



Better lives through livestock

Overview of the ILRI forage genebank collection and development of best bet forage genotypes

Ermias Habte

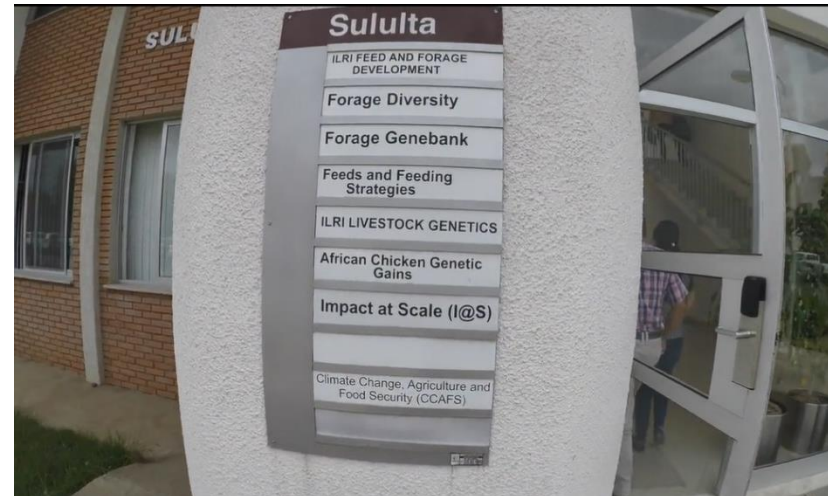
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Presented at the workshop on forage screening initiatives in different agro-ecologies and socioeconomic setups

ILRI Genebank

- ❖ The main objective is to conserve, make available and promote and maximize uses of the biodiversity in compliance with international obligations, for current and future generations.



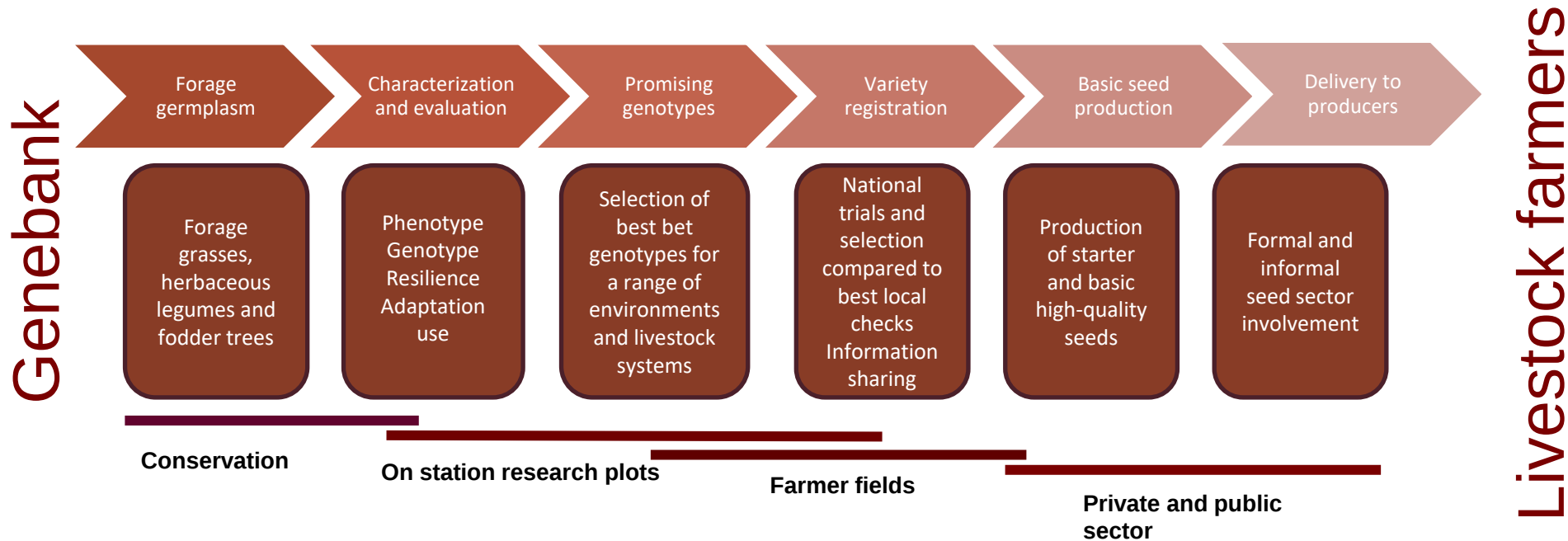
ILRI genebank

- It is one of the most diverse collections of forage grasses, legumes and fodder tree species held in any genebank in the world.

