

Comparison of methane emissions by cattle pastures in the Pantanal, between two seasons of the year.

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Introduction

The Pantanal has numerous grazing fields which are subject to annual climatic variations and handling procedures (stocking rate, deferral, etc.). Considering the climate, the largest changes are observed between the dry and rainy seasons of the year. This study was to evaluate the methane emissions in the Pantanal grasslands in the two main climatic periods of the year.

Material and Methods

Twelve Nellore containing rumen sulfur fluoride capsules (SF₆) known flow, were used for the collections in two periods of the year (end of the dry and rains seasons) and randomly assigned to two different landscapes - one composed of native pastures and another of a mixture of cultivated and native pastures), of the Experimental Farm Nhumirim (Embrapa Pantanal). Methane emission rates were estimated from the concentration of the tracer gas SF₆ according to the technique described by Johnson et al., 1994. The samples were collected from 24 August to 12 September 2014 for the collection of dry season and between March 23 and April 12, 2015, to collect the wet season. Data were subjected to analysis of variance and Student's t test.

Results and Conclusions

Methane emissions between the two seasons were different ($P < 0.01$) both in native pastures as in mixed pastures (Table 1). The changes were more important in native pastures when compared to cultivated pastures, probably caused by changes in the floristic composition and the influence of diet selection processes, more impactful for them.

Table 1. Means of methane emissions in g/animal/day in two seasons in mixed and native _ pastures of the Pantanal.

| Methane emissions | Season | | Difference | | P |
|------------------------|---------------------|---------------------|------------|--------|---------|
| | Rainy | Dry | (g/dia) | (%) | |
| Native pastures | 322,09 ^a | 140,57 ^b | 181,52 | 229,13 | <0,0001 |
| Mixed pastures | 295,83 ^a | 171,85 ^b | 123,98 | 172,14 | <0,0001 |

Means followed by different letters in the same line differ statistically.

References

JOHNSON, K; HUYLER, M.; WESTBEN, H.; MOULD, F.; ZIMMERMAN, P. 1994. *Environmental Science and Technology*. 28, 359-362.

Acknowledgements

Thanks to EMBRAPA-PECUS Network - Greenhouse gases (GHG) dynamics in brazilian livestock production systems, and to FUNDECT/MS (concession term 094/2014) for providing financial support, and to the staff of Embrapa Pantanal who contributed to the implementation of sample collection and laboratory analysis.