Technology for Preparation and Feeding of Bypass Fat (Rumen Protected Fat) to Dairy Animals

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What is bypass fat?
- Dietary fat, which is not degraded in upper part of digestive tract (rumen) of animal, but gets digested in lower alimentary tract is known as bypass fat.

What are synonyms of bypass fat?
- Rumen protected fat.
- Calcium salts of long chain fatty acids.
- Calcium soaps.

Why to supplement bypass fat to dairy animals?
- Immediate after calving, there is huge loss of energy from dairy animals through milk, but feed intake is reduced.
- Therefore, animals remain in negative energy balances.
- Due to above facts, milk production, reproductive performances and body condition of animals are adversely affected.
- Adverse effect is more in high producing animals.
- Bypass fat is rich source of energy.
- Besides, bypass fat is a good source of calcium.
- Thus, supplementation of bypass fat improves milk production, reproductive performances and body condition of animals.

Why oil can not be included instead of bypass fat to get more energy?
- Inclusion of oil causes digestive problems in animals.
- As oil is degraded in upper part of digestive tract (rumen) of animals, availability of energy is lower than bypass fat.

What advantages of supplementation of bypass fat to dairy animals?
- Keeps animals in positive energy balance.
- Increases milk yield (up to 20%).
- Increases milk fat content.

- Maximises peak milk yield and lactation days.
- Improvement in reproductive performances.
- Prevents post-partum weight loss.
- Improves general body condition.
- Protects from heat stress.

Is effect of supplementation of bypass fat similar in all types of dairy animals?
- Effects is not similar in all types of dairy animals.
- Effect tends to be greater in high yielding dairy animals (cows producing more than 15 liters milk/day and buffaloes producing more than 8 liters milk/day).
- Effect tends to be greater in early lactation (0-90 days) than mid lactation (91-150 days).
- Effects tends to be more in Holstein cows

Where bypass fat is available?
- Bypass fat containing different level of fat are available in market commercially.
- ICAR Research Complex for Goa, Old Goa has developed a simple indigenous pro-small farmer technology for preparation of bypass fat from vegetable (palm) oil fatty acids (by-product of oil refinery industry) and technical grade calcium oxide/calcium hydroxide under specific conditions.

What is the appearance and composition of bypass fat, prepared by ICAR, Old Goa?
- It looks like white or creamy granular powder.
- 70-75% vegetable (palm) fat (approx.).
- 7-8% calcium (approx.).

How much bypass fat to be supplemented?
- 15-20 g/kg milk production/animal/day.
- It can be supplemented to dairy animals 15 days before to 150 days after parturition.

How bypass fat is supplemented?
- Bypass fat can be supplemented to dairy animals by mixing with concentrate mixture.
- It can be given as single dose or in divided doses.
What is the economics of supplementation of bypass fat to dairy animals?

- Cost of production of the indigenously prepared bypass fat is highly dependant up on the cost of raw materials.
- In present situation, cost of production of bypass fat is 80/- per kg.
- Approximately, feeding 300g bypass fat/animal/day increases milk production by 1.0-1.5 ltr/day, giving a net profit of ₹ 8-24/animal/day.
- However, on purchase of raw materials in bulk, cost of production of the indigenously prepared bypass fat can be reduced significantly and profit will be more.

For further reading....