

Curriculum Vitae
Revised May, 2006

I. PERSONAL INFORMATION

Name: Jorge M. Fonseca

Current Rank: Assistant Specialist. Assistant Professor.

Department: Plant Sciences
Yuma Agricultural Center
6425 8th St
Yuma , AZ 85364

Date of Employment: 02 June, 2003

Dates of Revisions: 2nd year: 2004
4th year: 2006

II. CHRONOLOGY OF EDUCATION

<u>Earned Degrees</u>	<u>University, Major, Degree Research Work</u>	<u>Date of Award</u>
Ph.D.	Clemson University Food Technology Dissertation entitled " <i>Environmental and Post-Production Factors Affecting Content and Stability of Parthenolide in Feverfew</i> "	2003
M.Sc.	Clemson University Horticulture Thesis entitled " <i>Influence of Processing and Handling Protocols on the Physiology and Shelf Life of Fresh-Cut Watermelon</i> "	2000
M.B.A.	Univ. of Costa Rica/National Univ., San Diego, CA Business Administration - Human Resources Thesis entitled " <i>Diagnóstico y plan estratégico de la actividad de venta de servicios del Laboratorio de Tecnología Poscosecha de la Universidad de Costa Rica</i> " English title: " <i>Diagnostic and strategic plan for the outreach program of the University of Costa Rica Postharvest Technology Laboratory</i> "	1995
B.Sc., (Lic.)	University of Costa Rica Plant Sciences Thesis entitled " <i>Alternativas químicas para reducir las pérdidas poscosecha de mango debidas a la mancha de látex</i> »	1992(93)

English title: “*Chemical alternatives to reduce postharvest losses of mango due to sapburn damages*”

Other professional training, continuing education

<u>Year</u>	<u>Topic of Training Course/Conf.</u>	<u>Institution</u>
1990-1991	4 courses of Quality Control Curriculum	Alajuela Comm. College, CRC
1993	Postharvest Physiol. Anal. Techniques	Colegio Posgraduados, Mexico
1994	Postharvest Technol. of F & Veg.	CA State University, Fresno
1996	Refrigeration of Perishable Food	Inst. del Frio, Madrid, Spain
1999	HACCP for Fresh-Cut Enterprises	Univ. of Georgia
2004	GMP's and Food Safety	Rutgers Coop. Extension
2004	Plant Nutrition Conference	Abion. Inc., Salt Lake City, UT
2005	Organic Agriculture Production	NM Organic Commodity Commiss.
2005	Ecology of Bacterial Pathogens	Univ. of Florida-Dept. Soil & Water
2005	Managing Hispanic Worforce Workshop	Cornell University
2006	Postharvest Physiol. Gordon Conference	Gordon Research Conf. Organiz.

III. CHRONOLOGY OF EMPLOYMENT:

<u>Years of Employment</u>	<u>Position and Employer</u>
2003 - Present*	Assistant Professor/Assistant Vegetable & Postharvest Specialist . Department of Plant Sciences – The University of Arizona. Adjunct Faculty to the Department of Arid Land Studies, starting in May, 2005.
2000 – 2003**	Graduate Research Associate, Dept. of Packaging Sciences. Clemson University.
2002 - 2003**	Teaching Associate, Dept. of Horticulture. Clemson University
1998 – 2000**	Graduate Research Associate, Dept. of Horticulture. Clemson University.
1995 – 1998***	Postharvest Technology Consultant. FUNDEVI, Costa Rica.
1994 - 1997	International Advisor, Interviajes Tour Operator. Costa Rica
1993 – 1998***	Assistant Professor. University of Costa Rica.
1991 – 1993	Lab Research Assistant. Postharvest Tehcnology Lab, U. of Costa Rica

Description of Duties

***Distribution of Effort 2003- 2004:**

Teaching **Research** **Extension**

0%

25%

75%

As an Extension Specialist in Vegetable Physiology and Postharvest Technology (75%), I have statewide responsibility for interacting with and advising growers, handlers and processors of vegetables. This audience includes harvest managers, operators of packing, cooling, storage, and marketing facilities, providers of transportation and distribution services, packaging companies, retail handlers, and all others involved in any postharvest activity. All subject matter related to fresh produce quality and safety is pertinent to these duties. Chemical companies and plant crop advisors are also reached with my program due my interest in studying the use of biostimulant or physical stimulants (eg. reflective films) and plant growth regulators for vegetable crop production.

My research program in vegetable production and postharvest physiology and management has focused primarily on searching for practical solutions to real postharvest problems faced by the Arizona vegetable industries, thus my research work, presentations, reports and on-going publications have been largely of an applied nature.

Although I have no teaching appointment I have expressed my willingness to teach courses on vegetable physiology, vegetable production and postharvest physiology and food safety technology. I developed a syllabus for each of those courses. I have given lectures in the courses "Production Systems in Yuma" and "Advanced Technologies" and "Physiology of Plant Production under Controlled Environment."

****Distribution of Effort 1998 - 2003:**

<u>Teaching</u>	<u>Research</u>	<u>Extension</u>
0%	50%	0%

During this period I was on approved leave of absence without pay from the University of Costa Rica, and acquired tenure status while completing my doctorate in Food Technology. As part of my duties as Research Associate at Clemson University I worked with fruit and vegetable growers and handlers, and particularly, doing chemical analysis of plant tissue. I taught for two semesters the class entitled "Understanding the Latino workforce. to senior students from the Plant Pathology, Forestry and Horticulture majors.

*****Distribution of Effort 1993 - 1998:**

<u>Teaching</u>	<u>Research</u>	<u>Extension</u>
5%	75%	20%

During this time I was employed full-time as a Researcher/Assistant Professor with the University of Costa Rica. I conducted research in the area or postharvest technology and led a extension program in the same area. I had frequent participation in two courses as a lecturer of "Quality of Fresh Fruits and Vegetables." I was the coordinator of the postharvest technology outreach program.

IV. HONOR AND AWARDS

<u>Year(s)</u>	<u>Name of the Honor or Award</u>
2006	Carl Storm Underrepresented Minority Fellowship Award. Gordon Research Conferences Organization. New London, CT (\$600).
2005	Selected author of the Global Assessment of Agriculture. Sponsored by seven United Nation organizations, World Bank and over 40 governments (2 year project with working sessions in different regions of the world, ~\$14,000).
2005	O'Brien Endowment Award. Tucson, AZ (\$1,200).
2004	Young Scientist of the Year by the Plant Growth Regulation Society of America. (\$500).
2002	R.C. Edwards Endowment-University Research Award (\$5,000). Clemson, South Carolina, USA.
2002	Research Award by the International Plant Propagators Society. South and Eastern Regions (\$500).
2002	University Graduate Student Council Award to Present Research at annual meeting American Society of Horticultural Sciences-Southern Region (\$300).
2002	Schilleter Teaching Award for teaching work at the undergraduate level in the Department of Horticulture, Clemson University (\$750).
1999-2002	Wade Stackhouse Endowment Research Award. Clemson, SC (\$28,000).
2001	Appointed National Student Representative of the Institute of Food Technology, Fruit & Vegetable Product Division..
2001	Inducted to Alpha Epsilon Lambda. National Graduate Honor Society.
2001	William C. Barnes Endowment Research Award. Clemson, South Carolina. USA (\$13,000).
1998-1999	South Carolina Agricultural Society Endowment Award. Charleston, SC. USA (\$24,000).
1999	Research Student Competition Award. In: 1999 meeting of Florida Stae Horticultural Society. Stuart, Fl (\$175).
1996	Research Award by the Instituto the Cooperación Iberoamericana for training in Spain (~\$1,500).
1994	Training Award by the American Agency for International Development (AID) to attend training course in California, USA.(~\$3,500)
1993	Honorable Mention Research Award for "Chemical alternatives to reduce postharvest losses of mango fruits due to sapburn damage". Faculty of Plant Science. University of Costa Rica

V. Service/Outreach:

Local/State Outreach

Appointed ex-officio board member of the Greater Yuma Port Authority. Since September, 2004. Attend occasionally the meetings scheduled.

