ALCP2 CLIMATE SMART EXTENSION
MID-TERM EVALUATION REPORT

February 2025

CONTENTS

INTRODUCTION

Impact of climate change on livestock

ALCP2 farmer research highlighted the increasing environmental stress on livestock due to climate change, including prolonged heat, drought, and sudden drops in temperature. These conditions reduce pasture quality, weaken animals' immune systems, and make them more susceptible to parasites and infections like mastitis, leading to decreased milk yield and live weight gain.

The need for extension

ALCP2's Focus Group data has also shown that farmers often lack the necessary knowledge and resources to mitigate the climate change related impacts effectively. Recognizing this gap, the ALCP2 has been facilitating climate-smart extension interventions to help farmers adapt their livestock production practices and increase resilience. This mid-term evaluation represents the conclusion of an initial intervention phase, including content creation, training of trainers and establishing product lines and roll out models. Phase two will focus on calibrating the extension models, scaling up rolling out to a wider groups of livestock farmers.

Entry Points for Extension

ALCP2 is working with Roki Ltd, a national veterinary inputs manufacture and distribution company and the Regional Development Agency's (RDA) Information Consultation Centres' (ICCs) extension specialists to strengthen climate-smart extension efforts in Georgia.

Roki Ltd

In December 2023, Roki Ltd launched climate-smart extension through thirty-three focal-point vet pharmacies, including four in Armenian and Azerbaijani communities, and in partnership with the Georgian Milk Federation and its 41 members who buy milk from 8,000 milk suppliers. The extension aims to address climate-induced digestive and stress-related challenges in livestock, focusing on Rumifos, a domestically produced prebiotic and Roki's other climate-smart vet inputs. Rumifos alone has been shown to enhance milk yield and live weight gain by approximately 10%. Roki's research shows that combining Rumifos with other veterinary inputs, such as vitamins, mineral licks, and udder treatment solutions, can further amplify these benefits, potentially leading to a 15% increase in milk yield and a 20% increase in live weight gain. Five comprehensive product packages targeting heat stress, cold stress, mastitis, reduced productivity, and immunity boosting have been developed for sale and are augmented by specialized climate-smart training modules and online content including videos related to climate-smart cattle-sheds, managing livestock heat stress and good milking practices as part of the sales roll out. Roki Ltd has always invested in embedded advice and training in the use of its products as part of good livestock husbandry.

Regional Development Agency's (RDA) Information Consultation Centres

Since December 2023, the RDA ICCs in twelve municipalities, including four in Azerbaijani and Armenian communities, have conducted trainings for farmers to help them cope with the adverse effects of climate change on livestock production. Twelve RDA extension specialists were trained by Momavlis Fermeri, an NGO working with agricultural extension. Climate change-tailored content has been introduced, with an emphasis on evaluating training effectiveness and refining record-keeping. The content has been compiled into a

comprehensive training manual titled *Countering the Impact of Climate Change on Livestock Production in Georgia*, which covers heat and cold stress, disease management, and feed quality. This manual was authored by specialists from the Swiss Agricultural School Caucasus and ALCP2 specialists. Additional content, e.g. videos and flyers, have been created. The role of municipal ICC's is to collect data and provide information to farmers on government programmes and they do also provide outreach at the request of external donors[1], however information quality and the nature of its provision is often patchy and a key challenge in the intervention is the capacity of the ICC's themselves. Climate themes are missing from the existing service provision for farmers. Their function is predominantly data collection and informing farmers of government.

Ensuring Inclusion

The training is designed to include diverse representation and inclusion from various backgrounds, including women, different age groups, ethnic minorities, and small-scale producers residing in different agro ecological zones. Trainings have been conducted in fifteen municipalities across Georgia (see the map below). Training in Azerbaijani and Armenian communities, have been conducted in their respective languages. A safe training environment has been maintained, with sessions scheduled to accommodate participants' availability and held in accessible locations. In total, 718 farmers have participated in the climate-smart extension training to date.

