FEED THE FUTURE INNOVATION LAB FOR LIVESTOCK SYSTEMS
University of Florida Global Nutrition Symposium
Theme: Nurturing development: Improving human nutrition with animal-source foods
March 29 to 30, 2017

Improving availability of ASF
Challenges and Opportunities

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CONTENT

- Availability and accessibility to ASF
- Composition of livestock farms
- Structure and conditions of livestock producers
- Constraints and Opportunities in livestock production
- Taking home messages
Consumers/farmers

SUSTAINABILITY

AVAILABILITY
ACCESSIBILITY
AFFORDABILITY
How can ASF improve?

- Technology
- Capital
- Extension

- Feed
- Breed
- Disease control
- Market
- Processing

Demand in the market

Producers’ interest

Profitable Policy support Culture/tradition
90% keep 12.7±0.74 (5-23 heads) chickens,
67% keep 2.37±0.24 (1-5 heads) cattle,
46% keep 1.41±0.16 (1-5 heads) pigs,
24% kept 6.41±2.03 (1-40 heads) ducks,
and
15% keep 0.50±0.06 (1-3 heads) buffalos.
Structure of Livestock producers

- Subsistent farmers
- Self-sufficient farmers
- Large farms
Subsistent farmers

- Produce for own consumption and surplus to local market
  - low input-output as way to mitigate risk (diversification) and
  - use local available resources.

- They are declining – exit or pass to self-sufficient.
  - Change to medium or large scale
  - New alternative incomes – work at factories, construction
Self-sufficient farmers

- Produce for market – contract farming
- Require updated technologies
- Credit for the expansion of their business.
- Largely dependent on purchased inputs
- Do other farm activities but more focus on unique market commodity
Large farm

- Sound higher bio-security practice
- Geographic concentration of waste
  - technologies available to reduce environmental impact
  - expensive to return nutrients back to the soil
- Contract farming or/and own in-out system
Benefit from livestock production

These have been almost always identified as the constraints of farmers however no systematic solutions provided?

Limited access to quality vet services and extension

Limited access to financial capital, agricare, insurance and risk reduction tools

Poor access to market and information

limited capacity to solve technical barriers
### Diseases and solutions

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>SMF</th>
<th>LF</th>
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<tbody>
<tr>
<td><strong>Vaccination, %</strong></td>
<td></td>
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<tr>
<td>Salmonella</td>
<td>16.2</td>
<td>30</td>
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<tr>
<td>Pasteurella</td>
<td>35.1</td>
<td>30</td>
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<td>CSF</td>
<td>94.5</td>
<td>90</td>
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<td>FMD</td>
<td>56.8</td>
<td>40</td>
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<td>Aujeszky</td>
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<td>30</td>
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<tr>
<td>PRRS</td>
<td>73</td>
<td>90</td>
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<tr>
<td><strong>Disease outbreaks, %</strong></td>
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<tr>
<td>Salmonella</td>
<td>91.4</td>
<td>60</td>
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<tr>
<td>Pasteurella</td>
<td>26.5</td>
<td>-</td>
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<tr>
<td>CSF</td>
<td>20.6</td>
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<td>FMD</td>
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<td>Aujeszky</td>
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<td>-</td>
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<tr>
<td>PRRS</td>
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<td>33.3</td>
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<tr>
<td><strong>Treatment, %</strong></td>
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<tr>
<td>VAHWs</td>
<td>100</td>
<td>100</td>
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<tr>
<td>Private vet</td>
<td>35.3</td>
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<td>Treat by themselves</td>
<td>2.9</td>
<td>-</td>
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<tr>
<td>Vet from contract farming</td>
<td>70.6</td>
<td>57.1</td>
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<tr>
<td></td>
<td>-</td>
<td>71.4</td>
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</table>
Rice straw

- 55% is removed for animal feed
- 45% is left in the field.
  - incorporate into the soil
  - Burning

Rice straw urea treatment
Rice straw plus supplements
Mean values of daily weight gain

Mean value of daily weight gain, g

- FCL
- WS
- WSFCL
Growth rates of goats
Mean values of daily weight gain

Level of sun dried cassava foliage, % live weight, DM basis

Daily weight gain, g

0  0.25  0.5  0.75  1

0  50  100  150  200
Performance of yellow cattle fed cassava pulp

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<th>Composition</th>
<th>kg/day</th>
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<td>Cassava pulp</td>
<td>13</td>
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<tr>
<td>Urea</td>
<td>0.078</td>
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<td>Brewers grains</td>
<td>4.46</td>
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<td>Rice straw</td>
<td>1.44</td>
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<td>Minerals</td>
<td>0.039</td>
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<td>Total DM</td>
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0.9 kg DWG/day

Day 1

Day 39

Day 90
## Crickets farming

<table>
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<tr>
<th>No</th>
<th>Name</th>
<th>% Dry matter</th>
<th>% Moisture</th>
<th>% Crude Protein</th>
<th>% Crude Ash</th>
<th>% Crude fiber</th>
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<tbody>
<tr>
<td>1</td>
<td>Whole cricket meal</td>
<td>94.8</td>
<td>5.23</td>
<td>65.2</td>
<td>4.06</td>
<td>11.8</td>
</tr>
<tr>
<td>2</td>
<td>Leg cricket meal</td>
<td>96.8</td>
<td>3.21</td>
<td>67.5</td>
<td>5.24</td>
<td>13.2</td>
</tr>
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</table>
Technologies and adoption

Devendra and Leng 2011 reviewed 12 projects mostly from 1990s

- 92% consider successful but “SCALING UP” is the matter.
  - Technologies are available but they are not beyond project lifetime.

Why could these introduced technologies be wider adopted?
Messages to take home

😊 Does cash income and/or nutrition drive ASF from smallholders point of view?
😊 What are key starting points when smallholder farmers are the target?
😊 What should be the effective and efficient ways to promote livestock production?
😊 How best can knowledge generated be shared and used by farmers?
Thanks