



# VETERINARY MEDICINES IN GAME BIRDS



Veterinarian David Burch explains the complexities of the law and the importance of the cascade system when treating game birds

The UK has an exciting game bird industry which is becoming more sophisticated regarding production as the industry grows. With over 30million pheasants and 10million partridges being reared a year, this has lead to semi-intensive production, especially in the young birds before release. This frequently results in disease breakdown; but if this is the case, the question is where are the medicines specifically for game birds?

WHAT IS APPROVED?

Looking at the latest National Office of Animal Health (NOAH) compendium product data lists for 2010, there are nine products approved for game birds and six products approved for ducks - but for poultry, there are 115. Mind you, the poultry industry produces over 800million broilers, 30million layers and 18million turkeys per year. So what are the approved products for game birds?

MAJOR DRUG CATEGORIES

The major drug categories are prescription-only medicines (POM-V), which can only be supplied by veterinarians or against a veterinary prescription to animals under the veterinary surgeon's care. All antibiotics are in this category. POM-V CD means it is a controlled drug; barbiturates are dangerous and are used primarily for putting animals and birds to sleep. POM-VPS indicates a drug that can be supplied by a veterinarian, pharmacist or a suitably qualified person (SQP) in accordance with their prescription. This category includes wormers like flubendazole, which makes them more readily available for routine use. Lasalocid, which is used for preventing Coccidiosis, is approved as a POM-V for game birds but for poultry it is classed as a zootechnical feed additive (ZFA); these generally do not require a prescription, as they are routinely included in feed for growing birds such as broilers. Other products that do not require a prescription and may be sold by anyone may also be available. These are classed as authorised veterinary medicines – general sales list, or AVM-GSL.

WHY SO FEW PRODUCTS FOR GAME BIRDS?

The main reason for the lack of products is the size of the market. It still costs hundreds of thousands of pounds to license a product for a minor species; as the market grows and becomes more specialised, there will be more interest in investing in this market, but on

a European basis it is still quite small in relation to poultry. In addition, there are many products that are available for the poultry market that vets can use under the cascade system to fill the gaps. These products are prescribed by veterinarians under their own responsibility. As the safety and efficacy data has not been generated specifically for game bird species, they carry compulsory withdrawal periods. For meat products this is 28 days, and for egg products seven days following medication if used for human consumption. Owners may be asked to sign a consent form by their vets to ensure they know that they are using products this way. The cascade concept is important as this increases the availability of products for use in minor species, which have been developed and approved in other more major species of birds or animals and also products from other EU countries. These can be imported under the Special Import Certificate scheme, which is run by the Veterinary Medicines Directorate in the UK, and are for specific flock treatments. The active substances for all these products have to have a maximum residue limit (MRL) approved by the European Medicines Agency (EMA) if the birds are to be used for human consumption. This was the reason for dimetridazole's (Emtryl) downfall; an MRL could not be established for the product, which was commonly used in game birds for protozoal infections of the gut.

THE MAJOR DISEASE PROBLEMS AND THE ANTIMICROBIALS USED

Firstly, adult birds have been living in the wild and have been exposed to a number of infections including viruses, Mycoplasma and bacteria. When they are gathered up and start laying, which are stressful times, these infections can express themselves and cause problems. The birds can be vaccinated against some infections, such as avian metapneumovirus (commonly known as TRT or ART), infectious bronchitis virus (IB), a coronavirus, egg drop syndrome (EDS) and

Mycoplasma gallisepticum. Autogenous vaccines for Mycoplasma and sometimes Escherichia coli, a common secondary infection, have been described. Hen vaccination also helps the chicks, as protective antibodies are passed on to them via the yolk. Some infections, such as Mycoplasma, can be spread vertically from the hen to the chick via the egg. The birds can be medicated either in the drinking water or in the feed to reduce their own infectious challenge, but some antibiotics - such as tiamulin - accumulate in sufficient quantities in the egg to give additional protection to the chicks from infection. Diarrhoea associated with Brachyspira species infections in breeding partridges and pheasants have been reported. Both of these species have responded well to tiamulin treatment.

Chicks in the first week of life have to adjust to a new environment and establish their own gut flora. This can result in enteric problems, usually from bacteria. Probiotics can be helpful here. Antibiotics may also be prescribed if there is a definite infection observed, like enteritis and diarrhoea, and may be caused by E. coli and occasionally Salmonella species. Yolk sac infections are also common and can cause an increase in mortality and the number of poor chicks; a variety of bacteria can be involved in these infections, but E. coli is the most usual.

Once the chicks have finished brooding and are reared in pens on the ground, they can be challenged by a number of infections; worms, coccidiosis and other protozoal infections such as Histomonas, Trichomonas and Hexamita (Spironucleus). This can be a problem if the field has been used for rearing birds before; if it is wet, badly drained land; there is overcrowding; and also inclement, usually wet weather. This helps organisms to survive and infection to build up in the soil. Routine worming with fenbendazole controls most of the worms in game birds as well as killing the larval stages and eggs in the gut. Coccidiosis is generally controlled with

lasalocid in the feed, but on occasion there are breakdowns. This may be due to depressed feed intake from other concurrent diseases. There are no specific products approved for the treatment of coccidiosis in game birds but toltrazuril, added to the drinking water, is commonly used. Other compounds, such as amprolium and sulfaclozine, can be imported and used.

Young birds can pick up other gut infections such as necrotic enteritis caused by Clostridium species, and require treatment usually with penicillins such as amoxycillin. Protozoan infections other than coccidiosis are sometimes difficult to treat. The tetracyclines were recommended after the ban of dimetridazole and in some cases had a moderate effect; more recently, tiamulin has also been reported as effective in protecting game birds against Hexamita.

