

CHAPTER ONE: INTRODUCTION	1
STUDY GOALS AND OBJECTIVES.....	1
REASONS FOR DOING THE STUDY	1
INTENDED AUDIENCE.....	2
SCOPE OF REPORT	2
INFORMATION SOURCES.....	2
RELATED BCC RESEARCH REPORTS.....	3
ANALYST CREDENTIALS.....	3
BCC ON-LINE SERVICES.....	3
DISCLAIMER	3
 CHAPTER TWO: SUMMARY	4
SUMMARY	4
<i>SUMMARY TABLE TOTAL ANIMAL THERAPEUTICS AND DIAGNOSTICS MARKET BY MAJOR SEGMENT, THROUGH 2016 (\$ MILLIONS).....</i>	5
<i>SUMMARY FIGURE TOTAL ANIMAL THERAPEUTICS AND DIAGNOSTICS MARKET BY MAJOR SEGMENT, 2008-2016 (\$ MILLIONS).....</i>	5
LEADING PRODUCTS AND MANUFACTURERS	6
 CHAPTER THREE: INDUSTRY OVERVIEW.....	7
ANIMAL ANATOMY AND PHYSIOLOGY	7
ANIMAL ANATOMY AND PHYSIOLOGY (CONTINUED).....	8
REPRODUCTIVE SYSTEM	9
<i>TABLE 1 GESTATION PERIODS OF SELECT COMMON SPECIES.....</i>	10
AVIAN ANATOMY	10
Avian Anatomy (Continued).....	11
Avian Anatomy (Continued).....	12
<i>TABLE 2 LIFESPAN OF COMMON PET AVIAN SPECIES.....</i>	13
ANIMAL POPULATIONS IN THE UNITED STATES	13
COMPANION ANIMALS	13
<i>TABLE 3 U.S. HOUSEHOLD STATISTICS FOR COMPANION ANIMALS, 2011 (THOUSANDS).....</i>	14
<i>TABLE 4 U.S. ESTIMATED POPULATIONS OF COMPANION ANIMALS, 2011 (THOUSANDS).....</i>	14
FOOD PRODUCTION ANIMALS.....	14
<i>TABLE 5 U.S. REPORTED POPULATION OF FOOD PRODUCTION ANIMALS, 2005 AND 2010* (MILLIONS).....</i>	15
ANIMAL POPULATIONS BY COUNTRY	15
DOGS	15
<i>TABLE 6 DOG (CANINE) POPULATION BY COUNTRY, 2010 (THOUSANDS).....</i>	16

FIGURE 1 DOG (CANINE) POPULATION—TOP 10 COUNTRIES, 2010 (THOUSANDS).....	17
CATS.....	17
TABLE 7 CAT (FELINE) POPULATION BY COUNTRY (THOUSANDS).....	18
FIGURE 2 CAT (FELINE) POPULATION—TOP 10 COUNTRIES, 2010 (THOUSANDS).....	19
HORSES	19
TABLE 8 HORSE (EQUINE) POPULATION BY COUNTRY (THOUSANDS).....	20
TABLE 8 (CONTINUED).....	21
FIGURE 3 HORSE (EQUINE) POPULATION—TOP 10 COUNTRIES, 2010 (THOUSANDS).....	21
FIGURE 3 (CONTINUED)	22
CATTLE.....	22
TABLE 9 CATTLE (BOVINE) POPULATION BY COUNTRY (THOUSANDS).....	22
TABLE 9 (CONTINUED).....	23
FIGURE 4 CATTLE (BOVINE) POPULATION—TOP 10 COUNTRIES, 2010 (THOUSANDS).....	24
SWINE.....	24
TABLE 10 PIG/HOG (SWINE) POPULATION BY COUNTRY (THOUSANDS).....	25
FIGURE 5 PIG/HOG (SWINE) POPULATION—TOP 10 COUNTRIES, 2010 (THOUSANDS).....	26
SHEEP/LAMB	26
TABLE 11 SHEEP/LAMB POPULATION BY COUNTRY (THOUSANDS).....	27
FIGURE 6 SHEEP/LAMB POPULATION—TOP 10 COUNTRIES, 2010 (THOUSANDS).....	28
GOATS	28
TABLE 12 GOAT POPULATION BY COUNTRY (THOUSANDS).....	29
FIGURE 7 GOAT POPULATION—TOP 10 COUNTRIES, 2010 (THOUSANDS).....	30
