HFA-305

OCT 4 1999

FREEDOM OF INFORMATION SUMMARY

Supplement to NADA 141-087

QUEST" (moxidectin) 2% Equine Oral Gel

Additional indication for the treatment and control of *Gasterophilus nasalis* (3rd instars)

Sponsor: Fort Dodge Animal Health
Supplemental Freedom of Information (FOI) Summary
QUEST" (moxidectin) 2% Equine Oral Gel

NADA-141-087

FOIS 1

1. General Information

NADA Number: 141-087

Sponsor: Fort Dodge Animal Health
Division of American Home Products Corp.
800 Fifth Street, NW.
Fort Dodge, IA 50501

Generic Name: moxidectin

Tradename: QUEST" (moxidectin) 2% Equine Oral Gel

Marketing Status: Over-The-Counter (OTC)

Effects of Supplement:

a. New indication: For the treatment and control of *Gasterophilus nasalis* (3rd instars)

b. Labeling Change: The precautions section is revised to read "This product should not be used in other animal species as severe adverse reactions, including fatalities in dogs, may result." The photograph on the carton was changed to remove the picture of a young foal.

2. Indications For Use

QUEST (moxidectin) 2% Equine Oral Gel, when administered at the recommended dose level of 0.4 mg moxidectinkg (2.2 lb.) body weight, has been demonstrated to be effective in the treatment and control of the following stages of gastrointestinal parasites of horses and ponies:

Large strongyles

Strongylus vulgaris - (adults and L_4/L_5 arterial stages)
Strongylus edentatus - (adult and tissue stages)
Triodontophorus brevicauda - (adults)
Triodontophorus serratus - (adults)

Small strongyles

Cyathostomum spp. (adults)
Cylicocyclus spp. (adults)
Cylicostephanus spp. (adults)

Gyalocephalus capitatus - (adults)
Undifferentiated lumenal larvae

Encysted cyathostomes

Late L_3 and L_4 mucosal cyathostome larvae

Ascarids

Parascaris equorum - (adults and L_4 larval stages)

Pin worms

Oxyuris equi - (adults and L_4 larval stages)

Hair worms

Trichostrongylus axei - (adults)

Large-mouth stomach worms

Habronema muscae - (adults)

Horse stomach bots

Gasterophilus intestinalis - (2^{nd} and 3^{rd} instars)
Gasterophilus nasalis - (3^{rd} instars)

One administration of the recommended dose rate of QUEST 2% Equine Oral Gel also suppresses strongyle egg production for 84 days.

3. Dosage Form, Route of Administration and Recommended Dosage

Dosage Form:

QUEST (moxidectin) 2% Equine Oral Gel is a ready-to-use formulation containing 20 mg moxidectin/mL (2.0% on a weight/volume basis). It is packaged in disposable syringes calibrated with specific settings which enable accurate administration of the gel based on the body weight of the treated animal.

Route of Administration:

The product is formulated as a palatable gel which is administered to horses and ponies by inserting the syringe applicator into the animal's mouth through the interdental space and depositing the gel in the back of the mouth near the base of the tongue.

Recommended Dose Rate:

The recommended dose level is 0.4 mg moxidectin/kg (2.2 lb.) body weight.

4. Effectiveness

An original new animal drug application for QUEST (moxidectin) 2% Equine Oral Gel (NADA 141-087) was approved on July 11, 1997 (62 FR 42902, August 11, 1997) and is codified in 2 1 CFR 520.1452. This supplemental NADA 141-087 approval involves the addition of a new indication for the treatment and control of *Gasterophilus nasalis* (3rd instars) with a single administration of QUEST Gel at the currently approved 0.4 mg/kg body weight dose rate. The approval of the new indication is based on two clinical studies.

