Managing livestock: Strategic approach to achieve *SLMP* objectives

Presentation based on case studies

GIZ SLM Amhara:June2016

Presentation outline

- Background-farming system
- Land degradation
- Detrimental effects of free grazing
- Benefits of controlled grazing of livestock

  natural resource, crop, lives……
- Conclusions

Our Farming system…..*4 issues*

Unique
- Complex in its type and nature
- 50 crop types, >8 domestic animals

Livestock
- Totally dependant on the shoulder of lives
- Livestock managed under free grazing

Subsistence
- With limited support from technologies
- Dependant on erratic Rainfall

Natural resource
- Not very much natural resource friendly, >75% cereals

Some key constraints of our farming system*

Soil fertility	• Loss of organic matter • Soil acidity • Depletion of micro & macro nutrient
Water/moisture	• Low infiltration • Poor utilization capacity of surface water • Limited distribution of rainfall & erratic nature
low productivity of livestock	• Shortage of traction power & threshing • Couldn't support export market • Low production of various products
Poorly integrated	• Nutrient cycle [crop-livestock –tree] not maintained at required level

Definition & causes of land degradation

Land degradation-LD

- *Soil degradation*
- *Vegetation degradation*
- *Biodiversity loss*
- *Water degradation*
- *Climate deterioration*
- *Land conversion*

Causes of LD

- Free grazing based livestock management system …. Root cause
- Farming system
- Lack of ownership at community level
- High human population pressure on agriculture
- Torrential rainfall

Approach to tackle land degradation

Analyzing critical determinants of LD…….

- Land degradation is complex issue emanated from natural and socio-cultural factors

- There is a strong need to approach the problem on comprehensive basis

- Community empowerment and their pragmatic action oriented involvement is crucial

Free grazing based Livestock management in Ethiopia and its consequence on farming system

Impacts of Free Grazing

Natural Resource/Env't	Livestock productivity	Crop production
Destruction of SWC measures	Aggravated feed shortage	Soil fertility loss including **acidity**
Gully formation	Favor disease prevalence	Unable to practice agro-forestry
Loss of soil fertility and health [OM, ACIDITY, MN]	heat stress: Poor reproductive performance	Traction power shortage
Reduce survival of planted seedlings	Energy loss: 25-45% energy loss	Inappropriate use of manure for compost
Reduce infiltration & enhance run off Water	No breed improvement	Limit moisture availability /content of soil
	Overall productivity of livestock is very poor	

CROP PRODUCTION…….

Soils with acidity problem and deficient of organic matter do not respond adequately for inputs; fertilizer, improved seed even biofertilizer

the role of lime on acidity; but its logistic demand??

Livestock: key resource of the country

The paradox behind…….

Livestock

- Key resource of the country
- The wealth of every body; basis of livelihood

Free grazing based manag't

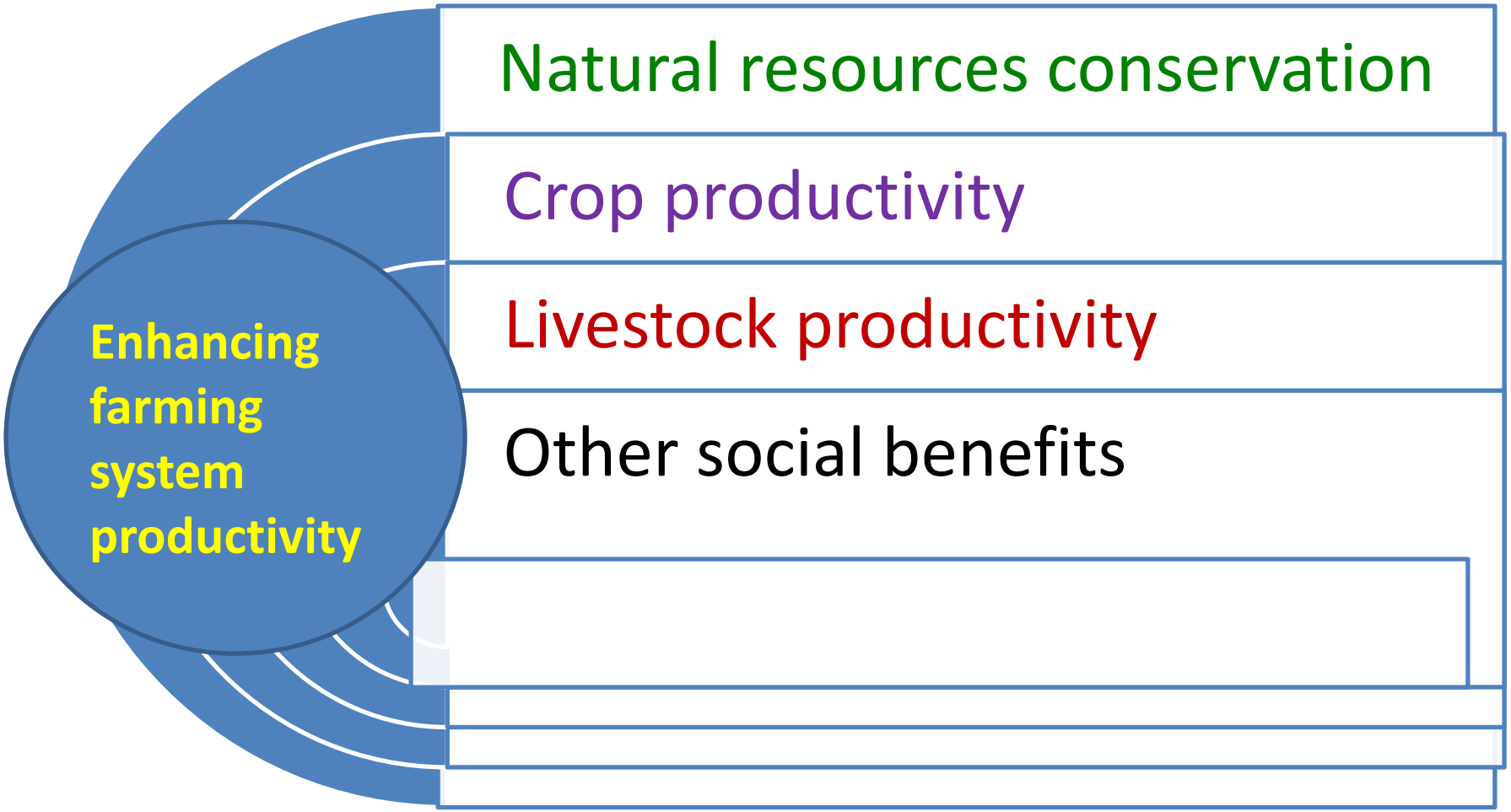
- root cause of degradation of natural resource
- significantly affected productivity of farming system

