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A NEW NARRATIVE FOR AFRICA'S LIVESTOCK



Key messages

- Livestock production plays a critical role in livelihoods, nutrition and climate adaptation across diverse production systems in Africa, and has the potential to contribute to achieving the Sustainable Development Goals and Africa's Agenda 2063 Developmental Goals.
- The social, cultural and environmental benefits of livestock keeping must be considered when evaluating its negative environmental impact.
- Livestock production systems can be part of the solution to climate change.
- Directing climate finance to improve productivity, sustainability and adaptation within livestock systems is critical for the future of farmers and pastoralists in Africa.
- The African Union (AU) has devised a range of policies and strategies which inform A New Narrative for Africa's Livestock. Taken together, they can help livestock farmers cope with climate change and improve their productivity.

December 2023

Summary

It is almost impossible to overstate the importance of livestock farming in Africa. Pastoralism, for example, is the primary source of income and nutrition for some 268 million people in 36 African countries.[1] Livestock are also a key component of mixed farming systems.

Most livestock farmers must cope with a constellation of challenges, in particular climate change. Floods, droughts, rising temperatures and changing patterns of rainfall are leading to heat stress in livestock, the spread of pests and diseases and, in the worst cases, the loss of livestock.

Globally, livestock farmers are not only the main victims of climate change but one of the causes. Agriculture accounts for 14.5% of anthropogenic greenhouse gas (GHG) emissions, with almost two-thirds coming from livestock production. This has led to widespread calls for a dramatic reduction in the production and consumption of red meat and dairy products.

The prevailing "meat and milk are bad" narrative frequently lumps livestock farmers in the developing world (most of whom practice low-input systems of production) with industrial and highly intensive farming systems in the Global North. Even though pastoral systems in Africa produce higher quantities of methane per unit of meat or milk than intensive farming systems in the Global North, they generally have very low levels of external inputs, short value chains and low transportation costs. They also provide a wide range of social, cultural and environmental benefits.

Much of the groundwork for a new livestock narrative has already been laid by the African Union (AU) with a series of policies and strategies designed to improve livelihoods and the resilience of production systems in the face of a changing climate. Key among these is the visionary policy statement, Agenda 2063. Other strategies align with this, including the Malabo Declaration, the Livestock Development Strategy for Africa, which spans a 20-year period up to 2035, and the Africa Regional Strategy for Disaster Risk Reduction.

Collectively, their primary objective is to create new economic opportunities, ensure better food security and help farmers adapt to climate change. In addition, these policies and strategies seek to cultivate greater regional integration and cooperation and a more cohesive and interconnected African continent.

This new livestock narrative for Africa demonstrates that livestock production systems can be part of the solution to climate change. It recognizes the diversity of livestock systems and it takes account of equity and social justice issues, as well as the need to improve livestock productivity and sustainability.



Photo CIAT/Georgina Smith.

1 Panel, Malabo Montpellier. 2020. Meat, milk and more: Policy innovations to shepherd inclusive and sustainable livestock systems in Africa. International Food Policy Resources Institute. Livestock-report-MaMo-2020-25.indd (mamopanel.org).

Africa's livestock – essential facts

In sub-Saharan Africa, agriculture accounts for 17.5% of GDP and 57% of employment. This compares with figures of 2% and 3% respectively for high-income countries.

17.5% **57%**

Africa hosts 20%, 27%, and 32% of the global cattle, sheep, and goat populations, with the majority being raised in semi-arid and arid environments.

In communities where women cannot own land, they can frequently own animals and manage livestock businesses. Small ruminants like goats are an important source of income for tens of millions of female farmers.

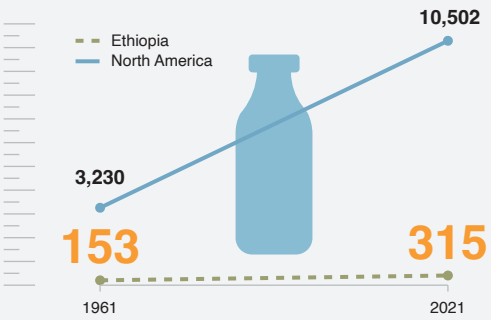
Africa is responsible for just **3.8%** of global GHG emissions.

Livestock in Africa are mainly raised in mixed crop–livestock or pastoral systems. Both have a vital role to play in recycling nutrients and maintaining soil health.

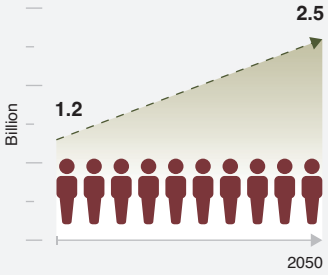
In Africa, pastoralism is the primary source of income for some 268 million people in 36 countries, contributing between 10% and 44% of GDP, depending on the country.

