

ESA AWARD FOR EXCELLENCE IN
INTEGRATED PEST MANAGEMENT - 2007



Dr. Donn T. Johnson, Professor of Entomology at the University of Arkansas, is the Southeastern Branch nominee for the ESA Award for Excellence in Integrated Pest Management. Donn received a B. S. degree in biology from the University of Minnesota-Duluth in 1973, M.S. in entomology in 1976 and Ph.D. in entomology in 1978 both from Michigan State University. As a graduate student of Dr. Brian Croft, he studied interactions of predatory mites and spider mites and described predatory mite dispersal in apple orchards. He joined the Department of Entomology at the University of Arkansas-Fayetteville in 1978.

Dr. Johnson conducts research in the area of applied insect behavior and ecology, teaches courses in Insect Pest Management and Insect Behavior/Chemical ecology and maintains a Fruit IPM web site at <http://comp.uark.edu/~dtjohnso/>. His research is focused on developing and implementing pest scouting methods and ecologically-based pest management practices for fruit and developing monitoring programs for rice pests.

Since 1983, Dr. Johnson has developed pest management programs for several Sesiid borers of fruit. Drs. John Meyer and Johnson achieved adequate control of grape root borers using mating disrupting. In 2003, Dr. Johnson and his student, Jackie McKern, described the biology of the raspberry crown borer in Arkansas and provided efficacy data to EPA to label Capture 2 EC (bifenthrin) on caneberries against raspberry crown borer.

Since 1985, Dr. Johnson and his research assistant, Barbara Lewis, have received funding from Gerber Products Co. (collaborate with their field representative, Mr. John Aselage) to develop or implemented scouting and alternative pest management practices for peaches and apples. This included mating disruption of Oriental fruit and improving timing of insecticide applications against plum curculio by checking captures in gray pyramid traps in perimeter and perimeter trees baited with kairomone and aggregation pheromone. In 1999, Drs. Johnson and Keith Striegler obtained funding from USDA Southern Regional IPM Center. They demonstrated to growers in six southern states that integrating peach scouting with mating disruption of Oriental fruit moth and other pest management practices growers could significantly reduce the number of insecticide sprays per season. Since 2004, Dr. Johnson has been evaluating an organic apple pest management program integrating entomopathogens, mating disruption and releases of predatory mites to achieve an acceptable level of fruit damage comparable to a conventional spray program.

Dr. Johnson has been studying the chemical ecology and management of green June beetles since 1986. These studies found a female-produced sex pheromone and adults feeding on ripe fruit produce volatiles that elicit feeding aggregations. In 2006, Dr. Johnson used a GC/MS to identify many of the volatiles released by feeding green June beetles. He began testing the attractiveness of different odor blends in hopes of mass trapping this pest.

In 2005, Drs. Johnson and Curt Rom were Co-PIs on grants from USDA Southern Region SARE and the IPM Center. Focus group meetings with 37 fruit growers, processors, research and extension personnel from six southern

state identified barriers to organic fruit production in the Southern Region. The needs include funding a person to coordinate interstate research and outreach on organic production systems and to organize a Southern Region Organic Fruit Working Group. In 2006, Drs. Rom and Johnson received a USDA NRI Organic grant to evaluate use of high tunnels for off-season blackberry and raspberry organic production.

Drs. Johnson and Striegler received funding in 2005 from the Missouri Wine and Grape Board and USDA Viticulture Consortium-East. They are demonstrating and verifying best pest and viticulture management practices in two Arkansas and four Missouri wine grape vineyards. Monthly tailgate meetings have transferred management information to over 100 grape growers. Dr. Johnson and his student, Sandra Sleezer, are assessing the impact and evaluating control practices for foliar and root grape phylloxera for wine grape cultivars and rootstocks growing in the Ozarks.

Since 1998, the Arkansas Rice Promotion Board has funded three students co-advised by Drs. Johnson and John Bernhardt. Dr. Raymond Hix developed and began to implement an aquatic barrier trap to justify and time sprays against rice water weevil. Dr. Tahir Rashid described rice stink bug feeding preference, affects of temperature on its development, developed a sweep net sampling program and made progress describing an economic injury level. Narinderpal Singh worked with Drs. Rolfe Bryant and Johnson and noted that rice stink bug feeding on host panicles induced production of volatiles.

Dr. Johnson has contributed to the advancement of international fruit IPM programs as a consultant with VOCA in the Republic of Yemen (1990), Winrock International in Himachal Pradesh India (1999) and in Armenia (2002-2003) with World Bank IAD/FAO-Armenia/USDA-Armenia. Dr. Johnson collaborated with Dr. Anzhela Azizyan (Armenia) on a grant from USDA-CSREES/MAP-Armenia to evaluate mating disruption against the grape vine berry moth in Armenia and grape berry moth, codling moth and Oriental fruit moth in Arkansas.

Dr. Johnson has been a member of the Entomological Society of America since 1973 (member of Awards Committee, organized a Sesiid symposium), Southeastern Branch of ESA since 1979 (served as Program Chair, organized a fruit and nut symposium and was Chair of the Members Awards Committee), Arkansas and Oklahoma Horticulture Society, International Society of Horticultural Science, and has served as Chapter President for both Gamma Sigma Delta and Phi Kappa Phi.

Dr. Johnson received in 2002 the University of Arkansas John White Team Award for participation in the Grape, Grape Juice and Wine Program; in 2001 the Certificate of Appreciation from USDA/CSREES for being a contributing member of the Multi-state Research Project NE 183: Multidisciplinary Evaluation of New Apple Cultivars; and in 1991 the Certificate of Appreciation from the Arkansas State Horticultural Society.

Dr. Johnson has advised 8 M.S. and 3 Ph.D. students, Drs. Dan Horton and Johnson co-edited the "Southeastern peach grower's handbook;" published > 48 research articles and > 100 bulletins/proceedings/reports; and received over \$1,100,000 in grants. He has made over 15 international, 75 national and state research presentations and over 170 extension presentations.