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1. Education

Degree	University	Field	Year
B.S.	Central Michigan University Mt. Pleasant, MI	Biology	1971
M.S.	The Ohio State University Columbus, Ohio	Horticulture	1976
Ph.D.	North Carolina State University Raleigh, North Carolina	Weed Science	1980

2. Positions:

1980-1985, Department of Horticulture, Purdue University, Assistant Professor
1985-1990, Department of Horticulture, Purdue University, Associate Professor
1990-present, Department of Horticulture and Landscape Architecture, Purdue University, Professor
Responsibilities: 50% research, 30% teaching, 20% extension in weed science

3. Honors and Awards

ESCOP/ACOP Fellow, 1993
Fellow, North Central Weed Science Society, 2000
Fellow, Weed Science Society of America, 2002.

4. Membership in Professional Societies:

American Society for Horticultural Science (Member)
American Society of Plant Biologists (Member)
Weed Science Society of America
North Central Weed Science Society
International Society of Horticulture Science

5. Courses:

A. University Credit Courses:

HORT 652A. Weed Biology. 1985-1987.
HORT,BTNY,BIOL 650N. Seed and Bud Dormancy.1986 and1988.
BTNY 504. Advanced Weed Science,1987.
HORT 601. Planning and Presenting Horticulture Research,1989-1997.
HORT 652W. Herbicide Resistance Mechanisms in Plants.1993.
HORT 401. Horticulture Production Technology, 1994-2007.
Hort 417. Organic Production in Horticulture Crops, 2006-2008.

SA21233 – Comparison of organic and conventional agriculture in Europe, 2005,2007, 2009, Maymester class
Hort 422. Vegetable Production, 2008-present.
Hort 491. Principles of Organic/Sustainable Agriculture, 2011.

B. Continuing Education Courses

‘Understanding Weeds – A Practical Course on the Biology of Weeds’, Purdue University 1 week intensive short course. 1982 and 1984
‘Herbicide Action- An Intensive Course in Herbicide Use’, Purdue University, 1 week intensive short course. 1980-2003.
Graduate Student training: 1980 – present, Major Professor of 12 Ph.D. Students, 13 MS Students, 5 Post Doctoral Fellows, committee member on over 50 graduate committees.

6. Extension Contributions

A. Duties:

Responsible for weed control recommendations in all horticulture crops in Indiana. Contributor to Production Guides for fruit, vegetable and ornamental crops from 1980 to present. Basic responsibilities are to provide expertise in weed control for extension specialists. The extension program is conducted to accomplish the following goals: 1) provide technical information to the horticulture extension specialists to aid them in advising growers on weed control problems, and 2) write recommendations for growers on how to control weeds with existing herbicides. Other functions include writing extension bulletins or newsletters as needed for special problems, presenting talks at grower meetings and answering questions about weed control and assisting in gaining registrations for new herbicides via Section 18’s, 24-C State labels and Section 3 national labels. Dr. Weller has given over 250 extension talks to vegetable, fruit, ornamental and mint producers since 1980.

B. High Impact Programs:

‘**Understanding Weeds – A Practical Course on the Biology of Weeds**’ taught during 1982 and 1984 and coordinated by Dr. Fred Warren. I prepared lectures on ‘Weed Seed Dormancy, Periodicity of Weed Seed Germination and the biology of Field Bindweed’ and coordinated all daily laboratory exercises. This course was taught to 30 weed science professionals each session.

C. Herbicide Action- An Intensive Course in Herbicide Use:

This course has been taught at Purdue University since 1980 and has provided education on how herbicides work and are used in agriculture to professional weed scientists. The course has been attended by over 2000 weed science professionals in the 24 years it was held and provided needed continuing educational training to herbicide company personnel, agricultural crop advisers, university weed scientists and students. This course set the standard for continuing education in weed science and attracted participants from around the world. The course emphasized weed management, herbicide use and their action in plants and issues regarding weed management. Course participants are provided with a notebook of over 800 pages that covers all aspects of herbicides and their

use. Dr. Weller was an instructor and assistant to Dr. Fred Warren from 1980 until 1994 and has been the sole coordinator of the course since 1995.

