

# The human face of sustainable livestock development



01

Laos cattle  
farmer gives  
her cow salt



## Foreword

For ILRI, 2018 was a year of continuing progress and solid achievement—and for that we remain both grateful and proud. Thanks to our staff, our partners, our donors and the governments with which we work, ILRI is helping countless farmers and other stakeholders in the livestock sector in the developing world live better lives through livestock. It is helping to raise household incomes, improve human nutrition and health, fight devastating livestock diseases, breed more productive and drought-resistant animals, redress gender imbalances, enhance biodiversity and respond to climate change.

In past reports, we've noted that the global demand for animal-source foods continues to grow rapidly in developing and emerging countries, a phenomenon dubbed the "livestock revolution." In Africa, for example, the demand for livestock-derived foods is projected to increase by 80% from 2010 to 2030, mostly because of population growth. Asia, already the largest consumer of livestock-derived foods, will see a nearly 60% jump in consumption—and much of that will be due to rising incomes and greater urbanization. That demand can and should be channeled effectively, to ensure that those increases translate into higher incomes for farmers, better nutritional outcomes for children, and greater socio-economic opportunities for women.

The breadth of the opportunities these figures represent requires new science and new research results that are taken to scale. This report highlights just a few of the many activities ILRI staff have undertaken in the past year.

**Jimmy Smith**  
Director general  
of ILRI

**Lindsay Falvey**  
Chair of the ILRI  
Board of Trustees

## 02

Jimmy Smith (L) with Lindsay Falvey received a doctorate with honoris causa and gave the commencement speech (or Occasional Address) at the University of Melbourne, Australia, on 6 Dec 2018



Photo credit: University of Melbourne



### 03

Camels drinking  
at a water pan in  
Wajir county in  
Kenya

Photo credit: ILRI/George Wamwere-Njoroge



# In the lab—good science is the foundation of ILRI's work

Novel index developed to measure women's empowerment in livestock production

*Index will improve the targeting of interventions in livestock to benefit women*

RHoMIS: A rapid, standardized and cost-effective tool for tracking agricultural performance

*The tool measures the effectiveness of agricultural interventions on climate change adaptation and mitigation*

04

Woman herding goats in Nagar Village Tonk District Rajasthan India



Photo credit: ILRI/Steve Mann

04

05

ILRI scientist Steve Staal with pig farm owner in the Philippines



Photo credit: ILRI/Jules Mateo

05

ILRI has adapted a tool to measure women's empowerment in agriculture to focus on key areas of livestock production. The tool will help stakeholders develop livestock interventions that can effectively support women's empowerment, ultimately enhancing the effectiveness of these interventions.

Researchers at ILRI have developed a tool to rapidly measure an array of key indicators regarding agriculture and climate change, including agricultural production and market integration, nutrition, food security, poverty and greenhouse gas emissions. Known as the Rural Household Multi-Indicator Survey (RHoMIS), the tool is becoming widely adopted.

06

Research at the BecA-ILRI hub

Building a bioinformatics community for agricultural sciences in Africa

*ILRI's BecA-Hub is using cutting-edge science to help Africa achieve food and nutrition security*

The BecA-ILRI hub has created an alumni community of over 300 national agricultural research systems researchers in Africa who collectively work to advance and accelerate research in the bio-sciences by harnessing the opportunities available through the Hub's high-end applications and tools.



Photo credit: ILRI/Paul Karamu

06



# In the field—ILRI is committed to research for development

Using smartphones to track livestock disease outbreaks in northern Kenya

Scientists and farmers swap information for more profitable milk production

*An electronic disease surveillance system is improving early detection of livestock diseases, making interventions more accurate and effective*

*Cell phone apps and emerging genomics are giving farmers and scientists the information they need to improve dairy cattle in Africa*

07

ILRI scientist James Ombura prepares to vaccinate cows. ILRI campus (Nairobi)



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A dairy farmer in Tanzania checks her phone for updates from the ADGG program headquarters



08

Taking advantage of the widespread uptake of mobile telephony throughout Kenya, ILRI has initiated an innovative, community-led system of syndromic livestock disease surveillance in five counties in northern Kenya, using smartphones to collect and transmit surveillance data.

Building on a locally developed smart phone app, ILRI has developed an information and communication system to sustainably improve dairy cattle breeding in east Africa through a mutually beneficial partnership that gives scientists the data they need to properly evaluate breeding programs, while giving farmers advice on how to improve their animals' health and productivity.