Participated as a Judge in the 2004 Agricultural Science Festival held at the Arizona Western College on March 15, 2004.

Participated since 2004 as committee member of the Arizona vegetable crop production working group in planning for the annual meeting.

Participated since 2004 as member of the Arizona food safety group in planning for future University collaborations.

Assisted with the organization of the Desert Agricultural Conference held in Casa Grande on May 9-12, 2004.

Coordinates since 2004 a local project to allow student to participate in agricultural research while completing community service duty. This was in collaboration with Brian Grossemburg, principal of Charter High School, Yuma, AZ.

As member of the Yuma County Farm Bureau I occasionally participate in activities organized by this group.

As member of the Toastmaster Yuma Club #1 (a group with the goal of improving public communication) I have served as judge of local speech contests.

Regular speaker in most crop production meetings in Arizona and South California areas.

Consult Yuma local agriculture investors and general communities in food safety issues and quality of vegetable for processing.

National/International Outreach

A significant portion of my consulting activities (1995-1998) while residing in Central America involved the management of industry research projects and collaboration with the University of Costa Rica. What follows are some of the Institutions and Companies I consulted to:

- a) Food Agricultural Organization of the United Nations, office in Panama. Trained professionals and technicians of the MIDA on postharvest technology of tropical roots and tubers. November, 1997;
- b) Junta Agrícola de Desarrollo (JAD) of Dominican Republic. Consulted professional and technicians on postharvest physiology of the cassava for exportation. December, 1997;
- c) Ministerio de Desarrollo Agropecuario (MIDA) in Panama. Lectured on postharvest management of whole and fresh-cut vegetables to compete with imported produce, tailored to vegetable farmers of the Chiriqui province. March, 1998;

- d) Vegetales Fresquita, Cartago, Costa Rica. Consulted on developing of packages and modified atmospheres to extend shelf life of fresh-cut lettuce, cabbage and carrots. 1997-1997;
- e) Hortifruti S.A., Cartago, Costa Rica. Conducted a research project that found options to extend shelf life of plantains in retail stores. May, 1996.

Assisted the Quality Control Dept. of McEntire Inc., Columbia SC, in food safety issues related to their fresh-cut products. Summer, 1999.

Consulted the administration manager of Lakeshore III Greenhouse Inc., Gaffney, SC. on empowerment issues of the latino employees and quality system. 2002.

Consulted the Comercio Agrícola, S.A de C.V., a major producer of organic vegetables in Mexicali, Baja California, Mexico. Major focus was on a pitting problem developed in cucumbers and zucchini. March-June, 2004-2006.

Reviewed 2004 and 2005 regional grant proposals for the California State University Agricultural Research Initiative. Contacted by Executive Editor: Joe A. Bezerra

Reviewed seven manuscripts submitted to HortScience during the term June, 2003 and June 2006. Contacted by Editors LeRon Robbins and Charles Sanchez.

Reviewed four manuscripts submitted to the Journal of Food Sciences during the term June, 2003 and June 2006. Contacted by Editor: Manfred Kroger.

Reviewed one manuscript submitted to Journal of Food Safety during the term June, 2005 and June 2006. Contacted by Editor Karl Matthews.

Member of a food safety outreach group “Food safety begins on the Farm” with participation of of different state universities and coordinated by Cornell University faculty.

Currently pursuing membership in the project S-294 “ Postharvest quality and safety in fresh-cut vegetables and fruits.” Already participated as invited guest at the International Fresh Produce Association meeting in 2006.

Coordinated a tour to Yuma Ag sites tailored to students and faculty of Chapingo University, Mexico. Currently seeking for a collaboration between the two Universities.

Serving the United Nations and World Bank since 2005 as part of the global authors for an international assessment of agriculture.

Collaborate with faculty form Universities in Mexico and Costa Rica, in projects of different nature.

Coordinator of a fresh-cut produce workshop in Seoul, Korea, as part of the ISHS-IHC 2006 conference.

As member of the following scientific society I am anticipating more involvement in research committee during the next few years:

- 1993- Colegio de Ingenieros Agronomos de Costa Rica
- 1999- . Florida State Horticultural Society
- 1999- . American Society of Horticultural Science

- 1999-. Institute of Food Technology (Student Representative, 2000-2001)
- 2000-. Who is who in postharvest. INPhO-F.A.O.
- 2003-. International Society for Horticultural Sciences
- 2004-. Plant Growth Regulation Society of America

University/ College/ Department

1996-2003, Teaching activities outside of The University of Arizona have included the instruction of one course during 2002-2003 to senior-year Horticulture students at Clemson University, *Understanding the Latino Workforce* – HORT 400. From 2001-2003 I was teaching assistant of an Immerse Spanish Course. As Assistant Professor (Prof. Instructor) at the University of Costa Rica, I assisted with lectures in the classes *Postharvest Technology of Perishable Commodity and Horticulture*. Supervised field and community service work of approximately 12 students.

2004-. Although I currently have no teaching appointment, I agreed to add this component as part of my position's duties. Moreover, I presently give lectures and seminars and organize field trips for visitors. I anticipate that these activities will increase in the next few years. The University of Arizona does not have a formal teaching program in Postharvest Technology (Including Food Safety) or Postharvest Physiology of Perishables and has not offered a Vegetable Production or Vegetable Physiology course for the last 5 years. I prepared syllabus for these courses and I expect to be teaching one of these courses in the next few years.

2004-. Translated to Spanish several documents and video texts for U of A colleagues.

2004-. Assisted in organizing the 2004 College of Agriculture and Life Sciences meeting held in Tucson.

2005-. Member of Plant Science Agricultural Translational Group. This group is an initiative of BIO5 Institute, lead by Dr. Vicky Chandler

2005-. Member of U of A food safety working group.

2005-. Member of U of A Cross-commodity research and outreach program (CROP) working group.

2005. Hatch project proposal reviewer. In collaboration with Dr. Chris Choi.

2005-. Committee member to develop a new web site for the Yuma Agricultural Center.

2006-. Greenhouse crop production and engineering design short course. I am part of the course committee and in this year's course I gave a presentation.

2006-. Member of U of A Vegetable cropping system working group.

2006-. Member of U of A vegetable quality working group.

