Dhanoa et al. (2009) described an elegant and novel approach to estimate effective rumen degradability ($E$) assuming zero-order kinetics, which would increase the capacity to process samples using the in situ nylon bag method. The degradation and passage kinetic model for estimating $E$ was basically the same as the original Ørskov & McDonald (1979) model. Although the described method is mathematically sound, the authors ignored two erroneous assumptions of the basic kinetic model. First, the model assumes that the ‘wash fraction’ is instantly degraded. Part of the immediately ‘degraded’ fraction can be physical loss of small particles from the bags. Although the effect of particle loss may be corrected mathematically, the assumption of infinite degradation rate for the truly soluble fraction is not correct. There is ample experimental evidence based on different in vitro and in vivo techniques (Chen et al. 1987; Hristov & Broderick 1996; Peltekova & Broderick 1996; Choi et al. 2002; Volden et al. 2002; Ahvenjärvi et al. 2007; Reynal et al. 2007) demonstrating that passage kinetics of ruminal digesta are not well described by a single exponential model. Unless more correct models would exaggerate differences in ruminal protein degradability between feeds. The insignificant effects of increasing rumen undegraded protein (RUP) supply on milk production (Ipharraguerre & Clark 2005) support this statement. In a recent meta-analysis (Huhtanen & Hristov 2009) based on 1800 treatment means, ruminal protein degradability only marginally improved predictions of milk protein yield or milk N efficiency when used as a third independent variable in regression models with energy and crude protein intake. The experimental evidence strongly suggests that RUP is overvalued in current protein feeding systems, at least partly because of the above mentioned two false assumptions of the Ørskov & McDonald (1979) model. Unless more correct models are used to derive $E$ from kinetic parameters, simplified in situ procedures are of little value in feed evaluation despite increased labour effectiveness.

**REFERENCES**


From

P. Huhtanen, Department of Agriculture for Northern Sweden, Swedish University of Agricultural Sciences, Skogsmansgränd, Umeå S-90183, Sweden

A. N. Hristov, Department of Dairy and Animal Science, State College, Pennsylvania State University, Pennsylvania, USA