REPORT SAMPLE

IHS Markit® | Stonehaven Consulting

Canine and Feline Parasitology Market 2020-2035

Animal Health Market Analysis, 2022

Animal Health | Special Report

REPORT SAMPLE

Animal Health

Special Report

Canine and Feline Parasitology Market 2020-2035

Animal Health Market Analysis, 2022

IHS Markit®

Stonehaven Consulting

Cover image: GlobalP | Getty Images

Contents

Chapter 1: Summary

Scope of the Report

The report breaks down the parasitology market by species, application, treatment[1] and key geographies

By Species	By Application[2]	By Treatment	By Region
Dog **Cat**	**Flea and tick control**[3] **Worm control with heartworm claim** **Worm control without heartworm claim**	**Ectoparasiticides** (e.g. isoxazolines, phenylpyrazoles, pyrethroids, neonicotinoids, etc.) **Endoparasiticides** (e.g. macrocyclic lactones, benzimidazoles, isoquinolines, etc.) **Endectocides** (e.g. combination product based on API treating ectoparasites and API treating endoparasites, or mono product based on API treating both internal and external parasites[3])	**US** **EU-5**[5] France Germany Italy Spain UK **APAC-3**[6] China Japan Australia

Years of Interest	**2020** to **2035**
Currency	The currency used in the report is **United States Dollars ($)**, with the market size indicated in terms of $ million/billion. The market size figures in the report are **ex-manufacturer sales** based on 2022 prices.

1. Includes generics and OTC products, excludes diagnostic devices, 2. We acknowledge that protozoa are an important part of parasitology; However, the majority of the report is focused on ectoparasites and helminths as these drive the market place, 3. Includes both prevention and intervention treatments, 4. selamectin, 5. The five European nations represent ~65% of the European animal health market, 6. The three APAC nations amount to ~75% of the APAC animal health market.

Executive Summary (1/3)

The Canine and Feline Parasitology Market[1] is forecast to grow at a CAGR of +X% from 2020 to 2035

Overall

Parasitology remains the largest segment in animal health, growing at a X% CAGR

Our analysis shows the global market for canine and feline parasitology is projected to reach **$X billion**, growing by **X%** between 2020 and 2035.

Factors such as growth in companion animal ownership, an increased number of animals at risk due to climate change-induced influences on epidemiology, and increased awareness and compliance from pet owners are expected to drive growth in the market.

Additionally, increasing price levels will drive growth of the companion animal parasitology market value. Price level increases will be driven by innovation in formulation development, such as the introduction of higher priced combination endectocides and innovation regarding new active pharmaceutical ingredient classes, as well as new technologies. At the same time, the increase in price levels will be slowed by higher genericization and intra-innovation competition.

1. Ex-manufacturer

Market by Application

Flea and tick control to remain largest segment, worm control with heartworm claim growing fastest

By application, the flea and tick control segment accounted for X% of the overall canine and feline parasitology market in 2020 and is expected to reach $X billion by 2035, at a CAGR of X%. Key factors driving growth are increased geographic spread and abundance of ticks, and rising awareness regarding risks of tick-borne disease.

The worm control with heartworm claim segment accounted for a smaller part of the companion animal parasitology market with X% share in 2020. This segment is expected to grow fastest and to reach $X billion by 2035 at a CAGR of X%. Growth is driven by heartworm becoming a risk in more geographies and during longer periods of the year, among other factors.

The worm control without heartworm claim segment is the smallest part of the pet parasitology market with X% share in 2020. This segment is expected to grow to $X billion by 2035 at a CAGR of X%. This comparatively low growth rate is related to the trend towards endectocides, which in most cases include a heartworm claim.

Market by Treatment

Endectocides are forecast to grow fastest at a CAGR X%

In relation to type of treatment, ectoparasiticides accounted for the largest share of the companion animal parasitology market in 2020 with a X% share, but this is expected to drop to X% by 2035. The decrease in market share can be attributed to the past and future launch of endectocides that offer more convenience to the pet owner thanks to their ‘one-product-fits-all’ characteristic.

Endoparasiticides accounted for the smallest share of the canine and feline parasitology market in 2020 with X% share. This is expected to drop even more and is again related to the aforementioned trend regarding endectocides.

With a CAGR of X%, endectocides are expected to drive growth in the companion animal market substantially. We project this segment to grow from $X billion in 2020 to $X billion in 2035.

Executive Summary (2/3)

The Canine and Feline Parasitology Market[1] is forecast to grow at a CAGR of +X% from 2020 to 2035

Market by Species

The market will continue to be dominated by dogs

The dog segment accounted for the largest share of the companion animal parasitology market with X% share in 2020 and is expected to grow to $X billion by 2035. This translates into a CAGR of X%.

The cat segment currently accounts for $X billion and is expected to grow to $X billion with a CAGR of X%. Various factors influence the growth in the feline market.

With increasing urbanization, the share of cats that remain indoors is expected to increase. This implies a lower share of cats at risk for the majority of parasites and hence limits market growth.

At the same time, experts expect innovation in formulation development of cat products. If new products offer improved ease of administration, the share of animals receiving parasite control will likely increase, which will drive growth. Improved dosage forms my include acceptable oral dosing, topicals and depot injections.

1. Ex-manufacturer

Market by Region

US, EU-5 and APAC-3 projected to grow at a similar CAGR of ~X%

The US dominated the companion animal parasitology market in 2020 and is expected to retain the largest share in 2035. This will be driven by the high level of dog ownership, high share of animals at risk of heartworm and comparatively higher price levels.

The US, EU-5 and APAC-3 are all projected to grow at a similar pace from 2020 to 2035, boosted by improving compliance and price increases. Growth in Europe is additionally being driven by a rising number of areas becoming heartworm endemic.

Innovation Pipeline

New formulations, new API classes and new technologies to drive growth

Innovation in the next five years will be centered on new formulations such as combination products or convenient dosage forms for cats.

After 2027, experts anticipate novel active pharmaceutical ingredients (APIs) – or even classes of APIs – and novel technologies (e.g. parasitic vaccines) to emerge next to new formulations.

Generic Impact on Parasitology Market

Upcoming genericization of isoxazolines evokes protective lifecycle management

Isoxazoline-based insecticides dominate both the ectoparasiticide and the endectocide segments. With the first isoxazolines (IOBs) coming off patent in this decade, market dynamics are prone to change.

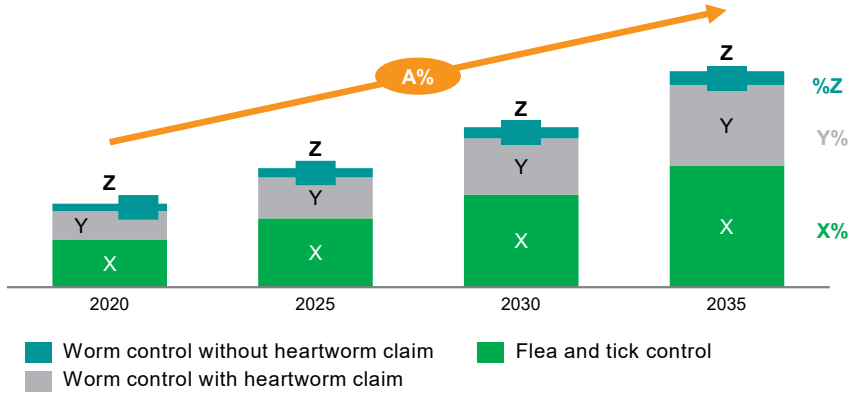
Experts expect many generics companies to have already started development projects for IOB-based products and many generics are expected to enter the market once end-of-patent dates are reached. This will lead to decreasing prices. However, experts believe the overall effect on the market to be limited, as ‘top four’ firms have already and will continue to strategically manage the lifecycles of their products to protect themselves from genericization. Lifecycle management strategies include:

- Launch of combination products with greater convenience for pet owners
- Claim extensions (e.g. prevention of *Babesia* or *Borrelia* infections as a direct result of killing vector ticks)
- Multi-channel strategy selling via the vet and over-the-counter channels (e.g. FrontPro by Boehringer Ingelheim Animal Health)

Executive Summary (3/3)

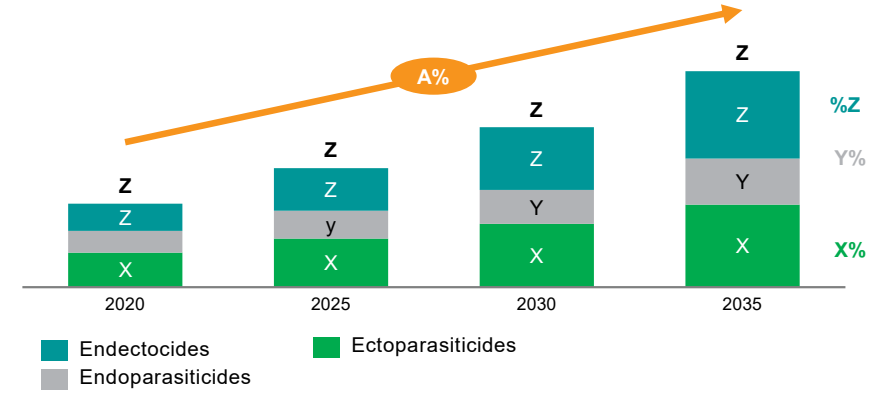
The Canine and Feline Parasitology Market[1] is forecast to grow at a CAGR of +X% from 2020 to 2035