7. Research Contributions:

- A. **Mechanisms of glyphosate resistance in Giant Ragweed.** Weed resistance research has been ongoing in Dr. Weller's laboratory his entire career at Purdue University. This research has concentrated on variation in weed populations response to glyphosate and how this relates to their growth biology and herbicide response. The significance of these studies is that they provided evidence that multiple mechanisms are involved in the resistance response of giant ragweed to glyphosate. Mechanisms include growth biology, genetics and numerous physiological and biochemical reactions. Initial studies showed that absorption and translocation of glyphosate could not account for the differences in susceptibility and that the target enzyme of glyphosate, *5-enolpyruvylshikimate-3-phosphate synthase* (EPSPS) was not altered in the resistant biotype.
- B. **Studies investigating non-target site resistance in weeds.** Arabidopsis is being studied as a model plant in relation to how sub-lethal doses of herbicides from various herbicide mode of action families influence expression of genes. Genes involved in the injury response are being identified.
- C. **Effects of off-site herbicide movement to vegetable crops.** Studies involve investigating how low-dose application of herbicides, 2,4-D, dicamba and glyphosate and combinations of these herbicides result in growth inhibition and yield effects of vegetable crops.
- D. **Alternative approaches to weed management in horticultural crops in organic and conventional production.** Investigations of alternative approaches to weed management in vegetable crops using cover crops have concentrated on the effects of various fall and spring seeded cover crops for use as aids to reduce problem weeds in vegetable cropping systems. Vegetables are at risk crops from a weed control view because there are not a large number of herbicides available for use, weed control costs are high and US consumers are concerned about pesticide inputs and food safety. The objectives of this research have been to develop systems using reduced chemical tools that are effective, practical and have potential for acceptance by commercial vegetable growers. The research has shown that there are several cover crops that have potential in certain situations to provide acceptable weed control while reducing the need for herbicides or mechanical weed removal.
- E. **Weed management and crop improvement in mint.** This research is designed to improve methods for managing weeds with chemicals in Indiana mint production fields and has resulted in data to support registration of new herbicides either through emergency exemptions (Section 18) or through IR-4. Research has resulted in assisting with the registration of sethoxydim, haloxyfop, pyridate, clopyralid, sulfentrazone and pendimethalin. In addition to new herbicide registrations, current

research includes establishing critical weed infestation periods in row and meadow mint and investigations relating to the *Amaranthus* weed complex found in mint and methods for using GPS for site-specific weed management in mint fields.

As a result of involvement in mint weed research and biotechnology expertise available at Purdue University, in 1990 additional research was funded to develop regeneration and transformation systems for mint crop improvement. This research has resulted in the development of an efficient peppermint regeneration and transformation system that makes it possible to transform peppermint with any gene of interest. This research is critical to the short- and long-term sustainability of the US mint industry. Projects have been completed for inserting herbicide resistant genes into peppermint and current research is investigating the potential for identifying and transforming mint for resistance to *Verticillium* wilt disease and increased crop productivity.

8. International Activities:

Dr. Weller has over 24 years experience in international research, teaching and extension in pest management and cropping systems development, and training in Central America (Guatemala and Honduras), Mexico, Ukraine, Uganda, Kenya and Tanzania. His areas of specializations include: research on and implementation of integrated crop and pest management production systems for vegetable crops; development of tissue culture systems to study plant responses to herbicides; and *in vitro* regeneration and transformation systems for crop improvement. Dr. Weller has been an IPM CRSP-Central America principal investigator for 15 years working to enhance their NTAE (Non-traditional Agriculture Exports) capability; and served as Site Chair for Central America for 5 years. Recently, he has been PI for vegetable research with African Indigenous Vegetables in Kenya as part of the USAID Horticulture CRSP Project.

