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Sheep/Goats

Update following sector meeting on 26 November 2018

Participants at meeting: F. Guillaume (GDS Bretagne, GDS France and Race de France representative), J. Visse (practitioner in Lacaune, SNGTV goat committee representative), S. Blain (veterinary practitioner in Touraine, goat committee representative).

Pathology	Therapeutic alternatives identified	Health impact	Economic impact	Comments	ANMV (French Veterinary Agency) comments
Neonatal colibacillosis	<p>There is a vaccine with MA, IMOCOLIBOV, but its efficacy depends on the strains involved and its availability from wholesalers is unreliable.</p> <p>No information on possible <i>E. Coli</i> serotypes responsible for septicaemia, diarrhoea, lamb failure to thrive, watery mouth, etc.</p> <p>Vaccine cannot be used for goats (WP too long)</p>	5	5	<p>Significant vaccine shortage in 2017.</p> <p>Overall, increased sanitary measures seem to be a valuable solution.</p> <p>Autologous vaccines: very lengthy production time (10 weeks), no recourse possible.</p> <p>Vaccine cannot be used for goats (WP too long)</p>	<p>Submit pharmacovigilance report</p> <p>These illnesses are among the highest “consumers” of antibiotics (sometimes crucially important, quinolones) in sheep.</p> <p>Research is required to identify the exact causes before envisaging vaccination as a tool.</p>

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<p>Salmonella miscarriage</p>	<p><i>Salmonella abortus ovis</i>: Marketing of an attenuated vaccine (SALMOVIS) with acceptable efficacy ceased several years ago. Difficult to stop <i>Salmonella abortus ovis</i> abortive episodes by metaphylactic antibiotic therapy in pregnant ewes (oxytetracycline is not very effective), which is why quinolones sometimes have to be used</p> <p>Autologous vaccines used</p>	<p style="text-align: center;">5</p>	<p style="text-align: center;">5</p>	<p>The situation is unsatisfactory on the clinical and economic levels, and as regards having to resort to antibiotic treatment. Possibility of importing a bivalent vaccine (<i>Salmonella abortus ovis</i>, <i>Chlamydia abortus</i>): OVIVAC CS (Hipra).</p> <p>Autologous vaccines: safety issues with excipients. Zoetis: Zoetis BEDSAVAC vaccine withdrawn in Spain, although studies to update the file have been undertaken. Might this be of interest for France?</p> <p>Last level of the cascade: extemporaneous preparation Specimen matrix: foetal membranes => genotyping of specimen ewe required (presence of an allele resistant to scrapie)</p> <p><i>Salmonella diarizonae</i>: Autologous vaccine Specimen matrix: foetal membranes (genotyping required), milk</p>	<p>Would this be necessary in case of OVIVAC mutual recognition?</p>

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<p>Cryptosporidiosis</p>	<p>Paromomycin sulphate (Paroform®) in cascade approach widely used in sheep and goats, good efficacy</p> <p>Halofuginone authorised for cattle can be used in cascade approach (different species and indication).</p>	<p>5</p>	<p>5</p>	<p>Goats: paromomycin is effective and halofuginone is toxic.</p> <p>Sheep: paromomycin: abomasum ulcer, double dose (i.e. 100mg/kg bodyweight), every 2 days, for 7 days</p> <p>Primary over-diagnosed pathology. 50% prevalence in sheep livestock: partners in crime: <i>E. coli</i> and <i>Cryptosporidium</i></p> <p>Onset of diarrhoea at 4-8 days old, tenesmus, immunochromatographic test (Speed V-Diar 4) gives results in 10 minutes (numerous false positives, over-diagnosis)</p> <p>Disinfection is difficult since mothers are carriers.</p> <p>Description of alternative products on the market: Kryptophyt (feed supplement with extract of yucca), and Multigen (oral immunoglobulin)</p>