Canine and feline parasitology market by application ($m)



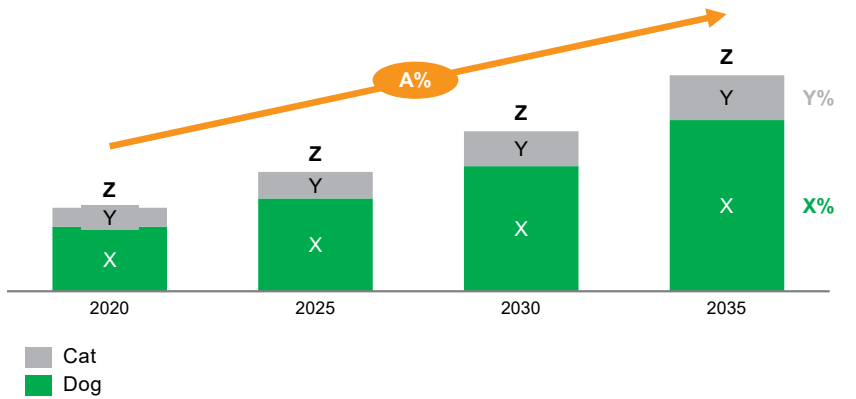
Source: Stonehaven Consulting

Canine and feline parasitology market by treatment class ($m)



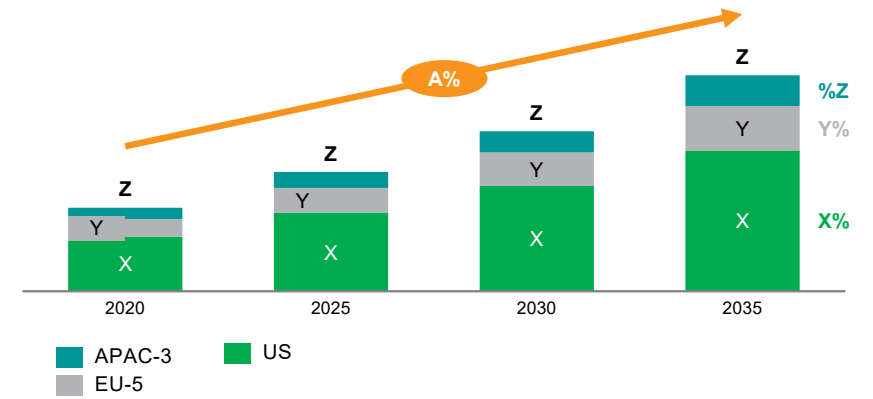
Source: Stonehaven Consulting

Canine and feline parasitology market by species ($m)



Source: Stonehaven Consulting

Canine and feline parasitology market by region ($m)



Source: Stonehaven Consulting

1. Ex-manufacturer

Chapter 2: Regulatory Landscape

Regulations for Product Approval

Requirements of authorities differ from country to country leading to differences in marketed products

Overall

No single organization can grant market authorization of veterinary medicines or devices at a global level.

«More information on this topic»

US

The Center for Veterinary Medicine (CVM), operating under the US Food and Drug Administration (FDA),

«More information on this topic»

Europe

The Committee for Medical Products for Veterinary Use (CVMP),

«More information on this topic»

APAC

In China, the development and marketing approval of animal pharmaceutical products is governed by regulations set forth by China's National Medical Products

«More information on this topic»

Regulations for Over-the-Counter Product Approvals

OTC product approval depends largely on efficacy, safety and label wording

Overall

Over-the-counter (OTC) products refer to non-prescription products. Accordingly, OTC products without a prescription can be sold physically via other channels outside of the vet channel.

«More information on this topic»

US

The US FDA and US EPA are responsible for the approval of OTC products.

«More information on this topic»

.

Europe

The CVMP operating under the EMA is responsible for granting market authorization for both prescription and OTC products in Europe.

«More information on this topic»

APAC

In China, OTC drugs are regulated but not in the same way as prescription drugs.

«More information on this topic»

Chapter 3: Market Overview

Canine and Feline Population[1]

Pet ownership will continue to increase with notable growth in EU-5 and APAC-3 markets

Overall

There has been an ongoing increase in the ownership of pets globally and this trend is expected to continue through to 2035.

«More information on this topic»

Dog Population

Our forecasting predicts the dog population in the focus regions will grow with a CAGR of +X% from 2020 until 2035.

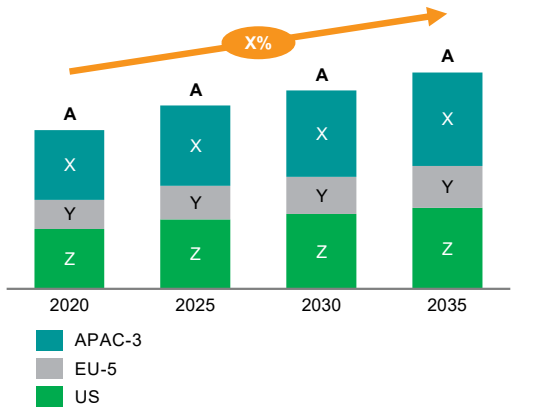
«More information on this topic»

Cat Population

We predict the cat population in the focus regions will grow with a CAGR of +X% from 2020 until 2035.

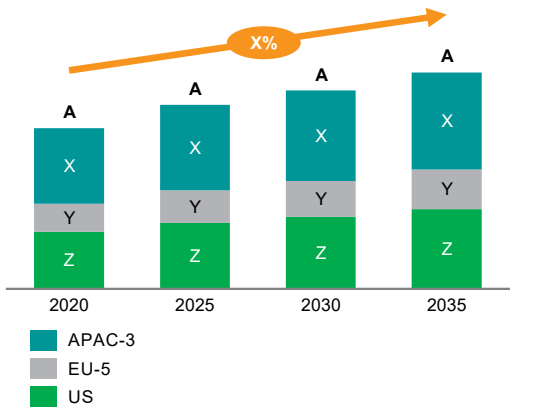
«More information on this topic»

Canine and feline population by region (m)



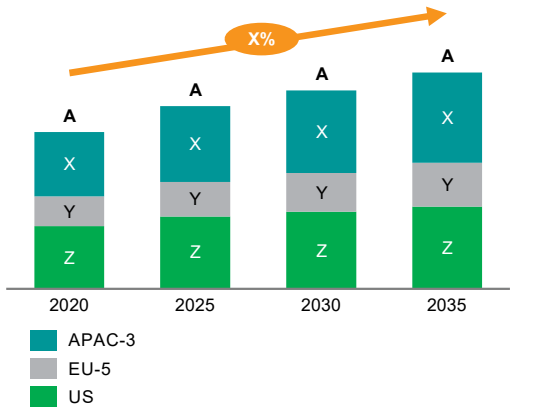
Source: Stonehaven Consulting © 2022 IHS Markit

Canine population by region (m)



Source: Stonehaven Consulting © 2022 IHS Markit

Feline population by region (m)



Source: Stonehaven Consulting © 2022 IHS Markit

Canine and Feline Health Market

Burgeoning sector with numerous growth opportunities in both developed and developing markets

Overall

We forecast the global companion animal health market will grow at a CAGR of +X% from 2020 to 2035.

«More information on this topic»

Market Drivers

The current and future growth rates in the pet health segment are being driven by:

«More information on this topic»

Market Barriers

Over the past few years, pet care costs have increased significantly.

«More information on this topic»

Canine and Feline Parasitology Market (1/3)

Established sector with changes in epidemiology and pet owner compliance driving growth

Overall

The companion animal parasitology market is well established and has a long track record of products.

«More information on this topic»

Market Drivers

Alongside the drivers for the overall market, there are several additional factors boosting the companion animal parasitology market:

«More information on this topic»

Market Barriers

Generally, parasitic diseases are not life threatening for a pet,

«More information on this topic»

Canine and Feline Parasitology Market (2/3)

Established sector with changes in epidemiology and pet owner compliance driving growth

Market Opportunities

A growing understanding and awareness of

«More information on this topic»

Market Challenges

Drug resistance in certain parasite groups could lead regulators to

«More information on this topic»

Canine and Feline Parasitology Market (3/3)

Established sector with changes in epidemiology and pet owner compliance driving growth

Overall

In 2020, dogs accounted for the largest segment of the parasitology market with

«More information on this topic»

Canine Parasitology Market

Our data forecasts dog parasitology market growth at a CAGR of X% from 2020 to 2035.

«More information on this topic»

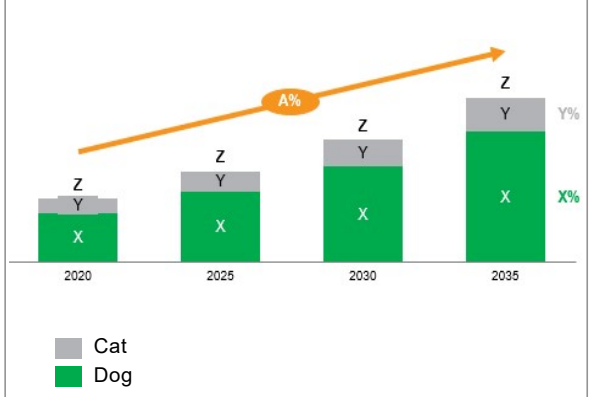
Feline Parasitology Market

Our data shows the cat parasitology market will grow with a CAGR of X% from 2020 to 2035.