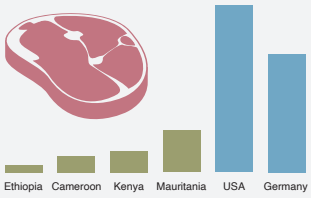
268 million

Milk yields in Africa remain stubbornly low. Between 1961 and 2021, they rose from 153 to 315 kg/cow/year in Ethiopia. The equivalent figures for North America were 3,230 and 10,502 kg/cow/year.



Africa's population, which is currently estimated to be around 1.2 billion, is projected to reach 2.5 billion by 2050. By then, the demand on the continent for meat is expected to quadruple and the demand for milk to triple.

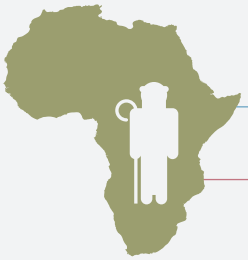




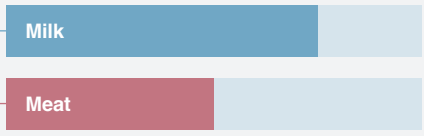
Consumption of meat is very low in most African countries: just 5.4 kg per capita per year in Ethiopia, 12 kg in Cameroon, 15.9 kg in Kenya, and 31 kg in Mauritania. This compares with 124 kg in the United States and 88 kg in Germany.

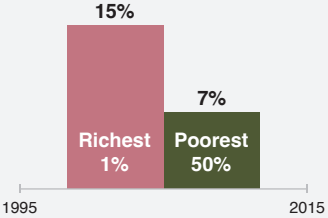
CO_2

Livestock emission intensities (GHG emissions per unit of meat or milk) are very high in Africa and a sign of inefficient production. Beef emission intensities are 40–50 kg CO_2 equivalent per kg carcass weight in Sub-Saharan Africa, compared to 5–10 kg in Europe.



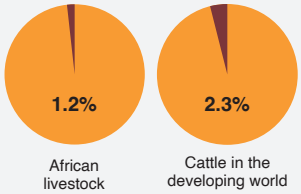
Africa's pastoralists provide over 75% of the continent's milk and more than half its meat.





The richest 1% of the world's population were responsible for 15% of cumulative GHG emissions between 1995 and 2015; the poorest 50% for just 7%.

Global GHG emissions



African livestock are responsible for approximately 1.2% of global GHG emissions; and cattle in the developing world for 2.3% of agriculture related GHG emissions.

Climate change poses a serious threat to Africa's livestock

Livestock farmers are not just a cause of climate change, but some of its main victims, with Africa being particularly hard hit despite livestock emissions in sub-Saharan Africa accounting for just 5% of the global total. This is something that those pushing the "meat and milk are bad" narrative frequently ignore. The fact of the matter is that GHG emissions generated mostly in the wealthy Global North, are directly responsible for the climate-related travails of farmers in Africa.

Heat stress, a reduction in the availability of forage, changing patterns of pests and diseases, and the increased incidence of floods and droughts are all having a significant impact on livestock farming, especially in the humid tropics. It is not just a matter of higher temperatures and less (or sometimes more) rainfall, but greater climatic variability, affecting the timing of rainy seasons. The projected increases in average temperature in Africa are higher than the global average, but they are not uniform across the continent. Some parts of Africa are likely to get wetter; others drier.[2]

Too hot to handle

Heat stress is going to be a major problem for livestock, especially in tropical areas. Its effects include reduced productivity, reduced fertility, greater susceptibility to disease, and in extreme cases high mortality. Heat stress affects all domestic species, although different animals respond in different ways, depending, among other things, on species, breed, nutritional status, and age.[3]

Recent projections of changes in the Temperature Humidity Index, a proxy for heat stress, suggest that there will be a considerable increase in the number of "extreme stress" days per year for livestock in West and Central Africa. Projected changes in southern Africa and much of East Africa are less pronounced. The possible economic losses caused by heat stress in cattle meat and milk production are projected to be four times greater in Africa than the global average. One study suggests that by the end of the 21st century, 90% of Uganda's districts will experience severe heat stress, threatening the entire pig sector, which currently provides an income for over two million households.[4]

Threats to feed and forage

Climate change will also have a significant impact on the availability of livestock feed. In some areas, particularly in temperate regions and the tropical highlands, the impact could be positive, with higher concentrations of CO_2 and increases in rainfall and temperature lengthening the growing season. However, at lower altitudes in tropical regions climate change is likely to have a negative impact on both food and feed crops.

The tens of millions of livestock keepers who depend on rangelands face a serious threat from climate variability and extreme weather events. Such weather events have already reduced water availability, decreased forage production, altered forage species composition, and increased disease pressure, leading to increases in mortality of livestock.[5] Climate change is one of the drivers — others include the fragmentation of rangelands and the increase in population density — that has led to conflict within and between pastoralists, agro-pastoralists, and settled farmers.[6] Prolonged droughts are especially damaging in the tropics and subtropics of Africa, and there is a strong relationship between persistent drought and animal deaths.

