Prevalence of hepatitis E virus in French domestic pigs and preliminary risk factors

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A nation-wide study was carried out in French slaughter-aged pigs to estimate the seroprevalence and prevalence of HEV contaminated livers and to further assess on-farm characteristics associated with HEV positivity at the farm level. 6565 sera and 3715 livers were randomly sampled from 186 pig farms throughout the country. Sera samples were tested for HEV IgG antibodies and livers for molecular detection of HEV using RT-PCR. Taking the sampling design into account, the farm-level seroprevalence was 65% (95% CI 57-74) and 31% (95% CI 24-38) of the slaughter-aged pigs had antibodies against HEV. The individual prevalence of HEV RNA positive livers was 4% (95% CI 2-6) and 24% (95%CI 17-31) of the farms had at least 1 positive liver. Most isolates were of genotype 3f (76.7%) with smaller amounts of 3c (18.6%) and 3e (4.6%). From the sampled 115 farms located in western France, 91 agreed to participate to the risk factor study. Farm characteristics associated with the probability of having at least 1 HEV positive liver were linked to (1) replacement gilt introductions (more than 6 weeks in the acclimatization room, no distribution of feces during acclimatization); (2) short (~3 days) down periods in farrowing and weaning facilities; (3) large rooms with more than 20 sows/room in the farrowing sector; and (4) more than 3 shipments for the slaughterhouse for a given batch of fattening pigs. These results showed that HEV contamination of slaughter-aged pigs in farrow-to-finish farms is linked to rearing conditions of the breeding herd and to the slaughter age of fattening pigs as suggested by the association between the frequency of shipments to the slaughterhouse/batch and HEV positivity.