PROPERTIES OF ANTIBIOTICS USED LARGE ANIMAL SURGERY

TRADE NAME	ACTIVE INGREDIENT	MECHANISM OF ACTION	DOSAGE mg/kg	INDICATIONS	ROUTE OF ADMINISTRATION	TOXIC EFFECTS	WITHDRAWAL TIME
Anupco Gentamycin 100	Gentamicin sulphate	It is a broad spectrum aminoglycoside antibiotic. Aminoglycosides work by binding to the bacterial 30S ribosomal subunit, causing misreading of t-RNA, leaving the bacterium unable to synthesize proteins vital to its growth.	Cattle, horses, sheep, pigs: 2-4 mg/kg bodyweight (BW) twice daily Poultry: 5-10mg/kg BW	Infectious diseases caused by aerobic gram negative bacteria	Topical on broken skin, IM, IV	Mild and reversible nephrotoxicity and irreversible ototoxicity	None specified
Cefokel	Ceftiofur (as Hydrochloride)	Ceftiofur is a third generation cephalosporin that inhibits the bacterial cell wall synthesis, thereby exerting bactericidal properties. β-lactams act by interfering with synthesis of the bacterial cell wall. Cell wall synthesis is dependent on enzymes that are called penicillin-binding proteins (PBP's). Bacteria develop resistance to cephalosporins by four basic mechanisms: 1) altering or acquiring penicillin binding proteins insensitive to an otherwise effective β-lactam; 2) altering the permeability of the cell to β-lactams; 3) producing β-lactamases that cleave the β-lactam ring of	Pigs: 3 mg/kg bw/day for 3 days Cattle: Respiratory disease: 1 mg/kg bw/day for 3 to 5 days. Acute interdigital necrobacillosis: 1 mg/kg bw/day for 3 days. Acute post-partum metritis within 10 days after calving: 1 mg/kg bw/day for 5 days	Pigs: respiratory disease caused by *Pasturella multocida, Actinobacillus pleuropneumoniae* & *Streptococcus suis* Cattle: respiratory disease caused by *Mannheimia haemolytica, Pasturella multocida* & *Histophilus somni*; interdigital necrobacillosis caused by *Fusobacterium necrophorum* & *Bacteroides melaninogenicus*	IM in pigs SC in cattle with respiratory disease, acute interdigital necrobacillosis and acute post-partum metritis	Hypersensitivity reactions	Pigs: Meat and offal-5 days. Cattle: Meat and offal-8 days. Milk- zero hours

		the molecule, or 4) active efflux					
Combikel 40LA	Procaine benzylpenicillin, Dihydrostreptomycin sulphate	Procaine benzylpenicillin: An antibiotic against penicillin-susceptible microorganisms with bactericidal effect. Like all penicillins, it interferes with the synthesis of the bacterial cell wall peptidoglycan. It acts through the inhibition of biosynthesis of cell-wall peptidoglycan, rendering the cell wall osmotically unstable. Dihydrostreptomycin sulphate: Aminoglycosides target the 30S ribosomal subunit resulting in an inability to read mRNA ultimately producing a faulty or nonexistent protein.	Cattle: 0.05-0.1ml/kg. Horses, Pigs: 0.1ml/kg	Infections caused by **penicillin** and/or **dihydrostreptomycin** susceptible microorganisms such as : respiratory tract infections (shipping fever, pasteurellosis, bronchopneumonia, pleuropneumonia, rhinitis, laryngitis), uro-genital tract infections (e.g. pyelonephritis, nephritis, endometritis), infections of skin and wounds, peritonitis, strangles in horses, mastitis, meningitis (e.g. by streptococci), erysipelas in pigs, otitis in dogs and cats, panaritium, clostridial infections, tetanus, anthrax, leptospirosis, actinomycosis in cattle, actinobacillosis in horses, polyarthritis (navel ill) and septicaemia.	IM and SC	Hypersensitivity and renal insufficiency in patients.	Meat: 72 hours before slaughter
Combikel 20/20	Procaine benzylpenicillin, Dihydrostreptomycin sulphate	Procaine benzylpenicillin: An antibiotic against penicillin-susceptible microorganisms with bactericidal effect. Like all penicillins, it interferes with the synthesis of the bacterial cell wall peptidoglycan. It	Cattle: 0.05-0.1ml/kg. Horses, Pigs: 0.1ml/kg	Infections caused by penicillin and/or dihydrostreptomycin susceptible microorganisms such as : respiratory tract infections (shipping fever, pasteurellosis,	IM, SC	Hypersensitivity and renal insufficiency in patients.	Meat: 72 hours before slaughter

