Features

8 Viewpoint: The changing policy environment for the 1990 farm bill
Don Paarlberg contends that farmers must learn to play a new game in the agricultural policy arena

9 Mainstreaming low-input agriculture
Neill Schaller looks at the means and ends of achieving sustainability in the use of agricultural resources

13 Low-input, sustainable agriculture: Myth or method?
Charles W. Stenholm and Daniel B. Waggoner suggest that the challenge in the 1990s will be to strike a reasonable balance between competing interests and goals in sustainable agriculture

18 Agriculture's search for sustainability and profitability
John E. Ikerd discusses the tradeoffs between environmental stewardship and a productive, competitive agricultural industry

24 Policy proposals to foster sustainable agriculture
Chuck Hassebrook and Ron Kroese examine opportunities for the 1990 farm bill to foster development of sustainable farming systems

28 Social traps and incentives: Implications for low-input, sustainable agriculture
Jeffery R. Williams suggests that sustainable farming systems could be encouraged with incentives that break current social traps

31 Sustainable agriculture: Perspectives from industry
Five representatives of the agricultural chemical industry share their corporate views on the concept of sustainability

34 Sorting out the environmental benefits of alternative agriculture
Pierre Crosson and Janet Ekey Ostrov analyze the economic and environmental benefits of sustainable farming practices

42 Low-input agriculture and soil conservation
Klaus W. Flach says the objectives of sustainable agriculture and soil conservation can be compatible and complementary

45 Farm price distortions, chemical use, and the environment
Clayton W. Ogg looks at farm commodity program options that could benefit both farmers and the environment

48 Low-input agriculture reduces nonpoint-source pollution
Anne C. Weinberg outlines how state nonpoint-source management programs can promote use of low-input agricultural practices

51 Research approaches for ecological sustainability
Richard Lowrance says research on alternative farming systems, including chemical management, should aid the search for ecological sustainability

55 Specificity: The context of research for sustainability
D. T. Walters, D. A. Mortensen, C. A. Francis, R. W. Elmore and J. W. King suggest that agricultural operators today require farm- and field-specific information to manage chemical inputs

58 Research needs for sustainable agriculture
James J. Vorst reports on a series of meetings at which farmers and university researchers examined the direction that sustainable agricultural research should take

61 LISA: Some early results
J. Patrick Madden and Paul F. O'Connell review progress in the U.S. Department of Agriculture's new low-input, sustainable agriculture program

65 Practical applications of low-input agriculture in the Midwest
Charles A. Francis summarizes strategies farmers in the Midwest are implementing to sustain productivity and profitability while protecting the environment

68 Crop rotations: Sustainable and profitable
Roger L. Higgs, Arthur E. Peterson, and William H. Paulson take a new look at the time-tested benefits of crop rotation

71 Low-input farming systems under conservation compliance
Dana L. Hoag and Kevin E. Jack examine how the new conservation compliance provisions can affect adoption of sustainable farming systems

75 Sustainability of dryland cropping in the Palouse: An historical view
Michael D. Jennings, Baird C. Miller, David F. Bezdicek, and David Granatstein discuss sustainability in one of the nation's most fragile agricultural regions

81 Perennial grain: New use for intermediate wheatgrass
Peggy Wagoner outlines research at the Rodale Research Center on developing wheatgrass as a perennial grain crop
and sustainable cash
and natural resources
farmers face in adopting
dilemmas that cash grain
86
Commodity programs and sustainable cash
grain farming
Bruce E. Lyman, Richard A. Levins, Michael A. Schmitt, and William F. Lazarus
analyze the common
dilemmas that cash grain
farmers face in adopting sustainable farming
methods
Commentary
89
Sustainable agriculture: Who will lead?
Fee Busby says that
solutions to today’s
agricultural problems
require that people have the
freedom to think and act on
their thoughts to solve local
problems
91
An open letter to the
agricultural community on
defining sustainability
Rick Williams contends that sustainability cannot be
defined only in measurable
parameters, but involves
diversity of involvement, thought, and action
93
The flexibility of sustainable agriculture
Wilson Scaling suggests that practical resource
management offers
producers the flexibility to
reduce costs, meet consumer
demands, increase profits, and aid the environment
94
Agriculture’s role in protecting water quality
Susan Offutt says that
farmers ultimately will be
responsible for changing production practices to
avoid contaminating ground-
water and surface water
96
Converting to pesticide-
free farming: Coping with institutions
Jim Bender outlines
obstacles that farmers face in eliminating use of
agricultural chemicals
98
Wildlife and fish and sustainable agriculture
Ann Y. Robinson says low-
input, sustainable farming practices offer the promise of
deeper wildlife habitat
Research reports
115
Nitrogen status of corn after alfalfa in 29 Iowa fields
N. M. El-Hout and A. M. Blackmer
117
Soil physical properties after 100 years of continuous cultivation
S. H. Anderson, C. J. Gantzer, and J. R. Brown
121
Farming systems’ influences on soil properties and crop yields
D. H. Rickerl and J. D. Smolik
125
 Tillage and cover crop effects on grain sorghum yield and nitrogen uptake
R. G. Lemon, F. M. Hons, and V. A. Saladino
128 Spatial dimensions of farm input intensity: A pilot study
Abram Kaplan and John Steinhart
132 Factors affecting farmers’ use of practices to reduce commercial fertilizers and pesticides
Paul Lasley, Michael Duffy, Kevin Kettner, and Craig Chase
137 Sustainable production from the Rough Fescue Prairie
Johan F. Dormaar and Walter D. Willims
140 The potential for LISA-type nitrogen use adjustments in mainstream U.S. agriculture
Jay Dee Atwood and S. R. Johnson
144 Reducing field losses of nitrogen: Is erosion control enough?
Fritz M. Roka, Richard A. Levins, Billy V. Lessley, and William L. Magette
148 Simulated effects of rapseseed production alternatives on pollution potential in the Georgia Coastal Plain
154 The economic impact of conservation compliance on northern Missouri farms
Nyle C. Wollenhaupt and Melvin G. Blase
Departments
4 The SWCS View
6 Pen points
100 In the news
108 Professional services & classifieds
109 Upcoming
110 Books, etc.
Cover: Agricultural engineer James L. Butler of Tifton, Georgia, examines corn planted in a Tifton 44 bermudagrass sod. Agricultural Research Service photo by Rob Flynn.