



INITIATIVE ON
Livestock and Climate

Pioneers of adaptation in the Kenyan Highlands' semi-intensive dairy system

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LC WPI Stakeholder Engagement
workshop

Background

- Dairy sector contributes to about 14% of Kenya agricultural GDP
- Small holder dairy farmers are the highest producers
- Own over 80% of dairy cattle
- Contribute to over 56% of total milk production
- High potential in highland areas
- Production system(extensive, intensive and semi-intensive)
- Animal breeds: exotic, local and crosses between the two varieties.



Photo: David Ngome/ILRI

Background

Challenges affecting Kenya dairy sector

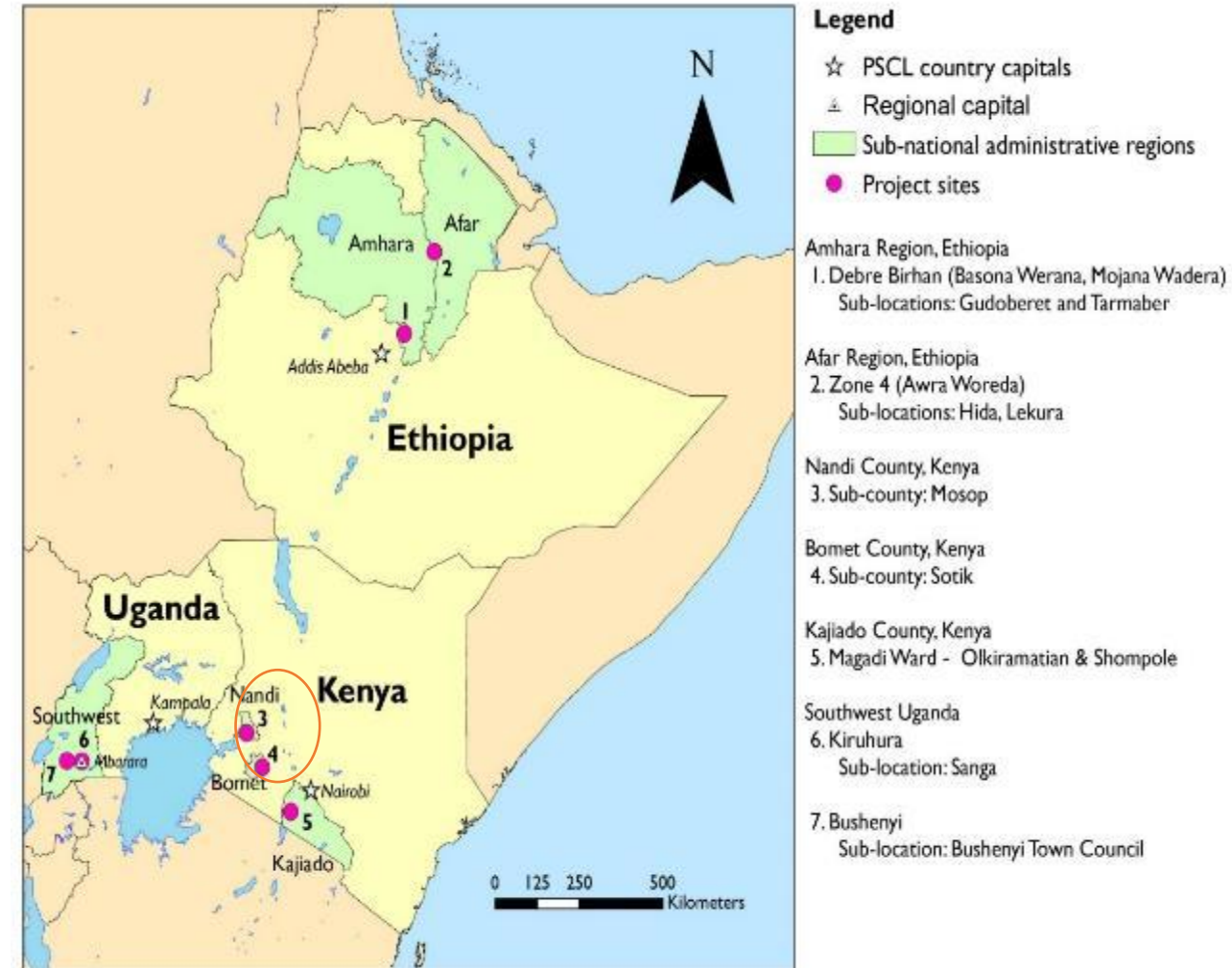
- Low productivity
- Fluctuation of milk prices
- Feed scarcity especially during dry seasons(worsening with cc)
- Inadequate access to extension services.

