Date of Approval: May 14, 2003

FREEDOM OF INFORMATION SUMMARY

Original New Animal Drug Application

NADA 141-216

Quest®Plus (moxidectin/praziquantel) Gel

Fort Dodge Animal Health

For the treatment and control of gastrointestinal parasites of horses and ponies six months of age and older.

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FREEDOM OF INFORMATION SUMMARY

1. GENERAL INFORMATION:

a. File Number:	NADA 141-216
b. Sponsor:	Fort Dodge Animal Health Division of Wyeth 800 Fifth Street, NW Fort Dodge, IA 50501 Drug Labeler Code: 000856
c. Established Names:	Moxidectin and praziquantel
d. Proprietary Name:	Quest Plus (moxidectin/praziquantel) Gel
e. Dosage Form:	Oral
f. How Supplied:	Packaged in ready-to-use Sure-Dial® syringe. Each syringe contains 0.4 oz. (11.6 g) Quest Plus Gel which is adequate to treat one horse with a body weight of up to 1250 lb, or multiple horses and ponies with combined body weights of 1250 lb.
g. How Dispensed:	OTC
h. Amount of Active Ingredients:	Contains 20 mg moxidectin/mL (2.0% w/v) and 125 mg praziquantel/mL (12.5% w/v).
i. Route of Administration:	Oral
j. Species/Class:	Equine
k. Recommended Dosage:	0.4 mg moxidectin/kg and 2.5 mg praziquantel/kg (2.2 lb) body weight
l. Pharmacological Category:	Anthelmintic
m. Indications:	Quest Plus Gel is indicated for the treatment and control of the following stages of gastrointestinal parasites of horses and ponies:

Large strongyles

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

Small strongyles

Cyathostomum spp. – (adults)
Cyathostomum catinatum – (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)

Pinworms

Oxyuris equi - (adults and L_4 larval stages)

Hairworms

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

Tapeworms

Anoplocephala perfoliata – (adults)

One dose suppresses strongyle egg production for 84 days.

2. EFFECTIVENESS:

a. Dosage Characterization:

Moxidectin is approved under NADA 141-087 for oral use in horses and ponies at a dose rate of 0.4 mg/kg (2.2 lb) body weight. This dose level of moxidectin was selected for Quest Plus Gel. Studies demonstrating effectiveness against all parasites listed in the Quest Plus Gel indications, except for adult *Cyathostomum catinatum* and *Anoplocephala perfoliata*, at the recommended 0.4 mg/kg body weight dose level are described in the July 11, 1997 and October 4, 1999 NADA 141-087 Freedom of Information Summaries.

Praziquantel was included in this combination drug for cestodocidal activity. Published data indicate greater than 95% effectiveness for the removal of *Anoplocephala perfoliata* with single oral treatments of experimental formulations providing between 1 and 2 mg praziquantel/kg body weight (see Little, SE: *Compend. Contin. Educ. Pract. Vet* 21:356-360, 1999). Other published data from an experiment conducted outside the U.S. indicate that 2.5 mg/kg praziquantel is 100% effective against *Anoplocephala perfoliata.* This experiment studied an overseas commercial combination anthelmintic for equine use that includes praziquantel administered at a dose rate of 2.5 mg/kg body weight (see Tancedi, IP, *et al.*: *Revista Brasilero de Parasitologia Veterinaria*, 6:256, 1997). On this basis, Quest Plus Gel was formulated to deliver 2.5 mg praziquantel/kg body weight in a single oral dose.

b. Substantial Evidence:

A series of non-interference, dose-confirmation and field studies were conducted to evaluate the effectiveness of Quest Plus Gel when administered to horses and ponies as a single oral dose at the recommended rate of 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight. The final Quest Plus Gel formulation was used in these studies. For evaluation of effectiveness in these studies, *Gasterophilus intestinalis* (bots) was the dose-limiting parasite for moxidectin and *Anoplocephala perfoliata* was the dose-limiting parasite for praziquantel.

(1) Non-Interference/Dose Confirmation Study No. 0696-E-US-2-99

Title: Dose Confirmation and Noninterference Trial of a Combination Formulation of 2% Moxidectin Equine Oral Gel and 12.5% Praziquantel Against the Horse Bot *Gasterophilus intestinalis*, and Equine Tapeworms, *Anoplocephala* spp., in Tennessee

Type of Study: Non-Interference/Dose-Confirmation Study

Investigator: Craig R. Reinemeyer, DVM, PhD
East Tennessee Clinical Research, Inc.
Knoxville, Tennessee 37909

Purpose: The objectives of this study were to determine if either moxidectin or praziquantel interfere with the effectiveness of Quest Plus Gel against the dose-limiting species for each of the active ingredients and provide confirmation of the effectiveness of the recommended dose level of Quest Plus Gel against each of the dose-limiting species.