VI. Publications/Creative Activity:

Refereed Journal Articles

- Botero-Omary, M., E.A. Brovelli, D.J. Pusateri, P. David, J.W. Rushing, J.M. Fonseca. 2003. Sulforaphane potential and vitamin C concentration in developing heads and leaves of broccoli (*Brassica oleracea var. italica*). *Journal Food Quality*. 26: 523-530.
- *Fonseca, J.M., J.W. Rushing and R.F. Testin. 2004. The anaerobic compensation point of fresh-cut watermelon and postprocess handling implications. *HortScience*. 39: 562-566.
- *Fonseca, J.M., J.W. Rushing, N.C. Rajapakse, R.L. Thomas and M.B. Riley. 2004. Parthenolide and abscisic acid synthesis in feverfew are associated but environmental factors affect them dissimilarly. *Journal Plant Physiology* 162:485-494.
- *Fonseca, J.M., J. W. Rushing, R. L. Thomas, M. B. Riley and N. C. Rajapakse. 2005. Post-production stability of parthenolide in feverfew (*Tanacetum parthenium*). *Journal of Herbs, Spices and Medicinal Plants*. 12(1): -- In Press.
- * Fonseca, J.M., J.W. Rushing, R.L. Thomas, M.B. Riley and N.C. Rajapakse. 2005. Influence of Particle size on extraction yield and quantification of parthenolide in feverfew (*Tanacetum parthenium*). *Acta Horticulturae*. In Press.
- Fonseca, J.M. and J.W. Rushing. 2006. Effect of Ultraviolet-C Light on Quality of Fresh-Cut Watermelon. *Postharvest Biology and Technology* 40: 256-261.
- Fonseca, J.M. 2006. Postharvest quality and microbial population of head lettuce as affected by moisture at harvest. *Journal of Food Science*. 71: M45-49.
- Fonseca, J.M., J.W. Rushing, N.C. Rajapakse, R.L. Thomas and M.B. Riley. 2006. Potential implications of medicinal plant production in controlled environments: the case of feverfew (*Tanacetum parthenium*). *HortScience*. 41: 531-535.
- Fonseca, J.M. and R. Cinco. 2006. Reducing postharvest peel pitting in organically grown zucchini and cucumbers with high relative humidity and waxing. *Acta Horticulturae*. In Press.
- * Fonseca, J.M., J.W. Rushing, N.C. Rajapakse, R.L. Thomas and M.B. Riley. 2006. Phenolics and parthenolide levels in feverfew (*Tanacetum parthenium*) are inversely affected by environmental factors. *Journal of Applied Horticulture*. Submitted.
- Kim, H-J., S-G. Kang, F. Chen, J-H., Choi, S-M. Moon, J. M. Fonseca, and K-S Ham. 2006. Purification of novel angiotensin I-converting enzyme (ACE) inhibitory peptides in fermented anchovy sauce. *Journal of Agriculture and Food Chemistry*. Submitted.
- Kim, H-J., J-H. Choi, J.M. Fonseca, C. Kubota. 2006. Effect of methyl jasmonate on phenolic compounds and carotenoids of romaine lettuce (*Lactuca sativa* L.). *Journal of Agriculture and Food Chemistry*. Submitted.

Book / Book Chapters

- Cerdas, M and J. M. Fonseca. 2000. Desarrollo de los frutos de mango (English title: Development of mango fruits). In: Montero, M and M. Cerdas (Ed.) Manejo Poscosecha del Mango para el Mercado fresco (Postharvest Handling of Mango Fruit). University of Costa Rica Editorial. pp. 115-123. This chapter reports original research.
- J.W. Rushing, J.M. Fonseca and A. Keinath. 2001. Watermelons: Harvesting and postharvest handling. Chapter 10 in: ASHS Press Watermelon Handbook. Edited by American Society of Horticultural Sciences 156-164. This chapter reviews the state of the field.
- Fonseca, J.M. and D. Saborío. 2001. Tecnología poscosecha de la yuca (*Manihot esculenta* L.) parafinada de exportación. English title: Postharvest Technology of waxed cassava for exportation. National Press of Costa Rica. 57 p. This book combine information from prior research and original research not presented elsewhere.
- Fonseca, J.M. 2006. Postharvest handling and processing: sources of microorganisms and impact of sanitizing procedures. Chapter 4 in: Microbiology of Fresh Produce (ed. K.R. Matthews). ASM Press, Washington D.C. pp: 85-120. This chapter reviews the state of the field.

Abstracts

- Montero, M. y J.M. Fonseca. 1994. Efecto del tratamiento cuarentenario hidrotérmico sobre la calidad poscosecha del mango. English title: Effect of quarantine hydrotermic treatments on postharvest quality of mango. I Seminario nacional del mango. Puntarenas. Ag.: 14
- Fernández, K. and Fonseca J.M. 1998. Influence of low-oxygen atmospheres on the shelf life of fresh-cut lettuce, cv. butterhead. Congreso Iberoamericano de Tecnología Poscosecha. Hermosillo, México. Mar. 12-15.
- Fonseca, J.M., J.W. Rushing and R.F. Testin. 2000. Influence of storage and sanitizing protocols on the physiology of fresh-cut watermelon. HortScience. 35(3): 483.
- Fonseca, J.M., J.W. Rushing and R. F. Testin. 2001. Influence of temperature and oxygen on the respiration of fresh-cut watermelon stored in closed systems. HortScience. Presented at annual meeting of the American Society of Horticultural Sciences: Southern Region. Fort Worth, TX.
- Fonseca, J.M., JW. Rushing, N.C. Rajapakse, R.L. Thomas and M.B. Riley. 2002. Influence of stress-producing practices and time of day of harvest on parthenolide content in feverfew (*Tanacetum parthenium*). Clemson Research Forum.
- Fonseca, J.M., JW. Rushing, , R.L. Thomas, M.B. Riley and N.C. Rajapakse. 2003. Post-production factors affect stability of parthenolide. HortScience. Presented at annual ASHS-SR meeting. Mobile, AL.
- Fonseca, J.M., JW. Rushing, N.C. Rajapakse, R.L. Thomas and M.B. Riley. 2003. Parthenolide content of feverfew is influenced by water, light and abscisic acid synthesis. HortScience. Presented at annual American Soc. HortSci.-SR meeting, Mobile, AL.

- Fonseca, JM. 2004. El Uso de coberturas reflectivas en la producción de melones (English title: The use of reflective mulches for melon production). First Latin American Congress of Melon Growers, Honduras, August, 2004.
- Fonseca, J.M. 2004. The effect of timing of irrigation termination on microbial quality and shelf life of lettuce. Proceedings 17th International Conference of Leafy Vegetables and Lettuce. Montreal, Canada. August 28-31, 2004. pp : 21.
- Fonseca, J., T. Thompson, W. Payne. 2004. Aerobic microorganisms and coliforms in laundry decline rapidly in gray-water drenched bermuda turf. National Water Quality Conference. San Diego, CA. February 7-9.
- Fonseca, J.M. J. W. Rushing, N. C. Rajapakse, R. L. Thomas, and M. B. Riley. Manipulating Secondary Metabolite Levels in Feverfew (*Tanacetum parthenium*) with Controlled Environments. Presented at ASHS annual conference in Las Vegas, NV. HortScience 40 (4): 978
- Fonseca, J.M. Yield and microbial quality of iceberg lettuce as connected to moisture at harvest. Presented at ASHS annual conference, in Las Vegas, NV. HortScience. 40(4) : 1134.
- Fonseca, J.M., H.-J. Kim, and C. Kubota. 2006. Fresh-cut Vegetable Research Program at The University of Arizona: Determining effects of pre-harvest factors and sanitizers on shelf life and nutritional quality. IFPA Expo. Baltimore, MD. March 28-30.
- Hyun-Jin, Kim, J.M. Fonseca, J.-H. Choi and C. Kubota. 2006. Effect of methyl jasmonate on nutritional value of romaine lettuce. IFT Meeting, Orlando Florida. To be presented: July 24-27.
- Hyun-Jin, Kim, J.M. Fonseca, J.-H. Choi and C. Kubota. 2006 Effect of UV-C on nutritional value of fresh-cut tomato. ISHS- IHC-2006 in Seoul, Korea (To be presented: August, 2006)
- Fonseca, J.M. 2006. Preservation of minimally processed products. ISHS- ICH 2006 in Seoul, Korea (To be presented: August 2006).
- Fonseca, J.M, H.-J. Kim, C. Kubota. 2006. Influence of pre-harvest conditions and practices on quality and shelf life of fresh-cut produce. ISHS- IHC 2006 in Seoul Korea (To be presented: August, 2006).

