Living mulch: Creeping red fescue
### Data from Mature Vineyard at ISU Horticulture Station - 2005

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Percent weed cover</th>
<th>Water Infiltration</th>
<th>Water-Filled Pore Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>May</td>
<td>July</td>
<td>Aug</td>
</tr>
<tr>
<td>Living mulch</td>
<td>1.1 bc</td>
<td>3.3 c</td>
<td>3.5 c</td>
</tr>
<tr>
<td>Straw mulch</td>
<td>8.7 bc</td>
<td>0.0 c</td>
<td>2.4 c</td>
</tr>
<tr>
<td>Herbicide</td>
<td>16.8 b</td>
<td>87.9 b</td>
<td>30.0 b</td>
</tr>
<tr>
<td>Cultivation</td>
<td>98.3 a</td>
<td>95.2 a</td>
<td>93.0 a</td>
</tr>
</tbody>
</table>

Mean separation by LSD (P >0.05).
Summary of Results

Preliminary results for mature vineyard:

• Living mulch and straw mulch inhibited weed growth as well as herbicides in July and August, with no reduction in grape yield or berry quality.

• Living mulch had higher infiltration rate than all other treatments.

• Preliminary results indicated that the rate of soil respiration, an indicator of microbial activity in the soil, was highest in the living mulch treatment plots of the mature vineyard at both 0 – 3 and 3 – 6 inch soil depths (data not presented).
What is a Soil Quality Test Kit?

A field kit that can be used by growers or consultants to take soil measurements and see the results without sending samples to a laboratory for analysis.
Taking water infiltration measurements
Measuring soil respiration with the soil quality test kit
To learn more about the soil quality test kit, visit Craig at his display table in the trade show.
Future Research

- Continue research through 2006.
- Develop recommendations for weed control practices to maintain and improve soil quality.
- Continue to evaluate soil quality test kit.
Influence of Cover Crop or Conventional Practices on Pests and Soil Properties of Grapevine

Investigators:
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Horticulture Dept., Iowa State University
Objectives

- Evaluate long-term cover cropping effects on soil chemical, physical and biological properties on a site that was previously in grapes.
  - Cover crops to improve soil sustainability
- Determine pest (weed and nematode) presence after different systems.
  - Alternative pest management techniques
- Compare rotational cover cropping systems to conventional system.
  - Alternative land uses while in rotation
Experimental Treatments

- **Pre treatments (main plots)**
  1. *Rudbeckia hirta* (blackeyed Susan)
  2. *Panicum virgatum* (switchgrass)
  3. Pre-emergent and Glyphosate herbicide management
  4. Hand cultivation

- **Post treatment methods (2005)**
  - Glyphosate herbicide burndown (subplots):
  - Planted with grafted or non-grafted ‘Seyval Blanc’ (C. 3309 or own roots)
Preliminary Results

- **Weed competition**
  - Lowest weed population in Blackeye Susan treatment
  - Switchgrass grew back in late summer

- **Vine growth**
  - More plant growth with grafted vines (Seyval Blanc/C.3309)
  - Note: grafted vines require winter mulch protection

- **Water infiltration**
  - Higher water infiltration in Blackeye Susan treatment
  - Potential for less runoff when using cover crops
Future Data Collection

- Weed presence
- Nematode
  - Presence and identification
- Soil Parameters
  - Chemical, physical and biological parameters