Experiments 0863-E-UK-1O-95 and 0876-E-US-14-98 were conducted to confirm the effectiveness of a single oral administration of QUEST (moxidectin) 2% Equine Oral Gel against the larval stages of *Gasterophilus nasalis*. In these studies, ponies and horses with naturally-acquired *G. nasalis* infections were treated with 0.4 mg/kg body weight QUEST Gel. The animals were euthanized at 35 and 14 days (respectively) post treatment for parasite recovery and identification. The number of parasites recovered from the treated animals were compared with the number of parasites found in the untreated control animals. Percent effectiveness was determined by comparison of the arithmetic means of the treated and control animal parasite counts. 100% effectiveness against G. *nasalis* (3rd instars) was documented in each study.

a. Study Number: 0863-E-UK-1O-95

Clinical Investigator: G. C. Coles, Ph.D.
University of Bristol
Bristol BS 18 7DU United Kingdom

Test Animals/Source of Infection: Naturally-infected, wild Dartmoor ponies

Treatment Design:

Treatment Groups	Number Treated
Untreated Control	8
Moxidectin Equine Gel, 0.4 mg/kg body weight	8

Test Duration: 35 days

Observations: No adverse reactions to treatment were reported.

Results of Treatment: At the time of necropsy, seven control ponies (7/8) were infected with *Gasterophilus nasalis* (3rd instars). Treatment was 100% effective against *G. nasalis* in this experiment.

Table 1. Effectiveness of moxidectin oral gel against *Gasterovhilus nasalis* 3rd instars in Study 0863-E-UK-1 O-95

Test Parameter	Control	Treated	% Effectiveness
Number of horses infected at necropsy/ Number in treatment group	7/8	0/8	N/A
Arithmetic mean	25.6	0	100
Geometric mean	13.5	0	100
Range	l-68	0	N/A

b. Study Number: 0876-E-US-14-98

Clinical Investigator: Craig R. Reinemeyer, DVM, Ph.D.
East Tennessee Clinical Research, Inc.
Knoxville, Tennessee 37922

Test Animals/Source of Infection: Naturally-infected, mixed-breed horses

Treatment Design:

Treatment Groups	Number Treated
Untreated Control	7
Moxidectin Equine Gel, 0.4 mg/kg body weight	7

Test Duration: 14 days

Observations: *Gasterophilus* spp. infections were determined by endoscopic exam prior to initiation of this experiment. No adverse reactions to treatment were reported.

Results of Treatment: All control ponies (7/7) were infected *with Gasterophilus nasalis* (3rd instars). Treatment was 100% effective against G. *nasalis* (3rd instars) in this experiment.

Table 2. Effectiveness of moxidectin oral gel against *Gasterophilus nasalis* 3rd instars in Study 0876-E-US-14-98

Test Parameter	Control	Treated	% Effectiveness
Number of horses infected at necropsy/ Number in treatment group	7/7	0/7	N/A
Arithmetic mean	**27.4**	**0**	100
Geometric mean	18.1	0	100
Range	**5-77**	**0**	N/A

5. **Animal Safety**

The approval of this supplemental NADA 14 l-087 is for a new indication. It does not change the dose level, frequency or route of administration of QUEST (moxidectin) 2% Equine Oral Gel or the class or species of treated animals. Consequently, no additional animal safety data were required for approval of this new indication. Information regarding the safety of QUEST Gel to treat horses and ponies is located in Section 5 (pages 19-27) of the original NADA 14 l-087 Freedom of Information Summary (July 11, 1997).

The precautions section of the labeling was modified in response to reports of misuse of the product in dogs.

6. **Human Safety**

Human Food Safety

QUEST (moxidectin) 2% Equine Oral Gel is specifically labeled: "Do not use in horses or ponies intended for food." Because the drug is not intended for use in food-producing animals, human food safety data were not required for the original or supplemental NADA 14 l-087 approval.

User Safety

The addition of the new indication approved in this NADA 14 l-087 supplement in no way affects the physical characteristics of QUEST (moxidectin) 2% Equine Oral Gel or the way it is administered. Consequently, no user safety data were required for the supplemental approval.

7. Agency Conclusions

The data in support of this supplemental NADA comply with the requirements of Section 5 12 of the Federal Food, Drug, and Cosmetic Act and Section 5 14.8 of the implementing regulations. The data demonstrate that QUEST™ moxidectin 2% Equine Oral Gel, when used under labeled conditions, is safe and effective for the treatment and control of *Gasterophilus nasalis* (3rd instars).

