Testing a moist co-product for dairy cows consuming grass silage based diets

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Introduction

- Moist co-products are valuable feeds when fresh or conserved forages are limited for ruminants

- Many types are available from:

  - *Forages (silage)*

  - *Cereals (wet milling, biofuel, others)*

  - *Fruits & Vegetables (apple, grapes, citrus)*

- Disposal creates economical, environmental and regulatory issues

- Nutritious but vary in nutritive values

- ❖ Should be evaluated against dry feeds

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Objective

- To compare TMR containing *either*

    - Dried rolled wheat (Control) *or*

    - A wheat-based moist feed (Treatment) for dairy cows

Hypothesis

- This moist feed can replace the rolled wheat in TMR without causing any detrimental effects on cow performance

Materials and Methods

Test Concentrates & TMR

- Two similar concentrates with similar CP (*210g CP*) & ME (*12.5 MJ ME) per* kg DM

  - *Dry rolled wheat as Control =*Cont and

  - *A wheat based moist co-product as Treatment =*Treat

  - *Common ingredients= RSM, SBM, Sugar beet pulp, Molaferm 20, Barley straw, Vit-Min premix*

- Each concentrate was daily mixed in a mixer wagon with ryegrass silage at <u>32:68</u> ratio to prepare respectively *Con* and *Treat* TMR.

Materials and Methods 2

Dairy cows, housing and feeding

- 72 Holstein-Friesian cows
  - distributed into 2 similar groups (n=36) which were balanced for
  - Condition score
  - Parity
  - Daily Milk yield and Days in Milk

- The cows were group housed in an open shed

- Each TMR of about 19kg DM was offered once daily to satisfy the ME and MP needs of a cow producing 25L milk.

- Also, each cow received 2kg Distillers' grains during milking.

Materials and Methods 3

Measurements over 4 months *(Nov to Feb)*

- Daily Cow health

- Daily intake of TMR and additional concentrates

- Daily milk yield per cow

- Milk composition per cow

  – *Milk Fat*

  – *Milk Protein*

  – *Milk Cell Counts*

- Statistical analysis by Minitab to compare

  – the effect of *Cont vs Treat* TMR on milk yield & composition

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Results 1

Cow Health and DMI

- All cows remained healthy and productive

- Both TMR were palatable as indicated by DM intakes (DMI).

- *Treat* cows ate less silage *(13.4 v 14kg DM /day/cow, P>0.05)* but more concentrate *(6.8 v 6.2 kg DM, P<0.05)* than the *Cont* cows.

❖ Mean daily DMI of each TMR /cow was uniform *(20.19 vs 20.15 kg for Treat and Cont group respectively)* for both groups.

Results 2

Milk Yield

- Daily milk yield (Fig 1) and total cell counts per cow did not vary (P>0.05) between groups during various months

- Overall, *Treat* cows tended to increase (P>0.05) mean daily milk yield by 0.144 kg than the *Cont* cows.

Milk yield *(kg /cow /day)*
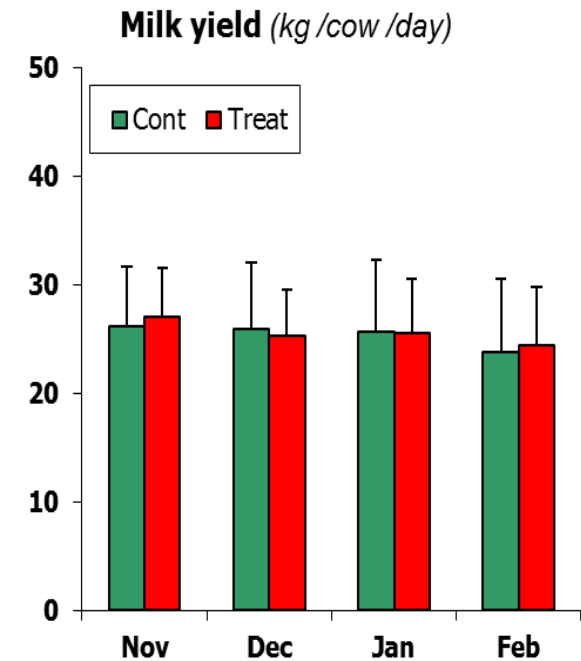
Results 3

Milk Fat & Protein

Milk fat (g /kg)

- *Treat* cows had always more milk fat and protein contents than the *Cont* cows

- BUT the contents differed significantly (P<0.05) only in <u>Nov-Dec for fat</u> and <u>Jan for protein</u>.

- Overall, the mean milk fat (*46.2 vs 43.7*) and protein (*34.5 vs 33.5*) contents were also greater (P<0.001) in *Treat* than the *Cont* cows.

- Mean cell counts always remained within acceptable limits (P>0.05).

Milk Protein (g/kg)

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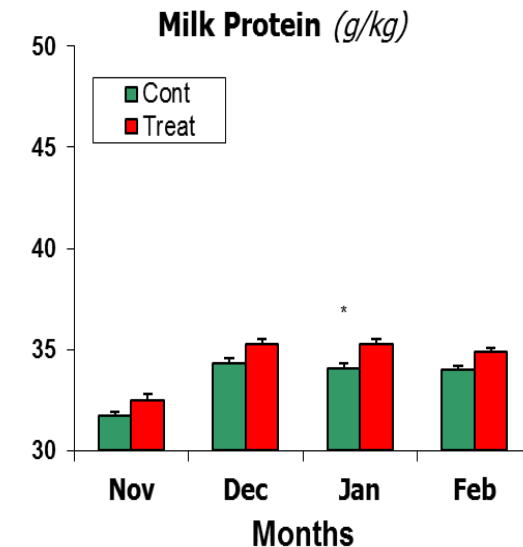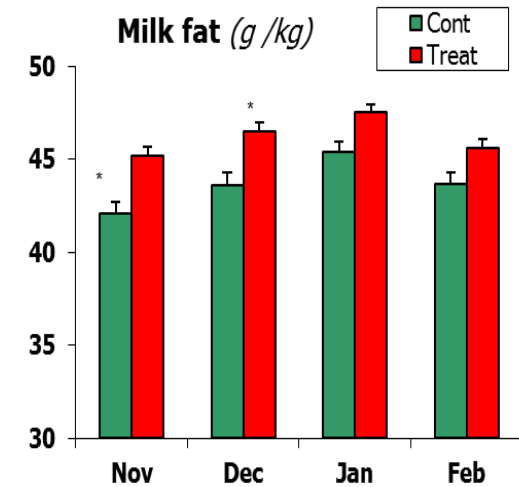
Summary & Conclusions

- The cows consuming moist feed based TMR remained in good health as shown by their intake, yield, cells & general appearance

- The moist feed can replace rolled wheat in TMR

- However, it is essential to consider the storage, economic & environmental aspects of using such moist feeds in TMR

- Such co-products can be integrated with a dairy rationing system as a moist bulk feed in winter rations <u>and</u> can also be used as a buffer feed for grazing cows in summer.

- However, the farmers that are located in the vicinity of its production would benefit more as those farmers can utilise moist feeds when these are readily available at a competitive price with less carbon footprints.

Acknowledgements

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