

The research on *Salmonella enteritidis* and molting

Salmonella enteritidis (SE) colonization of egg layers has been experimentally associated with induced molting. The research concludes that molted chickens are more susceptible to intestinal colonization with lower doses of SE and are more likely to shed SE than are unmolted hens. However, the studies from which these conclusions are drawn do not make a separation between molting and fasting. Additionally, there is evidence that fasting, rather than molting, is associated with SE susceptibility. Two studies have demonstrated that volatile fatty acids (VFAs) may prevent SE colonization in non-fasted hens. VFAs are the products of normal bacterial flora and are lower in fasting chickens due to changes in the bacterial population. The lowered VFAs in fasting chickens is directly associated with SE susceptibility. In addition, a comparison of hens molted by fasting, hens molted with a molt-diet and unmolted hens demonstrated that there was no difference in the amount of SE shed by the molt-diet molted hens and the unmolted hens. Taken together, these findings would suggest that it is fasting that is associated with SE susceptibility in layers rather than molting.

Future studies will need to address SE colonization and shedding in commercial layers. Most of the studies reviewed here have been done in laboratory settings with non-commercial breeds. Clearly the intestinal flora of chickens housed in a research facility will differ from those in a commercial setting. And, since intestinal flora likely influences a chicken's susceptibility to SE colonization and invasion, studies must be done in commercial settings to establish what, if any, association exists between SE colonization and shedding and molting and/or fasting.