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SWINE

General comment:

In this sector, apart from drug availability issues, one of the major problems identified is the lack of suitable dosage for different types of animal and indications in SPC for authorised antibiotics.

ANMV review and Insertion of Zoetis comments May 2018

Pathology	Therapeutic alternatives identified	Economic impact <i>(observed in individual impact for 1 farm)</i>	Health impact	Comments	ANMV (French Veterinary Agency) comments
Post-weaning colibacillosis	Antibiotics	4	4	<p>Commercial vaccines (SPC framework) are used in sows to prevent neonatal diarrhoea and have no activity on post-weaning colibacillar diarrhoea.</p> <p>The Ecoport Shiga vaccine used against Shiga toxins produced by the E. coli which causes oedema disease is of no use against colibacillar diarrhoea or colitoxicosis caused by other types of E. coli.</p> <p>COLIPROTEC vaccine is authorised in Quebec</p>	<p>Available vaccines: Ecoport Shiga (MA granted in 2013) <i>Only suitable for colibacillus which causes oedema disease.</i></p> <p>May 2018 ANMV (French Veterinary Agency): MA available</p> <p>Indications: Active immunisation of piglets from 4 days old onwards, in order to reduce mortality and clinical signs of oedema disease caused by the Stx2e toxin produced by <i>E. coli</i> (STEC).</p> <p>Suiseng (2009): Piglets: passive immunisation of new-born piglets by means of active immunisation of breeding sows and gilts in order to reduce mortality and clinical signs of neonatal enterotoxigenicosis, such as</p>

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				<p>diarrhoea caused by enterotoxigenic <i>Escherichia coli</i> expressing F4ab (K88ab), F4ac (K88ac), F5 (K99) or F6 (987P) adhesins.</p> <p>The persistence of these antibodies has not been established.</p> <p>Passive immunisation of new-born piglets against necrotic enteritis by means of active immunisation of breeding sows and gilts with a view to induce production of seroneutralising antibodies against <i>Clostridium perfringens</i> Type C β-toxin.</p> <p>Coliprotec F4 (2015): Active immunisation of pigs against F4-positive enterotoxigenic <i>E.coli</i> in order to:</p> <ul style="list-style-type: none"> - reduce the incidence of moderate to severe post-weaning diarrhoea cause by <i>E.coli</i> in pigs - reduce faecal excretion and colonisation of ileum by F4-positive enterotoxigenic <i>E.coli</i> in infected pigs <p>COLIPROTEC F4/F18 (2017): Active immunisation of pigs aged at least 18 days old against F4 and F18-positive enterotoxigenic <i>E.coli</i> in order to:</p> <ul style="list-style-type: none"> - reduce the incidence of moderate to severe post-weaning diarrhoea cause by <i>E.coli</i> in infected pigs - reduce faecal excretion F4 and F18-positive enterotoxigenic <i>E.coli</i> by infected pigs. <p>VEPURED Active immunisation of piglets aged 2 days and older to prevent mortality and reduce clinical signs of oedema disease (caused by the 2e verotoxin</p>
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				produced by <i>E. coli</i>), and to combat lack of daily weight gain during the final period in the event of 2e verotoxin-producing <i>E. coli</i> infections prior to slaughter from age 164 days.
Brachyspira	Macrolides	3	4	<p>No commercial vaccine</p> <p>The susceptibility of Brachyspira strains should be monitored.</p> <p>Possibility of using autologous vaccines (requirements regarding conditions for production of anaerobes appear to be stricter in France than in other EU countries).</p>
Leptospirosis (sows)	Antibiotics	2	3	<p>A vaccine is marketed abroad (<i>FARROWSURE GOLD</i> - Zoetis). <i>Danish example, where import permits are granted to veterinarians.</i></p> <p>Personal imports should be agreed; in the context of the “Eco-Antibio 2017” plan, it does not seem reasonable to cite the existence of antibiotics as a reason for refusing to import a vaccine – particularly as incidence of the disease increases with grouping; A vaccine is needed.</p> <p><i>Updated May 2018</i></p> <p><i>Zoetis: The Leptospiras vaccine is marketed in the United States (FARROWSURE GOLD - Zoetis).</i></p>
Neonatal enterococcal diarrhoea, rotavirus		1	3	<p>Enterococci: autologous vaccines could be a solution, but they are not currently used.</p> <p>Rotavirus: vaccine authorised in the UK?</p> <p><i>Might not the development of enterococcal pathologies be caused by excessive use of antibiotics in sows prior to farrowing?</i></p>

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				<i>Rotaviruses are present in swine, but do not appear to be a significant source of pathologies.</i>	
Neonatal colibacillar diarrhoea	Antibiotics, autologous vaccine	3	3	Commercial vaccines intersect less and less frequently with strains isolated on the ground and have poor efficacy. Major risk of increased resistance to antibiotics, given high consumption of antibiotics (administered orally) for these indications <i>Updated May 2018: Zoetis</i> <i>A combined vaccine against E. coli and Clostridium perfringens Type B, C and D is available for swine (Gletvax 6).</i>	Autologous vaccines regularly requested given lack of efficacy ANMV (French Veterinary Agency) 2018: Entericolix (2016): Vaccination of sows and gilts for passive immunisation of piglets against colibacillosis caused by strains of enteropathogenic and enterotoxigenic <i>E. coli</i> expressing F4ac, F5, F6, F18ac and F41 adhesins, against oedema disease caused by strains of <i>E. coli</i> expressing F18ab adhesin, and against necrotic enteritis caused by <i>C. perfringens</i> Type C. Porcilis Coliclos (2012): Passive immunisation of litters by means of active immunisation of sows and gilts in order to reduce mortality and clinical signs during first days of life caused by strains of <i>E. coli</i> expressing F4ab (K88ab), F4ac (K88ac), F5 (K99) or F6 (987P) adhesins, and by <i>C. perfringens</i> Type C.
Neonatal Clostridium diarrhoea	Antibiotics	3	3	Commercial vaccines +/- effective Major risk of increased resistance to antibiotics, given high consumption of antibiotics (administered orally) for these indications Use of autologous vaccines (anaerobe germ)?	Cf. above
Actinobacillosis	Autologous vaccines	4	4	Commercial vaccines +/- effective	Autologous vaccines A single vaccine with 1996 MA

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<i>Haemophilus parasuis</i>	Autologous vaccines	4	2	<p>Commercial vaccines +/- effective (strain?) and not always available.</p> <p>The strain typing issue needs to be addressed.</p> <p>No cross-protection between different serotypes.</p> <p>Problem of strain typing, or analytical laboratories not seeming to use the same techniques, hence difficulties in confirming lack of interest in commercial vaccines (type 4 for one of them or type 4 and type 5 for the second, which in addition has mycoplasma valence)</p>	<p>Autologous vaccines</p> <p>2 vaccines with MA (2004 and 2008)</p>
Ileitis		4	3	<p>+/- effective commercial vaccines</p> <p>Applicable commercial oral vaccine, requires precision but is effective.</p>	<p>Autologous vaccines</p> <p>A single vaccine with 2005 MA, oral administration</p>
<i>Streptococcus suis</i>	Autologous vaccine, antibiotics (cephalosporins)	4	3	<p>No commercial vaccine</p> <p>No antibiotics other than cephalosporins available</p>	<p>Autologous vaccine</p>