

## **An Independent Statistical Analysis of Adverse Effects reported to the EPA (Over 24 Months of On-animal Use by Consumers, Under Normal in-home, Unsupervised Conditions)**

### **Executive Summary**

- The Environmental Protection Agency (EPA) requires pesticide registrants to submit reports of any adverse effects related to product usage, product defects, or lack of product efficacy.
- Monitoring of adverse effects after the products have been marketed provides manufacturers, veterinarians, government agencies, and consumers with critical information about the safety and efficacy of products.
- This review was conducted in order to better understand the relationship between the different chemical classes utilized in topical pesticides and the adverse effects associated with their use on-animal in real world situations.

### **Conclusions:**

- Hartz Topical Products account for less than 5% of all AE's during the 24 month time period (Figure 1).
- Regarding retail topical treatments, Hartz Topical products accounts for 7% of all AE's during the 24 month time period (Figure 2).
- Topical products with the active ingredients Imidacloprid and Fipronil combined account for 30% of all AE's during the 24-month period (Figure 3).
- Pyrethroids are a chemical class of ingredients commonly found in topical flea and tick treatments. Among pyrethroids, Phenothrin, the active ingredient used in Hartz Topical Flea and Tick products for Dogs, accounts for 2%.
- Etofenprox, the active ingredient used in Hartz Topical Flea and Tick Products for Cats, accounts for 15% of the total "pyrethroid" AE's during the 24-month period (Figure 4).

## **Introduction**

The following report reviews the adverse events (negative reactions) associated with topical flea and tick treatments and their active ingredients based on data collected by the Environment Protection Agency from July 1, 2006 through June 31, 2008.

The information was analyzed by Dr. Charles Gaskins, a respected independent expert in statistics from the Department of Animal Sciences at Washington State University, using data sets made available by the Freedom of Information Act (FOIA).

The report concludes that:

- Hartz accounts for less than 5% of all AE's for topical flea and tick treatments (including retail and veterinarian brands) during the 24 month time period.
- Within retail brands, despite being #1 in sales volume, Hartz accounted for 7% of all AE's for topical flea and tick treatments during the 24 month time period.
- The active ingredients Imidacloprid and Fipronil combined account for 30% of all AE's during the 24 month time period
- In the pyrethroid class of chemicals, Phenothrin (the active ingredient in Hartz UltraGuard topical flea and tick treatments for dogs) accounts for 3% and Etofenprox (the active ingredient in Hartz UltraGuard Pro and Plus topical flea and tick treatments for cats) accounts for 15% of the total pyrethroid AE's during the 24 month time period

The analysis demonstrates that only a small percentage of the adverse events for topical flea and tick products are attributed to Hartz topical flea and tick products and the active ingredients used in them.

**An Analysis of EPA Adverse Effect Data:  
July 1, 2006 – June 30, 2008**

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**Introduction:** The use of topical drops in companion animals has increased significantly over the last decade due to their wide availability and ease of use. Although controlled studies are performed to evaluate the safety and efficacy of these products, these studies might not identify small groups of animals at higher risk of experiencing adverse effects. Monitoring of adverse effects after the products have been marketed provides manufacturers, veterinarians, government agencies, and consumers with critical information about the safety and efficacy of products. Adverse effects are not well defined by the EPA, but the EPA requires pesticide registrants to submit reports of any adverse effects related to product usage, product defects, or lack of product efficacy. Some incidents are well investigated and reported to establish a strong link between the adverse effect and the exposure. Alternatively, many reports do not include enough facts to clearly demonstrate causation. The EPA notes that submission of an incident report by a registrant is not considered an admission of causation. This review was conducted in order to better understand the relationship between the different chemical classes utilized in topical pesticides and the adverse effects associated with their use on-animal in real world situations.

**Hypotheses:** An analysis of the adverse effect (AE) reports to the EPA in a two-year period will yield differences in AE type and number based on the chemical class of the active ingredient. Additionally, within the same chemical class, there will be differences in AE number and type when analyzed for active ingredient.

**Materials and Methods:** The original data were requested from and supplied by the EPA through the Freedom of Information Act (FOIA). The data was requested for a two year period (8 quarters) from July 1, 2006 to June 30, 2008 and specifically covered flea and tick topical products (Table 1). Some information, although requested, was not included (Table 2) nor was any AE data requested pertaining to other forms of flea and tick control. The requested information was sent to The Hartz Mountain Corporation where the data were compiled into an MS Excel spreadsheet and the chemical classes, active ingredients, species, and manufacturers were coded (Table 3). The spreadsheet, raw data, and a list of statistical questions were sent to Dr. C. Gaskins, Department of Animal Sciences at Washington State University, for independent statistical analysis. The computations were conducted using the SAS system (SAS Institute Inc., SAS 9.2, Cary, NC: SAS Institute Inc., 2002-2008). Proc Import was used to extract the incidence data directly into the SAS program and create a SAS data set. Separate data steps were used to extract specific items of information from the complete data set and Proc Means was used to compute the totals and monthly averages. Proc Means has a Class statement that was used to obtain the totals or averages for some of the specified categories. The variability of the reporting period (6 to 24) months for some data were accounted for when the total count of incidents was reported on a monthly basis. Listings of the results provided by the SAS program were saved and converted to MS Word document, which were edited to provide requested comparisons and to make the results more readable. Graphical representations of the results and conclusions were generated using MS Excel.