Over thousands of years, pastoralists in Africa have developed strategies that have enabled them to survive droughts and other extreme weather events. Their main response has been to move to areas where they can find fodder and water. As climate change increases, policymakers need to recognize the importance of mobility and ensure that pastoralists can still exercise this coping strategy.

2 Simpkin, P., Cramer, L., Ericksen, P. and Thornton, P. 2020. Current situation and plausible future scenarios for livestock management systems under climate change in Africa. CCAFS Working Paper no. 307. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

3 Global Center on Adaptation. 2022. State and Trends in Adaptation Reports 2021 and 2022: Executive Summaries and Syntheses. Rotterdam and Abidjan.

4 Ericksen, P. J. and Cramer, L. 2021. Climate change is already hitting Africa's livestock: Here's how COP26 can help. *The Conversation*.

5 ILRI. 2019. Supporting increased productivity, resilience and environmental sustainability for livestock keepers in the rangelands. Climate Change Adaptation in Livestock Systems Brief 2: Rangelands. Nairobi, Kenya: ILRI.

6 Flintan, F. 2011. Broken lands: Broken lives? Causes, processes and impacts of land fragmentation in the rangelands of Ethiopia, Kenya and Uganda. https://dlci-hoa.org/assets/upload/key-resilience-and-climate-change/20200804010023501.pdf.



Photo CIAT/Georgina Smith.

Changes in pests and diseases

Pests and diseases are already a major problem for many livestock farmers. Some 20% of ruminants and over 50% of poultry die prematurely each year, at least half because of infectious diseases. Economic losses caused by premature deaths amount to an estimated US$300 billion a year.[7] Tropical countries tend to be particularly hard hit. In Africa, for example, tick-transmitted East Coast Fever kills one million cattle a year and trypanosomiasis, the cause of sleeping sickness in humans, costs livestock keepers in East Africa around US$2 billion a year. The annual cost of *Peste des Petits Ruminants* (PPR), a disease which originated in West Africa, has been estimated at between US$1.2 billion and US$1.7 billion, with approximately a third of the financial burden being borne by Africa.[8]

The effects of climate change on the prevalence and damage caused by pests and diseases are likely to be location specific and will vary over time as climate change becomes more pronounced. Among 65 animal diseases identified as being of most concern in the Global South, 58% are climate sensitive.[9]

The distribution of infectious diseases, and the timing and intensity of disease outbreaks, are often closely linked to climate.9 Changes in the temperature and patterns of rainfall have increased the susceptibility of cattle to East Coast Fever in parts of South Africa and areas to the north. By the mid-century, because of the link between Rift Valley Fever outbreaks and El Niño Southern Oscillation (ENSO) events, outbreaks are likely to occur in new areas.

Climate change can have a significant impact on disease vectors such as tsetse fly, which transmits trypanosomiasis to cattle and humans. Recent research suggests that changes in rainfall and temperature could expand the geographical range of half the tick species in Africa. Recent outbreaks of the desert locust in East Africa were linked to a series of cyclones, with the locusts destroying some 200,000 hectares of cropland in Ethiopia.

7 ILRI. 2019. Reducing the growing burden of livestock and zoonotic disease under climate change through new evidence, tools and technology and improved disease surveillance. Climate Change Adaptation in Livestock Systems Brief 4: Animal Health. Nairobi, Kenya: ILRI.

8 Food and Agriculture Organization of the United Nations and World Organization for Animal Health. 2015. Global strategy for the control and eradication of PPR. ppr-global-strategy-avecannexes-2015-03-28.pdf (woah.org).

9 Grace, D., Bett, B., Lindahl, J. and Robinson, T. 2015. Climate and livestock disease: assessing the vulnerability of agricultural systems to livestock pests under climate change scenarios. *CCAFS Working Paper*.

Why we need a new livestock narrative

During the past decade, the "meat and milk are bad" narrative has been vigorously promoted by a range of campaigning groups, international agencies, and the media. The narrative is based, among other things, on the contention that GHG emissions from livestock farming, particularly ruminants, are a significant cause of climate change and must be dramatically reduced.

