Benefits of No-Till in Hawaii

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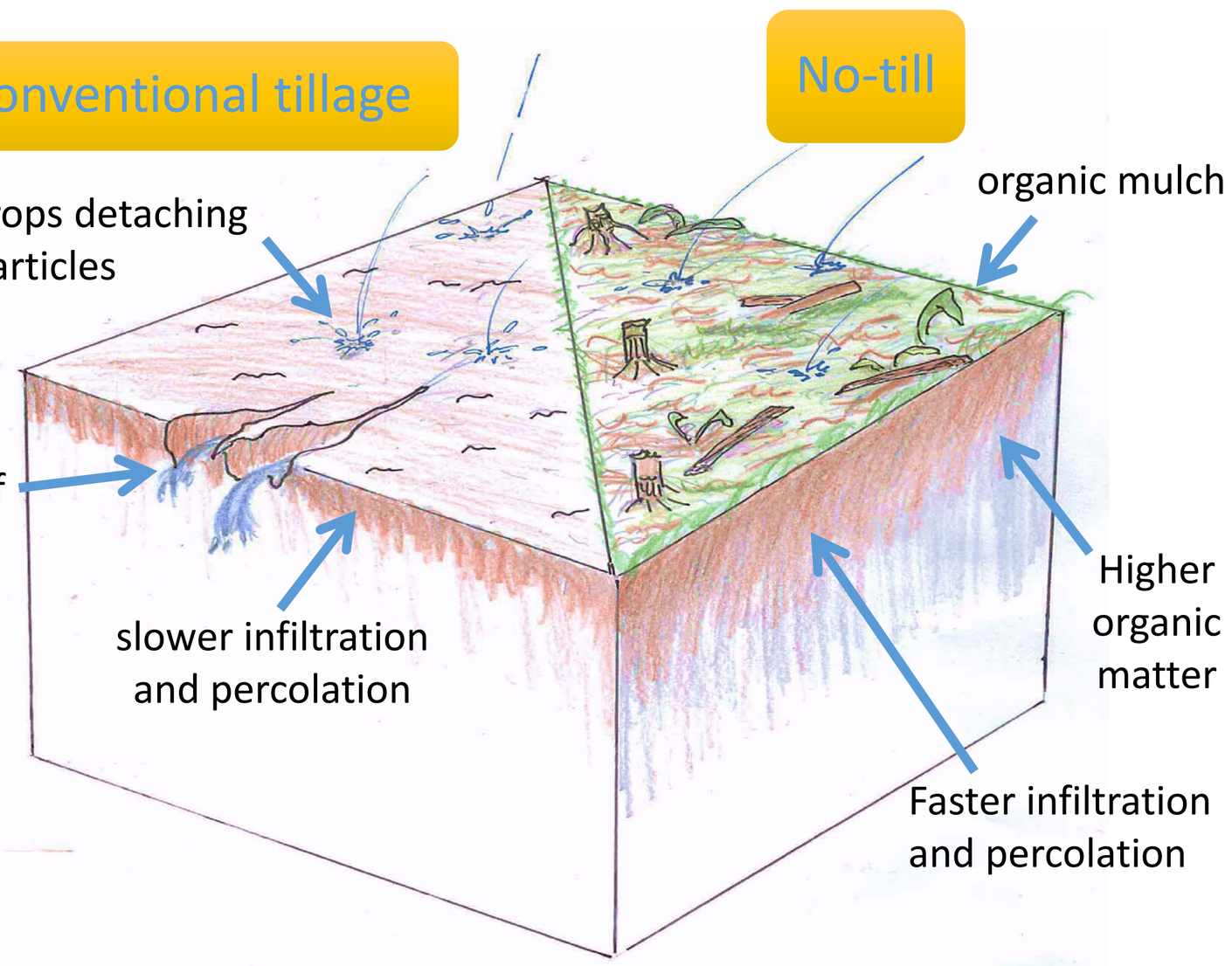
CRATE



Benefits of No-Till

- Reduced soil erosion
  - Less water run-off
- Increased soil organic matter
  - Increase cation exchange capacity
  - Improve soil water holding capacity
- Increase soil aggregation
  - Improve water infiltration and percolation
- Increase soil biodiversity and activities
  - Enhanced soil nutrient cycling
  - Conserve natural enemies against soil pests
  - Promote weed seed predation
  - Reduce weed seed bank
- Reduced farm inputs
  - Labor
  - fuel

