



ILRI

INTERNATIONAL
LIVESTOCK RESEARCH
INSTITUTE

Workshop Outputs

ILRI Design Workshop #4 – PIGS

21 March 2019

Facilitated by:



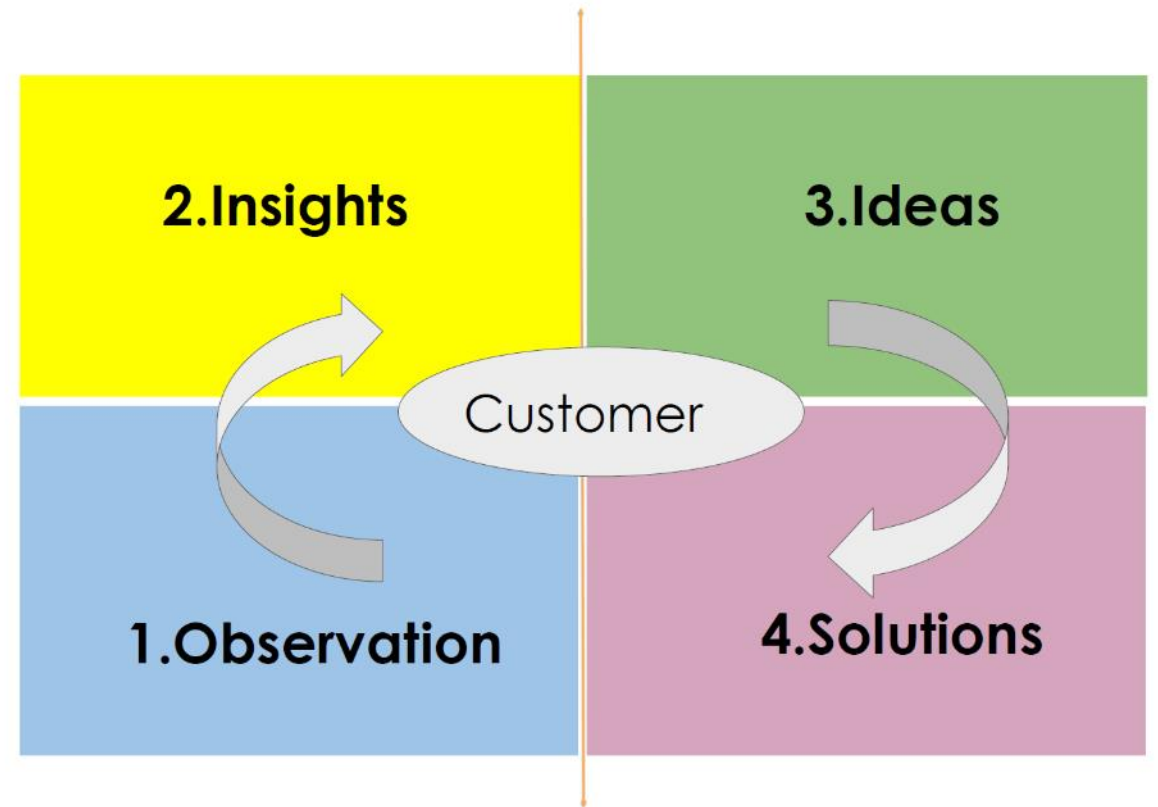
Our Ambition

What if we Could Increase the Impact of Livestock Innovation
in Africa & Asia

100x

...by Transforming Small-Holder Capability?

Design Thinking – Let's begin!



Finding the beneficiary – Smallholder #1, Sam Agoro

Where do you want to be in 5 years time?

Wants to change his family life, build on selected breeds with the support of breeding centres. And to migrate his family from his rural household into town.

What are the barriers or challenges that you face in achieving that goal?

