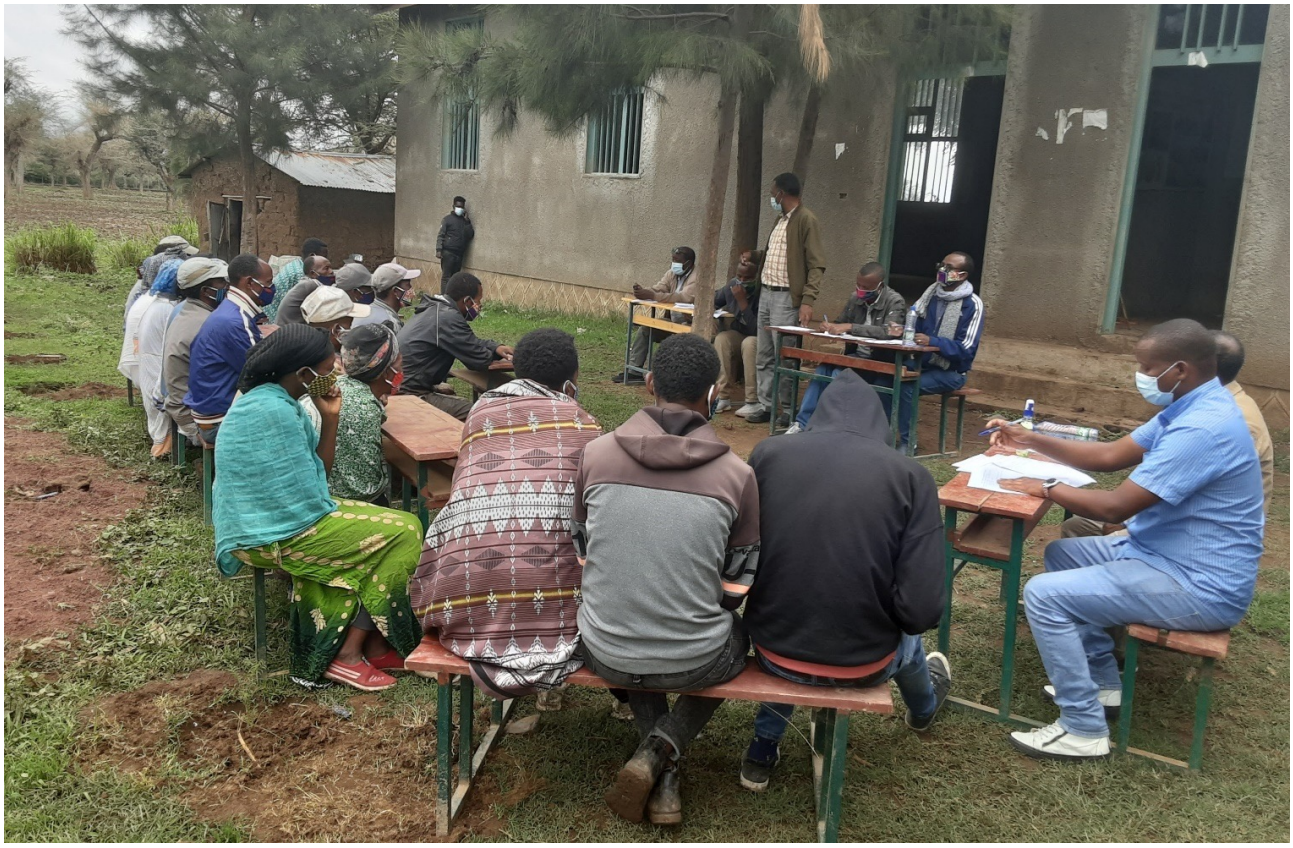
RESEARCH PROGRAM ON Livestock

More meat, milk and eggs by and for the poor

Agroforestry–livestock integration for One Welfare: A report on community conversations

Gezahegn Alemayehu[1], Eyob Gelan[1], Tsega Berhe[1], Mamusha Lemma[1] and Rebecca Doyle[1,2]

[1]International Livestock Research Institute (ILRI)
[2]University of Melbourne



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The Program thanks all donors and organizations which globally support its work through their contributions to the CGIAR Trust Fund

Editing, design and layout—ILRI Editorial and Publishing Services, Addis Ababa, Ethiopia.

Photo credit: ILRI/Gezahegn Alemayehu

Citation: Alemayehu, G., Gelan, E., Berhe, T., Lemma, M. and Doyle, R. 2021. *Agroforestry–livestock integration for One Welfare: A report on community conversations.* Nairobi, Kenya: ILRI.

Patron: Professor Peter C Doherty AC, FAA, FRS
Animal scientist, Nobel Prize Laureate for Physiology or Medicine–1996

Box 30709, Nairobi 00100 Kenya
Phone +254 20 422 3000
Fax +254 20 422 3001
Email ilri-kenya@cgiar.org

ilri.org
better lives through livestock

ILRI is a CGIAR research centre

Box 5689, Addis Ababa, Ethiopia
Phone +251 11 617 2000
Fax +251 11 667 6923
Email ilri-ethiopia@cgiar.org

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1. Introduction

Animal welfare is gradually becoming a critical issue in the world and a very serious topic of discussion. There are chances with increased public awareness that animal welfare can become the cornerstone for trade of animals and their products to developed countries. This is because poor animal welfare is linked with incidence of disease, antimicrobial resistance and decreased productivity.

Farming trends have totally changed during the last century, bringing changes in farm animal welfare that have decreased the production of animals and increased the expenses of smallholder farmers dependent on natural resources for animal welfare. The impacts of climate change are expected to be most adverse in low- and middle-income countries, where millions of people depend on agriculture and are vulnerable to food insecurity. Without efforts to adapt to climate change, food insecurity will likely increase substantially. The adoption of sustainable natural resource management practices by smallholder agricultural producers will be crucial to efforts to adapt to climate change's effects on animal welfare and farmer livelihoods.

Locally, improving animal welfare through the improvement of natural resource management has multiple benefits, including for productivity, livelihoods, human welfare and food security. However, existing animal welfare practices at the community level in Ethiopia can be problematic due to a range of factors such as knowledge gaps, behavioural limitations and resource scarcity.

