



UNIVERZA V LJUBLJANI
University of Ljubljana



OPTAIN



Mulch-till

Reducing Tillage to Prevent Soil Erosion: Perspectives on Soil, Technology, Society, and Policy

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OPTAIN 1st webinar: "Benefits of NSWRM"

- *Technological guidelines-*

Mulch till

No turning of soils, 30% of the cultivated area remains covered with organic residues left over from the previous crop

Equipment required: 2-row disc harrow, deep chisel plow, pneumatic seed drill combined with rotary harrow, pneumatic precision planter with rotating elements, cover crop seed drill

Knowledge and experience are required, as the technology is quite demanding, therefore there are chances of failure.

Standardized cataloging of the measure in WOCAT:

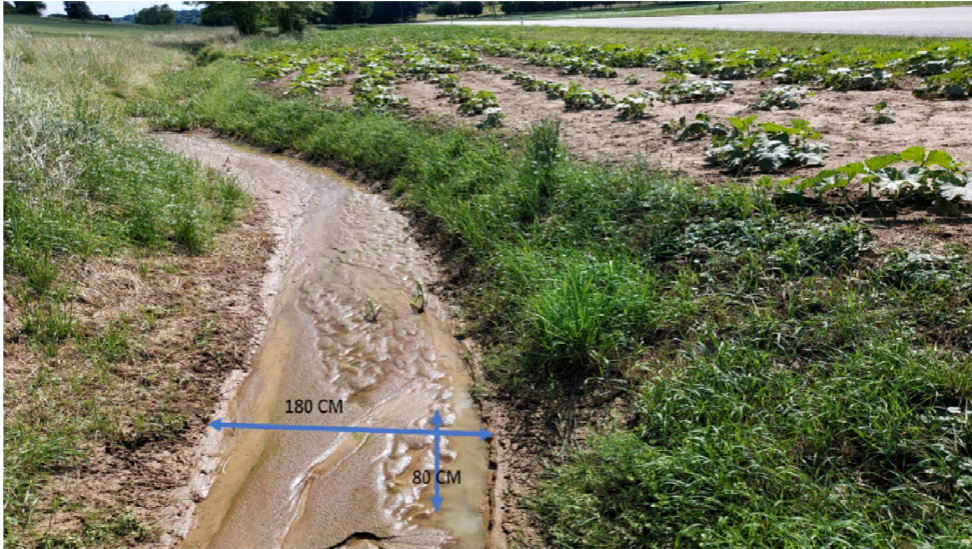
WOCAT: https://qcat.wocat.net/en/wocat/technologies/view/technologies_6241/



Problem: Erosion, soil loss

APPROACH to working with farmers

1. Identifying potentials and constraints
2. Demo-sites to show-case the efficiency
3. Catchment modelling to explore optimal spatial implementation
4. Environmental monitoring for evaluating efficiency of NSWORMs
5. Technological guidelines to ease the implementation
6. Policy recommendations to explore option how decision-makers can respond with appropriate mechanism to improve NSWORMs uptake



