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Eighty eight Nellore bulls (358 ± 38.5 kg Body weight - BW) were used in a randomized block design with a 2×2 factorial arrangement to test two feed additives (MON - Sodium Monensin 26 mg/kg DM vs. CRINA-Rumistar - combination of blend of essential oils - 90 mg/kg DM + exogenous α -amylase - 560 mg/kg DM; DSM Produtos Nutricionais Brasil S.A.) and two roughage sources (CS - corn silage vs. SB - sugarcane bagasse) during feedlot adaptation period. Animals were adapted to the diets during 19-d, starting with 20% of physically effective NDF, gradually decreased to 10%. Final diets contained 0.3% urea, 4% mineral and vitamin mixture, 5.5% soybean meal, corn grain (70.7 and 78.2% for CS and SB diets, respectively) and 19.5% of CS or 12% of SB. BW, dry matter intake (DMI), average daily gain (ADG) and feed efficiency (G:F) were evaluated. Data were analyzed using the Mixed procedure of SAS considering roughage source, feed additives and interaction as fixed and block as random effects. There was an interaction between roughage sources and feed additives for DMI ($P=0.0323$) and G:F ($P=0.0335$). Animals fed CRINA-Rumistar and CS had higher DMI than those fed SB (10.7 vs. 6.7 kg PPP=0.0884), when compared to SB. Higher final BW (384.4 vs 369.4 kg; $P=0.0057$) and ADG (1.215 vs 0.656 kg/d; $P=0.0005$) was observed in animals fed CRINA-Rumistar than those fed MON. CRINA-Rumistar is an effective substitute of the MON, regardless of roughage source, during adaptation period.

Table 1 – Means, standard errors of means (SEM) and probabilities (P) of performance traits according to roughage source and feed additive.

Traits ¹	Corn silage		Sugarcane bagasse		SEM	P-value		
	Crina-Rumistar	Monensin	Crina-Rumistar	Monensin		Roughage	Additive	R x A ²
Initial BW, kg	359.9	358.5	363.1	355.4	13.51	0.9829	0.2750	0.4473
Final BW, kg	384.4 ^{ab}	377.4 ^{aA}	383.3 ^{ab}	361.4 ^{ab}	13.26	0.0884	0.0057	0.1885
ADG, kg/day	1.357 ^{aA}	0.997 ^{aA}	1.073 ^{ab}	0.315 ^{ab}	0.17	0.0025	0.0005	0.2007
DMI, kg/day	10.7 ^{aA}	10.4 ^{aA}	6.7 ^{ab}	5.4 ^{ab}	0.39	<0.0001	0.0035	0.0323
G:F, g ADG/g DMI	125.4 ^{aA}	123.9 ^{aA}	145.7 ^{aA}	42.9 ^{ab}	29.8	0.1983	0.0286	0.0335

¹BW – body weight; ADG – average daily gain; DMI – dry matter intake; G:F – gain-to-feed ratio; HCW – hot carcass weight; DP – dressing percentage; LMA – Longissimus muscle area; BFT – backfat thickness.

² Roughage x additive.

^{aA} Different letters within roughage type differ for feed additive ($P<0.05$)

^{ab} Different letters within feed additive type differ for roughage source ($P<0.05$)

Key Words: additives, performance, roughage

PSXIV-26 Do mycotoxin contaminated diets and yeast-derived adsorbent affect finishing Nellore cattle performance in feedlot? L. Custodio¹, L. Prados², A. Yiannikouris³, D. Figueira⁴, E. da Gloria⁵, V. Holder³, J. Pettigrew⁶, L. Kuritza³, F. Resende⁷, G. Siqueira⁷, ¹UNESP/APTA, Barretos, Brazil, ²Agencia Paulista de tecnologia dos Agronegócios (APTA), Brazil, Colina, Brazil, ³Alltech Inc, Nicholasville, KY, United States, ⁴UNESP/APTA, Sao Paulo, Brazil, ⁵ESALQ, Piracicaba, Brazil, ⁶Pettigrew Research Services, Urbana, IL, United States, ⁷Agencia Paulista de tecnologia dos Agronegócios (APTA), Brazil, Sao Roque, Brazil