Specific Activities:

- a. 1/2010 -1/2011 Principle Investigator of USAID Hort CRSP project: **Indigenous African Leafy Vegetables (ALV) for Enhancing Livelihood. This project involves evaluating** species including spider plant (*Cleome gynandra*), African *nightshades* (*Solanum scabrum/S. villosum/S.americanum/S. tarderomotum*) and amaranths (*Amaranthus blitum/A. dubius/A. hybrdus /A. spinosus*)) which are indigenous ALVs that contain higher levels of nutrients than commonly grown exotic species like Swiss chard, kale and cabbage and are rich in proteins, carbohydrates, vitamins and minerals and have medicinal properties. The goal is to establish a base of information and experience for greater production and use of indigenous vegetables that in the long-term will provide a source of food for economic security and improved nutrition, health for Kenyans, especially those afflicted with HIV/AIDs and women farmers. Activities include imparting knowledge on ALV germplasm, establishing/improving local seed banks, providing quality seeds for production, transfer of improved production techniques to stakeholders, organization of self-help groups and farming and market analysis surveys. Participatory approaches are being to achieve these project goals and impact target groups.

- b. 9/2004-5/2005 **Lead Purdue University member** of the Global Horticulture Assessment Team lead by the University of California, Davis with collaborating partners from the University of Hawaii, Michigan State University and Purdue University. The project was funded by USAID. The Global Horticulture assessment was an in depth, analysis of opportunities and challenges for global development of horticulture. This assessment resulted in a list of recommendations to USAID for horticulture research and capacity building in the developing world.
- c. 9/1993–9/2004 **U.S. Site Chair**, Central American site (including Guatemala and Honduras), USAID IPM/CRSP Grant, “Participatory IPM: a model for implementing pest management in a global context,” Central America. The IPM Collaborative Research Support Program (CRSP) project involves research in non-traditional export crops in Central America. Crops include snow peas, sugar pod peas, broccoli, melons, tomatoes, peppers, and small fruits such as brambles. Primary pests include insects, disease, and weeds. Research goals are to develop integrated pest management production practices that reduce the use of synthetic chemicals in these crops and ensure the crops produced are of high quality and suitable for export to U.S. markets. Primary responsibilities involve research in non-traditional agriculture export (NTAE) crops in pest control, development of integrated and sustainable production systems, and development of pre-inspection programs that would position Central American growers to meet all the sanitary and phytosanitary requirements for NTAE crops imported into the U.S. Research involves various aspects of integrated pest management research and working with grower groups of the Guatemalan and U.S. government agencies (APHIS) to institute pre-inspection programs and to develop regional distribution centers that serve as educational and gathering centers for export crop producers of NTAE crops to assist in providing sustainable markets for small growers in-country, regionally, and internationally.
- d. 9/2004 – Present **Co-Principal Investigator**, USAID/IPM CRSP Grant “IPM in Latin America and the Caribbean: Crops for Broad-based Growth and Perennial Production for Fragile Ecosystems”. Work focusing on pest management strategies for targeted crops in Honduras and Ecuador.
- e. 1982 –1983 USAID Project in Honduras ‘Developing Fruit and Vegetable Production in the Camayagua Valley’. Project emphasis was improved tomato production in Honduras and the need for improved weed management of problem annual and perennial weeds. A production guide in Spanish “Guia Technica para la Produccion de Tomates en el Valle de Comayagua’ by E.C. Tigchelaar, F. Maradiaga, G. E. Wilcox and S. C. Weller, was developed for Honduran farmers was generated and is still used by growers.
- f. 1992-1994 Melon Project funded through Purdue University to develop integrated muskmelon production in Monterey Mexico for shipment to Indiana during the off-season. Involvement included improving the overall cultural practices and reducing weed problems.
- g. 1998 Lead member of a Participatory Appraisal Team to evaluate agricultural production systems in the Obelisk of Odessa in Ukraine in September of 1998. This team evaluated current production practices and recommended IPM instructional programs that were subsequently conducted by joint teams of U S and Ukraine scientists during 1999 as part of a USAID IPM program in Ukraine.

9/2003-4/2005

- h. Team Member, USAID Global Horticulture Assessment Project to determine the global issues facing the horticulture industry in the developing world.
- i. Member of Purdue Assessment team for agriculture assessment of research needs for AMPATH project in Kenya, April, 2008.
- j. Member of Purdue Assessment team for Uganda Martyrs University Farm operation and activities, March, 2009.
- k. Herbicide Action short course in Honduras for agriculture Technical personnel, Zamorano University, October, 2009.
- l. Member of Purdue assessment team for agriculture activities in Jordan and Palestine, March, 2010.