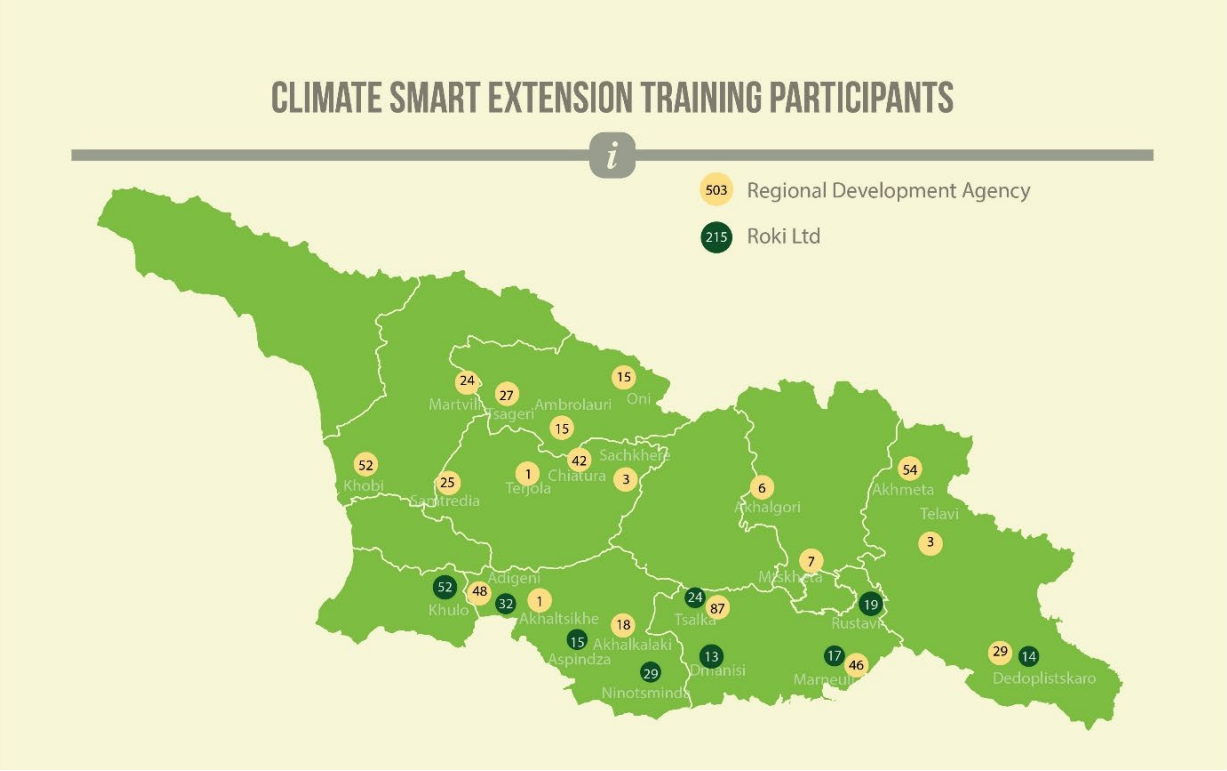

Figure 1: Map of Climate Smart Extension Training Participants

[1] This can be from direct approach by an external entity to the RDA or to an individual ICC in a particular geographical area of focus or through the Environmental Information Education Centre who will liaise with the RDA and create or disseminate project materials for a substantial fee.

METHODOLOGY

This mid-term assessment of climate-smart extension is based on three types of data:

- Pre-training assessments: to establish baseline knowledge
- Post-training assessments: to establish usefulness, satisfaction and knowledge gained
- Six Month Mark Qualitative interviews: to augment our understanding of the application of knowledge

The ALCP2 has worked with clients to integrate pre and post-training assessments. Despite initial challenges, these assessments are now institutionalized in both interventions. Out of 718 farmers, a total of 292 (41%) questionnaires were filled prior to training: 251 (86%) farmers from the RDA training and 41 (14%) during the Roki training. Of the respondents, 37% were women, and 9% were ethnic minorities. The ages of the respondents ranged from 23 to 78 years old.