## Converting straws and stover into concentrates

*A novel way of treating crop residues may yield a host of benefits for farmers, local economies, and the broader environment*

About 4 billion tonnes of renewable biomass come from crop residues, which are the major feed resource in most of the livestock systems where ILRI is working. Unfortunately, most cereal crop residues make for poor fodder, and animals fed on them alone rarely thrive. In India, ILRI is working on improving the fodder quality of crop residues with novel technologies developed from the biofuel industry.

## Securing rangelands and settling conflicts through village land use planning in Tanzania

*ILRI is helping pastoralists and farmers in Tanzania develop land use strategies that enable both communities to reduce conflicts and improve natural resource management*

ILRI is implementing a research-for-development project that has helped secure nearly 150,000 hectares of contested grazing land for livestock grazing in Kiteto district in Tanzania. The deal is helping reduce sometimes-deadly conflicts among the area's land users, a problem which has grown increasingly severe in recent years. It will also improve productivity of the land and enhance its environmental services.



# Capacity development—building local capacity and mentoring the next generation of agriculture scientists

Mentoring women to become future leaders in science

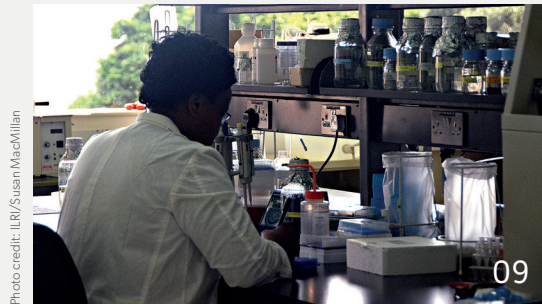
*The next generation of African women scientists are honing their skills at BecA-ILRI Hub*

ILRI recognized at 2018 world food prize

*ILRI has participated in the WFP's internship program for nearly 20 years*

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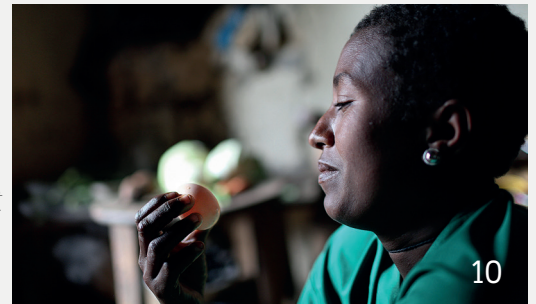
A female scientist at work at ILRI laboratories, Nairobi, Kenya



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Woman holding egg



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BecA-ILRI Hub is reaching out to women scientists across Africa to build their capacity for training and research using modern, high-end bioscience technologies including genomics, genetics and bio-informatics tools. The goal is to help a new generation of women scientists accelerate animal and crop genetic gains and improve productivity.

Some 23 US high school students have interned at ILRI under the auspices of the prestigious Borlaug-Ruan International Internship program in the nearly 20 years since it began. They've spent time in the lab, as well as days or weeks at a time in the field. ILRI recently asked former participants about their experience and how it has shaped their lives.

11

A pig farmer in Hung Yen province, Vietnam

Fostering south-south partnerships to improve food safety in Asia

*Mutual learning and cooperation among Asian countries can help address food safety issues*

ILRI scientists are scaling up lessons from their work on building food safety capacity in Vietnam through an innovative peer-to-peer program with stakeholders in the regional countries of Bangladesh, Cambodia and Thailand. So far, ILRI scientists have trained more than 100 officials and researchers from the three countries on different frameworks for food safety risk assessment.



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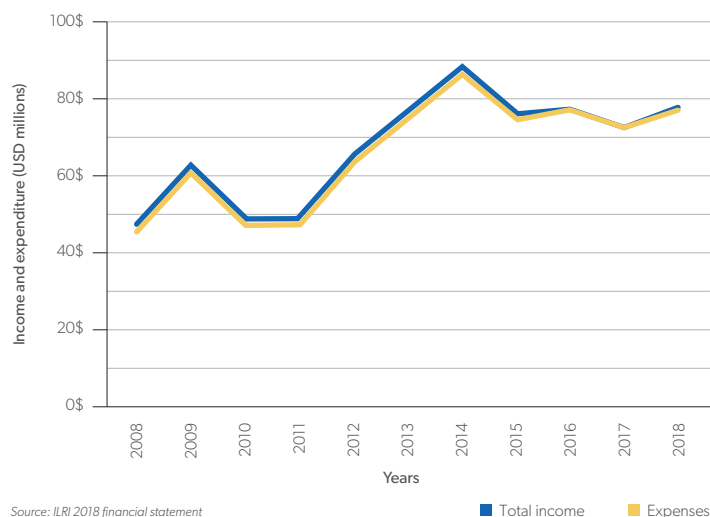