Preliminary results from a household survey in Dugda district (Shubi Gamo and Giraba Korke Adi villages) indicate that resource constraints are major and are, in particular, problems affecting the welfare of animals. Population pressure, farmland expansion, degradation of natural resources and the poor availability and quality of feed resources were additional limiting factors in practising good animal welfare.

The introduction of multipurpose agroforestry trees as animal feed sources and their integration with existing farming systems could significantly improve animal welfare status and productivity in smallholder farmer situations. Therefore, the International Livestock Research Institute (ILRI) together with the World Agroforestry Centre (ICRAF) designed a project called 'Synergies of animal welfare with agroforestry to benefit farming systems in Ethiopia'.

The project is funded by Biovision Foundation and aims to:

- Increase evidence-based advocacy for agroforestry–livestock systems.
- Improve performance of targeted agroforestry–livestock systems including animal welfare indicators.
- Animal welfare training in agroforestry systems in the extension system in Ethiopia.

2. Process and methodology

A community-based approach called 'community conversations' has been employed to engage community groups and local partners in exploring knowledge, attitudes and practices (KAP) on animal welfare, agroforestry–livestock synergy and associated problems in integrating agroforestry–livestock systems. In the discussion different active learning methods such as storytelling, reflections and panel discussions were used. As discussion points, livelihood changes, animal welfare trends and practices, the natural resource situation, gendered perceptions, opportunities and challenges in agroforestry–livestock integration were raised. The activities were captured through audio recordings, note-taking tools and photographs.

To efficiently deliver the community conversations, a community conversation guideline for facilitators and checklists were developed prior to their commencement.

2.1 Project site description

The community conversations were conducted in two villages of Dugda district, Misrak Shewa zone, Oromia, Ethiopia from 13 to 17 July 2021.

2.2. Participant selection criteria, composition and dynamics

The community conversations engaged male and female community members from Shubi Gamo and Giraba Korke Adi villages. The criteria for selecting farmers attending the community conversations were interest, potential site ownership, consent, voluntary couples' involvement and participation in the previous livestock environment and human well-being KAP survey (farmers who participated in the animal welfare and resource assessment). The community conversations comprised 27 participants in Shubi Gamo and 36 participants in Giraba Korke Adi. Out of the total of 63 participants in the community conversations, 27 were female. In each site the community conversations took 3 to 4 hours.

Table 1: Community conversation participants in Shubi Gamo.

Site	Participants	Male	Female	Total
Shubi Gamo	Farmers	18	9	27
	Development agents	2	0	2
	Livestock extension team leader	1	0	1
	Animal health expert	1	0	1
	Natural resource expert	1	0	1
	Gender office representative	1	0	1
	Agricultural extension team leader	1	0	1
			Total	34

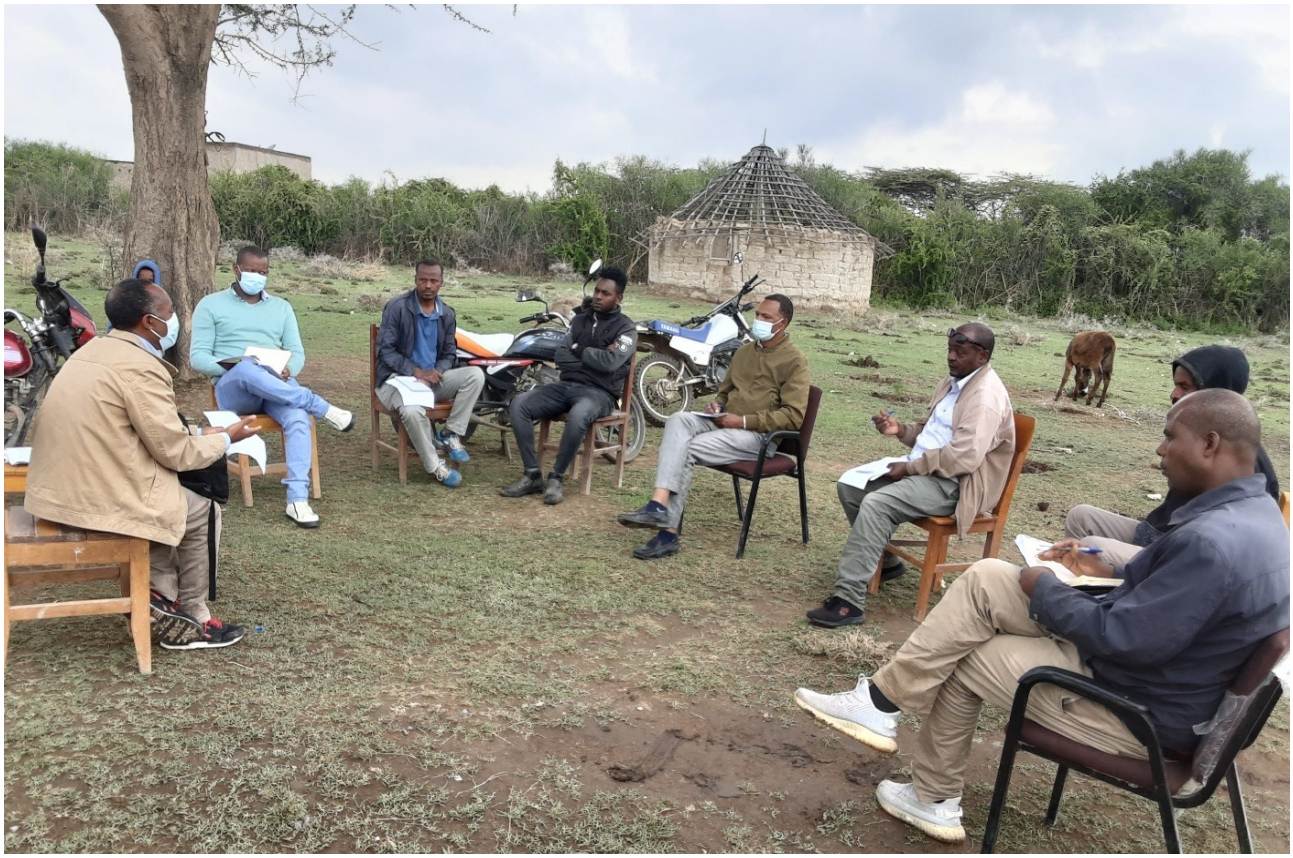
Table 2: Community conversation participants in Giraba Korke Adi.