Conference Proceedings

- Sáenz, M.V., J.M. Fonseca y L. Llach. 1993. Mejoramiento del manejo poscosecha del jocote (*Spondias purpurea*) y perspectivas a exportación. English title: Improving postharvest handling of the spanish plum (*Spondias purpurea*) and export perspectives. Memorias del IX Congreso Nacional Agronómico y de Recursos Naturales. Oct. :145
- Fonseca, J.M. 1999. Shock and vibration forces influence the shelf life and quality of fresh-cut watermelon. Proceedings Florida State Horticultural Society. 112:147-152.

- Fonseca, J.M., JW. Rushing, N.C. Rajapakse. R.L. Thomas and M.B. Riley. 2002. Medicinal quality of greenhouse-grown feverfew as influenced by environmental factors. Proceedings Southern Nursery Association. 47: 84-87.
- Fonseca, J.M., JW. Rushing, N.C. Rajapakse. R.L. Thomas and M.B. Riley. 2004. Parthenolide and abscisic acid synthesis in feverfew are connected. Proceedings Plant Growth Regulation Society of America. pp. 87
- Fonseca, J.M. 2004. Effect of cytokinins on yield of iceberg lettuce. Proceedings Plant Growth Regulation Society of America. pp. 136-137.
- Fonseca, J.M. 2005. New technology currently being used for produce safety. Proceedings New Jersey Vegetable Grower Association (Invited Speaker) 50: 79-82.
- Fonseca, JM. 2005. Food safety assurance with new technologies to reduce microbial population. Asegurando inocuidad con nuevas tecnologías de reducción microbiana. Presented at : III International Conference in Agricultural Sciences in Mexicali, Baja California, Mexico Mexicali, Mexico, 1/17/2006. (Presentation in CD-Invited Speaker).
- Fonseca, J.M. 2005. Inocuidad de frutas y hortalizas con refrigeración y nuevas tecnologías de reducción microbiana (Food safety of fruit and vegetables with refrigeration and new technologies to reduce microbial population). Presented at I Conference AgroFuturo 2005. Alajuela, Costa Rica. Presented at Costa Rica on 5/12/2005 (Presentation in CD – Invited Speaker).
- Fonseca, J.M., W. Kline, C. Wyenandt, M. Hoque, H. Ajwa and N. French. 2005. Microbial quality and shelf life of harpin-treated head lettuce. Presented at 32nd annual meeting of the Plant Growth Regulation Society of America. Newport Beach, CA. July 24-27. In Press.

Extension Publications/ Departmental Research Reports

- Fonseca, J.M. y S. Ponchner. 1994. Patrón de pérdida de inflorescencia en tres diferentes sectores del árbol de mango. English title: Pattern of inflorescence loss in three different sectors of the mango canopy. Boletín Lab. Tecnol. Posco. 1 (2): 4
- Fonseca, J. M., M. Montero, R. Marín, G. Zamora. 1994. Efecto de la remoción del pedúnculo sobre la quemadura fisiológica en la base de frutos de mango cv. Tommy Atkins, sometidos al tratamiento cuarentenario hidrotérmico. English title: Effect of peduncle removal on the sap burn incidence of mango cv Tommy Atkins subjected to hot water treatments. Boletín Lab. Tecnol. Pos. 1(2): 6
- Fonseca, J.M., C. Barquero, N. De Luca, C. González y F. Ramírez. 1994. Evaluación preliminar de índices de calidad para predecir madurez del mango. English title: Preliminary evaluation of quality indices to predict mango ripening. Boletín Lab. Tecnol. Posco. 1 (2): 5
- Fonseca, J.M. y M. Montero. 1994. Reducción de pérdidas poscosecha debidas a mancha del látex en mango (*Mangifera indica*). English title: Reduction of postharvest losses due to

sapburn in mango (*Mangifera indica*). I taller regional de manejo poscosecha de productos de interés del trópico. San José. Costa Rica.

- Fonseca, J.M., C. Barquero, N. De Luca, C. González y F. Ramírez. 1995. Ajuste preliminar de un método para el control del estado de madurez del fruto del mango para exportación. Preliminary adjustment of a method to control the ripening process of mango for export. Boletín Lab. Tecnol. Pos. 2 (1): 3
- Fonseca, J.M. 1995. Servicio Empresarial del LTP, la alternativa rentable de consultorías en tecnología poscosecha. English title: Enterprises services of LTP, a financially feasible alternative for postharvest consulting. Boletín Lab. Tecnol. Posco. 2(2): 2
- Fonseca, J.M. y S. Ponchner. 1995. Patrón de crecimiento y desarrollo de frutos de mango zona de Liberia, Guanacaste, Costa Rica. English title: Growth and development profile of mango in the Liberia, Guanacaste, Costa Rica area. Boletín Lab. Tecnol. Posco. 2 (1):8-9
- Fonseca, J.M. y C. González. 1998. Efecto del tiempo de espera antes de refrigeración sobre la transpiración y cambio de coloración externa en frutos de mango var. Tommy Atkins en Orotina, Costa Rica. English title: Effect of the delay period before refrigeration on transpiration and external color of mango cv. Tommy Atkins grown in Orotina, Costa Rica. Boletín Lab. Tecnol. Posco. Jul.-Dic.: 3-6
- Fonseca, J.M. y D.Saborío. 1998. Determinación de la temperatura de almacenamiento de la yuca (*Manihot esculenta*) cv. Valencia parafinada de exportación de Costa Rica. English title: Determination of the ideal storage temperature for the Costa Rican waxed cassava roots cv. Valencia for export. Bol Lab. Tecnol. Posco. Jun-Dic.: 14-19
- Fonseca, J.M., K. Fernández, C. Barquero, L. Medina, V. Nuñez, G. Delgado, G. Saborío y S. López. 1998. Diagnóstico del manejo poscosecha del banano en fincas cooperativas del pacifico sur, Costa Rica. English title: Analysis of postharvest handling of banano in cooperatives farms of the South Pacific region in Costa Rica. Boletín Lab. Tecnol. Posco. Ene.-Jun.: 1-6
- Fonseca, J.M. y C. González. 1998. Alargamiento de la vida comercial de la yuca (*Manihot esculenta*) cv. Valencia con el uso de material de cubierta. English title: Prolonging the commercial life of cassava roots with coatings. Boletín Lab. Tecnol. Posco. Ene.-Jun.: 7-11
- Fonseca, J.M. 1998. Determinación de la temperatura óptima de la parafina utilizada como material de cobertura para la yuca de exportación. English title: Determination of the ideal paraffin wax temperature for cassava coating. Boletín Lab. Tecnol. Posco. Ene.-Jun.: 12-14
- et al. 2002. Tecnología del cultivo del mango. English title : Technology of the mango crop. Published with funds of the European Community Program. A team of researchers (20) from Costa Rica are the authors including Fonseca.
- Fonseca, J.M. 2004. Yield and microbial quality of iceberg lettuce as affected by field moisture at harvest. In: 2004 Arizona Vegetable Report. pp: 106-110.