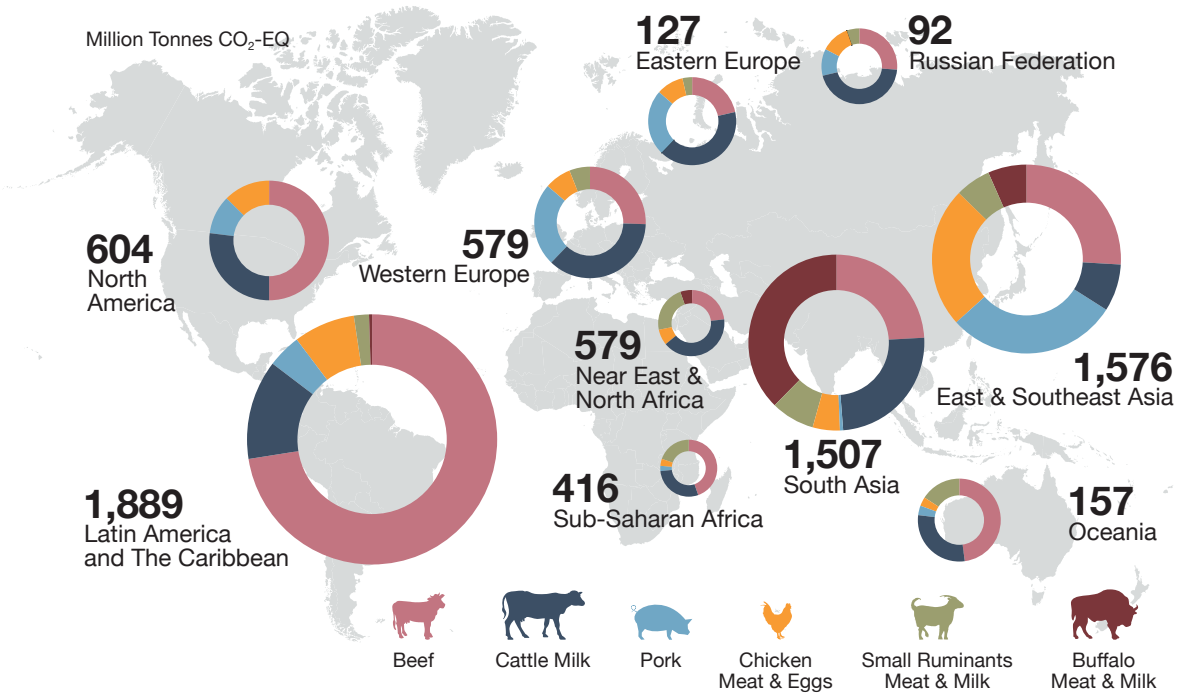
Agriculture is responsible for around 14.5% of the anthropogenic emissions that cause global warming, with some 60% of these coming from livestock production. Almost half (44%) is in the form of methane, one of the most potent greenhouse gases (and one of the most short-lived, unlike CO_2). Some 39% of this derives from enteric fermentation in ruminant livestock like cattle and sheep.[10] Hence the calls to reduce the production and consumption of red meat and dairy products. To give just one example, an influential EAT-Lancet report called for a 50% reduction in the consumption of animal-source foods by 2050.[11]

A flawed narrative

This widely-promoted but un-nuanced narrative is misleading, not least because it lumps livestock farmers in the developing world, most of whom practice low-input systems of production, with the heavily capitalized, high input–high output industrial farming systems of the Global North.[12] Furthermore, total livestock-related emissions in low-income countries are a small fraction of those in wealthier nations (see Fig. 1). Livestock emissions in sub-Saharan Africa, for example, account for approximately 5% of the global total.

The "meat and milk are bad" narrative stems, in part, from the alarmist claims made by various organizations over the past two decades. For example, the Food and Agriculture Organization of the United Nations (FAO) claimed in a 2006 report that livestock were doing more harm to the climate than all modes of transportation combined.[13]

Figure 1. The quantity of livestock emissions, and the sources of those emissions, in low- and middle-income countries is very different from those in high-income countries.



10 FAO - News Article: Key facts and findings.
11 Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S. *et al.* (2019) 'Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems', The Lancet 393(10170): 447–492.
12 Houzer, E. and Scoones, I. (2021) Are Livestock Always Bad for the Planet? Rethinking the Protein Transition and Climate Change Debate. Brighton: PASTRES.
13 Steinfeld, H. 2006. *Livestock's long shadow: environmental issues and options*. Food and Agriculture Organization of the United Nations.

The flaw in this data is that its analysts used a comprehensive life-cycle assessment for livestock — factoring in emissions from fertilizer production, growing feed, and converting forests to pasture, together with direct emissions from animals — but failed to do the same for transportation, considering only the exhaust emissions from vehicles and failing to include the climate impact of manufacturing materials and parts, and the building of roads and bridges (see Fig. 2). This miscalculation slurred the reputation of the livestock sector.