- Feed preservation and storage is a big issue – high quality feeds are not easily accessible so it is important to store them well.
- There is no mechanism to attract premium prices – farmers are not rewarded for high quality animals.
- Lack of equipment and infrastructure, his farm doesn't have weighing scales so health monitoring, medicine dosages and sale weights are inaccurate.
- Accessibility of loans – banks and financial institutions don't see livestock as a source of security.
- Muslims in Uganda don't engage with pigs, so it affects their marketing – it can be difficult to display pig carcass for sale in public markets because it drives away Muslim shoppers.
- African Swine Fever is an overarching problem for swine in Africa – medications are not available, but he luckily hasn't been affected yet. Farm cleanliness, good biosecurity and quarantine practices are the preventative measures.



Sam is a pig farmer because pigs offer 'job security'. Started with local pigs but market drove him to exotic breeds, due to size and growth. In 6 months his exotic breeds will grow to 90-100kg, whereas local only 40-50kg.

Finding the beneficiary – Smallholder #2, Iliya Duniya

What are the barriers or challenges that you face in achieving that goal?

- First challenge of exotic breeds was sourcing them, outside the government there are very few private farms that provide exotic wieners – inbreeding became an issue due to this low supply, which led to mortality. He used AI to improve the genetic variability of his animals.
- In Nigeria, things are sold not by weight but by ability to sell at the lowest price. Negotiation is very very important, no objective measures.
- A company has a monopoly on quality feed supply so they are bullies on prices.
- Food safety in processing a massive issue.
- Access to finance for smallholders is very difficult, there have been promises by governments to implement supporting policy, however this has not yet been delivered on.
 - Farmer quality certification programs are a way that banks are reducing their risk of investment.
- Human competition with pigs for food sources (both protein and grains) create high price variability, however there are some animal by-products meals not fit for human consumption that can be used by pigs.



After a history in cattle production, pigs were a commodity that Iliya “could retire to” for many reasons, in part due to their ability to eat scraps - so they have a positive on both his immediate and broader community. There was also a strong market for pork. Everyone else was growing traditional domestic pigs, but he chose exotics, despite their higher feed requirements.

Breakout #1 – Who are the key actors?



Breakout #1 – Who are the key actors?

INPUTS:

- Storage facilities
- Feeds
- Meal manufacturers
- Veterinarians, CAHWs
- Genetics
- Multiplication Cos
- Improved pigs
- Transport

PEOPLE & ENVIRONMENT:

- Farming and youth groups
- Families of farmers
- Women's groups
- Educators
- Natural resources, water
- Waste collectors
- Slurry management
- Pork eaters

ENABLERS:

- Public health, policies
- Financiers
- Research
- Training
- Digital
- Transportation, infrastructure
- Quality assurance

DEMAND:

- Finishers
- Aggregators, traders
- Meat inspectors
- Processors, butchers
- Hotels, supermarkets, restaurants
- Subsistence producers
- Consumers

Personas – Government Minister

More info:

- Minister for agriculture in Cambodia

Strengths:

- Livestock policy
- Support to pig industry
- Regional trade – export

Challenges:

- Competition from neighbours (Vietnam, Thailand)
- Food safety
- Animal health
- Limited funding

Impact of our innovation

BEFORE

What they think:

- Needs partnerships to adequately engage in developing the sector

What they feel:

- The system is inefficient

What they do:

- Try to do what they can

AFTER

What they think:

- Able to attract partners to develop the sector

What they feel:

- Efficient

What they do:

- Implement initiatives that could transform the pig system

Personas – Public Health Official

More info:

- Male/female
- 25-40 years old
- Urban based
- Physician/nurse/public health

Strengths:

- Educated
- Access to knowledge
- Access to response system

Challenges:

- Financial
- Diagnostic, investigative capacity
- Transport
- Enthusiasm

Impact of our innovation

BEFORE

What they think:

- Frustrated

What they feel:

- Resource poor

What they do:

- Try diagnostic and basic surveillance

AFTER

What they think:

- Preventative

What they feel:

- Empowered
- Motivated

What they do:

- Survey and treat

Personas – Researcher

More info:

- Uganda (NAGRC & ILRI)
- Mixed, nutritionist, geneticist, AH specialist, VC specialist

Strengths:

- Well trained
- Lab facility
- Good network with other researchers

Challenges:

- Disconnected from the farmer
- Lack funds
- Working on too many projects simultaneously
- Workload on non-core work

