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Short communication. Milk yield and composition, dry matter intake and blood parameters of Holstein cows fed ensiled apple pomace co-ensiled with broiler litter

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Abstract

The present study was carried out to evaluate the effects of ensiled mixed apple pomace and broiler litter (EAPBL) on milk yield (MY) and composition, dry matter intake (DMI) and blood parameters at early lactation cow. Four multiparous early-lactating Holstein dairy cows were used in a 4 × 4 Latin square design including 4 periods and 4 experimental diets. The cows were fed diets containing 0 (control), 15, 30 and 45% of EAPBL, respectively. The highest DMI ($p < 0.05$) was observed in cows fed diets containing 15 and 30% of EAPBL. Milk production was lower ($p < 0.05$) in cows fed 0% EAPBL than in the other experimental groups. Diet including 45% of EAPBL increased ($p < 0.05$) blood glucose and blood urea nitrogen concentration. Inclusion of EAPBL on dairy cows rations might efficiently cause an improvement on MY, milk composition and DMI.

Keywords

apple pomace silage; broiler litter; Holstein dairy cows; performance

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References

Abdollahzadeh F, Pirmohammadi R, Farhoomand P, Fatehi F, Pazhoh FF, 2010a. The effect of ensiled mixed tomato and apple pomace on Holstein dairy cow. Ital J Anim Sci 9: 212-216.

Abdollahzadeh F, Pirmohammadi R, Fatehi F, Bernousi I, 2010b. Effect of feeding ensiled mixed tomato and apple pomace on performance of Holstein dairy cows. Slovak J Anim Sci 43: 31-35.

Bernard JK, 1997. Milk production and composition responses to the source of protein supplements in diets containing wheat middlings. J Dairy Sci 80: 938-942.
[http://dx.doi.org/10.3168/jds.S0022-0302\(97\)76017-X](http://dx.doi.org/10.3168/jds.S0022-0302(97)76017-X)

Bhattacharya AN, Taylor JC, 1975. Recycling animal waste as a feedstuff: a review. J Anim Sci 41: 1438-1451.

Cross DL, Skelley GC, Thompson CS, Jenny BF, 1978. Efficacy of broiler litter silage for beef steers. J Anim Sci 47: 544-551.

Ghoreishi SF, Pirmohammadi R, Teimouri Yansari A, 2007. Effects of ensiled apple pomace on milk yield, milk composition and dry matter intake of Holstein dairy cows. J Anim Vet Adv 6: 1074-1078.

Hopkins BA, Poore MH, 2001. Deep-stacked broiler litter as a protein supplement for dairy replacement heifers. J Dairy Sci 84: 299-305.
[http://dx.doi.org/10.3168/jds.S0022-0302\(01\)74480-3](http://dx.doi.org/10.3168/jds.S0022-0302(01)74480-3)

Karami M, Ghorbani GH, Fazaeli, 1996. Replacement of alfalfaby ensiled apple pomace in the ration of

Bakhtiari male lambs. Proc First Animal Nutr Cong Iran. Karaj, Iran. pp: 222-226.

Kennedy M, List D, Lu Y, Foo LY, Newman RH, Sims IM, Bain PJS, Hamilton B, Fenton G, 1999. Apple pomace and products derived from apple pomace: uses, composition and analysis of plant waste materials. In: Analysis of plant waste materials (Linskens HF & Jackson JF, eds). Springer-Verlag Berlin Heidel-Berg, Germany, pp: 75-119. http://dx.doi.org/10.1007/978-3-662-03887-1_4

Kwak WS, Park JM, Park KK, Kim WY, 2004. Ruminant dry matter and fiber characteristics of rice hulls-bedded broiler litter compared with rice straw. Asian-Aust J Anim Sci 17: 207-212.

Lashkari S, Taghizadeh A, 2013. Nutrient digestibility and evaluation of protein and carbohydrate fractionation of citrus by-products. J Anim Physiol Anim Nutr 97: 701-709. <http://dx.doi.org/10.1111/j.1439-0396.2012.01312.x>

Lashkari S, Taghizadeh A, Seifdavati J, Salem AZM, 2014. Qualitative characteristics, microbial populations and nutritive values of orange pulp ensiled with nitrogen supplementation. Slovak J Anim Sci [In press].

NRC, 2001. Nutrient requirements of dairy cattle. National Academy Press, Washington DC, USA.

Pirmohammadi R, Rouzbehan Y, Rezayazdi K, Zahedifar M, 2006. Chemical composition, digestibility and in situ degradability of dried and ensiled apple pomace and maize silage. Small Rumin Res 66: 150-155. <http://dx.doi.org/10.1016/j.smallrumres.2005.07.054>

Ruffin BG, McCaskey TA, 1990. Broiler litter can serve as a feed ingredient for beef cattle. Feedstuffs 62: 13-17.

Rumsey TS, 1979. Addition of trace minerals, starch, and straw to apple pomace-urea diets for gestating beef cows. *J Anim Sci* 48: 495-499.

SAS Inst., 1996. Statistical analytical systems, user's guide, version 9.2. SAS Institute Inc., Cary, NC, USA.

Sato MF, Vieira RG, Zardo DM, Falcão LD, Nogueira A, Wosiacki G, 2010. Apple pomace from eleven cultivars: an approach to identify sources of bioactive compounds. *Acta Sci Agron* 32: 29-35.

Silanikove N, Tiomkin D, 1992. Toxicity induced by poultry litter consumption: Effects on measurements reflecting liver function in beef cows. *Anim Prod* 54: 203-209.

<http://dx.doi.org/10.1017/S0003356100036813>

Silva LA, Van Horn HH, Olaloku EA, Wilcox CJ, Harris B Jr, 1975. Complete rations for dairy cattle. VII. Dried poultry waste for lactating cows. *J Dairy Sci* 59: 2071-2078. [http://dx.doi.org/10.3168/jds.S0022-0302\(76\)84489-X](http://dx.doi.org/10.3168/jds.S0022-0302(76)84489-X)

Torell DT, Hume ID, Weir WC, 1974. Factors affecting blood urea nitrogen and its use as an index of the nutritional status of sheep. *J Anim Sci* 39: 435-440.

Toyokawa K, Yamada K, Takayasu I, Tsubmatsu K, 1977. Studies on the utilization of rice straw. VII. The effect of rice straw on making silage of apple pomace as addition and its rearing effect for lambs as roughage. *Bull Fac Agric Hirosaki Univ* 28: 10-24.

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