CGIAR 2021 Annual Reporting Template

Ethiopia Priority Country Program

Livestock CRP SmaRT Ethiopia 2021 Annual Report

The Livestock CRP partners and ILRI programs have agreed to take responsibility for implementing the CRP agenda and have aligned certain bilateral project activities and/or have been provided W1/W2 funding to support that work. The Livestock CRP priority countries are intended to serve as the CRP 'field laboratories' where the flagships can test their products and take them to scale and contribute to designing integrated livestock interventions. The priority country projects have been allocated W1/W2 funding both from the PMU and from flagships to conduct their activities.

The purpose of this report is twofold:

(i) To ensure Flagship Leaders are aware of the progress achieved by the partner /program/priority country project and individual staff so it can be appropriately reflected in the flagship reports; and

(ii) To provide a record of accountability for the funding allocated to the partner/program/ priority country project. The focus is on capturing achievements in the reporting year and their significance rather than describing ongoing activities and future intentions.

The report has 3 parts:

(i) Part A provides an overview of progress made by the partner/program/country project in terms of both implementing flagship activities and advancing the CRP's engagement with partners/programs.

(ii) Part B follows the overall CGIAR Annual Reporting Template and gathers any relevant achievements or issues related to each section that could be highlighted in the flagship and overall CRP reports.

(iii) Part C is a traffic light report on the 2021 POWB deliverables that the partner institution or program committed to achieve as the basis for the Program Partner Agreement (PPA), or the deliverables that the priority country team committed to in their Activity Sheets.

There is some duplication between Part B and Part C, but it is important to provide a record of achievement against the partner's contractual commitment and to make this readily available to the flagship leaders.

Please complete all boxes in the template, indicating N/A if there is nothing to report

Write in clear language that is understandable to a non-specialist reader with no prior knowledge of the CRP and explain all acronyms

The latest guidance on common reporting indicators is available on the CGIAR Planning and Reporting website here

Partner/Program/Country: Ethiopia

Partner Focal Point name: Barbara Rischkowsky and Aynalem Haile

List of W1/W2 funded CRP staff (and location) by flagship

Please include all staff members with 5% or more of their time allocated to the CRP. If the staff member is involved in priority country project work, indicate the country or countries in the last column

Staff name	Institution (CIAT/ILRI/ ICARDA/SLU)	Job title	Duty station (country)	Flagship affiliation (Genetics/Health/ Feeds & Forages/ Environment/LLAFS)	Priority country involvement (Ethiopia/ Tanzania/ Uganda/ Vietnam)
Aynalem Haile	ICARDA	SR Breeding & Genetics/Co-coordinator	Ethiopia	Genetics (focal person)	Ethiopia
Joram Mwacharo	ICARDA	SR Geneticist	Ethiopia	Genetics/ Health	Ethiopia
Mourad Rekik	ICARDA	SR Production	Ethiopia	Genetics/ Health (focal person)	Ethiopia
Tesfaye Getachew Mengistu	ICARDA	Coordinator Genetics	Ethiopia	Genetics	Ethiopia
Barbara Rischkowsky	ICARDA	Director, Resilient Agricultural Livelihood Systems	Ethiopia	Genetics/LLAFS (focal person)	Ethiopia
Jane Wamatu	ICARDA	Animal Nutritionist	Ethiopia	Feeds & Forages (focal person)	Ethiopia
Girma Tesfahun Kassie	ICARDA	Agricultural Market Economist	Morocco	LLFAS	Ethiopia
Wole Kinati (NRS)	ICARDA	Research Associate - Gender	Ethiopia	LLFAS	Ethiopia
Woinishet Asnake (NRS)	ICARDA	Research Officer-Economics	Ethiopia	LLFAS	Ethiopia
Abiro Tigabie (NRS)	ICARDA	Research Officer-Economics	Ethiopia	LLFAS	Ethiopia
Mesfin Mekonnen	ILRI	Research Associate	Ethiopia	Health	Ethiopia
An Notenbaert	CIAT	Tropical Forages	Kenya	Environment	Ethiopia

Jessica Mukiri	CIAT	Research Associate – Tropical Forages	Kenya	Environment	Ethiopia
Jason Sircely	ILRI	Scientist - Ecosystem Ecologist	Kenya	Environment	Ethiopia
Bedasa Eba	ILRI	Research Officer-Pastoralism and Rangelands	Ethiopia	Environment	Ethiopia
Mamusha Lemma Woldegiorgis	ILRI	Research Officer - Capacity Development	Ethiopia	LLAFS/Cap dev	Ethiopia

PART A: Partner/Program/Country Annual Progress

A.1 Achievements

Provide an overview of 2021 achievements in advancing the CRP Livestock research agenda towards its targeted outcomes, by flagship and in the priority countries (500 words max.)

Genetics FP: Implementation of CBBPs, which includes the establishment of cooperatives, continued in the four priority country sites in Ethiopia and has progressed very well. We were able to undertake two rounds of sire selection based on estimated breeding value and farmers preferences for qualitative traits. Our support to scaling of CBBPs with funding from the Ethiopian Government, WB and USDA has expanded and CBBP is now scaled to more than 7000 households in Ethiopia using both natural mating and AI. Our partners were able to carry out certification of the rams in all the selection batches in Doyogena, Bonga and Menz which included estimation of breeding values, assessment of breeding soundness, assessment of semen quality and vaccination for known diseases (report).

The implementation on the ground under the country program was supported with research papers and supporting knowledge products and an impact assessment under FP Genetics: Two papers on optimization of CBBPs and selection index, were published and these are being used to advance our breeding programs with practical solutions to challenges on the ground. As this is the final year for CRP, we worked extensively on impact assessment of CBBPs, development of guidelines on definition of breeding objectives and estimation of breeding values for uncertain sires in sheep and goats breeding programs in Ethiopia, guidelines on adapted reproductive biotechnologies of sheep and goats, a Video on the story and impact of community-based sheep and goat breeding programs in Ethiopia and other blogs and factsheets. An e-learning course on the basis and management of reproduction in sheep and goats is now available and can be accessed by a large audience of professionals and postgraduate students involved in animal breeding and the delivery of improved genetics.

Health FP: The animal health intervention calendar was developed in 2019 for all the intervention sites, which is later updated in the beginning of 2021. Based on the updated calendar, different herd health interventions were implemented in the sites which included vaccination of sheep and goats for respiratory and other infectious diseases such as ovine pasteurellosis, PPR, sheep and goat pox, anthrax and CCPP. In 2021, A total of 25,191 sheep and goats were vaccinated for ovine pasteurellosis and anthrax and 20,278 sheep and goats vaccinated for PPR and sheep and goat pox. Additionally, a total 1,650 goats were vaccinated for CCPP. In community based gastrointestinal parasite control program, a total of 17,831 sheep were dewormed two times per a year for gastrointestinal parasites and lungworms. The community based coenurosis control was started and continued in Bonga and Menz sites. In Bonga a total of 368 dogs were dewormed three times a year by Praziquantel to control coenurosis. The animal health intervention activities were supported by different capacity development, awareness creation trainings and community conversations (report on animal health interventions).

The first version of herd health data collection app was developed and tested; and later updated to the second version which is still under testing. To collect herd health data using the developed app, data collection tablets were purchased and distributed to enumerators and researchers. The

researchers and enumerators trained on how to use the herd health app when the first version was released (report) .

F&F FP: With an aim to strengthen market-orientation of sheep fattening to enhance incomes, youth groups have been facilitated to identify and develop profitable business models. To sustain the business orientation, trainings of trainers across sites to guide youth groups on Entrepreneurial Skills Development are ongoing and a manual on financial literacy and marketing is concurrently being updated. Out scaling of information on improved sheep fattening is ongoing through radio programs transmitted weekly in 5 different languages in SNNPR Regional State. Gender capacities of youth groups are being strengthened through community conversations and formation of women-only groups. To encourage uptake and utilization of indigenous feeds and forages in balanced formulations, participatory on-farm feeding trials were carried out to assess fattening performance of rams and reproductive performance of ewes and breeding rams using local feed supplements and indigenous forages.

L&E FP: CLEANED environment assessments for SmaRT Ethiopia were carried out from March to October 2021. The assessments were conducted in Abergele, Bonga, Doyogena and Menz. Baseline environmental footprints (land requirements, soil impacts, water use and greenhouse gas emissions (GHGe)) were assessed for the different systems and compared to the environmental footprints expected/achieved through introducing intervention packages. Baseline results indicate that systems losing soil are also experiencing soil infertility. There is high usage of nitrogen albeit low fertilizer inputs across the systems. Generally, more land is required to produce feeds in Menz, Bonga, and Abergele than in Doyogena. Out of the four systems, Doyogena is the most water efficient system. There is relatively high GHG emissions (GHGe) across the systems but mostly in Doyogena. Enteric fermentation is the main source of GHGe in all systems followed by manure management.
Two intervention scenarios were assessed to understand environmental trade-offs and synergies of SmaRT pack interventions compared to the baseline environmental conditions (Impact Report): 1) productivity increase achieved through improved animal health and improved genetics, and 2) fully integrated package (improved animal health, genetics and fattening). In the first scenario production increases across the systems due to better animal health and improved genetics which results in reduced water use and GHGe per kilogram of meat by an average of 40% in all the systems. However, total land requirement, water use and GHG emissions are expected to increase slightly in Menz and Bonga, while in Abergele they go up by an average of 23%. Only in Doyogena environmental gains are observed across all indicators. The integrated package is projected to reduce water use and GHGe intensity per kilogram of meat by an average 50% and 46% respectively in the systems. It reduces land requirements by up to 63% in Doyogena while Abergele and Menz register a slight increase of 2%, which is much lower than the in first scenario. In matters soil health, only Doyogena would experience a reduction in total soil loss per hectare. In the other systems this is expended to increase by a small fraction. Usage of Nitrogen did not change in most systems because only the percentage intake of the baseline feed basket changed but not the feed items with an exception of Menz where a change in feed basket is expected to increase nitrogen mining by eight-fold but reduce total GHGe by 5%. The study recommends a fully integrated package in all systems with a condition to supplement the current small ruminant diet to boost overall environmental efficiencies.
Highland communal grassland management, a participatory process for communal grazing lands in the Ethiopian Highlands, was designed and piloted in Menz, Amhara, Ethiopia. This process is designed to be implemented by government or NGO practitioners, who facilitate communal grassland user

