

FARMERS LIVESTOCK SCHOOL ON THE ESTABLISHMENT, MAINTENANCE AND MANAGEMENT OF PASTURE/GRAZING AREA USING FORAGE LEGUMES STRATA SYSTEM TECHNOLOGY

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Abstract: Farmers Livestock School (FLS) was designed to establish and manage pasture or grazing area using Forage Legumes Strata System Technology (FLSST), this was done by planting of forages species side by side in rows and in columns with legume species. The benefits derived from FLSST includes increased herbage yield, maximized land use, controlled disease transmission to susceptible forage species, augmented soil fertility and legumes improved overall feed value of available forage and extended the grazing period. The modalities were disseminated the technology using the FLS utilized, established and managed Forage Legumes Strata rather than the conventional information dissemination approaches, instead farmers were involved in all farm activities, maintenance and management of the legume forages.

Northwest Samar State University- San Jorge campus in partnership with the Department of Agriculture Region 8 implemented FLS project. Participants comprised 22 persons. The FLS was conducted in 7 Wednesdays, 1 day lecture and 6 days field works. During field works participants established 3x4m nursery and total area planted with forages was 1.3 hectares using pakchong, Indegofera, flemingia, malvere, centrocema and acid Ipil-ipil. The results revealed that participants appreciated the maximization of the idle land into productive. Inspiration to the participants in the project results manifested for them to cultivate their individual idle land and adopted the FLSST. Participants were motivated to acquired additional heads of water buffalo and goats since leguminous forages were abundant in their backyard. None participants of the project were able to benefit planting materials and cultivated their own Forage Legumes Strata.

Keywords: Grazing, Legume, Strata, Farmers Livestock School.

I. INTRODUCTION

Effects of developed forages legumes- increased livelihood option, women and children participation in households' livelihood by keeping animals. (Bosma, R. H. et al. 2003). Present of variety of fodder trees and shrubs indicates these feed resources were extremely useful for feeding domestic ruminants. (Devendra, C. 1990)

Forages are the cheapest feed resource for an economical ruminant production enterprise which needs to be established to ruminant raisers either commercial or small-hold farmers. This information is more critical for small-hold farmers who traditionally feed their animals on crop residues and natural vegetation such as grasses, herbs and tree leaves. (The Committee for Agroforestry, 1986). In 2004, the goal 1 of the Department of Agriculture-National livestock Program aims to develop idle lands into pasture/grazing areas. Despite the effort, awareness of the animal raisers to integrate/incorporate legumes in the pasture remains very low.

NwSSU- San Jorge campus in cooperation with the Department of Agriculture Region 8-Livestock Program proposes to conduct the FLS on the establishment of Legume Strata to create awareness among participants on the significance of leguminous forages.

Legume Strata is a system of planting leguminous species side by side in rows and in columns with the following legume species: Ipil-ipil, Kakawate/Madre de Cacao, Rensoni, Flemingia, and Indigofera. The benefits derived from Legume Strata include, namely: increased herbage yield, maximized land use, controlled disease transmission to susceptible forage species, and augmented soil fertility through nitrogen fixing capability of forage species, in addition, legumes improve overall feed value of available forage and extended the grazing period.

The output of FLS was the source of feeds for the existing and target production of cattle in the University and in San Jorge, Samar. Legumes strata used as a mother plant for the expansion of the pasture development in farmer participants and in other area owned by the University in preparation of growing population of livestock especially cattle and goat. This also served as instructional area for students for their laboratory and those who will be specializing in Animal Science.

The new modalities of disseminating this technology using the Farmers Livestock School (FLS) will utilized, established and managed Forage Legume Strata Technology rather than the conventional information dissemination approaches, where farmers involved in the actual land preparation/cultivation, planting of pre-identified legumes, fencing of the area, maintenance and management of pasture.

OBJECTIVES

General Objective: To create awareness on the importance of a Forage Legume Strata.

Specific Objectives:

1. To expose farmers on the actual establishment of a Forage Legume Strata Systems particularly in the preparation/cultivation of land, planting of legume forage materials, fertilization, pasture and forage legume nursery management and maintenance and fencing the pasture area.
2. Utilization of idle land cogonal area in San Jorge Samar
3. To enable farmers to establish Forage Legume Nursery and Forage Legume Strata System technology.

