

The Use of Sweet Potato Residues as Feed in Rural and Peri-urban Smallholder Pig Systems in Uganda

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Sweet potato Marketing, Processing and Utilization
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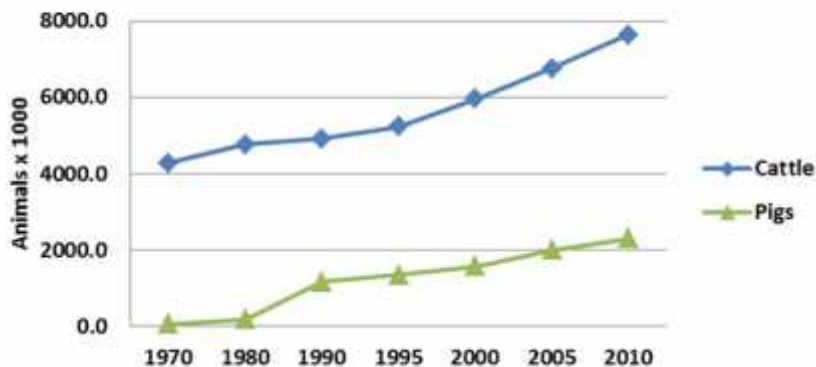


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and Bananas

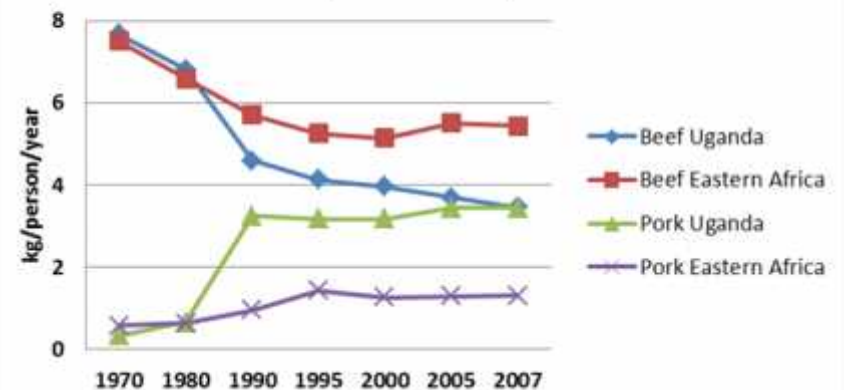
Importance of Pig Production in Uganda

Pig production- a dynamic and rapidly growing sector in Uganda. In the past three decades increased from 0.19 to 3.2 million pigs (UBOS, 2009; FAO, 2011).

Changes in cattle and pig population in Uganda (1970 - 2010)



Per capita consumption of beef and pork meat (1990 - 2007)



Uganda has the highest per capita consumption (3.4 kg/person/year) in the region -10 times increase in the last 30 years, whereas beef is declining (FAO, 2011)

The pig sector in Uganda is largely informal

- Involves >1.1 million households.
- Mostly a backyard activity, managed by women and children, as means to diversify risk and increase livelihood security.
- Tethering & scavenging dominant in rural settings. Housing more relevant in peri-urban pig production systems.
- Poor knowledge on disease control and biosecurity measures
- Uncoordinated trade & transport
- Lack of pig farmers organization for collective action
- Mostly unsupervised slaughter, no meat inspection in local markets, road-side butchers
- Pork joints



