

Dewormers for Beef and Dairy Cattle

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Parasitism is a form of biological relationship in nature where one organism (the parasite) benefits at the expense of another organism (the host). Internal parasites are, in effect, freeloaders that rob the host of valuable nutrients, energy and general well-being. Cattle have several internal parasites (e.g., roundworms, tapeworms, flukes, protozoans, cattle grubs and fly maggots) that can reduce weight gain, suppress appetite, reduce milk production and weaken immune response.

Biology. The brown stomach worm (*Ostertagia ostertagi*) is perhaps the most important roundworm parasite of pastured cattle in the U.S. The general life cycle of the brown stomach worm is presented in Fig. 1. Brown stomach worms are small with adult worms measuring only about 14 mm (0.6 inch) long (Bowman, 2009). Infective or the so-called L3 stage larvae (Fig. 2 on next page) are ingested by cattle while grazing. These L3 larvae then lodge and feed on the gastric gland tissues of the abomasum (fourth chamber of the stomach of a ruminant), then moult into L4 larvae. If pasture conditions outside are sensed by the parasites as favorable for further development, the L4 larvae moult into adult male or female brown stomach worms, then exit the gastric glands and migrate toward the surface of the abomasal mucosa. Male and female adult worms mate, the female worms start producing eggs, and then the eggs are excreted with the manure onto the pasture to start the cycle again (Fig. 1).

It takes about 3 to 4 weeks from the time L3 larvae are ingested to the time that adult female worms start producing eggs. The L4 larvae in the abomasal gastric glands can “decide” to become inactive and delay their further development for several months to avoid harsh environmental conditions in the pasture, such as drought and high temperatures in the summer in southern states, and low temperatures in the winter in northern states. In addition, eggs and larvae already on the cow dung or soil in the pasture, can also overwinter under snow cover in northern states. The biology of the brown stomach worm in dairy cattle is not well-understood and may or may not be identical to its biology in beef cattle.

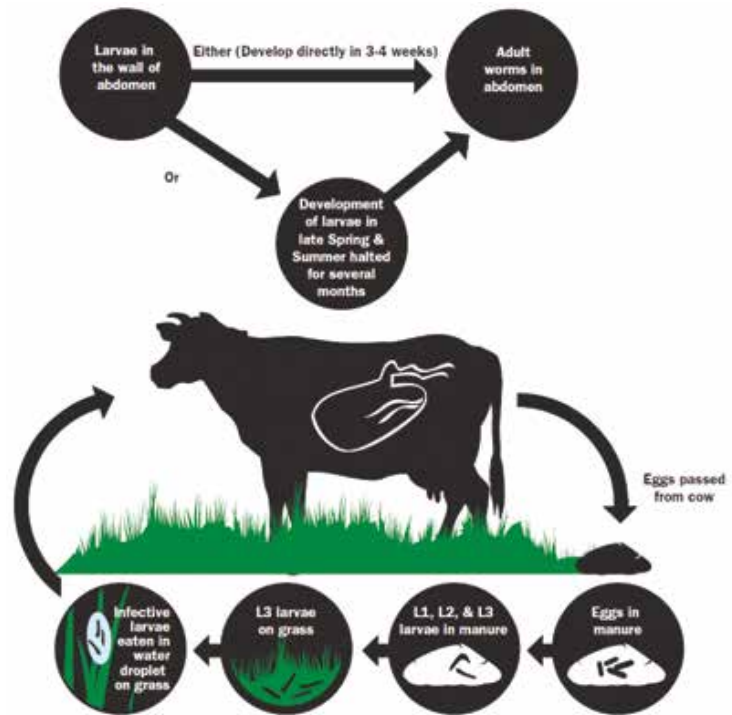


Fig 1. Life cycle of the brown stomach worm (*Ostertagia ostertagi*).

Economic impact. The impact of internal parasites on cattle physiology and production is well-documented (Myers and Taylor, 1989; Williams and Loyacano, 2001; Sanchez et al., 2004). In grazing stocker cattle, the increase in cattle average daily gain due to treatment with certain pour-on formulations of endectocide anthelmintics (deworming products) had been estimated to be up to 21 percent, or about 59 pounds between treated and untreated stocker cattle (Woodward, 2011). In dairy cattle, the difference between treated and untreated cows is about 1 pound of milk per cow per day (Sanchez et al., 2004).

