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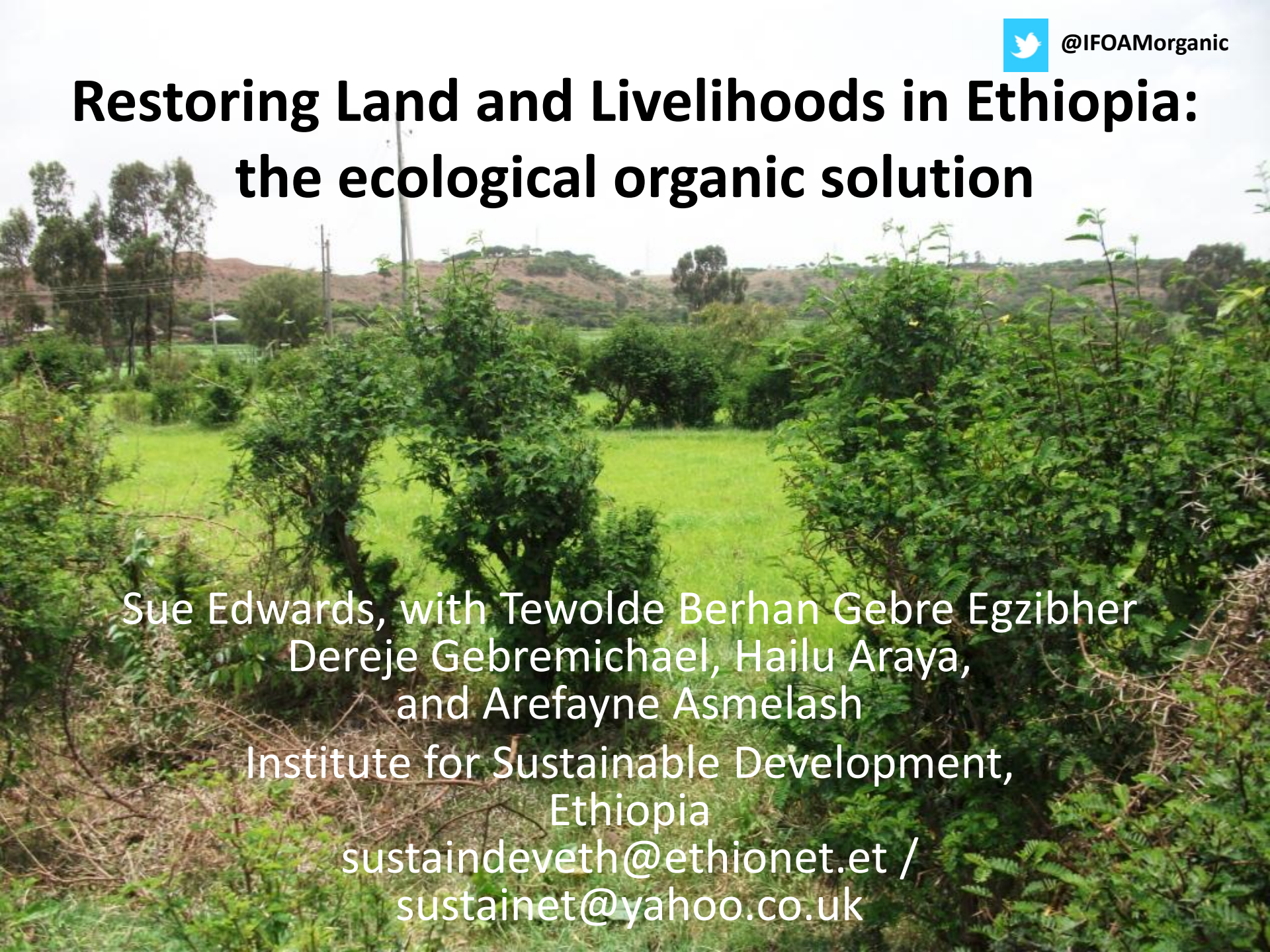
Restoring Land and Livelihoods in Ethiopia: the ecological organic solution



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ETHIOPIA

Mountainous

1.12 mill km^2

>80 mill people

>84% rural, most smallholder farmers

>Cultivated area average 0.96 ha per family

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- Ethiopia is half the size of India and has, therefore, a big potential for achieving food security and overcoming poverty through climate smart agriculture.