THEORETICAL FRAMEWORK

INPUT	PROCESSES	OUTPUT
-Farmer Livestock School (FLS) on the Establishment, Management and Maintenance of Pasture/Grazing Area using Forage Legume Strata System -Different leguminous forages Planting materials - Organic fertilizer - Hog wire for perimeter fence - Meals for the participants	- Lecture on the overview and rationale - Assigning of host team for the whole duration of FLS - Discussion of feed resources for goats - Selecting the right forages for goats - Discussion and actual Nursery establishment - Discussion and actual land preparation - Discussion and actual fencing of the pasture area - Discussion and actual sticking - Gathering and hauling of forages planting materials - Discussion and actual planting of different forages - Discussion and actual fertilizer application	1. Established 3x4m nursery 2. Planted 6,204 sq. meters pakchong (cuttings) 3. Planted 300 sq. meters Indigofera (seedlings) 4. Planted 300 sq. meters flemingia (seedlings) 5. Planted 350 sq. meters malvere (cuttings) 6. Planted 800 sq. meters centrocema (seeds) 7. Planted 2,364 sq. meters acid Ipil-ipil (seedlings) 8. Total planted area with forages: 10,318 sq. meters or 1.318 hectares 9. 1.5 hectares area fenced/enclosed with barb wire and hog wire 10. The 22 participants attended the FLS graduation and received certificate of completion

II. METHODOLOGY

Step 1. Participants attended Livestock Field School (LFS) lecture and actual operation on site identification, clearing, sticking, holing, planting, fertilization and fencing around the perimeter.

Step 2. Employed the tri-partnership- consulted the Department of Agriculture and farmers association

Step 3. Small and large ruminants profiling

Step 4 Applied Livestock Field School (LFS) approached in establishing and managing pasture or grazing area using Forage Legumes Strata System Technology (FLSST)

Step 5. The Forage Legume Strata System Technology established in a 1.3 hectare area in NwSSU site in barangay Mancol, San Jorge, Samar

Step 6. Aside from the Forage Legume Strata, a forage legume nursery has established, where seedlings of various forage leguminous materials propagated and seedlings were hardened. The developed Forage Legume Strata site served as the source of planting materials for farmers interested to engage in ruminants' production.

Step 7. Actual coaching, feedbacking and meeting was conducted every after the end of the daily activities.

III. RESULTS

Farmers Livestock School (FLS) Forage Legumes Strata System Technology (FLSST) was implemented in collaboration with the Department of Agriculture Region 8 as the implementing agency for the utilization of idles land into pasture areas in consonant to improve the small and large ruminants in the region. The activities was attended with 22 farmers from San Jorge and Tarangnan who already engaged small scale carabao and goat raising.

FLS was started with the meeting of the target participants, discussed the objectives and activities of the project. Selected participants were notified through their barangay captain. Implementation was started with 1 day lecture and then followed with field works comprised of 5 Wednesdays.

According to Devendra, C. of 1990, Three-Strata Forage System (TSFS) technology was transferred through training courses, the do-it-yourself approach, and regular consultation and discussion with farmers. Delayed integration with cattle, difficulties in getting grass and legume seeds, and high initial establishment costs are the major constraints in the system adopted by the farmers.

The 22 participants have Established 3x4m nursery, Planted 6,204 sq. meters pakchong (cuttings), 300 sq. meters Indegofera (seedlings), 300 sq. meters flemingia (seedlings, 350 sq. meters mulberry (cuttings, 800 sq. meters centrocema (seeds) and 2,346 sq. meters acid Ipil-ipil (seedlings). A total planted area with forages of 10,300 sq. meters or 1.3 hectares. The 1.3 hectares area were enclosed with barb wire and hog wire to avoid entrance of private own carabao and other livestock.

Increased resource use in necessary and there is a need to target ruminant production systems and the opportunities to improve productivity, in mixed farm systems. Prevailing ruminant production systems are unlikely to change in the predictable future, and the principal aim should therefore be to intensify the use and efficiency of the feed resources, in which the benefits should be identified with self-reliance in the use of feeds, sustainable agriculture and environmental integrity. (Devendra, C. 2000).

Outcome of the study area were as follows:

Ground Level Impact:

- Assured additional income of participating families
- Established 3x4m nursery and 1.3 hectares planted with leguminous forages
- Participants appreciated the maximization of the idle land converted into productive area.
- Farmer participants motivated to purchase additional heads of water buffalo and goats
- 10 hectares Idle land/cogonal land were utilized by 22 farmers for leguminous forages

Deep Level Impact:

- Positive outlook of individuals to venture in ruminants production
- Attitudinal transformation among family members absorbed by the community
- 34 farmers adopters of Forage Legumes Strata System Technology (FLSST)

External Level Impact:

- 12 none participants of the project were provided planting materials and cultivated their own Forage Legumes Strata
- Forages is source for feeds by the University livestock

Table. 1 Existing General Land Use

Land Use	Area (has.)	% to total area
Built up area	1,154.33	2.86%
Urban	15.54	
Rural	56.24	
Institutional	1,082.55	
Agricultural	12,140.77	30.07%
Cogonal land	26,839.76	66.49
Forest land	234.71	0.58%
Total	40,369.57	

