

Appendix 2

TABLE A-1. Zoonotic Diseases of Agricultural Animals.^a

Disease in humans	Causative agent	Common hosts	Means of spread
Anthrax	<i>Bacillus anthracis</i>	Livestock	Contact, inhalation, or ingestion
Brucellosis	<i>Brucella suis</i> <i>Brucella abortus</i> <i>Brucella melitensis</i> <i>Brucella ovis</i>	Swine Cattle, sheep Sheep, goats Sheep	Contact and ingestion of milk, milk products, raw meat Direct contact, particularly with semen, aborted fetuses, fetal membranes, amniotic fluid
Campylobacteriosis	<i>Campylobacter fetus</i> <i>Campylobacter jejuni</i>	Cattle, sheep, pigs Poultry	Ingestion of raw meat and raw milk
Chlamydia	<i>Chlamydia</i> spp.	Poultry	Inhalation
Colibacillosis	<i>Escherichia coli</i>	Livestock	Ingestion
Leptospirosis	<i>Leptospira</i> spp.	Cattle, sheep, swine, goats	Contact, urine-contaminated soil or water
Pseudotuberculosis	<i>Yersinia pseudotuberculosis</i>	Turkeys	Contact, contaminated food and water, ingestion
Salmonellosis	<i>Salmonella</i> spp.	Livestock and poultry	Ingestion, inhalation, contact
Tetanus	<i>Clostridium tetani</i>	Horses, sheep	Bite wounds, contaminated puncture wounds
Tuberculosis	<i>Mycobacterium tuberculosis</i> <i>Mycobacterium bovis</i> <i>Mycobacterium avium</i>	Cattle Cattle Poultry, swine, sheep	Contact, ingestion, inhalation
Q fever	<i>Coxiella burnetii</i>	Cattle, sheep, goats	Inhalation ingestion of contaminated raw milk, contact with amniotic fluid or placenta, blood-sucking arthropods
Eastern, Western, and Venezuelan equine encephalitis	Eastern equine encephalitis, Western equine encephalitis	Horses	Mosquito bites
Tularemia	<i>Francisella tularensis</i>	Sheep	Contact, bites of blood-sucking arthropods
Erysipeloid (pork finger)	<i>Erysipelothrix rhusiopathiae</i>	Swine, chickens, turkeys, sheep	Contact
Coccidioidomycosis	<i>Coccidioides immitis</i>	Cattle	Contamination of food
Ringworm, dermatomycosis	<i>Trichophyton</i> spp. <i>Microsporium</i> spp. Other dermatophytes	Farm animals	Direct contact; soil may be reservoir
Staphylococcal infections	<i>Staphylococcus</i> spp.	Livestock, especially dairy cattle	Contact, consumption of unpasteurized milk
Streptococcal infections	<i>Streptococcus</i> spp.	Livestock, especially dairy cattle	Contact, consumption of unpasteurized milk
Listeriosis	<i>Listeria monocytogenes</i>	Cattle, sheep, goats, chickens, turkeys	Possibly contact with mucous membranes, skin penetration, ingestion
Rabies	Rhabdovirus	Livestock	Bite wound, saliva in open wound
Milker's nodules (paravaccinia)	Paravaccini virus	Cattle	Contact with teats and udders
Newcastle disease	Paramyxovirus	Chickens, turkeys	Direct or indirect contact
Animal pox	Pox virus	Livestock	Contact
Vesicular stomatitis	Rhabdovirus	Cattle, horses, swine	Contact
Psittacosis	<i>Chlamydia psittaci</i>	Poultry, waterfowl	Contact with birds or fecal material
Balantidiasis	<i>Balantidium coli</i>	Swine	Ingestion of feces
Nematodiasis	Roundworms	Swine, horses, cows	Ingestion, contact
Histoplasmosis	<i>Histoplasma capsulatum</i>	Poultry	Inhalation of organism from material contaminated with feces
Cryptosporidium	<i>Cryptosporidium parvum</i>	Cattle	Fecal, oral
Orf	Parapox virus	Sheep, goats	Direct contact
Pasteurellosis	<i>Pasteurella multocida</i>	Ruminants	Inhalation, bite wounds
Pneumocystis	<i>Pneumocystis carinii</i>	Cattle, sheep	Inhalation

^aAfter Acha and Szyfres (1989).