Harmonization of livestock production with natural resources conservation efforts: controlled grazing

- **Managing livestock**: bye-laws - organized communities

key contributions of controlled grazing

[based on evidences from case studies]



Key contribution of controlled grazing

1.Contribution for natural resource conservation

- SWC measures maintained; treating cause not symptom
- Improve biological conservation and Afforestation
- Lay ground work for application of agro-forestry practices*

Alley farming:
soil fertility
+output

2. Soil fertility and health

2.1 organic matter addition

- organic matter addition- crop residue + green manuring
- effective manure utilization- composting
- conserve and maintain top soil

[reducing top soil erosion, avoiding trampling, avoid compaction, reduce exposing soil for sun and wind]

True Lucerne cut and sprayed over farm land

Untouched Crop residue incorporated into soil

2.2 Moisture harvesting;

Controlled grazing significantly contributed through;

a- Maintaining physical structures

b. Allow more vegetative/grass growth [65%]

significantly reduce runoff

c- increase OM content of the soil

it is the whole plot of land which is serving as a prominent water Harvesting structure

-double cropping largely practice in selected soil types-

- legume in turn contribute to soil fertility & health

2.3.Controlled grazing & soil acidity

Arable land which was seriously affected with acidity left for oat and potato but now being used for teff and wheat: ***Role of OM***

Teff & wheat produced 200-300%

Farm land free of grazing with alley farming

1.2 mio ha farm land affected with soil acidity

3.Contribution for conservation agriculture- CA

BLiF is the key prerequisite and contributor for practicing CA* which is:

- Remedy for soil acidity as it retards high leaching and adds organic matter
- Best option for low moisture areas [~400 mm RF]
- Reduce significantly costs of production as time goes

4. Contribution for livestock*

1. **Improved feed availability**
2. **Substantial reduction in water* requirement**
3. Reduce the impact of **animal disease, mortality & morbidity; survival** improved cost reduced
4. Enhance reproduction & production of livestock
5. The system enhanced market participation /offtake

Improvement of livestock productivity:

Parameter	unit	before	After
Calving interval	years	2	1.6
Age at 1st calving	years	4	2.5
Age for traction	years	4.5	3
Slaughtering age [Sheep]	**months**	**9**	**4*** **
Milk production	months	1	3
HH with ox	%	60	80

Contribution to destocking

List of animals	Kanat	Gonje	Kedesty
Ox	3 to1*	3 to 2	2 to 2
Cow	3 to 2	3 to 2	3 to 2
Heifer /calf	3 to 2		3 to 2
Sheep	4-5 to 2	6 to 3/2	10 to 4
Goat	-		7 to 2

**With free grazing system destocking is not possible regardless of genotype

5. Social Benefits

- Equal benefit sharing of communities from natural resources [not for livestock owners only]
- Conflict among community members reduced
- School enrolment significantly enhanced

- Save tremendous cost, labor and time that would be used for SWC measures…..Gully?

Concluding remarks

1. Agriculture in Ethiopia is uniquely/totally dependant on the shoulder of livestock; Livestock contribution to land degradation is determinant

2. Controlled grazing has the capacity to significantly enhance farming system productivity; thus achieving SLMP objectives; beyond maintaining SWC measures;

3. Controlled grazing through involvement of communities is a least cost approach for halting land degradation and basis for sustainability

4. The best rehabilitated watersheds are those with well organized community leadership & adopted acceptable livestock management system

conclusion

4. Development has no formula: But……

under our farming system context Adoption of controlled grazing is a key strategy, entry route, to transform small holder agriculture [forestry, fruit, crop, agro-forestry……]

No country in this planet could brought sustainable use of its natural resources without adopting acceptable livestock management system:

Recommendations

- livestock management is critical for achieving GTPII; thus adopting acceptable livestock management should be taken as top agriculture development ajenda of the government;

Thank you