The key components of the Tigray Project

- increased agro-biodiversity and biomass, and restored ecosystem services for **integrated climate mitigation and adaptation**
  - **Restoring soil fertility** through compost
  - Improved **local hydrology** for small-scale irrigation
  - Partner in **biogas technology** for clean household energy and organic fertilizer
- **Community governance** through by-laws on NRM to restore local control over their land and livelihoods
  - Particularly ensuring farmers rights to save and use their own seed
- Promoting improved crop management systems
  - Planting with space (an adaptation of SRI – system of rice intensification)
  - Promoting 'push-pull' for controlling stem borer moths and striga weed without pesticides
- Households with more secure and healthy livelihoods, and helping farmers avoid debt paid for chemical fertilizer

Micro-catchment Landscape Restored in 6 years

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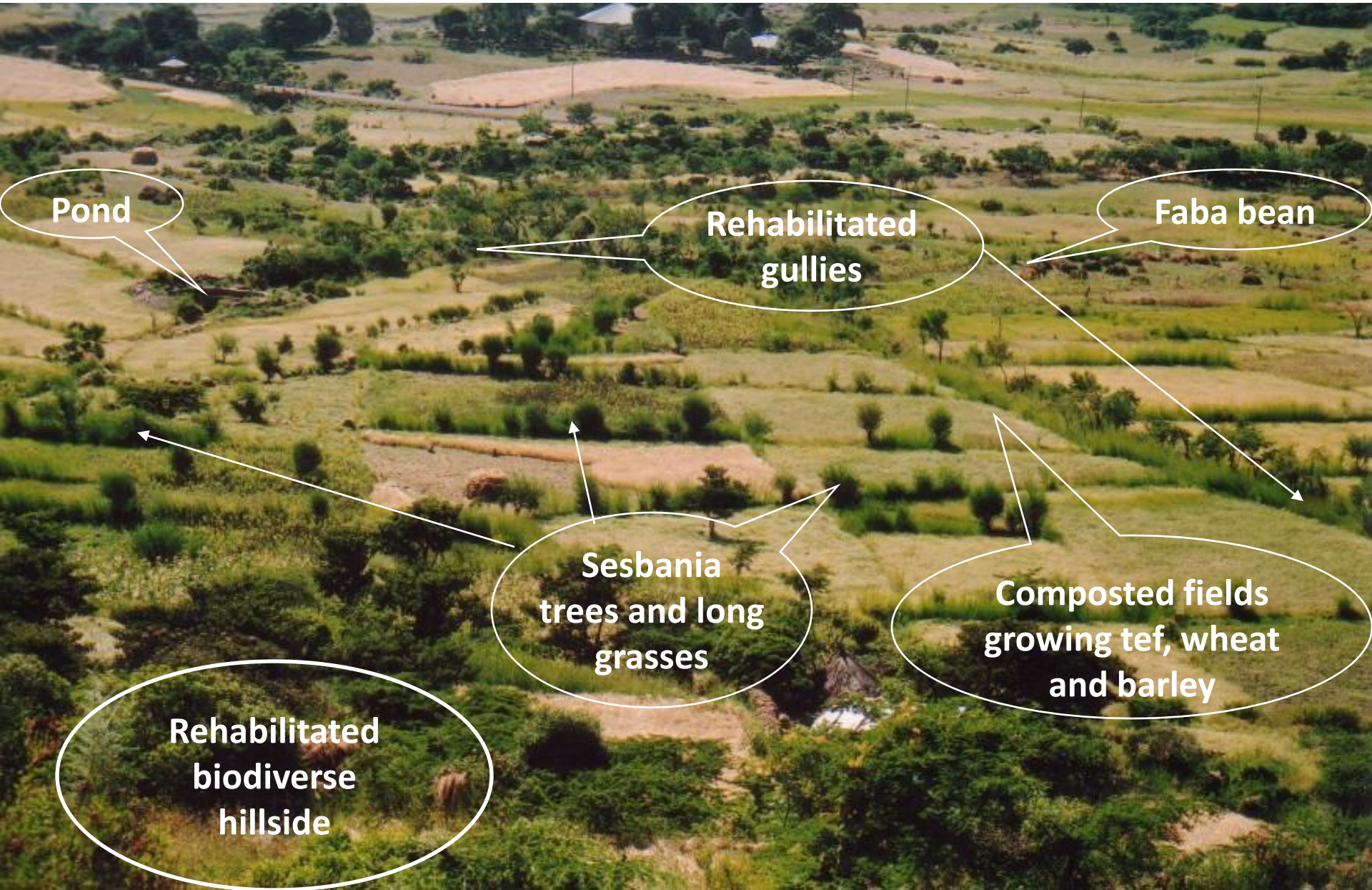