Site	Participants	Male	Female	Total
Giraba Korke Adi	Farmers	17	19	36
	Development agents	2	1	2
	Livestock extension team leader	1	0	1
	Animal health expert	1	0	1
	Natural resource expert	1	0	1
	Gender office representative	1	0	1
	Agricultural extension team leader	1	0	1
			Total	43

2.3 Partner alignment

A local partner team from the agroforestry, fruit and vegetable, natural resource development, livestock production, animal health and gender departments of Dugda district were involved in community mobilization, co-facilitation and documentation of community conversation sessions (Tables 1 and 2). Prior to the community conversations the CGIAR team ensured a common understanding of the project objectives, discussion topics and methodological process with all partners involved and localized the content of the conversation topics based on input from partners (Figure 1). This will help to achieve local ownership and facilitate future follow-up and coaching of the activity by partners in the future. Each partner was given a task in the process as note taker, principal facilitator, co-facilitator, photographer or videographer.

Figure 1: Team alignment with local partners and role sharing.



2.4 Narrative history

To create motivation and shared ground for engaging community members in dialogues, a narrative history technique was employed. Both male and female elders shared their personal narratives of changes in livelihoods, natural resources, climate, productivity and population over the last 40–50 years. The use of narrative history as an entry point to the community conversations motivated the participant farmers to talk further on the perceived changes and strengthened the intended exploratory dialogue on animal welfare and agroforestry practices.

2.5 Combination of single and mixed gender group approaches

Consideration of gender aspects is necessary to ensure that no one is marginalized in agroforestry interventions. Gender perspectives on animal welfare and agroforestry–livestock integration systems were sought through a combination of single and mixed gender group approaches. Culturally, women have limited participation together with men. As female farmers are frequently responsible for managing trees and for other agricultural enterprises, they do most of the work, especially during the initial stages of establishment (planting, weeding and watering); thus, the focus on women's views in the adoption of agroforestry practices is important.

Consequently, a separate grouping helped maximize participation in the discussions about animal welfare and agroforestry–livestock integration.

2.6 After-event reflection of partners

After the end of the community conversations, all the local partners were engaged in reflection and team learning activities. These aimed to elicit their feedback on the methodological process, synthesize emerging themes and findings, validate results and help to identify partners' agendas in the process.

3. Results of the conversation process

3.1 Narrative history on livelihood changes, animal welfare and natural resources

In Giraba Korke Adi, the community conversation was held in an open-air circular seating arrangement in the village compound (Figure 2). The gathered community members of different genders and ages were briefed by the team of facilitators about the objective and process of the conversation. To facilitate entry into the conversation, a facilitator arranged the selection of one elderly participant of each gender to present a narrative history of the overall changes they had experienced in natural resource availability, animal welfare and livelihoods in the last 40–50 years.

The elders narrated that in past years the life of the society had been more dependent on livestock rearing than farming; that there were large communal grazing lands; that dense forests of different tree species provided food to animals and humans; and that animals had been highly productive, producing much more milk than they do today. In recent years, most of the grazing lands had become farmland for crop production, and forests and tree resources were destroyed. These changes affected animal feed availability and made livestock production a difficult business. Rearing a single cow today was comparable to rearing 50 cows in the past.

Another elder added that in past years nature had supported people to conduct their routine animal rearing activities. As the population increased, more land was used for crop production, which severely reduced the grazing area for livestock. This forced animals to roam through villages and on the roads, exposing them to poor welfare and accidents.

In addition to resource scarcity (animal feed) poor knowledge, poverty and inadequate animal health services (prophylaxis and control) impacted animal welfare and animal productivity, which in turn affected human welfare. The narrator added that in past years, children looking after the herds would get adequate milk from the animals they kept and surplus fruit from trees in the forest. Now, both milk and wild fruit for shepherd children had become scarce, affecting their well-being and food intake. The majority of household members cannot drink milk as the small amount of milk obtained from poorly performing cows is given to needy household members (children, sick people and the elderly).

In Shubi Gamo, a farmer training centre compound was used for the community conversation (Figure 3). A similar approach as in the previous village was used to conduct the conversation. A 75-year-old elder briefly narrated the livelihood changes he had experienced in the last 30–40 years. He recalled a time when there was a huge livestock population with high productivity and fertile soil suitable for agriculture. At that time, the price of items was very cheap – 100 kg of grain was sold for 5 Ethiopian birr (ETB), an ox sold for ETB 20 and 12 eggs were sold for ETB 1. As the animals and the lands were productive, owning few animals and cultivating less land could sustain the life of a household. Having four cows and half a hectare of land could sustain a medium-sized family. He had also lived through a time when enclosures were separately reserved for livestock grazing. As times changed, the human population increased and government policy changed along with the population growth, allocating livestock-reserved grazing land for landless youth. This change, he said, brought the ones that he saw today – when 100 kg of grain has become more than ETB 2,000, an ox can be sold for more than ETB 50,000 and a single egg sold for more than ETB 7. There is no milk for children or for the elderly. Unlike in past years, the land is unproductive and appeals for synthetic fertilizer to give a better harvest.

A 55-year-old participant added that in the past, due to surplus resources, cows could be milked two times a day and people could live for days consuming only forest (tree) products. Now, animals cannot give enough milk even once; forests (trees) are destroyed by human activity for cropping and charcoal; grazing land has become crop land; those rivers that flowed throughout the year have gradually diminished in volume and are even dry in some seasons of the year. These changes made it the fate of their animals to be tethered around the home. Even to support the tethered

animals by a cut-and-carry system, there is no land to harvest grass or trees to collect fodder. Another 58-year-old woman added that in past years there had been surplus production both from land and livestock. For a guest coming to her home, they would have lots of animal products to offer (milk, yoghurt and cheese); now, they don't have enough milk even for their own use in coffee. All of this is due to resource scarcity for their animals.

Figure 2: Community conversation in Giraba Korke Adi.