- Demo sites - Reduce tillage to reduce soil erosion

2 months after sowing



Deep plowing, application of soil herbicide before germination
Erosion: 6.5 t/ha

No-till, application of soil herbicide before germination
Erosion: 0.25 t/ha

No-till, late use of herbicide, after germination
Erosion: 0.10 t/ha

Minimum-till, use of herbicide immediately after germination
Erosion: 3.8 t/ha



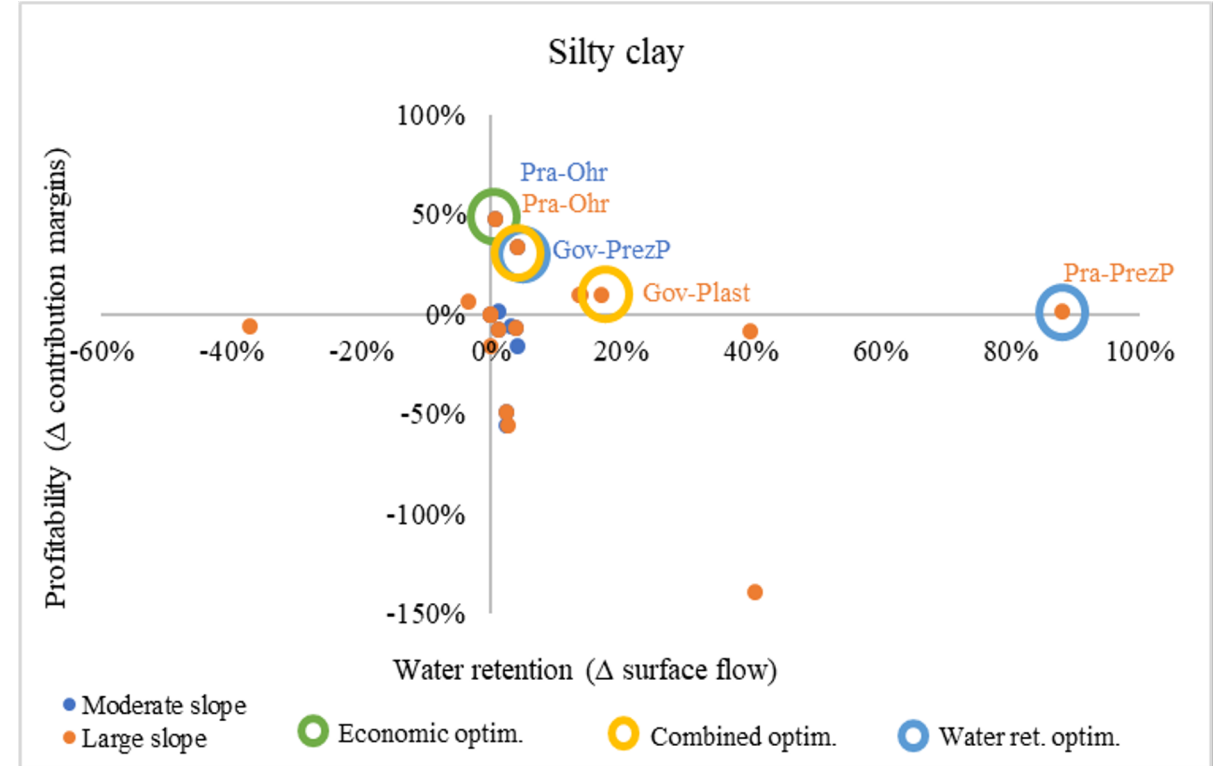
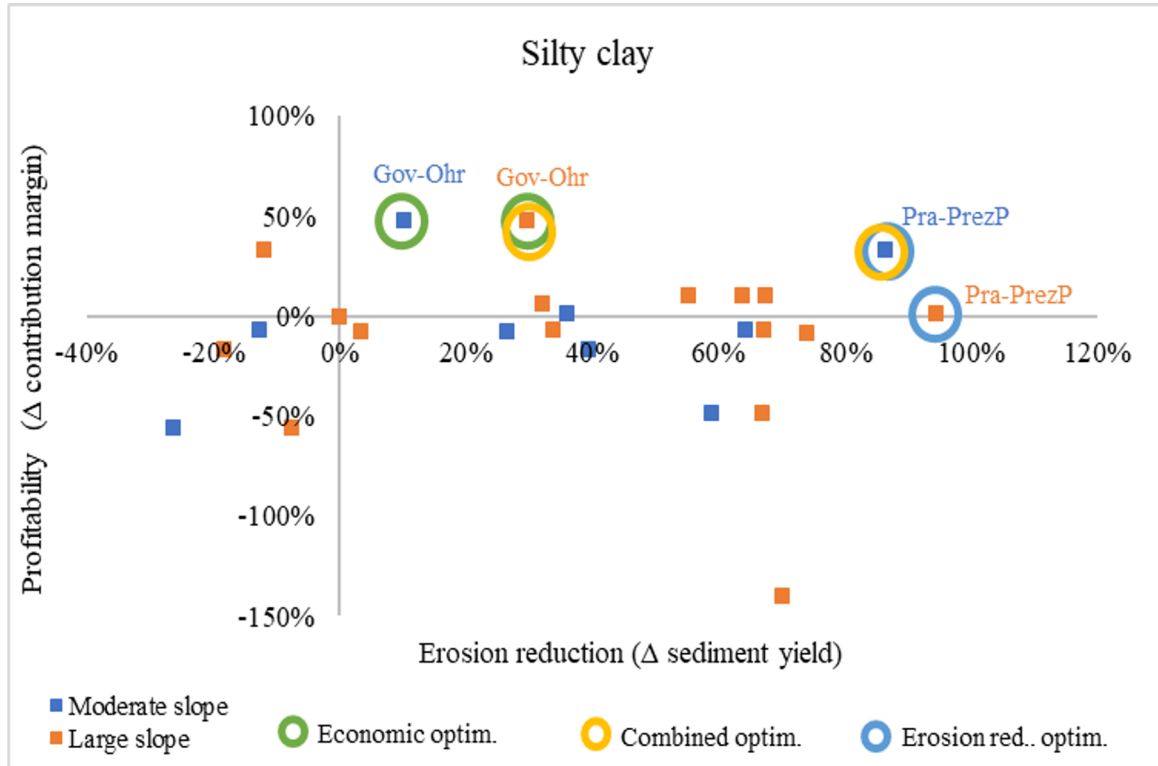
Read more: http://www.topps-life.org/uploads/8/0/0/3/8003583/runoff_field_manual_eng.pdf

