

# Porcine Parvovirus Infection (PPV)

**Porcine Parvovirus Infection (PPV)** is the most common and important cause of infectious infertility. Porcine parvovirus is a fairly tough virus that multiplies normally in the intestine of the pig without causing clinical signs. It is world-wide in its distribution. If you test for it in your pig herd it is almost certain it will be present unless your herd is less than 100 sows when it might have died out. It is therefore an infection you have to live with and manage. Whereas most viruses do not survive outside the host for any great period of time PPV is unusual in that it can persist outside the pig for many months and it is resistant to most disinfectants. This perhaps explains why it is so widespread and so difficult to remove from the pig environment.

## Symptoms

### Piglets

- None normally.
- Occasional low viable piglets are seen.
- Increase in stillbirths associated with mummified piglets.

### Sows

- The virus has no effect on the female only on the foetus.
- Small litters associated with embryo loss before 35 days.
- Not in pig.
- Mummified pigs of varying size, (30-160mm).
- Increased numbers of stillbirths.
- These are associated with the delay in the farrowing mechanism which occurs because of the presence of the mummified piglet.
- Abortions associated with PPV infection are uncommon.
- There may be an increase in low birth weight piglets but neonatal deaths are not affected.
- The acute disease episode often lasts for up to 8 weeks then wanes for 4-6 weeks, followed by smaller bouts of mummified pigs for a further 4-6 weeks.
- The virus can take up to 4 months to infect all sows in a susceptible previously uninfected herd.
- Sporadic disease is seen in individual females which are infected for the first time. It is usually confined to gilts.
- No other signs of ill health in the breeding female or in individual affected animals.

### Weaners & Growers

- N/A

## Immunity

PPV infection results in high antibody levels in the serum which persist for long periods. You should appreciate that such levels do not necessarily mean that there is or has been a reproductive problem or a higher level of protection. For example, a titre of 1:2 will be equally as protective as a titre of 1:80,000. Blood sampling all the sows in a herd on one occasion only indicates the percentage of animals that have been exposed to parvovirus at some previous period which gives you an idea of the overall breeding herd immunity or susceptibility. Once an animal has been exposed to PPV it remains immune for the rest of its life.

### Key points to parvovirus infection:

- The virus is widespread throughout all pig populations but it may disappear in small herds (<100 sows).
- Infection is endemic (present all the time) in most pig units.
- Once a pig is exposed there is a lifelong immunity.

- Reproductive problems may appear every 3-4 years in a herd if vaccination is not carried out.
- Parvovirus infection in a susceptible female can cause death of the embryo with absorption or death of the foetus with mummification.
- The major signs are therefore small litter sizes, mummified pigs of different sizes, and increases in pseudo-pregnancies and not-in-pigs.
- Abortion due to PPV is uncommon.
- Maternal immunity may persist up to 7 months of age but only in a few gilts. (This interferes with vaccine response).
- Up to 50% of gilts may be sero-negative at point of mating.

### **Causes / Contributing factors**

- In small herds the virus may die out and sows become susceptible.
- In large herds, pockets of naive breeding females, particularly gilts, can maintain the disease.
- Failure of virus to circulate in the herd.
- A naive herd often < 100 sows at risk.
- Failure to vaccinate.
- Faulty vaccination.
- Incorrect storage of vaccine.
- Virus may be in semen.

### **Diagnosis**

In the absence of any other signs of illness in the breeding females, PPV disease can be suspected by increases in variable sized mummified pigs and small litter sizes.

The important features are disease and death in the embryo and foetus from approximately 15-70 days of pregnancy. The mummified pigs can be examined by fluorescent antibody test in the laboratory to confirm the infection. Serology will not help because many sows are positive and normal.