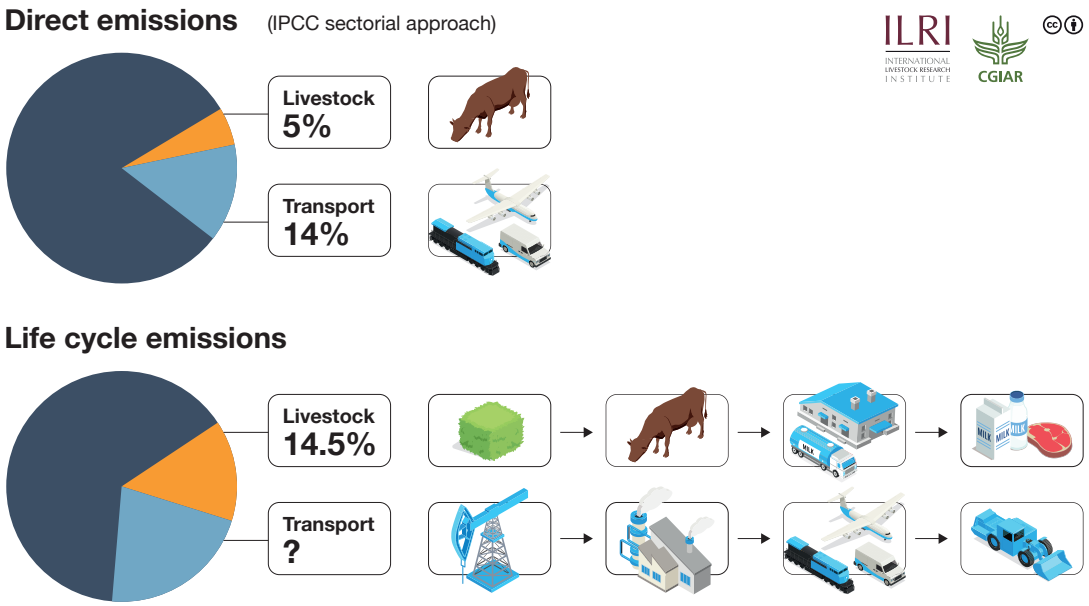
It is essential to differentiate between livestock production systems in Africa and intensive industrial livestock production systems in the Global North when discussing their environmental impact. The life-cycle assessment (LCA) models used to calculate the emissions of specific products — beef, milk, poultry meat and so on — draw on a limited set of data, nearly all of which come from industrial farming operations in North America and Europe. This is often extrapolated to extensive livestock systems, including those widely practiced on the rangelands which cover half the world's land surface.[14] In doing so, LCA models are highly uncertain about GHG emissions from livestock products coming from the grazing-based systems found throughout Africa.[15]

Instead of focusing on livestock products we need to adopt a systems approach that accounts for both the costs of production and the benefits beyond meat and milk production. It is true that certain livestock systems in Africa produce significantly higher quantities of methane per unit of meat or milk than intensive farming systems in the North, but they generally have very low levels of external inputs, short value chains, and low transportation costs. They provide a vital source of income and nutrition and a wide range of other social and environmental goods including manure which is used as an essential input to crop production. Livestock are also of huge cultural significance to many African communities.

The economic importance of livestock

Although livestock productivity is far higher in high-income countries than elsewhere, livestock are far more important from an economic point of view in many low- and middle-income countries. Around 55% of household income in pastoral systems in sub-Saharan Africa comes from livestock. The figure for mixed crop–livestock systems is 35%. Africa's pastoralists provide over 75% of the continent's milk and more than half its meat.[16] Livestock provide high levels of both formal and

Figure 2. The relative significance of livestock and transport varies greatly according to whether you measure direct emissions or life-cycle emissions.



14 https://www.rangelandsdata.org/atlas.
15 Scoones, I. 2022. Livestock, Climate and the Politics of Resources: A primer. Transnational Institute, Amsterdam.
16 Ericksen, P. J., Jones, C. S., Marshall, K., Baltenweck, I., Banerjee, R. R., Crane, T. A., ... & Thornton, P. K. (2022). Livestock. GCA_State-and-Trends-in-Adaptation-2022_Livestock.pdf.



Photo ILRI/Mann.

informal employment. In Kenya, three million people — 15% of the labor force — are involved in the dairy industry. Agriculture, much of it based on livestock farming, employs over half the workforce in the Sahel.[17] In several African countries — including the Central African Republic, Eritrea, and Guinea-Bissau — over 80% of the workforce is employed in agriculture.[18]

A vital source of nutrition

Livestock provide a critical source of nutrition, especially for new mothers and young children, and they are particularly important for poor communities. There is growing evidence to suggest that it is impossible for babies to achieve adequate nutrition in the first 1,000 days of life without access to livestock-derived foods. Even small quantities of milk, meat, eggs, and blood can help to ensure adequate nutrition.[19] These provide key nutrients — including vitamins A, B12, choline, iron and zinc — that are especially critical for addressing nutrient deficiencies in undernourished people. For example, one egg a day can reduce stunting by 47% in 6–9-month-old babies where stunting levels are high.[20]

There is a strong association between livestock ownership and dietary diversity.[21] In Bangladesh, the ownership of small poultry significantly reduced malnutrition during the lean season. In Tanzania, keeping large livestock significantly improved the nutrition and health of young children, with the incidence of stunting being 50% higher in households without large livestock. In Afghanistan, keeping sheep reduced anemia in women. In the Democratic Republic of Congo, the ownership of pigs in a conflict zone significantly improved the mental health of women.