Animals: A total of 32 horses at least nine months of age weighing between 590-1160 lb with naturally-acquired equine tapeworm and horse stomach bot infections.

Control: Placebo-treated with gel vehicle in oral syringe

Dosage Form: Final Quest Plus Gel formulation in oral syringe

Route of Administration: Oral

Dosage Groups: (8 horses per group)

Each test horse received a single dose of one of the following treatments:

- Control group placebo-treated with gel vehicle formulation containing 0 mg moxidectin and 0 mg praziquantel/kg body weight in Sure-Dial syringe.
- Gel vehicle formulation containing 0.0 mg moxidectin and 2.5 mg praziquantel/kg body weight.
- Gel vehicle formulation containing 0.4 mg moxidectin and 0.0 mg praziquantel/kg body weight.
- Final Quest Plus Gel formulation at recommended dose level of 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight.

Test Duration: 14 days

Pertinent Measurements/Observations: The presence of naturally-acquired horse stomach bot (*Gasterophilus intestinalis*) and equine tapeworm (*Anoplocephala* spp.) infections was demonstrated by gastroscopy and fecal evaluation, respectively, as a condition for inclusion in the study. Test animals were observed for general health at approximately 3 and 24 hours posttreatment and then daily for the duration of the study. Approximately two weeks following treatment, the test horses were sacrificed, necropsied and parasites present in the gastrointestinal tract were collected.

Results:

(a) Parasite recovery data and percent effectiveness calculated using geometric means for *Anoplocephala perfoliata* are provided in the table below.

Table 1. Summary of *A. perfoliata* data by treatment group

Treatment Group	No. Infected Horses	Geometric Mean	Effectiveness (%)
Controls	8/8	42.7	n/a
Moxidectin	8/8	54.6	0.0
Praziquantel	1/8	0.1	99.8*
Quest Plus Gel	0/8	0.0	100.0*

*Significant treatment effect ($P<0.05$) compared to control

(b) Parasite recovery data and percent effectiveness calculated using geometric means for *Gasterophilus intestinalis* (2^{nd} and 3^{rd} instars) are furnished in the tables below.

Table 2. Summary of *G. intestinalis* 2^{nd} instar data by treatment group

Treatment Group	No. Infected Horses	Geometric Mean	Effectiveness (%)
Control	8/8	44.7	n/a
Moxidectin	6/8	1.8	95.9*
Praziquantel	7/8	27.4	38.7
Quest Plus Gel	7/8	2.3	94.9*

*Significant treatment effect ($P<0.05$) compared to control

Table 3. Summary of *G. intestinalis* 3^{rd} instar data by treatment group

Treatment Group	No. Infected Horses	Geometric Mean	Effectiveness (%)
Control	8/8	23.4	n/a
Moxidectin	2/8	0.5	97.7*
Praziquantel	7/8	12.2	47.8
Quest Plus Gel	3/8	1.1	95.5*

*Significant treatment effect ($P<0.05$) compared to control

(c) Parasite recovery data and percent effectiveness calculated using geometric means for *Cyathostomum catinatum*, a species for which moxidectin effectiveness has not been previously demonstrated, are furnished in the table below.

Table 4. Summary of *Cyathostomum catinatum* data by treatment group

Treatment Group	No. Infected Horses	Geometric Mean	Effectiveness (%)
Control	6/8	756.8	n/a
Moxidectin	0/8	0.0	100.0*
Praziquantel	7/8	2977.5	0.0
Quest Plus Gel	0/8	0.0	100.0*

*Significant treatment effect ($P<0.05$) compared to control

(d) The gel was readily accepted by all the treated horses and no health abnormalities attributable to treatment with Quest Plus Gel were observed in any of the test horses.