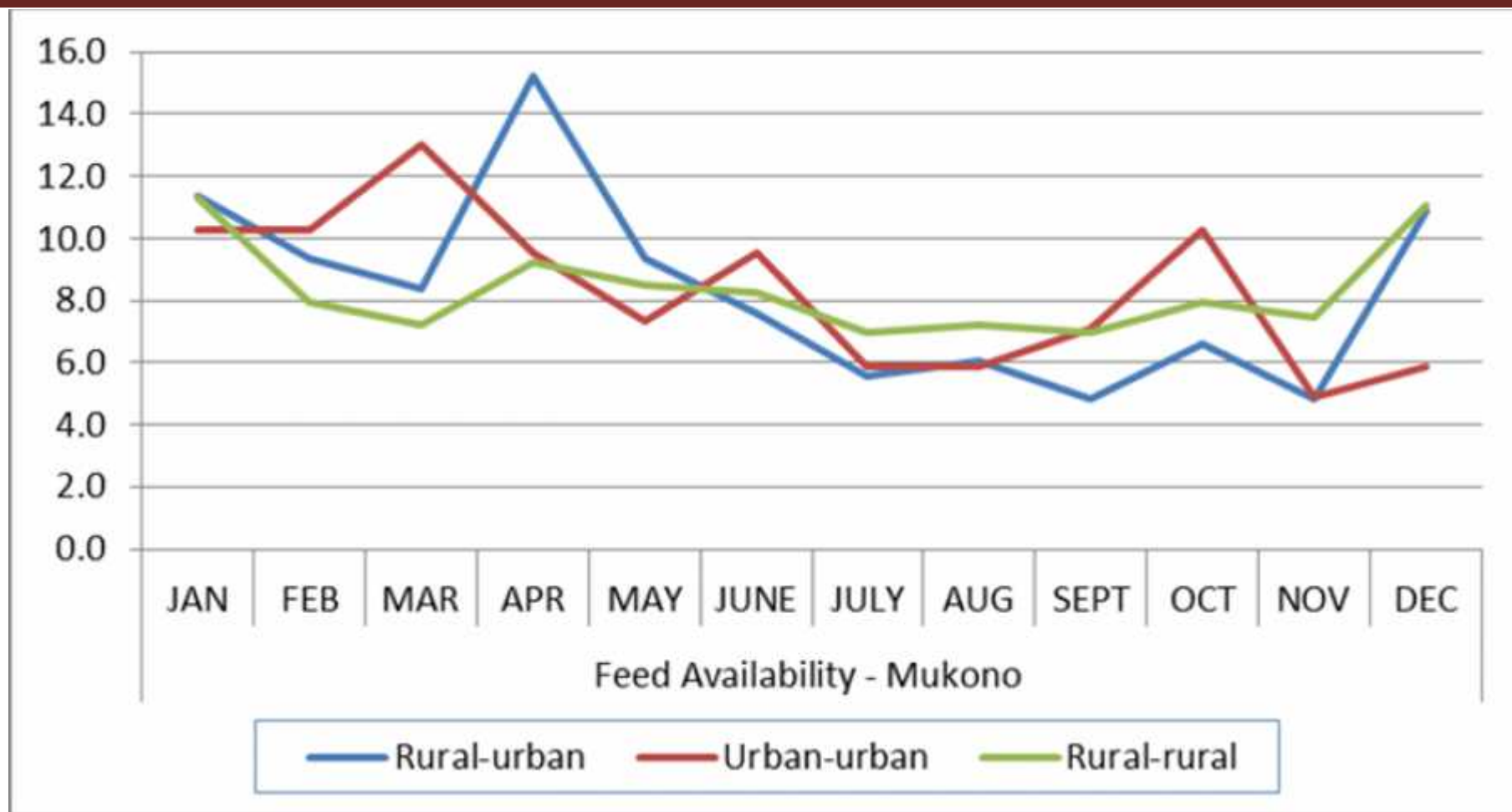
Pig Feeding in Uganda in Smallholder Systems: Constraints and Opportunities

- Feeding 60-75% of total variable costs.
- Crop residues, forages and kitchen leftovers represent 70-75% of the diet along the year. Grasses and weeds replace crop residues during crop growing periods.
- Feed collection and feeding mainly done by women and children, however men and few hired labor participate more in peri-urban settings.
- Main constraints as identified by farmers: fodder shortages in the dry season, high cost of commercial feeds, price fluctuations of feed ingredients and poor quality of purchased feeds
- Sweet potato vines the most preferred fodder for pigs, regardless of VC domain; cassava leaves the 2nd most preferred in rural, while yam leaves the 2nd in peri-urban settings.