The trainers faced difficulties in completing post-training assessments as many farmers were in a hurry. As a result, only 71 (10%) post-training questionnaires were filled out, with 41% being women and 5% ethnic minorities. The pre and post-training assessments were particularly challenging in ethnic minority regions. For example, Roki prepared the questionnaires in Armenian for Armenian communities in Ninotsminda, but it was discovered that most attendees could not read Armenian; they were fluent in spoken Armenian but used Russian as their primary written language. This issue will be addressed in future training sessions, but as it stands, the filled questionnaires do not fully represent the ethnic diversity of the participants.

The ALCP2 also conducted additional in-depth interviews with trained farmers six months post training. In total, 43 farmers were interviewed, including 17 women, with 6 Armenians and 4 Azerbaijanis among them.

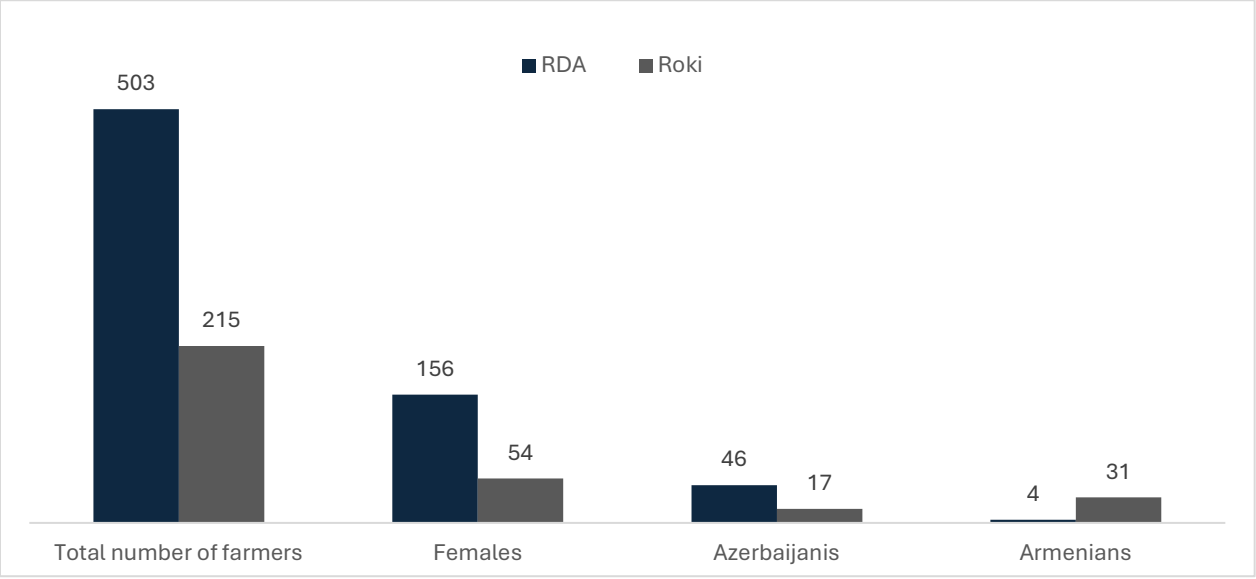

Figure 2: Total number of beneficiary farmers (718) by gender and ethnicity

PRE-ASSESSMENT

The following data was derived from the responses of 292 livestock farmers, representing 41% of the 718 participants, RDA 86 % Roki 14%. The data showed that livestock farmers are facing multiple challenges due to unpredictable weather and climate change.

Extreme heat (66%) and drought (58%) are the most common issues, followed by extreme cold (53%) and hail (36%). Soil erosion is also a concern, with 39% of farmers reporting drought-induced erosion, 30% due to water, and 27% due to wind. These environmental stressors have led to increased livestock health problems, including parasite-related diseases (57%), respiratory illnesses (50%), and a rise in ticks (47%) and weeds (51%). Farmers also report cases of heatstroke (44%) and frostbite (35%). These findings highlight the growing risks to livestock production and the need for climate-smart adaptation measures.

These figures vary according to regions: In Kakheti, hail (100%) is the most pressing issue, followed by extreme heat (94%) and drought (66%). Kvemo Kartli's primary challenges are drought (82%) and diseases related to parasites (65%). In Samtskhe-Javakheti (90%), Samegrelo (69%), and Racha & Zemo Svaneti (61%), extreme cold is the main problem. In Imereti, farmers report fewer climate-related issues but highlight high parasite-related diseases (53%).