«More information on this topic»

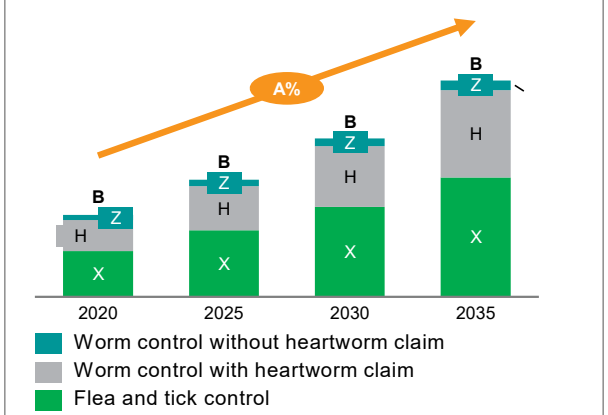
.

Canine and feline parasitology market by species ($m)



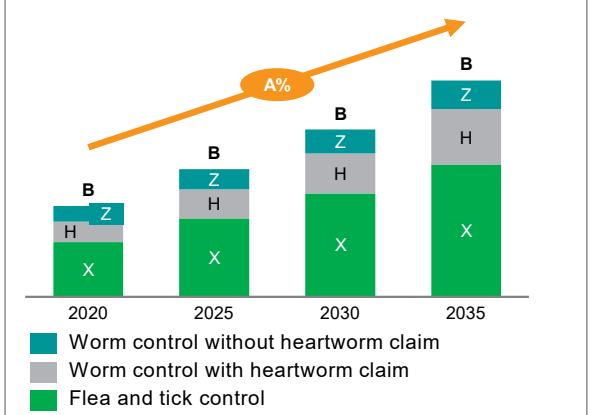
Source: Stonehaven Consulting © 2022 IHS Markit

Canine parasitology market by application ($m)



Source: Stonehaven Consulting © 2022 IHS Markit

Feline parasitology market by application ($m)



Source: Stonehaven Consulting © 2022 IHS Markit

Chapter 4: Parasitology Market by Region

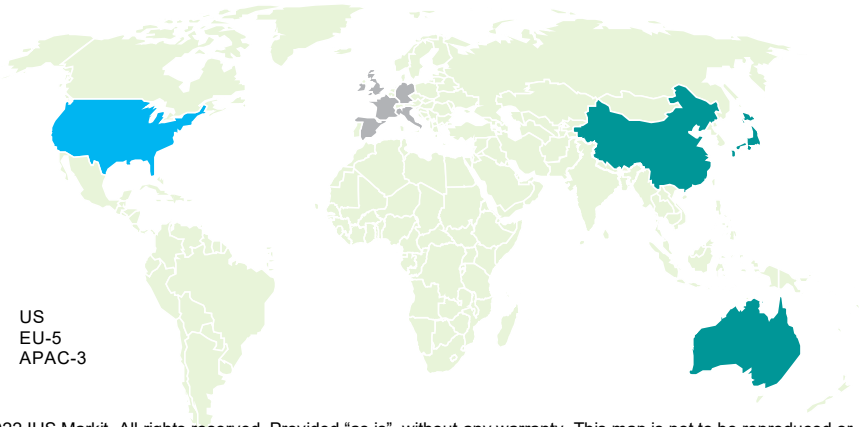
Consolidated Market Size and Growth

US is largest market in companion animal parasitology, highest growth expected in APAC-3

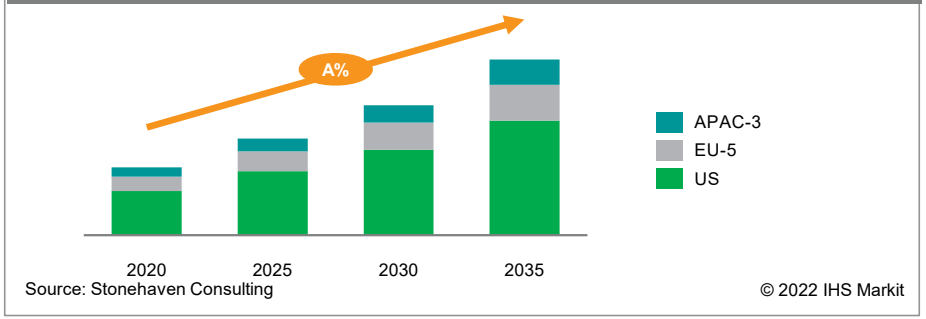
Overview

The consolidated parasitology market is projected to grow from $X billion in 2020 to $Y billion in 2035, implying a X% CAGR.

«More information on this topic»

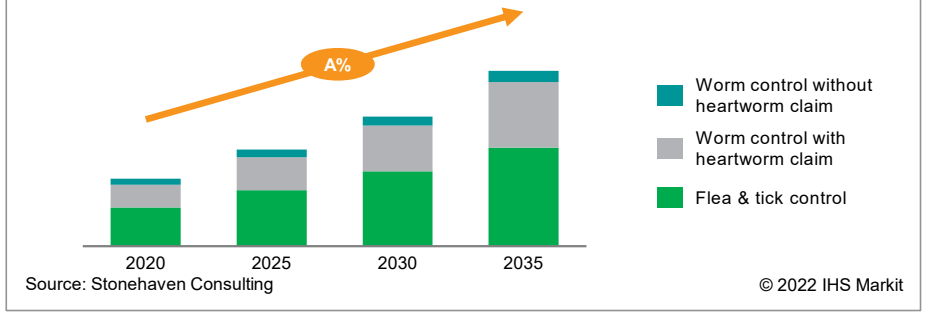


Canine and feline parasitology market by region ($m)



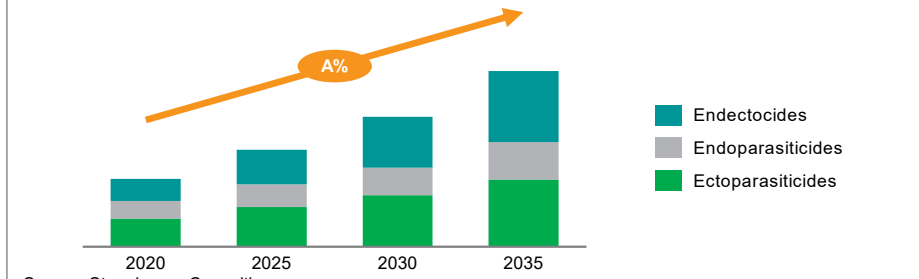
Source: Stonehaven Consulting

Canine and feline parasitology market by application ($m)



Source: Stonehaven Consulting

Canine and feline parasitology market by treatment class ($m)



Source: Stonehaven Consulting

US Market Size and Growth

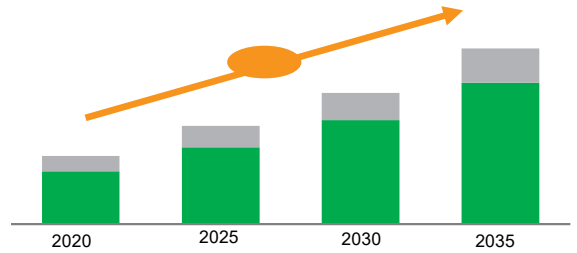
US market driven by increasing risk of heartworms, higher compliance and higher price points

Overview

We forecast the US companion animal parasitology market to grow from $X billion in 2020 to $X billion in 2035, representing a CAGR of X%. The projected growth can be largely attributed to the following drivers:

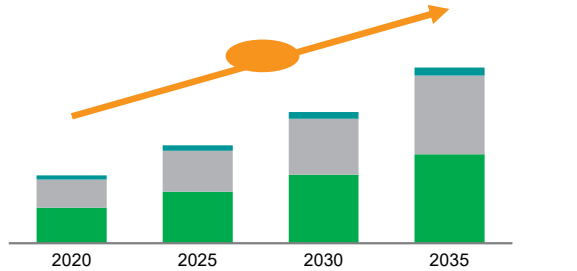
«More information on this topic»

Canine and feline parasitology market by region ($m)



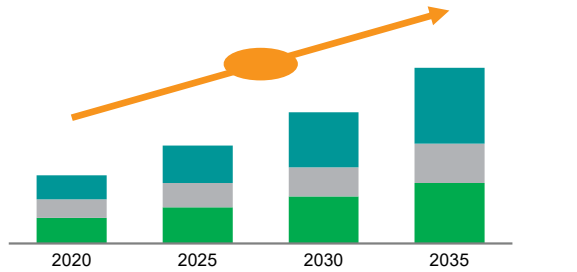
Source: Stonehaven Consulting

Canine and feline parasitology market by application ($m)



Source: Stonehaven Consulting

Canine and feline parasitology market by treatment class ($m)