**Results:** Graphic representations of the analyses are found in Figures 1-4. A copy of the MS Excel spreadsheet is included (appendix A). The SAS program output is available upon request.

**Conclusions:**

- Retail 1 accounts for less than 5% of all AE's during the 24 month time period (Figure 1).

- Regarding retail topical treatments, retail 1 accounts for 7% of all AE's during the 24 month time period (Figure 2).
- Topical products with the active ingredients Imidacloprid and Fipronil combined account for 30% of all AE's during the 24-month period (Figure 3).
- Regarding pyrethroids, Phenothrin accounts for 2% and Etofenprox accounts for 15% of the total pyrethroid AE's during the 24-month period (Figure 4).

**Table 1**

<b>Period (months)</b>	<b>EPA Registration No.</b>
24	11556-116
24	11556-118
24	11556-119
24	11556-120
24	11556-132
24	11556-133
24	11556-134
24	11556-135
18	2517-80
18	2517-80-83333
18	2517-85
24	2596-147
24	2596-150
24	2596-151
18	270-278
18	270-278-2517
24	2724-488
24	2724-497
18	2724-497-270
24	2724-504
24	2724-504-2596
18	2724-504-270
24	65331-2
24	65331-3
24	65331-4
24	65331-5
15	69332-1-2517
15	69332-3-2517
24	693323-270
15	69332-3-53883
6	69332-3-83333
21	69332-4-2517
15	73510-4-2517 (2517-87)
18	80490-2
18	80490-3

Table 2: No AE reporting data available for:

**Product Registration No.**

11556-117  
11556-122  
11556-125  
11556-127  
11556-128  
11556-129  
11556-130  
11556-141  
11556-142  
11556-143  
11556-144

**Table 3: Coding chart**

**Category:**

VT = Vet channel

FDM = Food/Drug/Mass

**Active Ingredient:**

AZ = Amitraz

IM = Imidacloprid

ME = Metaflumizone

MT = Methoprene

PE = Permethrin

PH = Phenothrin

PP = Pyriproxyfen

CY = Cyphenothrin

FI = Fipronil

ET = Etofenprox

**Chemical Class:**

IGR = Insect Growth Regulator

PY = Pyrethroid

PZ = Phenylpyrazole (GABA/Calcium channel blocker)

SE = Semicarbazone (sodium channel blocker)

NE = Neonicotinoid

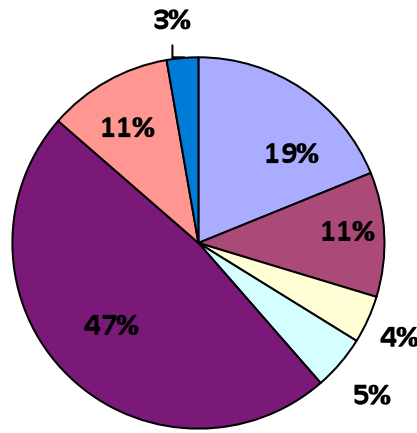
Figure 1

**Topical Adverse Effect by Category**

Percent of Total AEs

Total Adverse Effects	
Vet 1	10,076
Vet 2	5,733
Vet 3*	2,119
Retail 1***	2,513
Retail 2*	25,327
Retail 3	5,723
All Other**	1,483
<b>Total AE's</b>	<b>52,974</b>

\* Total period reported = <24 months  
 \*\*Consists of two retail brands  
 \*\*\*The Hartz Mountain Corp.



<span style="color: blue;">■</span> Vet 1
<span style="color: purple;">■</span> Vet 2
<span style="color: yellow;">■</span> Vet 3*
<span style="color: cyan;">■</span> Retail 1***
<span style="color: darkred;">■</span> Retail 2*
<span style="color: orange;">■</span> Retail 3
<span style="color: blue;">■</span> All Other**

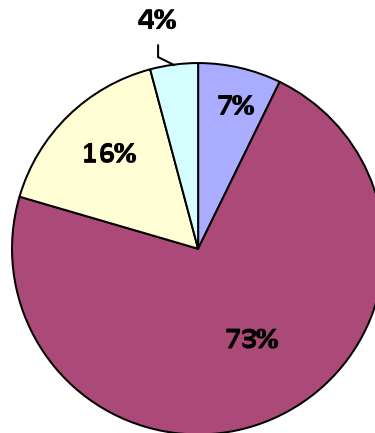
Figure 2

**Retail Adverse Effect**

Percent of Total Retail AEs

Total Adverse Effect for Retail Topical Products	
Retail 1***	2,513
Retail 2*	25,327
Retail 3	5,723
All Other**	1,483
<b>Total Retail AE's</b>	<b>35,046</b>

\* Total period reported = <24 months  
 \*\*Consists of two retail brands  
 \*\*\*The Hartz Mountain Corp.