Training for pit composting

Compost is the key

Compost from bioslurry

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Ethiopia's traditional crops adapted to climate variability

Enset (false banana) above and teff below

A few of the huge range of sorghum varieties

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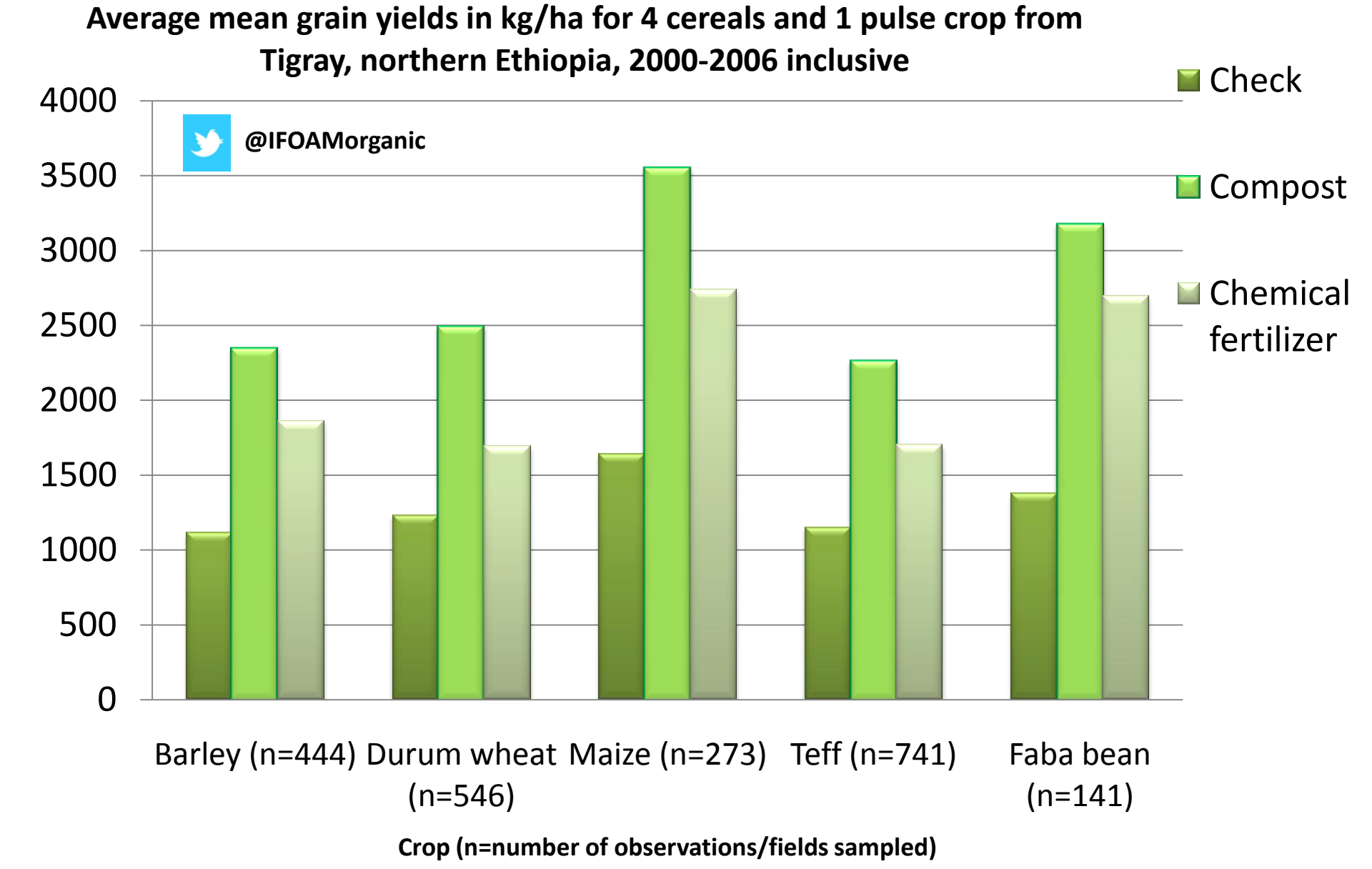
Impact of compost on crop health & disease resistance, example from 2010

