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Effect of lipid supplementation on growth performance, carcass and meat quality and fatty acid composition of intramuscular lipids of lambs fed dehydrated lucerne or concentrate

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Abstract

Thirty-two Merino Branco ram lambs were used to evaluate the effects of basal diet and soybean oil supplementation on growth, carcass and meat quality and fatty acid composition of longissimus thoracis muscle. The lambs were submitted to four diets: ground and pelleted lucerne; ground and pelleted lucerne plus 10% soybean oil; concentrate; concentrate plus 10% soybean oil. Lambs were slaughtered after 7 weeks of trial. Lambs fed lucerne had higher intake and lower carcass weight. Intake decreased and carcass weight increased with oil supplementation in lucerne. Carcass weight decreased with oil inclusion in concentrate. Muscle and muscle/bone ratio were higher on concentrate. Oil decreased muscle proportion. Basal diet and lipid supplementation had minor effects on meat quality traits. Consumer's distinguished meat from oil supplemented lambs, but did not reveal any particular preference. The *trans*-octadeceonates and conjugated octadecadienoates isomers are strongly dependent of basal diet and oil exacerbates the differences. The predominant *trans*-octadecenoate was 18:1 *trans*-11 in lucerne and 18:1 *trans*-10 in concentrate. The main conjugated octadecadienoic isomer was 18:2 *cis*-9, *trans*-11 in both basal diets. Oil increased 18:2 *cis*-9, *trans*-11 only in lucerne and 18:2 *trans*-10, *cis*-12 in concentrate. Lucerne fed lambs showed low ratio n-6/n-3 fatty acids.

Keywords: Lamb; Lipid supplementation; Meat quality; Fatty acid composition; Conjugated linoleic acid; *Trans* fatty acids

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