groups to improve management of their grassland. The process begins with characterization of grassland management, moves next to prioritization of community management objectives, and finally facilitates user groups to create management plans for their grasslands. The management plans encompass grazing management, intensive restoration, and rules or by-laws for their implementation by the user group. Management plans were created by the user groups of 10 communal grasslands in Menz (1,264 households total; 325.5 ha total) were translated into the local language (Amharic), deposited with woreda (district) government, and distributed to kebele (sub-district) government and user groups. In piloting highland communal grassland management, we generated evidence on the successfulness of this process for improving management from start to finish, used action research trials to quantify effects of end-of-season resting on grassland condition, and documented the institutional and technical options that were willingly adopted and are most likely to scale. The highland communal grassland management approach was documented and is being disseminated through multiple outputs with audiences varying from practitioners to researchers and to policymakers: (1) four research reports on characterization, prioritization, and monitoring; (2) a manual and two field tools for characterization and prioritization; (3) a manual, a field tool, and a targeting tool for management planning; (4) a protocol for the resting action research trial (results forthcoming following outcome measures in October 2021); (5) an overall implementation guide summarizing the entire process that links to the other manuals and tools for each step; and (6) a policy brief. The scaling potential of the approach is strong, as it can be applied highlands-wide in Ethiopia, and with generally minor modifications can be applied in communal grazing lands in mixed or agro-pastoral systems elsewhere around the world.

LLAFS FP:

Drawing on previous Livestock CRP gender research, three areas of gender research related to a contextual understanding of women empowerment in the target sites in Ethiopia are being covered in a PhD research study —gendered attitudes of empowerment resources and decision-making; understanding agency; and pathways to empowerment. Based on both qualitative and quantitative datasets, information on contextual understandings of empowerment was generated, analysed, and one journal article was submitted while the remaining two are being drafted. A research brief highlights the major findings. In collaboration with CRP PIM, we packaged scientific evidence generated on policy-induced market distortions along agricultural value chains in a way that makes the scientific information accessible to policy makers and practitioners through a policy brief and blog (https://hdl.handle.net/20.500.11766/66341) emphasizing the repercussions of not addressing this important problem. Similarly, the key challenges and opportunities in the livestock marketing system in Ethiopia were presented in a synthesis report. The report presents the key challenges that are undermining market participation and performance of smallholder farmers as well as export abattoirs. The report also discusses the strategic interventions based on scientific evidence that need to be considered to transform the livestock marketing system. A policy note on strategic issues of small ruminant marketing in Ethiopia was submitted in Amharic to the State Minister, Ministry of Agriculture in November 2021. Related to the implementation of the SmaRT pack interventions in Ethiopia, we completed the baseline, which was started end 2020, in the four target sites (dataset). Marketing models were developed for the four target sites (report) and will be complemented by an implementation framework (report). The scaling scan for SmaRT pack was complete under leadership of ILRI's Impact at Scale Unit (report).

Gender interventions across Flagships:
Led by the Gender team, a community conversation training module on herd health and animal feed interventions and collective livestock marketing. Three reports describe the findings from community conservation on livestock health, feeding and collective action (Doyogena and Menz Mama district). The team also reported on monitoring and coaching partners on community conversation implementation and uptake.

Under **shared activities,** the partnership landscaping report was reviewed and updated (report). The establishment of a community of practice for partners was documented Menz Mama District (report). SmaRT pack interventions were fully documented (13 innovation briefs reported under the respective flagships) and presented to researchers at a workshop at Jimma University (report). A stakeholder WS reviewed achievements of SmaRT Pack and discussed the way forward on 1-2 November 2021 (report).

A.2 External partnerships and engagement

Describe any significant changes in external partnerships of the partner/program/country project contributing to CRP work, and any achievements in strengthening stakeholder engagement (200 words max.)

The **genetics work** has established a new partnership with more than 23 local universities in Ethiopia for scaling of CBBPs (six universities have already established 12 CBBPs in nearby villages) and incorporation of CBBP in university undergraduate curriculum (18 Universities have already done this).

The other flagships continued the efficient partnerships established in previous years.

A.3 Internal partnership progress

Describe any significant changes during 2021 that have affected the role of the partner/program/country project in the CRP, its expectations, its commitment and its capacity to contribute. Highlight any emerging issues in the relationship with the CRP and how they are being addressed (200 words max.)

No changes have taken place.

PART B: Contributions to CRP annual report

Please highlight any achievements relevant to each section, using bullet points that can be extracted straight into the flagship reports. This is important as part of the justification for future W1/2 allocation to support CRP work by the partner/program/priority country. Refer to the Tables where relevant.

1. Key Results

1.1 Progress Towards SDGs and SLOs (sphere of interest, with research results frequently predating the CRP)

a) Overall contribution of CRP towards the SRF targets, based on rigorous adoption and/or impact data. Please complete Table 1: Evidence on Progress towards SRF targets (Sphere of interest) and refer to this in the text (150 words max.)

The scaling of CBBPs with started in 2020 through the Ministry of agriculture of Ethiopia through its Livestock and Fisheries sector development project has progressed very well in three regions of Ethiopia (Amhara, Oromia and South) with more than 1,000 households involved. Additionally, the USDA-supported goat scaling CBBP project in Konso zone of Ethiopia has involved more than 2000 households.

b) Any areas of learning from impact assessments which have influenced the direction of the program (100 words max.)

None. The impact assessments conducted this year were completed at the end of the year, so too late to affect the work in 2021.

1.2 CRP Progress towards Outputs and Outcomes (spheres of control and influence)

1.2.1 Overall progress

Provide a brief summary narrative about how the CRP progressed towards the agreed program outcomes, highlighting (i) major pieces of work, and (ii) major course corrections. Where relevant, indicate cross-flagship linkages (200 words max.)

1.2.2.a. Progress by flagships (max. 200 words/flagship or module)

Provide brief summary narratives about how each individual CRP Flagship progressed towards the agreed 'Program outcomes', introducing Table 5 (Milestones) to the reader, highlighting: (i) major pieces of work and innovations, and (ii) any major course corrections. For CRP : Where relevant, indicate cross-flagship linkages and how one Flagship built on or worked with another to get results.

The outputs from Ethiopia country program contributed to outcomes across all flagships: The further optimization of CBBPs, certification of improved rams and bucks in partnership with Health FP and regional research and extension and the successful upscaling of CBBPs contribute to 'Outcome 1.2 Genetic improvement strategies for improved livestock genetics implemented by national research and development partners, and the private sector in 6 CRP priority countries and other locations'.

The evidence provided on the effect of the SR health interventions is important to lead to more effective health services and planning of required drug and vaccines, thereby leading towards Outcome 2.5 'Improved access to livestock-related health services and products for female and male livestock keepers in the 4 priority countries (Ethiopia, Tanzania, Uganda and Vietnam)'.

The outputs supporting and documenting the successful work with youth groups on sheep fattening under FP3 are an example for Outcome 3.8 'Increased delivery and uptake of feed and forage resources through proof-of-concept scaling, business model development and value-chain approaches'.

The environmental assessment of Smart pack under FP4 contributes to Outcome 4.2 'Targeted solutions are used by research and development partners, across at least 10 priority countries and other locations, to increase the productivity of cattle, small ruminants and pigs in the face of ongoing environmental changes.'
The protocols, tools, guidelines and policy brief related to community-based grazing management of communal grasslands in in highlands under FP4 provide a base for informing enabling policies, thereby contributing to Outcome 4.5 'National government agencies across at least 5 priority countries design and implement key policies to improve the environmental management of livestock systems'.

The outputs related to community conversations and marketing models contribute to the

Please complete the following tables and refer to them in the text, as appropriate:
Table 2: Condensed list of policy contributions
Table 3: List of Outcome/Impact Case Reports from this reporting year (Sphere of Influence)
Table 4: Condensed list of innovations by stage for this reporting year
Table 5: Summary of status of Planned Outcomes and Milestones (Sphere of Influence-Control)

1.2.2.b. Relevance to Covid-19 by flagship (max. 300 words/flagship)

Mandatory. Please provide a brief summary about how each flagship has adapted their research owing to Covid19, highlighting: (i) major incorporation of Covid-19 analyses into existing studies or (ii) new Covid-19 studies.

Please do not report on research funded by the CGIAR Covid-19 Hub. The Hub will report separately to the CGIAR System Organization.

No specific Covid related studies were carried out.

1.2.3 Variance from Planned Program for this year

*(a) Have any promising research areas been significantly **expanded**? If so, for each example, please explain clearly where the demand came from (e.g. promising research results, demand from partners) and where the money for expansion has come from? (100 words max.)*

F&F FP: High adoption of improved sheep fattening practices by youth group members increased demand for indigenous and available feed resources, especially forages. Additional trainings on forage seed and vegetative materials, indigenous feed and forage management and utilization were frequently requested for by sheep fattening youth groups/cooperatives. Community conversations on gender roles and norms became overwhelming important as there were uproars and grumbling from men as a result of the sudden perceived independence displayed by their economically empowered wives undertaking market-oriented sheep fattening.

*(b) Have any research lines been dropped or significantly **cut back** (note that cutting research lines which do not seem to be delivering is seen by Funders and the System Organization as a sign of good management, not of failure). If so, please give specific examples and brief reasons, and if funding was reallocated to other work, explain where the money went (100 words max.)*

Research lines were not dropped or cut back by design but were affected by the Covid 19 situation:

For the **Genetics FP** the COVID situation partly restricted travel to the field. However, we were able to deliver on our plans through field activities of the national system. We also used the restriction on travels as an opportunity to work on publication of articles. For genetics, we published 12 unplanned papers.

COVID restrictions delayed the progress on trainings on sheep fattening technologies in Ethiopia under **F&F FP**, nevertheless some trainings were carried out while e.g. training on collective action for sheep fatteners could take place because of the security situation.