Conclusions:

(a) Non-interference - Tapeworms: No interference with cestodicidal activity was observed when praziquantel was combined with moxidectin in the final Quest Plus Gel formulation.
(b) Effectiveness – Tapeworms: The recommended dose level of the final Quest Plus Gel formulation was 100% effective against *Anoplocephala perfoliata.*
(c) Non-interference - Bots: No interference with boticidal activity was observed when moxidectin was combined with praziquantel in the final Quest Plus Gel formulation.
(d) Effectiveness – Bots: The recommended dose level of the final Quest Plus Gel formulation was 94.9% and 95.5% effective against the 2^{nd} and 3^{rd} instar stages of *G. intestinalis*, respectively.
(e) Effectiveness – *Cyathostomum catinatum*: The recommended dose level of the final Quest Plus Gel formulation was 100% effective against this specific small strongyle species.

(2) Dose-Confirmation Study No. 0696-E-US-06-00

Title: Dose Confirmation Trial of a Combination Formulation of 2% Moxidectin Equine Oral Gel and 12.5% Praziquantel Against the Horse Bot, *Gasterophilus intestinalis*, and *Anoplocephala* spp. Tapeworms, in Louisiana

Type of Study: Dose-Confirmation Study

Clinical Investigator: Thomas Klei, Ph.D.
Louisiana State University
Baton Rouge, Louisiana 70803

Purpose: The objective of this study was to confirm that the recommended 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight dose of the final Quest Plus Gel formulation is effective against the dose-limiting species for moxidectin and praziquantel.

Animals: A total of 16 mixed-breed horses between 1-18 years of age and 298-640 lb body weight with naturally-acquired equine tapeworm and horse stomach bot infections.

Control: Untreated

Dosage Form: Final Quest Plus Gel formulation in syringe

Route of Administration: Oral

Dosage Groups: (8 horses per group)
Each test horse received a single dose of one of the following treatments:

- The control horses were not treated.
- Final Quest Plus Gel formulation at recommended dose level of 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight.

Test Duration: 14 days

Pertinent Measurements/Observations: The presence of naturally-acquired horse stomach bot (*Gasterophilus intestinalis*) and equine tapeworm (*Anoplocephala* spp.) infections was demonstrated by gastroscopy and fecal evaluation, respectively, as a condition for inclusion in the study. Test animals were observed for general health at approximately 3 and 24 hours posttreatment and then daily for the duration of the study. Approximately two weeks following treatment, the test horses were sacrificed, necropsied and parasites present in the gastrointestinal tract were collected.

Results:

(a) Parasite recovery data and percent effectiveness calculated using geometric means for the dose-limiting species for moxidectin (*Gasterophilus intestinalis*) and praziquantel (*Anoplocephala perfoliata*) are provided in the table below.

Table 5. Dose Confirmation: Dose-limiting Parasites

Parasite Species	No. Infected Controls	Geometric Mean Data		Effectiveness (%)
		Control	Quest Plus Gel	
G. intestinalis (2^{nd} instars)	6/8	5.2	0.1*	98.3
G. intestinalis (3^{rd} instars)	8/8	70.1	2.7*	96.1
Anoplocephala perfoliata	8/8	94.5	0.00*	100.0

*Significant treatment effect ($P<0.05$) compared to control

(b) Parasite recovery data and percent effectiveness calculated using geometric means for adult *Cyathostomum catinatum,* a species for which moxidectin effectiveness has not been previously demonstrated, are furnished in the table below.

Table 6. Dose Confirmation: *Cyathostomum catinatum* (adults)

Parasite Species	No. Infected Controls	Geometric Mean Data		Effectiveness (%)
		Control	Quest Plus Gel	
C. catinatum (adults)	7/8	1901.9	0.0*	100.0

*Significant treatment effect ($P<0.05$) compared to control

(c) The gel was readily accepted by all the treated horses and no health abnormalities attributable to treatment with Quest Plus Gel were observed in any of the test horses.

Conclusion: Data collected in this study confirms that the recommended 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight dose rate of the final Quest Plus Gel formulation is effective against the dose-limiting species for each of the active components of the combination. The recommended dose level of the final Quest Plus

Gel formulation was also shown to be 100% efficacious against *Cyathostomum catinatum* in this study

(3) Field Studies

A multi-center effectiveness field study was conducted in separate geographic locations in the U.S. This study furnished data pertaining to both the effectiveness and safety of Quest Plus Gel under field use conditions. A combined summary of these four trials is presented below.