Impact of our innovation

BEFORE

What they think:

- Need more resources

What they feel:

- Unable to focus on core research areas

What they do:

- Surviving in prevailing circumstances

AFTER

What they think:

- Make a real contribution to the farmers and value chain actors

What they feel:

- Adequate resources to work efficiently

What they do:

- Specify to deliver products that meet challenges

Personas – Veterinarian

More info:

- Female, self employed
- Uganda

Strengths:

- Expertise
- Experience

Challenges:

- Not enough reliable business

Impact of our innovation

BEFORE

What they think:

- Small, constrained

What they feel:

- Capital poor
- Poor transport

What they do:

- Remain isolated

AFTER

What they think:

- Increased opportunities

What they feel:

- Liberated

What they do:

- Expand their horizon

Personas – Farmer, smallholder

More info:

- Rural and peri-urban
- Men and women
- Backyard systems
- Farrow-wean/farrow-finish/wean/finish/village boars

Strengths:

- Increasing demand for pork
- Production doesn't require much land
- Animals can feed on scraps and waste

Challenges:

- African Swine Fever
- Feed price seasonality and shortages
- Difficult to access good genetic material
- Access to advisory services are poor for women

Impact of our innovation

BEFORE

What they think:

- Risky business

What they feel:

- Afraid to invest

What they do:

- Hesitate to expand pig production
- Don't push beyond the status quo

AFTER

What they think:

- Profitable and secure

What they feel:

- Willing to invest

What they do:

- Ambition to grow
- Ready to adopt innovations

Personas – Farmer, specialised

More info:

- Northern Nigeria
- Male/female
- Breeding exotics
- Selling weaners

Strengths:

- Parent stock
- Knowledge, skills, management
- Availability of feed and bore water
- Access to veterinary services

Challenges:

- Undifferentiated market
- Low access to improved genetics
- African Swine Fever
- Competition for feed

Impact of our innovation

BEFORE

What they think:

- Good business but risky

What they feel:

- Good potential if supporting policies were enforced

What they do:

- Work with what they have

AFTER

What they think:

- Excellent business opportunities

What they feel:

- The sector will grow across the value chain

What they do:

- Expand!
- -> Export

Personas – Aggregator/Trader

More info:

- Kampala and surrounds
- Male
- Peri-urban/urban

Strengths:

- Negotiating
- Marketing
- Economies of scale/aggregating power

Challenges:

- Irregular supply, thus price fluctuations
- Transportation, don't have cold chain facilities
- Animal welfare

Impact of our innovation

BEFORE

What they think:

- Individualistic

What they feel:

- Concerned about sustainability of supply

What they do:

- No quality based pricing
- Use poor transportation methods
- Limited use of digital technology

AFTER

What they think:

- Community-minded
- Integrated both horizontal and vertical

What they feel:

- Secure about sustainability of supply

What they do:

- Quality based pricing
- Use of cold chain
- Effectively use digital

Personas – Consumer

More info:

- Depends a lot on countries
 - E.g. Vietnam: everyone, everywhere
 - E.g. Kenya/Uganda: pork joints, ramen, high income

Strengths:

- Growing demand due to increased income

Challenges:

- In some countries there is low product differentiation
- Food safety

Impact of our innovation

BEFORE

What they think:

- Concerned about food safety and chemical residues

What they feel:

- Too expensive, especially local pork breeds

What they do:

- Eat pork

AFTER

What they think:

- By cooking it well, risks are “eliminated”

What they feel:

- Higher trust in the product

What they do:

- Eat more pork!
- Recognise value of high quality products

DESIGN WORKSHOPS – DESIGN THINKING

Checking via Design at Each Stage

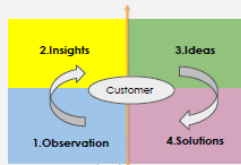
5 #MASSIVE



1

WHAT IF...

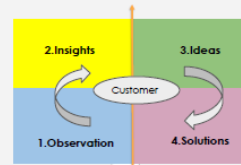
e.g. ... we could influence families in a single community group to eat a more balanced diet?



2

WHAT IF...