Forage type	Total accessions	Species
Browse	4421	527
Grasses	10517	688
Legumes	3726	629
Total	18664	1844

Exploring the potential of forage collection

Unlock the forage value of ILRI genebank forage genetic resources



Exploring the potential of ILRI forage collection

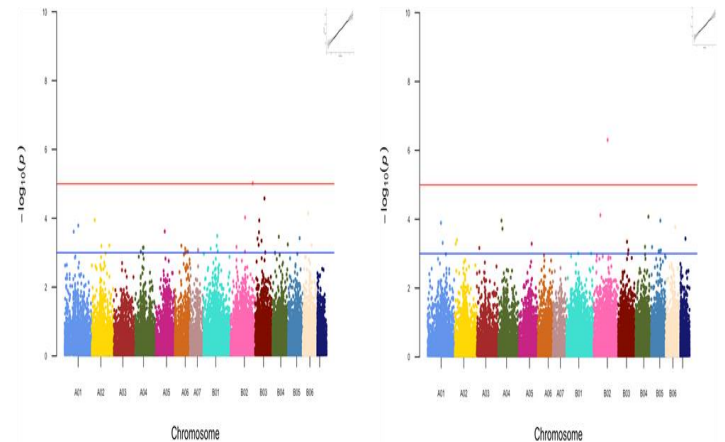
Phenotype and Genomics tools employed

- ❖ To identify performances genotypes for forage yield and quality
- ❖ Explore the diversity and identify genetic loci associated with desirable traits.



Promising candidate genotypes identified :-

- ❖ High forage value and
- ❖ Adaptation to different environmental factors (drought/waterlogging) conditions



Napier grass field evaluation



Wet season



Moderate water stress



Severe water stress

Napier grass growing under wet season or dry season (moderate water stress and severe water stress)

Top yielding genotypes

Accession #	Wet-TDW (t/ha)	Accession #	MWS-TDW (t/ha)	Accession #	SWS-TDW (t/ha)
16791	20.4 ^a	16819	2.8 ^a	16819	2.5 ^a
16819	18.3 ^b	16803	2.7 ^{ab}	CNPGL 92-66-3	2.4 ^{abc}
BAGCE 30	17.4 ^c	16839	2.5 ^{bc}	16839	2.3 ^{bcd}
CNPGL 93 -37-5	16.4 ^d	BAGCE 30	2.5 ^{bcd}	BAGCE 100	2.3 ^{bcd}
16802	16.3 ^d	16811	2.5 ^{bcd}	BAGCE 30	2.2 ^{bcd}
BAGCE 100	16.2 ^d	16795	2.4 ^{cde}	16791	2.2 ^{cd}
BAGCE 34	15.4 ^e	CNPGL 92-66-3	2.4 ^{cde}	16795	2.2 ^{cd}
BAGCE 93	15 ^{ef}	CNPGL 93 -37-5	2.4 ^{cde}	CNPGL 93 -37-5	2.2 ^{cd}
CNPGL 92-198-7	14.9 ^{ef}	BAGCE 93	2.3 ^{def}	16802	2.2 ^{cd}
15357	14.7 ^f	14982	2.3 ^{ef}	BAGCE 93	2.1 ^d

Advanced Napier candidate genotypes for variety test

Productive (WUE)
Accessions

BAGCE 30 (59 t/ha)

16791 (56 t/ha)

16802 (55 t/ha)

BAGCE 100 (54 t/ha)

16819 (53 t/ha)

16839 (48 t/ha)