- Fonseca, J. M. 2004. The Effect of UV-Reflective Mulching on Yield and Quality of Cantaloupes. In: 2004 Arizona Vegetable Report. pp: 102-105.
- Fonseca, JM, Wesley L. Kline, Christian A. Wyenandt, Murshidul Hoque, Husein Ajwa. 2005. Evaluation of a new harpin product on microbial quality and shelf life of minimally processed lettuce.. Evaluation of a new harpin product on microbial quality and shelf life of minimally processed lettuce. 2005 Arizona Vegetable Report. pp: 26-32.
- Fonseca, J.M. 2006. Yield and Postharvest Quality of cantaloupe melons as affected by calcium foliar applications. Yield and Postharvest Quality of cantaloupe melons as affected by calcium foliar applications. 2005 Arizona Vegetable Report. pp: 37-42.
- Fonseca, JM. 2006. Microbial quality of iceberg lettuce is affected by moisture at harvest - 2nd year . Microbial quality of iceberg lettuce is affected by moisture at harvest - 2nd year. 2005 Arizona Vegetable Report. pp: 33-36.
- Fonseca, JM. 2006. Evaluation of the effect cytokinin products on yield of head lettuce. Evaluation of the effect cytokinin products on yield of head lettuce. 2005 Arizona Vegetable Report. pp: 19-25.

Trade Journal Articles and Columns

- Fonseca, J.M. 1997. Comportamiento poscosecha del mango cv. Marichal para exportación al mercado europeo. English Title: Postharvest behavior of Mango cv. Marichal exported to the European market. Agro XXI. Consejo Nacional de la Producción. San José, Costa Rica. 1 (1): 1-3
- Fonseca, J.M., J. W. Rushing, and R. F. Testin. 2000. The Challenge of Fresh-Cut Watermelon. Fresh-Cut Magazine, (October), pp. 18-19.
- Fonseca, J. M., J. W. Rushing and R. F. Testin. 2000. Maintaining Quality: An Integrated approach may be the key to retailer outsourcing of fresh-cut watermelons. The American Vegetable Grower Magazine, (June), Postharvest Insider Section, pp. 1-3.
- Fonseca, J. M., J. W. Rushing and R. F. Testin. 2000. Regional distribution of fresh-cut watermelon. Citrus and Vegetable Magazine (February), pp. 44-46.
- Fonseca, J.M. Western Vegetable News. 2004. Columns entitled “Largest vegetable-borne outbreak in US History, Applying methyl jasmonate to enhance quality, E. coli contamination of lettuce in the field, titanium enhances calcium uptake, Ask the specialist” In: Vegetables West Magazine. 8 (3): 12—15
- Fonseca, J.M. Western Vegetable News. 2004. Columns entitled “Cytokinins in vegetable crop production, Cantaloupe quality enhanced with application of potassium, Titanium dioxide as food Safety Tool, No tipburn in fast-growing lettuce, how efficient is ozone for fresh food sterilization” In: Vegetables West Magazine. 8 (6): 12-13.
- Fonseca, J.M. Western Vegetable News. 2004. Columns entitled “ Vitamin C may increase with sunny days, Rain affects microbial quality of vegetables, Nutritional quality may improve

during storage, Expanding research with harpin protein, Techniques for preventing water loss of organic vegetables” In: Vegetables West Magazine. 8 (8): 8-9.

Fonseca, J.M. 2004. Acolchados anti UV. English title: UV reflective mulches. Productores de Hortalizas, 10: 78-82

Fonseca, J. M. 2005. Se busca alternativa al cloro. English title: Chlorine alternative wanted. Productores de Hortalizas 1:104-106.

Fonseca, J. M. 2005. Aplicaciones de calcio – Se obtienen siempre los resultados esperados en las aplicaciones pre y poscosecha? English title: Calcium applications – Do expected results are always obtained?. Productores de Hortalizas 3:66-68.

Fonseca, J. M. 2005. El encerado de las hortalizas brinda solución y riesgo. English title: Vegetable waxing produce benefits and risks. Productores de Hortalizas 5:74-76.

Fonseca, J. M. 2005. El estrés hídrico controlado – influencia en la calidad poscosecha.. English title: Regulated water stress: Influence Postharvest Quality. Productores de Hortalizas 7:84,86,88.

Fonseca, J. M. 2005. Reguladores de crecimiento- beneficio de su uso en hortalizas – verdad o imaginación ?. English title: Growth regulators – Benefits of their use on vegetables: truth or imagination?. Productores de Hortalizas 8:78-80.

Fonseca, J. M. 2005. Alta calidad de melones y sandías involucra muchos factores. English title: High quality melons involve many factors. Productores de Hortalizas 9:76-78.

Fonseca, J.M. 2005. Calidad de hortalizas orgánicas aumenta, igual sus ventas. English title : Quality of organic vegetable increase, sales also. Productores de Hortalizas. 10: 84-86.

Fonseca, J. M. 2005. Proteja el fruto de su trabajo : El empaque aminora choque y vibraciones, factores a controlar para entregar hortalizas de calidad. English title: Protect the fruit of your work: packaging reduce shock and vibration damages, factors to control for the delivery of quality vegetables. Productores de Hortalizas 11:72-73.

Fonseca, J. M. 2006. Negligencia : Enemigo número uno de la inocuidad de hortalizas. English title: Negligence: Enemy number one of vegetable safety. Productores de Hortalizas 1:118-121.

Fonseca, J. M. 2006. « Sensores » humanos, uso en la valoración de calidad de hortalizas. English title: Human “sensors”, their use in assessing quality of vegetables. Productores de Hortalizas 2:80-81.

Fonseca, J. M. 2006. Trabajadores capacitados establecen la diferencia en calidad. English title: Trained laborers make a difference in quality. Productores de Hortalizas 3:62-64.

Fonseca, J. M. 2006. El misterio del sabor : Las hortalizas adoradas y odiadas. English title: The mystery of flavor: The adored and hatred vegetables. Productores de Hortalizas 4: 70-72.

Fonseca, J. M. 2006. Hortalizas cortadas : La calidad es esencial para el crecimiento de la industria. English title: Fresh-cut vegetables: Quality is essential for the growth of the industry. *Productores de Hortalizas* 5: 70-72.

Fonseca, J.M. 2006. El cambio de ambiente produce estrés y afecta calidad. English title: Environment changes produce stress and affect quality. *Productores de Hortalizas*. 6: In Press.

VII. WORK IN PROGRESS

Peer-Reviewed Manuscripts in Stage of Preparation

Fonseca, J.M., M. Hoque, H. Ajwa, W. Kline., C., Wyenandt, N. French and H.-J. Kim. 2006 The effect of pre-harvest harpin protein application on fresh-cut head lettuce. *Journal of the American Society of Horticultural Sciences*.

Fonseca, J.M and H.-J Kim. 2006. Effect of reflective mulches on cantaloupes yield and quality. *Journal of Vegetable Crop Production*.

Sanchez, C. and J.M. Fonseca. Selenium content of lettuce is higher in Colorado River region than in other North America areas. *Journal of Food Analysis and Composition*.

Fonseca, J.M., M. Teplitski, T. Thompson and W. Payne. 2006. Microbial stability in laundry graywater and graywatered plants. *Water Research*.

Kim, H-J., J-H. Choi, J.M. Fonseca, C. Kubota. 2006. Effect of salt concentration in irrigation water on phenolic compounds and carotenoids of romaine lettuce (*Lactuca sativa* L.). *Journal of Agriculture and Food Chemistry*.

Kim, H-J., J-H. Choi, J.M. Fonseca, C. Kubota. 2006. Nutraceutical profile of fresh-cut tomatoes is affected with UV-C treatments. *Postharvest Biology and Technology*.

