

ANIMAL SCIENCES

UREA TREATMENT OF POOR QUALITY ROUGHAGES



Urea treatment of poor quality roughages

Cereal straws of wheat, paddy, oats, barley and stovers like sorghum, bajra, etc. assume special significance as these constitute the largest proportion of roughage (about 80%), and most of the livestock subsist on such fodders alone. The voluntary intake by animals of cereal straws and stovers is also low. Thus the animals fed on such straws suffer from malnutrition. The National Dairy Research Institute (NDRI), Karnal has developed a technology of urea treatment of roughages.

STEPS OF UREA TREATMENT

1. Take 100 kg of straw or stovers and put them on the cemented/*pakka* floor.
2. Take the fertilizer grade urea @ 4 kg.
3. Dissolve the Urea (4 kg) in 20–30 liters of water and mix it till it completely dissolves.
4. Spray the urea solution with any sprayer on straw lot.
5. Mix Urea solution and straw thoroughly with hand fork (about 5–6 turnings).
6. Stack under the plastic sheets/gunny bags cover to have anaerobic condition and allow it to react for about 3 weeks.
7. Take the straw out from stack. Give 2 to 3 turnings so that excess of ammonia gets evaporated in the atmosphere.
8. The colour of the straw is changed from yellowish to dark brown during the reaction time. Treated straw is ready to use as animal feed for livestock.

Precautions

- Uniformly spray urea solution on straw lots and thoroughly mix.
- Provide complete anaerobic condition for better reaction while stacking the treated straw.

- Precautions should be taken to save the treated material from rains etc.
- Keep the children away from the stack to avoid the ill effect of ammonia on their health.

FEEDING

The treated material serves as maintenance ration. However, supplementation of concentrate mixture as well as green fodder will improve the performance of the producing animals especially lactating animals. The treated straw can be fed to growing calves, producing and non-producing adult animals of cattle, buffaloes, goats and sheep. The treated straws become soft and more pliable, thus increase its palatability, and increased voluntary consumption of straw.

The animals fed on such treated straws should be provided with sufficient quantity of common salt and commercially prepared mineral mixture. The supplementation of vitamins may also be beneficial, which can be supplied through commercial preparations or by feeding 2–3 kg green fodder per day per animal. The treated material can be fed to any ruminant animals having more than six month's age. The change in colour of the treated straw happens due to reaction of the chemical with straw and does not affect straw quality.

ADVANTAGES

- The ingredients are readily available in the market.
- It is not hazardous during the process/treatment of roughages.
- The Urea gets converted into ammonia and then ammonia reacts with fibre to complete the reaction.
- Being a source of alkali it helps in breaking the lignocelluloses bonds and thereby increases the digestibility of the energy producing components.
- The digestibility of organic matter and crude fibre also increases leading to higher amount of available energy to the livestock.
- It increases protein content by two to three times.
- The Urea treatment of straws does not cause any pollution problems.
- The Urea-treated straw does not create urea toxicity in the animal.

- This treatment also acts as preservative thus minimizing the straw spoilage.

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ECONOMICS

Feeding treated straw as basal ration for both growth and milk production can reduce the allowances of concentrate mixture by 25%, without lowering down the productivity of the animals.