Agroecological engineering to foster IWM

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A success story

- Durum wheat + subterranean clover living mulch
- 2 rows of wheat + 25-cm band of clover
- Complementarity of resource use

Developed at Coop. Biologica Collevalle Agrinatura Bomarzo (Viterbo), Italy (420 ha)
A success story

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• Durum wheat yield: ca. 10-15% less than in standard
• With 50% less wheat seeds
• Reduction of fertiliser costs for sunflower
• Extra income: grazing rent = ca. 500 Euro/ha

Developed at Coop. Biologica Collevalle Agrinatura Bomarzo (Viterbo), Italy (420 ha)
## Weed management effects

Durum wheat: total weed density in 1997 (plants m\(^{-2}\))

<table>
<thead>
<tr>
<th>FERTILISATION TYPE</th>
<th>TILLERING</th>
<th>HARVEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>16.2 a</td>
<td>1.5 a</td>
</tr>
<tr>
<td>Chicken manure 15 cm*</td>
<td>8.7 b</td>
<td>1.1 ab</td>
</tr>
<tr>
<td>Chicken manure 40 cm*</td>
<td>12.6 ab</td>
<td>0.7 b</td>
</tr>
</tbody>
</table>

*Depth of incorporation in soil

Total (average) weed biomass at harvest: **11.1 g m\(^{-2}\)**

Bàrberi *et al.* (1998)
Five take home messages

1. The success of IWM is based on **diversity** and ecological knowledge
2. Successful weed management starts from targeted redesign of **crop rotation**
3. There are no silver bullets in IWM: need of a **system approach**
4. Weed management solutions promoting homogeneous cropping systems do not work in the long run (e.g. herbicide-resistant crops)
5. Policy instruments are **already in place**