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Respiratory pasteurellosis (increased prevalence of <i>Pasteurella multocida</i>)	Combination vaccine with Salmonella valences of little use (SALMOPAST) or specific vaccine but which does not cover all of the strains found in ovine pathology (OVILIS PASTOVAX)	4	5	Autologous vaccine yes, but: - Specimen matrix (deep nasal swab, lung, etc.) not authorised if non-genotyped animal is resistant to scrapie. - Pharmacovigilance showing lack of efficacy of a commercial vaccine adapted to isolated strain - Absence of <i>Mannheimia haemolytica</i> serotype in commercial vaccine (but serotyping problem, etc.) OVILIS® not particularly effective in sheep, works in goats	
Contagious ecthyma	There is a commercial vaccine available (ECHTYBEL®) which has variable results (higher efficacy when administered via intradermal injection than subcutaneously) – effective in 70% of cases in sheep when used ID and in curative treatment (as soon as lesions first appear) Ecthymatisation (scarification using scab samples performed on the infected farm): isotherapy prohibited. Various treatment alternatives (homeopathy, herbal medicine, etc.):	4	3	Mortality and mastitis among lambs Viral disease. Possible import of OVERVAC®.	TO BE ARCHIVED

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Prevention of staphylococcal dermatosis of teats/staphylococcal mastitis	VIMCO® (Hipra): indicated for treatment of staphylococcal mastitis, sheep	3	4	Efficacy unknown. Not effective a priori on goats. No efficacy data on sheep. Farmers who vaccinate are those with the best milking techniques. A lot of farms use amoxicillin or penicillin as preventive treatment.	Submit pharmacovigilance report in the event of inefficacy.

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<p>Gastrointestinal nematodes infections , with increased resistance to benzimidazole and levamisole</p>	<p>ZOLVIX (monepantel-based drug, amino acetonitrile derivative anthelmintic effective against nematodes resistant to other anthelmintic classes). EPRINEX Multi (Eprinomectin) pour-on with MA for sheep/goats. Injectable EPRECIS (Eprinomectin) with MA for cattle</p>	<p>3</p>	<p>4</p>	<p>Field reports of ineffectiveness of eprinomectin in pour-on form. In goats: Resistance with pour-on (licking off), difficult to use: spills all over the ground. Allium could be used to treat resistant <i>Haemonchus contortus</i> infestations. . All farmers would use pour-on eprinomectin for oral administration, applying a WP of 0 days instead of the 7 days allowed in case of cascade application. Poisonous to humans if spilt on user. Injectable EPRECIS would be desirable for sheep and goats. Monepantel: needs to be able to be used in milk (has MRL, but no specified WP). Epribele project: survey on use of eprinomectin and field tests on goat farms to assess methods for detecting lack of efficacy with pour-on available treatments.</p> <p>The allowed WP for milk in case of using a non authorised administration route should be 7 days, the pour-on formulation must be restricted to external use.</p> <p>Re-approach the licence holder (ANMV)</p>

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Mycoplasma mastitis	Two intramammary antibiotic treatments during the dry period available with MA for sheep, but none effective against mycoplasma No vaccine exists.	3	3 (5 in Pyrénées Atlantiques region)	Use in cascade: no existing vaccine solution available on the market. => Possibility of importing a live vaccine from Spain (<i>M. agalactiae</i>), but its use is risky. => If inefficacy is reported in pharmacovigilance: possible manufacture of an autologous vaccine using an isolate from milk.	
Anti-inflammatory, analgesic, anaesthetic drugs	No drugs with MA for sheep. => drugs authorised for bovine use with withdrawal period for milk and meat of: Xylazine (ROMPUN® etc.): WP milk 0 days, WP meat 0 days Ketamine (KETAMIDOR®): WP milk 0 days, WP meat 0 days Procaine (PROCAMIDOR®): Sheep WP milk 0 days, WP meat 0 days Flunixin meglumine: WP milk 24 - 36 hours, WP meat 10 - 31 days Meloxicam Bv: WP meat 15 days, WP milk prohibited Ketoprofen 10% WP meat 4 days, WP milk 0 days	3	4 same problem in goats	No WP for milk => lack of pain control available treatments for dairy ewes and goats	CASCADE
Q fever	COXEVAC, a new phase 1 vaccine (MA 2010), but only indicated for cattle and goats with no MA for sheep.	3	4		CASCADE