Ownership and culture

The ownership of livestock, and the ability to profit from livestock, can significantly increase women's income and welfare. The changing role of women has been particularly evident in mixed farming and intensive systems. Women are increasingly in charge of dairy operations and medium- to large-scale pig and poultry enterprises. However, there is still much room for improvement. In many parts of Africa, women have less access to land than men. For example, a 2012 policy report by Nigeria's Federal Ministry of Agriculture and Rural Development found that in rural Nigeria five times as many men owned land as women.[22] Women also tend to be more vulnerable to climate change than men as they have less control over resources and less access to credit.

For hundreds of millions of people, livestock are of great cultural importance. This is scarcely surprising, considering our lengthy coexistence, spanning over 10,000 years in the case of cattle and not much less for sheep, goats, and pigs. The fact that Dinka pastoralists of South Sudan have an estimated 400 words related to cattle shows the cultural significance of their livestock.[23] In many parts of Africa, cattle are gifted as dowry; indeed, in some communities it is impossible to get married without livestock. In short, the identity of many cultures and communities is intimately tied up with the animals they keep.

17 Essoungou, A-M. 2013. The Sahel: One region, many crises. *Africa Renewal* 27(3): 22-23.
18 Human Development Indices and Indicators – 2018 Statistical Update (PDF). UNDP. pp. 62–65.
19 FEX 61 (ennonline.net).
20 Mi, Baibing, et al. "Infant age at egg introduction and malnutrition-related child growth in the United States." *Maternal & Child Nutrition* 18.4 (2022): e13390.
21 Staal, S., Wanyoike, F. and Ballantyne, P. 2020. Impacts of livestock development investment. Documented positive impacts of livestock-related interventions in Africa, Asia and Latin America. Nairobi, Kenya: ILRI.
22 Besides insecurity, land rights hamper Nigerian women's farming efforts (premiumtimesng.com).
23 Dinka | Encyclopedia.com.

Livestock are part of the solution

Instead of calling for a reduction in livestock numbers in Africa, policymakers, both internationally and nationally, should focus on supporting the improvement of livestock productivity and the sustainability of livestock systems. Among other things, this must involve a climate-smart transition within Africa's livestock sector.

There are several compelling reasons why Africa should increase, rather than reduce, livestock production. By 2050, 25% of the world's population will live in Africa. If they are to be well nourished, there will need to be a significant increase in the supply of milk and meat — by a factor of up to three or four, according to some estimates.

A range of practices and technologies can help livestock farmers in low- and middle-income countries adapt to climate change and reduce agriculture's GHG emissions while increasing productivity. Developing drought-resistant forage species; improving pasture management; selecting breeds for heat tolerance and disease resistance; encouraging better risk management through livestock insurance – all have a role to play in future.

Making the most of advanced genetics

Recent advances in molecular genetics have the potential to significantly improve the yields and nutritional quality of forage crops and enhance their disease resistance.[24] High-quality, drought-resistant forage grasses can deliver up to 40% more milk for dairy farmers in sub-Saharan Africa, and even larger gains when used with improved breeds of dairy cow. Generally, better fodder increases livestock productivity and reduces emission intensities. For example, dairy cows producing 1,000 liters of milk in a ten-month lactation produce four times more methane per unit of milk than dairy cows producing 2,000 liters of milk per lactation.

Developing new varieties of drought- and pest-resistant perennial fodder crops will significantly improve productivity. In recent years the area devoted to growing *Brachiaria* grass in East Africa has risen from 200 to 10,000 hectares. Drawing on the gene banks of the International Livestock Research Institute (ILRI), scientists have developed new drought- and pest-resistant varieties of *Brachiaria* with high nutritional value. These varieties, which can flourish on marginal land, sequester three times more carbon than many other grasses and reduce emissions of nitrous oxide from the soil by up to 30% as they capture nitrogen before it is washed away. Furthermore, maize crops grown after *Brachiaria* require half the amount of artificial fertilizer to produce the same yield.

The clever use of genetics can help to improve livestock productivity and at the same time reduce greenhouse gas emissions. To give one example, the Africa Dairy Genetic Gains (ADGG) project in Tanzania and Ethiopia has helped over 80,000 smallholder farmers increase their milk production by over 50% since 2016.[25] This was achieved by gathering detailed data about all aspects of livestock management from the farmers via their mobile phones. Researchers then used genomic prediction to identify the bulls which combined the best qualities of exotic and indigenous breeds.

Data provided by farmers was linked with global data on temperature and humidity, revealing that heat stress led to a 4–14% decline in milk yield. However, some animals were unaffected by heat stress. Scientists were able to identify the section of the genome responsible for heat tolerance and use this to assess whether it was present in other bulls. These were then used in breeding programs. This highlights the importance of conserving indigenous breeds that harbor genes, such as those for thermo-tolerance and disease resistance. These could play a vital role in breeding programs designed to help farmers cope with climate change.

