LOW COST SILAGE MAKING TECHNIQUE

As part of our continued efforts to improve the training and demonstration facilities at RDTC, one such facility developed by RDTC, Siliguri for training in fodder demonstration and conservation for the trainees is the development of low cost silage making facility using the scraps.

RDTC, Siliguri during the last one year has been demonstrating Silage making technique following different methodologies to make silage using the simple techniques, the cost effective one/affordable, which can easily be adopted & practiced by our poor farmers and milk producers.

One such idea mooted by RDTC recently is the establishment of a **SURFACE SILO** unit as part of training and demonstration to all categories of trainees in fodder conservation & management is **"The Surface Silo Unit".** Surface Silo requires engineering design with proper materials to support the load of the fodder and durability as well, nevertheless it involves huge cost which cannot be afforded by farmers.

The in-house fabrication works after structural designing the Silopit

Figure 1 Fabrication work is completed

We, here at RDTC, Siliguri developed the multiple surface Silopits by using iron scraps lying at our campus and erected the Twin Silo pits with four different chambers. The cost of the iron scraps is just negligible compared to the purpose it has fulfilled to convert the facility into an asset. What we need here at a training centre is to develop small capacity silopits which can be used for every batch of trainees for demonstration purpose.

The iron scarps were integrated by welding together and erected as a composite structure by a fabricator as per our own design and dimension **- 2.5 ft width, 6 ft length and 3 ft height** for each chamber. Then the structure was filled up by a mixture of cement, concrete and sand with desired proportions to shape it to look like a mini Silopit. The whole process was monitored by us and works went on till the Pits look like a Silo Pit. The exact cost of the Silopits which can accommodate around 20 quintals of fodder in all four chambers is elucidated in the following table.

Figure 2 filling by necessary RCC materials

The Silo pits were found to be quite strong and able to bear the pressure of ensiling.

Figure 3 Silos now ready after being filled up required materials

- Thus one fabricator was engaged to design the multiple silopits using the available scrap iron. This the framework of Silo pit was made with

individual size of 2.5 ft width X 6 ft length X 3 ft height.

- The size of the pit is fit to accommodate around 5 quintals of green fodder/green grass. In total the composite Silo pit can accommodate around 20 quintals of green fodder.

The total cost incurred on Materials and labour charges in the following table

The Silage Chambers now ready for use after the mason and fabrication works

Figure 4 Tetra Silo Pits are now reday for filling

Sl No	Materials & Manpower	Total Cost (Rs.)
1	Cost of used rusted/rejected Iron scrap	1000.00
2	Cost of Cement Stone	4000.00
3	Service charge for Fabricator	1500.00
4	Cost of Masson work service charge	1500.00
5	Other misc White washing	500.00
	Grand Total Cost	**8500.00**

Standing Maize crop at RDTC campus

Loading of chaffed fodder to the Pit by trainees

The immediate and Long term Benefits for RDTC and its Trainees:

- The facility so created is not only a good material for RDTC to train farmers of all categories in fodder conservation using low cost silage making technique but it is an asset for the unit.

- The cost involved is very low and the farmers can adopt easily and make permanent structures using cheap iron scraps available in the market.
- Each individual pit shall be filled up by a particular batch of trainees as part of practical training for Silage making demonstration.
- The composite Silopit so erected can be used for years together as the overall strength of the structure seems to be quite strong.
- There is no need of making huge investment for creating such facilities for training, **thus saving organisational resources**.
- RDTC is having very limited land resources, hence surplus fodder during the flush season can be preserved for feeding to the training cows during the lean season, thus **we can save money spent for buying paddy straw** of very poor nutritional quality.
- **Women trainees** shown more interest in making Silage than the men.

The Ensiling Techniques:

The silopit was inaugurated on 9th June, 2016 and the first filling by chaffed green fodder /grass – Maize fodder with corn, Hybrid Napier and Lemon grass, plus Guinea grass together **5.4 quintals was loaded to one of the four SILO chambers**. All the trainees of DCS secretary and AI trainees undergoing training participated in the process to make the ensiling process successful.

All critical points concerning SOP for making Silage was followed – Harvesting at proper stage, Chaffing to optimum size, making it anaerobic, adding salt and molasses to enrich the finished product in terms of palatability were all taken care well.All care also taken to protect the Silopit against rain and water.

After a period of ensiling period of 2 months the Pits shall be opened for demonstration to the trainees and feeding to the cows by themselves.

Thus, **every batch of trainees would have the opportunity to learn the silage making technique**

Sequence of events in the Ensiling process, RDTC Siliguri, the Standard Operating Procedure

Figure 1: Loading of chaffed green fodder in to the Silo Pit by women trainees

Figure2: Pressing manually to make the environment anaerobic

Figure 3 **Finishing from Top for further wrapping by polythene sheet**

Figure 4: Wrapping by a sheet of polythene

Figure 5 Loading a layer of Soil to keep the top surface anaerobic followed by further pressure by Stone Pieces

Figure 6 Final Finishing of the Silo pit to protect against rain and water , wrapping by a polythene sheet and loading it again by Stones/Bricks