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Paratuberculosis	No vaccine in France – Spanish vaccine GUDAIR could be imported	3	4 sheep / 5 goats		Import the Spanish vaccine GUDAIR
Antispasmodic drugs (sheep, goats)	No genital antispasmodic drugs available for females <i>CERVICYL (homeopathic drug) with questionable efficacy.</i>	3	3	Problems treating non-dilation of cervix, retroverted vagina or uterus Tampon impregnated with ether, PLANIPART.	CASCADE
Urinary lithiasis (ammonia-magnesium phosphate stones) (male sheep)	Antispasmodic drug phloroglucinol (SPASMOGLUCINOL ND) no longer available Ammonium chloride can no longer be accessed	3	3	The only alternative: surgery	
Caseous disease or caseous lymphadenitis	No vaccine in France – Spanish vaccine for caseous lymphadenitis caused by <i>Corynebacterium pseudotuberculosis</i> could be imported. Abscess disease caused by Morel's micrococcus (staphylococcus) may be prevented by VIMCO® (Hipra) with crossover protection (<i>Staphylococcus aureus</i> / Morel's micrococcus)	3	3	Resort to autologous vaccines possible in the theoretical case of imported vaccine inefficacy. However, autologous vaccines have poor efficacy (low immunogenicity). Disease not that critical in sheep, more so in goats.	Reminder: the use of lungs and intestines as specimen matrix in sheep and goats is prohibited, even in animals younger than 3 months old (risk of infection cannot be ruled out – entry point before reaching central nervous system).
Piroplasmosis	No drugs with MA for sheep. Only one drug with MA for cattle: CARBESIA®	2	4	The 213-day withdrawal period for meat does not apply.	

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Uterine infections	No drugs with MA – Drugs authorised for bovine species Or HISTABIOSONE [®] with MA for goats.	2	3	Adhering to cascade allowed WP is not a problem in this case.	
Adenomatosis (sheep)	None	2	2	A major problem impacting Causes lambs	
Ringworm	No vaccine with MA for sheep/goats – There is an authorised vaccine for cattle (Bovilis	2	1		CASCADE
Hormones	Flugestone sponges in goats:	1	4	WP issue with CHRONOGEST LC [®] goat sponges: 36 h, whilst 0 d for SYNCROPART [®] and CHRONOGEST CR [®]	
Schmallenberg Disease	No vaccine available	1	3	Solution now exists. ZULVAC SBV [®] . Vaccine not used due to natural immunisation	
SONO (sheep) Sheep nasal obstruction syndrome		1 regional problem	2	A disease developing in a regional context (Basque Country), aetiology not well understood, but involving infestations by <i>Oestrus ovis</i> associated with local hypersensitivity reactions. Controlling oestrus in dairy sheep farming remains problematic due to WP for molecules active against the parasite.	

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Fasciolosis	Triclabendazole is the only molecule active against <i>Fasciola hepatica</i> immature stages. Its use is possible only in the following frameworks: 1. prescription of a triclabendazole+moxidectin combination (Cydectine triclamo ovine®) available for sheep, but subjecting treated animals to moxidectin selection pressure for the hosted strongyles, often useless. 2. prescription of triclabendazole (Fascinex Bovine®) in cascade approach (indication, but not for target species)			Liver fluke, low prevalence except for in Brittany. Coproculture financed by GDS on a 3/year basis. Few cases in goats. .	
Cestodosis				CESTOCUR: too concentrated for use against Taenia. Ineffective due to low volume	Submit pharmacovigilance report in the event of lack of efficacy.
Visna-maedi	Being eradicated			Flock slaughter	
Myiasis caused by <i>Wohlfahrtia magnifica</i> and <i>Lucilia sericata</i>	Lack of treatments efficacy			CLIK® has no action on wool free areas and in hooves (manual removal necessary). Essential oils resorted to (users must be informed), or BUTOX or VERSATRINE (off-label).	Submit pharmacovigilance report in the event of lack of efficacy.
Mange in sheep	Use of macrocyclic lactones (ML)			Too many ML treatments, lack of serological tools (no diagnostic kits)	

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Border disease	Vaccine for cattle only			Not effective. No foetal protection.	CASCADE
Fly-repellent treatment	No treatment available for goats			No fly-repellent available treatments with short WP (7 days for goats due to cascade)	CASCADE in goats
Foot rot	No vaccine authorised for lactating ewes				Investigate reason for contraindication of FOOTVAX® in lactating ewes and any studies to undertake