

MSD AGVET Division of Merck & Co., Inc.
Annual Sales

(millions \$)

1977	1978	1979	1980	1981	1982	1983	1984
143	161	169	193	206	202	219	260
1985	1986	1987 ^a	1988 ^a	1989 ^a	1990 ^a	1991 ^a	1992 ^a
273	329	502.8	603.1	652.6	755.4	794.4	853.1
1993 ^a	1994 ^a	1995 ^a	1996 ^a	1997 ^b	1998 ^b		
916.7	1,027.4	1,041.9	1,044.1	746.3	1,759.4		

Highlights:

1974	<p>In 1974, an actinomycete (<i>Streptomyces avermectinius</i>) was isolated at the Kitasato Institute under the direction of Dr. Satoshi Omura from a soil sample collected near a golf course at Kawana, Ito City, Shizuoka Prefecture, Japan</p> <p>Later in 1974 the isolated actinomycete was sent to Merck Sharp and Dohme Research Laboratories for testing in a unique mouse model under the direction of William C. Campbell. Ph.D.</p> <p>A group of chemical compounds named avermectins (<i>a</i> without+ <i>verm</i> worm+ <i>ect</i> ectoparasites+ <i>in</i> pharmaceutical product) with acaricidal, insecticidal, and nematocidal activities were discovered by Merck Research Laboratories in 1975</p> <p>A host of papers were first published in 1979 describing the avermectins broad antiparasitic properties, including ivermectin (Avermectin B_{1a})</p>
1979	<p>MSD AGVET established in 1979, James Gillin, Ph.D. elected President</p> <ul style="list-style-type: none"> - <i>Arpocox</i> introduced in the United Kingdom & South Africa 4Q1979 - <i>TBZ</i>(thiabendazole) economic benefits of use emphasized - Thiabendazole formulation's usage increased for various crops worldwide - Hubbard Farms expanded its role as a global leader in poultry genetics by purchasing British United Turkeys in 1978 under the leadership of Wentworth Hubbard, President - Himer L. Jones, D.V.M., appointed Vice President North American Operations - Anthony Viscusi, became Vice President, Marketing
1980	<p><i>TBZ</i> the "No Setback Dewormer" on the market for nearly 20 years, is still a major product for control of internal parasites worldwide in 1980</p> <p>By the end of 1980 <i>Arpocox</i> approved for use in 25 countries</p> <p><i>Mertect</i> and <i>Tecto</i> continue their pattern of growth, particularly for treatment of citrus fruit, potatoes, soybeans and rice</p>
1981	<p>Ivermectin, a new antiparasitic compound was first introduced in the second half of 1981 as <i>Ivomec</i>, a single injection formulation for cattle in several major countries outside the United States</p> <p><i>Ivomec</i> (ivermectin) went on to make a major contribution to animal husbandry worldwide, rapidly fueling the growth of <i>AgVet</i> -- it was the first product that controlled both internal and external parasites which led to the term "endectocide"</p> <p><i>Eqvalan</i> (ivermectin) a unique micelle formulation was introduced in several countries for single-injection control of a broad range of worms and bots</p>

AgVet grew to comprise 1,800 employees in 1981

A major expansion program was undertaken at the plant in Barceloneta, Puerto Rico in 1981 to facilitate the manufacture of the rapidly evolving ivermectin family of products, among other human pharmaceuticals

1983 *Eqvalan* Injection was introduced in the United States in March 1983, with an *Eqvalan* Paste formulation for oral administration in horses introduced in five countries abroad

Ivomec (ivermectin) injection for pigs had its first introductions in the latter half of 1983 in the United Kingdom and Holland

The animal health business increased sales significantly in 1983 driven by the rapid uptake of ivermectin products

Nicarb and *Amprol* (amprovine) products for control of coccidiosis in poultry maintained sales via the broad acceptance of innovative *AgVet* "shuttle" programs, despite reduced sales of *Arpocox* *AgVet's* newest coccidiostat

William E. Bembridge was appointed Vice President of International Operations

John J. Linney promoted to Vice President U.S. Operations

Donald Rilling, Senior Sales Representative for the MSD *AgVet* Division was featured in the 1983 Annual Report of Merck & Co., Inc.

1984 In March 1984 *Ivomec* (ivermectin) 1% Injection for Cattle approved as a prescription product in the United States the largest cattle market in the world with rapid uptake of this one-of-a-kind "endectocide"

Vertimec (abamectin) is the first avermectin added to the division's modest but growing line of agricultural chemicals designed to control crop pests...in the U.S. this formulation -- trademarked *Avid* is made available in Florida & Hawaii under special permission from the EPA

1985 Agriculture in the United States encountered its worst crisis since the depression of the 1930 but despite this sales of avermectin products grew strongly, particularly in North America and Western Europe

In 1985, *AgVet* gained approval for *Heartgard-30* (ivermectin) Tablets in Canada for the control of heartworm disease in dogs, deadly if left untreated (as Dr. Lee Seward expressed "heartworms are exquisitely sensitive to ivermectin at a dose of 6 micrograms per kilogram of bodyweight")

