Perspectives for Organic Crop Production in the Tropics.
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Because of the more favourable environment for crop pests and diseases, higher decomposition rates and loss of nutrients through leaching, tropical environments would not, at first, seem to be very productive for crop production without the use of agrochemicals. However, when agrochemical use was suspended on an experiment which had been in maize and bean production for twelve years and which received frequent applications of insecticides, fungicides, herbicides and mineral fertilizers, crop yields increased when nutrients were supplied from chicken manure, weed was controlled manually and by green cover with _Canavalia ensiformis_ (L.), and insects and diseases were controlled by spraying with a liquified mixture of garlic, capsicum pepper and soap. The use of the variety of biological systems seems to provide a promising environment for the development of diverse sustainable organic production systems which will sustain human nutrition of current and future generations.

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Organic Farming Research and Extension in the Land Grant System.
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Organic farming has increased to a $4.5 billion industry in the U.S. and continues to expand approximately 20% annually. Land Grant universities have recognized the need to address educational and research priorities of the organic industry by instituting classes, programs, and faculty positions in organic agriculture. Embracing an interdisciplinary focus, courses in agricultural engineering, economics, forestry, horticulture, agronomy, soil science and pest management comprise the organic agriculture curriculum. Examples of classes, integrated into the traditional agriculture curriculum, and specific organic agriculture research and extension programs offer much promise for future industry participants. Constraints and incentives facing educators and researchers working in organic agriculture at Land Grant institutions include tenure and promotion, along with community support.

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The Scientific Congress on Organic Agricultural Research: Building the Organic Research and Extension Agendas.
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Presentation will cover: 1) analysis of historical limitations on scientific dialogue about organic agricultural research; 2) trends in public policy and the marketplace which are encouraging research and extension for organic systems; 3) prospects for collaboration between producers and scientists on defining research and extension agendas for organic agriculture; and, 4) description of a national project to develop organic research and extension agendas - the Scientific Congress on Organic Agricultural Research (SCOAR).

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Assessment of Organic Farmers' Research and Extension Needs: Results of the 3rd Biennial National Organic Farmers' Survey. E. E. WALZ, Organic Farming Research Foundation.

Data regarding organic farmers' research and information needs is important to the development of research and extension programs that serve organic farmers, farmers seeking to transition to organic farming practices, and the development of sustainable farming practices transferable to various agricultural systems. The results of OFRF's *Third Biennial National Organic Farmers' Survey* articulate organic farmers' research and information needs as identified by research priority topic-area rankings, and responses in farmers' own words. Top priority areas include systems-level research, e.g., *the relationship between fertility management and crop health, pest and disease resistance* and *crop rotations for fertility and pest management*. Survey data also include identified barriers to organic production, current production and marketing strategies, and demographic information. The survey was distributed by mail in winter 1998 to 4,638 certified organic farmers across the United States belonging to 55 organic certification organizations or their chapters. 1,192 responses (26%) were returned from organic farmers in 45 states. This presentation will focus on research priorities, information channels, production methods and problems.

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Organic Systems Research in USDA-ARS. K.D. MURRELL, USDA-ARS, National Program Staff, Beltsville, Maryland.

Organic farming requires a systems approach for food production. Although much of the research ARS conducts on sustainable agriculture, alternative pest controls, and IPM is applicable to organic agriculture, it is often conducted in production systems that may prevent organic standard certification. There is strong need for research to be conducted within an organic farming environment. Recently, ARS initiated on-farm research with organic farmers to address their most pressing problems and to develop practices applicable to their production systems. The priorities guiding these studies are those identified by the Third Biennial National Organic Farmers Survey; these include weed control, soil fertility management, soil biology, and disease and pest control. The outcomes will help to gain a sound knowledge base on how organic systems perform and improve strategies for maximizing productivity. ARS expects to build on these initial projects to expand the scope and diversity of organic farming systems research.

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Use of Descriptive Case Studies to Facilitate Grower Adoption of No-Till Cropping Systems in the Inland Northwest.
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Most established no-till farmers in the Inland Northwest say a key to their success was having other no-tillers share field-based experiences and wisdom with them as they developed their own system. A series of 17 descriptive case studies allows growers and others to learn from experienced no-tillers throughout the region. The cases are developed in close collaboration with the featured grower(s) and published as extension bulletins. They include the grower's farming practices and equipment; decision-making factors; challenges and strategies; and, for some, economic analysis. When appropriate, the cases also include summaries of research relevant to the grower's operation. The case studies are intended for growers as well as agency staff, agribusiness personnel, creditors, and students.

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Conservation System Alternatives for Grass Seed Production in the Pacific Northwest. J.J. Steiner*, S.M. Griffith, H.W. Gordon, T.M. Gohlke, and G.W. Mueller-Warrant. USDA-ARS, Corvallis, OR and USDA-NRCS, Portland, OR.

The economic and environmental impact trade-offs for implementing conservation practices in Pacific Northwest grass-seed cropping systems have not been defined. These systems have historically relied on large quantities of agricultural chemicals, intensive disturbance practices, and open-field burning to establish crops, control diseases and weeds, and dispose of post-harvest residues. We have shown that substantial establishment cost savings will be realized on hill-land sites using no-till rotation systems. In contrast, valley-floor production systems have similar establishment costs using either conventional disturbance or low-disturbance practices. Field preparation operations cost savings using no-till is traded for non-selective herbicide costs, compared to conventional disturbance planting methods. Soil quality measured by the soil conditioning index can be substantially improved using no-disturbance methods in all grass seed systems. However, perennial grass seed systems are very protective of soil quality, except in years of crop change. Site-specific measurements of soil quality parameters are used to validate model findings.

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Economic & Social Considerations of Buffers.
J. P. Colletti , R. C. Schultz , T. M. Isenhart , S. E. Jungst, *Iowa State Univ.*

Riparian buffers are expected to and can provide important water quality benefits to landowners and the public. Buffers can also provide marketable products and other benefits such as enhanced wildlife habitat. This paper will present social and economic considerations of buffers based on a Midwest watershed. The costs of establishment and maintenance are variable and known. In Iowa, a 20 m wide tree, shrub, and grass riparian buffer costs about $1,300 ha(^-1). We have strong evidence that a 20 m buffer traps and transforms 50 to 70% of sediments and above and below ground chemicals, the monetary values associated with these reductions in non-point source pollutants are not well known. People do desire and value clean water, however. Central Iowa farmers and nonfarmers want cleaner surface water quality and are willing to pay between $24 to $48 per person annually to achieve it.

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