- ***Catchment modelling - Single measure efficiency***

- **To guide implementation of CAP at a field level**

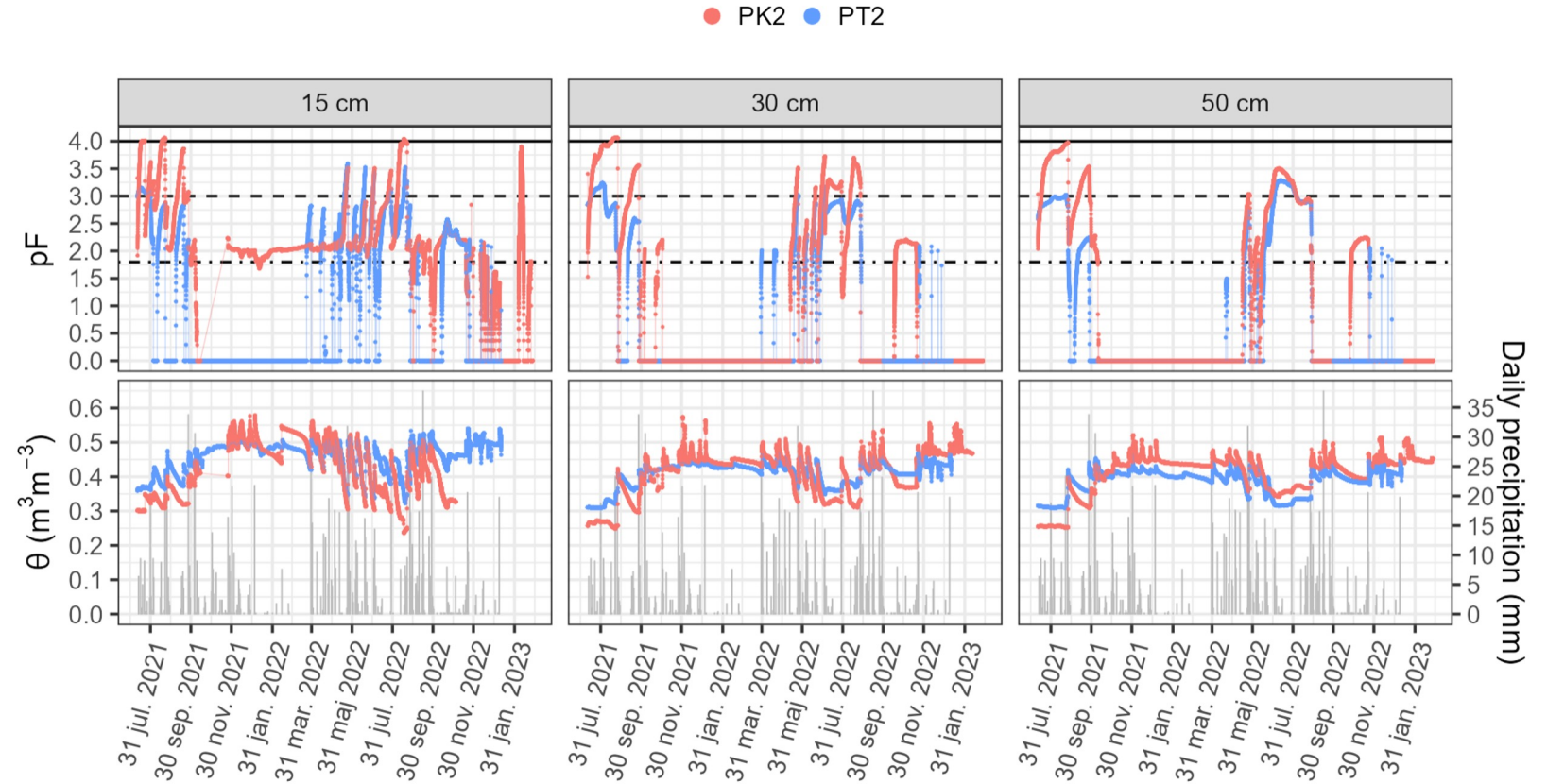
Erosion prevention

Water retention



- *Monitoring* - The influence of different tillage practices on soil water status in continental climate in silt-clay soil

Continuous soil water content (θ) and soil matric potential (log scale, pF) measurement of conventional (red) and mulch (blue) tillage