A number of important workshops, meetings and surveys under **LLAFS FP** were planned for the last quarter of 2021, which were made impossible by the security situation in Northern Ethiopia and later across the country. These included: four site level workshops and a national workshop were planned in Ethiopia to discuss and validate the marketing models developed under SmaRT Ethiopia. The same applied to training on collective action in the three sheep value chain sites (already fully set up for the second and third week of November). We had also planned to repeat the baseline survey for SmaRT Pack in the four sites for which the instruments was fully developed.

*(c) Have any Flagships or specific research areas **changed direction**? If so, please describe how and why (100 words max.)*

As 2021 has been dedicated to complete documentation and packaging of innovations, no changes in direction have taken place.

1.3 Cross-cutting dimensions (at CRP level)

1.3.1 Gender

*a) Using concise bullet points, list any important CRP **research findings, methods, tools, capacity development, policy changes or outcomes** in 2021 related to gender issues (150 words max.)*

F&F FP: Young married women are actively participating in market-oriented sheep fattening, thus increasing sales and incomes. This financial independence has necessitated revisiting gender norms and roles through community conversations.

SmaRT Ethiopia across FPs: Bottlenecks to addressing gender issues and achieving gender equality in Ethiopia are twofold: 1) Constraining norms at household & community, and 2) lack of gender capacities by partners to detect and address the gender issues within the target sites.
A PhD study is researching the first issue: the results indicate that gender contexts across the study areas are generally unsupportive of women's autonomy. The existing gender roles dictate choices and devalue women's roles, posing substantial challenges to their empowerment. The various economic, financial, human, social, information and psychological resources are considered valuable empowerment resources among men and women and vary across gender and farming systems. Similarly, major decision-making areas differ by gender and farming system implying that agency is highly contextual and thus empowerment efforts need to consider both gender preferences and local contexts. More specifically, policies and intervention efforts to empower individuals or groups must begin by first building their psychological assets and consider gendered perceptions of resources and decisions in the process. Empowerment pathway studies identified a number of deviant but desired behaviors in gender relations that are being practiced by women and men living in constraining normative environments. If carefully considered, these could provide alternative ways of designing and implementing gender transformative approaches.
Informed by the gender capacity gap assessment findings conducted in 2020, Gender capacity development (GCD) interventions were implemented in 2021 in three more Livestock CRP target sites using tailor-made training materials developed by ILRI/ICARDA and TI (Transitional International). Three participating research and six development partner institutions formulated internal and external gender equity objectives along with implementation strategies. In connection with GCD interventions, ICARDA commissioned an objective evaluation of the GCD initiatives in selected Livestock CRP target sites that were covered in previous years.

The impact evaluation results inform that despite challenges (recurrent staff turnover, continued restructuring of development partner's organization, absence of accountability mechanism, financial and resources limitation) positive developments at organizational and individual core gender capacities have been witnessed. The post intervention qualitative survey in the majority of the core gender capacities revealed improvement. Among the core gender capacities addressed, partnerships and Advocacy on Promoting Gender Equality and Gender and Leadership have shown substantial improvement at individual capacity levels.

b) Mention any important gender findings that have influenced the direction of the CRP's work, and how things have changed (100 words max.)

SmaRT Ethiopia across FPs: Informed by a participatory epidemiology and gender survey, the community conversation approach was first tested in Livestock CRP sites in Ethiopia as a gender-transformative community engagement method to explore and address gender constraints in herd health management. Using active engagement methods and involving men and women community members (including couples), the community conversations explored multiple perspectives, challenged gendered perceptions and motivated community actions. Based on the positive results, the approach was expanded to feeding, collective action and breeding cooperatives.

The gender issues addressed through the CCs include: unequitable gender roles and the value of women's role in livestock husbandry; unequitable access to, control over livestock resources and associated social structures related to membership to groups; undesirable gender attitudes; lack of women's access to farming information and having them participate in farming advisory meetings; valuations of gendered knowledge in animal diseases; and restrictive gender norms and animal health management, and gender-differentiated use of antibiotics.

The outcomes of the community conversations were captured in various reports and blog stories. About 30 gender-responsive community conversation sessions have been conducted in five value chain sites in Ethiopia between 2018 and 2021, addressing different livestock development issues and engaging over 1500 (574 women) community members and research and development partners).

As a way forward, continuing to break down gender stereotypes through CCs is found to be important. The only way to shift the framing around appropriate behaviour within the household and communities in the Livestock CRP target sites is to continue to break down gender stereotypes. Elevate women to positions of power, to reduce male domination in all aspects of life. Challenging the undermining of women's autonomy is a must in order to break the chain of passing on these negative attitudes.

c) Have any problems arisen in relation to gender issues or integrating gender into the CRP's research? (100 words max.)

No specific problems have arisen but the gender staff resources in our and partner centers is still not sufficient to adequately address all gender issues.

1.3.2 Youth and other aspects of Social inclusion / "Leaving No-one Behind"

a) Using concise bullet points, list any important CRP research findings, methods, tools, capacity development, policy changes or outcomes in 2021 related to issues of youth, social inclusion, and "leaving no-one behind", for example with the poorest groups, indigenous peoples, or disabled people, and intersectional analysis (150 words max.)

Youth groups have coalesced to form cooperatives as per existing by-laws. A total of 8 new cooperatives have been formed and legally registered in 2 sites. Each cooperative was formed from 2-4 youth groups merging. In one of the sites, the government authorities preferred to register the youth groups as enterprises as opposed to cooperatives.

b) Mention any important youth and social inclusion findings that have influenced the direction of the CRP's work, and how things have changed (100 words max.)

Financial empowerment of young married women who are members of sheep fattening youth groups interfered with existing gender norms and roles. Community conversations become crucial to address the emerging whining from men who felt the women were becoming too financially independent and may as a result become uncontrollable.

c) Have any problems arisen in relation to youth and social inclusion issues or integrating youth into the CRP's research? (100 words max.)

The problem of registration of groups into cooperatives due to prevailing by-laws has been partially solved, but there is ongoing progress. The cooperative office members have highly contributed to this progress. In one location where government by-laws prevailed, the Cooperative office, Gender office and Youth & Gender office CoP representatives all facilitated in solving the problem by advancing registration of groups as enterprises as opposed to cooperatives. There is consensus among CoP members that collective action as a strategy in sheep fattening is the better way to advance youth empowerment.

1.3.3 Capacity Development

Summarize key achievements and learning points in Capacity Development in 2021, cross-referencing to other data in this report (e.g. results tagged as principal for CapDev) where relevant (200 words max.)

Short-term trainings

- FP1: TOT on reproductive technologies (mass synchronization, Artificial insemination, certification of improved sires) for researchers and ministry livestock experts (face to face): 23-25 November 2021, Debre Berhan; 19 men and 2 women.
- FP1: Training on essentials of community-based breeding programs was given to academic staff from 20 local universities in Ethiopia in two phases- in Bahr Dar and Bishoftu (face to face): 20 July 2021; 24 men and 1 women; 27 July 2021 (17 men and 2 women)
- FP1: Training on breeding data collection, management and analysis was given to 25 academic staff from 24 local universities in Ethiopia (face to face): 11-12 November 2021, Adama; 23 men and 2 women.
- FP1: TOT on upscaling of CBBP focusing on collection and management of data, animal identification and startup of CBBP was provided to 28 researchers, extension staff of the ministry from three regions (Amhara, Oromia and South) and federal bureau of Ethiopia (face to face): 1-2 September 2021, Bishoftu; 25 men and 3 women
- FP1: Enumerator were given on the job training on collection of baseline data, animal identification and startup of CBBP in all the upscale sites by national researchers (face to face); total of 15 male enumerators for at least 13 sites in three regions (Amhara, Oromia and South)
- FP1: On-job training on reproduction: Field training on reproduction technology (estrus synchronization, semen collection, processing and insemination); 16-19 May 2021, Konso; 12 men.
- FP1: Farmer trainings were also carried out in most CBBP sites in Amhara, Oromia and South (face to face); estimated number of more than 1500 farmers.
- FP3: Farmer trainings across 3 sites on nutritional flushing of rams and ewes. Estimated number of farmers trained is 1000.
- FP3: ToT on financial literacy for sheep fattening for National Researchers and Ministry livestock experts
- FP4: Formal Training of 3 Ethiopian researcher on CLEANED, training course plus on the job coaching
- FP 4: In 10 communal grasslands (1,264 households total; 325.5 ha total), user groups were trained in and successfully completed grassland management planning; user groups in 5 of these grasslands implemented action research trials on grassland resting with ILRI technical support. 2 woreda experts from the Land and Livestock offices trained on highland communal grassland management; 2 researchers from Amhara Regional Agricultural Research Institute (ARARI; Debre Berhan) trained on highland communal grassland management and on action research trials and grassland monitoring.
- FP5: Training on Gender capacity development of three research and six development partner institutions from three SmaRT Ethiopia target sites using tailor-made training materials developed by ILRI,ICARDA and Transitional International, 10-14 May 2021 at Debre Berhan (D/Berhan and Bonga agricultural research centres, Menz Gera, Menz Mama and Adiyo Woredas), 20-24 May, 2021 at Sekota (Sekota Agricultural Research Centre and Zekuala and Abergele Woredas); a total of 43 men and 10 women.

1.3.4 Climate Change

Summarize key achievements and learning points in terms of your contributions to addressing climate change issues (200 words max.)

Genetics FP: In partnership with CCAFS, three community-based breeding programs were established in climate smart villages in Doyogena and this is progressing well. Additionally, we started a new WB funded project on Accelerating the Impact of CGIAR Climate Research in Africa (AICCRA). We will facilitate scaling of some of our tested climate smart innovations in Ethiopia.

L&E FP: The CLEANED assessment indicated the potential for GHGe reductions through SmART pack. In the baseline scenario relatively high GHG emissions (GHGe) were observed across the systems but mostly in Doyogena. Enteric fermentation was the main source of GHGe in all systems followed by manure management. In the first scenario (improved productivity through improved genetics and animal health) production increases across the systems which results in reduced water use and GHGe per kilogram of meat by an average of 40% in all the systems. The fully integrated package is projected to reduce water use and GHGe intensity per kilogram of meat by an average 50% and 46%, respectively in the systems.