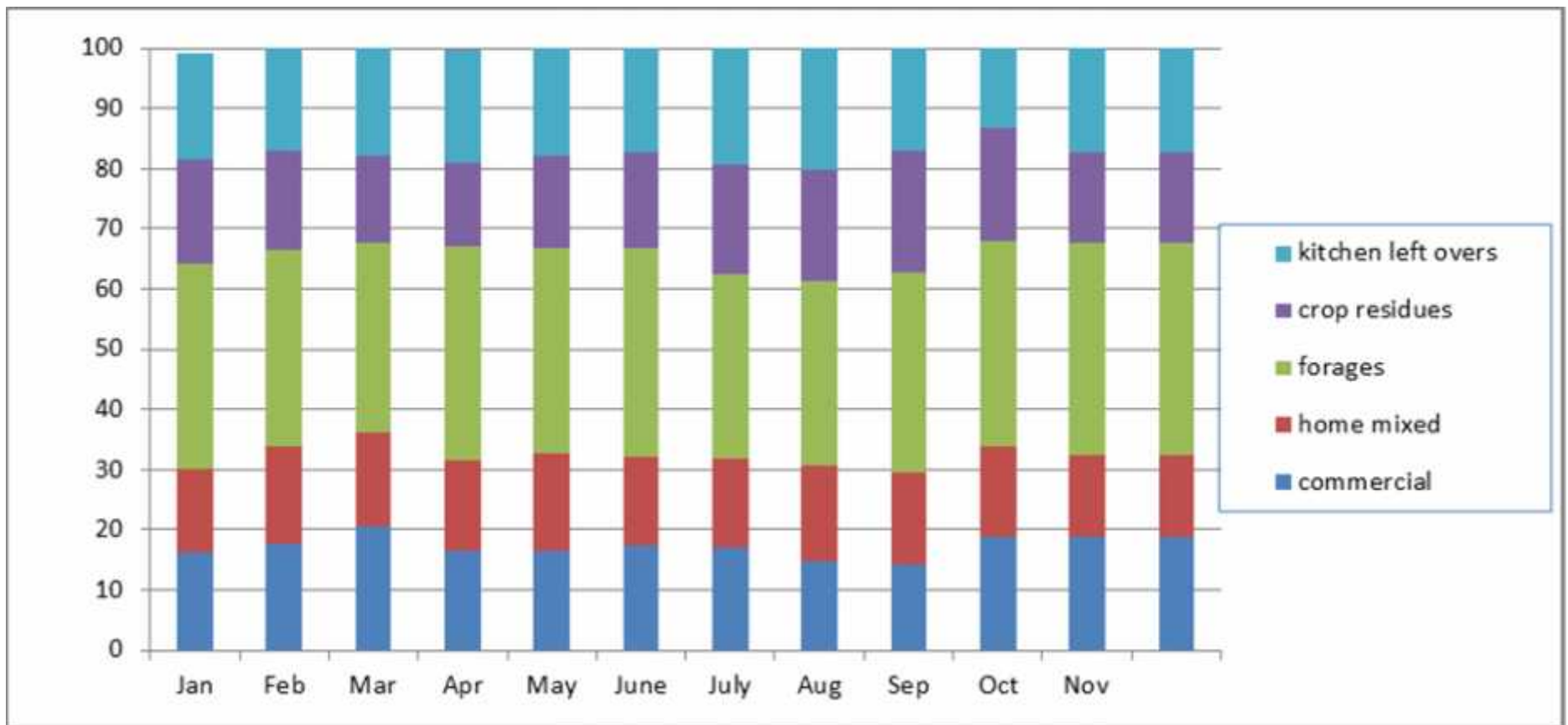
Pezo et al, 2014

Feeding Strategies - Seasonality



Relative availability of feeds along the year in smallholder pig farms in Mukono

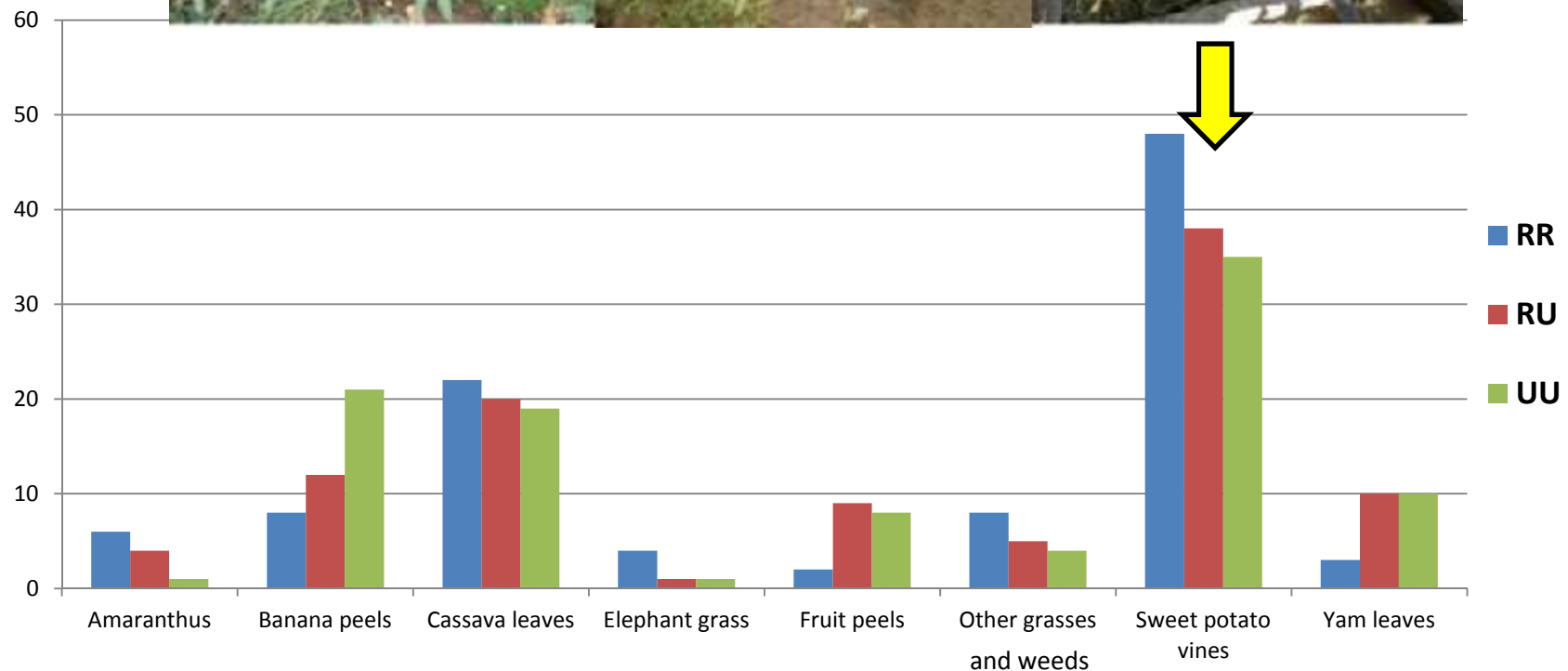
Feeding Strategies - Diversity



Types of feeds used in different periods of the year in Kamuli

Ouma et al, 2014

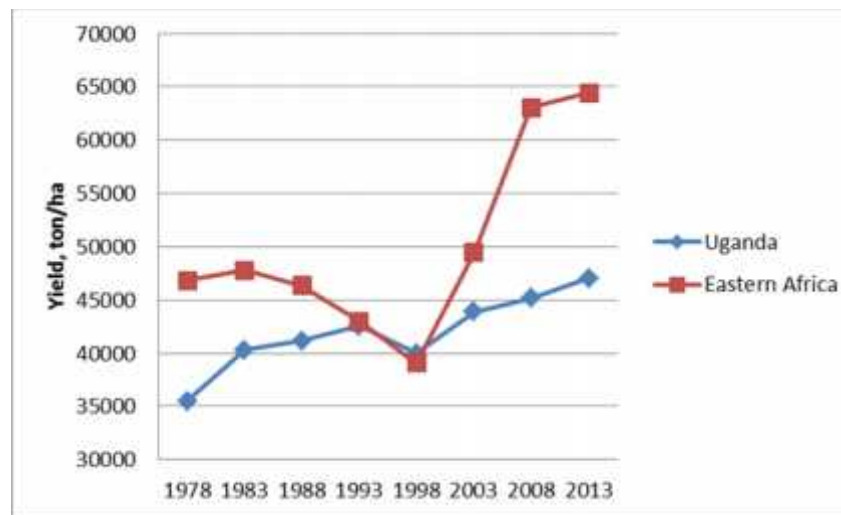
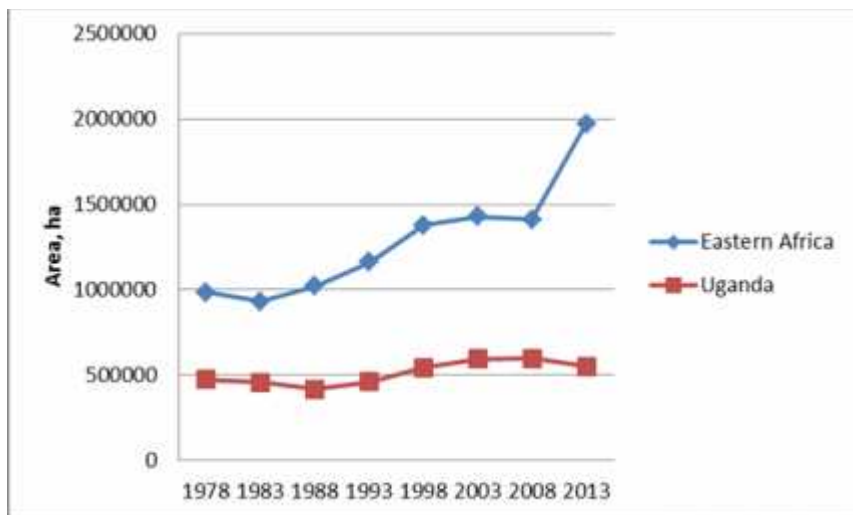
Use of fodder sources in smallholder pig systems in Uganda, as a function of VC domain



Pezo et al, 2015

Importance of Sweet Potatoes in Uganda and Eastern Africa

Uganda is the 2nd largest producer of sweet potatoes in the world, only after China



The area planted with SP has not changed much in the last 35 years in Uganda but there were significant increases in productivity (FAO, 2014)

Sweet potato residues: a viable option for improving pig feeding at low cost

- Sweet potato (SP) is a widely grown crop and a good source of energy (roots) and protein (vines), but highly perishable.
- Feed conservation strategies will help to reduce wastage of SP residues, and extend their use in periods of feed scarcity.
- Simple silage making technologies are easy and affordable options for conservation of SP roots and vines; but, new options need to be assessed and shared with farmers. With strategic supplementation farmers can get good biophysical and economic results.



LWG (g day⁻¹) in local and crossbred pigs fed on concentrates, SP silage- and fresh local feeds-based diets ¹

Diet	Crossbred pigs ^a	Local pigs ^a
Commercial concentrate	660 ± 105	530 ± 93
Local feeds formulated	310 ± 92	210 ± 72
Sweet potato silage	470 ± 92	390 ± 64

^a Pigs weighing > ±20 kg at beginning of the trial

¹ Results have been shared with female and male farmers in Masaka, to assess acceptability of these technology innovations.

