Centre for Tropical Livestock Genetics and Health

Centre for Tropical Livestock Genetics and Health (**CTLGH**)

Steve Kemp, ILRI

TropAg2017 Conference, Brisbane, 20-22 November 2017

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The big picture and Our joint commitment
The SDGs: the next 15 years

Centre for Tropical Livestock Genetics and Health

A place for livestock !

Centre for Tropical Livestock Genetics and Health

A partnership for livestock development (innovation and impact)

CTLGH operations (Edinburgh, Nairobi)

Discover
Develop
Deliver

Tools, Resources and Solutions

(to improve livestock in tropical small holder systems)

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Centre for Tropical Livestock Genetics and Health – CTLGH

- **£10M foundational investment (BMGF)**
- **£4M supplement funding (DFID)**
- **GCRF data and resources**
- **GCRF impact accelerator account**

Current operations:

Development of genomic tools to improve the productivity, efficiency, resilience, and health of tropical livestock owned by smallholder farmers

2015 - 2022

Strategic goal:

CTLGH: The leading livestock R&D Centre poised to tackle tropical livestock development challenges (*"omics"-based solutions*).

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Key CTLGH/ILRI partnerships

Centre for
Tropical Livestock
Genetics and Health

ADGG
African Dairy Genetic Gains
More productive and profitable dairy cows

RESEARCH
PROGRAM ON
Livestock

ACGG partnerships

FANRPAN
Food, Agriculture and Natural Resources Policy Analysis Network

CCRP
cosmopolitan chicken research project

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CGIAR

BILL & MELINDA GATES foundation

CTLGH

ARARI

ethio chicken

LIVESTOCK FEEDS PLC
...quality feeds nationwide

Silverlands
Tanzania
Chakula Bora. Vifaranga Bora

TALIRI
TANZANIA LIVESTOCK RESEARCH INSTITUTE
UTAFITI KWA MAENDELEO

UNIVERSITY OF AGRICULTURE ABEOKUTA
KNOWLEDGE FOR DEVELOPMENT

SOKOINE UNIVERSITY OF AGRICULTURE
1984

NATIONAL ANIMAL PRODUCTION RESEARCH INSTITUTE
A.B.U. SHIKA, ZARIA

WAGENINGEN UR
For quality of life

PICO-Eastern Africa
helping institutions work...

Koepon

AU-PANVAC

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Ethiopian Biodiversity Institute

HARAMAYA UNIVERSITY

Premier Feed Mills

ANIMAL CARE

Adellium Consult Limited

GTE

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ARDHI NI HAZINA

AGRO INVESTMENT LIMITED

Amo Farm
Sieberer Hatchery
...the source you can trust

Kind Palms Ventures

Oromia Agricultural Research Institute

Mainahawu Enterprises Nig. Ltd.
MENIG

TANZANIA AGRICULTURAL SOCIETY
TASO

BECIL SAPERE FORIS

TANZANIA VETERINARY LABORATORY AGENCY

TANZANIA POULTRY BREEDERS ASSOCIATION
TPBA

COSTECH

TFDA
Tanzania Food & Drugs Authority

U.S. GRAINS COUNCIL

FEDERAL UNIVERSITY OF TECHNOLOGY OWERRI
TECHNOLOGY FOR SERVICE

NASARAWA STATE UNIVERSITY
KNOWLEDGE FOR DEVELOPMENT

Olorun Osun Farms

Current programs

Dairy Genomics

Harnessing genetic variability among indigenous and exotic breeds of cattle (as well as their crosses) to develop genetic and genomic tools that will be used to improve productivity under harsh tropical conditions and to mitigate the impact of cattle on climate change.

Poultry Genomics

Harnessing genetic variability in tropical productivity and adaptation among various breeds of Chickens.

Reproductive Technologies

Development and application of precision breeding (through novel reproductive and germplasm technologies) to achieve step changes in livestock genetic improvement.

