

Transforming Ethiopia's forage seed system: Recommendations from a policy dialogue workshop among forage seed sector stakeholders Addis Ababa, Ethiopia

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Published by International Livestock Research Institute

December 2023

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Abbreviations

ATI	Agricultural Transformation Institute
ABC	Alliance of Bioversity International and CIAT
EIAR	Ethiopian Institute of Agricultural Research
MoA	Ministry of Agriculture
SNV	Stichting Nederlandse Vrijwilligers
ILRI	International Livestock Research Institute

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Background

A policy dialogue meeting on the forage seed system in Ethiopia was held on December 11, 2023, in Addis Ababa. The meeting was part of the Diversification in East and Southern Africa Initiative, co-convened by ATI, EIAR, MoA and SN, and brought together 40 participants representing a wide range of stakeholders with diverse interests and experience in the forage seed system.

The meeting format included a mix of presentations, plenary discussions, and breakout sessions in four working groups. This allowed for a comprehensive exchange of information and perspectives on the current state of the forage seed system in Ethiopia, as well as the identification of key challenges and opportunities for improvement.

Objective of the meeting

The final goal of the dialogue was to strengthen the seed system so that cultivated forage crops can make a much greater contribution to livestock productivity, farmer well-being and the rural economy, while also bringing benefits to the environment. Participants recognized that a wide range of interventions will be required to reach this goal. Some are technical or operational matters that could bring improvements in the short term, while others are more strategic and will need high-level support, but all should be endorsed at the policy level. We hope that through this dialogue, policy makers and stakeholders will have a clear understanding of the challenges of the forage seed system and will then work together to address them.

Summary of recommendations

1. The forage seed system must move to a more market-driven model with parallel thrusts to stimulate forage production and ensure that high-quality seed is easily available to farmers.
2. Many companies have entered the market but their link to the research system is weak; an agreed protocol should be prepared to formalize this relationship and preserve the identity of varieties. Breeders also need support for the management of early-generation seed.
3. A quality assurance system must be put in place to provide confidence to buyers; certification is not functioning at present due to resource limitations and an alternative approach such as quality declared should be considered as an interim measure.
4. Whatever system of quality assurance is adopted, the capacity for seed testing must be increased both in terms of physical facilities by investment and human resources by training.

5. The tender system used by institutional is unsuitable for seeds and has prevented the development of a real market; alternative approached should be considered.
6. Donor funds are used to support the purchase of seeds through the tender system but this distorts the market; donors should be consulted on more effective ways to deploy their funds.
7. There is a lack of extension materials on how farmers should grow and use forage crops; there should be a combined effort by companies, development agencies and donors to provide simple information in local languages and linked to seed supply.
8. Investment is required at some key points in the supply chain and this should be prioritized in the allocation of government budgets or funds from donor projects.
9. It is essential that cultivation of forage crops and the supply of forage seeds are recognized as mainstream supports to the livestock sector and given high priority by administrative and regulatory bodies at all levels of government, for example in land allocation.
10. A formal entity should be established to provide a focus for coordination and information exchange among stakeholders in the forage seed sector, and to carry this dialogue forward.

Context:

Livestock are a cornerstone of the rural economy, whether in the lowland pastoral areas, intensively-farmed highlands or in the evolving dairy industry. Three main elements contribute to the productivity of these animals, namely genetic status, feeding and health. Substantial advances have been made in breeding and in veterinary services and the private sector has become active in both these areas, in partnership with government agencies, but improvements in nutrition are more difficult. The main feed sources are low quality crop residues and natural pastures, which are under serious pressure and at risk of degradation. These issues and threats should be addressed as matter of urgency and they can make a significant contribution to the current '*bountiful basket*' program.

Manufactured feeds and cultivated forages contribute only 3% of the total requirement and these are the sources that must be expanded if our livestock are to be more productive. Manufactured feeds have advantages in terms of storability and transport but they require substantial investment in equipment and a regular supply of inputs, some of which are imported. In contrast, forages can be cultivated by livestock keepers directly or by nearby crop farmers as a source of cash. They provide nutritious feed material at low cost and have additional benefits in the crop rotation.

Increasing the use of cultivated forages has been advocated for many years but with limited success; lack of good quality seed is regularly cited as a key constraint. After

training provided by ILRI, several private companies have entered this business and seed production has increased substantially but there are still weaknesses in the supply chain. These were discussed in the meeting and are summarized below, starting at the research stations and extending through to the sowing, cultivation and use of forage crops by farmers.

Summary of discussions

The research - production linkage: Over 80 varieties are listed in the Crop Variety Register and new ones are added each year after a review of trials data by the National Variety Release Committee. In practice, some of the listed varieties are obsolete and no longer in cultivation so a relatively small number are available within each crop (species). Breeders maintain these varieties at the research stations and produce 'early generation seed' (EGS) with high genetic purity. This work is not technically demanding but it must be done to a high standard and breeders have very limited resources, particularly for the secure storage of their seed stocks.

Companies take early-generation seed from research and multiply it but there is no formal procedure for this transfer and once in the production system, bags are labelled only with the species and the identity of varieties is lost. This is a serious weakness and undervalues the work done by EIAR breeders. Moreover, other actors down the seed chain specify only the species when they purchase seed and overlook the importance of varieties. A formal procedure (protocol) for EGS transfer should be agreed and followed by all parties, with records kept of the seed stock used. Once in the production system, seed bags labels should always include the variety name and with a reference number traceable back to the breeder, ideally forming part of an overall quality assurance system.

