

The power of raindrops



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Voluntary Initiative

Run-off in perspective

- In winters with no drain flow there are measurable levels of pesticides in raw water due to point source (VI webinar on 8th September) and run-off
- To reduce run-off by improving soil infiltration rates means more through the drains but at least the soil may act as a biofilter
- Simple measures can reduce run-off into watercourses
- The big prize is that reducing run-off means reducing water erosion

Identifying risk



Compacted wheel marks or tramlines reduce infiltration rates and act as conduits to water courses and 'deltas' form

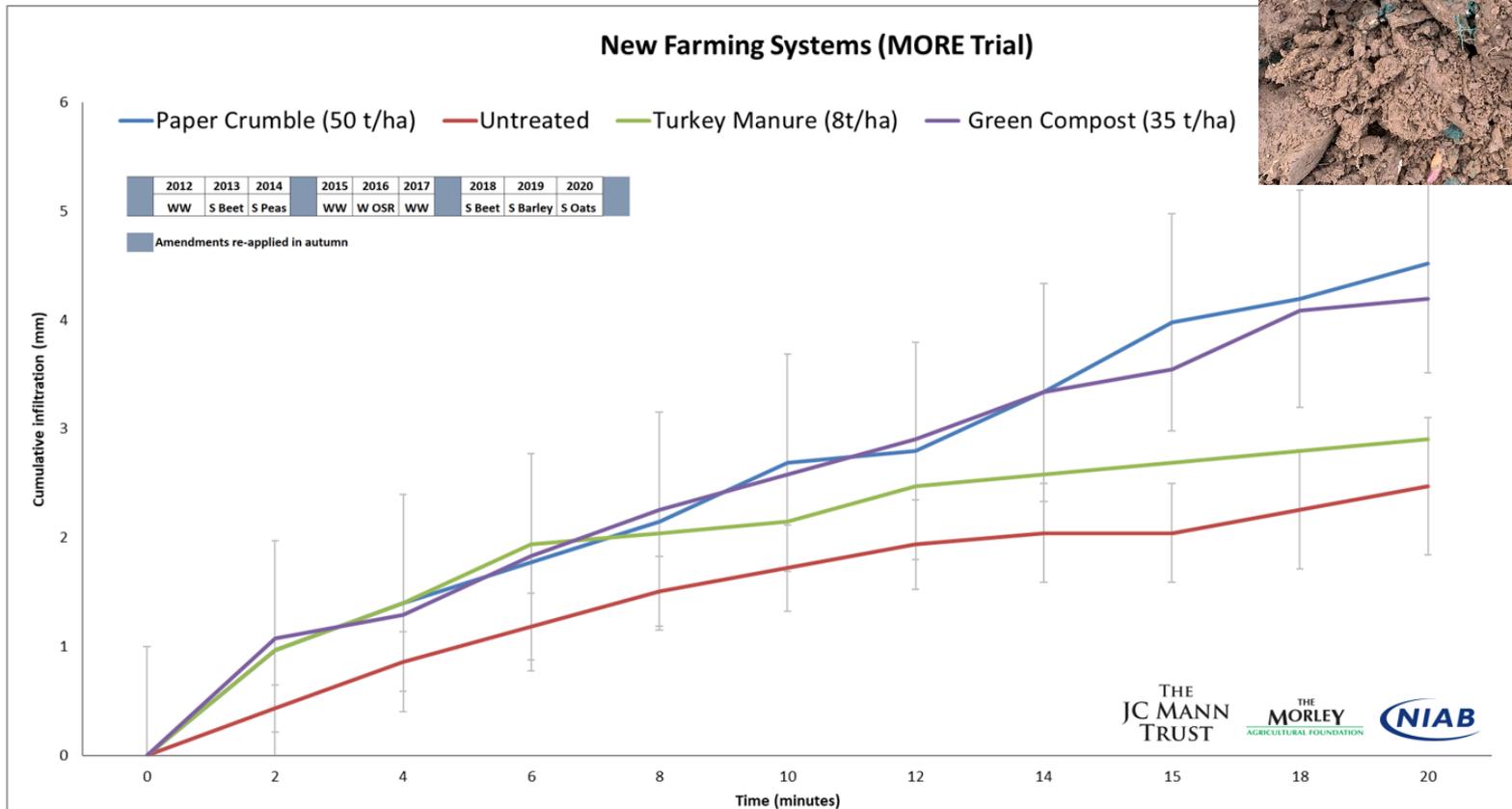
Common features:
flattish top & then slope (>1 in 30)
heavy rain shortly after cultivation
no plant cover (need >40% cover)

Trapped the sand but the finer soil particles that have pesticides attached are gone despite generous width of buffer strip (vegetation heavily grazed)



Role of cultivation type and depth complex and no unanimity in research results. Variation in results could be due to:

- Timing and pattern of rainfall
- Soil type
- Soil structure
- Number of years cultivation practised
- Soil organic matter (soil aggregate stability)



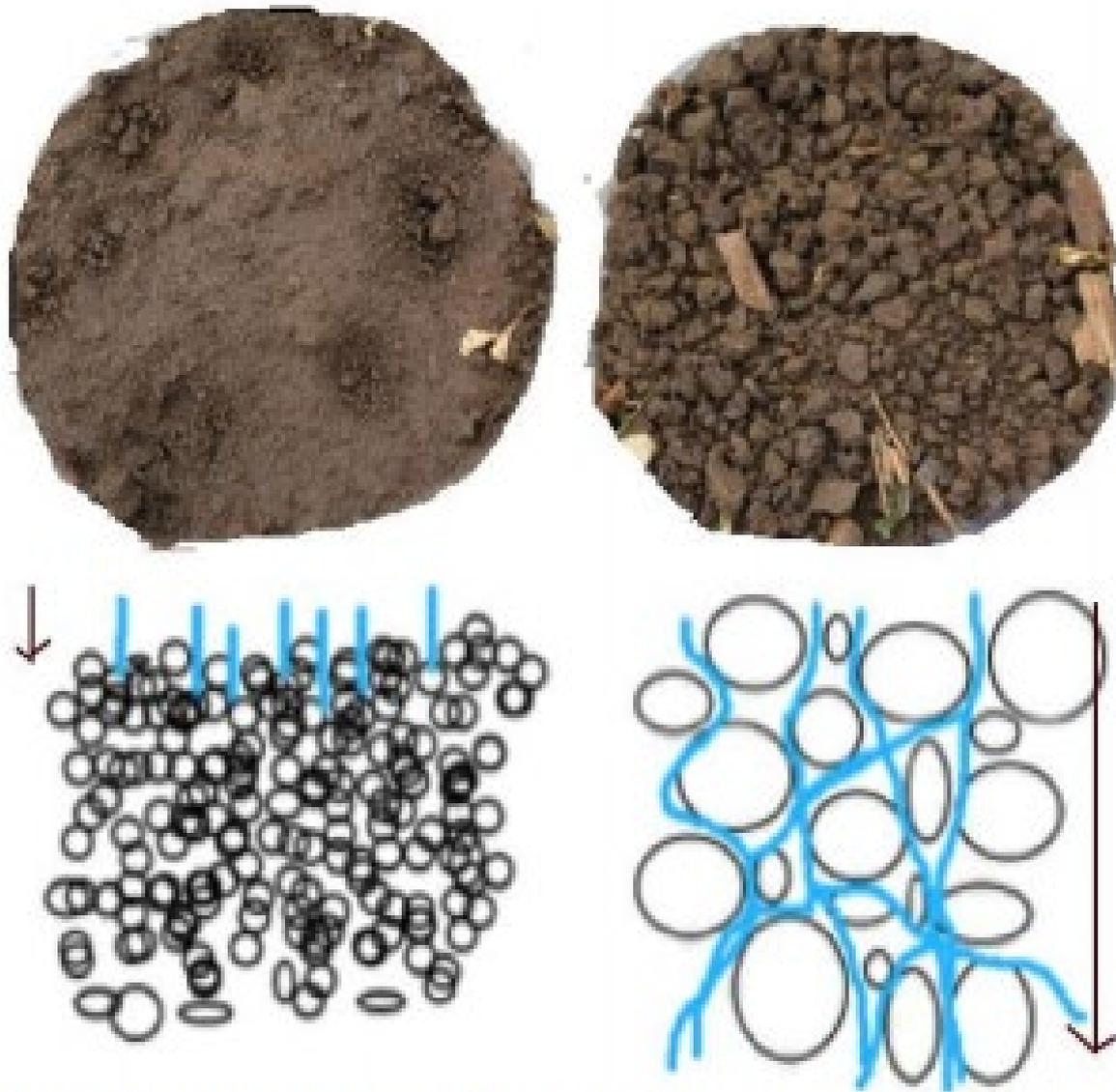


Figure 2. Unstable aggregates lead to reduced infiltration and surface sealing (left). Stable aggregates permit better infiltration (right).

Final thoughts

- Identify high risk fields for run-off. Note that less steep slopes may pose higher run-off risks
- Avoid growing crops on high risk fields which need high risk (to water) herbicides
- Prioritise crops grown on high risk fields in terms of soil management (organic matter), cultivation timing (particularly in relation to rainfall events) and crop establishment
- Good plant cover can prevent impact of raindrops on the soil surface and improves infiltration rates. Needs to be >40% for significant reductions in run-off
- Think tramlines – minimise compaction and avoid field entries for machinery being field exits for water
- Establish long-term buffer strips (and buffer dry valleys). How wide? – go and look