Kenya livestock extension system

- Managed under the devolved governance system(counties)
- Private and public extension services
- Extension to farm household ratio 1:1093 against the recommended 1:400(FAO)

Project sites: Nandi and Bomet counties

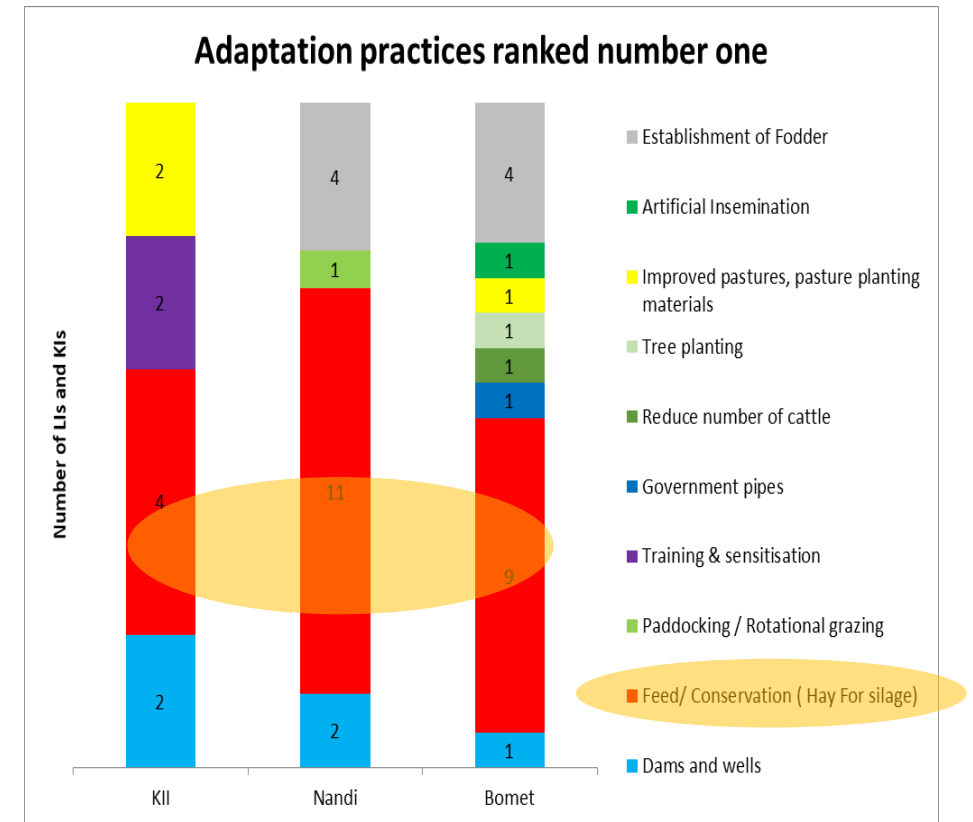
- Two counties since 2019
 - **Nandi County(North rift)**
 - **Bomet county(South rift)**
- Mainly semi- intensive dairy system
- Mixed-crop livestock system-cash crops, maize, beans , vegetables, bananas etc)



Part 1: Qualitative Identification of Positive Deviants and Adaptation Practices(PCSL)

- Selection of adaptation practice
- Feed conservation ranked number one
- 8 Key Informants and 38 local innovators nominated

Habermann, B., Crane, T.A., Gichuki, L., Worku, T., Mugumya, R., Maiyo, N., Kiptoo, E., Goshme, S., Tugume, G. and Getahun, E. 2023. Positive deviance in adaptation to climate change: making work for development what works for people. Presented at the EADI CEAs General Conference 2023: Towards New Rhythms of Development, Lisbon, Portugal, 10-13 July 2023. Nairobi, Kenya: ILRI.
<https://cgspace.cgiar.org/handle/10568/131919>



Part 1: Qualitative Identification of Positive Deviants and Adaptation Practices(PCSL)