TABLE 13 COUNTRIES WITH THE HIGHEST REPORTED ANIMAL POPULATIONS (MILLIONS).....	31
COMPANION ANIMAL DISEASES.....	32
INFECTIOUS DISEASES	32
Viruses	32
Adenovirus	32
Avian Influenza.....	33
Coronavirus.....	33
Distemper	34
Eastern Equine Encephalitis	34
Equine Viral Arteritis.....	35

Feline Calicivirus and Feline Herpes Virus	35
Feline Immunosuppressive Virus	35
Feline Infectious Peritonitis Virus.....	36
Feline Leukemia Virus	36
Infectious Hepatitis	37
Internal Papillomatosis of Parrots.....	37
Newcastle Disease	37
Pacheco's Disease.....	38
Parainfluenza Virus.....	39
Paramyxoviruses.....	39
Parvovirus	40
Polyomavirus.....	40
Poxviruses	40
Psittacine Beak and Feather Disease	41
Rabies	41
Reovirus.....	42
West Nile Virus.....	42
Bacteria	43
Black Tongue.....	43
<i>Bordetella</i>	43
Brucellosis	43
Campylobacteriosis	44
Chlamydia	44
Leptospirosis	45
Lyme Disease	45
Q Fever	46
Respiratory Mycoplasmosis.....	46
Spirochaetaceae	47
Tetanus.....	47
Allergy and Inflammatory Diseases	47
Allergies.....	47
Arthritis.....	48
Asthma	48
Dermatitis	49
Eosinophilic Granuloma Complex.....	49
Gout	49
Inflammatory Bowel Disease	50
Metabolic Diseases	51
Cushing's Syndrome	51
Diabetes Mellitus	51
Thyroid Disease	52
Pancreatitis	53
Metabolic Bone Disease in Birds.....	53
Parasitic Diseases.....	54

Ear Mites.....	54
Fleas	54
Fleas (Continued).....	55
Heartworm	56
Hemobartonellosis	57
Feline Scabies	57
Lice	57
Sarcoptic Mange.....	58
Worms.....	58
Urinary Diseases.....	59
Glomerulonephritis.....	59
Feline Lower Urinary Tract Disease.....	59
Other Diseases.....	60
Equine Protozoal Myelitis	60
Leptospirosis and Equine Recurrent Uveitis.....	61
Neoplastic Disease	61
Neoplastic ... (Continued).....	62
Heart Disease.....	63
FOOD ANIMAL DISEASES.....	63
INFECTIOUS DISEASES	63
Viruses and Prions	63
Avian Pneumovirus	64
Bovine Spongiform Encephalopathy	64
Bovine Viral Diarrhea	65
Classical Swine Fever.....	66
Foot and Mouth Disease	67
Furunculosis.....	67
Infectious Pancreatic Necrosis	67
Marek's Disease	68
Pathogenic Avian Influenza	68
Q Fever	68
Vesicular Stomatitis	69
Bacteria	69
Anthrax.....	69
Blackleg	70
Conjunctivitis	70
Tetanus.....	70
OTHER DISEASES OF FOOD ANIMALS	71
Heartwater.....	71
Pneumonia	71
Texas Cattle Fever.....	72
ZOONOTIC DISEASES	72
ZOONOTIC DISEASES (CONTINUED)	73
ZOONOTIC DISEASES (CONTINUED)	74

<i>TABLE 14 COMMON EXAMPLES OF ZOONOTIC DISEASES.....</i>	75
CHAPTER FOUR: ISSUES AFFECTING THE MARKET	76
ANTIBIOTIC USE AND RESISTANCE IN FOOD ANIMALS	76