Advanced to NVT

Cow pea screening and best bets identified



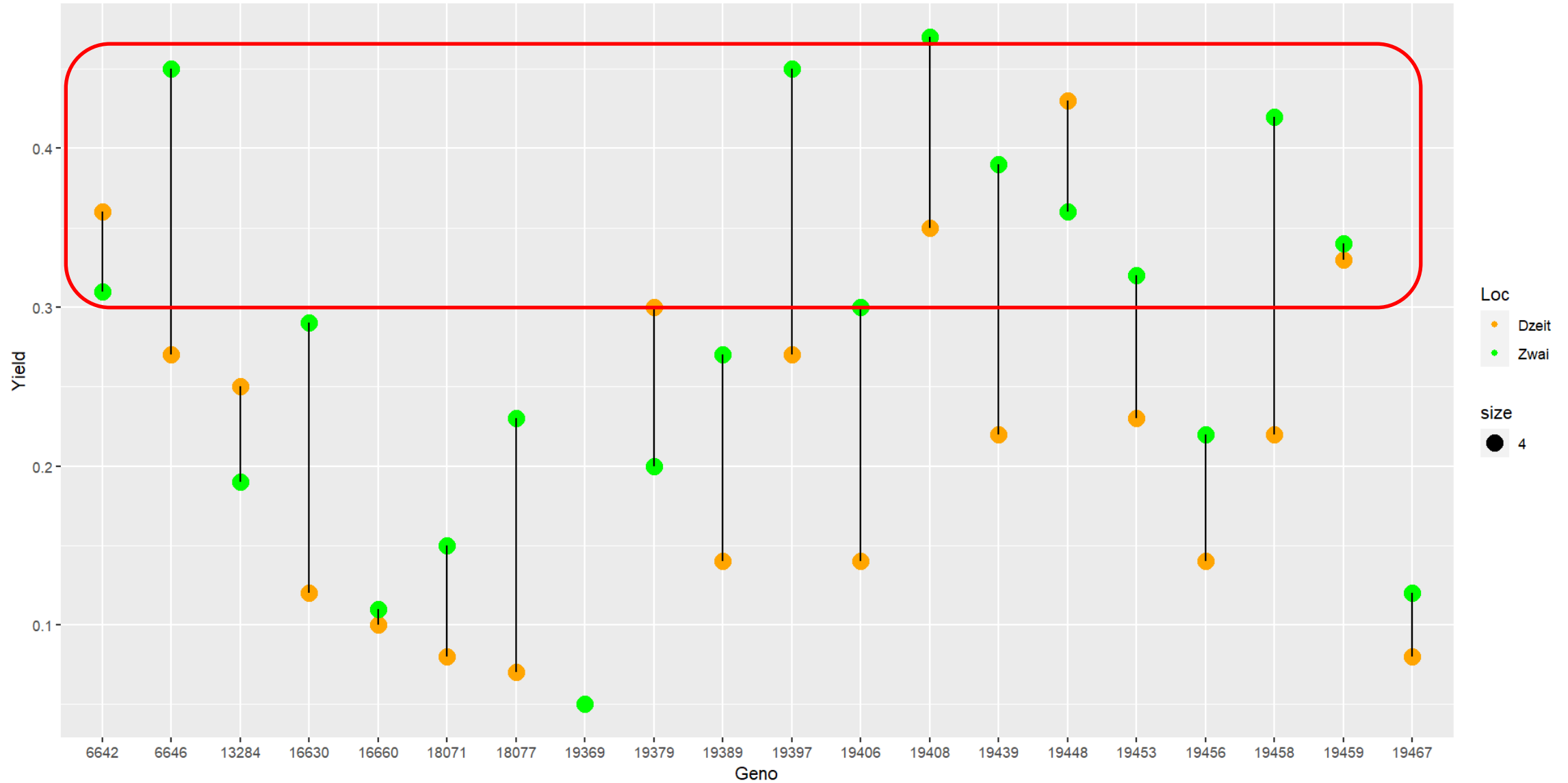
Productive accession	Trait	Productive accession	Trait
9339	Forage	9654	Grain yield
12655	Forage	11989	Grain yield
12657	Forage	12654	Grain yield
25335	Forage	12726	Grain yield



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CGIAR

Yield performance of accessions at Bishoftu (orange) Zwai(green)





Collaborative ILRI_EIAR forage screening

- Lablab genotypes screening for moisture limited and humid environments.
- 169 accessions of Lablab from ILRI genebank evaluated
 - Bishoftu, Melkassa, Mieso
- Oats genotypes screening for high altitude and waterlogging condition tolerance.
- 50 Oats acc. ILRI and 119 EIAR collection
 - Addis, Holetta, Ada Berga

Lablab candidate genotypes for variety test



Early flowering accessions

149 (9.6 t/ha)
18604 (8.3 t/ha)
14405 (7.8- t/ha)
11615 (7 t/ha)
21039 (6 t/ha)

Late flowering accessions

18637 (12.7 t/ha)
14423 (9.6 t/ha)
6536 (8.4 t/ha)
14439 (8.1 t/ha)
142 (7.6 t/ha)

Advanced to
NVT

Promising oats accessions identified



Productive accessions	TFW_t_ha
5495	6.7
5470	6.6
5482	6.1
5501	6.1
5469	5.8
5451	5.8
5519	5.6
5471	5.6
5457	5.5
5504	5.5
5537	5.4

Irrigated forage in low land areas



Seed grower Afar region



Forage producer adaptation
test to alkaline soils (Perennial
legume and grasses)



Forage producer Southern Ethiopia

Thank you

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ILRI thanks all donors and organizations who globally supported its work through their contributions to the **CGIAR system**

Patron: Professor Peter C Doherty AC, FAA, FRS

Animal scientist, Nobel Prize Laureate for Physiology or Medicine—1996

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

ilri.org
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ILRI is a CGIAR research centre

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

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