9. Publications:

A. Refereed Papers

Weller S.C., Ferree D.C. 1978. Effect of a pinolene base antitranspirant on fruit growth, net photosynthesis, transpiration, and shoot growth of 'Golden Delicious' apple trees. *J Amer Soc Hort Sci* 103:17-19.

Weller S.C., Skroch W.A. 1983. Toxicity of glyphosate to peach trees as influenced by application timing. *HortScience* 18:940-941.

Weller S.C. 1984. Evaluation of postplant applications of terbacil and napropamide to strawberry plants. *Adv Strawberry Prod* 3:15-19.

Akers M.S., Carpenter P.L., Weller S.C. 1984. Herbicide systems for nursery plantings. *HortScience* 19:502-504.

Weller S.C., Hammer P.A. 1984. Susceptibility of Easter lily to glyphosate injury. *HortScience* 19:698-699.

DeGennaro F.P., Weller S.C. 1984. Differential susceptibility of field bindweed (*Convolvulus arvensis*) biotypes to glyphosate. *Weed Science* 32:472-476.

DeGennaro F.P., Weller S.C. 1984. Growth and reproductive characteristics of field bindweed (*Convolvulus arvensis*) biotypes. *Weed Science* 32:525-528.

Weller S.C., Masiunas J.B., Carpenter P.L. 1984. Evaluation of oxyfluorfen formulations in container nursery crops. *HortScience* 19:222-224.

Weller S.C., Skroch W.A., Monaco T.J. 1985. Common bermudagrass (*Cynodon dactylon*) interference in newly planted peach (*Prunus persica*) trees. *Weed Science* 33:50-56.

Masiunas J.B., Weller S.C. 1986. Strawberry cultivar response to postplant applications to terbacil. *HortSci* 21:1147-1149.

- Duncan C.N., Weller, S.C. 1987. Heritability of glyphosate susceptibility among biotypes of field bindweed. *J Heredity* 78:257-260.
- Weller S.C., Masiunas J.B., Gressel, J. 1987. Biotechnologies of obtaining herbicide tolerance in potato. *Biotech Agri Forestry* 3:281-297.
- Pinto J.E.B.P., Dyer W.E., Weller S.C., Herrmann K.M. 1988. Glyphosate induces 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase in potato (*Solanum tuberosum* L.) cells grown in suspension culture. *Plant Physiol* 87:891-893.
- Masiunas J.B., Weller, S.C. 1988. Glyphosate activity in potato (*Solanum tuberosum*) under different temperature regimes and light levels. *Weed Science* 36:137-140.
- Masiunas J.B., Weller S.C. 1989. Tolerance of transplanted muskmelon (*Cucumis melo*) to oxyfluorfen applied preemergent. *Weed Technology* 3:30-32.
- Dyer W.E., Weller S.C., Bressan R.A., Herrmann K.M. 1988. Glyphosate tolerance in tobacco (*Nicotiana tabacum* L.). *Plant Physiol* 88:661-666.
- Dyer W.E., Weaver L.M., Zhao J., Kuhn D.N., Weller S.C., Herrmann K.M. 1990. A cDNA encoding 3-Deoxy-D-arabino-heptulosonate-7-phosphate synthase from *Solanum nigrum* L. *J Biol. Chem* 265:1608-1614.
- Goldsbrough P.B., Hatch E.M., Huang B., Kosinski W.C., Dyer W.E., Herrmann K.M., Weller S.C. 1990. Gene amplification in glyphosate tolerant tobacco. *Plant Sci.* 72:53-62.
- Dyer W.E., Weaver L.M., Zhao J., Kuhn D.N., Weller S.C., Herrmann K.M. 1990. A cDNA encoding 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase from *Solanum tuberosum* L. *J Biol Chem* 265:1608-1614.
- Smeda R.J., Weller S.C. 1991. Plant cell and tissue culture techniques for weed science research. *Weed Science.* 39:497-504.
- Wang Y. Herrmann K.M., Weller S.C., Goldsbrough P.B. 1991. Cloning and nucleotide sequence of a complementary DNA encoding 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase from tobacco. *Plant Phys* 97: 847-848.
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- Masiunas, J.B., Weller S.C., Hayden R.A., Janick J. 1991. Effect of plant spacing on strawberry yield in two cultural systems. *Fruit Var J* 45:146-151.