THERAPEUTIC USE.....	76
<i>TABLE 15 CURRENT LIST OF APPROVED</i>	
<i>ANTIBIOTICS/ANTIMICROBIALS USED IN FOOD-PRODUCING</i>	
<i>ANIMALS IN THE UNITED STATES.....</i>	77
<i>TABLE 15 (CONTINUED).....</i>	78
Resistance	78
<i>TABLE 16 ANTIMICROBIAL DRUG USE AND SALES IN FOOD-</i>	
<i>PRODUCING ANIMALS, 2010.....</i>	79
<i>TABLE 16 (CONTINUED).....</i>	80
Human Side-Effects.....	80
Microbial Ecology.....	81
Agriculture and Food Research Initiative	81
Levels of Contaminated Meats in the U.S.....	82
PROBIOTICS	82
LEGAL AND REGULATORY ISSUES.....	82
MINIMALLY AND HIGHLY REGULATED PRODUCTS.....	82
ANIMAL DRUG USER FEE ACT OF 2003	83
ANIMAL DRUG USER FEE AMENDMENTS OF 2008 (ADUFA II)	83
ADVANCES IN DRUG DELIVERY.....	83
TRANSDERMAL (SPRAY-ON) DRUGS.....	83
SUBLINGUAL (UNDER THE TONGUE) DRUGS.....	84
BIOTECHNOLOGY IN ANIMAL HEALTH	84
ANIMAL CLONING.....	85
TRENDS IN COMPANION PET OWNERSHIP	85
TRENDS IN COMPANION ... (CONTINUED).....	86
ANIMAL HEALTH INSURANCE	87
<i>TABLE 17 APPA NATIONAL PET OWNERS SURVEY, 2011-2012 BASIC</i>	
<i>ANNUAL EXPENSES FOR DOGS AND CATS (\$).</i>	88
<i>TABLE 18 DOG INSURANCE PLAN COMPARISONS, UNITED</i>	
<i>STATES (\$).</i>	88
<i>TABLE 18 (CONTINUED).</i>	89
<i>TABLE 19 CAT INSURANCE PLAN COMPARISONS, UNITED STATES</i>	
<i>(\$.)</i>	89
ANIMAL OBESITY.....	90
CAUSES.....	90
WEIGHT REDUCTION	91
DEMAND IN THE VETERINARY SERVICE INDUSTRY	92
<i>TABLE 20 ESTIMATED NUMBER OF VETERINARIAN PRACTICES IN</i>	
<i>THE UNITED STATES BY TYPE OF PRACTICE, 2011 (NUMBER/%).</i>	93

<i>TABLE 21 ESTIMATED NUMBER OF VETERINARIAN'S IN THE UNITED STATES BY YEAR, 2007–2011.....</i>	93
<i>FIGURE 8 ESTIMATED NUMBER OF VETERINARIAN'S IN THE UNITED STATES BY YEAR, 2007-2011</i>	94
ADVANCED MEDICAL PROCEDURES	94
ADVANCED MEDICAL PROCEDURES (CONTINUED).....	95
ADVANCED MEDICAL PROCEDURES (CONTINUED).....	95
LIFE CYCLE APPROACH	96
INTERNATIONAL ISSUES AND TRENDS	97
<i>TABLE 22 ESTIMATED POPULATIONS OF COMPANION ANIMALS IN JAPAN AND AUSTRALIA, 2010 (MILLIONS)</i>	98
<i>TABLE 23 ESTIMATED POPULATIONS OF FARM ANIMALS IN ARGENTINA, BRAZIL AND INDIA, 2010 (MILLIONS)</i>	99
CHAPTER FIVE: ANIMAL VACCINES	100
OVERVIEW.....	100
PRODUCT DESCRIPTION	100
ACTIVE IMMUNITY	100
PASSIVE IMMUNITY	101
OTHER TYPES	101
TARGET SPECIES AND PROVIDERS	102
<i>TABLE 24 VACCINES BY TARGET SPECIES AND PROVIDERS.....</i>	102
<i>TABLE 24 (CONTINUED).....</i>	103
<i>TABLE 24 (CONTINUED).....</i>	104
<i>TABLE 24 (CONTINUED).....</i>	105
<i>TABLE 24 (CONTINUED).....</i>	106
COMPANION ANIMAL VACCINES	106