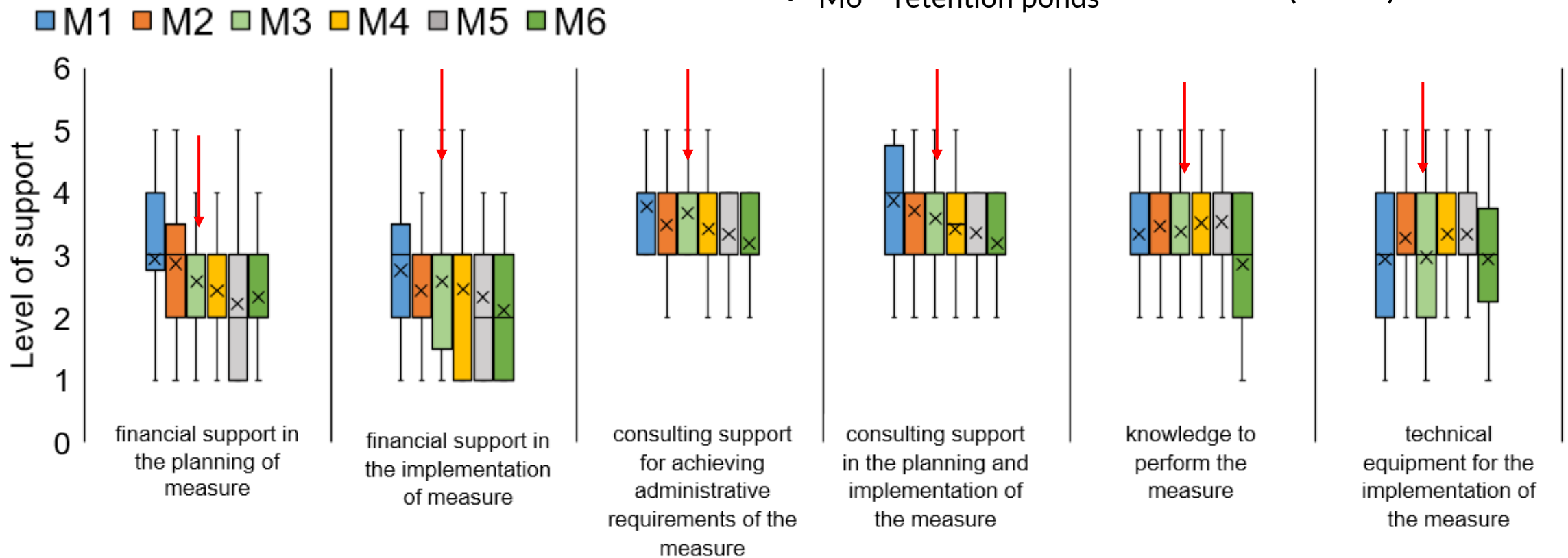


- Identifying potentials and constraints -

Level of financial support, administrative support, knowledge needed and technical equipment available

- M1 - Use of winter cover crops,
- M2 - Arable fields at greater slopes converted to grassland,
- M3 - Mulch till,
- M4 - Contour tillage,
- M5 - Grassed buffer strips,
- M6 - retention ponds

(n=38)



Thank you

WWW.OPTAIN.EU



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