

TOPIC : USE OF NON CONVENTIONAL FEED RESOURCES

DEPARTMENT OF ANIMAL NUTRITION






NON CONVENTIONAL FEED RESOURCES (NCFR)

WHAT ARE NON CONVENTIONAL FEED RESOURCES?

- ▶ The non-conventional feed resources refers to all those feeds that have not been traditionally used in animal feeding .
- ▶ Either by farmers or are not normally used in commercially produced rations for livestock .
- ▶ These include the agricultural and industrial byproducts used in animal feeds at certain percentages depending on:
 1. Palatability
 2. Nutritional value
 3. Toxic factors/ Anti-nutritional factors.



NCFR INCLUDES:

- ▶ NCFR includes commonly, a variety of feeds from perennial crops and feeds of animal and industrial origin.
 - ▶ Poor quality cellulosic roughages.
 - ▶ Agro-industrial by-products such as slaughter-house-by-products .
 - ▶ From the processing of sugar, cereal grains, citrus fruits and vegetables from the processing of food for human consumption.
 - ▶ New sources of feed stuffs as palet oil mill effluent and palm press fibre(oil palm by products), single cell proteins.
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CHARACTERISTICS OF NON CONVENTIONAL FEEDS :

- ▶ The field crops that generate valuable non conventional feeds are excellent sources of carbohydrates for ruminants eg: tapioca, sugar cane.
- ▶ Their economic Value is less than the cost of the collection and transportation for use thus referred as wastes.
- ▶ Some feeds contain toxic factors and have deleterious effects on animals. For examples: castor bean meal.
- ▶ These are by products of food production systems that have not been used, recycled or salvaged.

Need for NCFR :

- ▶ The use of non conventional feed resources and agro industrial by products as well as drought resistant vegetation in combination with urea and molasses.
- ▶ About 60-80% requirement of dry matter by animal is fulfilled by roughages.
- ▶ Whose demand can be fulfilled by collecting 'crop residues, dry grasses from forests, fallen tree leaves etc' and feeding of animals.
- ▶ As the cost of transportation and processing are higher they first compressed at the place of availability densified by mixing bran molasses, minerals etc then delivered

Example of complete feed during scarcity

INGREDIENTS	%
Banyan tree leaves	50
Maize grain	27
Groundnut cake	14
DORB	7
Minerals+salt	2
Vitamin AD2	

NUTRIENT	%
CP	17
DCP	8
TDN	42




ADVANTAGES OF NCFR

- These are end products of production and consumption that have not been used.
- They are mainly organic and can be in solid, slurry or liquid form.
- Fruit wastes such as banana rejects and pineapple pulp by comparison have sugars which are energetically very beneficial.
- The feed crop which generate valuable NCFR are excellent sources of fermentable carbohydrates eg: cassava and sweet potato
- The majority are bulky poor quality cellulosic roughages with a high crude fibre and low nitrogen contents suitable for feeding to ruminants.



Unconventional feed resources are divided into:

- 1. PROTEIN SOURCES**
 - 2. ENERGY SOURCES**
 - 3. OTHER MISCELLANEOUS**
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CLASSIFICATION OF NON CONVENTIONAL FEEDS :

ENERGY SOURCES	PROTEIN SOURCES	MISCELLANEOUS SOURCES
Vilayati babul pods	Ambadi cake	Sugarcane tops
Apple waste	Corn gluten meal	Babul pods and seeds
Cocoa pods	Corn steep liquor	Banana root bulbs
Coconut pith	Dhainchas seeds	Citrus byproducts
Kusum cake	Guar meal	Jack fruit waste
Mango seed kernel	Pumpkin keaves	Palm male tree
Rain tree pods	Jowar cake and gluten	Panewar seeds
Tamarind seed powder	Niger seed cake	Potato wastes
	Rubber seed cake	Azolla
	Subabul seeds	Tea waste
	Sunhemp seeds	Tomato waste
	DDGS	Pine apple peel

Energy sources:



Vilayati Babul pods



Apple waste

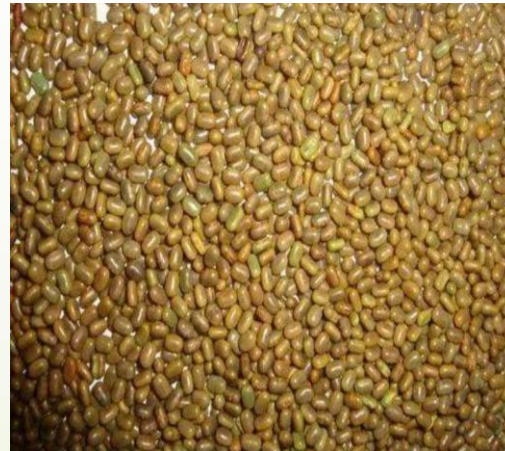


Cocoa Pods

Protein sources :



Gaur meal



Dhanicha seeds



Corn gluten meal

- **DDGS : Distiller's dried grains with soluble :**

1. It is an excellent source for digestible protein and energy for cattle.
2. It is highly palatable with a good source of readily available low cost organic phosphorus and high in protein.
3. The conversion rate of corn to distillers grains is 1 tonne of corn produces 378L of ethanol and 479kg WDG (70% moisture content).

MISCELLANEOUS SOURCES:



Sugar cane top



Tomato waste



Jack fruit waste



PROCESSING OF NCFR TO COMPLETE FEEDS AND TOTAL MIXED RATION

- ▶ Before feeding non conventional feed stuffs they must be well processed (chaffing, grinding (8mm) and pelleting) and mixed into a uniform blend that discourage selection.
- ▶ For this the concept of “complete ration “ Is identified in which large number of unconventional feeds are used to prepare proper nutrient ration to animal.
- ▶ Expander extruder method is of importance in processing of such feeds.

Reference:

- <https://www.slideshare.net/balakesavareddy/unconventional-feed-resources>
- Check out this SlideShare :
<https://www.slideshare.net/HarshitSaxena47/presentation-on-unconventional-feed-stuff-complete1>