It is worth noting that gender-disaggregated data showed no significant differences between the responses of men and women; both perceive the main climate related hazards similarly.

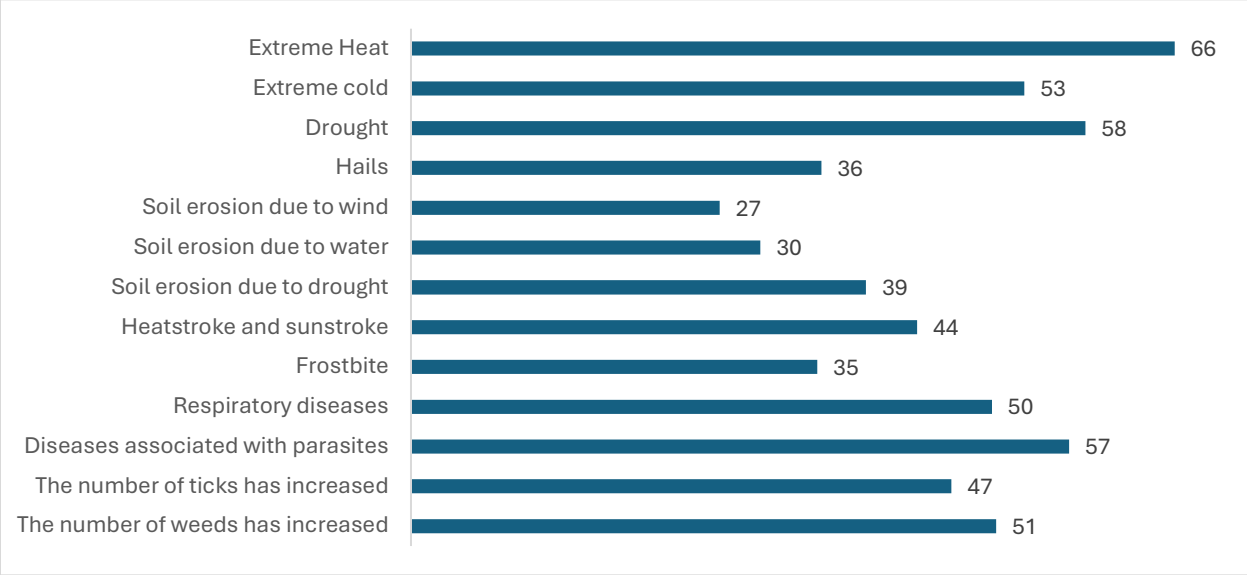

Figure 3: Challenges faced by livestock farmers (%) due to unpredictable weather and climate change

Degraded Nutrition, Disease Increase and Decreasing Productivity

These challenges have led to significant impacts on livestock farming, with 97% of farmers reporting that the unpredictability of weather and climate change negatively affects their livestock. The effects vary, as shown in Figure 3. The most commonly reported issues are related to animal nutrition, with 96% of farmers noting a reduction in the quality or quantity of grass (67%), hay and alfalfa (62%), or grain (53%). Additionally, farmers reported increased treatment costs (38%), higher disease risks (33%), and reduced water availability on

pastures (28%). As a result, 58% of farmers mentioned a decrease in the productivity of their cattle, either through reduced milk yield (37%) or weight gain (36%).

Data disaggregated by regions showed that the reduced quality and quantity of animal nutrition was the most significant issue across all regions, leading to reduced cattle productivity, with the highest impact reported in Kvemo Kartli (61%) and Samtskhe Javakheti and Imereti (58-58%), and the lowest in Kakheti (41%). Additionally, in Kvemo Kartli and Samtskhe Javakheti, farmers highlighted the increased risk of diseases (54% and 42%, respectively). In Kakheti, increased treatment costs (38%) were reported as another challenge. In Samegrelo and Racha & Zemo Svaneti, farmers experienced an increased number of external and internal parasites (44% and 39%, respectively).

Again, despite the differing roles and responsibilities in livestock husbandry, the experiences of female and male farmers regarding the adverse effects of climate change and related challenges were quite similar, with no significant differences observed.