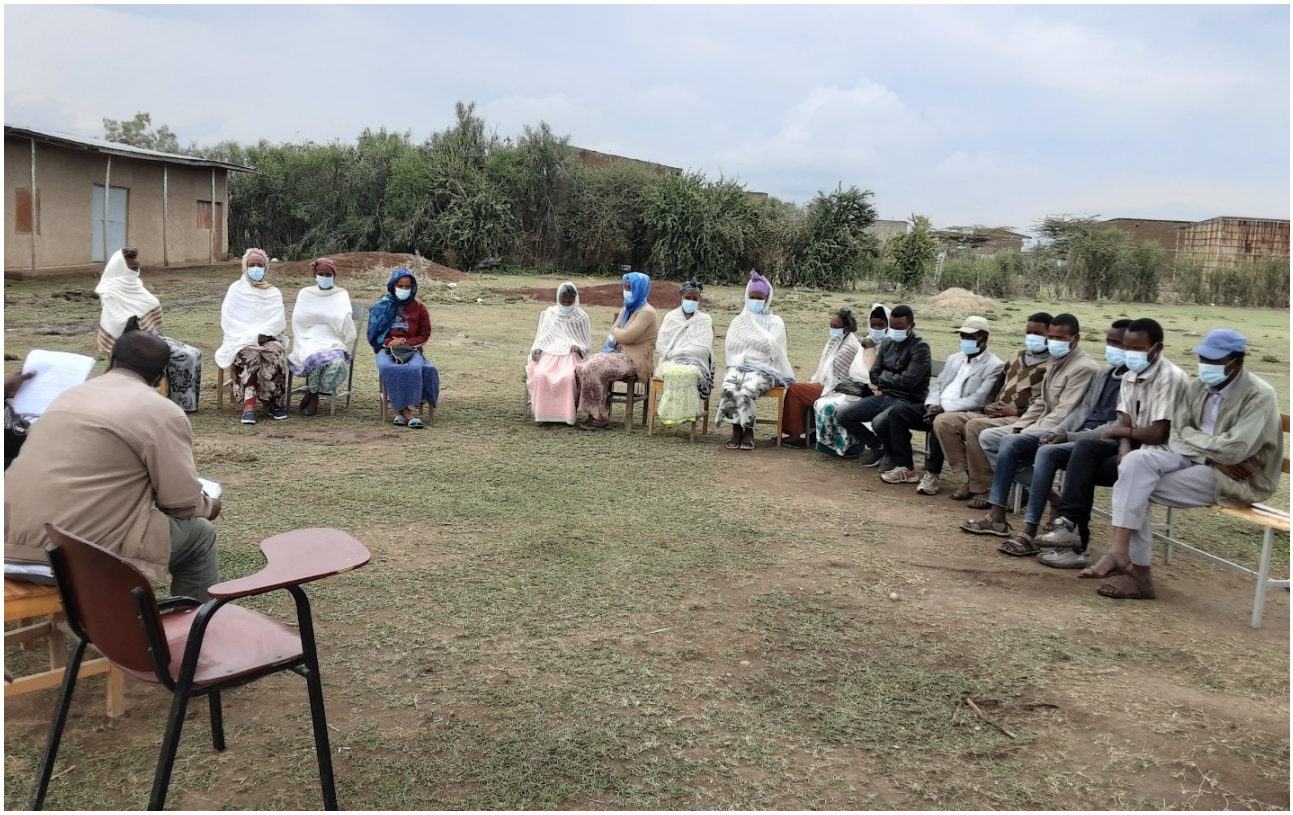
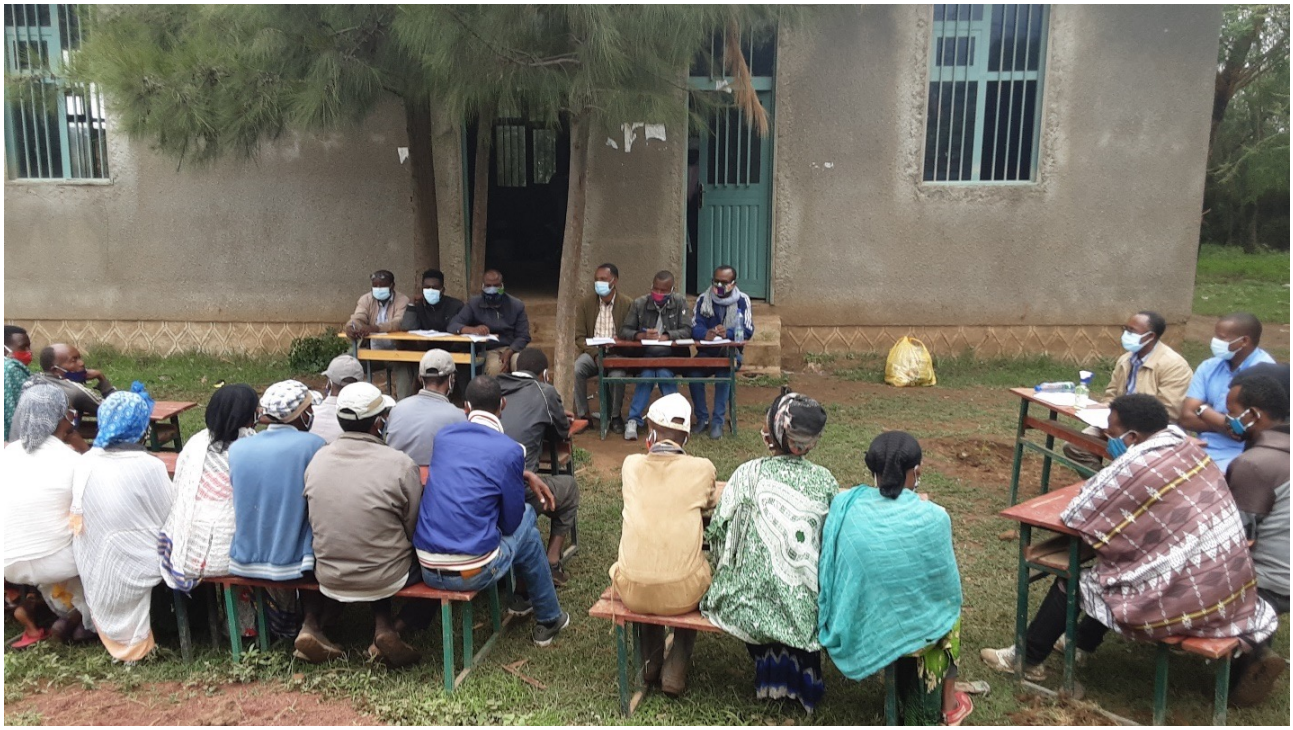


Figure 3: Community conversation in Shubi Gamo.



