

## Dairy Hub Training Booklets

### Titles

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# Wheat Straw Enrichment

“The Process of Wheat Straw Enrichment”



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Dairy Hub is a Community Dairy Development Programme, which has been initiated for the development of small farmers. The aim of this programme is to keep farmers informed about modern ways of dairy farming, to provide practical help for improving their skills and to increase production of their animals. This programme will increase not only the average production of animals but also the income of farmers, and thus decrease considerably the rate of poverty in rural areas. This booklet is a part of this programme.



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Yours truly,

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### Use of Wheat Straw :

Wheat Straw is used on a large scale to feed animals in the subcontinent. Ninety nine 99% of farmers feed this carbohydrate to their animals with or without green fodder. Mostly it is used in the months of fodder shortage i.e May, June, July and November, December.

### To Improve the Nutritional Value of Wheat Straw with Urea:

As Wheat Straw is not easily digested and its taste is also not so good; that's why it cannot be eaten in a large quantity, and also it does not fulfill the nutritional requirements of animals. For this reason it is treated/enriched in a special way to improve its nutritional value. In this process it is mixed with urea which increases its nutritive value. In one recipe, only urea is mixed while in another recipe molasses is also added in Wheat Straw.

## Why is Urea Used ?

Urea is the best source of nitrogen. It is used in the Wheat Straw Enrichment process for the following reasons:

- Easy availability.
- Urea spray makes the Wheat Straw soft and easy to digest.
- Cheap way of increasing proteins.
- It has a number of beneficial effects on the quality of fodder and growth of the animals, with no side effects.



## Wheat Straw Enrichment Process:

Dissolve 4 kg Urea in 50 litres of water. Since urea is not easily dissolved in water, so add it in water in small quantities, stirring it continuously with a stick. Note that if all the urea is dissolved in water, this mixture would be enough for 100 kilograms of Wheat Straw.

Now spread about 9-10 inches of Wheat Straw on the ground and spray the Urea solution on it and mix up the Wheat Straw. Spread the second layer on it and repeat this process. In this way, spray the whole of the solution on the Wheat Straw and press it to squeeze off the air in it.



After that, cover it with a plastic sheet to protect it from air and moisture. If a plastic sheet is not available, cover it with anything like a thatch mat and mud. Mud alone can also yield the required results. Ensure that the moisture in it is not more than 50%. The ideal temperature for all this process is 30-35°C.

In the other process, molasses is also used with urea. For 100 kilograms of Wheat Straw, 4 kilograms urea is mixed with 50 litres of water and then 10-15 kilogram molasses is added to this mixture. The remaining process is the same. This mixture mixes easily and completely if it is sprayed during threshing at the point where Wheat Straw emerges from the thresher.



### Different Phases of Enrichment:

- The Wheat Straw



- Mix 4 kilograms urea in 50 liters water for 100 kilograms of Wheat Straw.



- Mix 10-15 kilograms molasses.



- Spray the mixture on the layers of Wheat Straw .



- Cover the Wheat Straw with a plastic sheet after the spray.



- Keep the Wheat Straw under the plastic cover for 3 weeks to protect it from moisture



### **Difference Between the Results of Wheat Straw Enrichment/Treatment With and Without Molasses:**

This process has different effects on the Wheat Straw when it is treated with or without molasses. The quantity of the proteins in the Wheat Straw increases when only urea is used in the preparation of the Wheat Straw. But when molasses is mixed with Wheat Straw, then in addition to increase in protein value, its energy content is also increased and animals get more energy.



### **Changes in the Wheat Straw after this Process:**

When Wheat Straw is kept covered in this process, urea is converted into ammonia gas which darkens the colour of the Wheat Straw, thus increasing the proteins in it and making it easily digestible for the animals. Fungi cannot grow in the Wheat Straw when urea is mixed in it.



## How Long can the Prepared Wheat Straw be Stored and Where?

During this process, the Wheat Straw should be kept covered in a closed area for 20-25 days. After that, either you keep it in an open or a closed area and it is safe to use; but protect it from harsh weather.

## Further Steps to Preserve the Wheat Straw :

During summer place the Wheat Straw in an open environment for some time after a 20-day treatment so that the extra ammonia and its smell disappears, before feeding it to the animals.

## Quantity of Wheat Straw required for the Animals under Different Circumstances:

Feed 4-5 kilogram fodder daily to pregnant and lactating animals, and even to those which are non lactating animals. Use the straw by mixing it with green fodder, so that nutritional requirements of the animals are fulfilled.



## What Precaution should be Taken to feed Animals with treated Wheat Straw?

Precautionary measures during the Preparation of the Wheat Straw:

- The quantity of the urea should be appropriate during the preparation of the Wheat Straw.
- It is also important to ensure that urea is dissolved well in water.

Precautions while feeding it to the Animals:

- Provide a lot of water to the animals.

## Is there any problem created by feeding animals with treated Wheat Straw?

Usually this Wheat Straw does not create any problem. But if somehow the animal consumes more urea, its adverse effects can be neutralized by giving the animal more water or water mixed with vinegar or lemon juice.

## Nutritious Value Increase by enrichment:

Kinds of the Straw	Proteins	
	Before enrichment	After enrichment
Wheat Straw	2.8%	6.6%
Rice Straw	6.1%	13.5%
Maize Stems	10.7%	21.2%

### **Expenses on Wheat Straw Enrichment :**

The cost of the process of Wheat Straw Enrichment is 60 paisa per kilogram only, but the use of enriched straw increases milk production by 20%. It means the rate of profit is much higher as compared to the cost.

Wheat Straw does not meet all the nutritional requirements of the animals. So, a better type of green fodder must be given to the animals and, if Wheat Straw has to be given, mix it with urea during its preparation so that it covers animal needs and their health is not adversely affected.

# Glowing livelihoods through growing dairy



## Community Dairy Development Programme

Dairy Hub is a dairy development programme conceptualized by Tetra Pak and implemented by dairy processors. This programme aims to educate and empower dairy farmers by providing them training, advice and veterinary services. Thanks to Dairy Hub, today dairy farmers are full of hope for future and so are we.



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Dairy Hub is an important step by Tetra Pak towards the well-being of dairy-farmers. It will certainly open new vistas of progress for dairy farmers. I congratulate Tetra Pak on the opening of a new era for the prosperity of dairy farmers. All these training booklets are a part of this developmental programme and they have been written specially for the help and guidance of dairy farmers.

Based on various topics, these training booklets contain important pieces of information and suggestions which will help the farmers in better rearing of their animals, protecting them from different diseases and to increase their milk production.

I do hope that this effort by Tetra Pak will be useful for the prosperity of the farmers and help them solve their problems regarding health of their animals.

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