Kim, H-J., J-H. Choi, J.M. Fonseca, C. Kubota. 2006. Effect of hydrogen peroxide on nutritional quality of fresh-cut tomato. *Journal of Food Science*.

Fonseca, J.M and Nolte, K. 2006. Effect of foliar applications of Calcium on cantaloupes is dependent on solution and fruit temperature. *HorTechnology*.

On-Going Research Projects

Determining ideal conditions to maximize efficiency of calcium foliar applications to cantaloupes. Researchers: J.M. Fonseca, K. Nolte. Update: Positive results have been obtained only when plants have grown under stress. We are currently evaluating the possibility that calcium apply in the field may filtrates directly in the fruit net.

Cytokinins, plant extracts and products effect on lettuce yield. Researchers: J. M. Fonseca. Update: Variability in results have been obtained with different results and in different seasons. Currently, examining possible factors that interact with the growth regulator response.

Assessing the effect of Arizona environmental conditions on nutraceutical content. Researchers: J.M. Fonseca, H.-J. Kim. Update: We have observed differences in nutraceutical levels when subjecting plants to different irrigation schedule and fewer light incidence. This is currently being evaluated with more trials.

Nutraceutical content comparison of cruciferous grown in the desert. Researchers: J.M. Fonseca, Mosbah Kushad (Univ. Illinois), H.-J. Kim, Jeff Muir Halmiton. Update: We are currently subjecting two species of rocket plants (Arugula) and black radish to different light conditions and determining antioxidant and glucosinolate content. Main goal is to find an alternative to the broccoli conventional system.

Cropping systems and their effect on nutraceutical content of melons. Researchers: J. M. Fonseca, K.-J. Kim. Update: In trials with reflective mulches we observed in key nutrient levels between treatments, but also difference from one season to other. We are currently verifying season variability.

Determination of potential use of byproducts of desert native plants in vegetable crop production. Researchers: J.M. Fonseca, Barry Tickes. Update: Preliminary evaluation of bioextracts of plants on weed control for lettuce production was done, and it will continue in the next season.

Effect of UV-C light in combination with postharvest treatments on postharvest quality of tropical produce. Researchers: J.M. Fonseca and faculty and students of the University of Costa Rica. Update: Preliminary results showed differences in antracnosis incidence and severity. Currently this is being investigated more in-depth.

Proposals in Stages of Review or Preparation

Fonseca, J. 2006. Predicting shelf life of iceberg lettuce based on water potential (weather and irrigation) and chlorophyll fluorescence. To be presented to the Arizona Iceberg Lettuce Research Council.

Fonseca, J. M. 2006. Examination of Arizona iceberg lettuce as selenium source and implications on crop technology. 2006. To be presented to Arizona Iceberg Lettuce Research Council.

VIII. MEDIA

Videos

Crop Production Safety. 2004. Edited all the content of the English and Spanish productions. Translated the script to Spanish. Assisted as narrator and host for the Spanish version.

Skin Cancer Prevention for the Agricultural Employee. 2004. Translated the script and titles for the Spanish production.

Newspapers

- Lobeck, J. 2003. New vegetable specialist to start June 2. Interview. Yuma Sun March 15, 2003.
- Billington, J. 2003. Yuma vegetable specialist in place. Interview. In: Farm Bureau News. July 21.
- Esparza, M. 2003. Nuevo especialista en hortalizas tiene la Universidad de Arizona en Yuma. In: Bajo el Sol. October 14.
- Fonseca, J.M. 2003. Good handling practices needed to maintain nutritional value, safety of vegetables. Farm Voice. In: Yuma Sun.. December 13
- Fonseca, J.M. 2004. Vegetables sleep well with plastics. Farm Voice. In: Yuma Sun. March 7.
- Fonseca, J.M. 2004. Nutritional, medicinal qualities, new focus of vegetable researchers. Farm Voice. In: Yuma Sun. June 21.
- Fonseca, J.M. 2005. Irradiated vegetables still an issue of debate. Desert Farm and Ranch. In: Yuma Sun. January 16.
- Lobeck, J. 2005. Rain creates challenge for area growers. Interviewed. In: Yuma Sun. January 7.
- Fonseca, J.M. 2005. Food safety efforts ongoing in field to labs. Desert Farm and Ranch. In: Yuma Sun. March 27.
- Fonseca, J.M. 2005. Plants may fare better than human with more UV light. Farm Voice. In: Yuma Sun. May 19.
- Caroleo, L. 2005. Vegetables eat'em or stor'em. Interview. In: Yuma Sun. August 7.
- Caroleo, L. 2005. Graywater from laundry produces green grass. Interview. Desert Farm and Ranch. In: Yuma Sun. September 19.
- Fonseca, J.M. 2006. Quality of organic produce increasing. Desert Farm and Ranch. In: Yuma Sun. January 15.

TV News

- Roma, S. 2006. Interviewed by Channel 11 News (Yuma) Anchor, Shelly Roma, on the topic "Using graywater to grow plants in gardens" on May 13.

Computer based work

A web site is currently available at <http://cals.arizona.edu/crops/vegetables/quality/index.html>. It was created in September, 2003. Vegetable postharvest information for the industry and home horticulturist was written and uploaded. Additionally, links to detailed information on multiple vegetables that are produced commercially in Arizona is available. According to University data, in 2005 this web site alone received near 90,000 hits and 20,000 different sessions were browsed

by users from 87 different countries. A faculty page and a personal page also provide information about past and ongoing projects: <http://ag.arizona.edu/pls/faculty/fonseca.htm>

IX. SCHOLARLY PRESENTATIONS

Colloquia

Fonseca, J.M. 1997. Sistemas de calidad de los productos perecederos para exportación (English title: Handling systems to enhance quality of exporting perishable produce). V Congreso Agroindustrial Centroamericano. Chitré, Panamá. (30-min presentation, invited).

Fonseca, J.M. 2002. Understanding the latino culture: a crucial tool for empowering the workforce. Presented at Southeast Greenhouse Conference and Trade Show, Migrant Labor Issues Colloquia. Greenville, SC. (45-min speech, invited).

Fonseca, J. 2004. Uso de coberturas reflectivas en la producción de melón (English title: Use of reflective mulches for melon production). Presented at the 1st Latin American Congress of Melon Growers, Plastic Issues Colloquia (40-min presentation, invited). La Ceiba, Honduras.

Fonseca, J.M. J. W. Rushing, N. C. Rajapakse, R. L. Thomas, and M. B. Riley. Manipulating Secondary Metabolite Levels in Feverfew (*Tanacetum parthenium*) with Controlled Environments. ASHS annual conference in Las Vegas, NV. July 14-17.

Fonseca, J. 2006. Influence of pre-harvest conditions and practices on quality and shelf life of fresh-cut produce. ISHS-IHC 2006. To be presented August 13-17 (invited).

Seminars

Fonseca, J.M. and D. Saborio. 1997. Production and postharvest technology to maximize quality of export cassava roots. Herrera, Panamá. March 12-14 (multiple 45-min session, invited),

Fonseca, J.M. 2003. Vegetable Quality: New Extension Research Program. Pre-Season Vegetable Workshop. August 19, 2003. (15-min presentation, invited).

Fonseca, J.M. Preharvest factors that affect quality of melons. 14th Annual Desert Crops Workshop. December 3, 2003 (20-min presentation, invited).

Fonseca, J.M. 2004. Overview of Vegetable Quality Programs. 9th Annual Vegetable Crops Field Day. Maricopa Agricultural Center. March 5. (30-min presentation invited).

