Studies on *Salmonella* Infections in Pigs with Emphasis in Food Safety Applications

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During the past year, studies have been conducted in the following areas:

1. the seasonal variations in environmental fecal *Salmonella* in pigs prior to shipment for slaughter
2. identification of groups of pigs that might be at risk for becoming infected with *Salmonella*
3. comparison of culture and the Danish MIX-ELISA for detection of *Salmonella* on pig farms
4. efficacy of SC54 vaccination of pigs at one day of age
5. the comparison of culture and the Danish MIX-ELISA for the detection of *Salmonella* in carcasses at slaughter
6. the impact of *Salmonella* infections on performance

Preliminary data indicate the following for each study:

1. There appears to be a seasonal pattern of shedding of *Salmonella* from pigs. There also appears to be different serotypes of *Salmonella* shed throughout the year.
2. The ELISA is faster, as effective, and less expensive for detecting groups of pigs that are *Salmonella*-positive.
3. Pigs can be vaccinated at one day of age and be protected against challenge to *S. choleraesuis* at 5 weeks of age. Pigs vaccinated at 21 days of age do not have significantly higher ELISA titers to *Salmonella* than those pigs that are not vaccinated.
4. The ELISA also detects those groups of pigs that are positive by culture at slaughter.
5. There appears to be a reduction in growth performance of pigs if the pigs are infected with *Salmonella*.
6. Risk factors have been identified and associated with the development of infections by *Salmonella* in pigs. These risk factors can be used to predict whether *Salmonella* infections will develop.

Current projects:

1. cross protection of SC54: whether pigs vaccinated with SC-54 are protected against infection by *S. typhimurium*
2. whether the ELISA can be used as a diagnostic tool for *S. choleraesuis* infections
3. getting more data to substantiate risk factors for groups of pigs to develop *Salmonella* infections