In feeder cattle, there is evidence that internal parasites can reduce average daily gains by up to 7.4 percent (*Nebraska Farmer*, 2012). Thus, treatment with an anthelmintic is a standard practice for the processing of arriving cattle in major U.S. cattle feedlots. According to the USDA-APHIS (2012), over 90 percent of large (8,000 head or more) cattle feedlots in the U.S. deworm or treat their arriving cattle for parasites.

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Fig 2. Infective stage (L3) of a helminth on a dew drop on pasture grass (photo: The Science Review, 2010; New Zealand AgResearch).

There are currently many available and relatively inexpensive dewormers available to cattle producers in the U.S. And in general, the economic benefit of controlling cattle internal parasites with an anthelmintic is much greater than its cost. On the following pages:

Table 1 lists anthelmintics for feeder beef either in feedlots or open range.

Table 2 lists anthelmintics for beef cattle in open range only.

Table 3 lists anthelmintics for dairy cattle.

Make sure to consult with your veterinarian and MWI Sales Representative on how to choose the right anthelmintic product and timing of treatment in your location. Always read and follow label directions.

References:

Bowman, D.D. 2009. *Georgis' Parasitology for Veterinarians*. 9th ed. Saunders Elsevier, St. Louis.

Myers G.H. and R.F. Taylor. 1989. Ostertagiasis in cattle. *Journal of Veterinary Diagnostic Investigation* 1: 195-200.

Nebraska Farmer. 2012. Study finds internal parasite takes its toll on feeder cattle. Page 76, October 2012 Issue.

Sanchez, J., I. Dohoo, J. Carrier, and L. DesCoteaux. 2005. A meta-analysis of the milk production response after anthelmintic treatment in naturally infected adult dairy cows. *Preventive Veterinary Medicine* 63: 237-256.

USDA-APHIS. 2012. U.S. Feedlot processing practices for arriving cattle. Veterinary Services Centers for Epidemiology and Animal Health Info Sheet, October 2012.

Williams, J.C. and A.F. Loyacano. 2001. Internal parasites of cattle and other southern states. Research Information Sheet 104. Louisiana State University Ag Center.

Woodward, J. 2011. Prevalence, relevance and the economic impact of cattle parasites. Technigram. Boehringer Ingelheim Vetmedica, Inc. Professional Services.

TABLE 1. ANTHELMINTICS FOR BEEF CATTLE EITHER IN FEEDLOTS OR OPEN RANGE

MFR.	BRAND NAME	ACTIVE INGREDIENT	DOSE	TARGET PARASITES	PRE-HARVEST INTERVAL (DAYS)
AGRILABS	Agri-Mectin [®] Injection for Cattle and Swine	ivermectin (1%)	Administer only by subcutaneous injection under the loose skin in front of or behind the shoulder at the recommended dose level of 200 mcg ivermectin per kilogram of body weight of cattle. Each mL of Agri-Mectin [®] Injection for Cattle and Swine contains 10 mg of ivermectin, sufficient to treat 110 lb of body weight (maximum 10 mL per injection site). Do not treat cattle within 35 days of slaughter. Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, sucking lice, mange mites (see label for detailed list)	35
	Agri-Mectin [®] Pour-On for Cattle	ivermectin (5 mg/mL)	The dose rate is 1 mL for each 22 lb of body weight. The formulation should be applied along the topline in a narrow strip extending from the withers to the tailhead using a recommended applicator gun. Cattle must not be treated within 48 days of slaughter for human consumption. Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	48
	Prohibit [®] Soluble Drench Powder (Packet)	levamisole hydrochloride (46.8 g/packet)	Administer orally as a standard or concentrated drench solution using recommended applicator. See label for dosage based on body weight. Do not administer to cattle within 48 hours of slaughter for food. Do not administer to dairy animals of breeding age.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	2
BIMEDA	Bimectin [®] Injection for Cattle and Swine	ivermectin (1%)	Administer only by subcutaneous injection under the loose skin in front of or behind the shoulder at the recommended dose level of 200 mcg ivermectin per kilogram of body weight of cattle. Each mL of Bimectin [®] Injection for Cattle and Swine contains 10 mg of ivermectin, sufficient to treat 110 lb of body weight (maximum 10 mL per injection site). Do not treat cattle within 35 days of slaughter. Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, sucking lice, mange mites (see label for detailed list)	35
	Bimectin [®] Pour-On for Cattle	ivermectin (5 mg/mL)	The dose rate is 1 mL for each 22 lb of body weight. The formulation should be applied along the topline in a narrow strip extending from the withers to the tailhead using a recommended applicator gun. Cattle must not be treated within 48 days of slaughter for human consumption. Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	48
	LevaMed [™] Soluble Drench Powder	levamisole hydrochloride (46.8 g/packet)	Administer orally as a standard or concentrated drench solution using recommended applicator. See label for dosage based on body weight. Do not administer to cattle within 48 hours of slaughter for food. Do not administer to dairy animals of breeding age	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	2