Corn Field Experiment

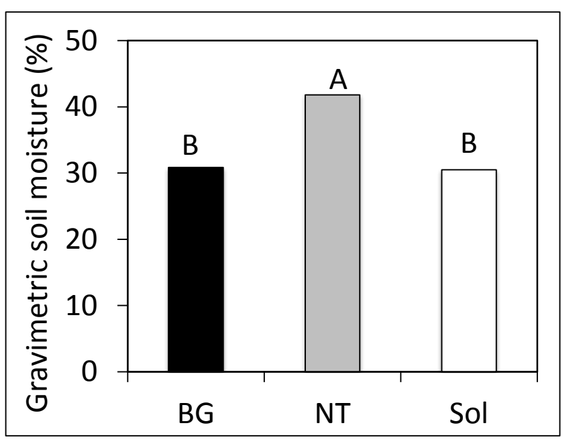
7 years no-till (NT), black oat as cover crop plus *Crotalaria spectabilis* as additional organic mulch

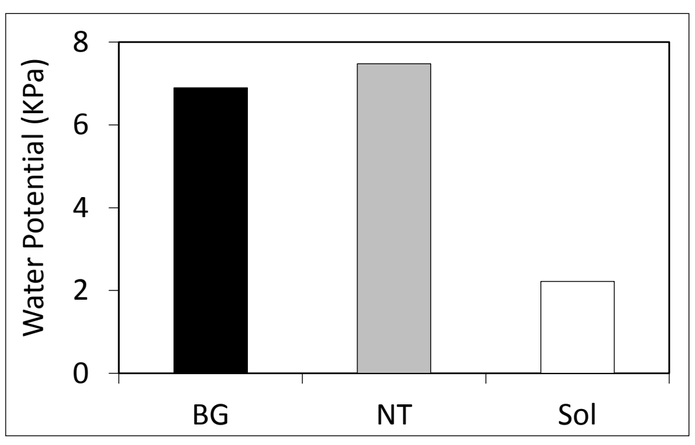
Conventional tillage, bare ground (BG)

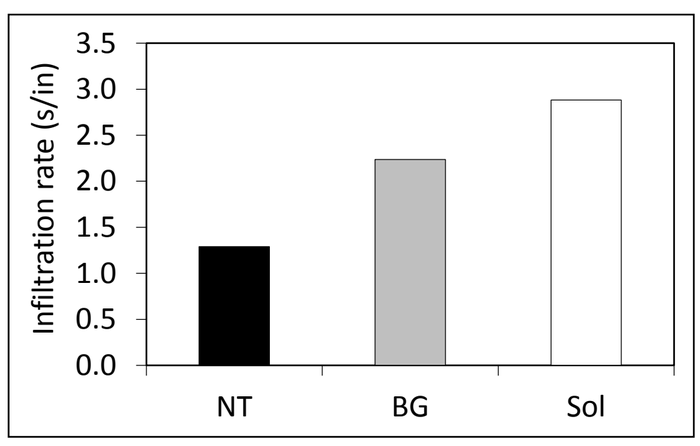
Solarization (Sol)

Results

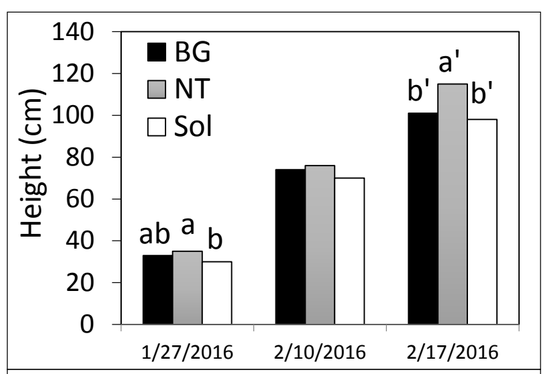
No-till conserved soil moisture, improved water infiltration and percolation and soil aggregation