<span style="color: blue;">■</span> Retail 1***
<span style="color: darkred;">■</span> Retail 2*
<span style="color: yellow;">■</span> Retail 3
<span style="color: cyan;">■</span> All Other**

Figure 3

**Topical Adverse Effect by Active Ingredient**

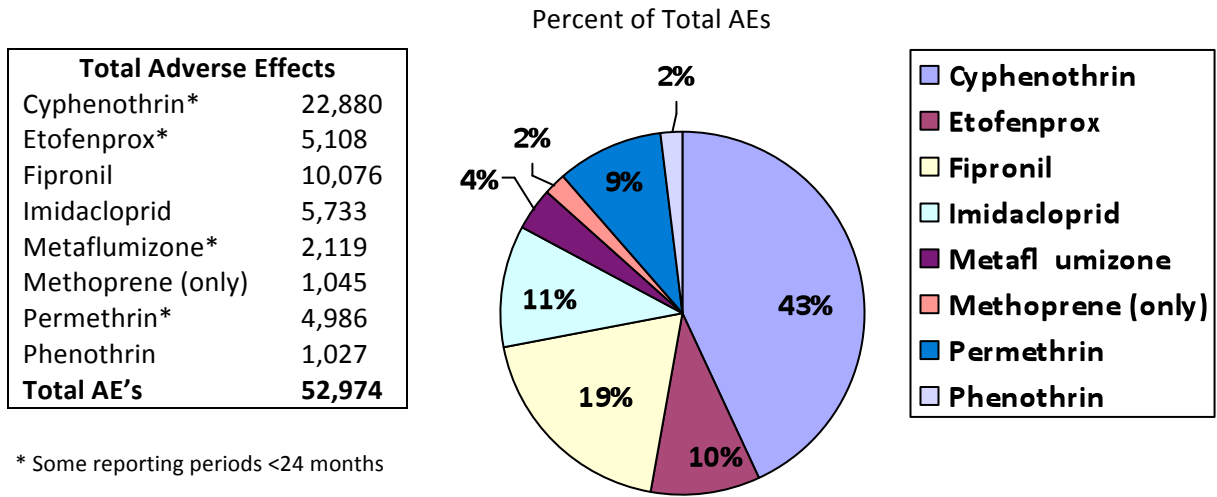
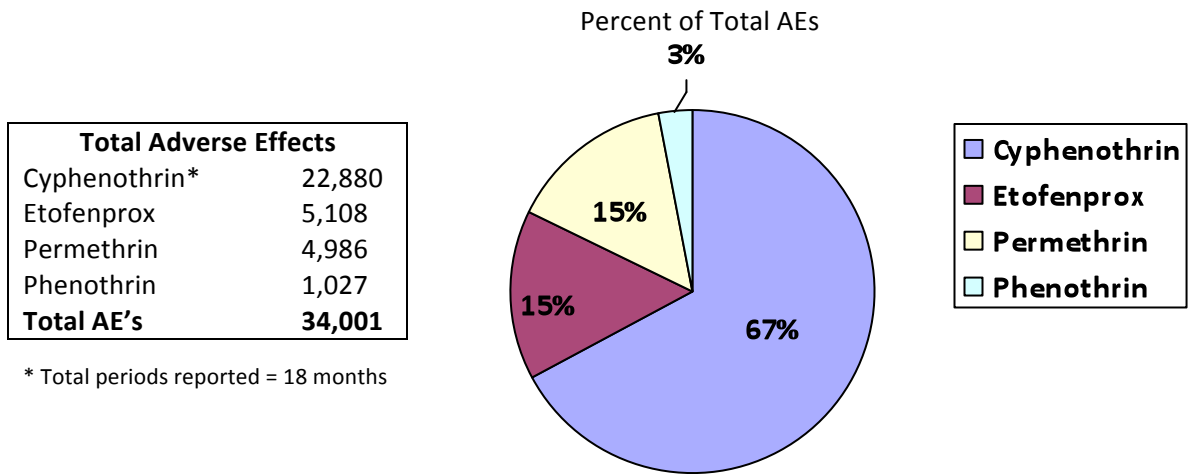


