<table>
<thead>
<tr>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>18</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td>34</td>
</tr>
<tr>
<td>42</td>
</tr>
<tr>
<td>45</td>
</tr>
<tr>
<td>48</td>
</tr>
<tr>
<td>51</td>
</tr>
<tr>
<td>55</td>
</tr>
<tr>
<td>58</td>
</tr>
<tr>
<td>61</td>
</tr>
<tr>
<td>65</td>
</tr>
<tr>
<td>68</td>
</tr>
<tr>
<td>71</td>
</tr>
<tr>
<td>75</td>
</tr>
<tr>
<td>81</td>
</tr>
</tbody>
</table>

---

**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**
  Neil 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**

- **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.
83 Sustainable agriculture at work
Carey L. Draeger tells how a new Michigan program is helping farmers and forest producers conserve energy and natural resources

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 groundwater 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 better 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. Rickert and J. D. Smolik

125 Tillage and clover 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. Willms

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 rapsseed 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
110 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.