

Stephen C. Weller

Department of Horticulture and Landscape Architecture
Purdue University
625 Agriculture Mall Drive
West Lafayette, IN 47907-2010
Phone: 765-494-1333
FAX: 765-494-0391
EMAIL: weller@hort.purdue.edu

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

ESCOPE/ACOP Fellow, 1993
Fellow, North Central Weed Science Society, 2000
Fellow, Weed Science

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

5. Courses:

A. University Credit Courses :

HORT 652A. Weed Biology. 1 credit hour graduate course, Purdue University, 1985 (8 students), 1987 (12 students)
HORT,BTNY,BIOL 650N. Seed and Bud Dormancy. 1 credit hour graduate course, Purdue University, 1986 (12 students, 1988 (15 students)
BTNY 504. Advanced Weed Science, 3 credit hours,dual level course, PurdueUniversity, 1987, 11 students.
HORT 601. Planning and Presenting Horticulture Research, 1 credit hour, graduate course, Purdue University, 1989-1997.
HORT 652W. Herbicide Resistance Mechanisms in Plants. 1 credit hour graduate course, Purdue University,1993.
HORT 401. Horticulture Production Technology, 3 credit hours, undergraduate course in spring semester, Purdue University, 1994- present.
HORT 417. Organic Horticulture Production, 1 credit hour, 2004-present.

SA 229. Comparison of organic and sustainable farming in Europe. Maymester class, 2005 and 2007, taught with Dr. Alan York and r. George Van Scoyoc.

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 to present.

'Herbicide Action – An Intensive Course in Herbicide Use', Syngenta Crop Protection, Jealotts Hill, UK, Course Coordination, December 5-7, 2005.

Graduate Student training: 1980 – present, Major Professor of 10 Ph.D. Students, 9 MS Students, 5 Post Doctoral Fellows, committee member on over 40 graduate committees.

6. Publications:

A. Refereed Papers Since 1990

Dyer, W. E., L. M. Weaver, J. Zhao, D. N. Kuhn, S. C. Weller and K. M. Herrmann. 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., E. M. Hatch, B. Huang, W. C. Kosinski, W. E. Dyer, K. M. Herrmann and S. C. Weller. 1990. Gene amplification in glyphosate tolerant tobacco. Plant Sci. 72: 53-62.

Wang, Yunxia, J. D. Jones, S. C. Weller and P. B. Goldsbrough. 1991. Expression and stability of amplified genes encoding 5-enolpyruvylshikimate 3-phosphate synthase in glyphosate tolerant tobacco cells. Plant Mol. Biol. 17: 1127-1138.

Masiunas, J. B., S. C. Weller, R. A. Hayden and J. Janick. 1991. Effect of plant spacing on strawberry yield in two cultural systems. Fruit Var. J. 45: 146-151.

Smeda, R. J., P. M. Hasegawa, P. B. Goldsbrough, N. K. Singh and S. C. Weller. 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., S. C. Weller and P. B. Goldsbrough. 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., L. Weston, and S. C. Weller. 1995. The impact of allelopathic rye cover crops on tomato cropping systems. Weed Sci. 43: 318-323.

Smeda, R. J. and S. C. Weller. 1996. Use of rye cover crops for weed management in processing tomatoes. Weed Sci. 44: 596-602.

Jones, J. D., P. B. Goldsbrough and S. C. Weller. 1996. Stability and expression of amplified genes in plantlets regenerated from glyphosate resistant cell cultures. Plant Cell Rep. 15: 432-436.

Nimbal, C. I., C. N. Yerkes, L. A. Weston, and S. C. Weller. 1996. Herbicidal activity and site of action of the natural product sorgoleone. Pest. Biochem. and Physiol. 54:73-83.