The objective was to evaluate the effect of mycotoxins and yeast-derived adsorbent on performance of Nellore cattle finishing in feedlot. One hundred Nellore cattle (430 ± 1.0 kg and 24 mo) were used. At the beginning of the experiment, 4 randomly selected animals were slaughtered to determine the initial hot carcass weight (HCW). The experiment was conducted in a 2×2 factorial arrangement of treatments consisting of two diets with natural contamination (NC) or exogenous contamination (EC) and presence (10g/hd daily) or absence of yeast-derived adsorbent (YDA). The diets with NC and EC had the following contamination levels: aflatoxin 0 and 10 μ g/kg, fumonisin 5,114 and 5,754 μ g/kg, trichothecenes B 0 and 42.1 μ g/kg, trichothecenes A 0 and 22.1 μ g/kg, fusaric acid 42.9 and 42.9 μ g/kg and REQ 15 and 45 μ g/kg, respectively. The REQ is the risk equivalency quantities expressed in μ g/kg of AFB1-equivalent, which is mycotoxin concentrations interpretation according to known species specific sensitivities and normalized according to the principles of toxic equivalent factors. After 97 days of experiment, remaining animals were slaughtered and the HCW was obtained for determination of the carcass gain. There were no main effects or interactions of treatment factors for final weights ($P = 0.40$; 597, 592, 581 and 586 kg for NC, NC+YDA, EC and EC+YDA, respectively), DMI ($P = 0.92$; 12.7, 12.6, 12.0 and 12.0 kg, respectively or ADG ($P = 0.37$; 1.72, 1.67, 1.56 and 1.62 kg, respectively). However, there were interactions between factors for carcass gain ($P < 0.08$; 1.20, 1.14, 1.05 and 1.12, respectively) and for dressing ($P < 0.04$; 57.2, 56.6, 56.2 and 56.8, respectively), as a detrimental effect of EC was partially counteracted by YDA. In conclusion, mycotoxins reduce the carcass gain and dressing percent of the animals and the yeast-derived adsorbent alleviates this damage.

Key Words: carcass gain, dressing percent, mycotoxins

- PSXIV-27 Do mycotoxin contaminated diets and yeast-derived adsorbent affect meat quality of finishing Nellore cattle in feedlot?** L. Custodio¹, L. Prados², A. Yiannikouris³, D. Figueira⁴, E. da Gloria⁵, V. Holder⁶, J. Pettigrew⁷, L. Kuritza⁶, F. Resende⁸, G. Siqueira⁸, ¹UNESP/APTA, Barretos, Brazil, ²Agencia Paulista de tecnologia dos Agronegócios (APTA), Brazil, Colina, Brazil, ³Alltech Inc, United States, ⁴UNESP/APTA, Sao Paulo, Brazil, ⁵ESALQ, Piracicaba, Brazil, ⁶Alltech, Nicholasville, KY, United States, ⁷Pettigrew Research Services, Urbana, IL, United States, ⁸Agencia Paulista de tecnologia dos Agronegócios (APTA), Brazil, Sao Roque, Brazil

