

Organic matter matters

Mariana C Rufino and her colleagues at the International Livestock Research Institute (ILRI) wish livestock manure was considered to be a precious resource that should be carefully managed, independently of the amounts produced.

“How much do farmers value their soils?”

When we ask farmers in sub-Saharan Africa how they invest the revenues generated from farming they have plenty of good ideas - from sending their children to school, to increasing their livestock numbers or setting up small business in town. And this is perfectly understandable: they want to increase their assets to feel less vulnerable in times of crisis.

What we often see is that farmers (and scientists) fail to value soils as assets, which must be protected to reduce their vulnerability, just as much as their children and their livestock.

When soils are degraded there is nowhere to go. Nevertheless, in many parts of the world farmers haven't invested enough in the fertility of their soils, which directly increases their asset value and effectiveness against vulnerability.

Farmers rarely prioritise improving the fertility of degraded soils with manure, because handling and transporting take a great deal of labour and the benefits are not quickly observed.

In her book 'The Challenge for Africa,' Nobel Peace Laureate, the late Wangari Maathai, describes seeing a woman farmer in Cameroon cultivating her land in a way that led to severe erosion and depletion of nutrients. This woman was not deliberately destroying the resource on which her livelihood depended, she was just unaware of the consequences of her actions.



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At ILRI, she is involved in various projects dealing impact assessment, multi-criteria analysis, agricultural systems productivity, nutrient cycling, adaptation to climate change and mitigation. Before joining ILRI in 2010, she worked for Wageningen University as system modeler in a number of projects in Africa funded by B&MGF, EU, and IDRC.

She has more than 10 years of experience in international research and education. Mariana has authored or co-authored more than 40 publications in peer-reviewed journals and edited proceedings.

References

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A good example of the lack of investment is how manure from livestock is managed. It is true that manure alone won't suffice to support the increase in the production needed to feed growing populations. However, manure is key to start soil rehabilitation processes and to trigger soil fertility improvement (Titttonell et al. 2008).

There is a wealth of research showing that manure additions lead to increases in yield. Research has also shown that the amounts needed to increase yields at a large scale are not available, and will not be available (e.g. Rufino et al. 2011). There is, however, potential to utilize manure better to target the rehabilitation of very poor soils.

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benefits are not quickly observed.

There is no doubt that fertilizers are needed to support crop and livestock production. However, in much of the developing world vast areas have soils of such poor quality that there is no response to fertilizers. Although it might not be profitable to apply small amounts of manure to poor soils, the long-term investment on rehabilitation of soils has a larger and deeper societal benefit.

ILRI's wish: For a change in perceptions and value attached to poor soils and the realization that investments are needed to improve fertility. This will help to lead research and work with farmers to achieve such a long-term goal. Livestock manure will then be considered a precious resource that should be carefully managed, independently of the amounts produced. Our environment will benefit from such a change as well."