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TABLE 1. ANTHELMINTICS FOR BEEF CATTLE EITHER IN FEEDLOTS OR OPEN RANGE (CONTINUED)

MFR.	BRAND NAME	ACTIVE INGREDIENT	DOSE	TARGET PARASITES	PRE-HARVEST INTERVAL (DAYS)
BOEHRINGER INGELHEIM	Cydetin [®] Injectable Solution for Beef and Nonlactating Dairy Cattle	moxidectin (10 mg/ml)	Administer by subcutaneous injection under the loose skin in front of or behind the shoulder. Needles 1/2- to 3/4-inch in length and 16 to 18 gauge are recommended for subcutaneous injections. The recommended rate of administration for Cydetin [®] Injectable is 1 ml for each 110 lb (50 kg) body weight to provide 0.2 mg moxidectin/2.2 lb (0.2 mg/kg) body weight. Not for use in female dairy cattle of breeding age, veal calves, and calves less than 8 weeks of age. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, sucking lice, mange mites (see label for detailed list)	21
	Cydetin [®] Pour-On for Beef and Dairy Cattle	moxidectin (5 mg/mL)	Directly apply to the hair and skin in a narrow strip extending along the top of the back from the withers to the tailhead using a recommended applicator gun. Treated cattle can be easily recognized by the characteristic purple color, which will remain for a short period of time after treatment. The recommended rate of administration is 1 mL for each 22 lb (10 kg) body weight which provides 0.5 mg moxidectin for each 2.2 lb (0.5 mg/kg) body weight. Not for use in veal calves. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	0
	Synanthic [®] Bovine Dewormer Suspension, 9.06%	oxfendazole (9.06%; 90.6 mg/mL)	Administer orally by accurate dose syringe at the rate of 2.5 mL per 110 lb of body weight. Cattle must not be slaughtered until 7 days after treatment. Do not use in female dairy cattle of breeding age.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	7
	Synanthic [®] Bovine Dewormer Suspension, 22.5%	oxfendazole (22.5%; 225 mg/mL)	Administer orally by accurate dose syringe at the rate of 1 mL per 110 lb of body weight. Cattle must not be slaughtered until 7 days after treatment. Do not use in female dairy cattle of breeding age.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	7
MERCK ANIMAL HEALTH	Safe-Guard [®] Dewormer for Beef & Dairy Cattle And Goats Suspension 10%	fenbendazole (100 mg/mL)	Administer orally; 2.3 milliliters of suspension per 100 lb body weight. Use drench gun developed for this product. Cattle must not be slaughtered within 8 days following treatment. Do not use in calves to be processed for veal.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	8
	Safe-Guard [®] Beef & Dairy Cattle Dewormer Paste 10%	fenbendazole (10%; 100 mg/g)	Administer orally; 5 grams of paste per 220 lb body weight. Use only dispensing gun developed for this product. Cattle must not be slaughtered within 8 days following last treatment.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	8
	Safe-Guard [®] Medicated Dewormer for Beef & Dairy Cattle 0.5% Alfalfa-Based Pellets	fenbendazole (0.5%; 2.27 g/lb)	Five (5) mg fenbendazole per kg body weight in a one (1) day treatment (2.27 mg fenbendazole per pound of body weight). Cattle must not be slaughtered within 13 days following last treatment. See label for details.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	13