- Smeda R.J., Hasegawa P.M., Goldsbrough P.B., Singh N.K., Weller S.C. 1993. A serine-to-threonine substitution in the triazine herbicide-binding protein in potato cells results in atrazine resistance without impairing productivity. *Plant Physiol* 103:911-917.
- Jones, J.D., Weller S.C., Goldsbrough P.B. 1994. Selection for kanamycin resistance in transformed petunia cells leads to the coamplification of a linked gene. *Plant Mol Biol* 24:505-514.
- Masiunas J. B., Weston L., Weller S.C. 1995. The impact of allelopathic rye cover crops on tomato cropping systems. *Weed Sci.* 43: 318-323.
- Jones J.D., Henstrand J.M., Handa A.K., Herrmann K.M., Weller S.C. 1995. Impaired wound induction of 3-deoxy-D-arabino-heptulosonate-7-phosphate (DAHP) synthase and altered stem development in transgenic potato plants expressing a DAHP synthase antisense construct. *Plant Phys* 108:1413-1421.
- Smeda R.J., Weller S.C. 1996. Potential of rye (*Secale cereale*) for weed management in transplant tomatoes (*Lycopersicon esculentum*). *Weed Science* 44:596-602.
- Jones J.D., Goldsbrough P.B., Weller S.C. 1996. Stability and expression of amplified genes in plantlets regenerated from glyphosate resistant cell cultures. *Plant Cell Rep* 15:431-436.
- Nimbal C.I., Yerkes C.N., Weston L.A., Weller S.C. 1996. Herbicidal activity and site of action of the natural product sorgoleone. *Pest Biochem Physiol* 54:73-83.
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- Yerkes C.N., Weller S.C. 1996. Diluent volume influences susceptibility of field bindweed biotypes to glyphosate. *Weed Technol* 10:565-569.
- Westwood J.H., Weller S.C. 1997. Cellular mechanisms influence differential glyphosate sensitivity in field bindweed. *Weed Sci* 45:2-11.
- Westwood J.H., Yerkes C.N., DeGennaro F.P., Weller S.C. 1997. Absorption and translocation of glyphosate in tolerant and susceptible biotypes of field bindweed. *Weed Sci* 45:658-663.
- Westwood J.H., Tominaga T., Weller S.C. 1997. Characterization and breakdown of the self-incompatibility system in field bindweed. *J Heredity* 88:459-465.
- Bordelon B., Weller S.C. 1997. Pre-plant cover crops affect weed and vine growth in first-year vineyards. *HortSci* 32:1040-1043.

- Niu X., Hasegawa P.M., Bressan R.A., Weller S.C. 1998. Transgenic peppermint plants obtained by co-cultivation with *Agrobacterium tumefaciens*. *Plant Cell Reports* 17:165-171.
- Julian J.W., Sullivan G.H., Weller S.C. 1998. Assessment of potential impacts from the elimination of methyl bromide in the fruit and vegetable trade. *HortSci* 33:794-797.
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- Davis V.M., Gibson K.D., Bauman T.T., Weller S.C., Johnson W.G. 2007. Influence of weed management practices and crop rotation on glyphosate-resistant Horseweed population dynamics and crop yield. *Weed Sci.* 55:508-516.
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- Owen, M.D.K., Young B.G., Shaw D.R., Wilson R.G., Jordan D.L., Dixon P.M., Weller S.C. 2011. Benchmark Study on Glyphosate-resistant Crop Systems in the USA. II. Perspectives. *Pest Manag. Sci.* 67:747-757.

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Givens, W.A., Shaw D.A., Newman M.E., Weller S.C., Young B.G., Wilson R.G., Owen M.D.K., Jordan D.L. 2011. Benchmark Study on Glyphosate-Resistant Cropping Systems in the USA. III. Grower Awareness, Information Sources, Experiences, and Management Practices Regarding Glyphosate-Resistant Weeds. *Pest Manag. Sci.* 67:758-770.