Health Genetics

Understanding the genetic and molecular mechanisms underlying tolerance of certain cattle and poultry breeds to tropical diseases and pests.

Informatics & Bioresources

A shared global data and biological sample resource to support continued research and development on tropical livestock genetics and health.

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Poultry Genomics

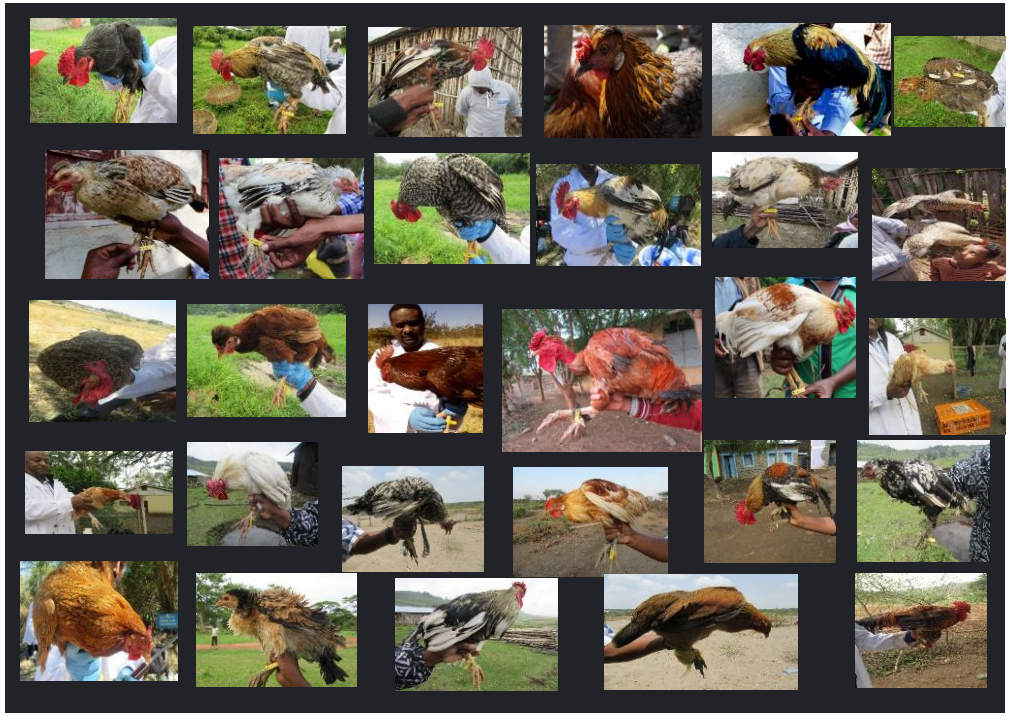
The team

Nick Spark, Georgios Banos, Dessie Tadelle, Olivier Hanotte, Jacqueline Smith, Almas Gheyas *and others …*