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TABLE 1. ANTHELMINTICS FOR BEEF CATTLE EITHER IN FEEDLOTS OR OPEN RANGE (CONTINUED)

MFR.	BRAND NAME	ACTIVE INGREDIENT	DOSE	TARGET PARASITES	PRE-HARVEST INTERVAL (DAYS)
MERC	Safe-Guard® Medicated Dewormer For Beef & Dairy Cattle (Type B Medicated; Soft Mini-Pellets)	fenbendazole (1.96%; 8.9 g/lb)	Five (5) mg fenbendazole per kg body weight in a one (1) day treatment (2.27 mg fenbendazole per pound of body weight). Cattle must not be slaughtered within 13 days following last treatment. See label for details.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	13
	Safe-Guard® Medicated Dewormer for Beef and Dairy Cattle (Type B Medicated; Flaked Meal)	fenbendazole (1.96%; 8.9 g/lb)	Five (5) mg fenbendazole per kg body weight in a one (1) day treatment (2.27 mg fenbendazole per pound of body weight). Cattle must not be slaughtered within 13 days following last treatment. See label for details.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	13
MERIAL	IVOMEC® 1% Injection for Cattle and Swine	ivermectin (1%)	IVOMEC® 1% Injection should be given only by subcutaneous injection under the loose skin in front of or behind the shoulder of cattle at the recommended dose level of 200 mcg of ivermectin per kilogram of body weight. Each mL of IVOMEC® contains 10 mg of ivermectin, sufficient to treat 110 lb (50 kg) of body weight (maximum 10 mL per injection site). Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, sucking lice, mange mites (see label for detailed list)	35
	IVOMEC® EPRINEX® Pour-On for Cattle	eprinomectin (5 mg/mL)	The dose rate is 1 mL for each 22 lb of body weight. The formulation should be applied along the topline in a narrow strip extending from the withers to the tailhead using a recommended applicator. Do not use in calves intended for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	0
	IVOMEC® Plus Injection for Cattle	ivermectin (1% w/v) + clorsulon (10% w/v)	IVOMEC® Plus should be given only by subcutaneous injection at a dose volume of 1 mL per 110 lb (50 kg) body weight. This volume will deliver 10 mg ivermectin and 100 mg clorsulon. Inject the solution subcutaneously (under the skin) behind the shoulder. Do not treat cattle within 21 days of slaughter. Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, adult liver flukes, lungworms, cattle grubs, sucking lice, mange mites (see label for detailed list)	21
	IVOMEC® Pour-On for Cattle	ivermectin (5 mg/mL)	The dose rate is 1 mL for each 22 lb of body weight. The formulation should be applied along the topline in a narrow strip extending from the withers to the tailhead using a recommended applicator. Cattle must not be treated within 48 days of slaughter for human consumption. Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	48

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TABLE 1. ANTHELMINTICS FOR BEEF CATTLE EITHER IN FEEDLOTS OR OPEN RANGE (CONTINUED)

MFR.	BRAND NAME	ACTIVE INGREDIENT	DOSE	TARGET PARASITES	PRE-HARVEST INTERVAL (DAYS)
NORBROOK	Noromectin® Injection for Cattle and Swine	ivermectin (1%)	Administer only by subcutaneous injection under the loose skin in front of or behind the shoulder at the recommended dose level of 200 mcg ivermectin per kilogram of body weight. Each mL of Noromectin® Injection for Cattle and Swine contains 10 mg of ivermectin, sufficient to treat 110 lb of body weight (maximum 10 mL per injection site). Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, sucking lice, mange mites (see label for detailed list)	35
	Noromectin® Pour-On for Cattle	ivermectin (5 mg/mL)	The dose rate is 1 mL for each 22 lb of body weight. The formulation should be applied along the topline in a narrow strip extending from the withers to the tailhead using a recommended applicator. Cattle must not be treated within 48 days of slaughter for human consumption. Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	48
VETONE	Vetrimec™ 1% Injection for Cattle and Swine	ivermectin (1%)	Administer only by subcutaneous injection under the loose skin in front of or behind the shoulder at the recommended dose level of 200 mcg ivermectin per kilogram of body weight. Each mL of Vetrimec™ 1% Injection for Cattle and Swine contains 10 mg of ivermectin, sufficient to treat 110 lb of body weight (maximum 10 mL per injection site). Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, sucking lice, mange mites (see label for detailed list)	35
	Vetrimec™ Pour-On for Cattle	ivermectin (5 mg/mL)	The dose rate is 1 mL for each 22 lb of body weight. The formulation should be applied along the topline in a narrow strip extending from the withers to the tailhead using a recommended applicator. Cattle must not be treated within 48 days of slaughter for human consumption. Do not use in female dairy cattle of breeding age. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	48

