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Control of Coxiella burnetii in a dairy goat herd by vaccination of the offspring

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Coxiella burnetii is a bacterium that causes Q fever. Ruminants are considered to be the main reservoir and they can excrete the pathogen via birth material and milk. Humans become infected by inhaling contaminated dust and aerosols. In a dairy goat herd with an acute Q fever outbreak, all goats were vaccinated with a *C. burnetii* vaccine (Coxevac®). In the following years, exclusively female offspring were vaccinated before their first breeding due to the occurrence of side effects (skin swellings) in multiparous goats after repeated vaccine applications. Infection was monitored over four years by collecting vaginal swabs, serum samples, monthly bulk tank milk samples, and dust samples from the milking parlour. *C. burnetii* DNA was detected in vaginal swabs in each age group, mostly at lower levels (Cq>30). After vaccination, older goats showed a strong IgG phase I response, while yearlings generally reacted less intensely. Dust samples from the milking parlour (Cq 20-39) and bulk tank milk (Cq 23-43) tested positive for *C. burnetii* DNA. Vaccination boosted the natural immune response of older goats in the long term. Although vaccinating offspring alone can help to control infection in positive dairy goat herds, it does not completely prevent *C. burnetii* shedding. The extent to which the low-level detection of *C. burnetii* DNA in the samples maintains infection within the herd needs further investigation.
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Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

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