

Challenges to the Use of Human Excreta Derived Fertilisers in Horticultural Export Farms



BERTA MOYA berta@biomasscontrols.com

Berta Moya, Alison Parker, Ruben Sakrabani



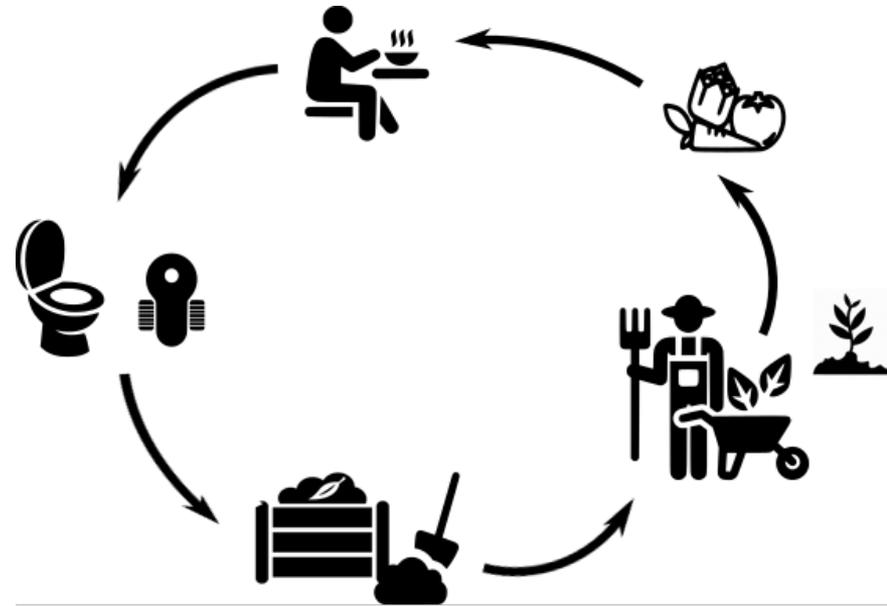
Presentation outline



- Does FS compost application to soil introduce contaminants?
- The case of horticultural exports in Kenya: what are the barriers to FS compost use in this sector?
- The value of assurance schemes for increasing customer confidence.

Challenges to creating value and recovering costs from FS treatment

- Soil amendments from FS help reverse the trend of cities as nutrient sinks and improve soil health.
- FS compost producers often face barriers for selling compost at a large scale.
- How to increase FS compost use and its commercial viability ?



Testing the effect of FS compost on soils: Research Methodology



Soil samples from 6 farms using FS compost:
samples collected from field sections that used
FS compost and sections that had never received
FS compost

Soil samples analysed for:

- The presence of *C. perfringens* (ISO7937),
taken as indicator of faecal contamination
- Presence of heavy metals (ISO11466)

Testing the effect of FS compost on soils: Results

- No *Clostridium perfringens* detected in any soil sample
- Heavy metals in soils:

Heavy metal	Concentration in soil without FS compost (ppm)	Concentration in soil treated with FS compost (ppm)	p value from t-test	EU concentration limits in soil (ppm)
Arsenic	1.58	1.63	0.92	5
Cadmium	0.83	0.80	0.50	1
Copper	9.76	9.92	0.91	100
Nickel	11.75	12.40	0.52	50
Lead	14.62	14.27	0.84	60
Zinc	100.17	93.87	0.61	200

Table 1 Heavy metal concentration in soils tested compared with regulatory limits

(a) limits taken from the Finnish ministry of environment, representing mean values of European limits

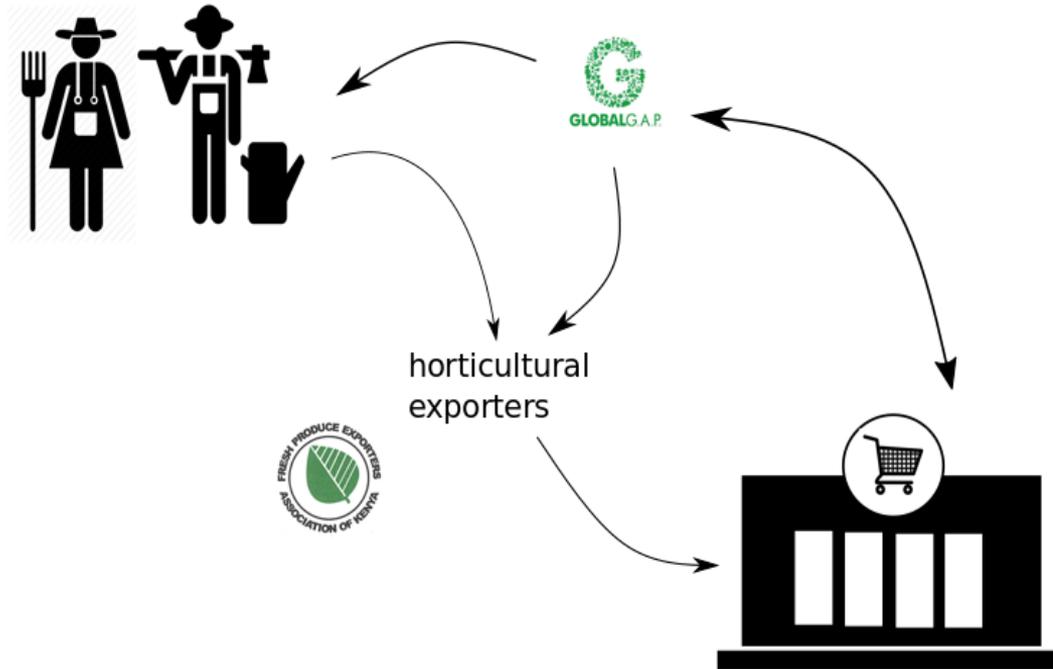
Who will pay for compost?

- Smallholder farmers have limited purchase power
- Most likely customers for compost?
 - NGOs or municipalities, mainly for landscaping or reforestation
 - Larger farms generally have higher investment capacity
- Exporting farmers are an attractive customer segment for FS compost



Key players in the horticultural export chain

- Horticultural exports in Kenya make up 70% of the country's horticultural earnings



Farmers' needs and perceptions

- Challenges to increased productivity:
 - Climate change (reduced water availability, increasing pests)
 - Produce waste at farm level due to cosmetic standards
 - Decaying soil health
 - Increasing price of farm inputs but no increase of produce value
- Produce grown for export often not easily absorbed into the local market
- Passing Global GAP inspections is key
- All interviewed producers willing to try FS compost but wouldn't take the risk unless Global GAP approves it

The need for quality assurance of FS compost

- Market requirements for larger producers: certifications and standards
- Assurance schemes exist for biosolids in many countries:
 - Biosolids Assurance Scheme (BAS) in the UK
 - ReVAQ in Sweden
 - National Biosolids Partnership (NBP) in the USA
 - Australasian Biosolids Partnership (ABP) in Australia and New Zealand
- Next, a scheme for compost from On-Site Sanitation systems?



Final thoughts and conclusions

- Safe compost can be made from FS but assurance schemes are needed to increase customers and regulators' confidence in this type of fertiliser
- Policy and regulation play a key role in enabling or creating a barrier to the commercialisation of novel bioproducts : supporting policies and incentives needed to create viable FS valorisation streams

Thank you!

Contact: berta@biomasscontrols.com

Acknowledgements:

Sanergy | FPEAK | Assured Biosolids UK | Biomass Controls

