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Project 1

Agronomic and Hydrological Impacts of Improved Land Management Practices along the slopes of the Choke Mountains

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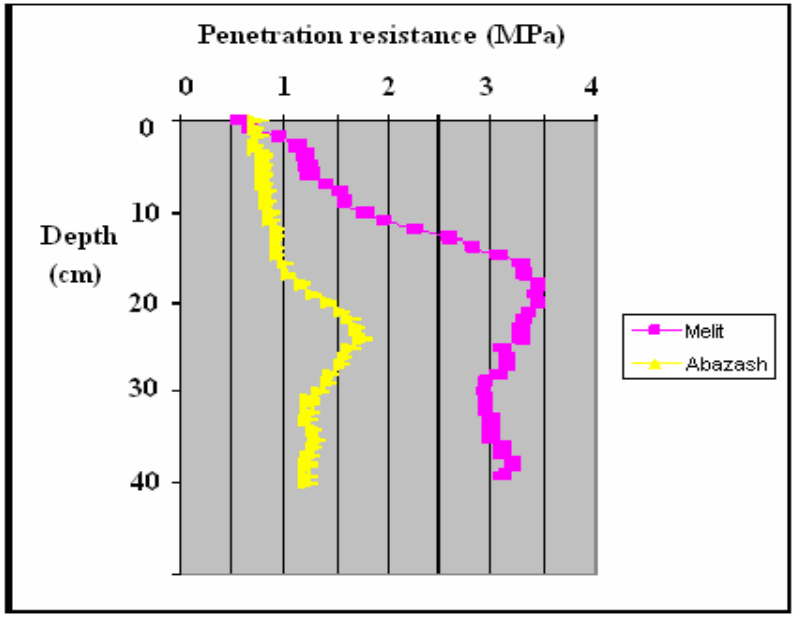
Problem: Poor performance and low adoption of Soil Conservation Structures (SCS)

Reasons: Wasted crop land, breakdown of SCS, waterlogging, inconvenien to plowing

- Accelerated runoff as a result of plow pans and cross plowing



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Water logging behind SCS hinders adoption of soil conservation structures in high rainfall areas

Causes: Poor infiltration and cross plowing

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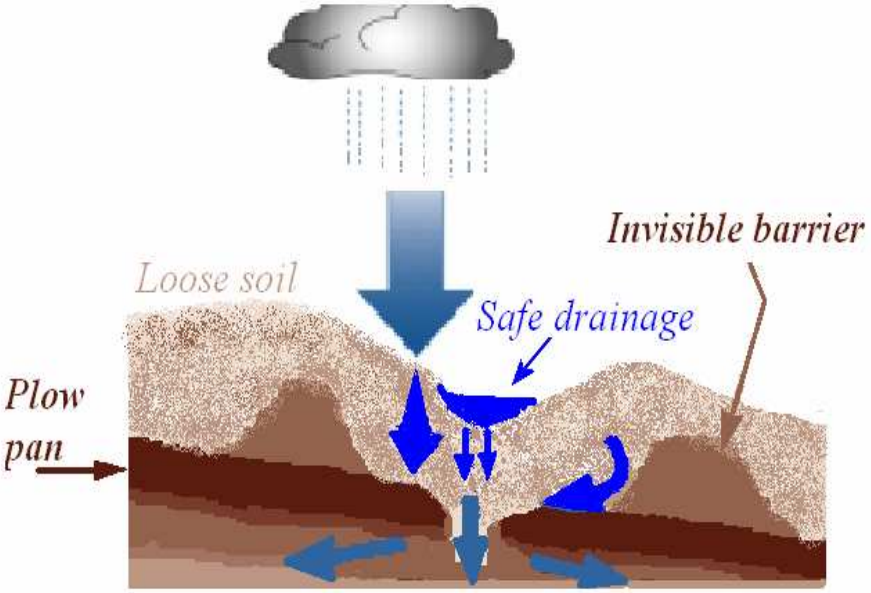
Intervention: Conservation tillage



- Increase infiltration (reduce waterlogging and breakdown of SCS)
- Enable farmers avoid cross plowing
- Save crop land (widening of spacing, leave out SCS in moderate slopes)

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Plot scale experiments

Objectives: to study the effect of integration of conservation tillage with soil conservation structures on crop yields, infiltration, surface runoff, soil erosion, convenience of operations

Methods

- Study area: Enerata (7km from Debre Markos town, East Gojjam, upper Blue Nile, Ethiopia)
- 5 farmers involved in the research
- Training given to farmers on the application of locally adapted conservation tillage system
- Fanya Juus applied with or without conservation tillage
- Test crops: tef, and wheat