TABLE 1. ANTHELMINTICS FOR BEEF CATTLE EITHER IN FEEDLOTS OR OPEN RANGE (CONTINUED)

MFR.	BRAND NAME	ACTIVE INGREDIENT	DOSE	TARGET PARASITES	PRE-HARVEST INTERVAL (DAYS)
ZOETIS	Dectomax® Injectable Solution	doramectin (1%; 10 mg/mL)	Administer Dectomax® injectable solution by the subcutaneous (SC) or intramuscular (IM) route. SC injections should be administered under the loose skin in front of or behind the shoulder. IM injections should be administered into the muscular region of the neck. Recommended dosage is 200 mcg doramectin per kg (91 mcg/lb) of body weight. Each mL of Dectomax® Injectable Solution contains 10 mg of doramectin, sufficient to treat 110 lb (50 kg) of body weight. Do not slaughter for human consumption within 35 days of treatment. Not for use in female dairy cattle 20 months of age or older. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, eye worms, cattle grubs, sucking lice, mange mites (see label for detailed list)	35
	Dectomax® Pour-On	doramectin (0.5%; 5 mg/mL)	Administer Dectomax® Pour-On solution to cattle topically at a dosage of 500 mcg doramectin per kg (227 mcg/lb) of body weight. Each mL of Dectomax® Pour-On contains 5 mg of doramectin, sufficient to treat 22 lb (10 kg) of body weight. Apply topically along the mid-line of the back in a narrow strip between the withers and tailhead using a recommended applicator. Cattle must not be slaughtered for human consumption within 45 days of treatment. Not for use in female dairy cattle 20 months of age or older. Do not use in calves to be processed for veal. See label for details.	gastrointestinal roundworms, lungworms, eye worms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	45
	Valbazen Suspension	albendazole (11.36%; 113.6 mg/mL)	Administer orally to cattle at the recommended rate of 4 mL/100 lb of body weight. Cattle must not be slaughtered within 27 days following last treatment. Do not use in female dairy cattle of breeding age. See label for details.	stomach worms, intestinal worms, lungworms, liver flukes (see label for a detailed list of worm species and stages)	27

Prior to using any product mentioned in this article, carefully read and follow all available instructions, warnings and safety information made available by the product's manufacturer.

TABLE 2. ANTHELMINTICS FOR BEEF CATTLE IN OPEN RANGE ONLY

MFR.	BRAND NAME	ACTIVE INGREDIENT	DOSE	TARGET PARASITES	PRE-HARVEST INTERVAL (DAYS)
MERIAL	LongRange™ Extended-Release Injectable Parasiticide	eprinomectin (5%)	LongRange™ (eprinomectin) should be given only by subcutaneous injection in front of the shoulder at the recommended dosage level of 1 mg eprinomectin per kg body weight (1 mL per 110 lb body weight). Each mL of Longrange contains 50 mg of eprinomectin, sufficient to treat 110 lb (50 kg) body weight. Divide doses greater than 10 mL between two injection sites to reduce occasional discomfort or site reaction. Not for use in female dairy cattle 20 months of age or older, including dry dairy cows. Not for use in calves to be processed for veal. Not for use in breeding bulls, or in calves less than 3 months of age. Not for use in cattle managed in feedlots or under intensive rotational grazing. CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, mites (see label for detailed list)	48

Prior to using any product mentioned in this article, carefully read and follow all available instructions, warnings and safety information made available by the product's manufacturer.

