Africa RISING in the Ethiopian Highlands

Livestock: Africa RISING science, innovations and technologies with scaling potential from the Ethiopian Highlands

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Key messages

- Adoption of improved forage cultivation is indispensable to improve livestock productivity, income and environment health
- When farmers are allowed to experiment with improved forage production and utilization, they are willing to invest land and resources
- Matching the right forage with the right niche is key in triggering crop-livestock intensification

Objectives and approach

1. Demonstrate and evaluate improved forage cultivation and utilization practices for wider adoption
2. Integrate multipurpose fodder trees in the mixed system (Fig.1)
3. Test and evaluate improved postharvest feed handling and utilization techniques

Technologies: tree Lucerne; oat-vetch mixture, desho grass, sweet lupine, feed troughs and storage sheds, choppers

Approach: Action research was initiated by involving more than 600 farmers across the Africa RISING sites. Innovation platforms and farmer research groups were used as vehicles.

Key results

- Farmers produced high amount of good quality feed biomass from small plot of land (Fig. 2)
- By supplementing the forages produced with the local feed resources, production was improved by about 60%
- Key determinants of survival and growth of tree Lucerne fodder have been identified (fencing, watering; mulching; manuring; farm typology)
- Wastage of feed resources reduced by about 30-50% as a result of use of improved feeding troughs and sheds

Significance and scaling potential

- Feed is the single most important input for livestock production; adoption of these technologies boosts productivity
- The role of forages in biological soil and water conservation has been recognized; additional growing niches created in arable lands
- The demand for livestock products (milk and meat) is increasing; forage markets are developing steadily
- The technologies can be scaled across the highlands with a potential to reach hundreds of thousands of farmers

Core partners

Fig 1. Tree Lucerne fodder on farmers' fields

Fig 2. Yield and nutritional quality of oat-vetch mixture

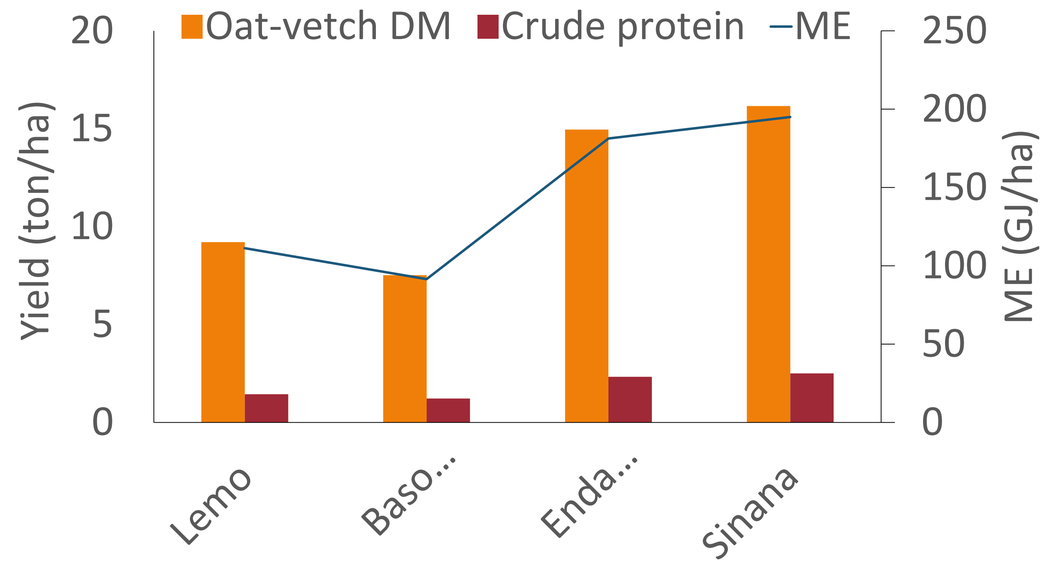

Table: Effect of tree Lucerne leaf supplementation on the weight gain of Menz sheep fed barley straw basal diet

Variables	Supplementation levels (g DM/d)				P
	100	200	300	400	
Dry matter intake (g)	477^{d}	559^{c}	**635^{b}**	**717^{a}**	<0.001
DM digestibility (%)	57.6^{c}	60.3^{c}	**66.1^{b}**	**72.1^{a}**	<0.001
Daily weight gain (g)	19.8^{d}	40.3^{b}	**55.7^{ab}**	**72.5^{a}**	<0.001
FCE* (g DWG/g DMI)	0.04^{c}	0.07^{b}	**0.09^{ab}**	**0.10^{a}**	<0.001
Dressing percent (%)	40.5^{c}	45.0^{b}	**47.0^{ab}**	**48.2^{a}**	<0.001

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