EFFICACY REVIEW

PRODUCT: Y-TEX BOVAMEC™ Cattle Ear Tags

FILE SYMBOL: 39039-RT

DATE: 12-11-08

GLP: No

BARCODE: D359458

DECISION: 380725

CHEMICAL: Abamectin (8%)

CHEMICAL NUMBER: 122804

PURPOSE: Review data to determine if it supports product registration.

MRIDS: *47600401. Kellerby, J. (2008) Efficacy Data Against Horn Flies and Face Flies with YT-2508 Cattle Ear Tags: Y-Tex Bovamec Cattle Ear Tag. Project Number: 2508/08/1, NE/07/A, BR/07/A. Unpublished study prepared by Y-TEX Corporation. 293 p.*

47600402. Kellerby, J. (2008) Efficacy Data of YT-2508 Cattle Ear Tags Against Ticks on Cattle: Y-Tex Bovamec Cattle Ear Tag. Project Number: 2508/08/2. Unpublished study by Y-TEX Corporation. 195 p.

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BACKGROUND:

Y-TEX Bovamec (EPA File Symbol 39039-RT) is a cattle ear tag insecticide containing 8% Abamectin and intended for the control of certain species of fly and tick infesting beef and non-lactating dairy cattle. The directions for use and corresponding claims are below.

Table 1. Directions for Use; Y-Tex Bovamec

Rate	Pest	Claim
1 Tag	Horn Flies	3 months control
2 Tags	Horn Flies	4 months control
	Gulf Coast Ticks	control
	Spinose Ear Ticks	control
	Other Tick Species[1]	aids in the control
	Face Flies	aids in the control

[1] *American Dog Ticks, Lone Star Ticks, Cattle Fever Ticks*

DATA REVIEW:

The following data review is comprised of explanations of materials and methods, and a summation of experimental results containing tables with reformatted data.

47600401. Kellerby, J. (2008) Efficacy Data Against Horn Flies and Face Flies with YT-2508 Cattle Ear Tags: Y-Tex Bovamec Cattle Ear Tag. Project Number: 2508/08/1, NE/07/A, BR/07/A. Unpublished study prepared by Y-TEX Corporation. 293 p.

The above referenced MRID is comprised of multiple studies conducted within both the United States and other countries (for the purpose of this review, only US data will be discussed). The general objective of each study was to determine the efficacy of an 8% abamectin ear tag against horn and face flies. Although each study contained variations, the general experimental design consisted of dividing ~100 beef cattle, containing natural infestations of face and horn flies, into 5 groups (2-experimental groups, 2- commercial standard groups, 1- control) of ~15 – 20 cows/calves. Pre-treatment counts were taken ~1 day prior to treatment. Each cow was treated with either 1 or 2 tags. Post-treatment counts were taken every 7 days.

Results-

Table 2. U.S. Efficacy (Horn Flies); Y-Tex Bovamec (2 tags)

Site	Weekly % Control	Study Length
Kentucky 1	97.3%	108 days
Indiana 1	84.5%	92 days
Kentucky 2	94.6%	98 days
Texas 1	95.4%	126 days
New Mexico 1	88.6%	133 days
Texas 2	90.1%	117 days
Kentucky 3	92.1%	98 days
Alabama 1	94.1%	129 days
Texas 3	96.5%	106 days
Kentucky 4	92.9%	105 days
Mean	**92.6%**	**111 days**

The mean percent control of horn flies infesting beef cattle treated with 2 abamectin ear tags was 92.6% after 111 days.

Table 3. U.S. Efficacy (Horn Flies); Y-Tex Bovamec (1 tag)

Site	Weekly % Control	Study Length
Texas 1	84.6%	105 days
Kentucky 1	87.3%	98 days
Texas 2	93.4%	126 days
Nebraska 1	90.3%	98 days
Mean	88.9%	107 days

The mean percent control of horn flies infesting beef cattle treated with 1 abamectin ear tag was 88.9% after 107 days.

Table 4. U.S. Efficacy (Face Flies); Y-Tex Bovamec (2 tags)

Site	Weekly % Control	Study Length
Kentucky 1	46.4%	108 days
Indiana 1	52.0%	92 days
Kentucky 2	50.9%	98 days
Kentucky 3	65.2%	98 days
Kentucky 4	57.8%	105 days
Mean	**54.5%**	**100 days**

The mean percent control of face flies infesting beef cattle treated with 2 abamectin ear tags was 54.5% after 100 days.

47600402. Kellerby, J. (2008) Efficacy Data of YT-2508 Cattle Ear Tags Against Ticks on Cattle: Y-Tex Bovamec Cattle Ear Tag. Project Number: 2508/08/2. Unpublished study by Y-TEX Corporation. 195 p.