BOEHRINGER INGELHEIM/VETMEDICA.....	106
HESKA	106
MERCK.....	106
MERIAL.....	107
NOVARTIS	108
PFIZER	108
FOOD ANIMAL VACCINES	108
BAYER	108
BOEHRINGER INGELHEIM	108
MERCK & COMPANY	109
MERIAL.....	110
NOVARTIS	110
PFIZER	110
MARKET ANALYSIS AND CONCLUSIONS	111
MARKETS BY USE OR APPLICATION	111
<i>TABLE 25 MARKET ANALYSIS FOR ANIMAL VACCINES BY USE, THROUGH 2016 (\$ MILLIONS).....</i>	111

FIGURE 9 MARKET ANALYSIS FOR ANIMAL VACCINES BY USE, 2008-2016 (\$ MILLIONS).....	112
VACCINE MARKET BY TYPE	112
TABLE 26 ESTIMATED REVENUES FOR ANIMAL VACCINES BY TYPE, THROUGH 2016 (\$ MILLIONS).....	113
FIGURE 10 ESTIMATED REVENUES FOR ANIMAL VACCINES BY TYPE, 2008-2016 (\$ MILLIONS).....	114
MARKETS BY GEOGRAPHICAL REGION.....	114
TABLE 27 DISTRIBUTION OF REVENUES FOR ANIMAL VACCINES BY WORLD REGION, 2011 (%/\$ MILLIONS).....	115
FIGURE 11 DISTRIBUTION OF REVENUES FOR ANIMAL VACCINES BY WORLD REGION, 2011 (%).....	115
COMPETITIVE SUMMARY.....	116
TABLE 28 COMPETITIVE SUMMARY FOR ANIMAL VACCINES BY COMPETITOR REVENUE, 2011 (%/\$ MILLIONS).....	116
FIGURE 12 COMPETITIVE SUMMARY FOR ANIMAL VACCINES BY COMPETITOR REVENUE, 2011 (\$ MILLIONS).....	117
 CHAPTER SIX: ANIMAL PHARMACEUTICAL PRODUCTS.....	118
OVERVIEW	118
PRODUCT DESCRIPTION	118
ALLERGY AND RESPIRATORY DRUGS.....	118
TARGET SPECIES AND PROVIDERS	119
TABLE 29 ALLERGY AND RESPIRATORY DRUGS BY TARGET SPECIES AND PROVIDERS.....	119
ANTI-INFECTIVES AND ANTIFUNGALS	119
Bayer	120
Boehringer Ingelheim.....	120
ECO	120
Elanco.....	120
Esteve.....	121
Merck Animal Health.....	121
Novartis.....	122
Pfizer	122
Virbac	123
Target Species and Providers.....	123
TABLE 30 ANTI-INFECTIVES BY TARGET SPECIES AND PROVIDERS	123
TABLE 30 (CONTINUED).....	124
TABLE 30 (CONTINUED).....	125
ANTI-INFLAMMATORIES AND ANALGESICS.....	125
Bayer	125
Boehringer Ingelheim.....	125
Esteve.....	125
Merck Animal Health.....	126

Novartis.....	126
Pfizer	126
Target Species and Providers.....	127
TABLE 31 ANTI-INFLAMMATORIES AND ANALGESICS BY TARGET SPECIES AND PROVIDERS.....	127
METABOLIC DRUGS.....	127
Target Species and Providers.....	128
TABLE 32 METABOLIC DRUGS BY TARGET SPECIES AND PROVIDERS	128
PARASITICIDES	128
Bayer	129
ECO	129
Elanco.....	129
Merck Animal Health.....	130
Merial	131
Novartis.....	132
Novartis (Continued)	133
Pfizer	134
Virbac	134
Target Species and Providers.....	134
TABLE 33 PARASITICIDES BY TARGET SPECIES AND PROVIDERS.....	134
TABLE 33 (CONTINUED).....	135
TABLE 33 (CONTINUED).....	136
OTHER PHARMACEUTICALS	136