Type of Study: Effectiveness Field Study

Investigators & Locations:

Study No. 0696-E-US-09-01	Study No. 0696-E-US-10-01
Dr. Thomas Yazwinski University of Arkansas Fayetteville, Arkansas	Dr. Douglas Hutchens University of Illinois Urbana, Illinois
Study No. 0696-E-US-11-01	**Study No. 0696-E-US-12-01**
Dr. Larry Smith Larry Smith R & D Lodi, Wisconsin	Dr. Craig Reinemeyer East Tennessee Clinical Research Knoxville, Tennessee

Purpose: The purpose of these studies was to evaluate the safety and effectiveness of the recommended dose level of Quest Plus Gel (0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight) when administered under field conditions.

Animals: A total of 400 client-owned equine stock ranging in age from four months to 31 years and ranging in weight from 211 to 1450 pounds completed this series of field studies. The study population included various breeds of horses, ponies, and miniature horses.

Dosage Groups

- Control group**:** 100 test animals were administered gel vehicle formulation containing 0 mg moxidectin and 0 mg praziquantel/kg body weight in a Sure-Dial syringe.
- Treated group: 300 test animals were given final Quest Plus Gel formulation containing the recommended dose level of 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight in a Sure-Dial syringe.

Route of Administration: Oral

Test Duration: Single administration with 14-day posttreatment observation period with the exception of one farm in Tennessee that performed the last posttreatment health

observation on Day 16 posttreatment. The follow-up period was extended in the Illinois study to 42 days posttreatment in order to do additional fecal sampling.

Study Design: At each geographic location, 100 client-owned horses over four months of age were enrolled in the study with no restrictions on sex or breed. Pregnant mares and breeding stallions were excluded from these trials. For masking purposes, the test animals were randomly assigned to one of four treatment groups. Three of the treatment groups were given the recommended level of Quest Plus Gel. The fourth group was treated with identically-appearing syringes containing blank gel vehicle formulation. The owners and individuals treating and making health observations were not aware of the treatment being administered. The treated horses and ponies were observed for signs of adverse reactions for a 14-day posttreatment period.

Pertinent Measurements/Observations: Prior to treatment, all test animals were given a complete physical examination. Initial health observations were made approximately 4 and 8 hours posttreatment. Additional follow-up observations were made on Days 1, 2, 7 and 14 posttreatment. Fecal samples were taken for fecal egg count determination prior to treatment and again at the end of the 14-day posttreatment observation period. At the Illinois sites, additional fecal sampling was accomplished on Days 28/29 and 42.

Results: All strongyle egg counts were transformed to the natural logarithm (count+1) which was used to calculate the geometric means at each site. Percent reduction was calculated using the formula: [C-T] / C x 100, where C = the geometric mean of the control group and T = the geometric mean of the treated group.

Strongyles

At all four sites, a reduction of strongyle egg counts was demonstrated, when compared to the control, of >98% with a p value of <0.05 using 1-sided Student's t-test.

Cestodes

The following table is a compilation of the cestode data:

Table 7. Cestode Data

Pre-Treatment Cestode Status	Treatment	No. (n)	Post-Treatment Cestode Status	
			Negative	Positive
Positive	Untreated Control	20	6 (30%)	14 (70%)
	Combination Drug	72	69 (96%)	3 (4%)

Fisher's exact test, p<0.0001

There were no signs of adverse reaction observed in any of the 300 treated and 100 control horses and foals that participated in these four field trials.

Conclusion: Under field conditions, a single oral Quest Plus Gel treatment at the recommended 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight dose level was safe and effectively reduced strongyle and *Anoplocephala* spp. fecal egg counts in a wide variety (in terms of age, sex and breed) of horses and ponies.

3. TARGET ANIMAL SAFETY:

Two experiments were conducted to evaluate the safety of Quest Plus Gel when administered to young horses and ponies as a single oral dose at the recommended dose level of 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight. The final Quest Plus Gel formulation was used in this animal safety testing program.

a. Drug Tolerance Test - Study No. 0696-E-US-04-00

Title: "Tolerance of Single Administration of Moxidectin/Praziquantel Oral Equine Gel Given Once to Young Horses"

Type of Study: Laboratory Safety Study

Investigator: Charles E. Heird, Ph.D.
Southwest Bio-Labs, Inc.
Las Cruces, New Mexico 88005

Purpose: The objective of this study was to evaluate the safety of the final moxidectin/praziquantel equine oral gel formulation in groups of foals and young horses given single treatments containing either 5X or 6X the recommended dose level.

Animals: Eight young horses approximately 6½–8½ months of age and eight foals approximately 3– 5½ months old participated in this study. These two age groups of test animals weighed between 428 to 532 lb (194 to 241 kg), and 126 to 406 lb (57 to 184 kg), respectively.