Figure 4

**Topical Adverse Effect by Active Ingredient  
(Pyrethroids + Etofenprox only)**



## Appendix A

Period	Product Registration No	Product Name	Incident type				Total	Category	Animal	Class	AI1	AI2	Brand	Company
			HD/HE	DA	DB	DC/DD/DE								
Jul 1,2006 to Dec 31,2006	11556-116	ADVANTAGE 9 TOPICAL SOLUTION	14	0	0	163	177	VT	Cat	NE	IM	Advantage	Bayer	
Jan 1,2007 to Dec 31,2007	11556-116	ADVANTAGE 9 TOPICAL SOLUTION	16	1	0	298	315	VT	Cat	NE	IM	Advantage	Bayer	
Jan 1,2008 to Jun 30,2008	11556-116	ADVANTAGE 9 TOPICAL SOLUTION	8	0	0	87	95	VT	Cat	NE	IM	Advantage	Bayer	
Jul 1,2006 to Dec 31,2006	11556-118	ADVANTAGE 18 TOPICAL SOLUTION	21	1	0	285	307	VT	Cat	NE	IM	Advantage	Bayer	
Jan 1,2007 to Dec 31,2007	11556-118	ADVANTAGE 18 TOPICAL SOLUTION	40	4	1	493	538	VT	Cat	NE	IM	Advantage	Bayer	
Jan 1,2008 to Jun 30,2008	11556-118	ADVANTAGE 18 TOPICAL SOLUTION	12	3	1	188	204	VT	Cat	NE	IM	Advantage	Bayer	
Jul 1,2006 to Dec 31,2006	11556-119	ADVANTAGE 20 TOPICAL SOLUTION	11	0	0	38	49	VT	Dog	NE	IM	Advantage	Bayer	
Jan 1,2007 to Dec 31,2007	11556-119	ADVANTAGE 20 TOPICAL SOLUTION	16	0	0	82	98	VT	Dog	NE	IM	Advantage	Bayer	
Jan 1,2008 to Jun 30,2008	11556-119	ADVANTAGE 20 TOPICAL SOLUTION	12	0	0	34	46	VT	Dog	NE	IM	Advantage	Bayer	
Jul 1,2006 to Dec 31,2006	11556-120	ADVANTAGE 55 TOPICAL SOLUTION	6	2	0	50	58	VT	Dog	NE	IM	Advantage	Bayer	
Jan 1,2007 to Dec 31,2007	11556-120	ADVANTAGE 55 TOPICAL SOLUTION	17	2	0	98	117	VT	Dog	NE	IM	Advantage	Bayer	
Jan 1,2008 to Jun 30,2008	11556-120	ADVANTAGE 55 TOPICAL SOLUTION	5	1	0	34	40	VT	Dog	NE	IM	Advantage	Bayer	
Jul 1,2006 to Dec 31,2006	11556-132	K9 ADVANTIX 10	4	1	1	130	136	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2007 to Dec 31,2007	11556-132	K9 ADVANTIX 10	11	7	2	391	411	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2008 to Jun 30,2008	11556-132	K9 ADVANTIX 10	4	1	0	208	213	VT	Dog	NE	IM	PE	Advantix	Bayer
Jul 1,2006 to Dec 31,2006	11556-133	K9 ADVANTIX 20	10	1	1	235	247	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2007 to Dec 31,2007	11556-133	K9 ADVANTIX 20	19	5	2	516	542	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2008 to Jun 30,2008	11556-133	K9 ADVANTIX 20	12	1	2	279	294	VT	Dog	NE	IM	PE	Advantix	Bayer
Jul 1,2006 to Dec 31,2006	11556-134	K9 ADVANTIX 100	14	5	0	146	165	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2007 to Dec 31,2007	11556-134	K9 ADVANTIX 100	40	0	5	361	406	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2008 to Jun 30,2008	11556-134	K9 ADVANTIX 100	28	1	0	206	235	VT	Dog	NE	IM	PE	Advantix	Bayer
Jul 1,2006 to Dec 31,2006	11556-135	K9 ADVANTIX 55	25	4	0	219	248	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2007 to Dec 31,2007	11556-135	K9 ADVANTIX 55	38	7	4	463	512	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2008 to Jun 30,2008	11556-135	K9 ADVANTIX 55	17	1	0	262	280	VT	Dog	NE	IM	PE	Advantix	Bayer
Jan 1,2008 to Jun 30,2008	2517-80	SERGEANT'S CYPHENOTHIN + IGR SQUEEZE-ON FOR DOGS	202	23	42	7858	8125	FDM	Dog	PY	CY	PP	Sergeants Gold Sergeants Gold Sentry Pro	Sergeants
Jan 1,2007 to Dec 31,2007	2517-80	SERGEANTS GOLD FLEA & TICK SQUEEZE-ON FOR DOGS, SENTRYPRO XFC FLEA & TICK SQUEEZE ON FOR DOGS	355	45	48	12143	12591	FDM	Dog	PY	CY	PP	XFC	Sergeants
Jan 1,2008 to Jun 30,2008	2517-80-83333	TRIFORCE CANINE SQUEEZE-ON	3	1	3	195	202	FDM	Dog	PY	CY	PP	Triforce	Tradewinds
Jan 1,2007 to Dec 31,2007	2517-80-83333	TRIFORCE CANINE SQUEEZE-ON	19	5	2	1014	1040	FDM	Dog	PY	CY	PP	Triforce	Tradewinds
Jan 1,2008 to Jun 30,2008	2517-85	SERGEANT'S SILVER SQUEEZE ON FOR DOGS	21	1	0	585	607	FDM	Dog	PY	CY		Sergeants Silver	Sergeants
Jan 1,2007 to Dec 31,2007	2517-85	SERGEANT'S SILVER SQUEEZE ON FOR DOGS	13	2	2	298	315	FDM	Dog	PY	CY		Sergeants Silver	Sergeants