Source: Stonehaven Consulting

EU-5 Market Size and Growth

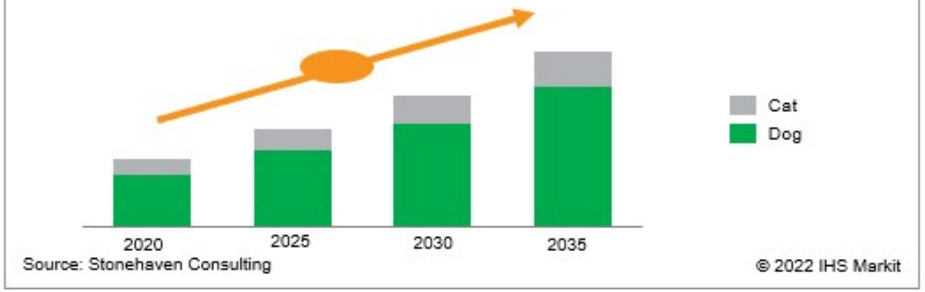
The EU-5 will be driven by emerging of risk of heartworm in new regions

Overview

We project the EU-5 parasitology market to reach $X billion by 2035 from $X billion in 2020. This represents a CAGR of +X% and can be attributed to the following drivers:

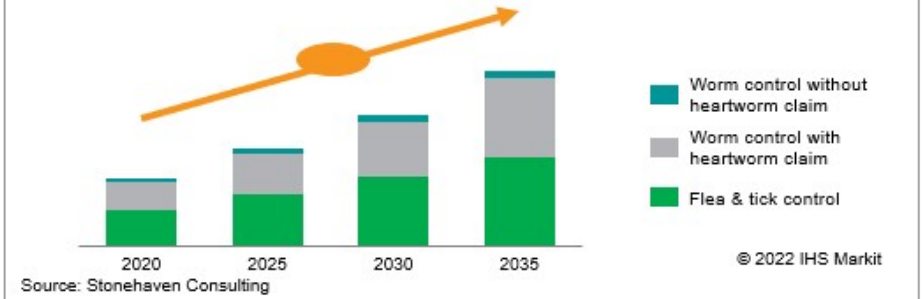
«More information on this topic»

Canine and feline parasitology market by region ($m)



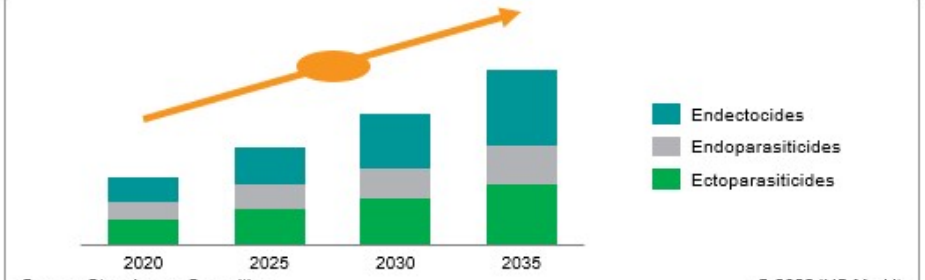
Source: Stonehaven Consulting

Canine and feline parasitology market by application ($m)



Source: Stonehaven Consulting

Canine and feline parasitology market by treatment class ($m)



Source: Stonehaven Consulting

APAC-3 Market Size and Growth

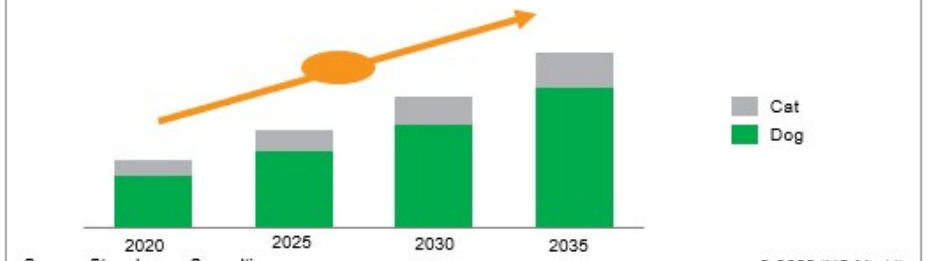
APAC-3 will be driven largely by higher pet ownership, humanization of pet and higher compliance

Overview

The APAC-3 parasitology market is forecast to reach $X billion by 2035 from $X billion in 2020, representing a CAGR of +X%. This can be largely attributed to the following drivers:

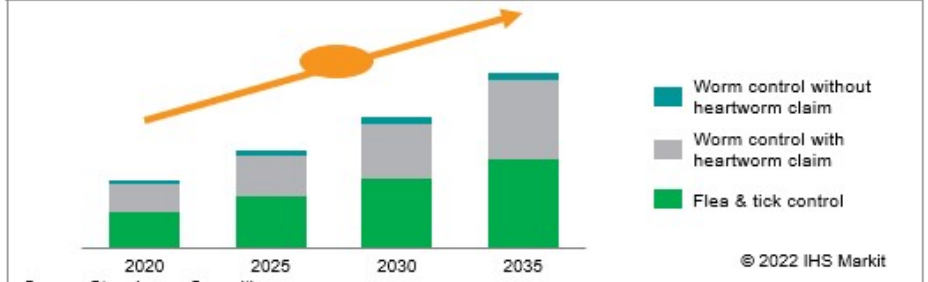
«More information on this topic»

Canine and feline parasitology market by region ($m)



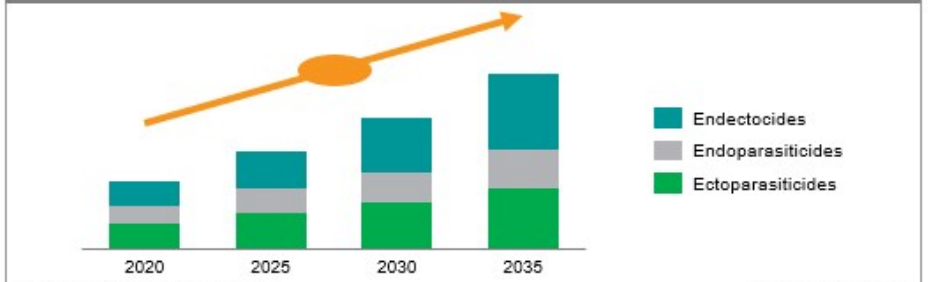
Source: Stonehaven Consulting

Canine and feline parasitology market by application ($m)



Source: Stonehaven Consulting

Canine and feline parasitology market by treatment class ($m)



Source: Stonehaven Consulting

Chapter 5: Current Standard of Care

Current Standard of Care (1/3)

Current standard of care is based on small molecules, either as mono-products or combination products

Overview

At present, there is a wide range of companion animal parasiticides commercialized globally.

The current standard of care includes

«More information on this topic»

Prevention versus Intervention

Parasiticides can be applied as prevention or intervention.

Most products on the market to control ticks and/or fleas both kill and have a

«More information on this topic»

Near-term Opportunities

There are a number of near-term opportunities in the companion animal market:

«More information on this topic»

Current Standard of Care (2/3)

Current standard of care is based on small molecules, either as mono-products or combination products

Breakdown by Treatment Classes

Ectoparasiticides

In 2020, ectoparasiticides accounted for X% of the parasitology market.

«More information on this topic»

Endoparasiticides

In 2020, endoparasiticides accounted for X% of the parasitology market.

«More information on this topic»

Endectocides

In 2020, endectocides accounted for X% of the parasitology market.

«More information on this topic»

Breakdown by Application

Flea and tick control

In 2020, the flea and tick control segment accounted for X% of the parasitology market.

«More information on this topic»

Worm control with heartworm claim

In 2020, the worm control with heartworm claim segment accounted for X% of the parasitology.

«More information on this topic»

Worm control without heartworm claim

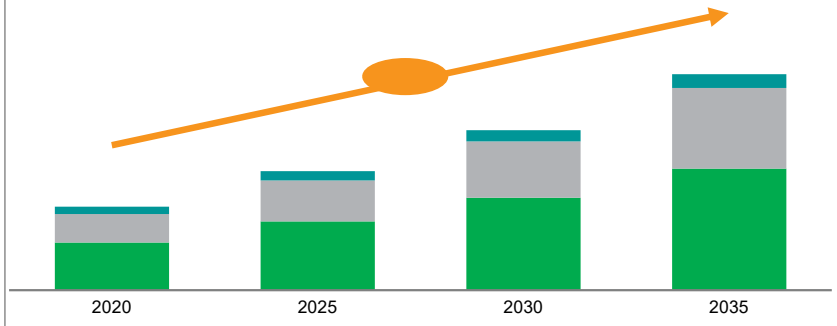
In 2020, the worm control without heartworm claim segment accounted for X% of the parasitology market.

