SOILS
AND NATURAL FLOOD MANAGEMENT
Soil runoff incident
The cause?
• Extreme rainfall?
• Bare soil?

The solution?
• No ploughing?
• Soil cover?
Understanding of soil hydrology
NATURAL RUNOFF PROCESSES

Infiltration excess overland flow

Through flow –
1. Freely draining soil and substrata
2. Slowly permeable soil and substrata

Saturation excess overland flow
BROWN SOILS – naturally well drained

GLEY SOILS – naturally poorly drained
Poor soil structure

Good soil structure
Runoff experiments at Boscastle

60% runoff from grassland with moderate / poor soil structure
2% runoff from grassland with good soil structure
<table>
<thead>
<tr>
<th>Field Type</th>
<th>Litres</th>
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<tbody>
<tr>
<td>Undersown</td>
<td>53</td>
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<td>Chisel plough</td>
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<td>Stubble</td>
<td>228</td>
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<td>Cover crop</td>
<td>179</td>
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Freely draining soils

Field vegetables

Outdoor stock

Cereals

Grassland
Slowly draining soils

- Winter grazing
- Wetlands
- Silage cutting
- Maize
- Crops
Upland soils
Peaty soils and compaction
Upland soils

Freely draining soils

Deep peats

Slowly draining soils
Ottery St Mary

Drainage Subsoiling Timeliness

Wetlands

Winter grazing

Forest tracks
• Know the soil type
• Know the state of soil structure
• Short term & long term solutions