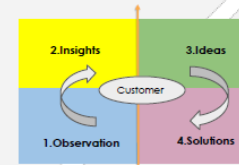
e.g. ... we could influence the families in a whole village?



3

WHAT IF...

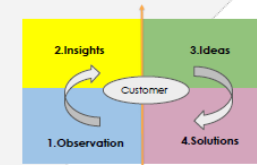
e.g. ... we could influence all families in an entire region?



4

WHAT IF...

e.g. ... we changed the food sourcing and preparation culture of a nation?



Flip Flops - the small innovations we can measure and build upon to create our proof-of-concept and -market.

“The North Star” that is never forgotten. If you can’t imagine how you will get there yet, then you are thinking big enough.

#START



Supply Chains and Markets – Opportunities, challenges and the #MASSIVE

Opportunities:

- Fast growing demand for pork across Africa and Asia
- High processing / value adding potential
- Traders have negotiation skills

Challenges:

- Prices are based on marketing negotiation, not quality (or even quantity if no weighing)
- Great need for improved feed
- High variability of feed and input prices
- Market prices are seasonal and unpredictable
- Food safety is a big issue in processing

By 2030 success will mean...

Efficient, quality inputs and end products are available everywhere on demand.

Supply Chains and Markets – SANDAL

What if we...

Within 6 months in Lira, Uganda, create an information exchange platform for all stakeholders – “Pigbook”.

Using...

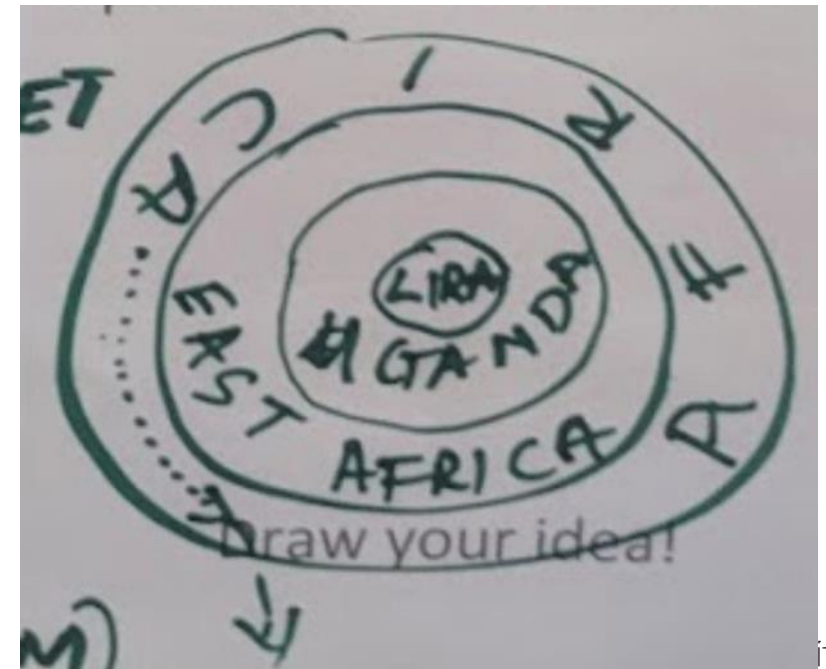
Mobile phone and internet technology.

Our path to 100X would then be...

To scale up!

Non ILRI Partners Needed:

- Telcos
- Software/app developers
- Input/output associations



Digital and Data – Opportunities, challenges and the #MASSIVE

Opportunities:

- Researcher knowledge and access to technology
- Digital connection between pig processors and traders
- Banks and financiers don't adequately value pig farms as businesses, they need to better understand risks and opportunities of farms

Challenges:

- Authentication
- No digital payments
- No transparency of value chains (quality, handling and price)

By 2030 success will mean...

Africa has a scalable data analytics platform (that underpins public and private benefits).

Digital and Data – SANDAL

What if we...

ILRI convenes a roundtable uniting big digital, technology, analytics, etc. companies and experts.

Using...