«More information on this topic»

Current Standard of Care (3/3)

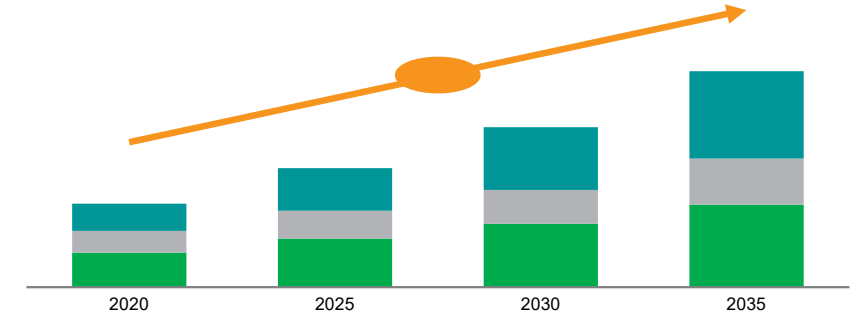
Current standard of care is based on small molecules, either as mono-products or combination products

Canine and feline parasitology market by application ($m)



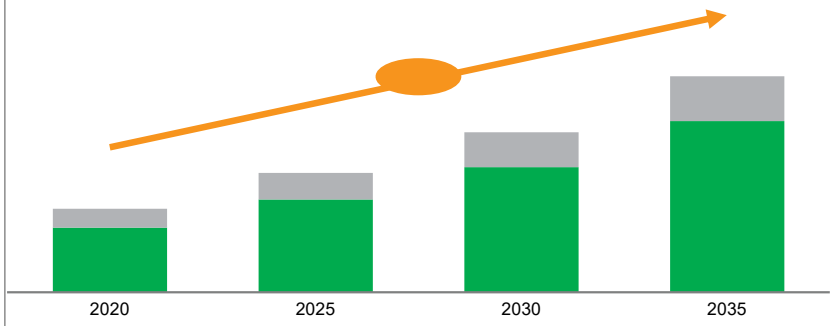
Source: Stonehaven Consulting

Canine and feline parasitology market by treatment class ($m)



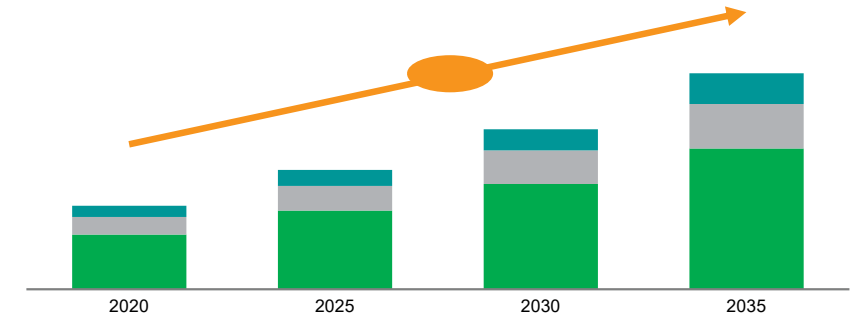
Source: Stonehaven Consulting

Canine and feline parasitology market by species ($m)



Source: Stonehaven Consulting

Canine and feline parasitology market by region ($m)



Source: Stonehaven Consulting

Selection of Established Products and Services (1/2)

Vast majority of large brands in companion animal parasitology owned by top X players

Treatment Class	API Class(es)	API(s)	Brand name (example)	Com-pany[1]	Flea	Tick	Heart-worm	Other round-worm	Tape-worm			FDA[5]	EMA[5]
Ecto-parasiticides	AAAA	BBB	CCC	DDD									
		BBB	CCC	DDD									
		BBB	CCC	DDD									
		BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
		BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
Endo-parasiticides	AAAA	BBB	CCC	DDD									
		BBB	CCC	DDD									
		BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
		BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									
	AAAA	BBB	CCC	DDD									

Selection of Established Products and Services (2/2)

Vast majority of large brands in companion animal parasitology owned by top X players

Treatment Class	API Class(es)	API(s)	Brand name (example)	Com-pany[1]	Flea	Tick	Heart-worm	Other round-worm	Tape-worm			FDA[5]	EMA[5]
Endecto-cides	AAA	BBB	CCC	DDD									
	AAA	BBB	CCC	DDD									
		BBB	CCC	DDD									
		BBB	CCC	DDD									
		BBB	CCC	DDD									
	AAA	BBB	CCC	DDD									
	AAA	BBB	CCC	DDD									
	AAA	BBB	CCC	DDD									
	AAA	BBB	CCC	DDD									
	AAA	BBB	CCC	DDD									
	AAA	BBB	CCC	DDD									
	AAA	BBB	CCC	DDD									

Selection of Recently Approved Innovation Products

All key innovation products since 2018 that are either isoxazoline- or macrocyclic lactone-based

Date	Treatment Class	API class(es)	API(s)	Brand name (example)	Com-pany	Flea	Tick	Heart-worm	Other round-worm	Tape-worm			FDA	EMA
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■		■	■		■		■
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■	■	■		■			■
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■	■	■	■		■		■
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■				■		■	
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■	■	■		■		■	
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■					■	■	
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■	■	■		■		■	■
MM/YYYY	AAA	BBB	CCC	DDD	EEE			■	■		■		■	
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■				■		■	■
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■	■	■			■	■	■
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■	■	■			■	■	
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■	■	■			■		■
MM/YYYY	AAA	BBB	CCC	DDD	EEE			■	■	■	■		■	
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■				■		■	
MM/YYYY	AAA	BBB	CCC	DDD	EEE	■	■				■			■

1. Previously known as afoxolaner Merial

Selection of Leading Generic Products

Wide availability of generic parasiticides options in all treatment classes and indications[1]

Treatment Class	APIs	Brand name generic	Gx Company	Brand name originator	Org Company	Flea	Tick	Heart-worm	Other round-worm	Tape-worm			FDA[2]	EMA[2]
Ecto-parasiticides	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
Endo-parasiticides	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
Endectocides	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									
	AAA	BBB	CCC	DDD	EEE									

Unmet Needs in Current Standard of Care (1/2)

Improving compliance rates for treating parasites is main unmet need in pet parasitology market

Pet Owner Education and Adherence

A core unmet need in the current standard of care is

«More information on this topic»

Ease of Access to Diagnostics

Opportunities exist for improvement in

«More information on this topic»

Canine Vector-Borne Disease (CVBD)

There are several severe secondary diseases in companion animal parasitology. The core unmet need is

«More information on this topic»

Anthelmintic Resistance

A high priority unmet need is anthelmintic resistance in

«More information on this topic»

Zoonoses

Some parasites can be transmitted to humans. For example,

«More information on this topic»

Unmet Needs in Current Standard of Care (2/2)

Improving compliance rates for treating parasites is main unmet need in pet parasitology market

Top Factors Influencing Pet Owner Decisions

- Finance

«More information on this topic»

Definition of Dimensions in Unmet Need Matrix

Finance: Availability of a product with an affordable price

«More information on this topic»

Other Factors

- ***«More information on this topic»***

Canine and Feline Parasitology Treatment – Unmet Needs Matrix

	Finance	Quality of Life	Clinical Outcome	Diagnosis Rate and Early Detection	Compliance Rate
Flea					
Tick					
Other ectoparasites					
Heartworm					
Other roundworms					
Tapeworms					

= satisfactory for majority of patients = satisfactory for ~50% of patients = satisfactory for minority of patients

Source: Stonehaven Consulting

Chapter 6: Competition and Innovation

Competitive Landscape

Competition and Innovation

Overview

Companion animal parasitology has historically been a key area of animal health. The IHS Markit report "Top 20 Animal Health Products 2019" indicates 11 out of the top 20 products in 2019, and four out of the top five, were companion animal parasiticides.

«More information on this topic»

Key players

The xx companies are leaders in the companion animal parasitology market. It is estimated these generate over X% of the revenues. The rest is taken by multiple generic companies.

«More information on this topic»

Key Technologies

The technology used in companion animal parasitology so far is

«More information on this topic»

Top 20 Animal Health Products in 2019 ($ million)

Companion animal parasiticides | Other veterinary medecines

Comp.	Brand	Main API	Sales (2019, in $ million)
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X
AAA	BBB	CCC	X

Source: IHS Markit, Top 20 AH Market Report based on annual reports, SEC fillings and results transcripts
1. Internal Estimates, 2 Divested in 2020

Top Animal Health Players and their Portfolios (1/3)

Top X players gained access to key parasiticides through inorganic growth strategies

Company AA

Company AA is one of the leading companies in companion animal parasitology.