Selection criteria




1. Awareness of climate change
2. Adaptation practice implemented in PD way
 - Livestock practice
 - Fodder bought additionally
 - Feed & forage
3. Pioneering character
 - Endogenous innovation rather than adoption
 - Unique ways of knowing and learning
 - Tries out new things, and also abandons failures
4. Willingness to engage in knowledge sharing with others

-> 6 pioneers identified






2) Quantitative Identification of Positive Deviants (Livestock and Climate)

Selection indicators

I. Performance in milk production:

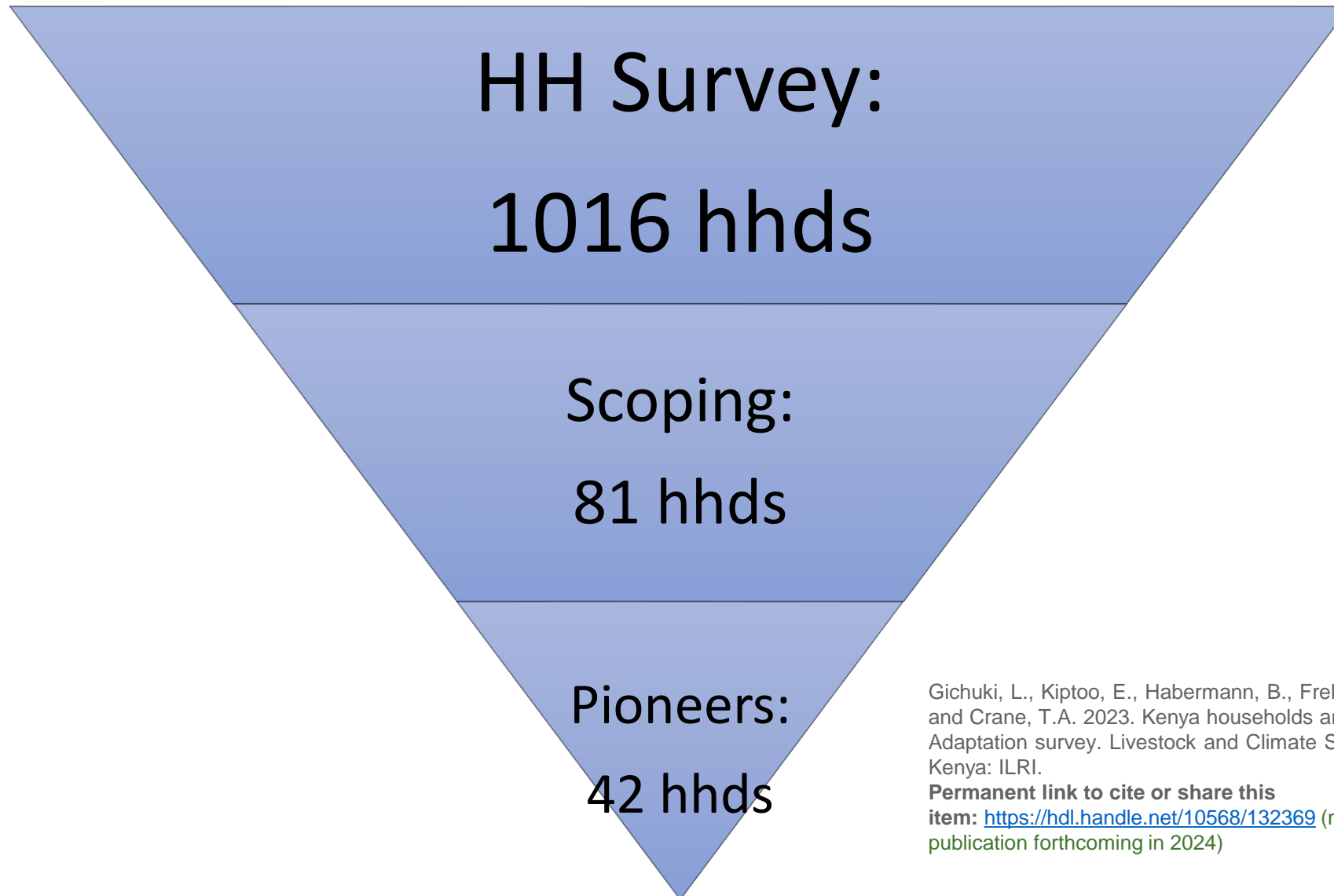
- Milk yield, expressed in l per day per cow 
- Calving interval, expressed in month- 
- Age at first calving, expressed in month- 