3.2 Animal welfare perceptions in the community

The community in each discussion evaluated their animal welfare practices and identified the following issues.

- Current resource provision to their animal is insufficient (below the requirement). They proved this through the different behaviours revealed by their animals. One participant explained by saying, 'our animals tell us more about their problems in different ways'. For example, a cow without adequate feeding refuses milking by kicking the milker and refuses to suckle its calf (showing poor maternal behaviour). Similarly, an ox with poor feeding refuses the yoke for work. Another participant added, 'even if our animals do not talk, they will tell us more about their feelings'. For example, a hungry cow frequently bellows, calling the owner to give her feed.
- The community members agreed that giving a single type of feed (crop residue) and watering animals a few days per week is enough and is a good practice. Their housing facilities were simply to maintain animals in the locality and potentially to protect them from predators. They do not worry about the comfort and spacing. Sometimes a barn remains uncleaned for a year. They overload animals beyond their capacity, use them for long working hours, hit working animals, use improper restraints with rope and prefer animal species for a relatively better welfare (cattle, sheep and poultry). The community also raised problems with access to animal health services and facilities (for vaccines and drugs), feed and water shortages and limited farmer capital as possible causes of poor animal welfare practices in the area.
- The community also pointed out that because of poor welfare practices animals were facing different problems. When they released animals to roam, the animals were exposed to chemicals such as pesticides sprayed on plant material, consumed non-feed foreign materials used in the farm for fixing potato ('madabariya') and incurred physical injury due to consumption of some farm resources.
- The community was aware of different animal behaviours. They understand when animals feel happy and feel discomfort. They know this by the actions of their animals. They perceive that if animals are happy, they will be alert and conscious and will jump.
- The community members also mentioned that maintaining good animal welfare helps to get higher production from animals, increasing income; helps to get respect from other community members; gives mental satisfaction; and helps to keep animals healthy, reducing the cost of treatment. However, the major challenges raised by the community in improving the existing poor animal welfare practices were lack of awareness, feed shortage, lack of grazing land and watering points, lack of improved animal breeds and lack of shelter.
- The community members also indicated that despite knowing the need to improve existing welfare practices, there were limitations like ignorance on animal welfare by some people, lack of capital, shortage of animal feed and water sources, limited professional animal health services and little attention from the government.
- The community discussed the different benefits of maintaining good animal welfare for livestock. They emphasized the benefits by saying that animals have no useless part and give them everything: they provide income sources; milk, meat and egg for household consumption; manure which can be used as fertilizer, fuel and to make crop storage utensils ('togogo'); skins for bedding; and horns to make household utensils like spoons and drinking cups. They also mentioned the use of their animals for cultural and traditional ceremonies: as gifts for daughter marriages ('gebera'), and to negotiate fights between individuals or tribes ('araaraa').
- The also mentioned that practising good welfare improves milk yield, weight gain, animal working force, reproduction potential, calving interval and income from sale of animals and their products, and reduces problems from repeated breeding.
- The community also considers livestock as relatives and guarantees in harsh situations, and even keeps them for their own psychological well-being. The community expresses the multiple value of livestock through different proverbs. Here are some mentioned during the conversation, with rough translations:
    - 'Namni loon hin qabne mooyee huduu hin qabne.'

- A person without animals is like a mortar without a seat.
- 'Ilmaa fi loontu qa'ee abbaa tolchaa.'
- Livestock and children make a living place beautiful.
- 'Baala hin geessu bultiin yoo harkaa qabani, loon saree nama nyachisu yoo harkaa dhabani.'
- We don't consider the value of livestock along as we have them; it really matters when we lose them.

3.3 Agroforestry and tree-based animal feed resource

The community in Giraba Korke Adi commonly use crop residues ('galaba',' ciidii', 'qool' and 'boqqolloo'), natural grasses and to a small extent introduced grasses (elephant grass) as animal feed. In past years, Giraba Korke Adi had several tree species used as animal feed supporting livestock production. They community mentioned several indigenous trees by their local names which were used as animal feed in the past. The most popular trees used as animal feed sources were 'daboobessa', 'qacacuulee', 'harooressaa', ' agamssa', 'cuqunoo', 'ceekaa', 'oddeessaa', 'mataqoomaa', 'badannoo' and 'garbii'. Of introduced tree species, they use 'niemi' (neem) tree as an animal feed source, for firewood and for shelter.

The community reported that those important tree species are now very diminished in their distribution and availability and limited to remote areas, giving less support to their livestock as feed sources. The community have great interest in restoring the trees to their farmland to use them for human and animal feed. The community have special preferences for some locally growing trees species like daboobessa, qacacuulee, Harooressaa and agamssa to plant in their future restoration plan. From introduced tree species they prefer to plant niemi with various justifications.

The community in Shubi Gamo use grasses, crop residues, tree pods and leaves, fruit tree byproducts (from papaya, avocado, mango and banana), local drink production waste ('atala'), niemi and elephant grass as animal feed sources.

3.4 Agroforestry–livestock integration

The community discussed that integrating agroforestry and livestock is a good idea with no negative side effects for their livelihoods. They mentioned that by integrating trees into their farmland they can get feed and shade for their animals and firewood for household use. As a result, the community in Giraba Korke Adi has great interest in planting trees for integration into the intended agroforestry–livestock system, especially to replace the live fence around their compound ('ananoo') with forage and shade trees. The community described the great importance of trees with a proverb in Afaan Oromo, the local language: 'Daboobessi bobbee raaga fakkaata, hiyyeessi agabuu bahe isa nyaata'. This roughly means that although a tree looks like a simple thing, the poor with empty stomachs can go out and have food from it.

Despite the great interest in planting trees for agroforestry–livestock integration, the community named different challenges impacting the practice of agroforestry in the area. Some of the major challenges mentioned were a lack of knowledge and awareness; small land space; water scarcity; unavailability and high prices of seedlings; personal commitments such as watering in the dry season and fencing; destruction by animals; and the preference of some farmers for crop farming.

