SELENIUM STATUS OF ONTARIO SHEEP FLOCKS AND ITS RELATIONSHIPS TO MANAGEMENT AND PRODUCTIVITY

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As part of a multidisciplinary project undertaken to identify and improve disease and management problems in Ontario sheep flocks (SHEPHERDS), hair samples were clipped from the hocks of five randomly selected ewes within each of 107 randomly selected flocks. Selenium content of the hair was determined using instrumental neutron activation analysis (INAA).

On a convenience subsample of 20 farms, blood samples were also taken from the ewes from whom hair was taken, for whole blood selenium and glutathione peroxidase (GSH-Px) testing.

Sufficient blood for serum selenium was obtained from 15 flocks, and for GSH-Px, 17 flocks. At the individual sheep level, there was no significant correlation between GSH-Px levels and hair selenium ($p=0.203$). Serum selenium correlated moderately well with both hair ($r=0.544$; $p=0.0001$) and GSH-Px ($r=0.410$; $p=0.0011$). At the flock level, hair and serum selenium were significantly correlated ($r=0.71$; $p=0.0028$). Flock-level GSH-Px levels were not correlated with either serum selenium ($p=0.223$) or hair ($p=0.391$).

A number of variables related to pasturing and feeding practices were associated with average flock hair selenium levels in univariate analyses. However, feeding a constant level of grain to lambs from weaning to selling or breeding (versus changing feed levels) was the only variable to enter in a stepwise multiple regression. In the "best" model selected on the basis of Mallow's Cp, two other factors were included: the length of time the ewes were given extra feed before breeding, and the use of supplemental feed for pastured ewes in August. Both coefficients were positive.

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