Weirich J.W., Shaw D.R., Owen M.D.K., Dixon P.M., Weller S.C., Young B.G., Wilson R.G., Jordan D.L. 2011 Benchmark study on glyphosate-resistant cropping system in the United states. V: Effects of glyphosate-based weed management programs on farm-level profitability. *Pest Manag. Sci.* 67:781-784.

Weirich J.W., Shaw D.R., Coble, K.H., Owen, M.D.K., Dixon P.M., Weller S.C..... Jordan D.L. 2011. Benchmark study on glyphosate-resistant cropping systems in the United States. VI: timeliness of economic decision-making in implementing weed resistance management strategies. *Pest Manag. Sci.* 67:785-789.

Shaw, D.A., Owen M.D.K., Dixon P.M., Weller S.C., Young B.G., Wilson R.G. 2011. Benchmark Study on Glyphosate-Resistant Cropping Systems in the USA. I. Introduction to 2006-2008. *Pest Manag. Sci.* 67: 741-746.

B. Book Chapters:

Weller S.C., Masiunas J.B., Gressel J. 1987. Biotechnologies of obtaining herbicide tolerance in potato. Chapter IV.4 In, *Biotechnology in Agriculture and Forestry Vol 3: Potato* (ed. by Y.P.S. Bajaj). Springer-Verlag, Berlin, Heidelberg.

Weller S.C., Frank J.R. 1989. Paul C. Marth and John W. Mitchell. 1944. 2,4-dichlorophenoxyacetic acid as a differential herbicide. *Bot. Gaz.* 106: 224-232. In, *Classic Papers in Horticultural Science*, ed. by Jules Janick, Prentice-Hall, Inc., Englewood Cliffs, NJ, pp. 324-336.

Weller S. C., Hess F.D. 1997. Herbicide Usage and Mode of Action. In, *Weed Management and Horticulture Crops*, ed. by M. McGiffin. ASHS PRESS, Alexandria, VA.

Bressan R.A., Weller S.C. 2003. GMO Biotechnology and The Future of Farming. *Agricultural Biotechnology and Society*. (accepted).

Sullivan G., Julian J., Sanchez G.E., Weller S., Norton G.W. 2004. Chapter 11. Pre-inspection IPM for Export Horticulture Markets. In, *Globalizing Integrated Pest Management: A Participatory Research Approach*. Blackwell Publishing.

Alwang J., Weller S., Sanchez G., Calderon L., Edwards C.R., Hamilton S., Williams R., Ellis M., Suarez C., Barrera V., Crissman C., Norton G.W. 2004. Chapter 5. Developing IPM Packages in Latin America. In, *Globalizing Integrated Pest Management: A Participatory Research Approach*. Blackwell Publishing. ..

Bressan, R.A., Weller S.C. 2004. GMO Biotechnology and the Future of Farming. In, *Le Biotechnologie per Le Colture Agrarie in Ambiente Mediterranea*. Avenue Mediso. Agricultural Biotechnology and Society. Chapter 4.

Dyer, W.E., Weller S.C. 2004. Plant Response to Herbicides. In, *Plant Abiotic Stress*. M.A. Jenks and P.M. Hasegawa. Blackwell Publishing, Inc., Oxford, UK.

Rosenstock K., Clay T.D., Luther G., Marcotte P., Paull R., Weller S.C., Youseffi F., Demment M. 2005. Global Horticulture Assessment. In, *Global Horticulture Assessment*. Vol 3, Scripta Hort. ISHS.

Weller S.C., Owen M.D.K., Johnson W.G. 2010. Managing Glyphosate Resistant Weeds and Population Shifts in Midwestern US Cropping Systems. Chapter 12 in: *Glyphosate Resistance in Crops and Weeds: History, Development, and Management*, edited by Vijay K. Nandula. John Wiley and Sons, Inc., New York.

Gumz MS, Weller SC 2011. Using GIS to map and manage weeds in field crops. Chapter 14 in: *GIS Applications in Agriculture*. Vol Three: Invasive Species. pp. 301-317, CRC Press, Taylor & Francis Group, Boca Raton, London, New York..

C. Books:

Weed Science, Principles and Practices 2002. Thomas J. Monaco, Stephen C. Weller, and Floyd M. Ashton. John Wiley and Sons, Inc., New York.