The community in Shubi Gamo also mentioned several benefits which could be obtained from integration of agroforestry–livestock systems. Fruit trees can be used for diversifying human diets, for animal feed, as income sources and as shelter for animals. Livestock in turn improve soil fertility with their manure and provide good milk and meat which improves human well-being, either through consumption or income from sale of the products. As a major challenge to integrate agroforestry–livestock systems, the community raised the little attention given by the government to the livestock sector; shortage of land; the focus of some farmers on immediate income sources (vegetables and fruit); lack of awareness (with the assumption that a large size of farmland is needed for integration work); the high price of tree seeds and seedlings; and destruction of seedlings by animals.

4. Community action

The community conversation revealed that animal welfare practices in the area are poor and exacerbated by scarce animal feed resources. Hence the community specified key areas for improvement. They agreed that current animal welfare practices are insufficient to obtain the maximum benefit from livestock herds. Thus, feeding practices, sheltering, health and overall management should be improved. Special attention should be given to vaccination by government bodies, as the community does not have vaccine coverage for their animals.

Multipurpose tree planting in the farmland and household areas, such as a live fence to support animals with tree-source feed, was as an alternative to sustain livestock production in the area.

As resources become limited, the community wants to transform from the traditional system of keeping animals to a modern system. They expressed that they don't have enough feed and space to keep large herds, while leaving animals to roam exposes them to diseases and injury. Therefore, tethering a few animals, giving them better welfare and diversifying their feed sources through planting trees will be an alternative solution.

Table 3: Planned community action plan for each of the identified problems

Priority	Action points	Areas of support	Expected improvements
Animal feed	Diversifying animal feed sources through planting multipurpose trees (avocado, mango, papaya, neem and improved grass and fodder species)	Tree seedlings and seeds of grass and fodder plants	Strengthened capacity for diversified feed production (forage, tree, fodder and grass availability) Sustainable animal feed sources Improved availability and accessibility of animal feed in different seasons
	Improving feed composition (feeding animals with different feed types)	Skill training and extension support	
	Strengthening feed production (proper storage and timely harvest of animal feed)	Extension services and training	
	Proper animal feed source management (grazing)		
Animal welfare	Improving animal management (reduced overuse, proper feeding, clean and comfortable housing) and protecting animals from roaming	Vaccine supply, capacity building and training for animal health professionals and farmers	Improved productivity Good animal–human interactions Comfortable living environment Healthy animals (reduced disease incidence)
	Health services (early animal disease diagnosis and treatment)		
Skill gaps	Implementing animal welfare principles	Training on animal welfare	Improved animal welfare practices
Animal and tree integration	Reducing animal numbers and providing better husbandry	Improved animal feed and animal breeds	Increased production per unit area Mutual benefits

5. Partner reflections and commitments

After the community conversations, the facilitators held a meeting with the local partners to reflect on the methodological approach, discuss lessons learned and key issues raised during the conversations, and establish how the partners will integrate prioritized action plans from the communities into their development plans. The social learning process has been a powerful experience for local partners, and such an after-event reflection and insight-making session was also instrumental to the analysis and interpretation of community conversation results.

Local development partners found community conversations to be a very useful tool to obtain local community understanding of agroforestry–livestock systems and to make the farmers conscious of how they are neglecting issues of animal welfare while focusing on crop and fruit production. The team also found the methodological approach of community conversations very useful and well presented for the community (through the use of checklists, discussion topics, probing questions, narrative history talking, the gender-based approach, incorporation of local partners and development agents, partners' alignment, age diversity and presence in the community's village).

Diverse participant groups with men and women, young people, adults and elders participating in the community conversations were seen as very good to capture diverse perspectives. Conducting a community conversation in their own village allowed the farmers to freely discuss their opportunities, challenges and prospects.

The community conversations added value to previously conducted household surveys on animal welfare and resources. Engaging the partners and development agents in the conversation helped establish a two-way capacity development platform. The orientation and training provided for the partners before the community conversations were very useful to achieve their full engagement in facilitating.

The local partners thanked the research team for bringing these important issues to the community and inviting multi-disciplinary experts to engage in this activity. They also indicated that the 'humbleness of the ILRI team made us and farmers raise issues and discuss freely'.

6. Analysis, lessons learned and the way forward

Throughout the community conversations, there was remarkable consensus on the need for transformation. In both gender group discussions, from the first activity in which we shared personal stories about change in natural resource availability, livestock productivity, animal welfare and livelihoods, a clear narrative emerged. Almost every single story highlighted an experience that was amazing, since the participants genuinely engaged and learned something applicable to improve animal welfare and animal feed resources in the area. Our convictions were mirrored by data from the community conversations, where the same theme emerged: that trees will play a role in improving animal welfare and productivity.