OPK Biotech.....	136
Elanco.....	136
Esteve.....	137
Merck Animal Health.....	137
Merial	137
Novartis.....	138
Virbac	138
Dental.....	138
Target Species and Providers.....	138
TABLE 34 OTHER PHARMACEUTICALS BY TARGET SPECIES AND PROVIDERS	138
TABLE 34 (CONTINUED).....	139
MARKET ANALYSIS AND CONCLUSIONS	139
MARKETS BY USE OR APPLICATION	139
Allergy and Respiratory Market	139
TABLE 35 MARKET ANALYSIS FOR ALLERGY AND RESPIRATORY PRODUCTS BY USE, THROUGH 2016 (\$ MILLIONS).....	140
FIGURE 13 MARKET ANALYSIS FOR ALLERGY AND RESPIRATORY PRODUCTS BY USE, 2008-2016 (\$ MILLIONS).....	140
Anti-Infective Market	141

<i>TABLE 36 MARKET ANALYSIS FOR ANTI-INFECTIVES BY USE, THROUGH 2016 (\$ MILLIONS).....</i>	141
<i>FIGURE 14 MARKET ANALYSIS FOR ANTI-INFECTIVES BY USE, 2008-2016 (\$ MILLIONS).....</i>	142
Anti-Inflammatory Market	142
<i>TABLE 37 MARKET ANALYSIS FOR ANTI-INFLAMMATORIES AND ANALGESICS BY USE, THROUGH 2016 (\$ MILLIONS)</i>	143
<i>FIGURE 15 MARKET ANALYSIS FOR ANTI-INFLAMMATORIES AND ANALGESICS BY USE, 2008-2016 (\$ MILLIONS).....</i>	143
Metabolic Drug Market	143
<i>TABLE 38 MARKET ANALYSIS FOR METABOLIC DRUGS BY USE, THROUGH 2016 (\$ MILLIONS).....</i>	144
<i>FIGURE 16 MARKET ANALYSIS FOR METABOLIC DRUGS BY USE, 2008-2016 (\$ MILLIONS).....</i>	144
Parasiticide Market	145
<i>TABLE 39 MARKET ANALYSIS FOR PARASITICIDES BY USE, THROUGH 2016 (\$ MILLIONS).....</i>	145
<i>FIGURE 17 MARKET ANALYSIS FOR PARASITICIDES BY USE, 2008- 2016 (\$ MILLIONS).....</i>	146
Other Pharmaceuticals.....	146
<i>TABLE 40 MARKET ANALYSIS FOR OTHER PHARMACEUTICALS BY USE, THROUGH 2016 (\$ MILLIONS).....</i>	147
<i>FIGURE 18 MARKET ANALYSIS FOR OTHER PHARMACEUTICALS BY USE, 2008-2016 (\$ MILLIONS).....</i>	147
TOTAL PHARMACEUTICALS	147
<i>TABLE 41 MARKET ANALYSIS FOR ANIMAL PHARMACEUTICAL PRODUCTS BY USE, THROUGH 2016 (\$ MILLIONS).....</i>	148
<i>FIGURE 19 MARKET ANALYSIS FOR ANIMAL PHARMACEUTICAL PRODUCTS BY USE, 2008-2016 (\$ MILLIONS).....</i>	148
SUMMARY—PHARMACEUTICAL MARKETS	149
<i>TABLE 42 MARKET ANALYSIS FOR ANIMAL PHARMACEUTICAL PRODUCTS BY TYPE, THROUGH 2016 (\$ MILLIONS).....</i>	150
<i>FIGURE 20 MARKET ANALYSIS FOR ANIMAL PHARMACEUTICAL PRODUCTS BY TYPE, 2008-2016 (\$ MILLIONS).....</i>	150
MARKETS BY GEOGRAPHICAL REGION.....	151
<i>TABLE 43 DISTRIBUTION OF REVENUES FOR ANIMAL PHARMACEUTICALS BY WORLD REGION, 2011 (%).....</i>	151
<i>FIGURE 21 DISTRIBUTION OF REVENUES FOR ANIMAL PHARMACEUTICALS BY WORLD REGION, 2011 (%).....</i>	152
COMPETITIVE SUMMARY.....	152