TABLE A-2. Pre-anesthetic, Anesthetic, and Analgesic Agents Suitable for Agricultural Animals.^a

Generic name	Trade name	Route of administration ^b	Purpose
Pre-anesthetic agents			
Atropine sulfate	Atropine sulfate	i.m. 10-20 min prior to anesthetic induction	Decrease saliva production and to prevent bradycardia.
Chlorpromazine hydrochloride	Thorazine	i.v. or i.m.	Tranquilization.
Acepromazine maleate	Acepromazine maleate	i.m.	Tranquilization.
Diazepam	Valium	i.m.	Sedation.
Inhalation anesthetics			
Halothane	Fluothane		Most widely used inhalant anesthetic. Depth of anesthesia is rapid, and recovery is prompt and smooth. Will initiate malignant hyperthermia, and human health concerns are associated with anesthetic waste gas.
Methoxyflurane	Metafane, Penthrane		May be superior to halothane for muscle relaxation and postoperative analgesia. Low vaporization rate thus can only be used after induction with another agent.
Isoflurane	Aerrane		Very safe general anesthesia with good surgical analgesia.
Injectable general anesthetics			
Pentobarbital sodium	Sodium pentobarbital	i.v.	20-30 min of relatively safe anesthesia.
Thiopental sodium	Veterinary pentothal kit	i.v.	Short surgical anesthesia or induction prior to inhalation anesthesia.
Ketamine hydrochloride	Ketaset	i.v. or i.m.	Cataleptic general anesthesia, poor visceral analgesia. Usually used in combination with other anesthetic agents.
Tiletamine and zolazepam	Telazol	i.v. or i.m.	Similar to ketamine but better relaxation.
Xylazine hydrochloride	Many commercially available	i.v. or i.m.	Used in combination with other agents to improve muscle relaxation during surgery.
Local anesthetics			
Lidocaine hydrochloride	Many commercially available	Epidural or infiltration	For producing epidural, nerve conduction, and infiltration anesthesia.
Mepivacaine hydrochloride	Carbocaine-V	Infiltration, nerve block, intra-articular, and epidural	Produces rapid and marked local anesthesia lasting for several hours.
Procaine hydrochloride	Epidural injection	Epidural	For use as an epidural block.
Analgesic agents			
Oxymorphone hydrochloride	P/M Oxymorphone, Numorphan	i.v.	Opioid used for increased and prolonged analgesia. Often used with other anesthetic agents.
Butorphanol tartrate	Torbugesic, Torbutrol	i.v., i.m., or s.c.	Synthetic opioid analgesic, five times the potency of morphine. Less respiratory or cardiovascular depression.
Nonsteroidal anti-inflammatory agents ^c			
Aspirin	Many commercially available	Oral	
Flunixin meglumine	Banamine, Finadyne	i.m. or i.v.	
Phenylbutazone	Burazolidin	Oral or i.v.	Has been associated with blood dyscrasia and disturbances of gastrointestinal tract, kidney, and liver.

^aAll agents are prescription drugs and require a veterinary prescription. If not approved for use in food-producing animals, they can only be used by following the FDA extralabel food provisions as described in Chapter 3.

^bIntramuscularly (i.m.), intravenously (i.v.), or subcutaneously (s.c.).

^cProduces analgesia by reducing inflammation.

TABLE A-3. Agents and Methods of Euthanasia by Species.^a

Species	Acceptable	Conditionally acceptable
Birds	Inhalant anesthetics, CO, CO ₂ barbiturates	N ₂ , Ar, cervical dislocation, decapitation
Horses	Barbiturates, chloral hydrate, chloral hydrate-MgSO ₄ -pentobarbital	Penetrating captive bolt, gunshot, electrocution
Ruminants	Barbiturates	Penetrating captive bolt, gunshot, electrocution, chloral hydrate
Swine	Barbiturates, CO ₂	Inhalant anesthetics, CO ₂ , penetrating captive bolt, gunshot, electrocution, chloral hydrate

^aRefer to the reference for mode of action, rapidity, ease of performance, safety for personnel, species suitability, efficacy, and comments: (1993 Report of the AVMA Panel on Euthanasia. JAVMA 202(2):229-249).