Control: Sham-treated with an empty syringe

Dosage Form: Final Quest Plus Gel formulation in syringe

Route of Administration: Oral

Dosage Groups:

Treatment Set[1]	Age Group[2]	Treatment Level	AM or PM Treatment
A	Yearlings (2)	5X (Sham)	AM
	Yearlings (2)	5X (Drug)	AM
B	Yearlings (2)	6X (Sham)	PM
	Yearlings (2)	6X (Drug)	PM
C	Foals (2)	5X (Sham)	AM
	Foals (2)	5X (Drug)	AM
D	Foals (2)	5X (Sham)	PM
	Foals (2)	5X (Drug)	PM

[1]Treatment set consists of 2 control and 2 treated test animals of same age group
[2]Yearling = 6½–8½ months age group; foals = 3– 5½ months old group

Test Duration: 7 days.

Pertinent Measurements/Observations: Test animals were observed at least twice daily (AM and PM) for general health. For animals treated in the morning (AM), additional observations were made at 1, 2, 4, 6, 8, 10, and 14 hours posttreatment on Day 0. For animals treated in the evening (PM), additional observations were made on Day 0 at 1, 2, and 5 hours posttreatment, then on Day 1 at approximately 14, 16, 18, 20, and 22 hours posttreatment. Each animal received a physical examination, including blood and urine collection pretreatment, approximately 24 hours posttreatment and on Day 7. Physical examinations without blood or urine collection were performed on Days 2 and 3. Individual animal food consumption was recorded starting at least 7 days prior to treatment. Blood was collected and analyzed three times pretreatment and on Days 1 and 7 posttreatment. Urine samples were collected three times pretreatment and on Days 1 and 7 posttreatment.

Results:

(1) Clinical Observations: Two of the four foals that received a 5X dose did not show any signs of adverse reaction to treatment. The signs seen in the other two 5X foals included ataxia, incoordination, lethargy, depression and droopy lips and eyelids. These signs were seen in the first 5X foal at 14 hours posttreatment. This foal was normal by the 24-hour observation point. The onset of signs in the second 5X foal was 24 hours posttreatment, returning to normal by the 48-hour observation. One of the two 5X yearlings showed the same signs listed above at 23 hours posttreatment and had returned to normal by the 48-hour observation. Both yearlings that received the 6X dose showed the same signs listed above. The onset of signs in both animals was 14 hours posttreatment. Both animals had returned to normal by the 24-hour observation.

(2) Feed Consumption: Feed intake remained relatively consistent throughout the treatment period for all test animals, with the exception of one 6X yearling which was noted to have lower daily average consumption.

(3) Hematology, Coagulation, Serum Chemistry: There were no treatment-related findings in hematology, coagulation, or clinical chemistry data.

(4) Urinalysis: No effect of treatment was seen in the urine parameters.

Conclusion: The animal health observations reported in this study characterize the adverse effects resulting from the administration of exaggerated doses (5X and 6X the recommended dose rate) of the final Quest Plus Gel formulation to foals and young horses. The signs attributed to these high levels of the drug were ataxia, incoordination, lethargy, depression and droopy lip and eyelids. The onset of signs in this study was 14 or more hours posttreatment. All animals returned to normal by 48 hours posttreatment.

b. Target Animal Toxicity Study – Study No. 0696-E-US-08-01

Title: Target Animal Safety Study (Toxicity) in Foals Approximately 4 Months Old Treated with Moxidectin/Praziquantel Oral Equine Gel

Type of Study: Laboratory Safety Study

Study Director: Charles E. Heird, Ph.D.
Southwest Bio-Labs, Inc.
Las Cruces, New Mexico, 88005

Purpose: The objective of this study was to evaluate the clinical and pathological effects when the final Quest Plus Gel formulation was administered to approximately 4 month old foals given three times at weekly intervals at either 1X, 3X, or 4X the recommended dose level.

Animals: Thirty-two foals (16 males and 16 females) approximately 3 to 5 months of age weighing between 194-412 lb.