Under section 5 12(c)(2)(F)(iii) of the FFDCA, this supplemental approval for non food producing animals qualifies for three years of marketing exclusivity beginning on the date of the supplemental approval because the application contains substantial evidence of the effectiveness of the drug involved, or studies of animal safety required for the approval of the application and conducted or sponsored by the applicant. The three years of marketing exclusivity applies only to the treatment and control of *Gasterophilus nasalis* (3rd instars) for which the supplemental application was approved.

8. Labeling (attached)

Package Insert
Syringe Label
Printed Outer Carton

NADA 14 I-087. Approved by FDA

FORT DODGE®

QUEST™ GEL moxidectin

2% Equine Oral Gel

Contains 20 mg **moxidectin/mL**
(2.0% w/v)

DEWORMER & BOTICIDE

FOR ORAL USE IN HORSES AND PONIES
FOUR MONTHS OF AGE ANO OLDER

INDICATIONS

QUEST (moxidectin) 2% Equine Oral Gel when administered at the recommended dose level of 0.4 mg moxidectin/kg 12.2 lb) body weight is effective in the treatment and control of the following stages of gastrointestinal parasites in horses and ponies:

Large strongyles
- *Strongylus vulgaris* – (adults and L_4/L_5 arterial stages)
- *Strongylus edentatus* – (adults and tissue stages)
- *Triodontophorus brevicauda* – (adults)
- *Triodontophorus serratus* – (adults)

Small **strongyles**
- *Cyathostomum* spp. – (adults)
- *Cylicocyclus* spp. – (adults)
- *Cylicostephanus* spp. – (adults)
- *Gyalocephalus capitatus* – (adults)
- Undifferentiated lumenal larvae

Encysted cyathostomes
- Late 4 and L_4 mucosal cyathostome larvae

Ascarids
- *Parascaris equorum* – (adults and 4 larval stages)

Pin worms
- *Oxyuris equi* – (adults and L_4 larval stages)

Hair worms
- *Trichostrongylus axei* – (adults)

Large-mouth stomach **worms**
- *Habronema muscae* – (adults)

Horse stomach bots
- *Gasterophitus intestinalis* – (2nd and 3rd instars)
- *Gasterophitus nasalis* – (3rd instars)

One administration of the recommended dose rate of QUEST 2% Equine Oral Gel also suppresses strongyle egg production through 84 days.

QUEST is indicated for "se in horses and ponies. including breeding meres and stallions. and foals four months of age and older.

STRATEGIC PROTECTION PROGRAMS

Consult your veterinarian for assistance in the diagnosis. treatment, and control of parasitism. For best control of parasites, all horses and ponies should be included in a strategic treatment program, with particular attention given to high performance animals. brood mares, stallions and foals. In foals, initial treatment is recommended at 4 months of age. after which they should be Included in a recurrent treatment program. Because QUEST (moxidectin) provides effective control of the mucosal stages of small strongyles (encysted cyathostomes). it is useful in reducing the frequency of treatment required for successful strategic equine parasite control. A veterinarian can assist in preparing the best program for your needs.

QUEST 2% Equine Oral Gel when used et the recommended dose rate suppresses strongyle egg production through 84 days following a single oral administration. This residual strongyle control reduces pasture contamination and provides a period of protection from reinfection for horses and ponies maintained on the same pasture.

MODE OF ACTION

QUEST 2% Equine Oral Gel acts by interfering with chloride channel-mediated neurotransmission In the parasite. This results in paralysis and elimination of the parasite. Moxidectin is safe for use in horses and ponies because it does not have the same injurious effect on the mammalian nervous system.

ADMINISTRATION AND DOSAGE

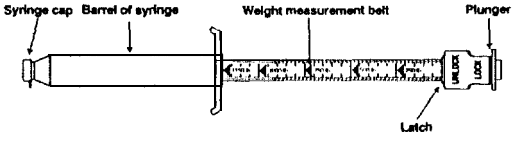
QUEST 2% Equine Oral Gel Is specially formulated as a palatable gel which Is easily administered to horses and ponies.