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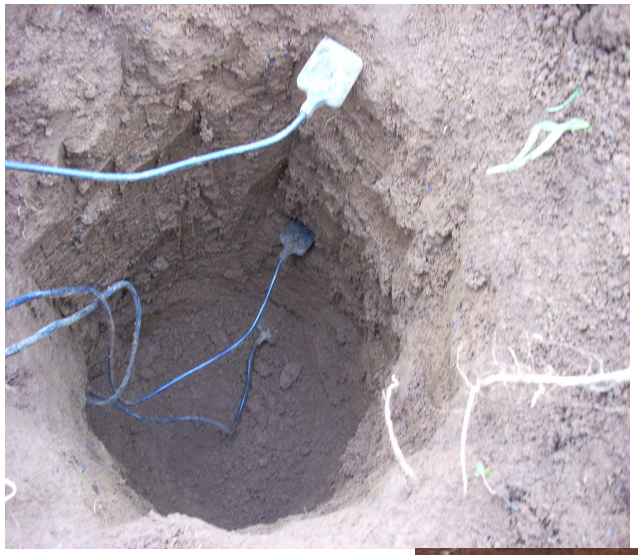
Soil moisture, surface runoff and infiltration



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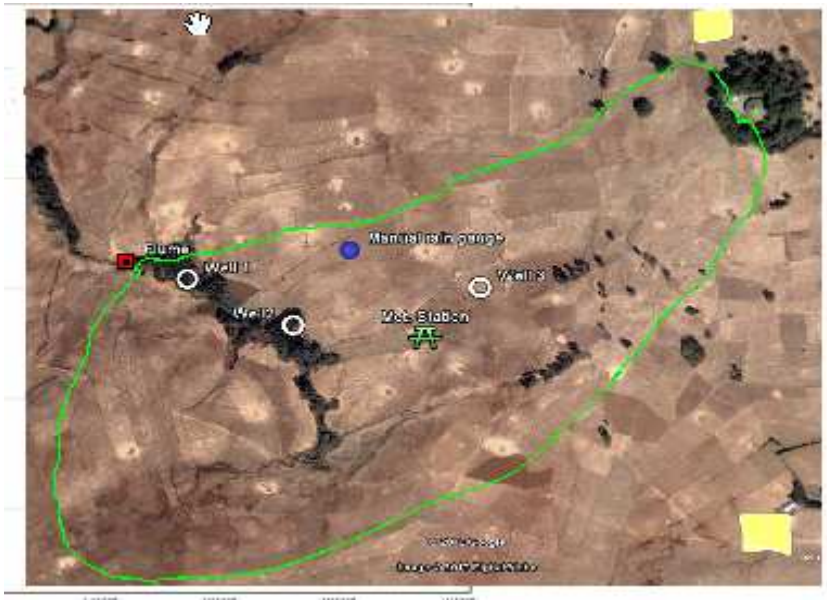
Chelemit microwatershed (Flume, met station and piezometers)



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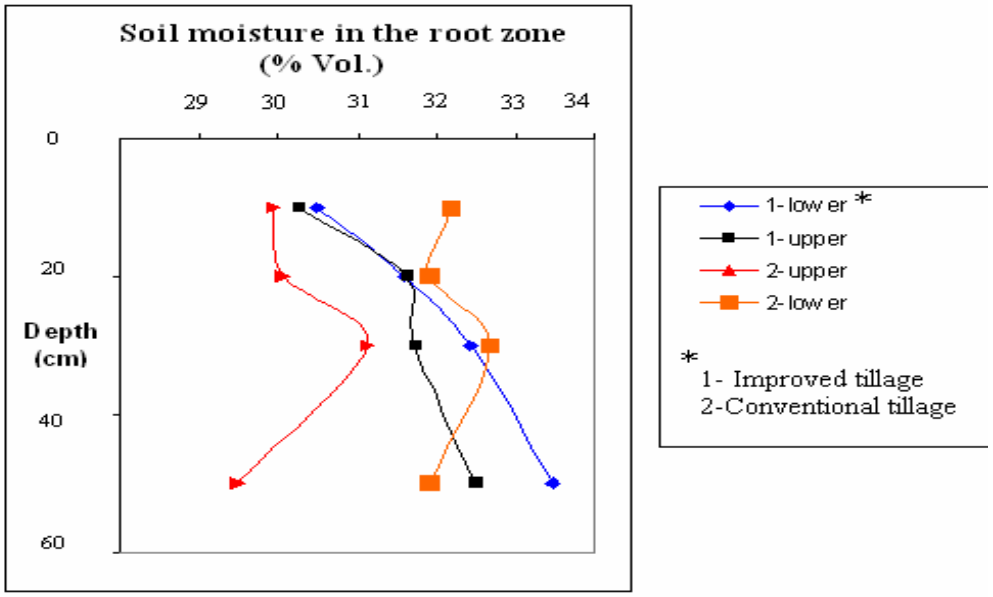
Progress and Initial findings

- Two manuscripts under preparation
- Two MSc thesis under preparation

Initial findings

- Improved operation convenience (avoid cross plowing with CT)
- Increased infiltration
  - (Double over 1st hr)
- Reduced runoff
- Reduced soil erosion
- Deeper root growth
- Reduced water logging
- Increased yields



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Plan for the future

- Data analysis and publications
- Integration of all sub projects using appropriate tools
- Work with Project 4 and 6 at Enerata
- Undertake trial on minimum tillage on teff
- Explore extents of widening bund spacing and increasing threshold slopes for SCS with conservation tillage
- Provision of data to all other sub projects and joint field works
- Involve two MSc students