Fonseca, J.M. 2004. The evolution of the quality term for the produce industry. Special 40-min presentation to Hortifruti, the major produce distributor in Central America. July 26.

Fonseca, J.M. 2005. Technological alternatives to enhance yield and quality of melons. Melon and Cotton workshop. Yuma County Extension Auditorium. March 13 (15-min presentation, invited)

- Fonseca, J.M. and M. Livingston. 2005. Plant Propagation Workshop. Sponsored by Hotevilla/Bacavi Community School and the University of Arizona Cooperative Extension Hopi Office. Hopi Reservation. April 15-16 (3 hour presentation and demonstration, invited).
- Fonseca, J.M. 2005. Food Safety: An important component of the Vegetable Quality Program in Arizona. Food Safety from Field to Table Meeting. Tucson, AZ. June 1 (15-min presentation, invited).
- Fonseca J. M. 2005. Effect of cytokinins in vegetable production. Desert Valley/ IID Meeting. Blythe, CA. July 12 (20-min presentation, invited).
- Fonseca, J.M. 2005. The effect of irrigation timing on postharvest lettuce quality. Yuma forage, marketing and risk management workshop. November 30 (15-min presentation, invited).
- Fonseca, J.M. 2005. Plant growth regulators on lettuce. Imperial County solarization workshop and fall vegetable management. El Centro, CA. August 25 (30-min presentation, invited).
- Fonseca, J.M. 2006. Sources of microorganisms during pre-harvest and postharvest stages and impact of practices and sanitizing procedures. Special 45-min presentation to The Dune Company. Tucson, AZ. June 2 (15-min presentation, invited)
- Fonseca, J.M. 2006. Ensuring food safety in the field. Desert Valley/IID Meeting. Blythe, CA. June 12 (30- min presentation, invited).

Conferences

- Fonseca, J.M. 1998. Postharvest Technology in Costa Rica. Congreso Iberoamericano de Tecnología Poscosecha. Hermosillo, México. March (40-min Speech, invited).
- Fonseca, J.M. 1999. Shock and vibration forces influence the shelf life and quality of fresh-cut watermelon. Proceedings Florida State Horticultural Society. 112:147-152 (Student Award. 15-min presentation).
- Fonseca, J.M., JW. Rushing, N.C. Rajapakse. R.L. Thomas and M.B. Riley. 2002. Medicinal quality of greenhouse-grown feverfew as influenced by environmental factors. Proceedings Southern Nursery Association Meeting. 47: 84-87 (20 min-presentation).
- Fonseca, J.M., JW. Rushing, N.C. Rajapakse. R.L. Thomas and M.B. Riley. 2002. Influence of environmental factors on parthenolide and abscisic acid in feverfew. International Plant Propagation Society –Eastern Region, Conference (20-min presentation, invited with a travel award by the Society).
- Fonseca, J.M., JW. Rushing, , R.L. Thomas, M.B. Riley and N.C. Rajapakse. 2003. Post-production factors affect stability of parthenolide. Presented at annual ASHS-SR meeting. Mobile, AL (15-min presentation).
- Fonseca, J.M., JW. Rushing, N.C. Rajapakse, R.L. Thomas and M.B. Riley. 2003. Parthenolide content of feverfew is influenced by water, light and abscisic acid synthesis. Presented at annual ASHS-SR meeting, Mobile, AL (15-min presentation).

- Fonseca, J.M., JW. Rushing, N.C. Rajapakse. R.L. Thomas and M.B. Riley. 2004. Parthenolide and abscisic acid synthesis in feverfew are connected. Proceedings Plant Growth Regulation Society of America (15-min presentation).
- Fonseca, J.M. 2004. Effect of cytokinins on yield of iceberg lettuce. Proceedings Plant Growth Regulation Society of America (15-min presentation).
- Fonseca, J.M. 2004. The effect of timing of irrigation termination on microbial quality and shelf life of lettuce. Proceedings 17th International Conference of Leafy Vegetables and Lettuce. Montreal, Canada. August 28-31, 2004 (20-min presentation).
- Fonseca, J.M. 2006. Evaluation of cytokinins on production and quality of lettuce and melons. Proceedings Western Plant Growth Regulation Society. Ventura, CA. January 18-20 (20 min-presentation, invited).
- Fonseca, J.M. 2006. Key aspects to extend shelf life of lettuce. Southwest vegetable conference. March 15 (20-min presentation, invited).
- Fonseca, J.M. 2006. Production factors that influence microbial population of produce and impact of postharvest technology. Food Safe 2010, Phoenix, AZ. To be presented July 12-14. (30 min presentation, invited)
- Fonseca, J.M. 2006. Los tomates del paraiso: Los queremos sabrosos, bonitos pero también inocuos. English title: The tomatos from paradise: We want them beautiful, delicious but also safe to eat. Guadalajara, Mexico. To be presented July 20-23 (30-min presentation, invited).
- Fonseca, J.M and R. Cinco. 2006. Evaluation of commercial alternatives to reduce postharvest peel pitting of organically grown zucchini and cucumber. ISHS Quality in the Food Chain Conference. Bangkok, Thailand. To be presented. August 7-10.
- Kim, H.-J., J. M. Fonseca, J.-H. Choi, and C. Kubota. 2006. Effect of UV-C light on nutritional value of fresh-cut tomato. ISHS-IHC 2006. To be presented August 13-17.

X. GRANTS AND CONTRACTS

Note: Percent effort indicates the share of work in the grant.

Federal

<u>Year</u>	<u>Subject of Work, Sponsor, Amount Granted or Status, P.I.</u>
2003	Assessment of the Impact of Laundry Graywater Usage. CSREES-USDA, Water Program. <u>Awarded</u> for two years (\$55,000). P.I. Jorge Fonseca (40%). Other Investigators Tom Thompson and Will Payne.
2003	Variety Selection and Irrigation Termination to Enhance Sensorial, Nutraceutical and Microbial Quality of Lettuce. <u>Not funded</u> (\$48,000).

	P.I. Jorge Fonseca (40%). Other Investigators: Tom Thompson and Nancy Flores.
2003	Factors Controlling the Occurrence of Salmonella and Campylobacter in Irrigation Water. CSREES-USDA. <u>Not funded</u> . (\$600,000). P.I. Charles Gerba. Other Investigators: Ralph Meer, Lynn A. Joens, Chris Choi, Jorge Fonseca (10%)
2005	Improving value of mixed salads with alternative high-producing glucosinolates vegetables. CSREES-USDA. <u>Not funded</u> (\$189,853). P.I. Jorge M. Fonseca (60%), Hyun-Jin Kim. Other Investigators: Chieri Kubota, Kurt Nolte.
2005	Designing nutritional quality of fresh-cut produce: Adding value with technology used to increase yields, appearance, and safeness. CSREES-USDA. <u>Not funded</u> (\$348,048). Jorge M. Fonseca (60%), Hyun-Jin Kim. Other Investigators: Chieri Kubota, Kurt Nolte.
2006	Effect of contaminated irrigation water on Arizona produce. CSREES-USDA, Integrated Grant Program. <u>Decision pending</u> (\$600,000). P.I. Lynn Joens, Bibiana Law, Jorge Fonseca (15%), Kurt Nolte, Chieri Kubota, Charles Gerba.
2006	Environmental control to maximize antioxidant content and storability of tomato and salad greens during postharvest. <u>Not funded</u> (\$438, 392) P.I. C. Kubota, J. M. Fonseca (10%), H.-J. Kim and C. Thomson.
2006	Evaluation and demonstration of large beds for enhanced production and water conservation. United States Bureau of Reclamation. <u>Decision Pending</u> (\$42,005). P.I. Kurt Nolte, Charles Sanchez, Jorge Fonseca (15%)
2006	Addressing the risk of labor relation and supply with a better understanding of worker culture. CSREES-USDA, Western Center for Risk Management Education. <u>Awarded</u> (\$33,535). P.I. Jorge Fonseca (50%), Kurt Nolte.