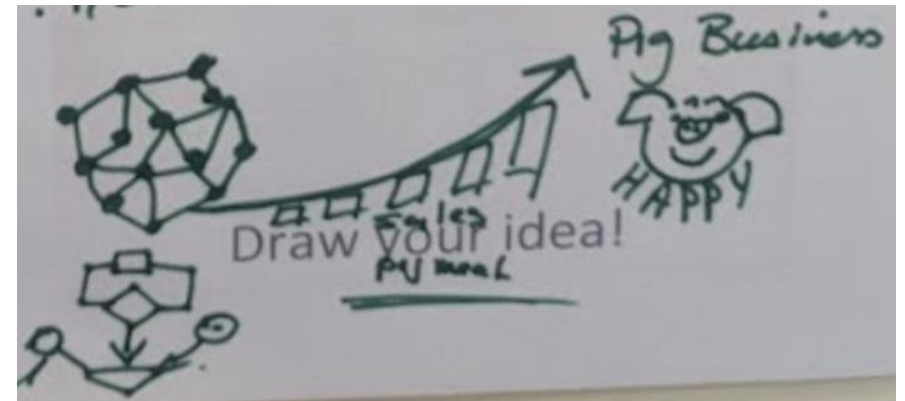
African Swine Fever as a use case of how digital can power the prevention and management of the disease

Our path to 100X would then be...

Fund a scalable platform plan with public and private funding, and convene a team towards project development.

Non ILRI Partners Needed:

- Big technology companies (Microsoft, Google, The Yield)
- Leading agtech providers
- Data analytics experts
- AI and IoT experts
- Government policy makers
- Value chain experts
- Health and animal specialists



Policy – Opportunities, challenges and the #MASSIVE

Opportunities:

- Ministry support for pig-friendly production
- Government influence on trade policy
- Government access to partners
- Policy-supported pig value chain multi-stakeholder programmes

Challenges:

- Animal and human health
- Limited government resources (depending on country)
- Animal welfare
- Competitive import/export competition

By 2030 success will mean...

Through policy implementation we will have achieved an efficient, competitive, inclusive and sustainable pig industry.

Policy – SANDAL

What if we...

Pilot policy action in one district in Cambodia to support export of pigs (and pig products) to China.

Using...

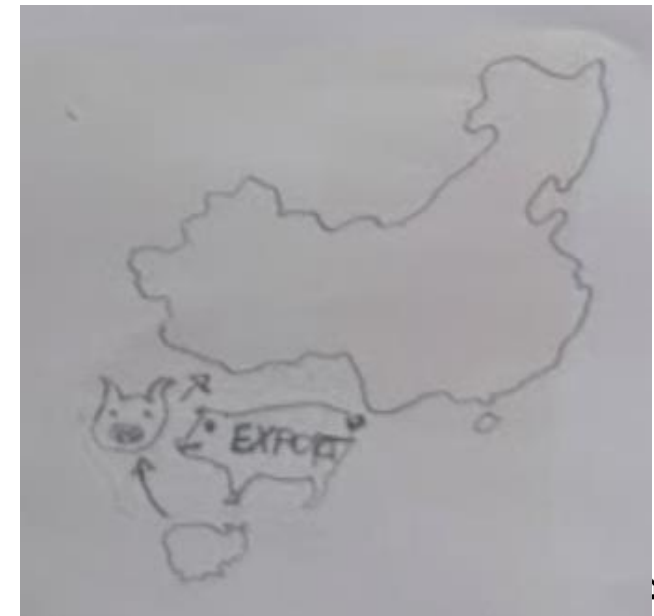
Policies supporting: finances, extension, breeding

Our path to 100X would then be...

Pilot, finance, evaluate and replicate.

Non ILRI Partners Needed:

- Government
- Private sector
- Vets
- Microfinance institutions



Sustainability – Opportunities, challenges and the #MASSIVE

Opportunities:

- Improved dry feed storage
- Improved liquid feed storage
- Better animal welfare

Challenges:

- Small land sizes
- Erosion
- Forage is impacted seasonally
- Irrigation required to produce feed all year round
- Regional farms lack clean water infrastructure

By 2030 success will mean...