- Nimbal, C. I., J. Peterson, C. N. Yerkes, L. A. Weston, and S. C. Weller. 1996. Phytotoxicity and distribution of sorgoleone in grain sorghum germplasm. *J. Agric. and Food Chem.* 44: 1343-1347.
- Westwood, J. H. and S. C. Weller. 1996. Cellular mechanisms influence differential glyphosate sensitivity in field bindweed. *Weed Sci.* 45: 2-11.
- Yerkes C. N. and S. C. Weller. 1996. Diluent volume influences susceptibility of field bindweed biotypes to glyphosate. *Weed Technol.* 10: 565-569.
- Westwood J. H., C. N. Yerkes, F. P. DeGennaro and S. C. Weller. 1997. Absorption and translocation of glyphosate in tolerant and susceptible biotypes of field bindweed. *Weed Sci.* 45: 658-663.
- Westwood, J. H., T. Tominaga, and S. C. Weller. 1997. Characterization and breakdown of the self-incompatibility system in field bindweed. *J. Heredity.* 88: 459-465.
- Bordelon, B. and S. C. Weller. 1997. Pre-plant cover crops affect weed and vine growth in first-year vineyards. *HortSci.* 32: 1040-1043.
- Niu, X., P. M. Hasegawa, R. A. Bressan, and S. C. Weller. 1998. Transgenic peppermint plants obtained by co-cultivation with *Agrobacterium tumefaciens*. *Plant Cell Reports* 17: 165-171.
- Julian, J. W., G. H. Sullivan and S. C. Weller. 1998. Assessment of potential impacts from the elimination of methyl bromide in the fruit and vegetable trade. *HortSci.* 33: 794-797.
- Sullivan, G. H., G. E. Sanchez, S. C. Weller and C. R. Edwards. 1999. Sustainable development in Central America's non-traditional export crops sector through adoption of integrated pest management practices: Guatemalan Case study. *Sustain. Develop. International* 1:123- 126.
- Li, X., X. Niu, R. A. Bressan, S. C. Weller and P. M. Hasegawa. 1999. Highly efficient plant regeneration of native spearmint (*Mentha spicata* L.). *Cell Dev. Biol. Plant* 35: 333-338.
- Zhang, J., M. L. Salas, N. R. Jordan and S. C. Weller. 1999. Biorational approaches to managing *Datura stramonium*. *Weed Sci.* 47: 750-756.
- Niu, X., X. Li, P. Veronese, R. A. Bressan, S. C. Weller and P. M. Hasegawa. 2000. Factors affecting *Agrobacterium tumefaciens* mediated transformation of peppermint. *Plant Cell Reports.* 19: 304-310.
- Sullivan, G. H., S. C. Weller, C. R. Edwards, P. P. Lamport and G. E. Sanchez. 2000. Integrated crop management strategies in snow pea: a model for achieving sustainable NTAE production in Central America. *Sustainable Dev. International.* 3: 107-110.
- Smeda, R. J. and S. C. Weller. 2001. Biology and control of burcucumber. *Weed Sci.* 49: 99-105.
- Weller, S. C., R. A. Bressan, P. B. Goldsbrough, T. B. Fredenburg, and P. M. Hasegawa. 2001. The Impact of genomics on weed science in the 21st century. *Weed Sci.* 49: 282-289.

P. Veronese, X. Li, S. C. Weller, R. A. Bressan, P. M. Hasegawa. 2001. Bioengineering mint crop improvement. *Plant Cell, Tissue and Organ Culture*. 64: 133-144.

X. Li, Z. Gong, H. Koiwa, X. Niu, J. Espartero, X. Zhu, P. Veronese, B. Ruggiero. R. A. Bressan, S. C. Weller, P. M. Hasegawa. 2001. Bar expressing peppermint (*Mentha X piperita* L. var. Black Mitcham) plants are highly resistant to the glufosinate herbicide Liberty. *Molecular Breeding* 8: 109-118.

Weller, S.C., G.E. Sanchez, C.R. Edwards, G.H. Sullivan. 2002. IPM CRSP success in NTAE crops leads to sustainable trade for developing countries. *Sust. Dev. International* 5:135-138.

Narsimhan, M.L., R.A. Stevenson, J.K. Zhu, S.C. Weller, K.B. Subbarao, R.A. Bressan. 2003. Identification of a locus controlling Verticillium disease symptom response in *Arabidopsis thaliana*. *Plant Journal* 35:574-587.

Weller, S.C. 2004. Late season weed escapes in Indiana soybean fields. *Crop Management* doi:10.1094/CM-2004-0923-01-BR.

Weller, S.C. 2004. Crop rotation and tillage system influence late-season incidence of giant ragweed and horseweed in Indiana soybean. *Crop Management* doi:10.1094/CM-2004-0923-02-BR.

Heraux, F. M. G., S. G. Hallett, et al. 2005. Composted chicken manure as a medium for the production and delivery of *Trichoderma virens* for weed control. *Hortscience* 40: 1394-1397.

Heraux, F. M. G., S. G. Hallett, et al. 2005. Combining *Trichoderma virens*-inoculated compost and a rye cover crop for weed control in transplanted vegetables. *Biological Control* 34: 21-26.

