Development of balanced diets using local feeds for smallholder East African pigs: implications for livelihoods and food security

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BACKGROUND AND RATIONALE

Pork production has the potential to alleviate poverty in East Africa.1 In Kenya and Uganda, 2.2 million pigs are raised in traditional systems by resource-poor, subsistence farmers.2,3,4 Women, particularly those widowed by the HIV/AIDS epidemic, may not have the resources required to raise cattle. Pigs require fewer resources so raising pigs is within their means. Farmers raise 1 to 4 pigs to generate income to pay for medicine, school, food, and seeds.2,5-7 However, pig productivity is low.8 Lack of feed may contribute to pigs’ low average daily gain.7 Seasonal feed shortages, expensive commercially prepared feed, and human/pig food/feed competition are production constraints.3,8 Low-cost, nutritionally balanced pig diets (recipes) using seasonally available local feedstuffs are needed.

OBJECTIVES

The objectives of the study were to:

1) estimate the nutrient value and seasonal availability of locally available pig feedstuffs in Western Province, Kenya and Central Region, Uganda;
2) determine Kenyan and Ugandan pigs’ nutrient requirements;
3) develop low-cost balanced diets using local feedstuffs;
4) conduct a feed trial to evaluate Ugandan pigs’ performance when fed our diets;
5) conduct workshops to share the diets with pig farmers;
6) explore potential benefits and challenges of using the diets;
7) explore men and women pig farmers’ experiences regarding decision making, empowerment, labour distribution, and pig sales income.

ACTIVITIES:DEVELOPED AND VALIDATED PIG DIETS

- Identified locally available pig feeds6,9
- Conducted nutritional analysis on local feeds and reviewed literature
- Collected price of feeds at local markets
- Estimated seasonal availability (extension officers)
- Estimated nutritional needs and growth rate of East African pigs from feeding trials6,10
- Considered seasonal availability, farmer access to ingredients, and human/pig food competition when formulating diets
- Conducted a randomized controlled feed trial in Uganda to evaluate pigs’ average daily gain and feed efficiency when fed 1 of our diets (local diet or sweet potato vine and tuber silage based diet)

OUTCOMES

- Local feedstuffs of sufficient nutritional value for pig diets are available seasonally but in very limited supply in some seasons
- Pigs fed our diets grew faster than pigs raised under typical smallholder conditions
- Pigs fed commercially prepared diet grew faster than pigs fed our diets but farmers cannot afford commercial diets
- Our diets are best for older heavier pigs (not newly-weaned pigs)
- Farmers reported our diets were within their financial means and ability to make use of and control over income from pig sales
- Farmers requested more diets be developed for every season
- Analysis of men and women pig farmers’ experiences is underway
- Feeding East African pigs low-cost balanced diets using local feedstuffs can improve pig performance resulting in increased farmer income from selling faster-growing heavier pigs
- increased farmer income to buy food and seeds
- increased supply of pork, an important animal-source food
- improved food security in East Africa
- An IDRC Scaling Up Food Security and Nutrition Innovations proposal will be submitted in March 2015 to scale-up this work
- We are seeking business, academic, and government partners with whom to collaborate when scaling-up

ACTIVITIES: FARMER TRAINING AND FEEDBACK

- In Uganda, conducted farmer training workshops about locally available pig feedstuffs
- how to make our pig diets
- hands-on diet and silage making
- pig farmers’ opinions of the diets
- likelihood and feasibility of farmers using our diets
- potential benefits and constraints of using our diets
- Explored men and women pig farmers’ experiences of decision making and empowerment
- labour distribution and cultural gender norms
- use of and control over income from pig sales
- Participants were pig farmers from 15 villages
- 24 women from female-headed households
- 24 women from male-headed households
- 24 men
- some of whom belonged to farmer co-operatives
- each raising 1-8 pigs to be sold and butchered for meat

REFERENCES


Pig farmers mixing local pig diet at farmer training workshop
Photo: N. Carter

Pork, an important animal-source food, being served in Uganda
Photo: N. Carter

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Figure 1. A pig-keeping family in Uganda
Photo: ILRI

Figure 2. A thin local breed pig fed only vines on a smallholder Ugandan farm
Photo: E. Smith

Figure 3. Feed ingredients for local pig diet Uganda
Photo: N. Carter

Figure 4. Feed trial local breed pigs eating silage-based pig diet Uganda
Photo: N. Carter

Figure 5. Pig farmers mixing local pig diet at farmer training workshop
Photo: N. Carter

Figure 6. Pork, an important animal-source food, being served in Uganda
Photo: N. Carter