2. Effectiveness and Efficiency

2.1 Management and governance

Describe any major changes to management, governance arrangements and practices, if any. Describe any key top-level program management challenges, if any, and how they were addressed (200 words max.)

No changes in management and governance to be reported in 2021.

2.2 Partnerships

2.2.1. Highlights of External Partnerships (300 words)

Summarize any interesting highlights, value added and points to improve/ learning points from 2021 and refer where appropriate to Table 8: Key external partnerships (200 words max.)

The **Genetics FP** has established a new partnership with more than 24 local universities in Ethiopia for scaling of CBBPs (six universities have already established 12 CBBPs in nearby villages) and incorporation of CBBP in university undergraduate curriculum (18 Universities have already done this).

2.2.2. Cross-CGIAR Partnerships (300 words)

Summarize general points on highlights, value added and points to improve/ learning points from 2021 and refer where appropriate to Table 9: Internal Cross-CGIAR Collaborations. Any points you can include on added value of Platforms and integrating CRPs would be very useful (200 words max.)

Genetic FP: in partnership with CCAFS we work on dissemination of improved genetics from CBBPs to climate smart villages in Doyogena, Ethiopia. Additionally, through AICCRA project we now closely work with CCAFS, CIMMYT, ILRI and Alliance on scaling of climate smart innovations.

OneCGIAR: An important priority in 2021 has been ensuring that the solid foundation of livestock economics laid in the LLAFS FP (and SmaRT Ethiopia) is effectively embedded in the new One-CGIAR Initiatives. Key activities that have broader relevance and impact have been successfully embedded in SAPLING and Rethinking Markets initiatives of One-CGIAR.

2.3. Intellectual Assets

(a) Have any intellectual assets been strategically managed by the CRP (together with the relevant Center) this year? E.g. taking out intellectual property rights, licensing, new innovative practices. Note that strategic management implies involvement of PMU, flagship or cluster leaders in decision making, in furtherance of the CRP Theory of Change (50 words max.)

N/A

(b) Indicate any published patents and/or plant variety right applications (or equivalent) associated with intellectual assets developed in the CRP and filed by Centers and/or partners involved in the CRP, giving a name or number or link to identify them (100 words max.)

N/A

(c) List any critical issues or challenges encountered in the management of intellectual assets in the context of the CRP (50 words max.)

N/A

2.4 Monitoring, Evaluation, Impact Assessment and Learning (MELIA)

a) Complete Table 10: Monitoring, Evaluation, Learning and Impact Assessment (MELIA) and add a short narrative here to introduce the table and highlight any key points of interest (max. 50 words)

ICARDA commissioned an objective evaluation of the gender capacity development of partners in three Livestock CRP target sites in Ethiopia that received training and intensive coaching in previous years. The impact evaluation results inform that despite challenges (recurrent staff turnover, continued restructuring of development partner's organization, absence of accountability mechanism, financial and resources limitation) positive developments at organizational and individual core gender capacities can be witnessed. Among the core gender capacities addressed, partnerships and Advocacy on Promoting Gender Equality and Gender and Leadership have shown substantial improvement at individual capacity levels.

We also performed an impact assessment of the community-based breeding programs.

b) *Complete* Table 11: Update on Actions Taken in Response to Relevant Evaluations

2.5 Efficiency

Describe any examples of efficiency gains and successes in 2021.

No efficiency gains related to implementation to be reported in 2021. The support from CRP Livestock comms led to higher efficiency in completing documentation around important legacy products.

2.6 Management of Risks to Your CRP

Summarize any encountered risks and mitigation measures taken under the three following headings: programmatic, contextual and institutional risks (for more information see the CGIAR Risk Management Guidelines (100 words max.)

Programmatic: no risk to be reported

Contextual: Covid 19 situation in Ethiopia led to some postponement of field activities and group trainings which required physical presence for practical sessions. This could be relatively well mitigated by our NARS partners who were able to provide required support in many cases.

A huge impact came from the situation in Northern Ethiopia which made one of our important value chain sites (Abergele goats) inaccessible throughout most of 2021. The increasing insecurity in the last quarter also affected a number of planned surveys and WS. No mitigating measures cold be taken.

Institutional: No risk to be reported

2.7 Use of W1-2 Funding

Complete Table 12: Examples of W1/2 Use in this reporting period (2021), and briefly elaborate below on any particularly interesting points on your use of W1/2: e.g. any important achievements and/or cross-cutting work made possible (100 words max.)

FP1: Through W1/W2 funding we were able to bring together several partners (more than 100 people were in attendance) to one of the CBBP sites in rural Ethiopia where we celebrated our success in CBBP. We also used the opportunity to showcase the innovations we have generated over years. This led to thorough discussion on way forward and a concrete action points were documented. Following this a team of expertise from different institutions was established by the Ethiopia state minister for livestock to develop an actionable document focusing on scaling of proven technologies.
FP2: W1/2 funds were used to supply partners with vaccines and drugs for implementing the herd health interventions and for capacity development of farmers through community conversations.
FP3: W1/W2 funding enabled radio-based extension of information and improved techniques for improved and market-oriented sheep fattening in 5 languages. The program has recorded 5.4 million listeners during the broadcast on sheep fattening in 3 months. We were also able to have participatory training on nutritional flushing with farmers for both ewes and breeding rams, thereby fully engaging them in the selection and formulation of balanced rations.
FP4: W1/W2 covered the Ethiopian consultant and training costs related to the Cleaned assessment and the costs related to the community-based management of highland grasslands.
FP5: W1/W2 funding was used to fund staff time, travel and operational costs related to the community conversations on feeding and collective action.

Annual Report Tables

Table 1: Evidence on Progress towards SRF targets (Sphere of interest)

Complete this table with any available high-quality evidence on progress that was published or made available in 2021. Do not hesitate to state, "no new evidence available this year", in column 2 if appropriate. If the adoption or impact data comes from a relevant innovation or contribution of the CGIAR prior to the CRP start-up (e.g. varieties released before the CRP start-up, which for most CRPs would be approximately 2012), then please support statements with published references. Nearly all adoption or impact studies fall into the above category. There are a few cases in which the estimated figures for at-scale adoption or impact result from an innovation released within the current CRP period. If this is the case, then the statement must be supported by a link to an Outcome/ Impact Case Report ***Maturity Level 3****.*

SLO Target (2022)	**Brief summary of new evidence of CGIAR contribution** *[Put N/A if the specific SRF target is not applicable to your CRP. Put "No new evidence in 2021" if the target is potentially relevant, but there is no new evidence available. Spell out all acronyms.]* *Max. 150 words*	**Geographical scope (with location)** Global, Regional (e.g. West Africa), Multi-national, National (e.g. Philippines), Sub-national
1.1. 100 million more farm households have adopted improved varieties, breeds, trees, and/or management practices	Through the Livestock and Fisheries sector development project of the Ethiopian government, and USDA support goat scaling project, we were able to upscale community-based breeding program to more than 3000 additional households in Ethiopia.	National -Ethiopia
1.2. 30 million people, of which 50% are women, assisted to exit poverty	Through the weekly radio programming which broadcasts on improved market-oriented sheep fattening, we were able to reach 54% of a population of 9 million. It is estimated at least 1/3 of the listeners are women. Thus, at least 1.45 million women are receiving radio-based extension on improved sheep fattening techniques.	National - Ethiopia

2.1. Improve the rate of yield increase for major food staples from current <1% to 1.2-1.5% per year		
2.2. 30 million more people, of which 50% are women, meeting minimum dietary energy requirements		
2.3. 150 million more people, of which 50% are women, without deficiencies in one or more essential micronutrients		
3.1. 5% increase in water and nutrient efficiency in agroecosystems	The CLEANED assessment for SmaRT pack in Ethiopia indicates that the intervention packages improve land and water efficiency.	National -Ethiopia
3.2. Reduction in 'agriculturally'-related greenhouse gas emissions by 5%	The CLEANED assessment for SmaRT pack in Ethiopia indicate that GHGe per unit product can be substantially reduced (by more than 40%).	National -Ethiopia
3.3. 55 M ha degraded land area restored		
3.4. 2.5 M ha forest saved from deforestation		

Table 2: Condensed list of policy contributions in this reporting year (Sphere of Influence)

Please list policy contributions here, for example any contributions to national breeding or data policies. Please see the indicator guidance for indicator #I1 number of policies which also includes an explanation of what is covered under the term 'policy'. Full supporting information should be submitted through the MIS system.

Title of policy, legal instrument, investment or curriculum to which CGIAR contributed (max 30 words) ***Spell out acronyms in every row***	**Description of policy, legal instrument, investment or curriculum to which CGIAR contributed (max 30 words).**	**Level of Maturity**	**Link to sub-IDOs (max. 2)**	**CGIAR cross-cutting marker scores**				**Link to OICR (obligatory if Level of Maturity is 2 or 3) or link to evidence**
				Gender	**Youth**	**Capdev**	**Climate Change**	
Community-based breeding incorporated in the curriculum of 18 local Ethiopian Universities	We worked with 24 government universities for setting up CBBPs in villages and to incorporate CBBP in University curriculum. We managed to include CBBP in curriculum of 18 Universities	3- Research taken up by next user		No	No	Yes	No	

Table 3: List of Outcome/Impact Case Reports from this reporting year (Sphere of Influence)

List any Outcome/ Impact Case Reports (OICR) generated in this reporting year. The report can be for a new Outcome/ Impact Case or one previously reported that has progressed to a new level of maturity or has been updated but is at the same level of maturity. Please note that you have to use the common CGIAR outcome/impact case report template. The levels of maturity (column 2) are described in the OICR template, with examples.

Title of Outcome/ Impact Case Report (OICR) (max 30 words)	**Maturity level**: 1, 2, or 3
Curriculum change integrating community-based breeding into undergraduate studies in 18 Ethiopian universities	

Table 4: Condensed list of innovations by stage for this reporting year

Please see indicator guidance for details of innovation descriptions, types, stages.

