The pig of the future might be free of diseases that can infect people

PUBLICATION DATE: 04/08/2009

SOURCE: Norwegian School of Veterinary Science news

Pigs are known carriers of the bacterium Yersinia enterocolitica, and they can infect both other pigs and people. Human infection occurs through eating improperly-cooked pork. Professor Truls Nesbakken of the Norwegian School of Veterinary Science is trying to rid pigs of the bacterium.

The professor, who already has 2 Norwegian doctorates (Dr. scient and Dr. med. vet.), recently defended his thesis for the degree of Dr. philos., entitled "Control of human pathogenic Yersinia enterocolitica in the meat chain". It will make him the first scientist with 3 Norwegian doctorates.

One of the scientific articles supporting the thesis shows that it is possible to keep swine herds in closed breeding pyramids free of Yersinia enterocolitica. This indicates that it is possible to keep Yersinia enterocolitica, which is presently extremely wide-spread in the pig population at large, under control. In man, the bacterium can cause serious arthritis, among other illnesses. The pig is the primary host of the bacterium, and the most common path of infection from pig to man is assumed to be direct infection from eating pork.

Norwegian abattoirs have already introduced several important measures to improve slaughter hygiene, which is also a subject of the doctorate. However, more remains to be done, indicated by the fact that 2 people who ate pickled pork for Christmas in 2006 died of yersiniosis. Only rarely does yersiniosis lead to such a tragic outcome, and most cases cause nothing more than intestinal infection or at worst a drawn-out arthritis.

Exciting research with consequences for public health

A pig herd free of infectious disease is referred to as SPF, meaning "specific pathogen-free". In a broader context, it is very likely that we can also produce pork free of Yersinia enterocolitica, Toxoplasma and Salmonella. In that case we are no longer talking of SPF-herds, but of a development towards HPF (human pathogen-free) herds. Such a development would depend, however, on its cost-effectiveness.

The development of SPF-herds, and ultimately HPF-herds, is part of a field of veterinary medicine called Veterinary Public Health (VPH), defined as the science and practice of veterinary medicine science concerned with the maintenance of human health. Central to VPH is the understanding, prevention and control of zoonoses, or diseases spread between animals and man.

Professor Truls Nesbakken was born in Trondheim, and now lives in Lørenskog. He graduated from the Norwegian School of Veterinary Science in 1973, and since 1982 has worked on zoonotic bacteria, especially Yersinia enterocolitica, at the Norwegian School of Veterinary Science, as senior scientist at Animalia and as a professor at the Royal Veterinary and Agricultural University at Copenhagen, Denmark. His two previous doctorates, dr. scient. (1984) and dr. med. vet. (1992), looked at the demonstration and epidemiology of Yersinia enterocolitica. Working internationally, he has attempted to alter meat control routines dynamically to protect the consumer from zoonotic infection.