Hillger, D. E., S. C. Weller, et al. 2006. Weed management systems in Indiana tomato production. *Weed Sci.* 54: 516-520.

Hillger, D. E., S. C. Weller, et al. 2006. Emergent weed communities associated with tomato production systems in Indiana. *Weed Sci.* 54: 1106-1112.

Poovaiah, C. R., S. C. Weller, et al. 2006. Adventitious shoot regeneration of scotch spearmint (*Mentha x gracilis* Sole). *In Vitro Cellular & Develop. Biol.-Plant* 42: 354-358.

Poovaiah, C. R., S. C. Weller, et al. 2006. In vitro adventitious shoot regeneration of native spearmint using internodal explants. *Hortscience* 41: 414-417.

Veronese, P., M. L. Narasimhan, et al. 2003. Identification of a locus controlling Verticillium disease symptom response in *Arabidopsis thaliana*. *Plant J.* 35: 574-587.

B. Book Chapters:

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

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

Weller, S.C., C.R. Edwards, and G.W. Norton. 2004. *Globalizing Integrated Pest Management: A Participatory Research Approach*. In, Chapter 5. *Developing IPM Packages in Latin America*. Blackwell Publishing.

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

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

C. Books:

Weed Science, Principles and Practices by Thomas J. Monaco, Stephen C. Weller, and Floyd M. Ashton. Will be published in February 2002 by John Wiley and Sons, Inc., New York.

D. Major Extension and Nontechnical Publications:

Indiana Commercial Tree Fruit Spray Guide, Purdue University, Agricultural Extension Service: Agricultural Experiment Station. 1980-2007. Contributor.

Commercial Small Fruit and Grape Spray Guide, Purdue University, Agricultural Extension Service: Agricultural Experiment Station. 1980-2007. Contributor.

Indiana Vegetable Production Guide for Commercial Growers, Purdue University, Agricultural Extension Service. 1980-2007. 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.

8. Graduate Students, Post Doctorates and Visiting Scientists:

A. Doctoral Students

John B. Masiunas. Thesis: Somaclonal variation in glyphosate tolerance of potato *Solanum tuberosum* L., cv. 'Superior'

1988. William E. Dyer. Thesis: The cDNA encoding the 1st enzyme in the shikimic acid pathway in *Solanum tuberosum* L.

- 1989. William G. Kosinski. Thesis: Biochemical mechanism of field bindweed (*Convolvulus arvensis* L.) biotype tolerance to the herbicide glyphosate.
- 1990. Reid J. Smeda. Thesis: The physiological and molecular characterization of atrazine resistance in photoautotrophic potato cells.
- 1994. James D. Jones. Thesis: Modulation of plant gene expression using anti-sense technology and gene amplification; alteration of shikimate pathway gene expression.
- 1994. James H. Westwood. Thesis: Field bindweed (*Convolvulus arvensis*) mechanisms of differential glyphosate sensitivity among biotypes and characterization and breakdown of self-incompatibility.
- 1995. Carla N.D. Yerkes. Thesis: Characterization of atrazine resistance in photoautotrophic cell cultures and weed biotypes.
- 1995. Valentin A. Esqueda. Thesis: Characterization of an atrazine resistant biotype of jimsonweed (*Datura stramonium* L.) from Indiana.
- 1997. Chad M. Hutchinson. Thesis: Annual rye and *Gliocladium virens* inoculated composted chicken manure as weed control options in horticultural crop production.
- 2001. Xia Li. Thesis: Genetic engineering of mint to confer desired traits.
- 2007. Mary Gumz. Thesis: Site specific weed management in mint.

B. Master of Science Students

- 1983 Francis P. DeGennaro. Thesis: Characterization of field bindweed (*Convolvulus arvensis*) biotypes and factors that influence their susceptibility to glyphosate.
- 1985 Carla N. Duncan. Thesis: The response of field bindweed (*Convolvulus arvensis*) biotypes to glyphosate at the plant, cell and genetic levels.
- 1996 James H. DeMaster. Thesis: Soil management systems for sustainable vegetable production.
- 1998 Roger Leafgren. Thesis: Differential susceptibility of field bindweed to Glyphosate.
- 1999 Jennifer L. Rushman. Thesis: *Amaranthus* species found in Indiana mint fields and their susceptibility to registered mint herbicides.
- 1999 Peter P. Lamport. Thesis: Development of IPM techniques for the control of pea leafminer (*Liriomyza huidobrensis* Blanchard) on snow peas (*Pisium sativum* L.).
- 1999 Farah M.G. Heraux. Thesis: Evaluation of composted chicken manure as a growth and delivery substance for the biological weed control agent *Gliocladium virens* in sustainable vegetable production systems.
- 2001 Carlos D. Mayen. Thesis: Seed bank dynamics in alternative vegetable crop systems.
- 2003 Mary S. Gumz. Thesis: Critical periods of weed control in peppermint.