Smarter management practices

Livestock farmers can also adopt management practices that help to reduce heat stress. For example, animals can be provided with more shade by building sheds or combining livestock with agroforestry, thus providing not only shade but other products such as fodder and fruit. In some areas, farmers have switched to different sorts of livestock to cope with rising temperature. For example, in parts of Ethiopia, farmers have swapped their cattle for sheep and camels.

Historically, camels have been a significant source of nutrition and income in arid and semi-arid parts of Eastern Africa. Approximately a third of the world's 37 million camels are found in Kenya, Somalia, Ethiopia, and South Sudan. In areas where the climate becomes hotter and drier, they could become even more important. During seasons of extended drought, camel milk contributes up to 50% of the total nutrient consumption among pastoralist communities in northern Kenya and is therefore critical to food security.[26] Besides providing milk with high therapeutic properties, camels are also a source of meat, hides, and transport.

24 ILRI. 2019. Developing, disseminating and ensuring the adoption of improved forages to support increased productivity and resilience for livestock keepers. Climate Change Adaptation in Livestock Systems Brief 3: Feeds and Forages. Nairobi, Kenya: ILRI.

25 ILRI. 2022. Overview of the Africa Dairy Genetic Gains (ADGG) Project. Presented at Workshop on Training Performance Recording agents on data capture tools, Kawempe, Uganda, 18-22 July 2022. Nairobi: ILRI https://www.ilri.org/knowledge/publications/overview-africa-dairy-genetic-gains-adgg-project.

26 Oselu, S., Ebere, R. and Arimi, J. M. 2022. Camels, camel milk, and camel milk product situation in Kenya in relation to the world. *International Journal of Food Science*.

Climate-proofing the future

There are three key objectives for a new livestock narrative for Africa:

1. **African livestock systems are exceptionally diverse and require a multipronged approach for climate action.** Searching for a one-size-fits-all policy to reduce GHG emissions simply will not work. No other continent possesses such a diversity of farming systems as Africa. Each has its own constraints, strengths, and investment opportunities. This means that different policy approaches will be needed to stimulate growth, help farmers adapt to climate change, and create sustainable markets. The challenges faced by agricultural households in the mixed farming systems in the Ethiopian highlands are completely different from those confronting cocoa farmers in the low-lying, humid tropics in West Africa, or pastoralists in the Sahel.

2. **Governments and policymakers should focus, in the immediate future, on improving productivity and the sustainability of farming systems, rather than on reducing the number of livestock.** Not only does Africa possess a great diversity of farming systems, but it is also host to a great variety of breeds and genes. Gaining access to livestock breeds that are adapted to specific environments will enable researchers to help livestock keepers maintain or increase their productivity, adapt to climate change, and contribute to GHG mitigation.[27] The traits that could be particularly important include heat tolerance, disease resistance, feed efficiency on poor quality diets, and general robustness.

   In Africa's mixed crop-livestock systems intercropping and conservation agriculture will have an important role to play. Indeed, livestock are a critical presence in the quest for sustainability. They provide manure to enrich the soil, consume crop waste like maize stovers, enhance nutritional security, and provide an asset to sell when cash is needed or in times of hardship.

   Different approaches will be needed when it comes to climate-proofing the rangelands. If these are to have a sustainable future, and provide a living for tens of millions of households, pastoralists need to become better adapted to climate change while adopting strategies that help to improve the health and resilience of the environment. It is also essential that they have secure land rights. Without these they will never be able to manage their lands sustainably, or have an incentive to invest in them.

3. **Demonstrate the potential for climate-smart transition within the African livestock sector.** Among the many approaches for stimulating a climate-smart transition in the African livestock sector, two different approaches show considerable promise: participatory rangeland management (PRM) and index-based livestock insurance (IBLI).[28]

   With pilot programs in Ethiopia, Kenya, and Tanzania, PRM has stimulated communities to invest in sustainable land management practices through better organized grazing and rangeland rehabilitation.[29]

   Over 90% of participating communities reported that after the pilot stage the condition of their rangelands had improved because of activities such as reseeding pasture, better grazing management, tree planting and water conservation. PRM led to an increase in livestock numbers and improved livestock body condition. Many pastoralists adopted improved breeds of cow. Over 80% of the direct beneficiaries said PRM had helped to increase their incomes and improve food and nutritional security. It also significantly increased the number of women in leadership positions and PRM was helping communities adapt to climate change.

   In collaboration with a range of partners, ILRI has developed a powerful climate-change adaptation tool, IBLI, which relies on low cost, accessible and reliable indicators of rangeland productivity to protect pastoralists from drought-related livestock losses. Simply put, this means that pastoralists with livestock insurance receive a payment when the amount of forage available, as measured by satellites, falls below a certain level. IBLI is improving resilience and pastoralists' incomes, and encouraging them to increase their investments in the health and productivity of their animals.