TABLE 3. ANTHELMINTICS FOR DAIRY CATTLE

MFR.	BRAND NAME	ACTIVE INGREDIENT	DOSE	TARGET PARASITES	MILK WITHDRAWAL PERIOD (DAYS)
BOEHRINGER INGELHEIM	Cydetin® Pour-On for Beef and Dairy Cattle	moxidectin (5 mg/mL)	Directly apply to the hair and skin in a narrow strip extending along the top of the back from the withers to the tailhead using a recommended applicator gun. Treated cattle can be easily recognized by the characteristic purple color, which will remain for a short period of time after treatment. The recommended rate of administration is 1 mL for each 22 lb (10 kg) body weight which provides 0.5 mg moxidectin for each 2.2 lb (0.5 mg/kg) body weight. Not for use in veal calves. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	0
MERC ANIMAL HEALTH	Safe-Guard® Dewormer for Beef & Dairy Cattle and Goats Suspension 10%	fenbendazole (100 mg/mL)	Administer orally; 2.3 milliliters of suspension per 100 lb body weight. Use drench gun developed for this product. Cattle must not be slaughtered within 8 days following treatment. Do not use in calves to be processed for veal.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	0
	Safe-Guard® Beef & Dairy Cattle Dewormer Paste 10%	fenbendazole (10%; 100 mg/g)	Administer orally; 5 grams of paste per 220 lb body weight. Use only dispensing gun developed for this product. Cattle must not be slaughtered within 8 days following last treatment.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	0
	Safe-Guard® Medicated Dewormer for Beef & Dairy Cattle 0.5% Alfalfa-Based Pellets	fenbendazole (0.5%; 2.27 g/lb)	Five (5) mg fenbendazole per kg body weight in a one (1) day treatment (2.27 mg fenbendazole per pound of body weight). Cattle must not be slaughtered within 13 days following last treatment. See label for details.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	0

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TABLE 3. ANTHELMINTICS FOR DAIRY CATTLE (CONTINUED)

MFR.	BRAND NAME	ACTIVE INGREDIENT	DOSE	TARGET PARASITES	MILK WITHDRAWAL PERIOD (DAYS)
MERCK ANIMAL HEALTH	Safe-Guard® Medicated Dewormer For Beef & Dairy Cattle (Type B Medicated; Soft Mini-Pellets)	fenbendazole (1.96%; 8.9 g/lb)	Five (5) mg fenbendazole per kg body weight in a one (1) day treatment (2.27 mg fenbendazole per pound of body weight). Cattle must not be slaughtered within 13 days following last treatment. See label for details.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	0
	Safe-Guard® Medicated Dewormer for Beef and Dairy Cattle (Type B Medicated; Flaked Meal)	fenbendazole (1.96%; 8.9 g/lb)	Five (5) mg fenbendazole per kg body weight in a one (1) day treatment (2.27 mg fenbendazole per pound of body weight). Cattle must not be slaughtered within 13 days following last treatment. See label for details.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	0
	Safe-Guard® 20% Salt: Free-Choice Mineral (Beef and Dairy Cattle)	fenbendazole (0.50%; 2.27 g/lb)	To be fed to cattle for 3 to 6 days. The amount of this product given to a group of cattle is based on 0.10 lbs (1.60 oz) total consumption per 100 lb of body weight to deliver a dosage of 2.27 mg fenbendazole per pound of body weight. Cattle must not be slaughtered within 13 days following last treatment.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	0
	Safe-Guard 35% Salt: Free-Choice Mineral (Beef and Dairy Cattle)	fenbendazole (0.50%; 2.27 g/lb)	To be fed to cattle for 3 to 6 days. The amount of this product given to a group of cattle is based on 0.12 lb (1.91 oz) total consumption per 100 lb of body weight to deliver a dosage of 2.27 mg fenbendazole per pound of body weight. Cattle must not be slaughtered within 13 days following last treatment.	stomach worms, intestinal worms, lungworms (see label for a detailed list of worm species and stages)	0
MERIAL	IVOMEC® EPRINEX® Pour-On for Cattle	eprinomectin (5 mg/mL)	The dose rate is 1 mL for each 22 lb of body weight. The formulation should be applied along the topline in a narrow strip extending from the withers to the tailhead using a recommended applicator. Do not use in calves intended for veal. See label for details.	gastrointestinal roundworms, lungworms, cattle grubs, biting and sucking lice, horn flies, mange mites (see label for detailed list)	0

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