- Poor results with weaned pigs with lower initial weight

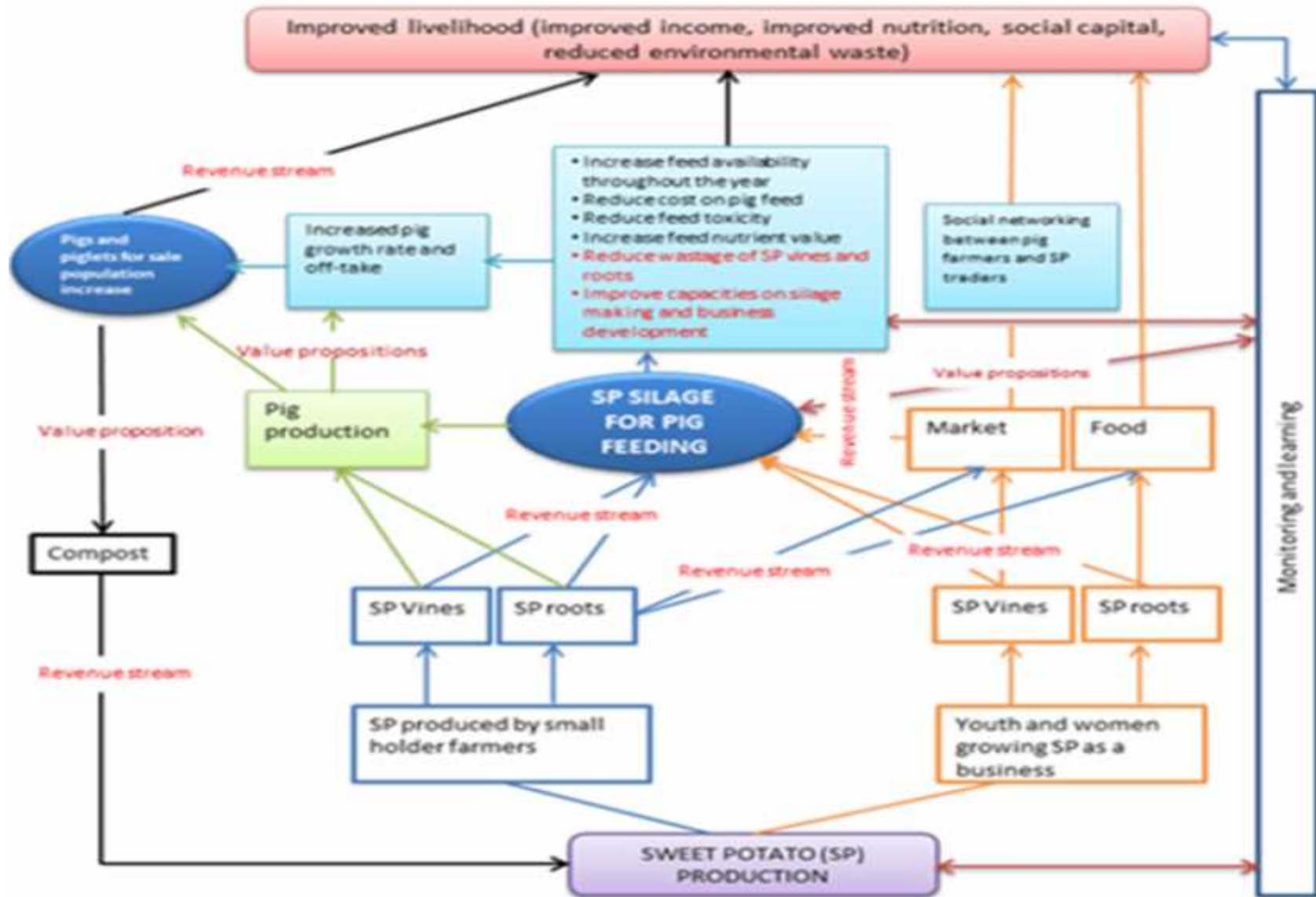


LWG, FCR and economic benefits in pigs fed on farmers' diets or SP silage-based diets + supplements in Sichuan (Pezo et al, 2004)

Diet	Initial weight, kg	LW gain, g day ⁻¹	Feed Conversion kg kg ⁻¹	Economic benefit increase, %
Farmers' Control	41.0	438	4.86	-----
SP silage + Protein-rich concentrate	40.9	624	3.44	+ 33
SP silage + Premix (amino acids and vitamins)	41.1	662	3.22	+ 78



A business model promoted under RTB-ENDURE, by ILRI, CIP and partners in Uganda





CONCLUSION

The use of sweet potato silage as pig feed results in significant increases in live weight gain and a reduction in feeding costs by partial replacement of commercial concentrates; therefore could contribute to improve the livelihoods of poor households that raise pigs and grow sweet potatoes.



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