WEST Gel is packaged in ready-to-use SURE-DOSE™ syringes (see diagram of SURE-DOSE syringe on opposite side). The latch can be moved along the plunger to measure the amount of QUEST Gel that is administered. The latch has a locking mechanism. The locking mechanism can be locked, or unlocked. by pushing on the appropriately labeled side of the mechanism. Pushing on the side of the locking mechanism labeled unlock will free the latch. allowing it to move along the plunger. As the latch is moved along the plunger the numbers and calibration marks on the moveable weight measurement belt will be seen to move as the latch Is moved. The weight measurement belt runs in a complete circle around the plunger and is attached to the latch. This belt moves as the latch Is moved along the plunger. Do not prevent the belt from moving. This can break the belt's attachment to the latch. Each weight measurement belt is calibrated in 50 pound increments, up to t 150 pounds. This enables the administration of the recommended dose level of 0.4 mg moxidectin/kg body weight

(continued on opposite side)

by choosing a setting that is consistent with the horse's weight. Prior to administration of this product the horse's weight should be accurately determined by use of a weight scale or a girth measuring tape. The proper dose Is set by moving the latch to align the correct weight number on the moveable weight measuring belt with the end of the barrel of the syringe. The latch is then locked in this position. Adequately restrain the horse and its head. Confirm that the horse's mouth is empty and contains no feed. Remove the syringe cap. Insert the syringe in the horse's mouth at the interdental space. The correct dose of OUEST (moxidectin) Gel is then administered on top of the horse's tongue. as close to its base as possible. Remove the syringe from the horse's mouth and raise the horse's head slightly to assure proper swallowing of the gel. Replace the syringe cap. The remaining contents of the syringe can be used lo treat additional horses or ponies by repeating these directions. The following step-by-step instructions are provided below to simplify use of the SURE-DOSE syringe.

SURE-DOSE Syringe



SURE-DOSE SYRINGE DIRECTION SUMMARY

1. UNLOCK THE LATCH
   Push down on the side of the latch locking mechanism where you see the word unlock. The latch locking mechanism will depress slightly toward the plunger and you will hear a clicking sound.
2. MOVE LATCH TO SET DESIRED DOSE
   Slide latch along the plunger. You will see numbers and calibration marks on the weight measuring belt move, as you move the latch. When the desired weight number (weight of your horse) is aligned with the end of the barrel of the syringe, stop moving the latch.
3. LOCK THE LATCH IN POSITION
   Push down on the side of the latch locking mechanism where you see the word lock. The latch locking mechanism will depress slightly toward the plunger and you will hear a clicking sound. Confirm that the latch is locked by attempting to mow it along the plunger. If the latch is locked properly, it will not move along the plunger.
4. ADMINISTER THE CORRECT DOSE OF GEL
   Adequately restrain the horse and its head. Confirm that the horse's mouth is empty and contains no feed. Remove the syringe cap. Insert the syringe barrel into the horse's mouth at the interdental space. With the tip of the syringe over the base of the tongue. gently push the plunger into the barrel of the syringe lo expel the product from the syringe. The plunger will stop when the latch contacts the barrel of the syringe. Remove the syringe from the horse's mouth and raise the horse's head slightly to assure proper swallowing of the gel. Replace the syringe cap

Each syringe of QUEST 2% Equine Oral Gel may be used to treat more than one animal especially when dosing foals. ponies and growing and lighter breeds of horses. The table below will help estimate the number of horses or ponies the contents of each syringe will treat.

	Ponies			Light Horses			Heavy Horses		
Age	Weight (lbs)	(kg)	Treated Animals (per syringe)	Weight (lbs)	(kg)	Treated Animals (per syringe)	Weight (lbs)	(kg)	Treated Animals (per syringe)
4 months	150	(68)	7	250	(113)	4	350	(159)	3
8 months	200	(91)	5	350	(159)	3	550	(249)	2
Mature	450	(204)	2	850	(386)	1	1100+	(499+)	1

ANIMAL SAFETY

OUEST (moxidectin) 2% Equine Oral Gel can be safety administered at the recommended dose of 0.4 mg moxidectin/kg body weight to horses and ponies of all breeds at least 4 months of age or older. Transient depression, ataxia and recumbency may be seen when very young or debilitated animals are treated. In these instances. supportive care may be advisable. Reproductive safety studies demonstrate a wide margin of safely when the product is used in the treatment of estrual and pregnant mares and breeding stallions.