C. Current students

- Altan Sharkhuu, Ph.D. Thesis: Gene responsible for glyphosate resistance.
- Tristand Tucker, M.S. Thesis: Organic vegetable production.

9. 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.

Extension Talks 2003

- 2/2003 – No-till Vegetable Production Proper Use of Cover Crops, Starlight Vegetable and Fruit Growers Meeting, Starlight, IN
- 2/2003 – Weed Control in Pumpkins, Muskmelon, Cucumbers, Squash and Watermelon, Starlight Vegetable and Fruit Growers Meeting, Starlight, IN
- 1/2003 – Biotechnology Research in Mint Crop Improvement. Tri-State (WA, ID, MT) Mint Growers Meeting, Spokane, WA
- 1/2003 – Diagnosing Herbicide Injury, Indiana Arborists Meeting, Indianapolis, IN
- 1/2003 – Matrix use for morningglory control in processing tomatoes and herbicide update, Raw Products Conference, Indianapolis, IN
- 1/2003 – Organic and Biotechnological Agriculture – outlook for the future. Mint Industry Research Council Meeting, Las Vegas, NV
- 1/2003 – Railroad Herbicide Use and Symptomology on Target Weeds, National Railroad Contractors Association Meeting, Indianapolis, IN
- 1/2003 – Update on Mint Crop Improvement Through Genetic Engineering, Mint Industry Research Council Meeting, Las Vegas, NV
- 1/2003 – Weed Control in Corn and Cucurbit Response to Sandea Herbicide, ILIANA Vegetable Growers Meeting
- 1/2003 – Weed Control Option for Cucurbit Crops, IVGA Annual Meeting, Indianapolis, IN

Extension Talks 2004

- 12/2004 – How Herbicides Kill Plants, Turf and Ornamental Conference, Noblesville, IN
- 12/2004 – RAPD Analysis of Genetic Diversity of Nightshade Species in the North Central Region, NCWSS 59:58
- 12/2004 – Using Remote Sensing to Detect Weed Infestations in Mint, NCWSS 59:157
- 12/2004 – Weed Management Systems in Conventional and Organic Tomato Production, NCWSS 59:35
- 11/2004 – Understanding Spray Adjuvants, Turf and Ornamental Seminar, Purdue University
- 8/2004 – Markets and Trade: Incorporating Pre-Inspection Issues in IPM for Non-Traditional Agriculture Export Crops, IPM CRSP Conference, Washington, DC
- 2/2004 – Molecular Improvement of Mint Using Genetic Engineering, Tri-State Mint Growers Meeting, Madison, WI
- 2/2004 – Sandea Use in Vegetables, Sandea Roundtable Discussion, Gowen Chemical Company, Indianapolis, IN
- 2/2004 – Seed Bank Dynamics in a Tomato/Soybean Rotation, USSA 44:271
- 2/2004 – Site-Specific Weed Management-Potential Applications for Mint Producers, Tri-State Mint Growers Meeting, Madison, IN
- 2/2004 – Weed Identification and Management, Grant County Master Gardeners, Marion, IN
- 1/2004 – Herbicide Mode of Action and Performance, Indiana Nurseryman's Association, Indianapolis, IN
- 1/2004 – Herbicide Resistance Weed Management and Perennial Weed Control in Orchards, Indiana Horticulture Society, Indianapolis, IN
- 1/2004 – Sandea Use in Vegetables and Callisto Carryover Potential, Illiana Vegetable School, Schererville, IN
- 1/2004 – Weather Effects on Herbicide Performance and Backup Plans to Weed Management in Vegetable, Indiana Horticulture Society Meeting, Indianapolis, IN
- 1/2004 – Weed Management Studies in Tomatoes and Carryover Patterns to be Aware of, Raw Products Conference, Indianapolis, IN