Source: Municipal Assessor's Office (2014 LDAP – Tax Mapping)

Table 2. Small and Large Ruminants Inventory

No.	Barangay/Villages	Water Buffalo/Carabao		Cattle		Goat		Sheep	
		male	female	male	female	male	female	male	female
1	Anqiana	9	15	0	0	1	3	0	0
2	Aurora	19	17	0	0	3	4	0	0
3	Bay-ang	4	2	0	0	0	5	0	0
4	Blanca Aurora	6	5	0	0	1	8	0	0
5	Buenavista 1	10	8	0	0	2	3	0	0
6	Buenavista 2	11	8	0	0	3	8	0	0
7	Bulao	3	6	0	0	5	4	0	0
8	Bungliw	8	9	0	0	2	1	0	0
9	Cabugao	6	5	0	0	0	0	0	0
10	Cag-olo-olo	20	6	0	0	1	1	0	0
11	Cagtoto-og	3	4	0	0	2	2	0	0
12	Calundan	6	5	0	0	2	2	0	0
13	Cantaguic	7	5	0	0	4	4	0	0
14	Canyaki	10	6	0	0	3	3	0	0
15	Erenas	10	8	1	13	20	20	0	0
16	Gayondato	5	2	0	0	2	1	0	0
17	Guadalupe	10	7	0	0	3	6	0	0

18	Guindapunan	11	8	0	0	2	2	0	0
19	Hernandez	6	3	0	0	0	0	0	0
20	Himay	10	6	0	0	13	2	0	0
21	Janipon	7	8	0	0	0	0	0	0
22	Lapaz	17	21	0	0	9	10	0	0
23	Libertad	6	21	0	0	2	1	0	0
24	Lincoro	5	3	0	0	3	1	0	0
25	Mabuhay	15	10	0	0	4	8	0	0
26	Mancol	13	8	0	0	1	3	0	0
27	Matalud	20	17	0	0	3	9	0	0
28	Mobo-ob	3	10	0	0	0	0	0	0
29	Mombon	1	10	0	0	0	0	0	0
30	Puhagan	7	5	3	2	3	2	0	0
31	Quezon	10	15	0	0	5	3	0	0
32	Ranera	5	5	0	0	0	0	0	0
33	Rawis	10	5	0	0	2	5	0	0
34	Rosalim	21	20	0	0	5	3	0	0
35	San Isidro	17	10	0	0	0	0	0	0
36	Pob. 1	9	7	0	0	0	0	0	0
37	Pob. 2	10	5	0	0	0	0	0	0
38	San Juan	11	8	0	0	0	0	0	0
39	Sapinit	15	4	0	0	10	10	0	0
40	Sinit-an	15	4	0	0	5	5	0	0
41	Tomogbong	19	15	0	0	6	1	0	0

IV. SUMMARY, RECOMMENDATION AND CONCLUSION

Summary:

1. Farmers Livestock School was participated by farmers from barangay Himay, Bulao & Rosalem, San Jorge, Samar and barangay Sta. Cruz, Tarangnan, Samar.
2. The FSL was conducted in eleven Saturdays were farmers exposed more time in the field for actual doing rather than in the lecture room.
3. The area planted with different forages is 1.3 hectares located at barangay Mancol, San Jorge, Samar.
4. Twenty farmers adopted the Forage Legumes Strata System Technology, they developed their own plantation of grasses and leguminous forages

Conclusions:

1. Idled lands (cogonal) planted with forages improved production of small and large ruminants in Samar
2. Planted legumes eventually will augment soil fertility through nitrogen fixing capability of forage legume species
3. Partnering farmers through association have positive impact in project implementation
4. Awareness of livestock raisers in the importance of developing pasture area
5. Farmer to farmer approached generated more project adopters
6. Farmers Livestock School is a better avenue and approach to increase the learning comprehension of the participants, since they do both theories and in actual activity or field work.

IMPLICATIONS AND RECOMMENDATIONS

Implications:

Livestock Field School (LFS) was a new approach of teaching farmers, used in transferring the forage legume strata technology, where farmer-participants involved in the establishment and management of the a Forage Legume Strata and Forage Legume Nursery.

Recommendations:

Participants should be guided and adopted an active role in the actual learning processes. Considering that Western Samar has a vast cogonal area which are feasible for ruminants' enterprises, development of pasture or plantation of different forages should be done in the community and to be considered by the University research and extension services especially those communities feasible for ruminant's production and areas identified by the Department of Agriculture as beneficiaries for the enterprise.

Development of pasture area planted with forages is a vital requirements in livestock production especially ruminants, progress of the enterprise will depend in this aspects. Pasture development should be considered in planning of a ruminant's project in private sector and in a government agencies.

Contentious care and maintenance of this existing pasture and production of different forages to replicate the technology to the communities is highly recommended.

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