The objective was to evaluate the effect of mycotoxins and yeast-derived adsorbent on meat quality of Nellore cattle finishing in feedlot. Ninety-six Nellore cattle were used, (430 ± 1.0 kg and 24 mo). The treatment design was a 2×2 factorial arrangement consisting of two diets with natural contamination (NC) or exogenous contamination (EC) and presence (10g/hd daily) or absence of yeast-derived adsorbent (YDA). The diets with NC and EC had the following contaminations levels: aflatoxin 0 and $10 \mu\text{g/kg}$, fumonisin 5114 and $5754 \mu\text{g/kg}$, trichothecenes B 0 and $42.1 \mu\text{g/kg}$, trichothecenes A 0 and $22.1 \mu\text{g/kg}$, fusaric acid 42.9 and $42.9 \mu\text{g/kg}$ and REQ 15 and $45 \mu\text{g/kg}$, respectively. The REQ is the risk equivalency quantities expressed in $\mu\text{g/kg}$ of AFB1-equivalent, which is mycotoxin concentrations interpretation according to known species specific sensitivities and normalized according to the principles of toxic equivalent factors. After 97 days of experiment, all animals were slaughtered and the carcasses were stored in a chilling chamber at 4°C . Three steaks from longissimus (2.5 cm thick) were cut between 11L*, a*, b*), cooking losses, shear force and chemical composition were analyzed. The L*, a* and b* colors were similar among factors ($P \geq 0.38$), as was the cooking loss ($P = 0.94$; 32.4, 32.5, 33.1, 31.0%, for NC, NC+YDA, EC, EC+YDA respectively) and the shear force ($P = 0.50$; 6.8, 6.9, 6.8, 6.5 kgf, respectively). The chemical composition also was unaffected ($P \geq 0.61$) by the treatments and the average of variables were 74.2% for moisture, 22.7% for CP, 1.04% for EE, and 2.10 for ash. In conclusion, at this level of contamination mycotoxin and yeast-derived adsorbent do not affect

the meat quality of finishing Nellore cattle in feedlot.

Key Words:

- PSXIV-29 Citrus aurantium flavonoid extract improves concentrate efficiency, and animal behavior of Holstein bulls fed high-concentrate diets.** M. Paniagua¹, F. Crespo², M. Serra², A. Aris³, M. Devant³, ¹Quimidroga, Barcelona, Spain, ²Interquim SA, Ferrer HealthTech, Barcelona, Spain, ³IRTA, Barcelona, Spain

This study evaluated the effects of a flavonoid extract from Citrus aurantium (Bioflavex® CA, 24% naringin) on performance, behavior and carcass quality. One hundred forty-four bulls (164.8 ± 5.91 kg BW and 135 ± 7.2 d of age) were randomly allocated to one of 8 pens and assigned to control (C) or Bioflavex® CA (BF, 0.4 kg of Bioflavex® CA per ton of concentrate). Each pen had one drinker, one separate straw feeder, and one three-space feeder where mash concentrate (main ingredients were corn, barley, wheat, and DDG; 15.7% CP and 3.27 Mcal ME/kg for growing and 13.6% CP and 3.37 Mcal ME/kg for finishing) was offered. Concentrate intake was recorded daily, and BW and animal behavior by visual scan were registered fortnightly. Animals were slaughtered after 168 d of study (12 periods of 14 d), HCW and carcass quality were recorded. Data were analyzed using a mixed-effects model with repeated measures and categorical data with a Chi-Square. Final BW (437.9 ± 1.85 kg) and concentrate intake (7.1 ± 0.13 kg/d) were not affected by treatment. Concentrate FCR tended ($P < 0.10$) to be lesser in BF (4.50 ± 0.108 kg/kg) than in C (4.72 ± 0.108 kg/kg) bulls. Percentage of animals eating concentrate during visual scan was greater ($P < 0.01$) in BF ($10.02 \% \pm 0.512$) compared with C ($7.97 \% \pm 0.512$). Oral non-nutritive behaviors, agonistic interactions (fighting, butting, and chasing) and sexual behaviors (flehmen, attempted and complete mounts) were greater ($P < 0.01$) in C than in BF bulls. In conclusion, supplementation with citrus flavonoids in bulls fed high-concentrate diets tends to improve concentrate efficiency, reduces oral non-nutritive behaviors, agonistic interactions and sexual behavior.

Key Words:

- PSXIV-34 The influence of microencapsulated plant secondary compounds (MPSC/ Activo Premium®) on performance and carcass characteristics of growing and finishing feedlot beef cattle.** S. Jalali¹, A. Budde¹, O. Guimaraes¹, R. Araujo², M. Tiedeman³, R. Goodall³, T. Engle⁴,