«More information on this topic»

Company BB

«More information on this topic»

Company CC

«More information on this topic»

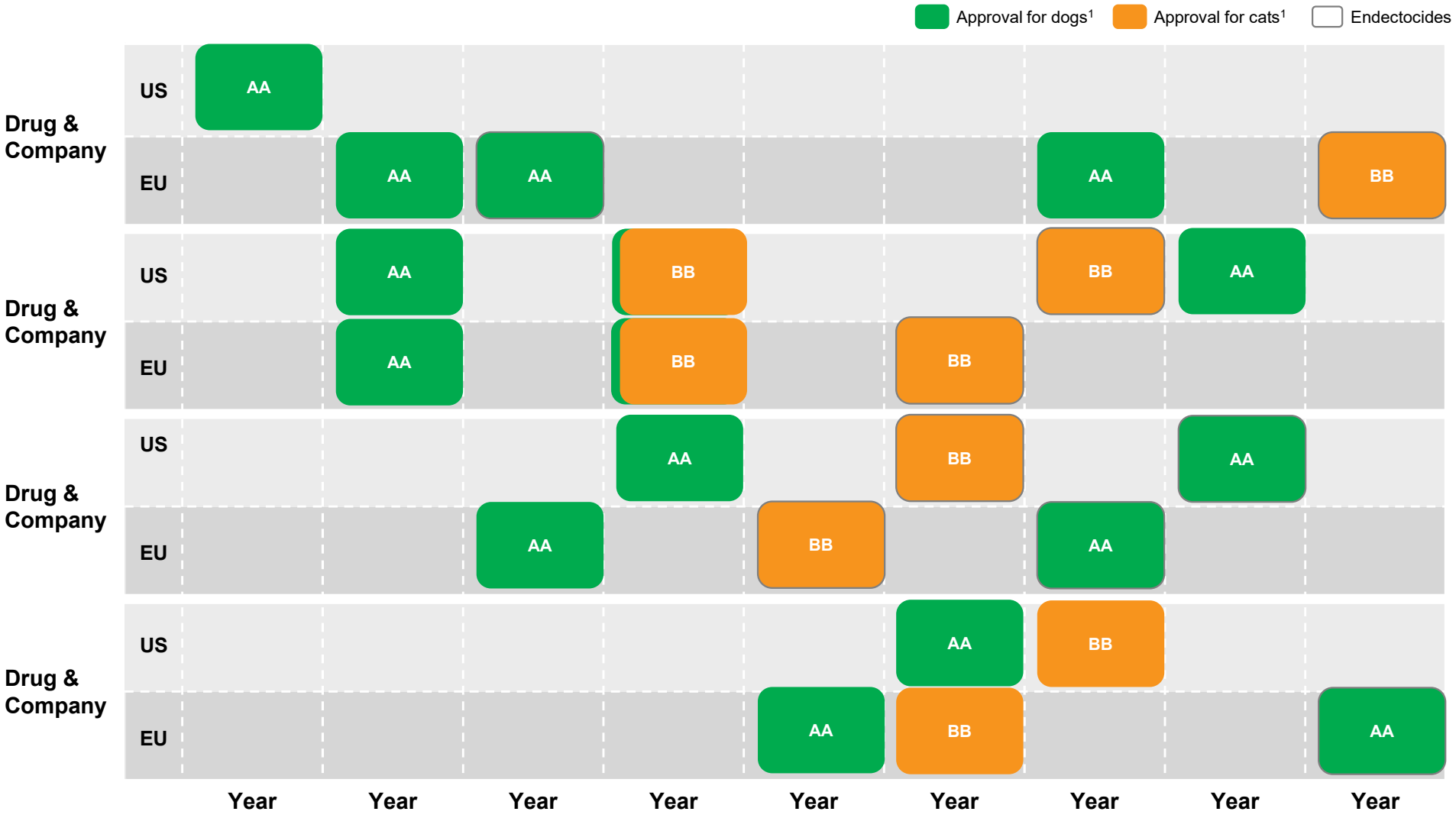
Top Animal Health Players and their Portfolios (2/3)

Top four players gained access to key parasiticides through inorganic growth strategies

Company DD	Company EE	Other Players
«More information on this topic»	***«More information on this topic»***	***«More information on this topic»***

Top Animal Health Players and their Portfolios (3/3)

AAA



Generic Impact on Parasitology

With IOBs coming off patent, we expect many generics and lifecycle management strategies from top four

Generics Impact

There are many generic products in companion animal parasitology.

«More information on this topic»

Lifecycle Management Strategies

New formulations

Developing new formulations using existing APIs is a core lifecycle management strategy of innovators.

«More information on this topic»

Over-the-counter

Innovators may approve their product as an OTC product in order to

«More information on this topic»

Claim extensions

Companies can protect their brands also through

«More information on this topic»

Application in new species or humans

Innovators can further exploit their APIs by launching products for other species or even for human use. One example is

«More information on this topic»

Innovation and Next-Generation Parasiticides (1/2)

New formulations, new APIs and new technologies are expected in companion animal parasitology

Overview

Innovation in companion animal parasitology is mostly driven by

«More information on this topic»

Areas of Innovation

New formulations

Experts expect innovation in formulation development through

«More information on this topic»

New APIs and API classes

Developing alternatives to

«More information on this topic»

New technologies

Leading opinion suggests that

«More information on this topic»

Innovation and Next-Generation Parasiticides (2/2)

New formulations, new APIs and new technologies are expected in companion animal parasitology

Emerging parasites

Parasites of growing relevance

«More information on this topic»

New diagnostics

It is believed established diagnostics companies such as

«More information on this topic»

Other

«More information on this topic»

Distant technology

New molecular technology could come from

«More information on this topic»

Chapter 7: Definition and Methodology

Market Definition (1/2)

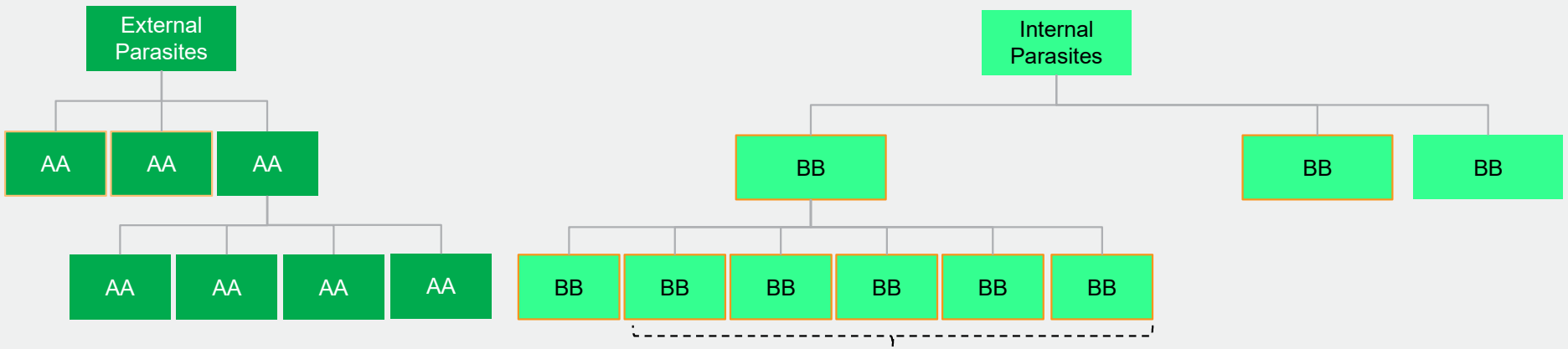
Definition and categorization of parasitology in companion animals

Overview

Parasitology is the field of science that deals with the control of parasites. Parasites are usually categorized into

«More information on this topic»

Overview internal and external parasites in companion animal



Market Definition (2/2)

Definition and Methodology

Heartworm: Heartworm is an internal parasite of the roundworm variety.

«More information on this topic»

Other roundworms: Other roundworms are

«More information on this topic»

Tapeworms:

«More information on this topic»

Other parasites in companion animals (not exhaustive – out of scope for this report)

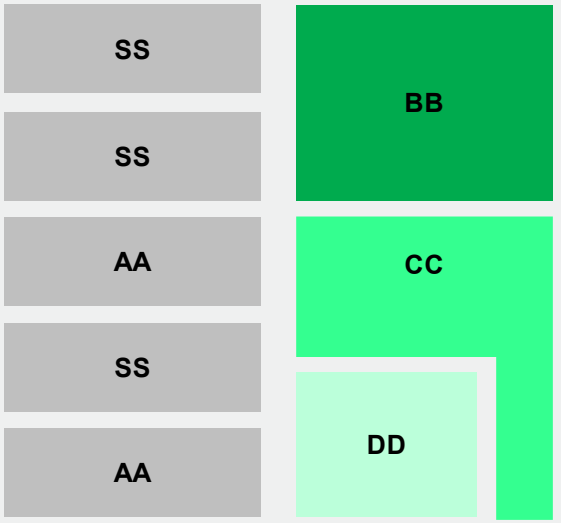
Other ectoparasites: Other ectoparasites

«More information on this topic»

Protozoa:

«More information on this topic»

Categorization of parasites and applications referenced in report



Fleas

Definition and characterization of fleas

Overview

Fleas are

«More information on this topic»

Diagnosis

Adult fleas are

«More information on this topic»

Current standard of care

There are a range of products available for controlling flea infestations.

«More information on this topic»

Clinical signs

Typical clinical signs of flea infestations are:

«More information on this topic»

Epidemiology

Fleas are prevalent in most geographies around the world.

«More information on this topic»

Ticks

Definition and characterization of ticks

Overview

Fleas are

«More information on this topic»

Diagnosis

Adult fleas are

«More information on this topic»

Current standard of care

There are a range of products available for controlling flea infestations.

«More information on this topic»

Clinical signs

Typical clinical signs of flea infestations are:

«More information on this topic»

Epidemiology

Fleas are prevalent in most geographies around the world.

«More information on this topic»

Heartworms

Definition and characterization of heartworm

Overview

Fleas are

«More information on this topic»

Diagnosis

Adult fleas are

«More information on this topic»

Current standard of care

There are a range of products available for controlling flea infestations.

«More information on this topic»

Clinical signs

Typical clinical signs of flea infestations are:

«More information on this topic»

Epidemiology

Fleas are prevalent in most geographies around the world.

