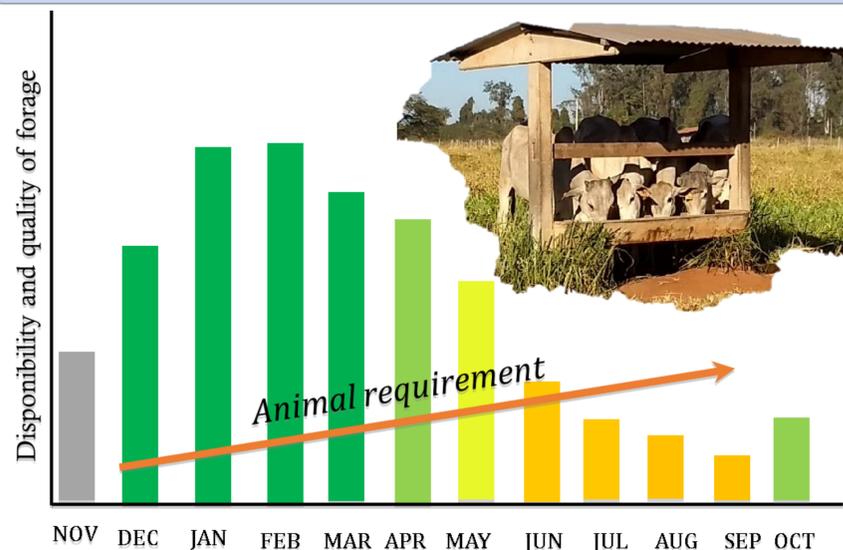


# The effect of tannins extract associated to two levels of urea in the supplement of grazing Nellore steers on ruminal microbial richness and diversity estimators

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## INTRODUCTION



- Brazilian beef production systems;
- Growing phase:
  - Dry season – low quality forage.
- Supplement composition – urea inclusion;
- Tannins extract;
- Rumen microbiology.

## OBJECTIVE

- The objective was to evaluate the inclusion of tannins extract (TN) associated to two levels of urea (UR) in the supplement of grazing Nellore steers on ruminal microbial richness and diversity estimators.

## MATERIALS AND METHODS

- 4 rumen cannulated Nellore steers (293±5.6 kg), grazing *Urochloa brizantha* cv. Marandu (dry season);
- Latin square 4 × 4 (four experimental periods and four different supplements);
- Steers were supplemented at 3 g/kg BW (26% CP; soybean meal, corn, mineral mix and two levels of UR [3% or 5%] associated or not to TN [SilvaFeed-ByPro at 0.7 g/kg]);
- Ruminal samples were collected 3h after supplementation (on each experimental period);
- V3/V4 regions of 16SrRNA gene was sequenced and Operational Taxonomic Units (OTUs) and Alpha\_diversity.py was used to calculate ACE, Chao1, Shannon, and Simpson indices;
- Richness and diversity estimators were compared between UR level and TN addition using a Friedman test and a Dunn's post-hoc test using R;
- Sequencing produced 709,456 reads from 16 samples;
- The median number of reads was 81,005 per sample with good's coverage median of 0.98.

## RESULTS AND DISCUSSION

**Table 1.** Ruminal microbial richness (Chao1 and ACE) and diversity (Shannon-Wiener and Simpson) estimators of grazing supplemented Nellore steers with inclusion of tannins extract (TN) associated to two levels of urea (UR).

| Item                  | Low Urea        |                | High Urea       |                 | P - value |       |           |
|-----------------------|-----------------|----------------|-----------------|-----------------|-----------|-------|-----------|
|                       | Without TN      | With TN        | Without TN      | With TN         | Urea      | TN    | Urea x TN |
| <b>Ace</b>            | 2499,8 ± 153,12 | 2491,6 ± 80,90 | 2478,7 ± 102,11 | 2483,0 ± 48,89  | NS        | <0,05 | NS        |
| <b>Chao1</b>          | 2512,2 ± 132,50 | 2492,8 ± 98,45 | 2495,4 ± 115,67 | 2507,95 ± 79,12 | NS        | <0,05 | NS        |
| <b>Shannon-Wiener</b> | 9,000 ± 0,13    | 8,950 ± 0,22   | 8,880 ± 0,39    | 8,915 ± 0,13    | NS        | NS    | NS        |
| <b>Simpson</b>        | 0,993 ± <0,01   | 0,992 ± <0,01  | 0,992 ± <0,01   | 0,992 ± <0,01   | NS        | <0,05 | NS        |

\*P - valor – Friedman test.

## CONCLUSION

- Higher richness and lower diversity indexes suggest that TN may improve the rumen microbiome growing and efficiency in grazing steers.

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