II. Livelihood, adaptation, and technology:

- Farm diversity, number of different crop, forage and livestock on farm 
- Diversity of sources of income 
- Number of (sub-)technologies applied 
- Technology advice, cube root of the number of households helped 
- Months with food shortages 



Identification of pioneers



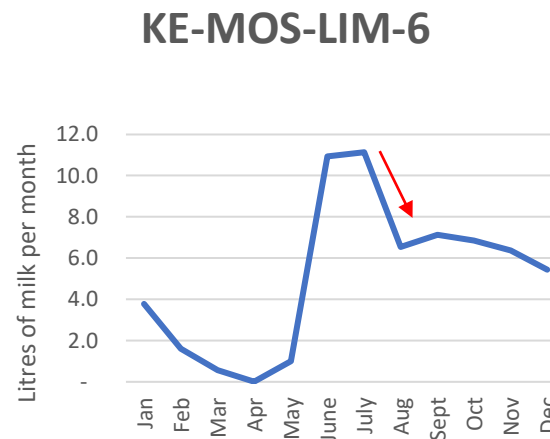
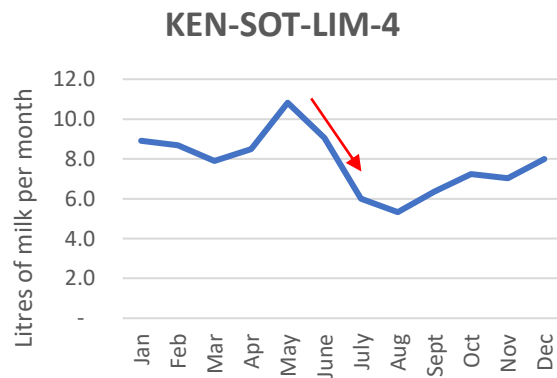
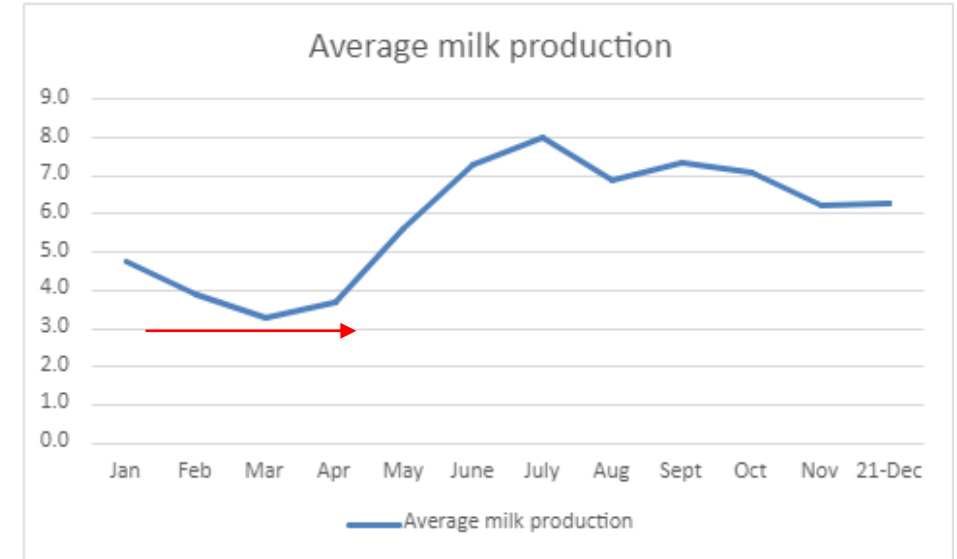
Gichuki, L., Kiptoo, E., Habermann, B., Frelat, R., Hammond, J. and Crane, T.A. 2023. Kenya households and livestock systems Adaptation survey. Livestock and Climate Survey Brief. Nairobi, Kenya: ILRI.

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Observations: Milk production

- Low milk production during dry season
- Short peak production

Main driver: Inadequate animal nutrition.