Title of innovation (with link if possible)	Innovation Type	Stage of innovation	Geographic scope (with location)
FP1: E-learning module for reproductive technologies including mass synchronization and artificial insemination for sheep and goats (https://elearning.icarda.org/course/view.php?id=125)	Research and Communication Methodologies and Tools	End of research	Developed in Ethiopia but applicable in many developing countries
FP4: Sustainable management of communal grasslands in the highlands of Ethiopia Implementation guide: https://hdl.handle.net/10568/116882	Production Systems and management	End of piloting	Ethiopia

Table 5: Summary of status of Planned Outcomes and Milestones (Sphere of Influence-Control)

For each outcome, outline highlights of progress, setbacks and changes of direction this year, and briefly explain how the set of milestones have contributed to current progress/direction (100 words max.). Indicate the status of milestones and include links or references for supporting evidence where appropriate.

Flagship	Outcome	Summary narrative on progress against outcome in 2021	Milestone	2021 milestone status (complete, partially complete, cancelled, or changed)	Evidence for completed milestones or explanation for partially complete, cancelled or changed Max 200 words
F1	F1 Outcome: Outcome 1.1: Data on livestock diversity and systems, including from a gendered lens, used to develop or refine genetic improvement and / or conservation strategies by policymakers,		2020 extended to 2021 - 1.1.6 Baseline genome characterization information of existing small ruminants populations including genome sequencing available for Ethiopia, Sudan, Tanzania		
			2020 extended to 2021 - 1.1.8 Identification of genomic regions strongly associated with tolerance		

	national research and development partners, and the private sector, in 5 CRP priority countries and other locations.		to Theileria para infection in cattle		
			2021 - 1.1.9 Genetic basis of local adaptation in African indigenous chickens identified (ILRI)		
			2021 - 1.1.10 Sheep and goat genetic resources of Ethiopia fully described and documented (ICARDA)		
	F1 Outcome: Outcome 1.2 Genetic improvement strategies for improved livestock genetics implemented by national research and development partners, and the private sector in 6 CRP priority countries and other locations.		2020 extended to 2021 - 1.2.5 Breeding strategies for pastoral production systems established in Ethiopia and Sudan	Partially complete (for Ethiopia) D25515	Community-based breeding programs have been found to be successful in more favorable crop livestock production systems. This study simulated different potential breeding programs to design the optimal breeding structure and operational management structure for pastoral Borana goat. It evaluated different scenarios using ZPLAN+ software to maximize the genetic gain, discounted profit and to determine the optimum size of the base population for a community-based breeding program (CBBP) nucleus. The study analyzed the different combinations objective traits in the index, assessed the effect of changing the breeding buck to doe ratio, evaluated the impact of improved kid survival, and determined the optimum size of the base population for a CBBP. A two-tier dispersed CBBP with a unit size of about 577 does in the nucleus and 3,415 does in the base is recommended. Essential requirements for ensuring the sustainability of such programs are also discussed in the paper (paper in Livestock science in press).

			2020 extended to 2021 - 1.2.7 National genetic improvement strategy for pigs in Uganda endorsed by stakeholders		
			2021 - 1.2.8 Multi-country genetic joint genetic evaluation of dairy animals for at least 2 East African countries (ILRI)		
			2021 - 1.2.9 Most appropriate household pig enterprise type (considering breed and management system) identified for Ugandan smallholder pig keepers. (ILRI)		
			2021 - 1.2.10 Essentials of Community-based breeding programs and associated complementary services for sheep and goat in Ethiopia packaged and made available for national partners (ICARDA)	Complete (D25855, D25858, D25859)	- We prepared three guidelines: (1) Setting up community-based small ruminants breeding program (CBBP) (https://mel.cgiar.org/reporting/download/hash/HFVJrOwO); (2) Reproductive technologies; (3) Breeding objectives. Additionally, we prepared four innovation briefs to capture the essential elements of CBBPs: (1) CBBP, (2) Data management (DTERO); (3) artificial insemination; (4) ultrasound to diagnose pregnancy and reproductive disorders.

			2021 - 1.2.11 Breeding strategies and scaling framework suitable for different production systems for sheep and goat in Tanzania and Ethiopia available. (ICARDA)	Complete (D25515, D9742)	Community-based breeding programs have been implemented in Ethiopia and Tanzania over many years. The pilot breeding programs have generated substantial genetic gains and impacted the livelihood of the poor. These programs, however, need to scale to bring about sustained change to lives of many people. For this to happen a framework was developed to be used for scaling.
	F1 Outcome: Outcome 1.3 Business models for multiplication and delivery of improved livestock genetics, to resource poor women and men livestock keepers, implemented by national research and development partners, and the private sector in five CRP priority countries and other locations.		2020 extended to 2021 - 1.3.5 First indigenous ecotype recovered from cryopreserved PGC		
			2021 - 1.3.7 Tangible public-private partnership engagements for delivery and use of genetic improvement are in place in Eastern African countries (ILRI)		
			2021 - 1.3.8 Recommendation on the use of community based artificial insemination of pigs in Uganda as a strategy for dissemination of improved pig genetics		

			and improved marketing (ILRI)		
			2021 - 1.3.9 Small ruminant sire certification (considering semen evaluation, reproductive health and estimated breeding values) used by the Ethiopian national system (ICARDA)	Complete (D18623 and D25561)	Genetically superior sires selected from the sheep and goat breeding programs have been used within the flock they were obtained or sold as improver to the flocks nearby or afar. Making sure that selected rams have the right quality has been an important aspect in the use and sale of rams. A ram certification procedure which involves evaluating the genetic superiority, physical wellness, behavioral fitness and healthiness has been initiated and practiced by the CBBPs. Substantial experience that can be up and out scaled has been acquired and challenges which need to be addressed have been identified. The institutional arrangements to ensure the integrity of the certification process, means of alleviating the burden of the cost of certification (particularly the vaccination and semen test), and price incentives to certified rams and separate grading of rams for use by means of Artificial Insemination (AI) or natural mating are aspects of the certification process which need to be addressed. The certification is meant for improving the indigenous animal and it makes contribution to the conservation of the concerned breeds through sustainable utilization. As such the certification can be considered as public goods and be eligible for public funding to subsidize the process
	F1 Outcome: Outcome 1.4 Women and men resource poor livestock keepers sustainably		2020 extended to 2021 - 1.4.2 Community-based breeding program upscaled in four regions of Ethiopia (Amhara, Oromia, South and Tigray) with	Complete (D18751, D18752, D18753, D18754)	The scaling is progressing well. However, the target of 10,000 households was set for the end of 2023. We reached 7000 households in 2021. This milestone is related to Ethiopian government supported Livestock and fisheries sector development project. We support the scaling of CBBPs in the four regions. The plan in the project is to reach 10,000 households at the end of 2023. As I indicated above we have reached more than 7000 households now. This

	utilizing improved livestock genetics, both productive and adapted, in 3 priority countries and other locations.		more than 10,000 households participating		involves, identification of the target breed, sites, communities and dissemination of improved genetics from existing CBBPs through either natural mating and artificial insemination. The communities are organized into breeder group and proper data recording is also being carried out.
			2021 - 1.4.3 Empirical value (increased gains on farm) of farmer participation in ADGG data recording and farmer feedback platform demonstrated (ILRI)		
			2021 - 1.4.4 Dissemination of improved goat genetics from CBBPs to smallholder goat keepers using mass synchronisation and artificial insemination, in Tanzania (ICARDA)		
F2	F2 Outcome: Outcome 2.1 Assessment tools for significance of animal diseases and risk maps for emergence of animal diseases		2020 extended to 2021 - 2.1.7 Epidemiological data on Bluetongue Virus (BTV) prevalence from various areas in Kenya provided by ILRI Scientist to the scientific community and public services		

	are used by 100 local and national and 50 international research partners and donors to prioritise research and development interventions to reduce livestock disease risks for livestock keepers.		2020 extended to 2021 - 2.1.8 Harmonised data collection for gender sensitive modelling for peste des petits ruminants (PPR) control in high risk transboundary areas implemented in Kenya, Uganda, Tanzania, Ethiopia, Senegal, Mali and Burkina Faso		
			2021 - 2.1.10 Assessment tools for significance of animal diseases and risk maps for emergence of animal diseases are used by 15 local and national and 20 international research partners and donors to prioritize research and development interventions to reduce livestock disease risks (incl. PPR, ASF, FMD and PRRS) for livestock keepers.		

	F2 Outcome: Outcome 2.2 Context specific herd health management packages adopted by farmers, extension and animal health workers in priority countries and other locations.		2020 extended to 2021 - 2.2.5 Herd health services in pigs used and evaluated in Uganda		
			2021 - 2.2.7 Veterinarians and other animal health workers in Uganda and Ethiopia have capacity to apply the Herd health management framework.		
	F2 Outcome: Outcome 2.3 Livestock keepers have necessary knowledge of anti-microbial resistance (AMR) and anti-parasitic resistance (APR) to change their practices accordingly, piloted in two priority countries		2021 - 2.3.5 Country tailored on-line training packages developed for animal health workers on how to use antibiotics in a medically rational and prudent way in Uganda, Ethiopia, and Vietnam.		

