

# MULTI-SPECIES NUTRITIVE FODDER PRODUCTION USING NATURAL FARMING METHODS in TTD Goshala – Palamaner

The Executive Officer, TTD and EVC, RySS visited Ayyavaripalle village where the village has achieved fodder sufficiency by converting fallow lands into nutrient rich multi-species fodder production using natural farming methods. Impressed by what has been achieved, TTD-Goshala has proposed to undertake natural farming methods in its Palamaneru Goshala to make it self sufficient in fodder over time.

As a pilot initiative, WASSAN is facilitating multi-species fodder production in 10 acres of Goshala farm land, part of it not cultivated for some years, in partnership with the 'Morum Village Organisation', a federation of Women SHGs. An agreement was arrived at in February, 2022 to supply 50 tons of green fodder weighed at harvest time, besides bringing the allocated fallow lands into fodder production.

## THE PROCESS

WASSAN, local SERP and RySS teams organised series of consultations with the Village Organisation (VO) to take up fodder production. Twenty five SHG representatives were oriented on multi-species fodder production, methods of natural farming and their benefits.

VO entered into an agreement with WASSAN to take responsibility for the production using natural farming under the technical supervision of the latter. The investment came from TTD-Goshala. The VO would get Rs.1 per kg fodder given to TTD after meeting all the expenses. A committee representing 5 SHGs taken responsibility for regular supervision and paying wages for any physical work; the committee will get 50% share of the net returns of the VO. A full time hired site supervisor was placed at the farm by WASSAN.

## DEMARCATION OF THE LAND

A patch of 10 acres of land was demarcated for the purpose and assigned to fodder production. These are longterm fallows without any cultivation for about 8 years and have high weed infestation. The land has two borewells, one of which is low yielding. Pipelines were laid out for half of the land i.e. 5 acres and rest of the land do not have pipeline infrastructure.



Sl. No	Plot No	Sq. mtrs	Extant in Acres
1	1	16200	4.05
2	2	14400	3.60
3	3	9400	2.35
	<b>Total</b>	<b>40000</b>	<b>10.00</b>

Land was cleared of weeds initially. *Ghana Jeevamrutam* was prepared by the members of the committee with wage workers. A total of 72 tons *Ghana Jeevamrutam* was prepared. The Goshala made available the dung and urine, other material was procured from outside. The teams were trained in the preparation of *Ghana* and *Drava Jeevamrutam*.

## MULTI-SPECIES FODDER SEED SOWING AND MANAGEMENT

The seed mix ratio was arrived at in consultation with the livestock experts. Total 63% of seed mix was cereals and 37% legumes.

Following *Table* provides the detailed composition of the total seed at 30 kg per acre.

Sl. No	Type of seed	Seed required per kg / acre	Seed Ratio % per acre
1.	Jowar	10	33.33
2.	Horse gram	7	23.33
3.	Cowpea	2	6.67
4.	Field beans	2	6.67
5.	Maize	9	30.00
	<b>Total</b>	<b>30</b>	<b>100.00</b>

The seed was treated with *Beejamrutam*.

2000 liters of *Jeevamrutam* concentrate was prepared each time and applied through irrigation at 10 percent dilution. This was done 7 times amounting to application of 14000 lt of *Jeevamrutam* in total.

Low yield of one of the borewells and failure of borewells/ starters in between resulted in irregular and inadequate irrigation. There were no rains in the area after February. With an irrigation facility the above combination of the crop can come to harvest in 60 days; under rainfed conditions, it may take up to 90 to 100 days. In the above multi-crop fodder, the availability of protein ranged from 25 to 30%.

The first fodder harvest on the farm using fully natural farming methods without any chemicals was celebrated by the VO and WASSAN as a field day on 30<sup>th</sup> May, 2022 inviting all the concerned officials and teams from TTD, RySS and SERP. The fodder harvesting process started in the 3rd Plot.

### CROP CUTTING EXPERIMENT

As part of production estimation, a crop-cutting experiment was taken up at 2 sites. The results are given in the *Table*.

Though the CC results showed about 30 tons of green fodder production per acre, the weightment of the quantity at the time of supply to the Goshala with formal weighing bridge has shown about 11 tons/ ac; this may be due to loss in moisture by that time. In about 9 rounds of harvest and supply taken up so far, **the mean productivity is coming to 3.17 kg per sq.m i.e., around 13 tons per acre (32 tons per ha). The range is from 2.3 to 4.23 kg/ sqm with variance of 29%**. The productivity depends on the soil and especially on coverage of irrigation as all the plots could not be irrigated regularly.



Results of Crop-Cutting Experiments for Yield Estimation:

Plot size	Sqm	Yield in Kg	Per sqm (kgs)	Estimated qty in Kg/ ac	Expected tons per AC
1st CC with 2mt x 2 mt	4	31.300	7.83	31667.78	31.67
2st CC with 2mtrsx2mt	4	33.150	8.29	33539.51	33.54





*Fodder is being supplied to the Goshala as per the weighment as follows.*

Sl. No	Date	Empty load weight	Full load weight	Fodder supply Qty in Kgs	Area Sqm
1	30.05.2022	3365	4740	1375	325
2	31.05.2022	3150	4925	1775	487
3	01.06.2022	3360	5410	2050	586
4	02.06.2022	3165	5365	2200	687
5	03.06.2022	3370	5480	2110	904
6	04.06.2022	3130	4985	1855	735
7	27.06.2022	3365	7310	3945	1225
8	28.06.2022	3115	6490	3375	961
9	29.06.2022	3220	7775	4555	1334
<b>Total Kgs</b>				<b>23240</b>	
<b>Total Tons</b>				<b>23.24</b>	<b>7244</b>

Fodder was harvested as on date (1<sup>st</sup> July 2022) in 1.81 acres of land. The remaining 8.19 acres of fodder plots are yet to be harvested – this will be completed in the month of July-August 2022.

The fodder harvested is of multi-species with relatively balanced nutrition and completely from organic production. The feedback is that cattle are relishing the fodder.

## COMMUNITY PARTNERSHIP WITH GOSHALA IS A WIN- WIN

The pilot experiment on producing multi-species nutritive fodder using natural farming methods is achieving the intended results. The production target of 50 tons will be easily surpassed when the entire area is harvested. Further cycles of production will be easier as the land is already developed, and a large dosage of Ghana and Drava Jeevamrutam were applied in the soil to build soil health.

Women in the Village Organisation now have gone through a complete cycle and understanding of its operation. The operations of harvesting etc., can be further mechanised to reduce the cost.

- **Field observations:** The successful pilot experiment suggests the potential for the TTD - Goshala to be self-sufficient. In partnership with the VOs, the entire Goshala farm can be brought into natural multi-species fodder production. This is a win-win for the women SHGs and for the TTD; while it meets part/ full fodder requirements of the cattle, it also generates income through the adaption of Natural farming principles at a low cost.
- **Limitations:** We have observed Parthenium species grown as a weed in the field which has no value of fodder. Parthenium grows generally in the summer season causing a potential mix; parthenium needs to be removed timely with proper weed management.

## NEXT Steps

WASSAN's assessment in the Comprehensive Plan is that about 100 acres in the farm can be brought under such production. WASSAN proposes to TTD-Goshala to consider bringing the entire arable area of the farm into such fodder production system to make the Goshala self-sufficient in fodder.

TTD-Goshala, RySS, SERP and WASSAN can facilitate such a partnership process to bring about 100 acres in the Goshala into natural fodder production. The plots suitable for such purpose are already mapped and demarcated as a part of the Ecological Intensification Planning that WASSAN has taken up.





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