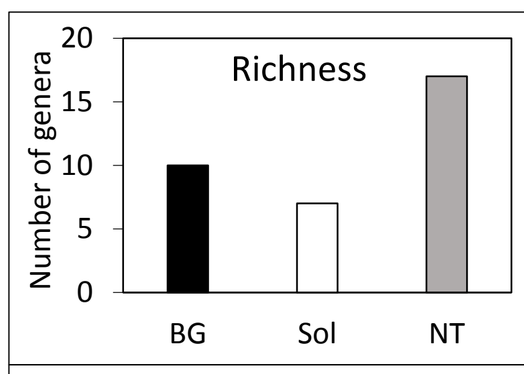


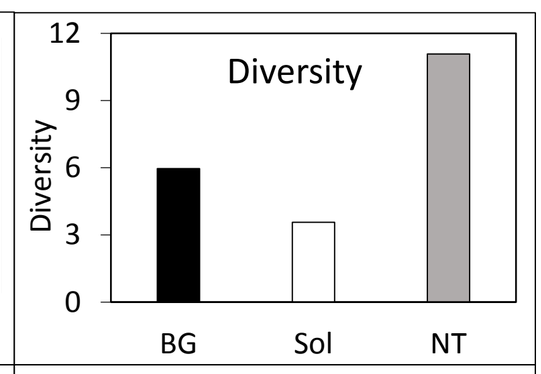


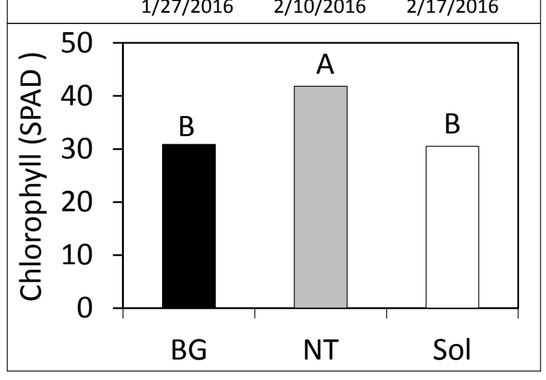


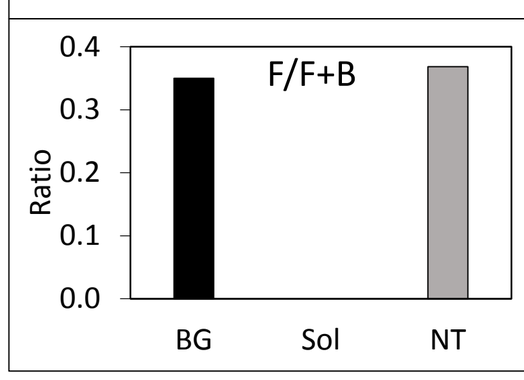
No-till enhanced corn growth, soil health (based on nematode community analysis), and natural enemies against soil pests

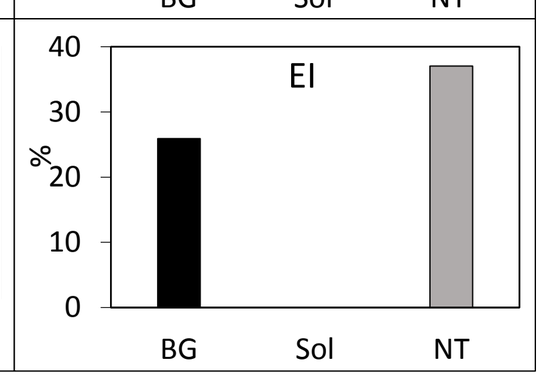


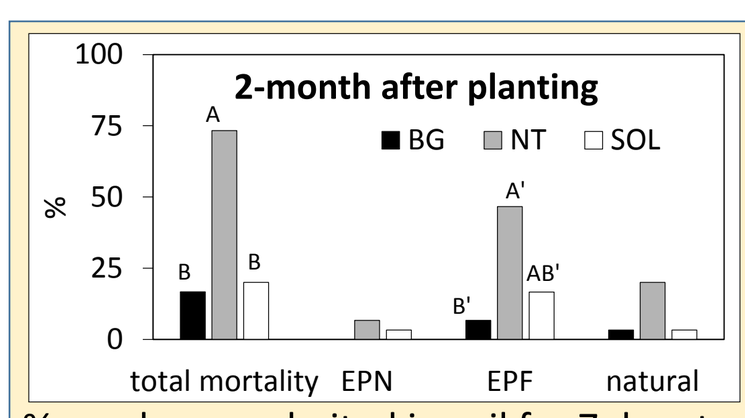












% meal worms baited in soil for 7 days to assay for entomopathogenic nematodes (EPN) and fungi (EPF).

F/F+B (High=Fungal dominated decomposition, Low=Bacterial dominated decomposition)
EI = Enrichment index (assess populations of opportunistic bacterivores and fungivores indicating nutrient mineralization)

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