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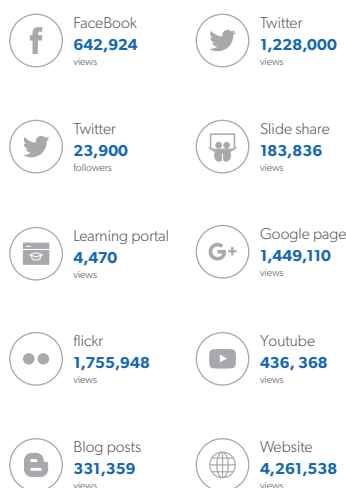
Cattle stand in a  
village compound  
in Lhate,  
Mozambique



## ILRI funding trends, 2008-2018



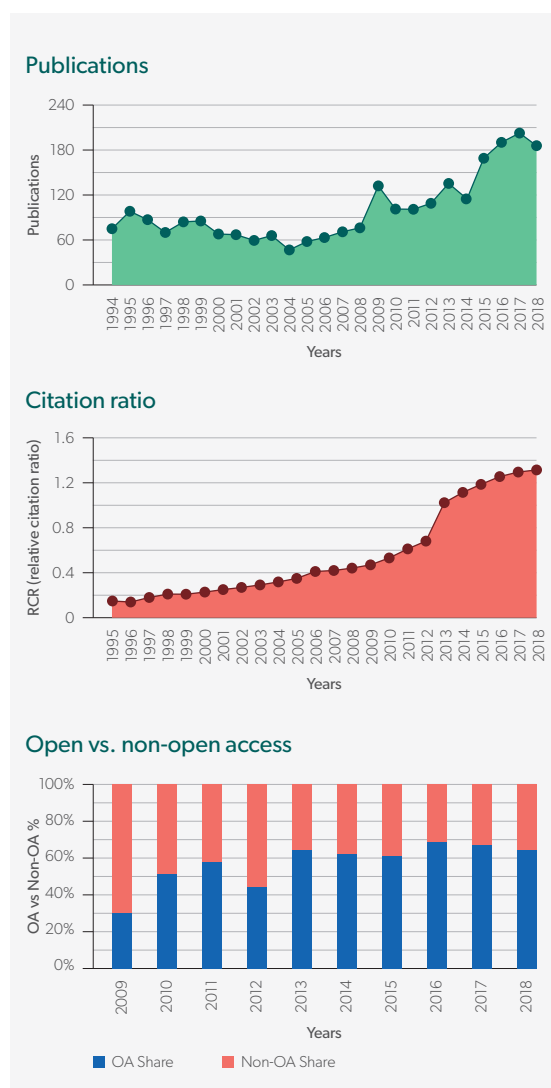
## ILRI digital reach and social media, 2018



## ILRI information products, 2018 (all types)



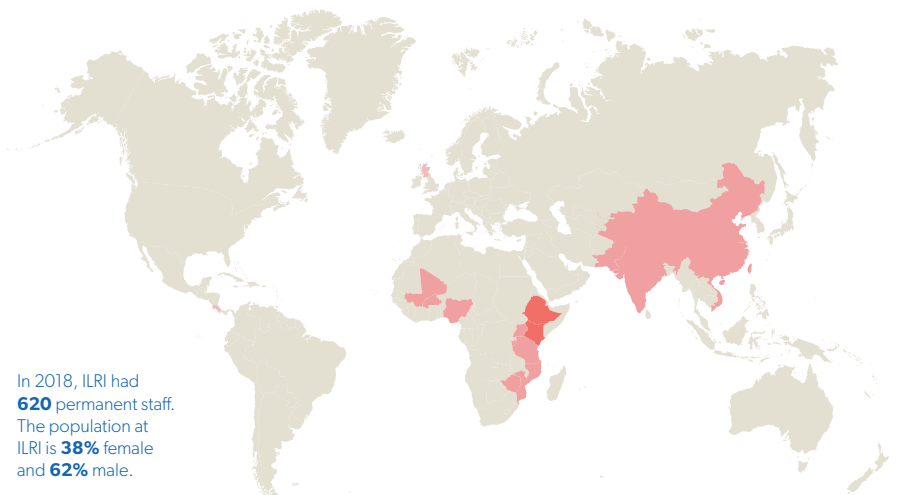
## ILRI peer-reviewed scientific publication trends



Data courtesy wizzard.ai

## ILRI offices and staff worldwide

ILRI is co-hosted by the governments of Ethiopia and Kenya and has offices in 8 other countries in Africa (Burkina Faso, Burundi, Mali, Mozambique, Nigeria, Tanzania, Uganda and Zimbabwe); 4 countries in Asia (China, India, Pakistan and Vietnam); and 2 other hosting locations: Costa Rica and Scotland.



## Views on the ILRI web ecosystem

