LONGRANGE® (eprinomectin) is the first extended-release injection that gives you up to 100 to 150 days of parasite control in a single treatment. But with any deworming protocol comes concerns about resistance.

With its THERAPHASE™ formulation, LONGRANGE® has a high initial peak followed by a second peak between 90 to 100 days, and then quickly leaves the animal’s system. This short tail helps ensure LONGRANGE® doesn’t select for resistance any more than current dewormers. LONGRANGE® takes out even tough-to-kill worms in studies, long-acting products were shown to be effective against tough-to-kill parasites, such as Cooperia, either by having a large AUC or having a very high initial peak. With a high initial peak and large AUC, LONGRANGE controls hard-to-kill worms, like Cooperia, for up to 100 days after treatment.

LONGRANGE fits into your resistance management program. Parasite control from LONGRANGE means you’ll see results even in untreated animals. That means you can treat your beef cows and still benefit nursing calves because of the increased milk production. LONGRANGE is also ideal for refugia programs, thought to be one of the best ways to help manage resistance. Simply leave 10 percent of your cattle untreated, generally the cows that are in the best condition. These untreated cattle help dilute the resistant parasite population, but still benefit from the lower pasture contamination created by LONGRANGE-treated cattle.

IMPORTANT SAFETY INFORMATION: Do not treat within 48 days of slaughter. Not for use in female dairy cattle 20 months of age or older, including dry dairy cows, or in veal calves. Post-injection site damage (e.g., granulomas, necrosis) can occur. These reactions have disappeared without treatment.  

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Extended-Release Injectable Parasiticide
5% Sterile Solution
For the Treatment and Control of Internal and External Parasites of Cattle on Pasteure with Persistent Effectiveness

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.

DESCRIPTION
LONGRANGE® (eprinomectin) is a ready-to-use, sterile injectable preparation containing eprinomectin, a member of the macrocyclic lactone class of antiparasitics. Each mL of LONGRANGE contains 50 mg of eprinomectin in a co-solvent system of N-methyl-2-pyrrolidone (10% v/v) and triacetin (8%), along with 50 mg of poly-lactic-co-glycolic acid 75:25 (PLGA), a polymer that allows a slow release of eprinomectin from the formulation, thereby maintaining a prolonged duration of product effectiveness. Butylated hydroxytoluene (0.2 mg/mL) acts as an antioxidant in the formulation.

The chemical name of eprinomectin is 4′-deoxy-4′-equacysteaminooxavermin B1. It is a semi-synthetic member of the avermectin family of compounds consisting of a mixture of two homologous components, B1a and B1b, which differ by a single methylene group at C26.

INDICATIONS FOR USE
LONGRANGE, when administered at the recommended dose volume of 1 mL per 110 lb (50 kg) body weight, is effective in the treatment and control of the following internal and external parasites of cattle:

Gastrointestinal Roundworms
- Cooperia oncophora - Adults
- Cooperia punctata - Adults, L1, and L2
- Cooperia succinicauda - Adults and L1
- Haemonchus placei - Adults
- Oesophagostomum radiatum - Adults
- Ostertagia laticeps - Adults, L1, L2, and L3
- Ostertagia ostertagi - Adults, L1, L2, and L3, and inhibited L4
- Trichostrongylus axei - Adults and L1
- Trichostrongylus colubriformis - Adults

Persistency
LONGRANGE has been proven to effectively protect cattle from reinfection with the following parasites for the indicated amounts of time following treatment:

Parasites | Durations of Persistent Effectiveness
--- | ---
Gastrointestinal Roundworms
- Cooperia oncophora | 100 days
- Cooperia punctata | 100 days
- Haemonchus placei | 120 days
- Oesophagostomum radiatum | 120 days
- Ostertagia laticeps | 120 days
- Ostertagia ostertagi | 120 days
- Trichostrongylus axei | 100 days
- Trichostrongylus colubriformis | 150 days

LONGRANGE can be given only by subcutaneous injection in front of the shoulder at the recommended dosage level of 1 mg of 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.

LONGRANGE is to be given subcutaneously only. Animals should be appropriately restrained to achieve the proper route of administration. Inject under the loose skin in front of the shoulder (see illustration) using a 3 or 18 gauge, 1 to ¼ inch needle. Sanitize the injection site by applying a suitable disinfectant. Clean, properly disinfected needles should be used to reduce the potential for injection site infections.

50 mL bottle size: Use only polypropylene syringes. Not for use with poly carbonate syringe mate. If syringe material is not known, contact the syringe manufacturer prior to use for identification. Do not use beyond 3 months after bottle has been punctured. Discard bottle after 15 stopper punctures. 250 mL and 500 mL bottle sizes: Use only automatic syringe equipment provided by Merial. To obtain compatible equipment, contact Merial at 1-888-637-4521 or your veterinarian. LONGRANGE should not be stored in automatic syringe equipment. Automatic syringe equipment should be thoroughly cleansed after each use. Discard bottle after one stopper puncture with draw-off spike. No special handling or protective clothing is necessary.

WARNINGs AND PRECAUTIONs
Withdrawal Periods and Residue Warnings
Animals intended for human consumption must not be slaughtered within 48 days of the last treatment.

This product is not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause residues in milk and/or in calves born to these cows. A withdrawal period has not been established for pre-rumination calves. Do not use in calves to be processed for veal.

User Safety Warnings
Not for Use in Humans. Keep this and all drugs out of the reach of children.

The material safety data sheet (MSDS) contains more detailed occupational safety information. To report adverse events, to obtain an MSDS, or for assistance, contact MerIAL at 1-888-637-4521. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS, or visit http://www.fda.gov/AnimalVeterinary.

