperative State Research, Education, and Extension Service Multi-State Research Project Northeast 183.

Recipient of the Outstanding Researcher and Service Award from the Idaho Table Grape Association, September 2004.

Recipient of Cooperative State Research, Education, and Extension Service Certificate of Appreciation for Multi-State Research Project Northeast 183.

Recipient of the Outstanding Researcher and Service Award from the Idaho Grape Grower and Wine Producer Commission in August of 2001.

Recipient of the Outstanding Pomology Scientist Award from Gorgan University of Agricultural Sciences and Natural Sciences, September 2001.

Recipient of Distinguished Award for Outstanding Associate Editor of the American Society for Horticultural Science for 1996-1998.

Recipient of the "Highest Scientific Award" from Manufia University, Egypt. This award was presented by the Dean of School of Agriculture and a group of horticulture professors and dignitaries from Manufia University in May 1995.

National recipient of Dr. Curtis Dearborn Memorial Horticultural Scholarship for Outstanding Graduate Student in Pomology, 1982.

Graduated with honors and achieved the highest (first) rank among all students from School of Agriculture, Department of Horticulture, Joundishapour University. 1974.