Saskia Leleu

kindly invites you to
the public defence of her doctoral thesis

Horizontal contamination of table eggs
with *Salmonella* Enteritidis:
mechanisms and control

The defence will take place on **April 27\textsuperscript{th} 2011** at **15h00**
in auditorium *Zeger Van Hee* at College *De Valk*, Tiensestraat 41, 3000 Leuven

After the defence, you are kindly invited to the reception.
Please confirm your presence before **April 19\textsuperscript{th}**
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Abstract
Salmonella enterica serovar Enteritidis was the main cause of reported human salmonellosis cases in the European Union in 2009. Raw eggs and egg products are pinpointed as the leading sources of S. Enteritidis. By 2012, the Council Directive 1999/74/EC will abolish conventional cages for laying hens. Keeping hens on the floor was hypothesized to increase the risk of egg contamination, but recent studies have shown that this is unlikely to occur.

This research focused on the role of egg components in contributing to variation in the eggs’ antimicrobial defence and on egg treatments to reduce the potential risk of S. Enteritidis egg contamination. General conclusions from these studies could be made. Some vitelline membrane characteristics, namely its strength and proteins with a molecular weight within the range of 21.5-31 kDa influenced the occurrence of S. Enteritidis penetration through this membrane, which protects the nutritive contents of the yolk. The role of the cuticle as the first barrier to prevent trans-shell penetration was confirmed. Microcracks (invisible for current crack detection device) in the eggshell most probably do not form a major risk for trans-shell penetration. Egg washing, which reduces the shell contamination, was not harmfull for the cuticle when using a Swedish commercial egg washing procedure. Chitosan coating of eggs (an antimicrobial polysaccharide) impedes trans-shell penetration and preserves egg quality longer when applying a sufficiently high chitosan concentration.