Respiratory and systemic infections require that antibiotics are absorbed from the gut and achieve inhibitory or bactericidal levels in the blood. Mycoplasma species infections are particularly common in game birds: these can be on their own or complicated by viruses. Bulgy eye is commonly seen in pheasants and this Mycoplasma infection can lead to a secondary bacterial infection by Pasteurella species. E. coli commonly follow viral infections. Mycoplasma

KNOW YOUR ACRONYMS

**POM-V**  
Prescription only medicine: veterinarian

**POM-VPS**  
Prescription only medicine: vets, pharmacists and suitably qualified persons

**POM-V CD**  
Controlled drug under the 1971 Misuse of Drugs Act

**AVM-GSL**  
Authorised veterinary medicines: general sales list

PRODUCTS LICENSED FOR USE IN GAME BIRDS AND DUCKS (NOAH 2010)					
NAME	ACTIVE	GAME BIRDS	DUCKS	TYPE OF DRUG	CATEGORY
Aivlosin	Tylvalosin	Pheasants	-	Antibiotic	POM-V (as an in-water treatment)
Aurofac	Chlortetracycline	-	Ducks	Antibiotic	POM-V
Avatec	Lasalocid	Game birds	-	Anticoccidial	POM-V
Amoxinsol	Amoxycillin	-	Ducks	Antibiotic	POM-V
Flubenvet	Flubendazole	Game birds	-	Wormer	POM-VPS Medicated premixture
Lethobarb	Pentobarbitone	Game birds	Ducks	Barbiturate	POM-V CD(Sch 3)
Nobilis influenza	Influenza viruses (killed)	Game birds	Ducks	Vaccine	POM-V
Pentobarbital	Pentobarbitone	Game birds	Ducks	Barbiturate	POM-V CD(Sch 3)
Spimetryl cutaneous powder	Chlortetracycline Benzocaine	Game birds	-	Antibiotic wound dressing	POM-V
Sterilised water for injection	Water	Game birds	Ducks	Dilution of injectables, vaccines	POM-V





**1: Bulging right sinus - commonly referred to as 'bulgy eye'**

## 2: Conjunctivitis and nasal discharge

**3: Purulent contents of sinus - may be secondarily infected with Pasteurella**

*Photos courtesy of Janet Bradbury*

It is important that the breeders and rearers work closely with their veterinarians and are encouraged to develop health plans to prevent as many diseases as possible occurring. This may be by vaccination or by preventive medication at the time when infections are most likely to strike. Although there are relatively few products approved for game birds, there is a huge arsenal that can be made available through your veterinarian to control most of the infections you might encounter. ■

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A widely recognised expert on medication for both poultry and pigs, he has many years' experience both as a practising veterinarian and within the pharmaceutical industry.

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In the January edition of *Modern Gamekeeping* it was wrongly stated that Solubenol has been licensed for use on game birds. The product may be safely used by veterinarians under the cascade system.

ANTIMICROBIAL COMPOUNDS THAT CAN BE USED IN GAME BIRDS AND DUCKS OR UNDER CASCADE REGULATIONS & THEIR ACTIVITY AGAINST VARIOUS PATHOGENS. ALL ARE UNDER VETERINARY CONTROL.							
ANTIMICROBIAL	MYCOPLASMA	E. COLI	BRACHYSPIRA	CLOSTRIDIA	PASTEURELLA	COCCIDIOSIS	HEXAMITA
Macrolides							
Tylvalosin (Ph)	++++	-	+++	++++	-	-	-
Tylosin	++++	-	+	++++	-	-	-
Tilmicosin	++++	-	?	?	+++	-	-
Penicillins							
Amoxycillin (D)	-	+++	-	++++	++++	-	-
Amoxycillin Clavulanic acid	-	++++	-	++++	++++	-	-
Penicillin V	-	-	-	++++	++	-	-
Tetracyclines							
Chlortetracycline(D)	+++	++	++	+	++++	-	++
Oxytetracycline	+++	++	++	+	++++	-	++
Tetracycline	+++	++	++	+	++++	-	++
Doxycycline	+++	++	++	+	++++	-	++
Pleuromutilins							
Tiamulin	++++	-	++++	+++	+	+++ (P)	+++
Valnemulin	++++	-	++++	+++	-	-	-
Lincosamide							
Lincomycin	++++	-	+++	+++	-	-	-
Fluoroquinolone							
Enrofloxacin	++++	++++	-	+	++++	-	-
Aminocyclitol							
Spectinomycin	++	+++ (G)	-	-	-	-	-
Aminoglycosides							
Apramycin	-	++++ (G)	-	-	-	-	-
Neomycin	-	++++ (G)	-	-	-	-	-
Polymixin							
Colistin	-	++++ (G)	-	-	-	-	-
Diaminopyrimidine							
Trimethoprim/ sulphonamide	-	+++	-	-	++++	++	-
Anticoccidials							
Lasalocid (GB)	-	-	-	-	-	++++ (P)	-
Toltrazuril	-	-	-	-	-	++++	-
Amprolium	-	-	-	-	-	++++	-
Sulfaclozine	-	++	-	-	++	++++	-

KEY: Ph = Pheasants; D = Ducks; GB = Game birds; G = Gut active only; P = Prevent; - = No activity;  
 ? = No reported activity; + = low activity; ++ = moderate activity; +++ = high activity; ++++ very high activity