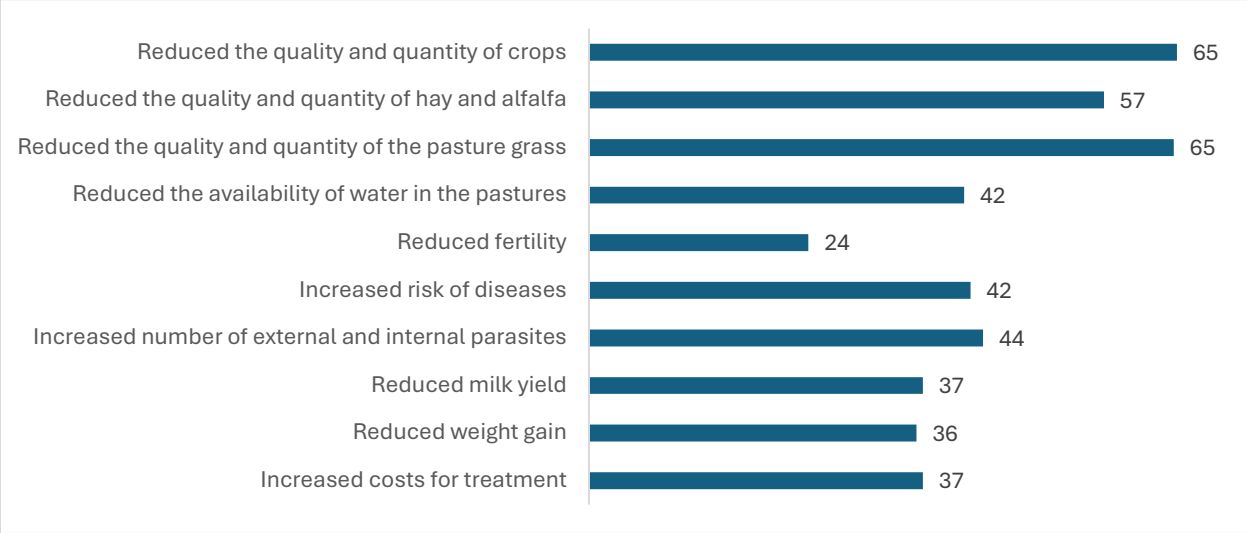

Figure 3: Impacts of unpredictable weather and climate change on livestock farming

POST-ASSESSMENT

Out of the 718 training participants, 71 (10%) farmers, 31 (44%) RDA training and 40 (66%) at Roki training completed the post-training assessment form. Overall, 100% of them reported that they found the training useful and stated that they would apply the knowledge gained to improve their livestock husbandry. The most useful aspects of the training were considered to be understanding and managing heat/cold stresses (61%) and the importance of water supply for animals (55%). Other key topics included climate change-related diseases (52%) and cowshed microclimate management (49%).