27 ILRI. 2019. Leveraging improved genetics and breeding to support climate adaptation for livestock keepers in low-income countries. Climate Change Adaptation in Livestock Systems Brief 5: Animal breeding and genetics. Nairobi, Kenya: ILRI.

28 ILRI. 2019. Supporting increased productivity, resilience and environmental sustainability for livestock keepers in the rangelands. Climate Change Adaptation in Livestock Systems Brief 2: Rangelands. Nairobi, Kenya: ILRI.

29 Waweru, T., Maina, J., Liheta, B. and Apunda, E. W. 2021. Independent impact assessment report: Participatory Rangeland Management (PRM) in Kenya and Tanzania. Nairobi, Kenya: African Research and Economic Development Consultants Limited.



Photo ILRI/Kabir Dhanji.

Money matters

Significant long-term investment in both research and innovation and in the agricultural sector itself is needed. Increasing financial support for African agriculture will be crucial to the continent's ability to climate-proof its food production practices. There are two separate elements to this. The first concerns reparations for droughts, floods, plagues of locusts, and other events caused or exacerbated by climate change. These have led to huge economic losses and tremendous hardship for tens of millions of people. The second concerns the long-term budgetary needs of Africa.

Loss and damage was first introduced as a topic at United Nations climate negotiations in 1991, but it took some three decades of campaigning by countries from the Global South for any sort of agreement to be reached. Indeed, the Conference of the Parties (COP27) held in Sharm el-Sheikh in 2022, will probably be best remembered for the establishment of the Loss and Damage Fund and official recognition that wealthy, polluting countries should provide compensation to countries and communities suffering from the impact of climate change. Since then a "transitional committee", established to work out details of how the fund will be managed and dispersed, has met on five occasions. At the time of going to press, it had still not resolved some of the key issues. However, there is now talk about the fund focusing exclusively on rapid and acute-onset events. This means that damage caused by floods would be covered, but it would exclude droughts. This would be a serious injustice for livestock keepers in Africa as droughts, both here and worldwide, are the greatest cause of climate-related devastation, leading to 34% of all losses in least developed and low- to middle-income countries.[30]

The negative narrative about livestock farming has deterred donors and financial institutions from providing crucial investment for the livestock sector. A significant increase in investment is required if farmers are to increase their incomes, produce more food — demand for animal-source food could increase threefold in sub-Saharan Africa by 2050 — and reduce their GHG emissions, for example through better feeding strategies and improved rangeland management. Improving the productivity of African farmers and developing climate-smart technologies will require a significant increase in investment in research and innovation.

The livestock sector in Africa has been "chronically underexploited and underfunded by both governments and donors," according to a report by the Malabo Montpelier Panel.[31] This has been particularly true when it comes to climate-related development projects. Between 2012 and 2017, US$185 billion was dedicated to these. Of this sum, just US$1 billion (0.57%) went to the livestock sector.[32] Furthermore, much of the livestock investment was for mitigation activities to reduce greenhouse gas emissions, while most African governments believe adaptation should be the focus of climate-related activities. Many adaptation strategies have significant mitigation benefits and can help small-scale livestock farmers improve their productivity and incomes. It is vitally important that a greater share of climate finance focuses on adaptation activities.

30 FAO. 2021. The impact of disasters and crises on agriculture and food security: 2021. Rome. https://doi.org/10.4060/cb3673e.

31 Panel, Malabo Montpellier. 2020. Meat, milk and more: Policy innovations to shepherd inclusive and sustainable livestock systems in Africa. International Food Policy Resources Institute.

32 Ericksen, P. J. and Cramer, L. 2021. Climate change is already hitting Africa's livestock. Here's how COP26 can help (Blog). November 1, 2021. Available at: https://www.ilri.org/news/climate-change-already-hitting-africas-livestock-heres-how-cop26-can-help-0.



Photo CIAT/Georgina Smith.

Building momentum and support for the African livestock narrative

Changing the narrative on livestock in Africa will require combined efforts of many organizations with support from media and policymakers. This document will evolve as more people join in the movement.

The aim is to see more adaptation funding flowing into the livestock sector in Africa by working to promote the importance of livestock rearing as part of the climate solution. Improving sustainable production, maintaining or enhancing mobility for pastoralists, and valuing the benefits of livestock alongside their costs are critical to maintaining this critical aspect of livelihoods and lives in Africa.

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As a dynamic, living document, we are committed to its continual growth and improvement, to reflect the expansion of our partnerships and the ongoing refinement of this shared narrative.

We welcome feedback and contributions. If you're interested in joining this collaborative initiative, please reach out to Laura Cramer, ILRI's Policy Engagement Specialist at l.cramer@cgiar.org.

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