<i>TABLE 44 COMPETITIVE SUMMARY FOR ANIMAL PHARMACEUTICAL PRODUCTS BY COMPETITOR REVENUES, 2011 (\$ MILLIONS).....</i>	153

FIGURE 22 COMPETITIVE SUMMARY FOR ANIMAL PHARMACEUTICAL PRODUCTS BY COMPETITOR REVENUES, 2011 (\$ MILLIONS).....	153
CHAPTER SEVEN: ANIMAL FEED ADDITIVES.....	154
OVERVIEW.....	154
PRODUCT DESCRIPTION.....	155
AMINO ACIDS.....	155
ADISSEO	155
AJINOMOTO.....	155
EVONIK.....	156
NOVUS INTERNATIONAL	156
TARGET SPECIES AND PROVIDERS	156
TABLE 45 AMINO ACIDS BY TARGET SPECIES AND PROVIDERS	156
MEDICINAL ADDITIVES.....	157
ELANCO	157
MERIAL.....	157
NOVARTIS	157
PFIZER	158
TARGET SPECIES AND PROVIDERS	159
TABLE 46 MEDICINAL ADDITIVES BY TARGET SPECIES AND PROVIDERS	159
NUTRITIONAL SUPPLEMENTS	160
ADISSEO	160
BASF	160
BOEHRINGER INGELHEIM	160
DSM NUTRITIONAL PRODUCTS	160
ESTEVE.....	161
HESKA	161
MOSAIC.....	161
VETERINARY PRODUCTS LABORATORIES.....	161
VIRBAC	161
TARGET SPECIES AND PROVIDERS	162
TABLE 47 NUTRITIONAL SUPPLEMENTS BY TARGET SPECIES AND PROVIDERS	162
VITAMINS AND MINERALS	162
ADISSEO	163
BEAPHAR	163
CHURCH & DWIGHT CO.....	163
DSM NUTRITIONAL.....	163
MERCK ANIMAL HEALTH.....	163
PFIZER	164
TARGET SPECIES AND PROVIDERS	164
TABLE 48 VITAMINS AND MINERALS BY TARGET SPECIES AND PROVIDERS	164

MARKET ANALYSIS AND CONCLUSION	165
MARKETS BY USE OR APPLICATION	165
Amino Acid Market.....	165
TABLE 49 MARKET ANALYSIS FOR AMINO ACIDS BY USE, THROUGH 2016 (\$ MILLIONS).....	165
FIGURE 23 MARKET ANALYSIS FOR AMINO ACIDS BY USE, 2008- 2016 (\$ MILLIONS).....	166
Medicinal Feed Additive Market	166
TABLE 50 MARKET ANALYSIS FOR MEDICINAL FEED ADDITIVES BY USE, THROUGH 2016 (\$ MILLIONS).....	167
FIGURE 24 MARKET ANALYSIS FOR MEDICINAL FEED ADDITIVES BY USE, 2008-2016 (\$ MILLIONS).....	167
Nutritional Supplement Market	167
TABLE 51 MARKET ANALYSIS FOR NUTRITIONAL SUPPLEMENTS BY USE, THROUGH 2016 (\$ MILLIONS).....	168
FIGURE 25 MARKET ANALYSIS FOR NUTRITIONAL SUPPLEMENTS BY USE, 2008-2016 (\$ MILLIONS).....	169
Vitamin and Mineral Market.....	169
TABLE 52 MARKET ANALYSIS FOR VITAMINS AND MINERALS BY USE, THROUGH 2016 (\$ MILLIONS).....	170
FIGURE 26 MARKET ANALYSIS FOR VITAMINS AND MINERALS BY USE, 2008-2016 (\$ MILLIONS).....	170
Total Feed Additive Market	170
TABLE 53 MARKET ANALYSIS FOR ANIMAL FEED ADDITIVES BY USE, THROUGH 2016 (\$ MILLIONS).....	171
FIGURE 27 MARKET ANALYSIS FOR ANIMAL FEED ADDITIVES BY USE, 2008-2016 (\$ MILLIONS).....	171
FEED ADDITIVE MARKET BY TYPE.....	172