To report adverse drug reactions or to obtain a copy of the Material Safety Data Sheet (MSDS) call (800)477-1365.

ENVIRONMENTAL SAFETY

Care should be taken to avoid the release of significant volumes of moxidectin into either ground or free-running water&e moxidectin may be injurious to apuatic life. SURE-DOSE syringes and their contents should be disposed of in an approved landfill or by incineration.

PRECAUTION

QUEST 2% Equine Oral Gel has been formulated specifically for use in horses and ponies only. This product should not be used in other animal species as serious adverse reactions, Including fatalities in dogs, may result.

WARNING

Extreme caution should be used when administering the product to foals, young and miniature horses, as overdosage may result in serious adverse reactions. Do not use In horses or ponies intended for food. Keep this and all drugs out of reach of children.

HUMAN WARNING

Do not ingest. If swallowed. induce vomiting. Wash hands and contaminated skin with soap and water. If accidental contact with eyes occurs. Rush repeatedly with water. If irritation or any other symptomattributable to exposure to this product persists. consult your physician.

HOW SUPPLIED

OUEST 2% Equine Oral Gel is available In one syringe applicator size. Each SURE-DOSE syringe contains 0.4 oz (11.3 g) of QUEST 2% Equine Oral Get which Is sufficient to treat a single horse weighing up to 1150 lb, or two or more lighter animals with a combined body weight of up to 1150 lb. Portions of an additional syringe are necessary lo treat horses weighing more than 1150 lb.

NDC 0856-7441-01 — 0.4 oz (11.3 g) syringe - 20 mg moxidectin per mL

Store at or near room temperature 15' to 30°C (59° to 86°F). Avoid freezing. If frozen. thaw completely before use. Store partiaily-used syringes with the cap tightly secured.

QUEST™ Is a trademark of American Cyanamid Company.
U.S. Patent No. 4,916,154

Fort Dodge Animal Health
Fort Dodge, Iowa 50501 USA

92099 7440H

QUEST™ GEL moxidectin

2% Equine Oral Gel
Contains 20 mg moxidectin/mL (2.0% w/v)
0.4 oz (11.3 g) moxidectin gel

HORSE DEWORMER & BOTICIDE IN A SINGLE ORAL DOSE

NDC 0856-7441-01

FOR ORAL USE IN HORSES AND PONIES FOUR MONTHS OF AGE AND OLDER

ADMINISTRATION AND DOSAGE: Each syringe treats a single horse weighing up to 1150 lb, or two or more lighter animals with a combined body weight of up to 1150 lb. Please read entire insert for ADMINISTRATION AND DOSAGE and other important information.

WARNING: Extreme caution should be used when administering the product to foals, young and miniature horses, as overdosage may result in serious adverse reactions. Do not use in horses or ponies intended for food. Keep this and all drugs out of reach of children.

HUMAN WARNING: Do not ingest. If swallowed, induce vomiting. Wash hands and contaminated skin with soap and water. If accidental contact with eyes occurs, flush repeatedly with water. If irritation or any other symptom attributable to exposure to this product persists, consult your physician.

PRECAUTION: QUEST (moxidectin) Oral Gel has been formulated specifically for use in horses and ponies only. This product should not be used in other animal species as serious adverse reactions, including fatalities in dogs, may result.

STORAGE: Store at or near room temperature 15° to 30°C (59° to 86°F). Avoid freezing. If frozen, thaw completely before use. Store partially-used syringe with the cap tightly secured.

Lot

Exp. Date

NADA 141-087, Approved by FDA U.S. Pat. No. 4,916,154

QUEST™ is a trademark of American Cyanamid Company.