Jul 1,2007 to Sept 30,2007	73510-4-2517(2517-87)	SERGEANT'S SQUEEZE ON FOR DOGS AND PUPPIES SENTRYPRO SQUEEZE ON FOR DOGS AND PUPPIES	1	4	3	84	92	FDM	Dog	PY	PE	PP	Sergeants	Sergeants
April 1,2007 to June 30, 2007	73510-4-2517(2517-87)	SERGEANT'S SQUEEZE ON FOR DOGS AND PUPPIES SENTRYPRO SQUEEZE ON FOR DOGS AND PUPPIES	1	1	20	321	343	FDM	Dog	PY	PE	PP	Sergeants	Sergeants
Jan 1,2007 to Mar 31,2007	73510-4-2517(2517-87)	SERGEANT'S SQUEEZE ON FOR DOGS AND PUPPIES SENTRYPRO SQUEEZE ON FOR DOGS AND PUPPIES	2	4	3	66	75	FDM	Dog	PY	PE	PP	Sergeants	Sergeants
Jul 1,2006 to Sept 30,2006	73510-4-2517(2517-87)	SERGEANT'S SQUEEZE ON FOR DOGS AND PUPPIES SENTRYPRO SQUEEZE ON FOR DOGS AND PUPPIES	5	10	0	199	214	FDM	Dog	PY	PE	PP	Sergeants	Sergeants
Oct 1,2006 to Dec 31,2006	73510-4-2517(2517-87)	SERGEANT'S PRETECT SQUEEZE ON FOR DOGS AND PUPPIES SENTRYPRO SQUEEZE ON FOR DOGS AND PUPPIES	4	7	1	112	124	FDM	Dog	PY	PE	PP	Sergeants	Sergeants
Jul 1,2006 to Dec 31,2006	2596-147	HARTZ CONTROL ONESPOT FOR CATS	0	23	17	178	218	FDM	Cat	IGR	MT		Control	Hartz
Jan 1,2007 to Dec 31,2007	2596-147	HARTZ CONTROL ONESPOT FOR CATS	1	22	12	231	266	FDM	Cat	IGR	MT		Control	Hartz
Jan 1,2008 to Jun 30,2008	2596-147	HARTZ CONTROL ONESPOT FOR CATS	4	7	2	134	147	FDM	Cat	IGR	MT		Control Ultraguard	Hartz
Jul 1,2006 to Jun 30, 2008	2596-150	HARTZ AC OAM F&T DROPS FOR DOGS; HARTZ UG PLUS F&T DROPS FOR DOGS; HARTZ UG PRO F&T DROPS FOR DOGS; HARTZ INCONTROL FLEA AND TICK DROPS	22	24	13	350	409	FDM	Dog	PY	PH	MT	Advanced Care Ultraguard	Hartz
Jul 1,2006 to Jun 30, 2008	2596-151	HARTZ AC F&T DROPS FOR DOGS; HARTZ UG F&T DROPS FOR DOGS BIO SPOT DOG	21	44	22	531	618	FDM	Dog	PY	PH		Advanced Care	Hartz Central Life
Jan 1,2007 to Dec 31,2007	270-278	ADAMS FLEA & TICK CONTROL DOG BIO SPOT FLEA & TICK CONTROL FOR DOGS,	16	28	61	377	482	FDM	Dog	PY	PE	PP	BioSpot	Sciences
Jul 1,2006 to Dec 31,2006	270-278	SCRATCHEX STRIPE-ON FOR DOGS	2	18	54	160	234	FDM	Dog	PY	PE	PP	BioSpot	Central Life Sciences
Jan 1,2007 to Dec 31,2007	270-278-2517	PRETECT SQUEEZE FOR DOGS	0	0	1	2	3	FDM	Dog	PY	PE	PP	Prectect	Sergeants
Jul 1,2006 to Dec 31,2006	270-278-2517	PRETECT SQUEEZE FOR DOGS	0	3	1	30	34	FDM	Dog	PY	PE	PP	Prectect	Sergeants Enforcer Products Inc.
Jul 1,2006 to Dec 31,2006	2724-488	ENFORCER FLEA DROPS FOR CATS ZODIAC FLEATROL SPOT ON SPECIAL FORMULA FOR CATS & KITTENS	14	9	3	168	194	FDM	Cat	IGR	MT		Enforcer	Central Life Sciences