TABLE 54 MARKET ANALYSIS FOR ANIMAL FEED ADDITIVE PRODUCTS BY TYPE, THROUGH 2016 (\$ MILLIONS).....	173
FIGURE 28 MARKET ANALYSIS FOR ANIMAL FEED ADDITIVE PRODUCTS BY TYPE, 2008-2016 (\$ MILLIONS).....	173
MARKETS BY GEOGRAPHICAL REGION.....	174
TABLE 55 DISTRIBUTION OF REVENUES FOR ANIMAL FEED ADDITIVES BY WORLD REGION, 2011 (%)	174
FIGURE 29 DISTRIBUTION OF REVENUES FOR ANIMAL FEED ADDITIVES BY WORLD REGION, 2011 (%)	175
COMPETITIVE SUMMARY.....	175
TABLE 56 COMPETITIVE SUMMARY FOR ANIMAL FEED ADDITIVES BY COMPETITOR REVENUES, 2011 (%/\$ MILLIONS)	176
FIGURE 30 COMPETITIVE SUMMARY FOR ANIMAL FEED ADDITIVES BY COMPETITOR REVENUES, 2011 (\$ MILLIONS).....	177
CHAPTER EIGHT: ANIMAL DIAGNOSTICS	178
OVERVIEW	178

PRODUCT DESCRIPTION.....	178
HESKA	178
IDEXX.....	179
IDEXX (Continued)	180
IDEXX (Continued)	181
MERCK ANIMAL HEALTH.....	182
SYNBIOTICS.....	182
TARGET SPECIES AND PROVIDERS	183
<i>TABLE 57 DIAGNOSTICS BY TARGET SPECIES AND PROVIDERS.....</i>	183
<i>TABLE 57 (CONTINUED).....</i>	184
<i>TABLE 57 (CONTINUED).....</i>	185
MARKET ANALYSIS AND CONCLUSION	186
MARKETS BY USE OR APPLICATION	186
<i>TABLE 58 MARKET ANALYSIS FOR ANIMAL DIAGNOSTICS</i>	
PRODUCTS BY USE, THROUGH 2016 (\$ MILLIONS).....	186
<i>FIGURE 31 MARKET ANALYSIS FOR ANIMAL DIAGNOSTICS</i>	
PRODUCTS BY USE, 2008-2016 (\$ MILLIONS).....	187
DIAGNOSTIC MARKET BY TYPE.....	187
<i>TABLE 59 REVENUES FOR ANIMAL DIAGNOSTICS BY TYPE,</i>	
THROUGH 2016 (\$ MILLIONS).....	188
<i>FIGURE 32 REVENUES FOR ANIMAL DIAGNOSTICS BY TYPE, 2008-</i>	
2016 (\$ MILLIONS).....	188
Diagnostic Rapid Testing	188
<i>TABLE 60 REVENUES FOR RAPID DIAGNOSTICS BY TYPE</i>	
(VETERINARY APPLICATIONS), THROUGH 2016 (\$ MILLIONS)	189
<i>FIGURE 33 REVENUES FOR RAPID DIAGNOSTICS BY TYPE</i>	
(VETERINARY APPLICATIONS), 2008-2016 (\$ MILLIONS).....	190
Diagnostic Analyzers and Consumables.....	190
<i>TABLE 61 REVENUES FOR DIAGNOSTIC ANALYZERS AND</i>	
<i>CONSUMABLES BY TYPE (VETERINARY APPLICATIONS),</i>	
THROUGH 2016 (\$ MILLIONS).....	191
<i>FIGURE 34 REVENUES FOR DIAGNOSTIC ANALYZERS AND</i>	
<i>CONSUMABLES BY TYPE (VETERINARY APPLICATIONS), 2008-</i>	
<i>2016 (\$ MILLIONS).....</i>	191
Diagnostic Imaging Equipment	191
MARKETS BY GEOGRAPHICAL REGION.....	192
<i>TABLE 62 DISTRIBUTION OF REVENUES FOR ANIMAL</i>	
<i>DIAGNOSTICS BY WORLD REGION, 2011 (%/\$ MILLIONS)</i>	192
<i>FIGURE 35 DISTRIBUTION OF REVENUES FOR ANIMAL</i>	
<i>DIAGNOSTICS BY WORLD REGION, 2011 (%).....</i>	193
COMPETITIVE SUMMARY.....	193
<i>TABLE 63 COMPETITIVE SUMMARY FOR ANIMAL DIAGNOSTICS</i>	