Dual purpose

Feed conversion efficient

immune competency



Adaptable Likeable

Options By context

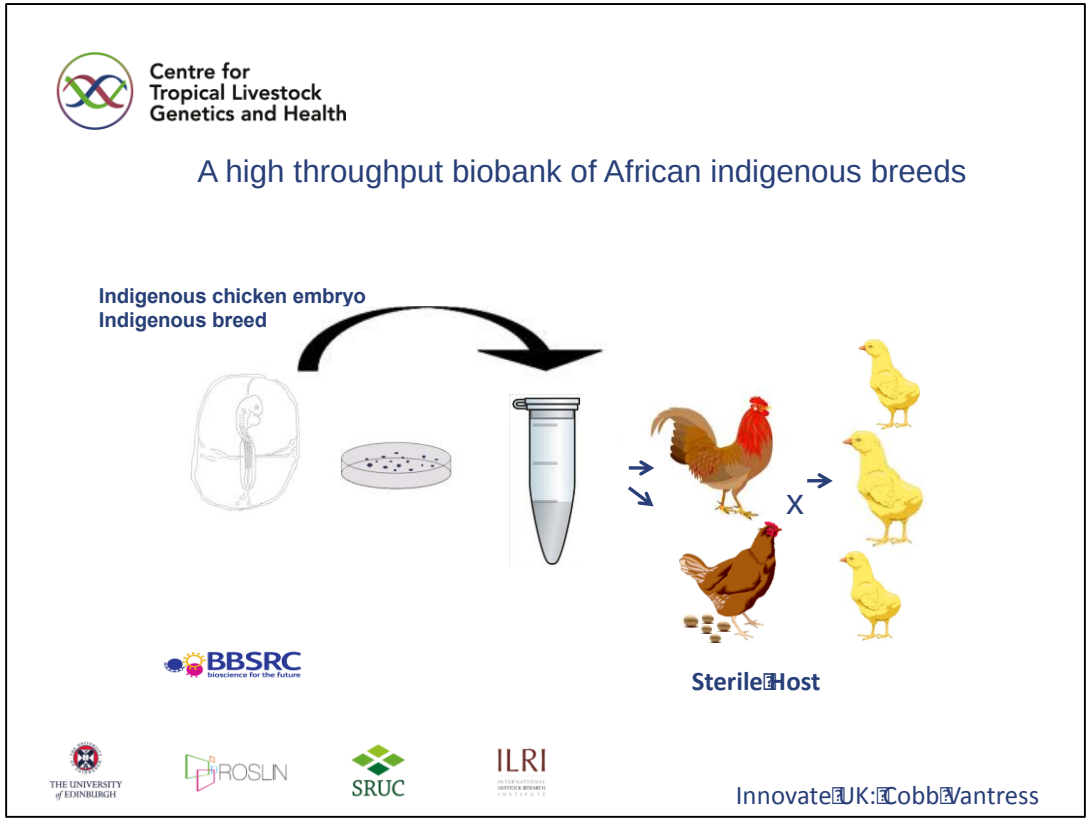
Diversity

Reproductive Technologies

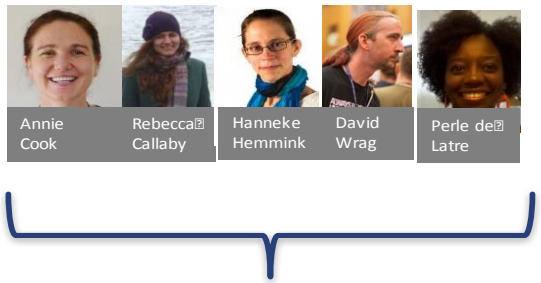
Investigators: Mike McGrew (RI), Bruce Whitelaw (RI)
Steve Kemp (ILRI)

Objectives

1. **Biobank indigenous African fowl (in an Africa biobank)**
2. Develop and share tools for gene editing chicken and dairy cattle
3. Produce a gene edited livestock with increase productivity, environmental/disease resilience



Health Genetics



Construction of disease resilient animals

"A knowledge base upon which to establish the selection or construction of disease resilient animals and effective disease interventions adapted to African farming systems"