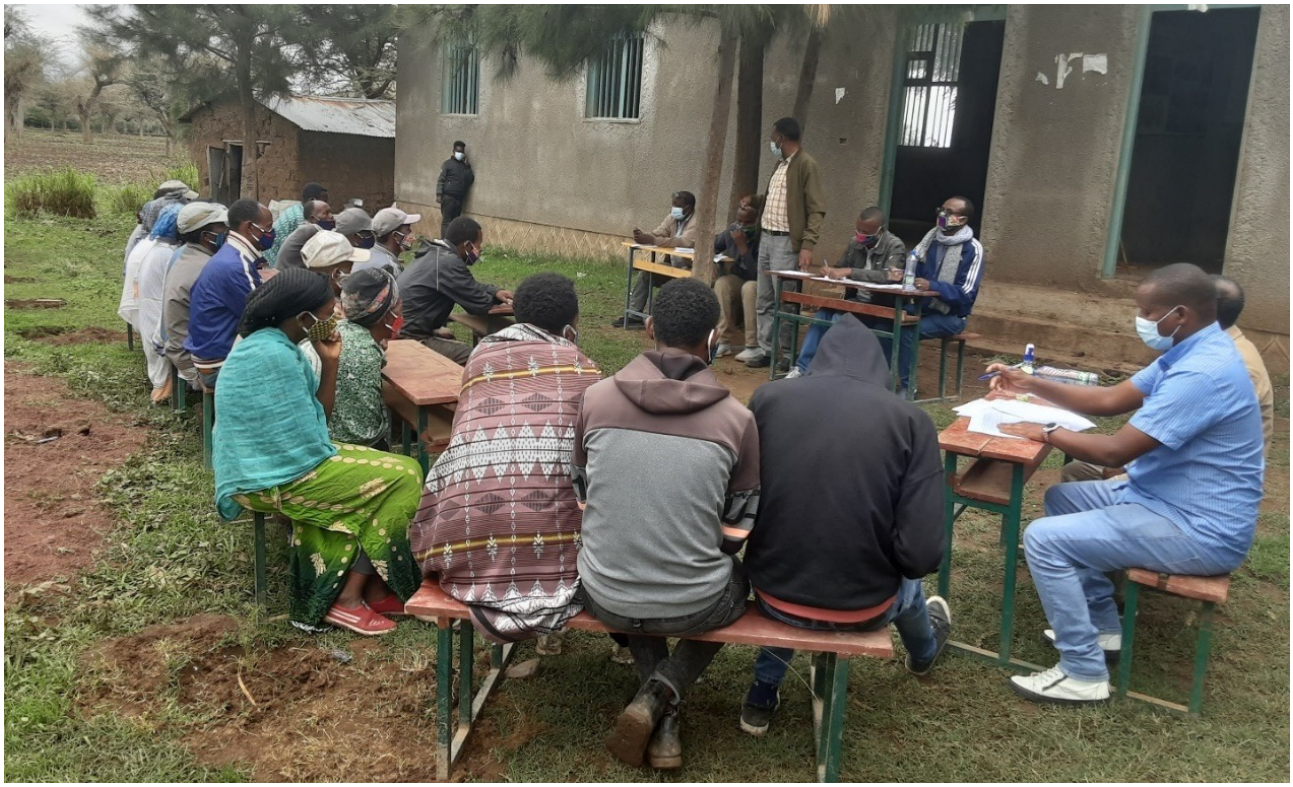
There are four pillars in Ethiopian agriculture: cereals, fruits, livestock and vegetables. Farmers need to focus on integrating livestock, trees and crops to improve animal welfare, which should be supported by capacity building through farmers' field days to demonstrate the best practices of model farmers. Moreover, training on animal welfare in agroforestry systems should be provided for extension agents to support farmers in integration.

Development partners need to support the integration by identifying appropriate interventions and multipurpose trees suitable to the area, and by considering livestock integration during government tree planting campaigns. A community of practice (for local community engagement and capacity development) should be established and should support information generation processes and public advocacy. This project is nutrition sensitive, and needs a follow-up project to scale it up to the national level.

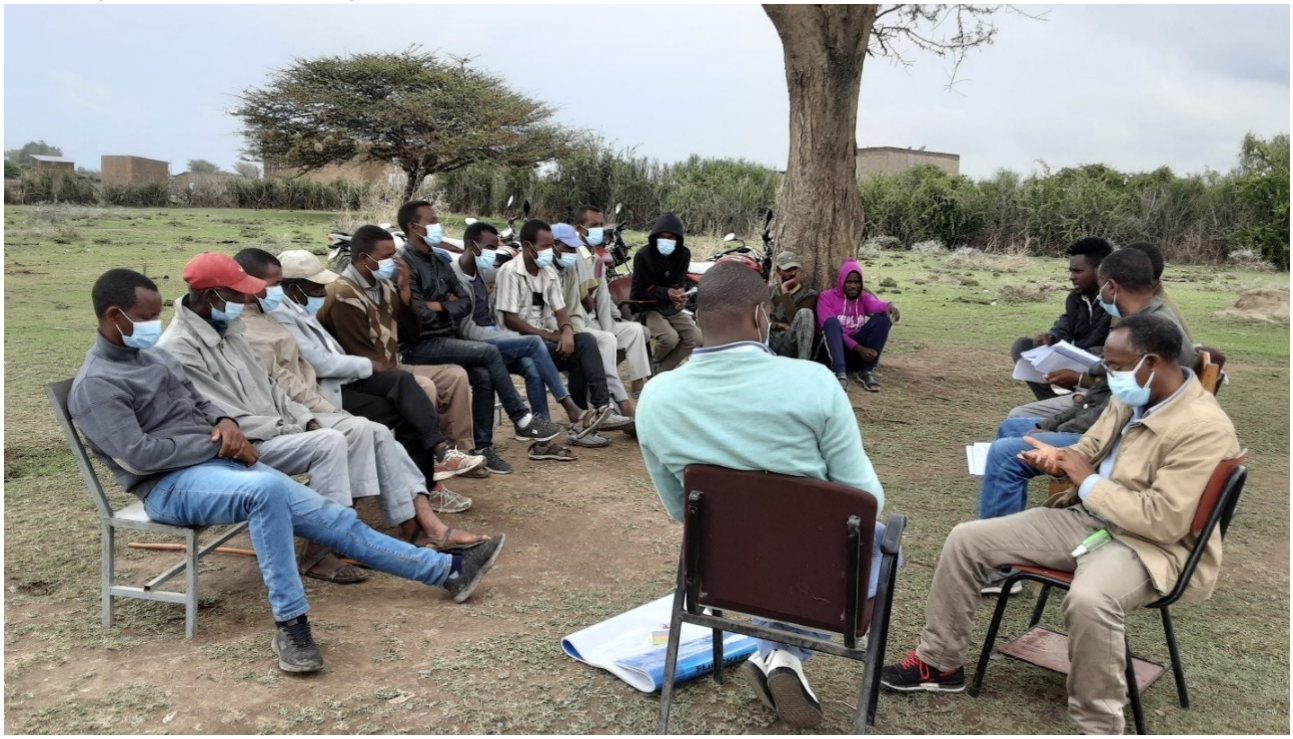
Annexes

Annexe 1: The community conversation process in pictures

Local partner facilitating the community conversation in Shubi Gabo.



Men's segment of the community conversation in Giraba Korke Adi.



