Principles and practices to integrate livestock into rainwater management: an example from the Blue Nile Basin

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Outline of the presentation

- Livestock-rain water management integration: perspectives
- Opportunities and challenges
- Key messages
Blue Nile: >90% is rainfed agriculture

Livestock is an important source of livelihoods: but also major users of land & H₂O

This role is intensifying and putting pressure on already scarce water resources

Why integrating livestock?

Potential of rainfed agriculture
Why integrating livestock?

High unproductive water losses: with all associated impacts

Grazing lands are important sources of unproductive water losses
CWP gaps are generally enormous!

This has a negative implications for \( \text{H}_2\text{O} \) use efficiencies in the rainfed mixed crop-livestock systems

How to fill these gaps?
Opportunities and challenges

WP vis a vis MUS

Schematic flow diagram showing the link of MUS, ecosystem services and water productivity
Opportunities and challenges

Principles for integration of livestock into RWMs

Improving the WP feeds: on crops, grazing and forest land

Enhancing efficient uses of feed resources produced under water productive environment
### Opportunities and challenges

**Practices to integrate livestock into RWMs**

<table>
<thead>
<tr>
<th>Practices</th>
<th>Potential impacts</th>
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<tbody>
<tr>
<td>Cut off drains in valley bottoms, grazing lands, crop land on vertisols</td>
<td>Enhances species diversity, feed quality &amp; productive use of water</td>
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<td>Grazing management, enclosures, improved management of CPR</td>
<td>Reduces compaction; Increases infiltration; (Fogera biomass yield up 400% (IPMS))</td>
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<td>Cut and carry system</td>
<td>Saves H2O &gt;300m³/cow/year</td>
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<td>Post harvest management</td>
<td>(e.g. feed quality and quantity)</td>
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## Opportunities and challenges

### Practices to integrate livestock into RWMs

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<td>Selection of quality feed, urea treatment, chopping of course crop residues; improved feed storage &amp; weed control.</td>
<td>Higher quality feed saves water (~120m³/cow/year) which can be used for ecosystem services (CO₂ sequestration) &amp; enhances nutrient turnover</td>
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<td>Institutional support and creation of incentive mechanisms for local initiatives of virtual water trading</td>
<td>Improves regional &amp; systems water productivity</td>
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<td>Animal management: Breeding, AI, Vet services, quality water supply</td>
<td>Increased benefits &amp; resources use</td>
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Integrating livestock into rainwater management is a means to increase system WP.

Integration needs to be built on principles of improving H₂O productivity of feed & enhancing efficient uses of the H₂O productive feed.

Research focus: linking LWP and MUS and targeting paractice.