	(Uganda and Vietnam).				
	F2 Outcome: Outcome 2.4 National and international research partners, government agencies and the private sector use 2 novel diagnostic assays and vaccines for control of ASF, CBPP, CCPP, ECF and PPR in at least 6 countries.		2020 extended to 2021 - 2.4.3 Research partners use novel assays and point-of-care diagnostics in priority countries		
			2020 extended to 2021 - Agreements with at least 2 private partners to commercialise improved diagnostic tests for CBPP in Kenya, Uganda, Ethiopia, Tanzania and Mali by the end of 2018.		
			2020 extended to 2021 - Production of recombinant viral vectors expressing 8 African swine fever virus (ASFV) antigens for testing in pigs		
			2020 extended to 2021 - 2.4.11 Several African swine fever virus (ASFV) vaccine candidates produced, with 30 tested		

			for attenuation in pigs and at least 2 tested in protection experiments		
			2020 extended to 2021 - Improved in-vitro assays systems to measure correlates for East Coast fever (ECF)		
			2021 - 2.4.13 Candidate experimental vaccines for the control of ASF, CBPP CCPP and ECF developed.		
	F2 Outcome: Outcome 2.5 Improved access to livestock-related health services and products for female and male livestock keepers in the 4 priority countries (Ethiopia, Tanzania, Uganda and Vietnam)		2020 extended to 2021 - 2.5.3 Government, development and private sector actors? use tested sustainable delivery models to provide products and services to livestock keepers in 4 priority countries		
			2020 extended to 2021 - Market for diagnostics in Kenya, Uganda, Tanzania, Ethiopia and Mali assessed and cost effectiveness of		

			producing thermostable PPR vaccine analysed by July 2018.		
			2021 - 2.5.8 3000 livestock keepers and service providers in Ethiopia use the Animal Health Resource Centers (AHRC) as a source of information		
			2021 - 2.5.9 Improved access to livestock-related health services and products for female and male livestock keepers in 3 priority countries.		
F3	F3 Outcome: Outcome 3.1 - Local, national and international research and development partners, the private sector, decision-makers and livestock producers are able		2021 - 3.1.15 Local, national and international research and development partners, the private sector, decision-makers and livestock producers consult global databases, repositories, interactive tools and maps and the Tropical Grasslands-Forrajes Tropicales journal		

	to diagnose feed constraints and opportunities and to effectively prioritize and target feed and forage interventions, resulting in: a 10% improvement in utilization of feeds and forages, a 20% increase in animal production using improved feed and forage technologies, a 10% accuracy increase for biomass and quality estimation and at least 250,000 annual visitors to global databases, repositories,		website, documented by a total of 200,000 annual visitors.		

	interactive tools and maps and the Tropical Grasslands/ Forrajes Tropicales journal website.				
	F3 Outcome: Outcome 3.3 - National and international research and development partners and the private sector are using CRP developed forage and rangeland resources (with enhanced traits), in 30 countries and reaching producers who plant over 2 million ha, to increase the rate of genetic gain and		2021 - 3.3.12 National and international research and development partners and the private sector are using CRP developed forage and rangeland resources (with enhanced traits and demonstrated genetic gains), in >40 countries in the global tropics and subtropics and reaching producers who plant over 1.2 million ha.		

	exploit the genetic diversity of forages and rangeland species to enhance stress-tolerance, biomass productivity and nutritive value.				
	F3 Outcome: Outcome 3.4 - New forage and crop cultivars, superior to local (based on food, feed and fodder traits weighted according to target domains), made available by development partners, government agencies and the private sector and applied by farmers in 7 priority		2020 extended to 2021 - 3.4.1 Identified dual-purpose crops (food and feed) applied by 100,000 farmers in at least one country.	Completed	CGIAR barley varieties (Mostly food and feed) adopted by 460,000 households in Ethiopia (https://cas.cgiar.org/spia/publications/shining-brighter-light-comprehensive-evidence-adoption-and-diffusion-cgiar)
			2020 extended to 2021 - 3.4.5 Identified dual-purpose crops (food and feed), superior to local feeds made available by development partners, government agencies and the private sector and applied by 150,000 farmers in at least one country and at least one new additional dual purpose cultivar will		

	counties and other locations.		be released and 3 new promising cultivars tested in 3 new countries		
			2021 - 3.4.6 New and existing dual-purpose cultivars superior to local (demonstrated genetic gains) made available by development partners, government agencies and the private sector to farmers in 2 countries (Jordan, India) and new promising cultivars identified by CRP and partners in 2 further countries (Morocco, Ethiopia (and also India)).		
	F3 Outcome: Outcome 3.5 - National and international development partners, government agencies and		2020 extended to 2021 - 3.5.6 Training and feed certification system piloted and monitored in Uganda and one least cost diet designed and tested including aflatoxin binder inhibition effects with		

	extension services, the private sector and community-based organisations in 3 priority countries are using CRP-related research outputs for better utilization of existing and novel feed and forage resources. This will be through (a) scalable processing technologies, (b) management strategies to conserve and rehabilitate rangelands and (c) diet formulation that increases productivity while reducing overall		private sector and regulatory organs in Ethiopia		
			2021 - 3.5.8 Gender-responsive feed processing technologies and least cost diets are being applied by national and international development partners, government agencies and extension services, the private sector and community-based organizations in 2 countries (India, Ethiopia).	Partially complete	▪ 3 factsheets on indigenous forages of Ethiopia (link awaited) ▪ Report on ewe and ram nutritional flushing (partially complete because of interrupted trials due to security situation)

	feed and forage costs and environment impacts.				
	F3 Outcome: Outcome 3.6 - Livestock producers in 3 priority countries: apply management strategies to conserve and rehabilitate rangelands and pastures while ensuring ongoing ability to produce, preserve and store feed biomass and use diets that increase productivity while reducing overall feed and forage costs and		2021 - 3.6.5 Management strategies to conserve and rehabilitate rangelands and pastures are made available and used by stakeholders in 2 countries (India, Tunisia).		

	environmental impacts (with the environment and livelihoods flagships).				
	F3 Outcome: Outcome 3.8 - Increased delivery and uptake of feed and forage resources through proof-of-concept scaling, business model development and value-chain approaches by development partners, the private sector (feed and forage traders, feed processors) and (1 million by 2022) farmers across diverse		2020 extended to 2021 - 3.8.18 At least 3 regional multi-stakeholder feeds and forages platforms established in Kenya and at least 10 regional livestock roundtables functioning on their own in Colombia		
			2021 - 3.8.19 Synthesis documents on sustainable feed and forages business models and extension approaches made available to decision-makers in 3 countries in order to enhance the uptake of feed and forage resources (Tunisia, Colombia, Kenya).		

	environments in priority countries and other locations in Latin America, North and East Africa and South and Southeast Asia.				
F4	F4 Outcome: 4.2 Targeted solutions are used by research and development partners, across at least 10 priority countries and other locations, to increase the productivity of cattle, small ruminants and pigs in the face of ongoing environmental changes.		2020 extended to 2021 - 4.2.4 Quantification of environmental impacts guides development/ selection of productivity enhancing options in five countries		
			2021 - 4.2.5 Quantification of environmental impacts guides the development and selection of productivity-enhancing options by technology developers in six priority countries.		
			2021 - 4.2.6 Grassland management options and their effects on soil organic		

			carbon, soil health and productivity are documented in three countries.		
	F4 Outcome: 4.3 Government agencies and development partners at local and national levels across at least 10 priority countries and other locations are promoting environmental management options.		2021 - 4.3.4 Sustainable rangelands/ silvopastoral interventions in Kenya, Tanzania, Tunisia and Ethiopia are identified, tested and disseminated to livestock producers.	Contribution from Ethiopia	The first line of evidence for the success of the highland communal grassland management process comes from the willing, unsubsidized adoption of grazing management and intensive restoration techniques into formal government-registered management plans for 10 communal grasslands (1,264 households total; 325.5 ha total). The second line of evidence for the success of short-resting of grasslands will come from testing a portion of these management plans in 5 grasslands through action research trials focused on the effectiveness of end-of-season resting in improving grassland condition (results forthcoming following outcome measures in October 2021). For the highland communal grassland management process, dissemination is complete. For short-resting testing is complete and dissemination is not yet complete.
	F4 Outcome: 4.4 Gender responsive environmental management options that are well adapted to Global Environmental		2021 - 4.4.1 Role of women and young people in fostering environmental management promoted and strengthened across 3 CRP priority country communities and with development partners		

	Change are adopted by households (women and youth) in 6 countries.		2021 - 4.4.2 Gender-responsive environmental management options that are well adapted to global environmental changes are adopted by households (including women and young people) across at least 3 priority countries and other locations.		
	F4 Outcome: 4.5 National government agencies across at least 5 priority countries design and implement key policies to improve the environmental management of livestock systems		2021 - 4.5.3 Communities and development actors pilot payments for ecosystem services in 2 countries.		
			2021 - 4.5.7 Proven uptake of tools, frameworks and processes for improved rangeland governance and management in two priority countries.		
			2021 - 4.5.8 Feasibility of IBLI for on additional African country assessed, the results are shared with		

			policy makers and investors.		
	F4 Outcome: 4.6 Evidence generated by the flagship influences key global livestock agendas (IPCC, Global agenda for Sustainable Livestock)		2020 extended to 2021 - Feasibility of Index Based Livestock Insurance (IBLI) assessed in four countries		
			2021 - 4.6.5 Uptake of CRP research in the Global Land Restoration Agenda.		
F5	F5 Outcome: 5.2 International researchers and agencies use improved livestock system modelling tools and apply them to new problems based on their mandate areas		2020 extended to 2021 - 5.2.3 Livestock system modelling tools and databases improved with national and international partners to fit needs in 3 priority countries		
	F5 Outcome: 5.3 Policy- or decision-makers in		2020 extended to 2021 - 5.3.3 Benchmark publication on gender and		

	4 countries use the packages developed and the evidence on the benefits of including gender equity considerations In the development of livestock projects and planning at community and national level (Ethiopia, Kenya, Nicaragua, Vietnam)		livestock to identify frontiers in research and development published by December 2018.		
			2020 extended to 2021 - 5.3.2 CRP Gender strategy published by June 2018.		
			2020 extended to 2021 - 5.3.4 Policy or decision makers in 2 priority countries use evidence on the benefits of including gender equity considerations		
	F5 Outcome: 5.4 Local or national development partners in four priority countries adopt gender-transformative and youth-supportive approaches (using		2021 - 5.4.2 Gender transformative approaches have been developed and tested in 3 countries	Contribution from Ethiopia (joint ILRI/ICARDA)	For Ethiopia we have applied and tested community conversation since 2018. About 30 gender-responsive community conversation sessions were conducted in five sheep and goat value chain sites between 2018 and 2021, addressing different livestock development issues and engaging over 1500 (574 women) community members and research and development partners (see health report https://hdl.handle.net/10568/117284) Three reports on community conversations conducted in Ethiopia were completed related to - feeding and feed management (https://hdl.handle.net/10568/115621) - animal health (https://hdl.handle.net/10568/114132)

	the evidence from the strategic gender research done under the CRP)				- collective action (https://hdl.handle.net/10568/116374 and https://hdl.handle.net/10568/116511)
	F5 Outcome: 5.6 Livestock communities across 4 priority countries apply tested technologies, management strategies and institutional arrangements, taking the multiple functions of livestock into account		2021 - 5.6.2 Synthesis of impact assessment studies conducted on Livestock CRP promoted innovations	Contribution from Ethiopia	From Ethiopia we contributed with an assessment of impact of community-based veterinary and breeding services on welfare of small ruminant keepers. https://hdl.handle.net/20.500.11766/66304
			2020 extended to 2021 - 5.6.4 Livestock communities across 2 countries (Ethiopia and Kenya) apply tested technologies and management strategies based on CRP related research	Contribution from Ethiopia	I expect to see evidence of changes in livestock communities through the independent study of KIT.
	F5 Outcome: 5.7 Development partners, private sector and government agencies across 4		2020 extended to 2021 - 5.7.3 Development partners, private sector and government agencies in 2 priority countries apply innovative institutional		

	priority countries apply innovative institutional arrangements to enhance competitiveness and inclusiveness		arrangements to raise competitiveness and inclusiveness		

