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Sulfur and Selenium Accretion in the Gravid Uterus During Late Gestation in Holstein Cows

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Multiparous Holstein cows (n = 18) were bred artificially to the same Holstein bull and then slaughtered at times from 190 to 270 d postmating to assess S and Se accretion in the fetus and nonfetal components of the conceptus. Concentrations of S and Se were obtained for the fetus, fetal fluids, fetal membranes, cotyledons, caruncles, and uterine tissues. Also, Se concentrations were determined in liver samples from 15 of the fetus-dam pairs. The Se concentration in fetal liver was greater than the corresponding Se concentration in maternal liver for all fetus-dam pairs. Accumulation rates of S and Se in components of the conceptus were determined from linear or exponential functions relating S and Se contents to day postmating. When estimated from linear regression coefficients, accretion rates of S for the fetus and entire conceptus were 1.26 and 1.51 g/d, respectively; corresponding accretion rates for Se in the fetus and entire conceptus were 41 and 55 µg/d, respectively. These rates provided estimates of net amounts of S and Se utilized for conceptus growth during late pregnancy. Estimates of total needs for S and Se during late pregnancy in dairy cows may be obtained by adding requirements for conceptus development to allowances for maternal maintenance. Current dietary allowances for S and Se appear to be sufficient to meet the requirements for S and Se for growth of the conceptus during the dry period.

Key Words: sulfur • selenium • conceptus • dairy cows

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