Jan 1,2007 to Dec 31,2007	2724-488	ZODIAC FLEATROL SPOT ON SPECIAL FORMULA FOR CATS & KITTENS (RF 9804)	2	6	11	145	164	FDM	Cat	IGR	MT		Zodiac	Central Life Sciences
Jan 1,2008 to Jun 30,2008	2724-488	ZODIAC FLEATROL SPOT ON SPECIAL FORMULA FOR CATS & KITTENS (RF 9804)	2	3	3	48	56	FDM	Cat	IGR	MT		Zodiac	Central Life Sciences
Jul 1,2006 to Dec 31,2006	2724-497	ZODIAC GROOMERS' SPOT ON (RF9908)	8	6	17	267	298	FDM	Dog	PY	PE	MT	Zodiac	Central Life Sciences
Jan 1,2007 to Dec 31,2007	2724-497	ZODIAC GROOMERS' SPOT ON PACK ZODIAC SPOT ON FLEA & TICK CONTROL FOR SMALL DOGS 16-30 LBS	10	15	34	473	532	FDM	Dog	PY	PE	MT	Zodiac	Central Life Sciences
Jan 1,2008 to Jun 30,2008	2724-497	ZODIAC SPOT ON FLEA & TICK CONTROL FOR SMALL DOGS 16-30 LBS	3	2	8	208	221	FDM	Dog	PY	PE	MT	Zodiac	Central Life Sciences
Jan 1,2008 to Jun 30,2008	2724-497-270	BIOSPOT SPOT ON FLEA & TICK CONTROL FOR DOGS BIOSPOT SPOT ON FLEA & TICK CONTROL FOR DOGS (31 TO 60 LBS)	5	21	57	654	737	FDM	Dog	PY	PE	MT	BioSpot	Central Life Sciences
Jan 1,2007 to Dec 31,2007	2724-497-270	BIOSPOT SPOT ON FLEA & TICK CONTROL FOR DOGS (31 TO 60 LBS)	8	30	75	745	858	FDM	Dog	PY	PE	MT	BioSpot	Central Life Sciences
Jul 1,2006 to Dec 31,2006	2724-504	ZODIAC SPOT ON PLUS FOR CATS (RF2004 (CCSO))	3	10	8	348	369	FDM	Cat	PY	ET	MT	Zodiac	Central Life Sciences
Jan 1,2007 to Dec 31,2007	2724-504	ZODIAC SPOT ON PLUS FOR CATS (RF2004 (CCSO))	5	15	19	675	714	FDM	Cat	PY	ET	MT	Zodiac	Central Life Sciences
Jan 1,2008 to Jun 30,2008	2724-504	ZODIAC SPOT ON PLUS FOR CATS (RF2004 (CCSO))	4	6	2	234	246	FDM	Cat	PY	ET	MT	Zodiac	Central Life Sciences
Jan 1,2007 to Dec 31,2007	2724-504-2596	HARTZ INCONTROL FLEA & TICK DROPS FOR CATS	10	11	16	295	332	FDM	Cat	PY	ET	MT	InControl	Hartz
Jan 1,2008 to Jun 30,2008	2724-504-2596	HARTZ INCONTROL FLEA & TICK DROPS FOR CATS	5	10	6	356	377	FDM	Cat	PY	ET	MT	InControl	Hartz
Jul 1,2006 to Dec 31,2006	2724-504-2596	HARTZ ULTRAGUARD PLUS DROPS FOR CATS ADAMS SPOT ON FLEA & TICK CONTROL FOR CATS 5 LBS. & OVER	4	6	6	130	146	FDM	Cat	PY	ET	MT	Ultraguard	Hartz Central Life Sciences
Jan 1,2008 to Jun 30,2008	2724-504-270	ADAMS SPOT ON FLEA & TICK CONTROL FOR CATS 5 LBS. & OVER	2	12	10	235	259	FDM	Cat	PY	ET	MT	Adams	Central Life Sciences