Gumz M.S., Weller S.C. 2011. Using GIS to map and manage weeds in field crops. In *Glyphosate Resistance in Crops and Weeds: History, Development, and Management* (Vol. 3, pp. 14, 301-317). Boca Raton, London, New York: CRC Press, Taylor & Francis Group.

Weller S.C., Owen M.D.K., Johnson W.G. 2010. Managing Glyphosate Resistant Weeds and Population Shifts in Midwestern US Cropping Systems. Chapter 12. In *Glyphosate Resistance in Crops and Weeds: History, Development, and Management* (p. 12). New York: John Wiley and Sons, Inc.

D. Major Extension and Nontechnical Publications:

Indiana Commercial Tree Fruit Spray Guide, Purdue University, Agricultural Extension Service: Agricultural Experiment Station. 1980-2010. Contributor.

Commercial Small Fruit and Grape Spray Guide, Purdue University, Agricultural Extension Service: Agricultural Experiment Station. 1980-2010. Contributor.

Indiana Vegetable Production Guide for Commercial Growers, Purdue University, Agricultural Extension Service. 1980-2010. Contributor.

Midwest Tree Fruit Handbook.1993. Purdue University Cooperative Extension Service. Contributor.

Midwest Small Fruit Pest Management Handbook. 1997. The Ohio State University, Bulletin 861. Contributor.

10. Research Funding.

A. Research Grants/Support: Since 2000)

Mary Rice Grants, 2007-2010: \$40,000.

Mint Crop Improvement. 2000-2010, From: Mint Industry Research Council to Purdue University \$400,000.

Indiana Mint Market Development & Research Council: 2000-2010: \$45,000.

Mid-American Food Processors Association grants from 2000-2010 to support weed management projects in tomatoes: \$32,000.

Misc. Industry Gifts to support herbicide research in vegetables - 2000-2010:\$ 100,000.

Investigations of Corn Rootworm, *Diabrotica* spp., and Weed Species within Stacked and Non-Stacked Trait Transgenic Cornfields. \$176,400 Monsanto Company 08/2003-07/2005 (*with*: Bledsoe, Larry; Edwards, Richard; Preckel, Paul; Martin, Marshall; Johnson, Bill; Alexander, Corinne)

Participatory IPM: A Model for Implementing Pest Management in a Global Context. \$14,000. USAID IPM CRSP. 9/01/03-98/31/04

Integrated Weed Management in Vegetables. \$98,110 NC-IIPM. 8/02-7/04. (*with*:Hirst, Peter; Pecknold, Paul; Foster, Rick)

Organic Production Systems for Apples in the Midwest. \$63,432 NC-IMP. 4/13-4/06. (*with*: Gibson, Kevin; J. Masiunas)

Glyphosate Resistant Horseweed: Prevalence, Distribution and Areas at Risk in Indiana and Ohio. \$37,000 USDA Special Grants Program for Critical & Emerging Pests. (*with*Gibson, Kevin; Johnson, Bill; Jeff Barnes; Mark Loux, John Cardina and Jeff Strachler, The Ohio State University and Ed Luschei, University of Wisconsin)

Weed Community Shifts and Management in the Conversion to Organic Production. \$97,492 NC-IPM. 8/02-7/05. (*with*: Gibson, Kevin)

Organic Agriculture Research at Meigs Farm. Experiment Station. \$50,000.00 from Purdue Agriculture Research Programs. 1/1/2005-12/31/2005.

Reduced Risk Nightshade Management for Tomatoes. USDA-RAMP - Purdue. \$634,830.00. 2001-2004.

Seed Bank Dynamics in Alternative Vegetable Cropping Systems. USDA, NC-IPM - Purdue. \$100,000.00. 2002-2004. (*with*: John Masiunas, University of Illinois)

Crops for Broad-Based Growth and Perennial Production For Fragile Ecosystems.

IPM In Latin America and the Caribbean: \$25,358.00. 10/01/2005-09/30/2006; \$24,358,05/06; \$25,400, 06/07; \$27,000, 07/08; \$25,000, 08/09; \$45,000, 09/10.