«More information on this topic»

Other Roundworms

Definition and characterization of other roundworms

Overview

Fleas are

«More information on this topic»

Diagnosis

Adult fleas are

«More information on this topic»

Current standard of care

There are a range of products available for controlling flea infestations.

«More information on this topic»

Clinical signs

Typical clinical signs of flea infestations are:

«More information on this topic»

Epidemiology

Fleas are prevalent in most geographies around the world.

«More information on this topic»

Tapeworms

Definition and characterization of tapeworms

Overview

Fleas are

«More information on this topic»

Diagnosis

Adult fleas are

«More information on this topic»

Current standard of care

There are a range of products available for controlling flea infestations.

«More information on this topic»

Clinical signs

Typical clinical signs of flea infestations are:

«More information on this topic»

Epidemiology

Fleas are prevalent in most geographies around the world.

«More information on this topic»

Treatment Classes

Definition and categorization of different treatment classes used in companion animal parasitology

Overview

Several API classes are used to control ectoparasites or endoparasites.

«More information on this topic»

Treatment classes

Ectoparasiticides

Ectoparasiticides are defined as:

«More information on this topic»

Endoparasiticides

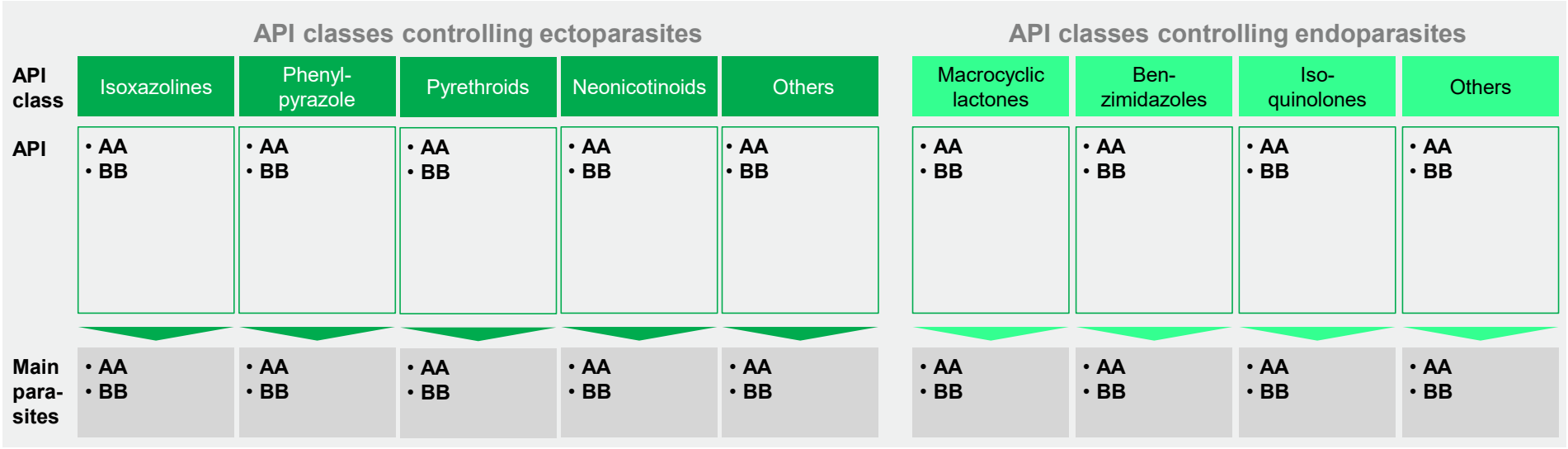
Endoparasiticides are defined as:

«More information on this topic»

Endectocides

Endectocides are defined as:

«More information on this topic»



Market Sizing Assumptions

Bottom-up disease models were combined with treatment rates to estimate market size

Dogs / Cats	Average Share of Animals at Risk of Parasites (%)	Average Share of Animals Receiving Treatments[1] (%)	Average Number of Treatments per Year	Average Cost per Treatment (in $)
Description	XXX	XXX	XXX	XXX
Flea and Tick Control	X% A% CAGR	X% A% CAGR	X% A% CAGR	X% A% CAGR
Worm Control with Heartworm Claim	X% A% CAGR	X% A% CAGR	X% A% CAGR	X% A% CAGR
Worm Control with-out Heartworm Claim	X% A% CAGR	X% A% CAGR	X% A% CAGR	X% A% CAGR
Flea and Tick Control	X% A% CAGR	X% A% CAGR	X% A% CAGR	X% A% CAGR
Worm Control with Heartworm Claim	X% A% CAGR	X% A% CAGR	X% A% CAGR	X% A% CAGR
Worm Control with-out Heartworm Claim	X% A% CAGR	X% A% CAGR	X% A% CAGR	X% A% CAGR

Estimates in 2020 (estimates built from academic papers and expert interviews). Change from 2020-2035 (CAGR). 1. Includes both prevention and intervention treatments

Chapter 8: Report Authors and Expert Panel

Report Authors

Katja Glauser
Consultant
Stonehaven Consulting AG

Katja holds a Bachelor's degree in Economics and a double Master's degree in Business Innovation from University of St Gallen (HSG) and International Management from CEMS MiM St. Gallen, Switzerland.

Katja has over two years of combined animal health and consulting experience. Before joining Stonehaven, Katja worked with a consultancy firm focusing on health care institutions in Switzerland.

Joseph Harvey
Head of Animal Health
IHS Markit

As head of animal health, Joseph provides news and analysis regarding the global animal health market across a range of species and products. He conducts exclusive interviews with the sector's biggest companies and experts, as well as start-up firms. He also hosts webinars and gives talks on the industry.

Having gained many years of experience in business journalism, Joseph started writing about animal health in 2012. He previously built his experience by reporting on the human med-tech and diagnostics sector. His specialist areas include analysis of business trends, M&A, industry rankings, IPOs, company strategy and R&D across the animal health industry.

Arthur Redpath
Head of Data & Insights
Stonehaven Consulting AG

Arthur is a senior marketing executive with over 30 years of experience in the animal health, pharmaceuticals and agricultural industries, after graduating from Edinburgh University Royal Dick Veterinary College as a veterinary surgeon in 1987.

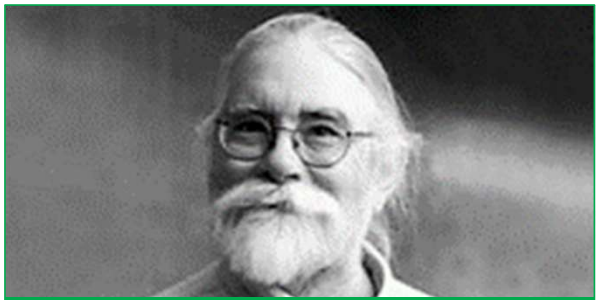
He joined Novartis Animal Health in 2000 where he progressed to global leadership roles. In 2015, he joined Elanco, where he assumed the leadership positions of EMEA Chief Marketing Officer and leader of the Global Marketing Excellence team.

Expert Panel (1/2)

We consulted several world-leading experts in veterinary parasitology in the making of this report

Dr. med. vet. Tony Benitz
Senior R&D and
Regulatory Advisor

Tony Benitz retired from Boehringer Ingelheim after a 35-year career in animal health. He served in senior roles in research and development in several multinational companies, including Global Head of R&D for Pharmacia Animal Health and Novartis Animal Health. Most recently, he served as Global Head of Regulatory Affairs for Merial and he was closely involved in the integration of R&D and Regulatory Affairs into Boehringer Ingelheim. His experience includes bringing a range of new therapeutics and vaccines for animals to the market, and working closely with regulatory agencies in many international markets, including the Center for Veterinary Medicine of the Food and Drug Administration, USDA and EPA in the US.



Prof. Tim Geary
Professor Emeritus at McGill University
Montreal Canada

Tim Geary gained a PhD in Pharmacology in 1980 from the University of Michigan. In 1985 he joined The Upjohn Company (Pharmacia, Pfizer). He was at Pfizer until 2005, then joined the Institute of Parasitology at McGill University as Professor and Tier I Canada Research Chair. He served as Director of the Institute from 2007 to 2019, when he became Emeritus Professor. He is also a Professor in the School of Biological Sciences at Queen's University Belfast. He has published >230 peer-reviewed articles and book chapters, and is on the editorial boards of eight scientific journals. He is a past-President of the American Association of Veterinary Parasitologists and is a member of the Executive Committee of the World Association for the Advancement of Veterinary Parasitology.

Expert Panel (2/2)

We consulted several world-leading experts in veterinary parasitology in the making of this report

Dr. med. vet. Fabian Kausche
Senior Animal Health
R&D Expert

Dr. Kausche held subsequent positions as Global Head of R&D for three of the top eight global Animal Health companies – Novartis Animal Health, Merial, and Boehringer Ingelheim Animal Health. In addition to his extensive animal health R&D experience, he gained expertise in the human health space as head of R&D for Novartis Consumer Health. A native of Germany, Dr Kausche received a veterinary degree from the Hannover Veterinary School and completed a Master's of Science degree at Iowa State University. Following that, Dr Kausche re-turned to Europe and obtained the German PhD in a combination program between the Hannover Medical & Veterinary Schools. He is also an alumnus of Harvard Business School having completed their Advanced Management Program.