Table 8: Key external partnerships

List up to five important partnerships for 2021

Lead FP	**Brief description of partnership aims (30 words)**	**List of key partners in partnership. Do not use acronyms.**	**Main area of partnership (may choose multiple),** Research/Delivery/Policy/Capacity Development/Other, please specify _____
FP1	We developed Dtreo (data recording and management tool) which is being used in community-based sheep and goat breeding programs in Ethiopia and Tanzania	AbacusBio limited	Delivery
FP1	We partnered to establish market linkage between community-based breeding cooperatives and the slaughterhouse	Allana slaughterhouse	Delivery
FP3	Continued Training national researchers on identification of unexploited indigenous forage resources	South Agricultural Research Institute; Amhara Regional Agricultural Research Institute	Research and development
FP4	Continued: Training national researchers on grassland management, monitoring, and experimentation with community grassland user groups	Debre Birhan Research Center	Research and Development

Table 9: Internal Cross-CGIAR Collaborations

Include collaborations with one or more CRPs or Platforms – or with other Centers, if these are not already core partners for your CRP

Brief description of the collaboration	**Name(s) of collaborating CRP(s), Platform(s) or Center(s)**	**Value added, in a few words** e.g. scientific or efficiency benefits
Community-based breeding programs have been piloted in Ethiopia over many years. CCAFA and CRP livestock partner to disseminate improved genetics from pilot CBP sites to climate smart villages	CRP livestock and CCAFS	We jointly implement community-based breeding programs in climate smart villages in Ethiopia

Table 10: Monitoring, Evaluation, Learning and Impact Assessment (MELIA)

Indicate the Status of Evaluations, Impact Assessments etc. conducted in 2021 – contact Caroline Kanyuuru for guidance on types/descriptions if necessary. Studies included in this table should be limited to those that have as a prime objective the CRP's own learning and internal accountability about the CRP's own activities and outputs.

Studies/learning exercises planned for this year (from POWB Please add any others that were not in the POWB but were carried out this year)	**Status** Complete/Partially completed/Cancelled/ Changed	**Type of study or activity** 1. EPIA (Ex-post Impact Assessment) 2. Ex-post adoption study 3. Program/project adoption or impact assessment 4. Correlates of adoption/impact study 5. Qualitative Outcome Study (mainly to substantiate contribution to policy or similar) 6. Program/project evaluation or review 7. Synthesis (secondary) study) 8. Ex-ante, baseline and/or foresight study 9. Other MELIA activity (please specify)	**Description of activity/study** (see guidance) (max. 150 words)	**Links to MELIA publications**
Impact assessment of community-based sheep and goat breeding programs	Completed	EPIA (Ex-post Impact Assessment)	Community-based breeding programs have been implemented through CRP livestock and other supports for more than 10 years.	https://hdl.handle.net/20.500.11766/66908

			This is a quantitative impact assessment of CBBP using three sheep CBBPs as a case study	
Assessment of effect of gender capacity development of research and development partners at three sites (training and coaching)	Completed	Qualitative Outcome Study	Training and coaching of selected research and development partners were carried out in three sites in the last years. We commissioned a qualitative study to evaluate what changes in the partners' KAP have occurred and if action plans were carried out.	https://hdl.handle.net/20.500.11766/66571
Assessment of changes in next users	Completed	Qualitative Outcome Study	KIT led survey of producers, youth fgroups, extension & vet services and regional level policy-makers in three sites in Ethiopia	Survey complete, https://hdl.handle.net/10568/117223

Table 11: Update on Actions Taken in Response to Relevant Evaluations

Name of the evaluation	Recommendation number (from evaluation)	Text of recommendation (can be shortened)	Status of response to this recommendation: Completed/ Ongoing	Concrete actions taken for this recommendation (one row per action)	By whom (per action)	When (per action)	Link to evidence
CRP 2020 Review: Livestock	1	CRP quality managers need to ensure that 100% of peer-reviewed research outputs are open access (where commercially possible) and in ISI-indexed journals.					
	3	To the extent possible, flagship achievements should be pushed					

CRP 2020 Review: Livestock		to the next level within the remaining time frame - e.g., innovations currently at level 2 should be pushed to level 3, and policies at level 1 should be pushed to level 2.					
CRP 2020 Review: Livestock	4	Exit strategies need to be developed immediately to ensure the smooth continuation of the country programs. Useful lessons from the "Cross-Country Learning Week" should be widely disseminated.					

Table 12: Examples of W1/2 Use in this reporting period (2021)

The objective of this table is to self-report key activities and deliverables that were funded through W1/2 in the past year.

Please give specific examples, one per row (including through set aside strategic research funds or partner funds) Max 50 words/example, but aim for 30	**Broad area of use of W1/2: Research / Delivery / Partnerships / Capacity Development / Other cross-cutting / Policy / Pre-start-up / Contingency or Emergency / MELIA / Other (specify)**
FP1: Establishment of fully functional low-cost reproductive labs for dissemination of improved genetics in Ethiopia	Delivery
FP1: Support for the celebration of 10 years of community-based breeding program which brought together more than 100 partners (actors) to not only celebrate success but also plan future directions	Partnership/ delivery
FP1: Video on story of community-based breeding programs in Ethiopia	Delivery
FP2: Supply of vaccines and drugs to partners for implementing herd health interventions	Research & Delivery
FP2: Technical support for community conversations related to Livestock Health	Capacity development/Gender
FP3: Radio-based extension of information and improved techniques for improved and market-oriented sheep fattening in 5 languages	Capacity development/extension
FP3: Participatory training of farmers on nutritional flushing for both ewes and breeding rams, thereby fully engaging them in the selection and formulation of balanced rations	Capacity development
FP4: Action research with community on sustainable grazing management	Research
FP4: CLEANED assessment for SmaRT pack	Research
FP5: Community conversations related to livestock health, feeding and collective action	Gender/Capacity Development

FP5: Development of marketing models for four Smart Pack sites	Research
Shared: Field coordination of all interventions across flagships	Delivery
Country management: SmaRT Ethiopia Stakeholder workshop	Partnerships

Part C: 2021 Deliverables

Please insert a table with the agreed deliverables in your PPA/program agreement/priority country project, indicating the status of each: complete (providing evidence link) or cancelled (giving reason).

Delive-rable ID	Status/Links	Comments	FP/Deliverable Title	Expected year of completion (Initial)	Subtype	Individual responsible
D18416	cancelled		(LLAFS) Report on training of collective action for 4 sites	2020	Discussion paper/Working paper/White paper	*Kassie, Girma Tesfahun (ICARDA)
D18417	cancelled		(LLAFS) Report on feedback and gender capacity need/priority areas of development	2020	Discussion paper/Working paper/White paper	*Rischkowsky, Barbara Ann (ICARDA)
D18420		under preparation	(LLAFS) Report on marketing models for 4 SR VC sites	2020	Discussion paper/Working paper/White paper	*Kassie, Girma Tesfahun (ICARDA)
D18421	cancelled		(LLAFS) Report on discussion of marketing models at national level	2020	Research workshop report	*Kassie, Girma (ICARDA)
D18422	https://hdl.handle.net/10568/114870		(Shared) Community and district level MSP activity reports in 4 selected VC sites (Doyogena, Bonga, Abergele and Menz)	2020	Discussion paper/Working paper/White paper	*Tigabie, Abiro (ICARDA)

D18424	https://hdl.handle.net/20.500.11766/66934		(Shared) Brief report on follow-up on partnership landscaping	2020	Discussion paper/Working paper/White paper	*Rischkowsky, Barbara Ann (ICARDA)
D18579	https://hdl.handle.net/20.500.11766/66849		(F&F) Report on training of trainers for at least 60 development workers and 40 youth group leaders on the use of ESD manuals	2020	Discussion paper/Working paper/White paper	*Wamatu, Jane (ICARDA)
D18581	https://hdl.handle.net/20.500.11766/66847		(F&F) Report on identified and rolled-out profitable and youth friendly business models for sheep fattening youth groups in Doyogena, Bonga and Menz	2020	Discussion paper/Working paper/White paper	*Wamatu, Jane (ICARDA)
D18582	cancelled	Inadequate data available. WELBI and gender norms study did not take place due to logistical issues arising from ILRI colleagues.	(F&F) Report on strengthening gender capacities of youth groups	2020	Discussion paper/Working paper/White paper	*Wamatu, Jane (ICARDA)
D18623	https://hdl.handle.net/20.500.11766/66495	complete (but limited access), entered in MARLO	(GENETICS) Report on field implementation of certification of improved rams and bucks in Menz and Bonga	2020	Discussion paper/Working paper/White paper	*Haile, Aynalem (ICARDA)
D18625	cancelled		(GENETICS) Report on business opportunities for ultrasonography in community flocks for 4 selected VC sites (Doyogena, Bonga, Abergele and Menz)	2020	Discussion paper/Working paper/White paper	*Haile, Aynalem (ICARDA)