State

<u>Year</u>	<u>Subject of Work, Sponsor, Amount Granted or Status</u>
2003	Developing an Integrated Approach to Increase Quality of Fresh-Cut Watermelons. University of Arizona Faculty Small Grants (\$9,500). <u>Not funded</u> . P.I.: Jorge Fonseca (100%).
2003	Solarization of Manured Soil on Weed, Pathogen and NH3 Volatilization Control: Economical and Environmental Benefits” Cooperative Extension Office. <u>Awarded</u> . (\$5000). P.I. Mohammed Zerkoune. Other Investigators: Barry Bequette, Mike Matheron, Charles Sanchez, Jorge Fonseca (5%).

2003	Farm Safety for the New Agricultural Employee: Video in English and Spanish for Workforce Training. University of Arizona 3-D Program (\$7,000). <u>Awarded</u> for one year. P.I. Jorge Fonseca (50%), Glenn Gigstad.
2003	Microbial Population and Quality of Iceberg Lettuce as Affected by Timing of Last Irrigation. Arizona Lettuce Research Council (\$9500). <u>Not funded</u> . P.I. Jorge Fonseca (80%), Charles Gerba
2004	Factors that Interact with the Effect of Laundry Graywater on Plant and Soil Conditions. Technology and Research Initiative Fund (\$100,000). <u>Not funded</u> . P.I.: Jorge Fonseca (60 %), Tom Thompson.
2004	Comparison of Irrigation Methods on Yield and Microbial Quality of Iceberg Lettuce Grown (\$13000). <u>Not funded</u> . P.I. Jorge Fonseca (100%).
2005	Evaluation of hydrogen peroxide for mildew and postharvest microorganisms control. Arizona Iceberg Lettuce Research Council. <u>Awarded</u> (\$5,775). P.I. Jorge Fonseca (70%), Mike Matheron.
2006	Effect of environmental stress and postharvest treatments on quality of tomato. Funds originally awarded by BIO-5 Institute to Drs. Chieri Kubota and Cyndi Thomson. Partial funds redirected for Research Associate work in my program. <u>Awarded</u> (\$45,000) P.I. Chieri Kubota, Jorge Fonseca (30%).
2006	Assessment of Arizona vegetables value as functional foods. University of Arizona Foundation. <u>Awarded</u> (\$9,350). P.I. Jorge Fonseca (70%). Co-Investigators: Chieri Kubota, Kurt Nolte, Charles Sanchez, Hyun-Jin Kim, Jeff Muir Hamilton.

Industry

<u>Year</u>	<u>Subject of Work, Sponsor, Amount Granted or Status</u>
2003-2004	Effect of Plant Growth Regulators on Quality of Vegetables. L.T. Biosyn Inc. (\$11,500). <u>Awarded</u> . P.I. Jorge Fonseca (100%).
2004-2006	Effect of Calcium on Yield and Quality of Late Grown Melons. Albion Inc; Miller Chemical. (\$11,000). <u>Awarded</u> . P.I. Jorge Fonseca (100 %)
2003	Effect of Harpin Protein Product on Quality of Fresh-Cut Lettuce. Eden BioSciences Inc. (\$6,000). <u>Awarded</u> . P.I. Jorge Fonseca (100%)
2004	Effect of a second generation Harpin Protein on Microbial Population of Fresh-Cut Lettuce. Eden BioSciences Inc. (\$26,000). <u>Awarded</u> . P.I. Jorge

	Fonseca (40%). Other Investigators: Murshidul Hoque, Hussein Ajwa, and Wesley Kline.
2004-2005	Effect of Plant Growth Regulators on Yield of Lettuce and Melons. Valent BioSciences, PlantBiotech, Inc. (\$20,000). <u>Awarded</u> . P.I. Jorge Fonseca (100%).
2004-2006	Effect of NutriCal on Cantaloupe Storability. CSI Chemical Corp. (\$7,500). <u>Awarded</u> P.I. Jorge Fonseca (100%).
2005	Use of phospholipids in melon production. Nutrapark, Inc. (\$8,000). <u>Awarded</u> . P.I. Jorge Fonseca (100%).
2005	Experimentation to find alternatives to reduce postharvest losses. Comercial Agricola El Venado, Mexicali, Mexico. <u>Awarded</u> (\$960). P.I. Jorge Fonseca (100%)
2006	Field day to showcase melon varieties. D. Palmer Seed Co. (\$16,000). <u>Awarded</u> . P.I. Jorge Fonseca (50%), Kurt Nolte
2006	Effect of phospholipids on lettuce yield and quality. Nutrapark, Inc. (\$11,000). <u>Awarded</u> . P.I. Jorge Fonseca (70%), Kurt Nolte
2006	Use of Cytokinin products on melon production and quality. Stoller Inc. Westbridge, Inc. (\$8,000). <u>Awarded</u> . P.I. Jorge Fonseca (100%).
2006	Collaboration on acquiring postharvest tecnology information. Spindle Cooling Co., San Luis, AZ. (\$1,300) <u>Awarded</u> . P.I. Jorge Fonseca (100%).
2006	Effect of foliar calcium applications on late Fall season lettuce. Albion, Inc., CSI Chemical Corp. (\$5500). <u>Awarded</u> . P.I. Jorge Fonseca (70%), Kurt Nolte
2005-2006	Use of Seaweed and Plant extract on melon production. GBM, Mexico and Acadian, Inc. Canada. (\$14,500) <u>Awarded</u> . P.I. Jorge Fonseca (100%).

Others

<u>Year</u>	<u>Sponsor , Subject of Work, Amount Granted</u>
1995-1998	Granted funds from the British Government for developing a training program to technical employers of the SENA, Colombia. <u>Awarded</u> (~\$32,000). P.I. Jorge Fonseca (20%)
1998	Granted funds from the Mexico Embassy in Costa Rica for the elaboration and edition of a textbook based on Postharvest Technology for Tropical Fresh Produce. 1997. <u>Awarded</u> (~\$2,500). P.I. Jorge Fonseca (50%), Joel Corrales.

XI. MENTORING ACTIVITIES

1997. Karen Fernandez. Undergraduate student. Department of Plant Sciences. University of Costa Rica. Role: Lic. Major Advisor.
- 2004- Jeff Muir Hamilton. Doctorate Student. Department of Arid Land Studies. The University of Arizona. Role: Ph.D. Major Advisor
- 2004-2006 Students of Yuma Charter High School. Role: Advised in community volunteering work.
- 2005 Dr. Seham Bourak. Faculty of the University of Aleppo, Syria. Visiting Scholar. Role: Host and Collaborator with research work.
- 2005-2006 Dr. Hyun-Jin Kim. Research Associate. Department of Plant Sciences. Role: Co-Advisor of Post-doctorate research work.
- 2005-2006 Ju-Hee Choi. Volunteer in preparation for graduate studies. Yuma Agricultural Center. Role: Supervisor of research work
- 2006 Eric Saltzer. Undergraduate student. Department of Plant Sciences. The University of Arizona. Role: Advisor for Summer volunteering work.