Control: Sham-treated with an empty syringe

Dosage Form: Final Quest Plus Gel formulation in syringe

Route of Administration: Oral

Dosage Groups: (8 foals per group)
Each test foal received one of the following treatments once weekly for three weeks:

- Controls sham-treated with an empty syringe (corresponding to a 4X dose level)
- 0.4 mg moxidectin and 2.5 mg praziquantel/kg body weight (recommended dose level)
- 1.2 mg moxidectin and 7.5 mg praziquantel/kg body weight (3X recommended dose level)
- 1.6 mg moxidectin and 10.0 mg praziquantel/kg body weight (4X recommended dose level)

Test Duration: 30-32 days

Pertinent Measurements/Observations: A minimum of twice-daily health observations were made during the trial. In addition, observations were made approximately 1, 2, and 4 hours after the evening treatments (given on Days 0, 7, and 14). Observations were also made on the day following treatment at approximately 14, 16, 18, 20, and 22 hours posttreatment. Physical exams were performed at 12 hours and at 24 hours posttreatment. In addition, body weights, physical examinations, food consumption, and blood analyses were evaluated weekly. Urinalysis was done pretreatment, following the third treatment, and prior to necropsy. Animals were necropsied in the 5th week after the 1st treatment. All animals were examined for gross pathology at necropsy. Tissues from the control and high dose (4X) treatment groups were examined microscopically.

Results:

(1) Clinical Observations: No reactions were noted in the control (0X) group. Slight lethargy and ataxia were reported in one foal following the first 1X dose. A single observation of slight ataxia was noted in this same foal following administration of the second 1X dose. Slight lethargy was observed in one other foal following the first 1X dose. No reactions were recorded for this foal following subsequent 1X treatments. The reactions were first noted in the 1X Group at approximately 14 to 18 hours posttreatment and dissipated within a period of two to six hours. There were no reports of animals in the 1X Group reacting after the third treatment.

Transient signs of adverse reaction to treatments (slight depression, slight ataxia, and/or droopy lips) were reported in some of the animals receiving the 3X and 4X treatments. In general, reactions were first noted at approximately 16 to 18 hours posttreatment (range 14–20 hours). The last recorded reactions were noted between 18–26 hours posttreatment with one exception. One 4X foal was observed to be slightly ataxic at 39 hours after the third dose. This animal returned to normal by 45 hours posttreatment. In general, the test foals showing these signs took longer to return to normal after the second and third treatments.

(2) Feed Consumption: There were no statistically significant differences between treatment groups.

(3) Body Weight: There were no statistically significant differences between treatment groups. Body weights increased over time for all animals as expected for growing foals.

(4) Hematology, Coagulation, Serum Chemistry, and Urinalysis: A comparison of pre- and posttreatment hematology, coagulation, clinical chemistry, and urinalysis values indicated no biologically significant changes.

(5) Pathology Observations: No gross lesions suggestive of treatment-related toxicity were observed at necropsy. Similarly, microscopic evaluation of all major tissues obtained from test animals in the high-dose (4X) group at necropsy revealed no histopathologic changes indicative of a toxic effect.

Conclusion: Under the conditions of this study, 12 of the foals treated with the final Quest Plus Gel formulation showed transient signs including slight depression, slight ataxia, and/or droopy lips. All affected test foals returned to normal without intervention or significant long-term health effects. No other clinical or pathological effects were noted in any of the treated foals. Based on this outcome, especially noting lethargy and/or ataxia in two of the 1X foals, the minimum age for use of this product was determined to be 6 months.

4. HUMAN SAFETY:

This drug is intended for use in horses and ponies, which are non-food animals. Because this new animal drug is not intended for use in food-producing animals, data on human safety pertaining to drug residues in food were not required for approval of this NADA.

Human Warnings are provided on the product label as follows: "Not for human use. Keep this and all other drugs out of the reach of children. 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."

5. AGENCY CONCLUSIONS:

The data submitted in support of this NADA satisfy the requirements of section 512 of the Federal Food, Drug, and Cosmetic Act and 21 CFR 514 of the implementing regulations. The data demonstrate that Quest Plus Gel, when administered as a single oral dose containing 0.4 mg moxidectin/kg and 2.5 mg praziquantel/kg body weight is safe and effective for the treatment of the equine gastrointestinal parasites specified on the product label.

Quest Plus Gel is labeled for OTC use. Routine deworming of horses is a widely accepted and recommended practice performed by the lay person. A diagnosis of parasite infection prior to deworming is not necessary.

Under section 512(c)(2)(F)(ii) of the Federal Food, Drug, and Cosmetic Act, this approval qualifies for THREE years of marketing exclusivity beginning on the date of the approval.

Moxidectin is under the following U.S. patent numbers:

U.S. Patent Number	Date of Expiration
4,916,154	April 10, 2007

6. ATTACHMENTS:

Package Insert

Syringe Label

Printed Outer Carton