Annexe 2: Community conversation participants

Table 1: Community conversation participants in Shubi Gamo

SN	Name	Gender	Village	Position/role in the community
1	Feyisa Fitala	M	Shubi Gamo	Farmer
2	Hola Buta	M	Shubi Gamo	Farmer
3	Negewo Sufa	M	Shubi Gamo	Farmer
4	Dubro Midekiso	F	Shubi Gamo	Farmer
5	Dase Beriso	F	Shubi Gamo	Farmer
6	Beletu Melese	F	Shubi Gamo	Farmer
7	Chachole Iresso	F	Shubi Gamo	Farmer
8	Geda Nura	M	Shubi Gamo	Farmer
9	Gobena Kura	M	Shubi Gamo	Farmer
10	Kecha Tuche	M	Shubi Gamo	Farmer
11	Geda Tufa	M	Shubi Gamo	Farmer
12	Feyiso Jatani	M	Shubi Gamo	Farmer
13	Beraka Bedaso	M	Shubi Gamo	Farmer
14	Dambalitu Tadesse	F	Shubi Gamo	Farmer
15	Salbana debele	M	Shubi Gamo	Farmer
17	Bilcha Imana	F	Shubi Gamo	Farmer
18	Beriso Oda	M	Shubi Gamo	Farmer
19	Wondimu Dilbaso	M	Shubi Gamo	Farmer
20	Fikadu Hirko	M	Shubi Gamo	Farmer
21	Hababo Gelashe	F	Shubi Gamo	Farmer
22	Bulo Bonsa	M	Shubi Gamo	Farmer
13	Besha Beriso	F	Shubi Gamo	Farmer
24	Wako Abe	M	Shubi Gamo	Farmer
25	Ababab Endashaw	M	Shubi Gamo	Farmer
26	Tesfaye Degaga	M	Shubi Gamo	Farmer
27	Tikse Dema	M	Shubi Gamo	Farmer

Table 2: Community conversation participants in Giraba Korke Adi

SN	Name	Gender	Village	Position/role in the community
1	Fitale Gurmu	F	Giraba Korke Adi	Farmer
2	Aynalem Negash	F	Giraba Korke Adi	Farmer
3	Shure Korbu	F	Giraba Korke Adi	Farmer
4	Bentu Gudeta	F	Giraba Korke Adi	Farmer
5	Keno Roba	F	Giraba Korke Adi	Farmer
6	Genet Gudissa	F	Giraba Korke Adi	Farmer

SN	Name	Gender	Village	Position/role in the community
7	Kelo tenecho	F	Giraba Korke Adi	Farmer
8	Ayetu Dadi	F	Giraba Korke Adi	Farmer
9	Besha Bedaso	F	Giraba Korke Adi	Farmer
10	Beru Kelecha	M	Giraba Korke Adi	Farmer
11	Midekiso Kone	M	Giraba Korke Adi	Farmer
12	Huluka Anbeso	M	Giraba Korke Adi	Farmer
13	Nemo Oda	M	Giraba Korke Adi	Farmer
14	Lemi Korjo	M	Giraba Korke Adi	Farmer
15	Abu Kofe	M	Giraba Korke Adi	Farmer
16	Beshadu Botago	F	Giraba Korke Adi	Farmer
17	Dago Lenjiso	M	Giraba Korke Adi	Farmer
18	Balcha Oda	M	Giraba Korke Adi	Farmer
29	Shuguta Milki	M	Giraba Korke Adi	Farmer
21	Wondu Bedhada	M	Giraba Korke Adi	Farmer
22	Gadisa Daba	M	Giraba Korke Adi	Farmer
13	Bali Debo	M	Giraba Korke Adi	Farmer
24	Sukare Hirpo	F	Giraba Korke Adi	Farmer
25	Bonsa Abe	M	Giraba Korke Adi	Farmer
26	Hawi Dori	F	Giraba Korke Adi	Farmer
27	Orme Wako	F	Giraba Korke Adi	Farmer
28	Rufo Beriso	F	Giraba Korke Adi	Farmer
29	Dharo Bekere	F	Giraba Korke Adi	Farmer
30	Gile Beyene	F	Giraba Korke Adi	Farmer
31	Ayiti Korma	F	Giraba Korke Adi	Farmer
32	Ilfu Kebebe	F	Giraba Korke Adi	Farmer
33	Sero Godana	F	Giraba Korke Adi	Farmer
34	Birhanu Shibru	M	Giraba Korke Adi	Farmer
35	Waktola Kebeta	M	Giraba Korke Adi	Farmer
36	Tade Bedhada	M	Giraba Korke Adi	Farmer

Annexe 3: Community conversation facilitation checklist

Agroforestry–livestock integration for One Welfare improvement

- Narrative history of livelihood changes over the last 30–40 years: Major changes and cause
    - livestock (no, physical condition…)
    - natural resource (soil, water, pasture, forest)
    - productivity (milk, meat, butter, calves…)
- Major livestock benefits (list)
- Animal needs from the owner (list the major care that will be provided to the animal)
    - physiological requirements
    - behavioural requirements and emotions (happiness, distress, annoyance, aggression), animal–human relationship, abnormal behaviour
    - management (tethering, overwork, biting, shouting)
- Important animal welfare benefits for the society
    - for household labour
    - cost reduction
    - human health (zoonosis, healthy diet)
    - improved livelihood (income, productivity)
    - psychological satisfaction
- Current animal welfare situation (practice) in the community.
    - major animal welfare constraints (resource based and animal based)
    - livestock species preference and reasons
- Animal based constraints
    - management (working time, handling, pain, fear, branding, castration)
- Resource based constraints
    - animal health services (disease prevention and control)
    - housing (space, ventilation, comfort, protection from bad weather)
    - water (availability, cleanliness, frequency)
    - feed resources (availability, adequacy, quality, utilization)
- List locally available animal feed resources
    - pasture (individually owned, communal)
    - crop residue
    - tree-based resources (homestead, farmland, communal land)
    - improved multipurpose tree species
- Benefits and practice of integrating trees into livestock systems
    - productivity
    - animal welfare
    - mutual interaction (soil fertility, erosion control, increased biodiversity, pest control)

- Challenges of animal and tree integration
    - space, seedlings, water, knowledge, negative impacts
- Community action
    - identification of suitable tree species for integration (food, feed, shade trees)