The pig industry has grown 50x, is profitable, has positive environmental impact, supports equitable rural livelihoods and has improved animal wellbeing.

Sustainability – SANDAL

What if we...

Establish a model breeding farm in Zangon Kataf and Debre Zeit to demonstrate best agricultural management practices.

Using...

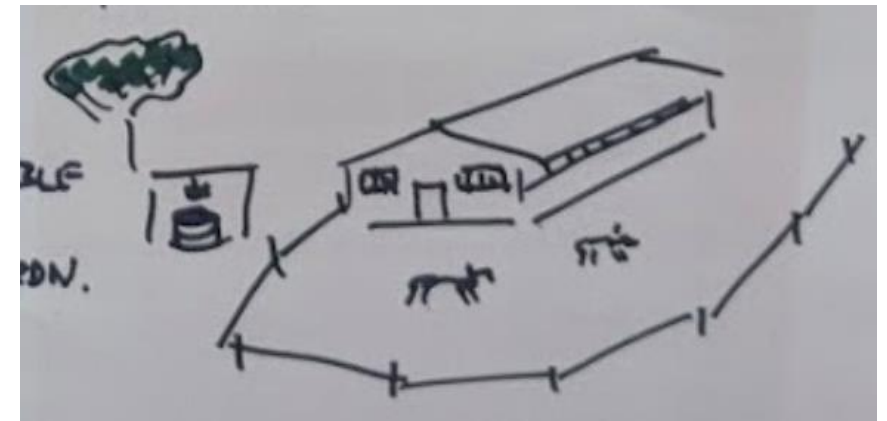
Parent stock; model housing which is adapted to environment; compounding feed with locally available inputs; composting and integrating with local crop production; processing facilities

Our path to 100X would then be...

Demonstrate value to all market participants.

Non ILRI Partners Needed:

- Ministry of agriculture
- NAPRI
- Genetic companies
- Hybrid feeds - ALAMA
- Private and public vet service
- Master Meats
- Market - Shoprite



Animal Health – Opportunities, challenges and the #MASSIVE

Opportunities:

- Vets are trained and educated
- High degree of local knowledge
- Improved handling and management

Challenges:

- AFRICAN SWINE FEVER
- Need to carefully control farm access
- Difficulties in disease diagnostics
- Feed is a challenge – Aflatoxin
- In-breeding
- Training in husbandry and biosecurity
- Lack of funding, medicines

By 2030 success will mean...

Pigs are free of parasites and don't die of African Swine Fever.

Animal Health – SANDAL

What if we...

Change behaviour of farmers to adapt biosecurity measures to control disease and increase pig income.

Using...

Closing access to herds; trainings, messages, community level initiatives, ICT, social media; behaviour economics; increase market access; professional service and advisory provision

Our path to 100X would then be...

To measure impact through enterprise profits, evaluate and scale

Non ILRI Partners Needed:

- Government
- Industry
- Contractors
- Service providers
- Pig buyers/intermediaries



Pig Productivity – Opportunities, challenges and the #MASSIVE

Opportunities:

- High value add per acre, low land requirements
- By-products: blood, butter, leather
- 30 piglets per cow
- Local pigs are well adapted
- High potential in exotics

Challenges:

- Feed is expensive and seasonally available
- In-breeding risks
- Sourcing exotic animals is very expensive and difficult
- Need more support for seed
- Lack of private sector support

By 2030 success will mean...

Pigs are free of parasites and don't die of African Swine Fever.

Pig Productivity – SANDAL

What if we...

Increased demand, solved productivity bottlenecks (genetics, health, feed) and ensured equity

Using...