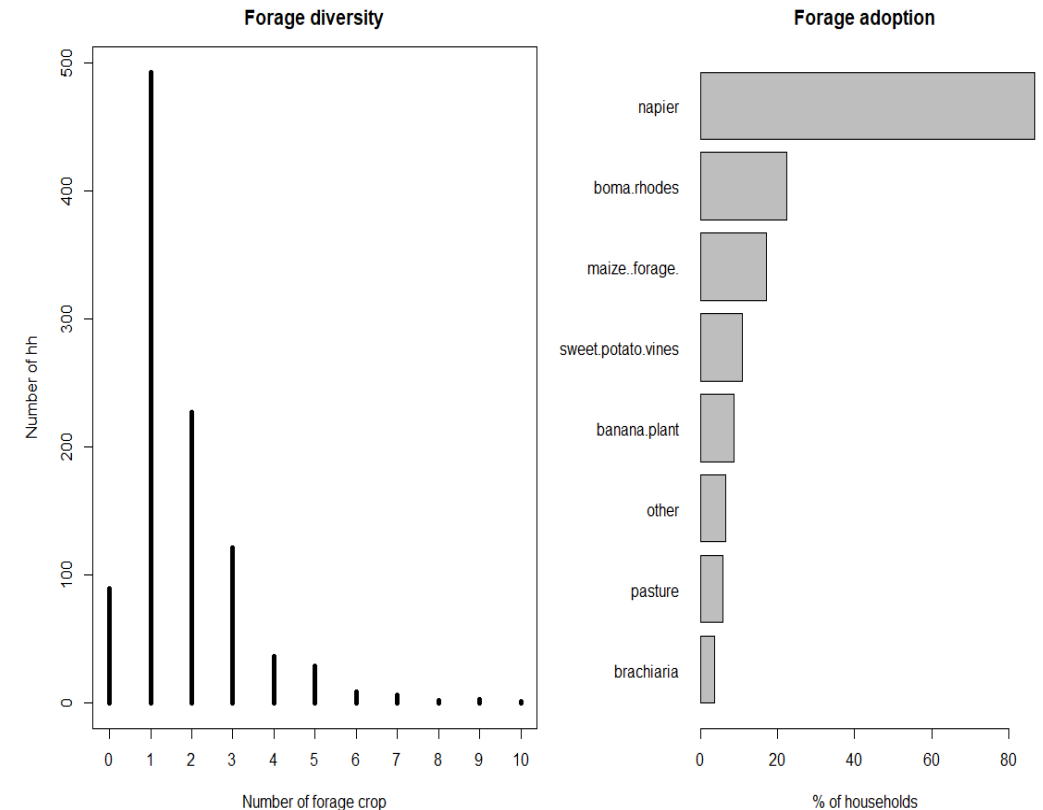


Habermann, B., Crane, T.A., Gichuki, L., Worku, T., Mugumya, R. and Kiptoo, E. 2023. The race to adapt: Learning from adaptation pioneers in East Africa. Presented at the Adaptation Futures 2023 Conference, Montreal, Canada, 2-6 October 2023. Nairobi, Kenya: ILRI.

Observations: Livestock feeds

- Farmers already have a wide range of feed varieties
- Good examples of high nutritious low-cost forages from the sampled feeds
- The quality of sampled homemade concentrates was better than most commercial feeds

How can dairy farmers utilise these opportunities for improved productivity throughout the year?



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Progress

- 48 pioneer farmers identified(42+6)
- **6 pioneers –scaling stage**
 - Knowledge networks established
 - Pioneer knowledge networks are working with government extension agents
 - Pioneers are conducting Farmer to farmer field days
 - Local partner networks established(County governments of Nandi and Bomet, Equity Group Foundation, dairy cooperatives, Kenya Forest Service, Biosistema, Kenya Agricultural Genetic Resource Centre.
 - Pioneer knowledge networks working with local partner

42 pioneers- Co-production stage

- Citizen science data collection ongoing(Sep 2023-June 2024)

Focus areas

- Feed diversification and conservation
- Adaptive breeding
- Record keeping
- Agroforestry
- Manure management(composite manure and biogas production)
- Kitchen vegetable garden
- Agroforestry
- Financial Education



Photo: David Ngome/ILRI



Photos: Madison Spinelli and Leah Gichuki/ILRI



Lessons so far

- Focusing on **farmers' priorities enhanced ownership** of the program
- **Enhanced relationship** between farmer and extension agents
- Farmer-to farmer learning approach provides space for identifying **local capacities and knowledge needs**
- Need for **flexible funding programs** to allow farmers to implement diverse adaptation solutions

Acknowledgements

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