		acts through the inhibition of biosynthesis of cell-wall peptidoglycan, rendering the cell wall osmotically unstable. Dihydrostreptomycin sulphate: Aminoglycosides target the 30S ribosomal subunit resulting in an inability to read mRNA ultimately producing a faulty or nonexistent protein.		bronchopneumonia, pleuropneumonia, rhinitis, laryngitis), uro-genital tract infections (e.g. pyelonephritis, nephritis, endometritis), infections of skin and wounds, peritonitis, strangles in horses, mastitis, meningitis (e.g. by streptococci), erysipelas in pigs, otitis in dogs and cats, panaritium, clostridial infections, tetanus, anthrax, leptospirosis, actinomycosis in cattle, actinobacillosis in horses, polyarthritis (navel ill) and septicaemia.			
Trisul-kel 240	Trimethoprim/ Sulfa-methoxazole		Horses: 15-30 mg/kg, PO q12. Swine: 48mg/kg, IM Cattle: 25mg/kg, IV, IM, q24. Calves: 48mg/kg IV/IM, q24	Used when a single antibiotic is not effective. Treats prostate infections and infections caused by methicillin-resistant staphylococci	IM, IV, PO		Cattle: slaughter – 10days, milking – 96hours.
Anupco Anflox 10%	Norfloxacin	It is a quinolone/ fluoroquinolone antibiotic. It is bactericidal and its mode of action depends on blocking of bacterial DNA replication by binding itself to an enzyme called DNA gyrase, which allows the untwisting required to replicate one DNA double helix into two.		For the treatment of urinary tract infection			

Enroflox 8%	Enrofloxacin	Enrofloxacin works by inhibiting the process of DNA synthesis within the bacterial cells, which results in cell death.		To treat a range of bacterial infections, including those of the skin, urinary tract and respiratory system, as well as infections that result from wounds.		Diarrhea, seizures, swollen joints, cartilage damage	
Anupco Amoxycillin 150 LA	Amoxicillin	Amoxicillin is similar to penicillin in its bactericidal action against susceptible bacteria during the stage of active multiplication. It acts through the inhibition of cell wall biosynthesis that leads to the death of the bacteria.	Cattle: 6-10mg/kg Calves: 7mg/kg PO, q8 Horses: 20-30mg/ kg PO, q6. Foals: 15-30mg/ kg IV/IM, q6-8	First drug of choice for suspected infections that have no sensitivity & culture test done	PO, IV, IM	Hypersensitive patients. Do not use oral route if patient in shock or septicemia present	Cattle: slaughter – 10 days, milking – 60 hours
Anupco Tylosin 200	Tylosin Tartrate	Like other macrolides, tylosin has a bacteriostatic effect on susceptible organisms, caused by inhibition of protein synthesis through binding to the 50S subunit of the bacterial ribosome	Cattle: 17.6mg/kg IM daily. Bronchonpneumonia – 4mg/kg Swine: 8.8mg/kg IM q12 Sheep & goats: 10mg/kg SC	For chronic colitis in cattle, sheep and swine	IM, SC	Patients hypersensitive to it or other macrolides	Cattle: Meat: 21days for slaughter Milk: 72hours cattle 48hours (goats) Swine: 14 days for slaughter
Silvin	Silver Sulfadiazine	Silver sulfadiazine acts only on the cell membrane and cell wall to produce its bactericidal effect. A specific mechanism of action has not been determined, but silver sulfadiazine's effectiveness may possibly be from a synergistic interaction, or the action of each component.		Treatment of infections due to 3rd degree burns. It is bactericidal for many gram-negative and gram-positive bacteria as well as being effective against yeast.	Topical	Hypersensitivity reactions, transient leukopenia	