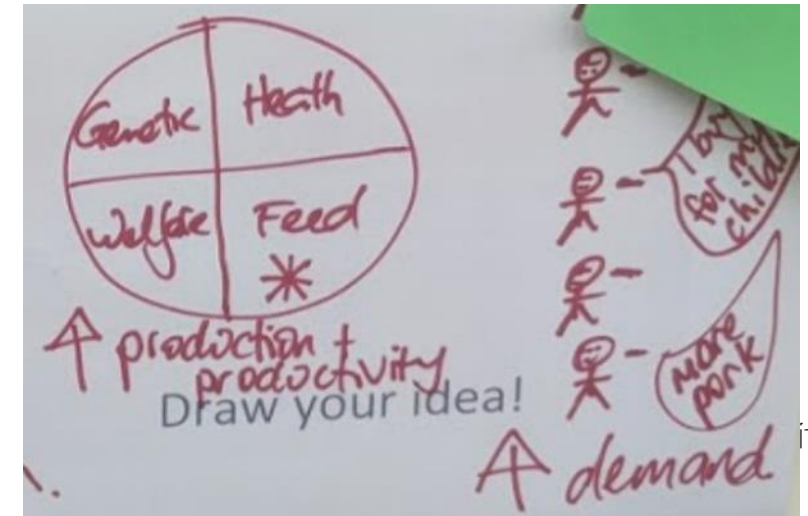
Latest contextualised innovators in pig production
- prioritised feed. Fair payment to pig producers.
Safe pork production practices. Training in business/entrepreneurship.

Our path to 100X would then be...

Stakeholder engagement; innovation platforms; research on technology contextualisation; pigs in livestock master plans and policy.

Non ILRI Partners Needed:

- Livestock ministries
- NARs
- Private sector – feeds, health, genetics, infrastructure
- Pig producers
- NGOs



Human Health – Opportunities, challenges and the #MASSIVE

Opportunities:

- Growing demand for pork
- Pork is very flavoursome and is known for its taste when cooked well
- Public health worker education and commitment

Challenges:

- Limited resources for surveillance and diagnostics
- Veterinary public health needed
- Pigs can be physically dangerous and attack
- Manure and urine are sources of disease
- Diseases: Salmonella, E. Coli, Campylobacter, Leptospirosis, Listeria, etc.

By 2030 success will mean...

No more pig-borne zoonoses .

Women and Youth Economic Empowerment – Opportunities, challenges and the #MASSIVE

Opportunities:

- Pigs are a vehicle out of poverty; they provide direct employment, income and job security
- Pigs consume household waste – impacts on gender

Challenges:

- Disadvantaged negotiation
- Women inherit land but usually the husband owns land title
- Women are involved in production, generally not marketing
- Restricted access to advisory services.

By 2030 success will mean...

10 million decent jobs for women and youth created, powered by digital advancement across the pig value chain.

Women and Youth Economic Empowerment – SANDAL

What if we...

Disrupt informal pork joint markets with branded premium pork joints supplying quality safe pork through fair trade across the pig value chain

Using...

A branded, youth/women-led pork joint kiosk in Mukono and Kauyala (as a pilot) using support and mentoring from ILRI and partners.

Our path to 100X would then be...

Franchising models, digitising the value chain, increasing partnerships with suppliers.

Non ILRI Partners Needed:

- Youth and women entrepreneurs
- Business accelerators
- Media
- Public Health Department
- Bak Tom (Vietnamese Entrepreneur)



Capacity Building – Opportunities, challenges and the #MASSIVE

Opportunities:

- Muslim community benefits from community wealth – can become champions for good separate facilities
- Manure and waste products not being upcycled

Challenges:

- Transport limitations
- Need proper financial analysis to prevent exposure to valuation losses
- Marketing is affected by religion
- Buyers manipulate animal values due to lack of weighing tools/techniques
- Need better storage skills and facilities

By 2030 success will mean...

Capacity of pig value chain actors is fully built.

Capacity Building – SANDAL

What if we...

Build capacity to ensure all pig producers can access year-round nutritionally balanced, least cost rations based on locally available ingredients

Using...

Train the trainer sessions for ration formulation, ICT technologies, beginning with the central region of Uganda.

Our path to 100X would then be...

Off to a solid start. Can use butcher training programs to focus on ration formulation as a first step.

Non ILRI Partners Needed:

- Universities
- Extension services
- NGDs – VEDCO
- NALRI – Put Sector





Thankyou for a great workshop!

We will be in touch with more information shortly.

In the meantime, if you have any questions about the Food Agility process or would like to know more about us, visit www.foodagility.com or find @foodagility.