

Electronic Supplementary Information

Questionnaire results for meloxicam, indicating species or genus, dose range and sample size

Species or genus (n species)	Scientific name	Dose mg/kg bw	Minimum cases
<u>Raptors</u>			
Gyps vultures (6)	<i>Gyps</i> sp.	0.17-0.5	39
Cinereous vulture	<i>Aegypius monachus</i>	0.5	2
Lappet-faced vulture	<i>Torgus tracheliotus</i>	-	2
White-headed vulture	<i>Trigonoceps occipitalis</i>	0.1	3
Accipiter hawks (2)	<i>Accipiter</i> sp.	-	26
Aquila eagles (5)	<i>Aquila</i> sp.	0.2-0.5	38
Buteo hawks (4)	<i>Buteo</i> sp.	0.1-0.75	145
Circus harriers (2)	<i>Circus</i> sp.	-	5
Falco falcons (7)	<i>Falco</i> sp.	-	74
Haliaeetus eagles (2)	<i>Haliaeetus</i> sp.	0.1-0.5	82
Brahameny kite	<i>Haliastur indus</i>	-	6
Milvus kites (2)	<i>Milvus</i> sp.	0.3-0.5	29
Harris hawk	<i>Parabuteo unicinctus</i>	-	1
Bataleur eagle	<i>Terathopius ecaudatus</i>	0.2-0.35	1
<u>Storks and New World vultures</u>			
Turkey vulture	<i>Cathartes aura</i>	0.1-0.5	15
Black vulture	<i>Coragyps atratus</i>	0.2-0.5	4
King vulture	<i>Sarcoramphus papa</i>	-	1
Andean condor	<i>Vultur gryphus</i>	-	1
Grey heron	<i>Ardea cinerea</i>	-	12
Cattle egret	<i>Bubulcus ibis</i>	0.1-0.2	2
White stork	<i>Ciconia ciconia</i>	0.5	4
Marabou stork	<i>Leptoptilus crumeniferus</i>	0.2-0.5	2
<u>Owls</u>			
Asio owls (2)	<i>Asio</i> sp.	-	5
Little owl	<i>Athene noctua</i>	-	35
Bubo owls (2)	<i>Bubo</i> sp.	0.1-0.3	14
Scops owl	<i>Otus scops</i>	0.1-0.2	3
Strix owls (3)	<i>Strix</i> sp.	0.5	86
Barn owl	<i>Tyto alba</i>	0.5	33
<u>Cranes</u>			
Demoiselle crane	<i>Anthropoides virgo</i>	-	4
Whooping crane	<i>Grus americana</i>	0.1-0.2	1
Sandhill crane	<i>Grus canadensis</i>	-	2
<u>Crows</u>			
Raven	<i>Corvus corax</i>	0.5	2
Carrion crow	<i>Corvus corone</i>	0.5	40
Rook	<i>Corvus frugilegos</i>	0.5	20

Potential exposure of *Gyps* vultures to carprofen and flunixin

The recommended veterinary doses of carprofen and flunixin for the treatment of cattle are a single injection of carprofen at 1.4 mg/kg bw, and daily injections of flunixin at 2.2 mg/kg bw for up to 3 days (EMA 1999a, 1999b). Data from residue depletion studies of ¹⁴C-labelled flunixin and carprofen are available (EMA 1999a, 1999b). Twelve cattle administered intravenous flunixin at a dose of 2.2 mg/kg bw on 3 consecutive days had mean total residue concentrations of 1700 and 1100 µg equivalents flunixin/kg in liver and kidney respectively for animals slaughtered at 12 hours post treatment. Groups of 4 calves administered carprofen at 1.4 mg/kg bw by subcutaneous injection had total residues of 1350 and 1740 µg equivalents carprofen/kg bw in liver and kidney respectively at 72 hours post treatment. A further radio-depletion study on horses sacrificed 6 hours after receiving a single injection of carprofen at 0.7 mg/kg bw, found residues of 3420 and 4620 µg equivalents carprofen/kg in liver and kidney respectively (EMA 1999b). Calculations based on the energetic requirements of *Gyps bengalensis* indicate that birds can consume a single meal capable of supporting their energetic needs for about three days: equivalent to a single feed of 1.02 kg (Swan *et al.* 2006b). Assuming a mean body weight of 4.75 kg for *Gyps bengalensis* (Swan *et al.* 2006b), vultures consuming 1.02 kg of liver tissue from cattle dying 12 hours after treatment with a standard course of flunixin, will be exposed to the drug at a dose of 0.37 mg/kg vulture bw. A similar level of exposure (0.37 mg/kg) is estimated for carprofen if vultures consume 1.02 kg of kidney tissue from cattle dying 72 hours after the last dose, and a dose of 1.00 mg/kg for birds consuming kidney from horses 6 hours after treatment. If the pharmacokinetics of carprofen in horses and cattle are similar, and we assume that tissue concentrations increase in proportion with the dose given, then liver and kidney tissue from cattle dying 6 hours after treatment at 1.4 mg/kg, could expose vultures to doses of around 1.5 to 2.0 mg carprofen/kg vulture bw.