Hi-Tunnel Research Development: Purdue Mission Oriented Grants – Agriculture Research Programs/Extension – \$20,000, 4/08.

Site Specific Weed management for Indiana Mint Production – \$39,927, 8/02. Specialty Crops Block Grant, State of Indiana.

Glyphosate-Resistant Horseweed: Prevalence, Distribution, Areas At Risk In Indiana And Ohio. Cooperative State Research Service USDA. \$37,962.00. 07/01/2004-06/30/2006. (*with:* Barnes, Jeffery, W, Johnson, William, G, Gibson, Kevin, D).

Seed Bank Dynamics in Alternative Vegetable Cropping Systems. Cooperative State Research Service USDA. \$100,000.00. 07/01/2003-06/30/2006 (*with:* Gibson, Kevin)

Weed Community Shifts and Management Options In The Conversion To Organic Production Systems. University Of Nebraska. USDA. 93,375.00. 07/01/2002-06/30/2006. (*with:* Kevin Gibson).

Integrated Weed Management Systems In Vegetable Crop Production. Cooperative State Research Service USDA. \$27,912.00. 04/01/2002-03/31/2006. (*with:* Kevin Gibson)

Ensuring long-term sustainability of Roundup Ready Cropping Systems, \$880,000, Monsanto Company, 2005-2011.

Indigenous African Leafy Vegetables (ALV) for Enhancing Livelihood USAID from University of California, Davis, \$150,000, 1-1-2010- 12-31-10,

B. Professional Contributions Outside of Weed Science

1980 to present – Member Vegetable Crops Working Group of American Society for Horticulture Science.

Reviewer for Journal of ASHS and HortScience and Plant Physiology Journal, Weed Science and Weed Technology.

1980 to present – Researcher Member of Mint Industry Research Council and regular contributor to the annual mint growers meetings both nationally and in mint growing states.

Contributor to International Training Program in New Crops: Aromatic and Medicinal, Purdue University, 1997, 1998 and 1999, and 2000; presented talks on Weed Management Systems for Herbs and Molecular Approaches for Crop Improvement.

1985 – 1989 – Member, NC-121 Project ‘Integrating Crop Culture, Chemicals and Life Cycles to Control Persistent Weeds’, Vice Chair, 1986, Chair, 1987

1989, 1990 & 1991, 2000, 2001 - Panel Member USDA-Competitive Grants Weed Science/Plant Pathology

1990, 1992 – Panel Member Southern Regional IPM

1993 – Panel Manager, 1st Weed Science NRI Competitive Grants Program

2000 – Panel Member, USDA Methyl Bromide Alternatives Panel

2001 – Panel Manager, USDA, Methyl Bromide Alternatives Panel

2007, 2008 2009 – Panel member, Western Region IPM Competitive Grants Program

C. Elected or Appointed Offices or Major Posts in National and Regional Weed Science Organizations

1981–1987 Member WSSA IPM Committee

1986–1989 Member WSSA Teaching Committee

1987-1990 Chair, WSSA Necrology Committee
 1988-1995 Associate Editor, Weed Science
 1989 Chair, WSSA Physiology Section
 1988-1992 Chair WSSA Competitive Grants Committee.
 1990 Chair of Physiology Symposium 'Recent Advances in Herbicide Mechanism of Action' at WSSA Annual Meeting.
 1998 Member, WSSA Research Committee, Chair, 2000- 2003
 Invited Speaker at 'Genomics in Weed Science Symposium' at 2000 WSSA annual Meeting.
 2007-2009 Member NCWSS Fellows Committee
 2008- present Member WSSA Fellows Committee
 1982 Chair Horticulture Section
 1982 Coach of Purdue University Weed Science Team at the NCWCC Weed Competition
 1983 Chair Turf and Aquatics Section
 1985-1988 NCWSS Board of Directors, Indiana Representative
 1986-1988 NCWSS Resident Education Committee
 Chair of Graduate Student Poster Competition 1986
 Chair of Graduate Student Paper Competition 1987
 Committee Chair 1988, Chair, Weed Contest
 1998 to present NCWSS Awards Committee
 NCWSS Graduate Paper or Poster Competition Judge: 1985, 1989, 1995
 1998, 1999, 2009.