

## Novel insights in the prevalence of *Ascaris suum* in piglets

### Introduction

*Ascaris suum* is a widespread parasitic nematode that causes infection in fattening pigs. The clinical symptoms are mostly vague and unspecific.

Based on the high prevalence of infections with *A. suum* observed in fattening pigs, the questions arise whether exposure to *A. suum* mainly occurs in the fattening units or earlier on in farrowing and nursery units and whether serology could be used to detect exposure to *A. suum* in piglets. To achieve this, 3 different serological tests were evaluated on serum samples from artificially infected piglets.

### Materials and methods

To address this question an artificial infection of seronegative piglets took place. 3-week-old piglets were randomly divided into 4 groups of 10 animals and received a daily infection of 10, 100 and 500 eggs/day during 7 consecutive weeks. One group served as a negative control group. Blood was collected on a weekly base. Sera were individually analysed on three different ELISA's based on the recognition of several *A. suum* antigens: Haemoglobin Ag purified from the pseudocoelomic fluid from adult *A. suum* worms, As-12 Ag present on the surface of the infective L3 larvae and the complete extract of L3 larvae migrating through the lungs.

### Results

A clear seroconversion was visible on the ELISA test using complete homogenate of the lung stage larvae, whereas no to low seroconversion was detectable with the Serasca test and the As-12 based ELISA. Serological results obtained in piglets during the nursery period indicated that at the time of weaning (week 1) some piglets were already highly positive for anti-*Ascaris* antibodies and that these antibody levels correlated significantly with anti-*Ascaris* antibody levels in the respective sows, suggesting maternal transfer. This was further supported by the fact that anti-*Ascaris* antibody levels in the piglets further dropped till 5 weeks post weaning after which the animals remained seronegative. Further analysis of anti-*Ascaris* antibody levels in 6 sows and 4 of their piglets (at the time of weaning) showed that the antibody levels in the piglets correlated significantly with the levels in their respective sows, suggesting the protective nature of this maternal immunity. The mechanism and duration of the maternal immunity and the potential implications it has on the deworming strategies of both sows and piglets are currently being further investigated. Finally, This study shows that an ELISA test based on the recognition of migrating L3 larvae can be used as a tool to detect an early *A. suum* infection in piglets. In a next phase of this study it is necessary to determine the sensitivity and specificity of this test more accurately in order to obtain a cut-off value.