

Reduced antibiotic use in piglets: E. coli antibody titres in the serum and colostrum of F4 receptor positive and negative gilts vaccinated against E. coli F4 A.

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Pigs selected for the absence of intestinal F4 receptors (a recessive genetic trait) have an innate resistance against colonisation by F4 fimbriae carrying enterotoxigenic E. coli (ETEC F4). In order to protect F4 receptor carrying (F4+) suckling piglets against this enteropathogen, pregnant sows can be immunised against F4 fimbriae and enterotoxins in order to increase colostral antibody titres. In the course of the selection of pigs without F4 receptors (F4-), F4- sows mated with F4+ boars will give birth to F4+ piglets which need protection by colostral antibodies. Since the immune system of these F4- sows is not naturally confronted with F4 fimbriae attached to their mucosa, the immune response to vaccination may be reduced. In order to test that hypothesis, 12 F4- and 12 F4+ gilts were vaccinated twice with Porcilis Porcoli DF® according to the recommended vaccination protocol. The antibody titres against the fimbrial antigens F4ab and F4ac were lower in the serum (S) after the second vaccination and in the colostrum (C) of the F4- gilts, whereas the titres against the heat labile enterotoxin LT did not differ:

| gilts | F4ab S | F4ab C | F4ac S | F4ac C | LT S | LT C |
|--------------|---------------|---------------|---------------|---------------|-------------|-------------|
| F4- | 11.2±1.4b | 12.2±2.4B | 10.0±1.6B | 10.9±2.5B | 9.4±1.5 | 9.8±2.9 |
| F4+ | 12.2±1.3a | 14.0±1.3A | 11.6±1.4A | 13.0±5.2A | 10.2±1.3 | 11.2±1.7 |

Data within a column with different superscripts differ (AB: $p < 0.05$; ab: $p < 0.1$) Although the F4- gilts showed a significantly reduced immune response to F4 fimbrial antigens, the small differences in colostral antibody concentration are probably not of practical relevance. Rijsing et al. (2005) detected colostral F4ab and F4ac titres of 11.9 in gilts whose piglets were protected against a challenge infection with ETEC F4.

Rijsing H., Murmans M., Witvliet M., 2005. J. Vet. Med. B 52, 296-300