The above referenced MRID is comprised of multiple studies conducted within both the United States and other countries (Australia, Uruguay, Brazil). The general objective of this study was to determine the efficacy of an 8% abamectin ear tag against the following species of tick: Gulf Coast Tick (*Amblyomma maculatum*), Lone Star Tick (*Amblyomma americanum*) and Amercian Dog Tick (*Dermacentor variabilis*).

Oklahoma Study (Gulf Cost Ticks, Lone Star Ticks, American Dog Ticks)

The experimental design consisted of dividing beef cattle into either a treatment group or a control group (13 cows per group). All cows were naturally infested with either: Gulf Coast, Lone Star or American Dog ticks. Pre-treatment counts were taken ~1 day prior to treatment. Two tags were applied to each cow within the treatment groups. Post-treatment counts were taken every 7 days.

Results-

Table 5. Tick Efficacy; Y-Tex Bovamec (2 tags)

	Mean Percent Control					
Species	**7 DAT**	**14 DAT**	**28 DAT**	**44 DAT**	**65 DAT**	**80 DAT**
Gulf Coast Ticks	97%	100%	100%	100%	100%	100%
Lone Star Ticks	-25%	74%	56%	57%	86%	67%
Amercian Dog Ticks	75%	80%	88%	100%	100%	80%

The percent control of Gulf Coast ticks infesting cows treated with 2 abamectin ear tags ranged from 97% (7 DAT) to 100% (14 – 80 DAT). The percent control of Lone Star ticks infesting cows treated with 2 abamectin ear tags ranged from -25% (7 DAT) to 86% (65 DAT), while the percent control of American dogs ticks ranged from 75% (7 DAT) to 100% (44 & 65 DAT).

International Studies (Cattle Fever Ticks)

Studies were conducted in Australia, Uruguay and Brazil to determine if two abamectin ear tags are efficacious against cattle fever ticks (*Boophilus microplus*). The cattle in both the Australian and Uruguayan studies were artificially infested with ticks, while the cattle used in the Brazilian study contained natural infestations.

Results-

The results from the Australian study were highly variable, while the percent tick morality from the Uruguayan study ranged from 61% (1-7 DAT) to 100% (22-45 DAT). The percent mortality of ticks infesting cows treated with 2 abamectin ear tags in the first Brazilian location ranged from 52.3% (15th week) to 88.7% (4th week), while the percent tick mortality in the second location ranged from 57.1% (16th week) to 88.4% (5th week).

Spinose Ear Tick Discussion

This efficacy submission lacks data for spinose ear ticks due to the registrant being unable to find a researcher with access to cattle herds infested with these ticks. The registrant proposes the following rationale for justifying in the inclusion of claims for this pest on the proposed label:

1. The tags are attached to the cow's ears, which is where this species of tick typically infest. Two tags (one per ear) would be required.
2. Spinose ticks theoretically should be exposed to higher concentrations of active ingredient, as compared to the other species of ticks, due to where they typically infest (inner ear).
3. Larval stages of these ticks infest cattle (rather than adults). Theoretically, this should make them easier to kill.
4. The exoskeleton of spinose ticks could be easier to penetrate due to their "softer" cuticle. This is a "soft tick" species as compared to the other "hard tick" species discussed earlier in the review.
5. All other ear tags are labeled for this pest.
6. Data has already been submitted for multiple other species of tick.

7. Larvae of this species of tick could be killed by contact with abamectin (from ear surface) or from ingestion of active ingredient by taking blood meal.

RECOMMENDATIONS:

The submitted data support the registration of Y-Tex Bovamec Cattle Ear Tags (EPA File Symbol 39039-RT). The following recommendations apply:

1. The submitted data support control claims for the following pests: horn flies (3 months; 1 tag per animal), horn flies (4 months; 2 tags per animal) and Gulf Coast ticks. In addition, the submitted data supports "aids in the control" claims for the following pests: Amercian dog ticks, lone star ticks and cattle fever ticks.

2. The submitted data do not support the addition of "aids in the control" claims for face flies. All references to face flies must be deleted from the label. To have this claim added back on in the future, additional data must be submitted showing that EPA File Symbol 39039-RT is efficacious against face flies. The percent control of horn flies infesting cattle treated with product must be at least ~75%.

3. The provided argument used to support the addition of spinose ear ticks to the pending label is not adequate. Acceptable data must be submitted. The Agency acknowledges that it may be difficult to find cattle naturally infested with spinose ticks. However, and alternate acceptable method would be to artificially infest cattle with laboratory populations. These data may be submitted as a condition of registration.

4. Throughout the label, revise the phrase "*other tick species*" to read "*other listed tick species*".

5. The directions for use are unclear as to the residual activity of this product against ticks other than Gulf Coast ticks. The label must clearly state that the 4 month residual claim only applies to Gulf Coast ticks and not to the other listed ticks (American dog tick, lone star tick, cattle fever ticks).