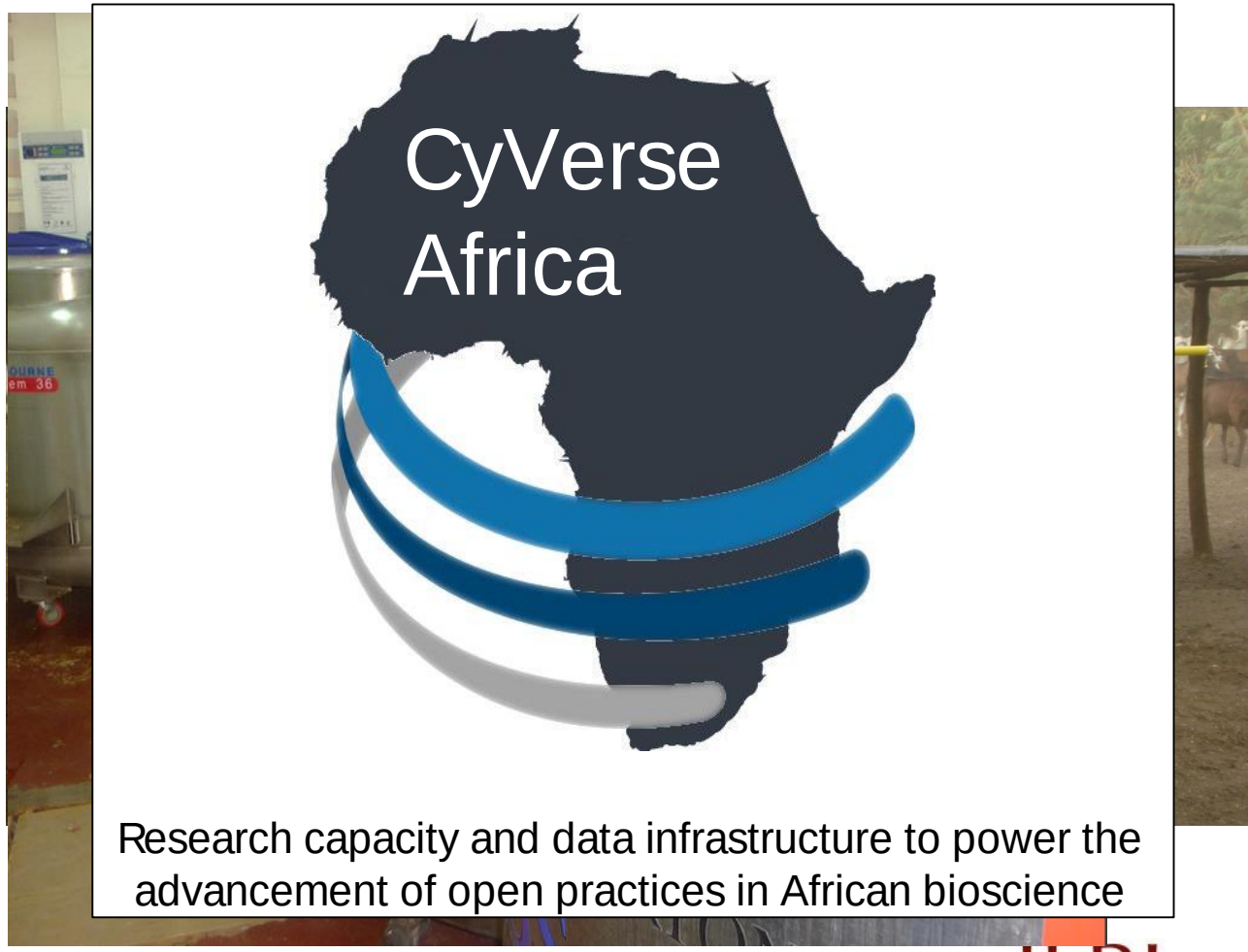
Tolerance to *Theileria parva* infection

Informatics & Bioresources

Co-Leaders: Mick Watson (RI), Steve Kemp (ILRI)

Ongoing activities and available resources

- Hundreds of genomes have now been processed: African cattle, African buffalo, African chickens, African sheep and goats, chicken microbiomes, African warthogs
- Assessing population diversity
- Genome assemblies being carried (N'dama, Indian Water Buffalo, African warthogs)



B3 Africa
BRIDGING BIOBANKING AND BIOMEDICAL RESEARCH ACROSS EUROPE AND AFRICA

Earlham Institute
Decoding Living Systems

agrimetrics

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ROSLIN biosciences
eastern and central africa

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CTLGH: Emerging opportunities

- Research collaborations – leveraging current investments and ongoing projects
- Resource mobilization – UK, Europe, Africa, US, Australia
- Capacity building – research skills gaps (South & North)
- CTLGH 10-years strategy – Under development

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www.ctlgh.org

CTLGH: *Improving tropical livestock productivity and resilience*

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