Jan 1,2007 to Dec 31,2007	2724-504-270	BIOSPOT SPOT ON FLEA AND TICK CONTROL FOR CATS & KITTENS UNDER 5LBS	2	16	23	381	422	FDM	Cat	PY	ET	MT	BioSpot	Central Life Sciences
Jul 1,2006 to Dec 31,2006	65331-2	FRONTLINE TOP SPOT FOR CATS	7	21	0	145	173	VT	Cat	PZ	FI		Frontline	Merial
Jan 1,2007 to Dec 31,2007	65331-2	FRONTLINE TOP SPOT FOR CATS	14	19	3	251	287	VT	Cat	PZ	FI		Frontline	Merial
Jan 1,2008 to Jun 30,2008	65331-2	FRONTLINE TOP SPOT FOR CATS	4	4	2	119	129	VT	Cat	PZ	FI		Frontline	Merial
Jul 1,2006 to Dec 31,2006	65331-3	FRONTLINE TOP SPOT FOR DOGS	27	9	2	237	275	VT	Dog	PZ	FI		Frontline	Merial
Jan 1,2007 to Dec 31,2007	65331-3	FRONTLINE TOP SPOT FOR DOGS	35	9	6	371	421	VT	Dog	PZ	FI		Frontline	Merial
Jan 1,2008 to Jun 30,2008	65331-3	FRONTLINE TOP SPOT FOR DOGS	22	6	7	184	219	VT	Dog	PZ	FI		Frontline	Merial
Jul 1,2006 to Dec 31,2006	65331-4	FRONTLINE PLUS FOR CATS	30	30	3	674	737	VT	Cat	PZ	FI	MT	Frontline+	Merial
Jan 1,2007 to Dec 31,2007	65331-4	FRONTLINE PLUS FOR CATS	50	64	6	1306	1426	VT	Cat	PZ	FI	MT	Frontline+	Merial
Jan 1,2008 to Jun 30,2008	65331-4	FRONTLINE PLUS FOR CATS	26	16	8	606	656	VT	Cat	PZ	FI	MT	Frontline+	Merial
Jul 1,2006 to Dec 31,2006	65331-5	FRONTLINE PLUS FOR DOGS	140	28	7	1210	1385	VT	Dog	PZ	FI	MT	Frontline+	Merial
Jan 1,2007 to Dec 31,2007	65331-5	FRONTLINE PLUS FOR DOGS	307	50	16	2536	2909	VT	Dog	PZ	FI	MT	Frontline+	Merial
Jan 1,2008 to Jun 30,2008	65331-5	FRONTLINE PLUS FOR DOGS	131	17	19	1292	1459	VT	Dog	PZ	FI	MT	Frontline+	Merial
Jul 1,2007 to Sept 30,2007	69332-1-2517	BANSECT SQUEEZE-ON FLEA AND TICK CONTROL FOR DOGS SENTRY VALUE SQUEEZE-ON FLEA AND TICK CONTROL FOR DOGS	8	19	19	223	269	FDM	Dog	PY	PE		Sentry	Sergeants
Jan 1,2007 to Mar 31,2007	69332-1-2517	BANSECT SQUEEZE-ON FLEA AND TICK CONTROL FOR DOGS SENTRY VALUE SQUEEZE-ON FLEA AND TICK CONTROL FOR DOGS	0	4	1	29	34	FDM	Dog	PY	PE		Sentry	Sergeants
April 1,2007 to June 30, 2007	69332-1-2517	BANSECT SQUEEZE-ON FLEA AND TICK CONTROL FOR DOGS SENTRY VALUE SQUEEZE-ON FLEA AND TICK CONTROL FOR DOGS	14	9	40	129	192	FDM	Dog	PY	PE		Sentry	Sergeants
Oct 1,2006 to Dec 31,2006	69332-1-2517	BANSECT SQUEEZE-ON FLEA AND TICK CONTROL FOR DOGS	0	15	5	78	98	FDM	Dog	PY	PE		Sentry	Sergeants
Jul 1,2006 to Sept 30,2006	69332-1-2517	BANSECT SQUEEZE-ON FLEA AND TICK CONTROL FOR DOGS	5	13	0	128	146	FDM	Dog	PY	PE		Sentry	Sergeants
Jul 1,2006 to Sept 30,2006	69332-3-2517	SERGEANT'S GOLD SQUEEZE-ON FOR CATS AND KITTENS PURRSRIPTIONS PLUS SQUEEZE-ON FOR CATS AND KITTENS	2	14	0	294	310	FDM	Cat	PY	ET	PP	Sergeants Gold	Sergeants
April 1,2007 to June 30, 2007	69332-3-2517	SERGEANT'S GOLD SQUEEZE-ON FOR CATS AND KITTENS PURRSRIPTIONS PLUS SQUEEZE-ON FOR CATS AND KITTENS	5	4	9	281	299	FDM	Cat	PY	ET	PP	Sergeants Gold	Sergeants
Oct 1,2006 to Dec 31,2006	69332-3-2517	SERGEANT'S GOLD SQUEEZE-ON FOR CATS AND KITTENS PURRSRIPTIONS PLUS SQUEEZE-ON FOR CATS AND KITTENS	3	3	1	125	132	FDM	Cat	PY	ET	PP	Sergeants Gold	Sergeants
Jan 1,2007 to Mar 31,2007	69332-3-2517	SERGEANT'S GOLD SQUEEZE-ON FOR CATS AND KITTENS PURRSRIPTIONS PLUS SQUEEZE-ON FOR CATS AND KITTENS	0	3	0	113	116	FDM	Cat	PY	ET	PP	Sergeants Gold	Sergeants
Jul 1,2007 to Sept 30,2007	69332-3-2517	SERGEANT'S GOLD SQUEEZE-ON FOR CATS AND KITTENS PURRSRIPTIONS PLUS SQUEEZE-ON FOR CATS AND KITTENS	4	11	3	316	334	FDM	Cat	PY	ET	PP	Sergeants Gold	Sergeants
Jan 1,2008 to Jun 30,2008	69332-3-270	BIOSPOT FOR CATS ONE-STEP	2	0	0	4	6	FDM	Cat	PY	ET		BioSpot	Central Life Sciences
Jul 1,2006 to Dec 31,2006	69332-3-270	BIOSPOT FOR CATS ONE-STEP	0	0	0	38	38	FDM	Cat	PY	ET		BioSpot	Central Life Sciences
Jan 1,2007 to Dec 31,2007	69332-3-270	BIOSPOT FOR CATS ONE-STEP	1	7	5	74	87	FDM	Cat	PY	ET		BioSpot	Central Life Sciences
April 1,2007 to June 30, 2007	69332-3-53883	PURRSRIPTIONS SQUEEZE-ON FOR CATS AND KITTENS	0	0	0	17	17	FDM	Cat	PY	ET	PP	Sentry	Sergeants
Jul 1,2006 to Sept 30,2006	69332-3-53883	PURRSRIPTIONS SQUEEZE-ON FOR CATS AND KITTENS	0	1	0	30	31	FDM	Cat	PY	ET	PP	Sentry	Sergeants
Oct 1,2006 to Dec 31,2006	69332-3-53883	PURRSRIPTIONS SQUEEZE-ON FOR CATS AND KITTENS	1	2	0	13	16	FDM	Cat	PY	ET	PP	Sentry	Sergeants
Jan 1,2007 to Mar 31,2007	69332-3-53883	PURRSRIPTIONS SQUEEZE-ON FOR CATS AND KITTENS	0	0	0	2	2	FDM	Cat	PY	ET	PP	Sentry	Sergeants