Prof. Dr. Georg von Samson-Himmelstjerna, Professor in Parasitology at Freie Universität Berlin

Since 2009 Dr Georg von Samson-Himmelstjerna is Professor (W3) and director at the Institute for Parasitology and Tropical Veterinary Medicine, Freie Universität Berlin, Germany. Before his current employment he was Professor for Molecular Parasitology at the University of Veterinary Medicine Hannover (TiHo). From 1996 to 2000 he was employed by Bayer AG as head of the laboratory for molecular helminthology and was active in the development of several new antiparasitics. He is a diplomate of the European Veterinary Parasitology College. Since 2012, he has been the chairman of the German section of the European Scientific Counsel of Companion Animal Parasites (ESCCAP).

Report Contributors

Juerg Baggenstoss
Partner, Stonehaven Consulting AG

Matthias Hofer
Managing Partner, Stonehaven Consulting AG

André Knuchel-Takano
Consultant, Stonehaven Consulting AG

Sian Lazell
Deputy Editor, IHS Markit Animal Health

Phil Solomon
Managing Director, IHS Markit

Saman Tabtabaei
Product Manager, IHS Markit

Chapter 9: Appendices and Support Information

Glossary

Glossary of key abbreviations

APAC	Asia-Pacific
API	Active Pharmaceutical Ingredient
APVMA	Australian Pesticides and Veterinary Medicines Authority
BZ	Benzimidazoles
CAGR	Compound Annual Growth Rate
CVDB	Canine Vector-Borne Disease
CVM	Center for Veterinary Medicine
CVMP	Committee for Medical Products for Veterinary Use
EMA	European Medicines Agency
EU	European Union
IGR	Insect Growth Regulator
IOB	Isoxazoline
JMAFF	Japanese Ministry of Agriculture, Forestry and Fisheries
LCM	Lifecycle management
ML	Macrocyclic Lactones
NMPA	National Medical Products Administration China
OTC	Over-the-Counter
PDA	Pyrimidine-derivative anthelmintic
PP	Phenylpyrazole
US FDA	US Food & Drug Administration
US DA	United States Department of Agriculture
US EPA	Environmental Protection Agency
US	United Sates
VICH	Veterinary International Conference on Harmonization
CAPC	Companion Animal Parasite Council
ESCCAP	European Scientific Counsel Companion Animal Parasites

Main Sources (1/2)

Main sources used in the report

AVMA. (2022). *American Veterinary Medical Association*. Retrieved from https://www.avma.org/

Aiello, S.E. & Moses, A.M. (2016). *The Merck Veterinary Manual* (11th Edition). Wiley.

Barnish, A. (2020). *Top 20 Animal Health Products, IHS Markit*. Retrieved from https://ihsmarkit.com/research-analysis/top-20-animal-health-products.html

Beck, S. (2014). Tick infestation and prophylaxis of dogs in North-eastern Germany: a prospective study. *Ticks, Tick Borne Diseases, 5*(3):336-42. DOI: 10.1016/j.ttbdis.2013.12.009

BSAVA. (2022). *British Small Animal Veterinary Association*. Retrieved from https://www.bsava.com/

CAPC. (2022). *Companion Animal Parasite Council*. Retrieved from https://capcvet.org/

Ching-Wai Lau, D. et al. (2021). Whole-genome reference of *Dirofilaria immitis* from Australia to determine single nucleotide polymorphisms associated with macrocyclic lactone resistance in the USA. *Current Research in Parasitology & Vector-Borne Diseases, 1*. DOI: 10.1016/j.crpvbd.2021.100007.

Drake, J., Wiseman, S. (2018). Increasing incidence of *Dirofilaria immitis* in dogs in USA with focus on the southeast region 2013-2016. *Parasites & Vectors, 11*(1):39. DOI: 10.1186/s13071-018-2631-0.

Drake, J., Parrish, R.S. (2019). Dog importation and changes in heartworm prevalence in Colorado 2013–2017. *Parasites Vectors, 12*, 207. DOI: 10.1186/s13071-019-3473-0

ESCCAP. (2022). *European Scientific Counsel Companion Animal Parasites*. Retrieved from https://www.esccap.org/

EMA. (2022). *EMA Veterinary Medicines*. Retrieved from https://www.ema.europa.eu/en/medicines/veterinary

European Parliament and the Council of the European Union. (2022). *Manufacture, placing on the market and use of medicated feed, Regulation EU 2019/04*. Retrieved from http://data.europa.eu/eli/reg/2019/4/oj

European Parliament and the Council of the European Union. (2022a). *Community procedures for the authorization and supervision of medicinal products for human and veterinary use and establishing a European Medicines Agency, Regulation EU 2019/05*. Retrieved from http://data.europa.eu/eli/reg/2019/5/oj

European Parliament and the Council of the European Union. (2022b). *Authorization, import and manufacture of veterinary medicines, Regulation EU 2019/06*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=CELEX%3A32019R0006

FDA. (2022). *FDA Approved Animal Drug Products*. Retrieved from https://animaldrugsatfda.fda.gov/adafda/views/#/search

Foreyt, W.J. (2002). *Veterinary Parasitology Reference Manual* (5th Edition). Wiley.

Genchi, C., Bowman, D. & Drake, J. (2014). Canine heartworm disease (*Dirofilaria immitis*) in Western Europe: survey of veterinary awareness and perceptions. *Parasites & Vectors, 206*. DOI: 10.1186/1756-3305-7-206

Main Sources (2/2)

Main sources used in the report

Jimenez Castro, P.D., Venkatesan, A. & Redman, E. & Chen, R., et al. (2021). Multiple drug resistance in hookworms infecting greyhound dogs in the USA. *International Journal for Parasitology: Drugs and Drug Resistance, 17*. DOI: 10.1016/j.ijpddr.2021.08.005.

Lavan, R.P. et al. (2017). Assessment of dog owner adherence to veterinarians' flea and tick prevention recommendations in the United States using a cross-sectional survey. *Parasites & Vectors, 10*:284. DOI: 10.1186/s13071-017-2217-2

Lavan, R.P. et al. (2020). Flea and tick treatment satisfaction, preference, and adherence of dog owners in the United States, United Kingdom, and Australia who treated their dog with fluralaner. *Open Veterinary Journal, 10*(2): 135-143. DOI: 10.4314/ovj.v10i2.3

McNamara, J. & Drake, J. & Wiseman, S. & Wright, I. (2018). Survey of European pet owners quantifying endoparasitic infection risk and implications for deworming recommendations. *Parasites & Vectors. 11*. DOI: 10.1186/s13071-018-3149-1.

Miglianico, M. et al. (2018). Repurposing isoxazoline veterinary drugs for control of vector-borne human diseases. *PNAS, 115*(29). DOI: 10.1073/pnas.1801338115

Mwacalimba, K., Wright, A., Giannakakis, K., L'Estrange, R., Nguyen, TS. (2021). Retrospective Analysis of Heartworm (*Dirofilia immitis*) Prevention Medication Compliance and Economic Value in Dogs in Veterinary Practices in Australia. *Front Vet Sci*. DOI: 10.3389/fvets.2020.602907

Noack, S., Harrington, J., Carithers, D.S., Kaminsky, R. & Selzer P.M. (2021). Heartworm disease - Overview, intervention, and industry perspective. *International Journal for Parasitology: Drugs and Drug Resistance, 16*:65-89. DOI: 10.1016/j.ijpddr.2021.03.004.

NPIRS. (2022). *National Pesticide Information Retrieval System*. Retrieved from http://npirspublic.ceris.purdue.edu/ppis/

Pennelegion, Ch., Drake, J. Wiseman, S., Wright, I. (2020). Survey of UK pet owners quantifying internal parasite infection risk and deworming recommendation implications. *Parasites & Vectors, 13*. DOI: 10.1186/s13071-020-04086-2.

Roussel, C. & Drake, J. & Ariza, J. (2019). French national survey of dog and cat owners on the deworming behaviour and lifestyle of pets associated with the risk of endoparasites. *Parasites & Vectors. 12*. DOI: 10.1186/s13071-019-3712-4

Samson-Himmelstjerna, G., Thompson, R.C. & Krücken, J., Grant, W., et al. (2021). Spread of anthelmintic resistance in intestinal helminths of dogs and cats is currently less pronounced than in ruminants and horses – Yet it is of major concern. *International Journal for Parasitology: Drugs and Drug Resistance, 17*. DOI: 10.1016/j.ijpddr.2021.07.003.

Selzer, P.M. & Epe, C. (2020). Antiparasitics in Animal Health: Quo Vadis? *Trends in Parasitology, 37*. DOI: 10.1016/j.pt.2020.09.004.

Strube, C., Neubert, A., Springer, A. et al. (2019). Survey of German pet owners quantifying endoparasitic infection risk and implications for deworming recommendations. *Parasites & Vectors, 12*:203. DOI: 10.1186/s13071-019-3410-2

.

REPORT SAMPLE

IHS Markit Customer Care

CustomerCare@ihsmarkit.com

Asia and the Pacific Rim

Japan: +81 3 6262 1887

Asia Pacific: +604 291 3600

Europe, Middle East, and Africa: +44 1344 328 300

Americas: +1 800 447 2273

IHS Markit®

Stonehaven Consulting