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FORT DODGE® Fort Dodge Animal Health
Fort Dodge, Iowa 50501 USA

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QUEST (moxidectin) is effective in the treatment and control of the following stages of gastrointestinal parasites in horses and ponies:

Large strongyles
Strongylus vulgaris – (adults and L_4/L_5 arterial stages)
Strongylus edentatus – (adults and tissue stages)
Triodontophorus brevicauda – (adults)
Triodontophorus serratus – (adults)

Small strongyles
Cyathostomum spp. – (adults)
Cylicocyclus spp. – (adults)
Cylicostephanus spp. – (adults)
Gyalocephalus capitatus – (adults)
Undifferentiated lumenal larvae

Encysted cyathostomes
Late L_3 and L_4 mucosal cyathostome larvae

Ascarids
Parascaris equorum – (adults and L_4 larval stages)

Pin worms
Oxyuris equi – (adults and L_4 larval stages)

Hair worms
Trichostrongylus axei – (adults)

Large-mouth stomach worms
Habronema muscae – (adults)

Horse stomach bots
Gasterophilus intestinalis – (2nd and 3rd instars)
Gasterophilus nasalis – (3rd instars)

QUEST suppresses strongyle egg production through 84 days following a single oral administration. This residual strongyle control reduces pasture contamination and provides a period of protection from reinfection for horses and ponies maintained on the same pasture.

QUEST is available in the patented SURE-DOSE syringe for accurate and easy dosing of your animal.

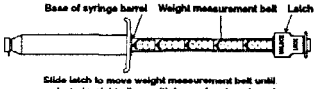
With the SURE-DOSE syringe, you select your animal's weight according to the weight measurements on the syringe. The latch slides the weight measurement belt until the selected weight aligns with the base of the syringe barrel. You are now ready to administer the exact amount of QUEST needed for effective parasite control.

Each syringe treats a single horse weighing up to 1150 lb, or two or more lighter animals with a combined body weight of up to 1150 lb. Consult your veterinarian for assistance in the diagnosis, treatment, and control of parasitism.

QUEST is indicated for use in horses and ponies, including breeding mares and stallions, and foals four months of age and older.

Please read entire insert for ADMINISTRATION AND DOSAGE and other important information.

SURE-DOSE Syringe



PRECAUTION

QUEST Oral Gel has been formulated specifically for use in horses and ponies only. This product should not be used in other animal species as serious adverse reactions, including fatalities in dogs, may result.

WARNING

Extreme caution should be used when administering the product to foals, young and miniature horses, as overdosage may result in serious adverse reactions. Do not use in horses or ponies intended for food. Keep this and all drugs out of reach of children.

HUMAN WARNING

Do not ingest. If swallowed, induce vomiting. Wash hands and contaminated skin with soap and water. If accidental contact with eyes occurs, flush repeatedly with water. If irritation or any other symptom attributable to exposure to this product persists, consult your physician.

STORAGE

Store at or near room temperature 15° to 30°C (59° to 86°F). Avoid freezing. If frozen, thaw completely before use. Store partially-used syringes with the cap tightly secured.

U.S. Patent No. 4,916,154

QUEST™ is a trademark of American Cyanamid Company.

Fort Dodge Animal Health
Fort Dodge, Iowa 50501 USA

QUEST GEL moxidectin

QUEST GEL moxidectin

PROOF OF PURCHASE
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HORSE *DEWORMER & BOTICIDE* IN A SINGLE ORAL DOSE

QUEST™ GEL moxidectin

Net Contents: One syringe containing 0.4 oz (11.3 g) moxidectin gel

NDC 0856-7441-01

Reduces eggs to minimize bioburden on pasture

FORT DODGE®
FORT DODGE ANIMAL HEALTH

Controls worms and bots PLUS small strongyle larvae and eggs Long-acting protection for horses AND pastures Patented SURE-DOSE™ syringe makes administration easy

Clear oral gel
dewormer and boticide

For horses and ponies including breeding mares and stallions

QUEST GEL moxidectin

2% Equine Oral Gel
Contains 20 mg moxidectin/mL (2.0% w/v)
FOR ORAL USE IN HORSES AND PONIES FOUR MONTHS OF AGE OR OLDER
NADA 141-087, Approved by FDA

Lot
Exp. Date

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