Animal Safety Warnings and Precautions
The product is likely to cause tissue damage at the site of injection, including possible granulomata and necrosis. These reactions have disappeared within 2 weeks of treatment. Local tissue reaction may result in thinning of edible tissue at slaughter. Observe cattle for injection site reactions. If injection site reactions are suspected, consult your veterinarian. This product is not for intravenous or intramascular use. Protect product from light. LONGRANGE® (eprinomectin) has been developed specifically for use in cattle only. This product should not be used in other animal species.

When to Treat Cattle with Grubs
LONGRANGE effectively controls all stages of cattle grubs. However, proper timing of treatment is important. For the most effective results, cattle should be treated as soon as possible after the end of the first feed fly (warble fly) season. Destruction of Hypoderma larvae (cattle grub) at the pre-grub stage is the best means to control grubs. Grubs are in vital areas may cause undesirable host-parasite reactions, including the possibility of fatalities. Killing Hypoderma larvae when it is in the tissue surrounding the esophagus (gullet) may cause salivation and bloating, killing H. davisii when it is in the vertebral canal may cause staggering or paralysis. These reactions are not specific to treatment with LONGRANGE, but can occur with any successful treatment of cattle. Grubs should be treated either before or after these stages of grub development. Consult your veterinarian concerning the proper time for treatment.

Environmental Hazards
Studies indicate that when eprinomectin comes in contact with soil, it readily and tightly binds to the soil and becomes inactive over time. Free eprinomectin may adversely affect fish and certain aquatic organisms. Do not contaminate water by direct application or by improper disposal of drug containers. Dispose of containers in an approved landfill or by incineration. As with other avermectins, eprinomectin is excreted in the dung of treated animals and can inhibit the reproduction and growth of pest and beneficial insects that use dung as a source of food for reproduction. The magnitude and duration of such effects are species and life-cycle specific. When used according to label directions, the product is not expected to have an adverse impact on populations of dung-dependent insects. Not for use in cattle managed in feedlots or used for extensive rotational grazing because the environmental impact has not been evaluated for these scenarios.

Other Warnings: Underdosing and/or subtherapeutic concentrations of extended-release anthelmintic products may encourage the development of parasite resistance. It is recommended that parasite resistance be monitored following the use of any anthelmintic with the use of a fecal egg count reduction test program.

CLINICAL PHARMACOLOGY
Due to its unique formulation characteristics, when LONGRANGE is injected subcutaneously in the shoulder area of a cattle, a polymeric PLGA matrix is formed. The biodegradable matrix solids in vivo to form an osmotic gel, which allows a gradual release of eprinomectin from the formulation. The rate-limiting step is diffusion of the drug through the gel matrix. Because of its mechanism of release, absorption characteristics can be highly dependent upon the injection technique used and the corresponding surface to volume ratio of the gel.

Clinical efficacy of avermectins and milbemycins is closely related to their pharmacokinetic behavior, and the time of parasite exposure to active drug concentrations is relevant to obtain optimal and persistent antiparasitic activity (Lamance et al., 1997; Lichten et al., 1997; Lichten et al., 2004; Shoop et al., 1996). Lichten et al. (1999) indicated that plasma concentrations between 0.5 and 1 ng/mL would represent the minimal drug level required for optimal nematocidal activity, while others have suggested minimum levels of 1 to 2 ng/mL. Pharmacokinetic studies of LONGRANGE in cattle indicate that effective plasma levels remain for an extended period of time (at least 100 days).

Mean Eprinomectin B, Plasma Concentration Versus Time Following a Single Subcutaneous Injection of LONGRANGE® at a Dose Rate of 1 mg Eprinomectin per kg Body Weight in Beef Cattle (Antimicrobial Mean ± Standard Deviation of the Mean, n=42)

Mode of Action
The macrocyclic lactones have a unique mode of action. Compounds of this class bind selectively and with high affinity to glutamate-gated chloride ion channels that are present in invertebrate nerve and muscle cells. This leads to an increase in the permeability of the cell membrane to chloride ions with hyperpolarization of the nerve or muscle cell, resulting in paralysis and death of the parasite. Compounds of this class may also interact in other ligand-gated chloride ion channels, such as those gated by the neurotransmitter gamma-aminobutyric acid (GABA).

The margin of safety for compounds of this class is at least partially attributable to the fact that mammals do not have glutamate-gated chloride ion channels, and that the macrocyclic lactones have low affinity for other mammalian ligand-gated channels and do not readily cross the blood-brain barrier.

TARGET ANIMAL SAFETY
Clinical studies have demonstrated the wide margin of safety of LONGRANGE® (eprinomectin). Overdosing at 3 to 5 times the recommended dose resulted in a statistically significant reduction in average weight gain when compared to the group treated at label dose. Treatment-related lesions observed in most cattle administered the product included swelling, hyperemia, or necrosis in the subcutaneous tissue of the skin. The administration of LONGRANGE® at 3 times the recommended therapeutic dose had no adverse reproductive effects on beef cows at all stages of breeding or pregnancy or on their calves. Not for use in bulls, as reproductive safety testing has not been conducted in males intended for breeding or actively breeding. Not for use in calves less than 3 months of age because safety testing has not been conducted in calves less than 3 months of age.

HOW SUPPLIED
LONGRANGE is available in three ready-to-use glass bottle sizes. The 50, 250, and 500 mL bottles contain sufficient solution to treat 10, 50, and 100 head of 550 lb (250 kg) cattle, respectively. The 250 and 500 mL bottles are supplied in a removable plastic protector.

STORAGE
Shelf life is 77°F (25°C) with excursions between 59° and 86°F (15° and 30°C). Protect from light.

AUDA #141-327, Approved by FDA
Made in Canada.
Manufactured for Merial Limited, Duluth, GA, USA.
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1050-2889-02, Rev. 05/2012