Ivomec Injection for pigs introduced in Germany and Italy in the fourth quarter of 1985

Zimecterin (ivermectin) Paste for horses was approved and launched in partnership with Farnum in the United States in the second quarter of 1985

Curatrem (clorsulon) was introduced in the United States in 1985 in a drench formulation, enjoying notable success controlling liver flukes

The Sales Agent/Authorized Retail Account (SA/ARA) distribution program was piloted in the United States with *TBZ*

William E. Bembridge promoted to Vice President, Operations

John J. Linney, Vice President U.S. Operations retires and is succeeded by E. Donald Griffin

1986 *AgVet* continued its entrance into important pet market with approval of *Heartgard-30* in Japan

Affirm (abamectin), a bait formulation is approved in 1986 to combat fire ant infestations on non-agricultural land

<i>Ivomec</i> 1% Injection for Cattle was approved in the United States for over-the-counter sale and later this same year <i>Ivomec</i> (ivermectin) 1% Injection was approved for pigs in the United States
The SA/ARA distribution system expanded in the U.S. to include all packaged livestock pharmaceuticals from AgVet
A new combination product of ivermectin and clorsulon approved/introduced in Ireland as <i>Ivomec-F</i> Injection for cattle
<i>Ivomec</i> (<i>ivermectin</i>) Paste formulated for oral administration to cattle received U.S. regulatory approval toward the end of 1986 and will be introduced, primarily in the southern U.S. in 1987
<i>Eugene F. McCabe appointed Executive Vice President</i>
<i>Wentworth Hubbard, President of Hubbard Farms, Inc. retires</i>
<i>Bernard J. Kelley becomes President, Hubbard Farms, Inc.</i>
<i>Merck & Co., Inc. recognized by Fortune Magazine as most admire company in its annual survey of over 8,000 senior executives, outside directors, and financial analysts</i>

1987	Merck decides to offer <i>Mectizan</i> (ivermectin) to medically qualified programs in regions where onchocerciasis, or river blindness, is caused by a microscopic worm transmitted through the bite of the river-breeding blackfly
	<i>In 1987 ivermectin for animals became the second largest selling product for Merck & Co., Inc.; a first for an animal health product</i>
	<i>Heartgard-30</i> (ivermectin) Tablets approved in the U.S. and launched toward the end of the first quarter with rapid uptake and dispensing by veterinarians
	<i>Ivomec-F</i> , the combination product of ivermectin and clorsulon introduced for cattle in the United Kingdom
	<i>Ivomec</i> (ivermectin) Pour-On receives provisional registration in New Zealand
	James Gillin, Ph.D., President retires
	Himer L. Jones, D.V.M., Vice President, North American Operations retires
	Eugene F. McCabe becomes President
	William E. Bembridge promoted to Senior Vice President, Operations
	Anthony Viscusi promoted to Senior Vice President, Marketing
	Max E. Gauphichon promoted to Vice President, Europe, Africa, Asia & Pacific
	Dennis Steadman joins AgVet as VP of animal health, USA

1988	<i>Ivomec</i> (ivermectin) Liquid for sheep introduced in Australia early in 1988
	<i>Ivomec</i> Injection for pigs approved for use in China
	<i>Ivomec-F</i> Injection for cattle expanded with approvals/introductions in France and Spain
	<i>Heartgard-30</i> successfully launched in Australia
	William E. Bembridge Senior Vice President Operations retires
	Max E. Gauphichon appointed Vice President International Operations
	E.Donald Griffin promoted to Vice President U.S. Operations

1989	<i>Agri-Mek</i> (abamectin) to combat rust mites on citrus approved in 1989 with target of Florida's \$1.3 billion orange crop
	Strategic expansion of the field sales force with lap-top computer sales support system initiated in the U.S., a first in animal health
	<i>Heartgard-30</i> Tablet cumulative U.S. sales exceed \$100,000,000 in August 1989
	<i>Heartgard-30</i> Chewables gained FDA approval in September 1989 and this unique highly palatable 100% beef based formulation becomes a monthly treat for dogs

The <i>Ivomec</i> Pour-On formulation gained further approvals in New Zealand, France, Spain, Canada and England with convenience as its primary benefit
After registration by the EPA <i>Zephyr</i> for cotton was introduced in the USA
Bernard J. Kelley appointed Vice President Business Affairs
Stanley M. Hawkins promoted to President, Hubbard Farms, Inc.