Extension Talks 2005

- 1/2005 – Herbicide Selectivity and Mode of Action, National Railroad Contractors Association, Indianapolis, IN
- 1/2005 – Site-Specific Weed Management in Mint, Mint Industry Research Council Meeting, Las Vegas, NV
- 1/2005 – The Pope and the Prince – The Ying and Yang of Agriculture Biotechnology, Mint Industry Research Council Meeting, Las Vegas, NV
- 1/2005 – Herbicide Injury Symptoms (Talk and Demonstration), Indiana Arborists, Indianapolis, IN
- 1/2005 – Weed Control Studies in Processing Tomatoes, Raw Products Meeting, Indianapolis, IN
- 1/2005 – Update on Mint Biotechnology Research, Mint Industry Research Council Meeting, Las Vegas, NV
- 1/2005 Herbicide Characteristics and Injury Symptomology (talk and plant demonstration), National Railroad Contractors Association, Indianapolis, IN
- 2/2005 – Applying Narrow Waveband Indices for Weed Detection in Mint (Poster), Weed Science Society of America Forty-fifth Meeting, Honolulu, HI
- 2/2005 – On-Farm Sampling of Weed/Communities in Three Tomato Management Systems (Poster), Weed Science Society of America Forty-fifth Meeting, Honolulu, HI
- 2/2005 – Late Season Weed Escapes in Indiana Soybean Fields (talk), Weed Science Society of America Forty-fifth Meeting, Honolulu, HI
- 2/2005 – Mint Biotechnology Research, Mid-West Mint Growers Meeting, Chesterton, IN
- 2/2005 – Site-Specific Weed Management in Mint, Mid-West Mint Growers Meeting, Chesterton, IN
- 2/2005 – Weed Management in Mint, Mid-West Mint Growers Meeting, Chesterton, IN
- 9/2005 – Weed Management in Vegetable Crops, Meigs Vegetable Field Day, Meigs Farm, Lafayette, IN
- 12/2005 – Mesotrione and Glomazone Effects on Peppermint and Spearmint Growth and Yield, 60th North Central Weed Science Society Meeting, Kansas City, MO
- 12/2005 – Using Spectral Vegetation Indices for Weed Detection in Mint, 60th North Central Weed Science Society Meeting, Kansas City, MO

Extension Talks 2006

- 1/2006 – Weed Management in Tree Fruits, Indiana Hort Congress (Tree Fruits Session), Indianapolis, IN
- 1/2006 – Zero-distance Breeding of Mint, Mint Industry Research Council Annual Meeting, Las Vegas, NV
- 1/2006 – Herbicide Update in Processing Tomatoes and Grower Panel on Weed Mgmt. Practices, Indiana Hort Congress (Raw Products Session), Indianapolis, IN
- 1/2006 – Herbicide Update – Organic Farming Tour of England and France, Illiana Vegetable Growers Meeting, Schererville, IN
- 1/2006 – Site-Specific Research for Mint Weed Management, Mint Industry Research Council Annual Meeting, Las Vegas, NV
- 2/2006 – Behind the Scenes: How Panels Really Decide Where the Money Goes, Weed Science Society of American-Forty-sixth Meeting, New York, NY
- 2/2006 – How Does Mint Biotechnology Fit Into Improving Pest Management, Mid-West Mint Growers Meeting, Portage, WI
- 2/2006 – New Ideas for Minor Crop Weed Control Programs, Tomato (*Lycopersicon esculentum*) Response to Thifen-Sulfuron-Methyl Application, New York, NY
- 2/2006 – Tomato (*Lycopersicon esculentum*) Response to Thifen-Sulfuron-Methyl Application, Weed Science Society of America – Forty-sixth Meeting, New York, NY
- 2/2006 – Weed Management Issues in Boilermaker Country, Mid-West Mint Growers Meeting, Portage, WI

B. High Impact Extension 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 1600 weed science professionals in the 21 years it has been held and has provided needed continuing educational training to herbicide company personnel, agricultural crop advisers, university weed scientists and students. This course has set the standard for continuing education in weed science and attracts participants from around the world. The course emphasizes 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. This notebook is updated each year and provides the most current information available regarding herbicide mode of action and uses. The notebook is widely requested and provided to weed science instructors at universities to assist in teaching advanced weed science courses. 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.

10. Research Funding.

A. Research Grants/Support 2003-present:

Participatory IPM: A Model for Implementing Pest Management in a Global Context. USAID, IPM CRSP 2000-2005. \$378,730.

Integrated Weed Management in Vegetables. \$79,438 NC-IIPM. 8/02-7/04. (*with: K. Gibson*)

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*)

IPM in Latin America and the Caribbean: Crops for Broad-Based Growth and Perennial Production for Fragile Ecosystem, USAID, IPM CRSP. 2003-2006, \$100,757.