Coprime	Sulfamethoxazole Trimethoprim	Sulfamethoxazole inhibits bacterial synthesis of dihydrofolic acid by competing with para-aminobenzoic acid (PABA). Trimethoprim blocks the production of tetrahydrofolic acid from dihydrofolic acid by binding to and reversibly inhibiting the required enzyme, dihydrofolate reductase. Thus, sulfamethoxazole and trimethoprim blocks two consecutive steps in the biosynthesis of nucleic acids and proteins essential to many bacteria.	Cattle: 25mg/kg, IV, IM, q24. Calves: 48mg/kg IV/IM, q24 Horses: 15-30 mg/kg, PO q12. Swine: 48mg/kg, IM	Aerobic gram positive and gram negative bacteria	PO	Contraindicated in patients with a known hypersensitivity to trimethoprim or sulfonamides, in patients with a history of drug-induced immune thrombocytopenia with use of trimethoprim and/or sulfonamides, and in patients with documented megaloblastic anemia due to folate deficiency.	Cattle: Meat: 10 days still slaughter Milking: 96hrs Not FDA approved for horses intended for food
Duphamox LA	Amoxicillin	Amoxicillin is similar to penicillin in its bactericidal action against susceptible bacteria during the stage of active multiplication. It acts through the inhibition of cell wall biosynthesis that leads to the death of the bacteria.	Cattle and Pigs: 1ml/10kg	Broad-spectrum semi-synthetic bactericidal in action for use in cattle and pigs. *In vitro* it is effective against a wide range of Gram-positive and Gram-negative bacteria which include: *E. coli, Klebsiella pneumoniae, Proteus mirablis*, some *Salmonella sp, Staphylococcus* sp. and *Streptococcus* sp. (non penicillinase producing).	IM	Not for use in known cases of hypersensitivity to penicillin or cephalosporins. Not suitable for intravenous or intrathecal use.	Cattle: Meat – 23 days, milking – 84 hours Pigs: 16 days for slaughter
Micotil 300	Tilmicosin	Macrolide antibiotics inhibit bacterial growth by targeting the 50S ribosomal subunit	10mg/kg in both cattle and sheep	Treats bovine and ovine respiratory disease caused by *Mannheimia haemolytica*	SC	Do not give IV using powered syringes. Fatal in	7 days for slaughter Milk – 42 days

		preventing peptide bond formation and translocation during protein synthesis. Resistance to tilmicosin is commonly attributed to mutations in 50S rRNA preventing tilmicosin binding allowing the cell to synthesize proteins free of error.				swine. Lactating animals	
Metricyclin	Chlortetracycline hydrochloride	Inhibits protein synthesis (elongation) by preventing binding of aminoacyl-tRNA to the 30S subunit.	For intra-uterine administration, shortly after calving. Prophylactic: 1 bolus Therapeutic: 1-2 boluses	Prophylactic and therapeutic treatment of puerperal infections caused by chlortetracycline-sensitive micro-organisms in cattle.	Intra-uterine	Gastrointestinal disturbances and staining of teeth and bone	Milk - 24 hours following the last treatment. Meat - 7 days of the following the last treatment
Metricure 500mg [intrauterine suspension 19G]	Cephapirin Benzathine	Produces its bactericidal effect by inhibiting cell wall synthesis. Its action is only effective in actively growing cells.	**CATTLE** <u>For mastitis</u>: Lactating cow: After milking out udder, clean and dry teat area. Swab teat tip with alcohol wipe and allow to dry. Insert tip of syringe into teat canal; push plunger to instill entire contents. Massage quarter and do not milk out for 12 hours. May repeat dose q12h.	Treatment of subacute and chronic endometritis in cows (at least 14 days after parturition) caused by bacteria sensitive to cephapirin.	Intra-mammary	Hypersensitivity to Cephapirin Benzathine is a contraindication. In addition, Cephapirin Benzathine should not be used if you have the following conditions: Allergic Excessive heat exposure	Meat: 4 days Milk: Nil

			Dry Cow: Same basic directions as above, but should be done at the time of drying off and not later than 30 days prior to calving				