D25223	partially complete	Trials were delayed but still ongoing; trials were highly interrupted by unavailability of feed supplements due to ongoing security situation in Ethiopia	(F&F) Guidelines on nutritional flushing for breeding ewes & rams in Ethiopia	2021	Guidebook/Handbook/Good Practice Note	*Wamatu, Jane (ICARDA)
D25224	https://hdl.handle.net/20.500.11766/12541	completed in 2020	(F&F) Report on training of farmers and development agents on preservation/supplementation of cultivated forages for small ruminant fattening in one target district in Ethiopia	2021	Discussion paper/Working paper/White paper	*Wamatu, Jane (ICARDA)
D25225	cancelled	duplicate of D18581	(F&F) Final report on effective sheep fattening business models in three VC sites in Ethiopia	2021	Discussion paper/Working paper/White paper	*Wamatu, Jane (ICARDA)
D25543	https://hdl.handle.net/20.500.11766/66570	entered in MARLO	(GENETICS) Report on performance of the sheep and goat breeders' cooperatives in Ethiopia	2021	Discussion paper/Working paper/White paper	*Haile, Aynalem (ICARDA)
D25561	complete	CG Space link awaited	(GENETICS) Policy brief on certification process for improved rams and bucks from community-based breeding programs in Ethiopia	2021	Policy brief/policy note/briefing paper	*Rekik, Mourad (ICARDA)
D25562	cancelled		(GENETICS) Report on technical feasibility and financial benefits of use of ultrasonography as a management tool for pregnancy detection in sheep and goat in Ethiopia.	2021	Discussion paper/Working paper/White paper	*Rekik, Mourad (ICARDA)

D25670		under preparation	(LLAFS) Implementation framework for marketing models	2021	Discussion paper/Working paper/White paper	*Kassie, Girma Tesfahun (ICARDA)
D25671	cancelled		(LLAFS) Workshop summaries on discussion related to marketing models	2021	Research workshop report	*Kassie, Girma Tesfahun (ICARDA)
D25672	https://hdl.handle.net/10568/114132		(LLAFS) Report on community conversations conducted in Ethiopia related to animal diseases and health management	2021	Discussion paper/Working paper/White paper	*Rischkowsky, Barbara Ann (ICARDA)
D25771	https://hdl.handle.net/20.500.11766/66848		(F&F) Nine monthly radio shows on market-oriented improved sheep fattening practices with recorded number of tune ins in South-Western region of Ethiopia	2021	Multimedia	*Wamatu, Jane (ICARDA)
D25849	completed	MEL link awaited	(Management) Ethiopia country annual report 2021	2021	Discussion paper/Working paper/White paper	*Rischkowsky, Barbara Ann (ICARDA)
D25850	completed	MEL link awaited	(Management) Report on annual planning meeting	2021	Research workshop report	*Rischkowsky, Barbara Ann (ICARDA)
D18577	Partially complete	Trials were delayed but still ongoing, highly interrupted by unavailability of feed supplements due to ingoing security situation in ETH	(F&F) Guidelines on nutritional flushing for breeding ewes & rams in Menz	2020 extended to 2021	Guidebook/handbook/good Practice Note	*Wamatu, Jane (ICARDA)

D18578	https://dx.doi.org/20.500.11766/66891		(F&F) Reports on supplementation of adaptable forages for sheep fattening in Doyogena and Bonga	2020 extended to 2021	Thesis	*Wamatu, Jane (ICARDA)
D18579	https://hdl.handle.net/20.500.11766/66962		(F&F) Report on training of trainers for at least 60 development workers and 40 youth group leaders on the use of ESD...	2020 extended to 2021	Discussion Paper/working Paper/white Paper	*Wamatu, Jane (ICARDA)
D18580	https://hdl.handle.net/20.500.11766/66828		(F&F) Manual for Business development service packages (e.g. Financial literacy, Marketing & operational manuals for...	2020 extended to 2021	User Manual/technical Guide	*Wamatu, Jane (ICARDA)
D18581	https://dx.doi.org/20.500.11766/66847		(F&F) Report on identified and rolled-out profitable and youth friendly business models for sheep fattening youth groups...	2020 extended to 2021	Discussion Paper/working Paper/white Paper	*Wamatu, Jane (ICARDA)
-	cancelled	Interruption in data collection and lost data due to COVID and Security situation in Ethiopia	(F&F) Comprehensive feeding and management calendar for Ethiopian value chain sites		Discussion Paper/working Paper/white Paper	*Wamatu, Jane (ICARDA)

New (D33145)	https://hdl.handle.net/10568/116374		(LLAFS) Community conversations on collective livestock marketing: The case of Menz Mama District, Ethiopia	2021	Discussion paper/Working paper/White paper	*Tigabie, Abiro (ICARDA)
new (D34522)	https://hdl.handle.net/10568/116511		(LLAFS) Community conversations on collective livestock marketing: The case of Doyogena District, Ethiopia.	2021	Discussion paper/Working paper/White paper	*Tigabie, Abiro (ICARDA)
D34512	https://hdl.handle.net/10568/117273		(LLAFS) Innovation brief: Community conversations empower women and transform gender relations in rural Ethiopia.	2021	Factsheet, Project note	*Tigabie, Abiro (ICARDA)
New (D34513)	https://hdl.handle.net/10568/117293		(LLAFS) Innovation brief: Strengthening Gender Capacity of Livestock Research and Development Partners in Ethiopia.	2021	Factsheet, Project note	*Rischkowsky, Barbara Ann (ICARDA)
New (D32288)	https://hdl.handle.net/10568/115621		(LLAFS) Report on community conversations conducted in Ethiopia related to feeding and feed management	2021	Discussion Paper/working Paper/white Paper	*Tigabie, Abiro (ICARDA)
D25781	cancelled	Same deliverable as D25783	(HEALTH) Project report on all interventions	2021	Discussion Paper/working Paper/white Paper	*Mekonnen, Mesfin (ILRI)
D25782	https://hdl.handle.net/10568/113561		(HEALTH) Community Conversation training modules on herd health	2021	Guidebook/handbook/good Practice Note	*Dione, Michel (ILRI)

D25783	https://hdl.handle.net/10568/117284		(HEALTH) Report on impact of animal health interventions	2021	Discussion Paper/working Paper/white Paper	*Mekonnen, Mesfin (ILRI)
D25784	https://hdl.handle.net/10568/117714		(HEALTH) Roll out of herd health manager app in CRP sites	2021	Discussion Paper/working Paper/white Paper	*Gizaw, Solomon (ILRI)
D25853	https://hdl.handle.net/10568/116596		(Environment) Community grassland management options assessment tool for northern Ethiopia	2021	Data Portal/tool/model Code/computer Software	*Sircely, Jason (ILRI)
D25875	https://hdl.handle.net/10568/115718		(Environment) Community grassland management policy brief for northern Ethiopia	2021	Policy Brief/policy Note/briefing Paper	*Sircely, Jason (ILRI)
D25876	https://hdl.handle.net/10568/116882		(Environment) Community grassland management implementation guide for northern Ethiopia	2021	Guidebook/handbook/good Practice Note	*Sircely, Jason (ILRI)
D31900	https://hdl.handle.net/10568/114078		(HEALTH) A report of monitoring and coaching partners on community conversation implementation and uptake	2021	Lecture/training Course Material	*Dione, Michel (ILRI)
D31901	https://hdl.handle.net/10568/116511		(HEALTH) Reflections from community conversations on collective livestock marketing in Ethiopia	2021	Research Workshop Report	Tigabie, Abiro (ICARDA)
New (D32056)	https://hdl.handle.net/10568/114503		(ENVIRONMENT) Presentation for CLEANED environmental footprint validation workshop	2021	Presentation/poster	*Notenbaert, An (ABC)
D18272	https://hdl.handle.net/10568/115717		(ENVIRONMENT) Restoration and grazing trial protocols	2020 extended to 2021	User Manual/technical Guide	*Sircely, Jason (ILRI)

D18642	https://hdl.handle.net/10568/114686		(ENVIRONMENT) Baseline environmental footprints Ethiopian livestock production systems	2020 extended to 2021	Discussion Paper/working Paper/white Paper	*Notenbaert, An (ABC)
D25169	https://hdl.handle.net/10568/116878		(ENVIRONMENT) Report on environmental impacts of intervention packages	2021	Discussion Paper/working Paper/white Paper	*Notenbaert, An (ABC)

Annex 1: List of innovation briefs

No	Titles	Links in CGSpace
1	Gender: Community conversations empower women and transform gender relations in rural Ethiopia.	https://hdl.handle.net/10568/117273
8	Livestock Health: Integrated herd health approach to reduce impact of respiratory diseases.	https://hdl.handle.net/10568/117275
2	Livestock Health: Improved reproductive performance of sheep and goats supports rural livelihood and food security.	https://hdl.handle.net/10568/117279
3	Livestock Health: Coenurosis control – break the cycle.	https://hdl.handle.net/10568/118140
4	Livestock Health: Community-based control of gastro-intestinal tract parasites in sheep and goats	https://hdl.handle.net/10568/117274
5	Livestock Genetics: DTREO: A Digital Genetic Platform provides better data for improved community-based sheep and goat breeding	https://hdl.handle.net/10568/117323
6	Livestock Genetics: Community-based sheep and goat breeding programs in low input systems	https://hdl.handle.net/10568/117345
7	Livestock livelihoods and agri-food systems: The demand for and impact of Improved livestock market facilities.	https://hdl.handle.net/10568/117346
9	Livestock Genetics: Field solution for artificial insemination of sheep and goats in low input systems.	https://hdl.handle.net/10568/117433
10	Livestock Genetics: Ultrasound to diagnose pregnancy and reproductive disorders in sheep and goats.	https://hdl.handle.net/10568/117322

11	Livestock Feeds & Forages: Sheep fattening is creating entrepreneurial opportunities for youth, including young women in Ethiopia.	https://hdl.handle.net/10568/117294
12	Gender: Strengthening the gender capacities of research and development partners in Ethiopia	https://hdl.handle.net/10568/117293
13	Impact of market information on market participation and income of small ruminant keepers: Experimental evidence from Ethiopia	https://hdl.handle.net/10568/117292