Organic Production Systems for Apples in the Midwest. \$88,790 NC-IMP. 4/13-4/06. (*with: Hirst, Pecknold, Foster*)

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. \$93,375 NC-IPM. 8/02-7/05. (*with: Gibson, Kevin*)

Improving Commercial Mint Varieties Through Biotechnology. \$263,000 Mint Industry Research Council. 2003-present (*with: Bressan, Ray; Hasegawa, Paul*)

Weed Management in Mint. Indiana Mint Marketing and Development Council, \$34,000. 2003-2007.

Mint Crop Improvement. \$15,000 Purdue University. 2005.

David Ross Graduate Fellowship. \$14,377. 2003.

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

Reduced Risk Nightshade Management for Tomatoes. USDA-RAMP - Purdue. \$634,830.00. (Purdue \$151,655) 2001-2004. (*with*: University of Illinois, Michigan State University, The Ohio State University and North Carolina State University)

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

Site Specific Weed Management for IN Mint Production IN. Office Commissioner of Agriculture, \$39,927, 2002-2004.

Distillation Unit for Assessment of Mint Oil Quality Parameters. Purdue University, Mary S. Rice Estate. \$15,000. 2002.

Implementation Model for Regional Global Horticulture Initiative Research. USAID, 2003-2004. Partners: UC Davis, Purdue University, Michigan State University, University of Hawaii, AURDC. Lead-UC Davis \$800,000.

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

IPM CRSP. Virginia Polytechnic Inst & State Univ Agency For International Development. \$25,000.000. 9/30/2004-09/30/2006

IPM CRSP Technical Assistance And Program Leadership/Central America (Guatemala And Honduras). \$19,301.00. 09/30/2004-12/31/2006.

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).

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)

Analysis and Recommendations for Ensuring Sustainability of Roundup Ready Cropping (RUR) Systems. Monsanto Crop Protection Company. \$880,000. 2006-2009.

Misc. Industry Gifts. 2001-2007, \$120,000 to support Weed Management Research.

B. International Agriculture Contributions.

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.

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.

1994 - present Participatory IPM; A Model for Implementing Pest Management in a Global Context. USAID, IPM CRSP. This project is market driven and is involved in exploring export market potential for Central American produce while working to develop improved production methods for growers. Dr. Weller has project involvement to interact with researchers, farmers, government agencies and exporters in Guatemala to develop IPM programs for Non-Traditional Agriculture Export Crops (NTAEs), primarily vegetable and fruit crops. This project has resulted in great improvement in production practices, which lessen pesticide use and helps to insure crops meet export quality standards. This project will help provide long-term sustainability for NTAE crops in Guatemalan agriculture and in providing US consumers with a safe supply of high quality imported produce. Two M.S. students from Guatemala have obtained their degrees at Purdue University conducting IPM CRSP related research.

- 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.
- 2003-2004 USAID Global Horticulture Assessment. Lead member of Purdue University partner with University of California, Davis, University of Hawaii and Michigan State University and The Asian Vegetable Research and Development Center to assess the research needs in a global context for world horticulture production. The team conducted workshops in the US, Latin America, Sub Saharan Africa and Asia and the Near East with Regional Researchers and Stakeholders to assess horticulture research needs. A report with recommendations for action was prepared for USAID.

C. Professional Contributions Outside of Weed Science

- 1980 to present – Member Vegetable Crops Working Group of American Society for Horticulture Science.
Regularly attends ASHS and Plant Biology Annual meetings
Reviewer for Journal of ASHS and HortScience and Plant Physiology Journal.
- 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. Dr. Weller is presently conducting weed control research and genetic engineering research for mint crop improvement for the MIRC.
- 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
- Invited speaker at IX International Congress on Plant Tissue and Cell Culture, June 16, 1998, Jerusalem, Israel to present paper: ‘Multilevel analysis of glyphosate tolerance of *Convolvulus arvensis* biotypes in plants and cultures.
- Invited speaker at 95th Annual Meeting of American Society for Horticultural Sciences, July 14, 1998, Charlotte, NC to present paper ‘Peppermint Transformation: Difficult Species-Dramatic Effects’.
- 2000 – Panel Member, USDA Methyl Bromide Alternatives Panel
- 2001 – Panel Manager, USDA, Methyl Bromide Alternatives Panel
- 2005-2007 – Panel Member, Western Region IPM Panel