Wheat infested with stripe rust and sprayed – gave yield of 1.6 t/ha

Wheat grown on composted soil resisting the rust without fungicide – gave yield over 7 t/ha

Impact of using compost – Grain yields from over 900 samples from farmers fields over 7 years



Push-Pull for controlling striga and stalk borers

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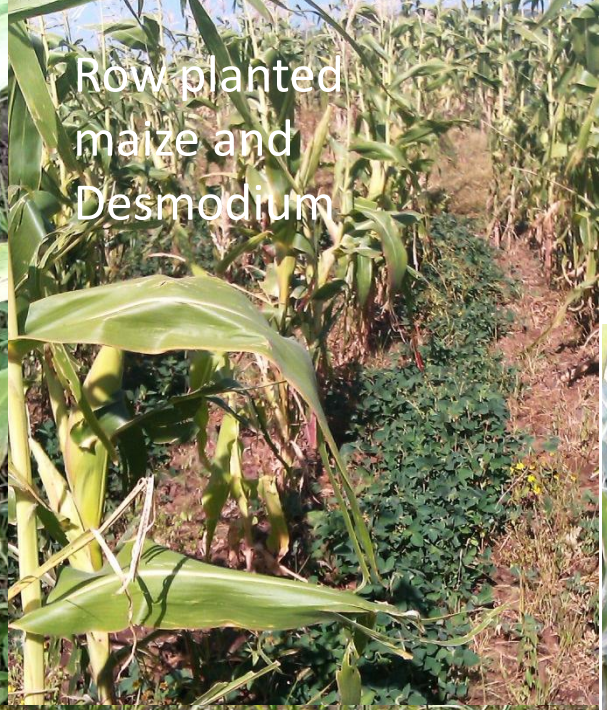

‘Planting with space’ an adaptation of SRI for rainfed finger millet, sorghum, tef

Precision use of compost in organic system of ‘planting with space’ (an innovation of SRI) in Ethiopia

Cost benefit analysis for the farmer using chemical fertilizer

- Costs in 2012 was **USD 300/ha** for fertilizer (urea + DAP) and pesticides
- Average yield of **durum wheat** grown with chemical fertilizer 45 q/ha (4.5 t/ha),
- Sold at **USD 45/q** (100 kg), farmers gross income would be **USD 2025**
- Net income after repaying credit, **USD 1725** in good potential areas like Hitossa and Debre Zeit

Cost benefit analysis for the farmer from using compost

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- Average rate of compost application Hitossa and Debre Zeit, **80 sacks per ha (app 8 t/ha)**
- Opportunity costs for making compost are virtually none as it is all family labour
- Yield of **durum wheat** grown with compost **65 q/ha**,
- Sold at **USD 45/q** (100kg), farmers income would be **USD 2925**
- **ALL** income stays with the farmer as there is no credit

Additional benefits from using compost

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a. Increased resistance to wind and water erosion
b. Farmers avoid debt from getting chemical fertilizer on credit – now costing USD 90 per 100 kg
    a. Farmers making bioslurry compost can sell one sack (approx. 100 kg for ETB 100 or USD 5.8)
    b. Competent farmers make over 35-100 tons a year
c. Women say the food tastes better and their families' hunger is satisfied more easily

THANK YOU

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