The production system and quality assurance: Production is now done almost entirely by commercial companies who multiply the seed obtained from research stations through one or more generations. Following normal seed industry practice, they use contact growers rather than their own land to provide flexibility in the production program. The detailed arrangements between company and growers are confidential but the key requirement is that the company monitors the crop in the field to ensure that it is managed correctly to obtain seed of high quality. Forage seed production is a specialized task and with each season both company and growers gain experience in how to maximize yield and quality. This should be complimented by further training from ILRI, which has substantial experience in seed production technology.

All participants emphasized the need for a quality control system to underpin the production and marketing system and certification is the recognized procedure for

doing this. However, If implemented fully, it is a demanding process in terms of both human and physical resources. Certification schemes are available in Ethiopia for all important crops but they are not being used for forages due to a lack of resources in the responsible authorities, and the priority given to cereals crops, especially maize and wheat.

Quality Declared Seed (QDS) is an alternative system that transfers much of the responsibility to producers and reduces the burden on the official system to a monitoring role. This would be appropriate for forage seeds as an interim measure but the current legal framework prevents the use of QDS by registered seed companies. It is intended only for cooperatives and for localized distribution, whereas forage seeds need to move freely between producers and users throughout the country. Studies by ILRI and donors have explained how the QDS approach could be adapted to meet the needs of forage seed producers.

The lack of good seed testing facilities is a serious problem for all actors. Producers need to monitor the quality of their seed stocks in store and buyers likewise need this information as a basis for purchase. Purity and germination are the main quality attributes and testing forage seeds is a more specialized task than for cereals, but not difficult if the right facilities are available and staff have been trained. The ILRI Germplasm Unit has all the necessary expertise in these tasks. Quality standards have been prepared for all species by the Standards Institute and these form part of the certification scheme but they may be too stringent for producers to achieve in practice and they should be reviewed.

The forage seed market: The pathway by which seed moves from producer (company) to user (farmer) is largely through a system of tenders invited by government agencies and NGOs with funding provided by donors through their projects or emergency relief schemes. Although this is a standard procedure for purchasing by governments, it is unsatisfactory for seed because it places emphasis on quantity and price rather than quality. This is probably one of the reasons for the history of complaints about seed quality. This bidding system also obscures the true price of seed based on its production cost so it is an artificial market.

Donors direct substantial funds to support the purchase of seeds by institutional buyers, mostly in the regional bureaus, but when this seed reaches farmers, it is distributed free of charge as a development activity and farmers do not expect to pay. This has set a very bad precedent that has undermined the establishment of a market. In addition, the funds available for seed purchase vary from year to year and this makes it difficult to plan production.

As a result of all these factors, there has been very little consistent demand for forage seed and the area planted with forage crops remains small. There are alternative models of seed supply that connect producers and users more closely, for example under the SNV 'BRIDGE' project that is supporting small-scale dairy enterprises. This promotes stronger linkages in the supply chain and encourages producers to develop a reputation for quality. Access to seed in convenient units is another key element for creating demand and agro-dealers can play a key role in this. The 'One-Stop-Shops' supported by ATI can also stimulate this process as part of their plan to become more active in the livestock sector.

The forage seed business has some distinct characteristics and is a separate entity within the seed trade at national and global levels. This is also reflected in the new companies that have emerged in recent years in Ethiopia. A commercial market naturally creates competition between suppliers but there should be a shared interest in expanding the total market. A past project established an association of forage seed producers and this should be encouraged, for example by delivery of training activities and information through the association.

Extension services: In addition to the problems of the production and delivery system, farmers need support if they are to adopt forage crops and thus create a sustainable demand. Extension services have given little attention to the cultivation of forages and unlike food crops, there is little experience at household or community level. To support all these efforts at 'the last mile' a concerted effort should be made to generate simple training materials in local languages for DAs or companies and these should be used in conjunction with seed supply as part of a package approach. This should include information about the main varieties that are available and create greater awareness of them.

Local markets for fresh and dried forages would provide a mechanism to connect producers and users and would be an incentive for farmers by establishing a known price. Such informal markets do exist in some areas and they should be encouraged by local authorities.

Coordination of the forage seed system: All the working groups emphasized the need for better coordination between the various actors to eliminate gaps, share information and implement the recommendation of the workshop. This becomes more important as the market is supplied increasingly by a range of private companies, each with their own business plans. However, they will continue to

depend on projects and government initiatives for market development. ILRI has previously established an informal Forage Seed Consortium to bring all interested parties together and this should be carried forward on a more formal basis to coordinate and monitor both seed production and forage development. This forum must also take account of initiatives by the government and by donors that may impact on forages.

Investment: Some recommendations of the meeting will require investment in physical resources, for example to improve seed testing facilities within the regulatory authorities and private companies. This is a serious constraint in parts of the supply chain and should given high priority when allocating official development budgets or providing tax incentives for companies.

Acknowledgment

The policy dialogue workshop was financed by the Ukama Ustawi: Diversification in East and Southern Africa Initiative