1990	Merck was named "America's Most Admired Corporation" in Fortune Magazine for the fifth straight year, a special honor as A Century of Value and Vision were celebrated throughout the company
	<i>AgVet</i> becomes the worldwide leader in the animal pharmaceutical industry driven by the success of its avermectin formulations
	<i>Ivomec-F</i> (ivermectin & clorsulon) and <i>Ivomec</i> (ivermectin) Pour-On were approved by the FDA in late 1990 and were simultaneously launched in the U.S. in January 1991
	<i>AgVet</i> receives the 1990 Gold Key Award from the American Animal Hospital Association for its Heartworm Awareness Program and in a national competition recognizing excellence
	<i>in video production, the Division won a Telly Award for "Canine Heartworm Disease: The Silent Killer," a video that educates dog owners about heartworm disease</i>
	<i>At the American Association of Swine Practitioner's meeting veterinarians received a description of the "Herd Mange Lice Elimination Program"</i>
	<i>Eqvalan</i> was the official antiparasitic product of the 1990 World Equestrian Games in Sweden

1991	<i>Ivomec</i> formulations for cattle near \$150 million in annual sales in 1991
	<i>AgVet</i> acquired the rights in the United States to the flea and tick products from Minnesota Mining & Manufacturing (3M)
	<i>AgVet</i> acquired the crop protection business from Pfizer, Inc.: <i>Agri-mycin 17</i> (streptomycin), <i>AS 50</i> (streptomycin) and <i>Mycoshield</i> (oxytetracycline)
	<i>John M. Preston, D.V.M., Ph.D. promoted to Vice President Business Affairs</i>

1992	<i>AgVet</i> reinforces its leadership in the worldwide animal health market in 1992 marking a decade of sustained growth
	The family of ivermectin products for cattle is expanded with the approval and launch of <i>Ivomec</i> Sustained Release Bolus for grazing calves requiring just 1 bolus for the entire grazing season
	A novel formulation for swine, <i>Ivomec</i> Premix, was launched in the United Kingdom and Ireland -- the first in-feed treatment for both internal and external parasites
	<i>Heartgard-30 Plus</i> , which combines ivermectin and pyrantel pamoate to control hookworms and roundworms, as well as prevent heartworm disease was introduced in Canada and Australia in early 1992
	<i>Abamectin-based crop protection products are now marketed in 37 countries for a variety of crops and ornamentals</i>

1993	Eugene F. McCabe President retires April 1, 1993
	John M. Preston D.V.M., Ph.D. promoted to President
	James H. Wakelin III promoted to Vice President Business Affairs
	E. Donald Griffin Vice President U.S. Operations retires
	Paul Cottone promoted to Vice President U.S. Operations
	The antiparasitic for animals, ivermectin, in its many formulations exceeds \$500 million in annual sales

AgVet introduces Paraban, a new computer modeling program, to assist veterinarians and cattle producers in the creation of more effective parasite control programs using *Ivomec*

1994 In 1994, despite intensifying competition in the food product and companion animal health markets, *AgVet* again recorded substantial sales growth exceeding \$1 billion for the first time

Ivomec Premix was launched in the United States as well as in several other countries around the world

Enacard (enalapril maleate) a breakthrough approach to the treatment of canine heart failure was approved and launched in the United States, Canada, Australia and Europe

The SA/ARA distribution system was expanded to include all companion animal products in the U.S. and was adopted to distribute *Ivomec* products for cattle to feedlots

In its seventh year, the *Mectizan* Donation Program has treated more than 7 million people in over 34 countries.

1995 Ivermectin, the broad-spectrum parasiticide for use on a wide range of animal species continues as the largest selling animal health product in the world with more than 5 billion doses sold

Heartgard FX, introduced in Japan, Australia and Italy extended the prevention of heartworm disease protection to cats

Sales of crop protection products driven by abamectin formulations exceeded \$200 million

The *HI-Y* broiler chicken was introduced by Hubbard Farms, Inc.

1996 The breadth of the ivermectin product line, which includes 19 different formulations for use in 11 animal species produces revolutionary results in animal husbandry with a high margin of safety

In December 1996 Merck & Co., Inc. and Rhone Poulenc announce their intention to combine their animal health asset creating a JV company 100% dedicated to animal health subject to the necessary regulatory approvals

1997 *Ivomec* SR Bolus approved and launched in the United States at the 1997 National Cattlemen's Association convention

AgVet sold its crop protection business to Novartis with effect in the first quarter of 1997

Ivomec Eprinex was approved and launched in the United States at the end of June 1997

On August 1st, 1997 Merck and Rhone- Poulenc legally and with full regulatory approvals combined their animal health and poultry genetics business to form *Merial*

Animal Health sales reported in Merck's 1997 consolidated sales were \$448.3 million prior to August 1st with sales of the joint venture products as stated in the above table

2015 October 2015: Drs. Omura and Campbell were each awarded a 1/4 share of the Nobel Prize in Medicine "for their discoveries concerning a novel therapy against infections caused by roundworm parasites."

Notes re: sales

From 1977 through 1986 agricultural chemicals and poultry breeding stock were captured as "Other" sales in the Annual Report Financials

^a Agricultural chemicals and poultry breeding stock sales included

^b Sales of joint venture animal health products and poultry genetics contributed by Merck & Co., Inc. and Rhone Poulenc