Jul 1,2007 to Sept 30,2007	69332-3-53883	PURRSRIPTIONS SQUEEZE-ON FOR CATS AND KITTENS	0	0	1	14	15	FDM	Cat	PY	ET	PP	Sentry	Sergeants
April 1,2007 to June 30, 2007	69332-3-83333	TRIFORCE FELINE SQUEEZE-ON	0	2	0	29	31	FDM	Cat	PY	ET	PP	Triforce	Tradewinds
Jul 1,2007 to Sept 30,2007	69332-3-83333	TRIFORCE FELINE SQUEEZE-ON	0	0	0	16	16	FDM	Cat	PY	ET	PP	Triforce	Tradewinds
Jan 1,2008 to Jun 30,2008	69332-4-2517	SENTRY SQUEEZE-ON FOR CATS AND KITTENS	2	3	1	100	106	FDM	Cat	PY	ET		Sentry	Sergeants
Jul 1,2006 to Dec 31,2006	69332-4-2517	SILVER SQUEEZE-ON FOR CATS AND KITTENS	12	15	5	261	293	FDM	Cat	PY	ET		Sergeants	Sergeants
Jan 1,2007 to Mar 31,2007	69332-4-2517	SILVER SQUEEZE-ON FOR CATS AND KITTENS											Silver	Sergeants
Jan 1,2007 to Mar 31,2007	69332-4-2517	SENTRY SQUEEZE-ON FOR CATS AND KITTENS	3	2	1	69	75	FDM	Cat	PY	ET		Sergeants	Sergeants
April 1,2007 to June 30, 2007	69332-4-2517	SILVER SQUEEZE-ON FOR CATS AND KITTENS											Silver	Sergeants
April 1,2007 to June 30, 2007	69332-4-2517	SENTRY SQUEEZE-ON FOR CATS AND KITTENS	5	4	13	161	183	FDM	Cat	PY	ET		Sergeants	Sergeants
Jul 1,2007 to Sept 30,2007	69332-4-2517	SILVER SQUEEZE-ON FOR CATS AND KITTENS											Silver	Sergeants
Jul 1,2007 to Sept 30,2007	69332-4-2517	SENTRY SQUEEZE-ON FOR CATS AND KITTENS	1	2	1	132	136	FDM	Cat	PY	ET		Sergeants	Sergeants
Jan 1,2007 to Dec 31,2007	80490-2	PROMERIS SPOT ON FOR DOGS	7	1	0	76	84	VT	Dog	SE	ME	AZ	Promeris	Fort Dodge
Jan 1,2008 to Jun 30,2008	80490-2	PROMERIS SPOT ON FOR DOGS	95	17	0	1659	1771	VT	Dog	SE	ME	AZ	Promeris	Fort Dodge
Jan 1,2007 to Dec 31,2007	80490-3	PROMERIS SPOT ON FOR CATS	3	2	0	83	88	VT	Cat	SE	ME		Promeris	Fort Dodge
Jan 1,2008 to Jun 30,2008	80490-3	PROMERIS SPOT ON FOR CATS	10	0	0	166	176	VT	Cat	SE	ME		Promeris	Fort Dodge