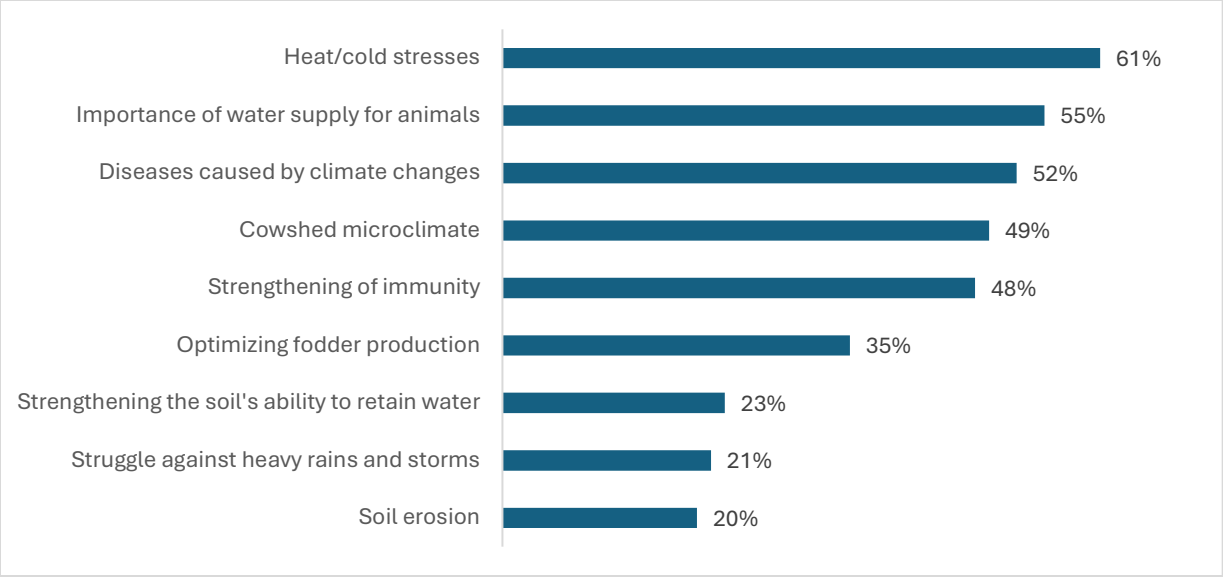

Figure 4: Most useful topics of the training (%)

QUALITATIVE POST TRAINING SURVEY

Forty-three qualitative interviews were conducted at about the six-month post training mark with 21 Roki (49%) and 22 (51%) with RDA trained farmers. Responses were sought from those who had not filled in the post assessment as well as those who had. The interviews showed that farmers, including in Armenian and Azerbaijanis communities, found the training content both relevant and applicable, which significantly boosted their motivation to explore climate-adapted practices further. Participants expressed particular interest in practices that could enhance productivity and were satisfied that the training addressed their actual concerns, such as degraded nutrition, increased disease prevalence, and declining productivity. Farmers learned that climate change adaptation is not just about increased costs but also offers opportunities to generate additional income by improving productivity, fertility and preventing diseases or mortality.

Assessment of the quality and content of the trainings		
Indicator	**Roki**	**RDA**
Farmers expressed satisfaction with the selected topics, highlighting their relevance and interconnectedness.	✓	✓
Farmers noted that the content was well-suited to their capabilities and directly applicable to their farming practices.	✓	✓
Participants displayed increased motivation to apply the training's recommendations and climate-smart practices.	✓	✓
Farmers became more proactive in seeking climate-adapted solutions, indicating long-term motivation to implement changes for more sustainable and profitable farming practices.	✓	✓

The majority of farmers reported that they have already applied the climate-smart practices they learned at the training courses. Particularly, they expressed interest in Roki's products like Rumifos, mineral blocks and Masdisin Herbal. Farmers also applied practices learned from the RDA training, such as improving temperature management in cattle sheds and providing more water for the cattle. Whilst they could not provide exact numbers yet, farmers have observed positive outcomes, including reduced diseases, improved appetite, increased weight gain in calves, and higher milk yields. Satisfied farmers have also shared their positive experiences with friends and neighbors, and the estimated copying ratio is around 2 persons per participant, which means that the ALCP2 climate extension interventions indirectly reached 1,436 farmers.

Assessment of Early Results of Applied Practices		
Indicator	**Roki**	**RDA**
Farmers reported an increase in productivity due to the use of Roki products.	✓	
Farmers reported an increase in milk yield, especially when animals had unlimited access to water.	✓	✓
Participants noted visible improvements in animal fur quality, indicating better overall health.	✓	-
Farmers reported better temperature control in cattle sheds	-	✓

CONCLUSION

In conclusion, all farmers acknowledged the significant challenges posed by climate change and its effects, highlighting the urgent need for livestock farmers to adapt by changing their practices and implementing climate-smart inputs in order to remain resilient. The ALCP2 facilitated climate-smart extension is proving to be valuable in equipping livestock farmers with essential knowledge and tools to adapt to these challenges posed by climate change. The ALCP2 must now scale up these efforts to a wider audience and ensure that copying ratios are captured and documented. This will also include extension through the Georgian Beekeepers Union using a similar manual entitled, Countering the Impact of Climate Change on Beekeeping in Georgia which will roll out in spring/summer 2025. Further impact assessments of the extension impact on livestock producers will be done to further assess knowledge uptake, application and impact on productivity and copying.