<i>BY COMPETITOR REVENUES, 2011 (\$ MILLIONS)</i>	194

FIGURE 36 COMPETITIVE SUMMARY FOR ANIMAL DIAGNOSTICS BY COMPETITOR REVENUES, 2011 (\$ MILLIONS)	194
CHAPTER NINE: MARKET SUMMARY	195
TOTAL ANIMAL THERAPEUTICS AND DIAGNOSTIC MARKET ANALYSIS	195
TABLE 64 TOTAL MARKET ANALYSIS FOR ANIMAL THERAPEUTICS AND DIAGNOSTICS BY PRODUCT SEGMENT, THROUGH 2016 (\$ MILLIONS).....	195
FIGURE 37 TOTAL MARKET ANALYSIS FOR ANIMAL THERAPEUTICS AND DIAGNOSTICS BY PRODUCT SEGMENT, 2008-2016 (\$ MILLIONS).....	196
MARKETS BY USE OR APPLICATION	196
TABLE 65 TOTAL MARKET ANALYSIS FOR ANIMAL THERAPEUTICS AND DIAGNOSTICS BY ANIMAL TYPE, THROUGH 2016 (\$ MILLIONS).....	197
FIGURE 38 TOTAL MARKET ANALYSIS FOR ANIMAL THERAPEUTICS AND DIAGNOSTICS BY ANIMAL TYPE, 2008-2016 (\$ MILLIONS).....	198
MARKETS BY WORLD REGION	198
TABLE 66 DISTRIBUTION OF REVENUES FOR ANIMAL THERAPEUTICS AND DIAGNOSTICS BY WORLD REGION, 2011 (%/\$ MILLIONS).....	199
FIGURE 39 DISTRIBUTION OF REVENUES FOR ANIMAL THERAPEUTICS AND DIAGNOSTICS BY WORLD REGION, 2011 (%)	200
INDUSTRY PARTICIPANTS BY TYPE	200
TABLE 67 MAJOR INDUSTRY PARTICIPANTS BY PRODUCT TYPE	201
TOTAL COMPETITIVE ANALYSIS	201
Total Competitive Analysis (Continued)	202
TABLE 68 TOTAL COMPETITIVE MARKET SHARE FOR ANIMAL THERAPEUTICS AND DIAGNOSTICS BY MANUFACTURER REVENUES, 2011 (\$ MILLIONS).....	203
FIGURE 40 TOTAL COMPETITIVE SUMMARY FOR ANIMAL THERAPEUTICS AND DIAGNOSTICS BY COMPETITOR REVENUES, 2011 (\$ MILLIONS).....	204
TABLE 69 COMPETITOR MARKET POSITION—ANIMAL THERAPEUTICS AND DIAGNOSTICS BY MANUFACTURER REVENUES, 2011	204
TABLE 69 (CONTINUED).....	205
COMPANY ACQUISITIONS AND STRATEGIES	205
CHAPTER TEN: COMPANY PROFILES	206
ABAXIS INC.	206
AUV VETERINARY COOPERATIVE	207

BASF ANIMAL NUTRITION (BASF SE).....	208
BAYER ANIMAL HEALTH	208
BOEHRINGER INGELHEIM CORP.....	209
BOEHRINGER INGELHEIM GMBH.....	209
BOEHRINGER INGELHEIM VETMEDICA, INC.....	209
DSM NUTRITIONAL PRODUCTS LTD.	210
ROYAL DSM N.V.....	210
ELANCO ANIMAL HEALTH	210
EVONIK INDUSTRIES AG	211
HESKA CORP.....	212
IDEXX LABORATORIES INC.	212
MERCK & CO. INC.	213
MOSAIC CO. (THE).....	214
NOVARTIS ANIMAL HEALTH INC.....	214
NOVARTIS AG.....	215
NOVUS INTERNATIONAL INC.	215
PFIZER ANIMAL HEALTH.....	216
SANOFI.....	217
VIRBAC SA	218
 APPENDICES.....	219
APPENDIX I: LEADING MANUFACTURES AND AFFILIATED COMPANIES	219
ABAXIS INC.....	219
ACRUX LTD.....	219
ADISSEO FRANCE S.A.S.	219
ADISSEO HONG KONG	219
AJINOMOTO CO. LTD.....	220
AUV VETERINARY COOPERATIVE.....	220
BASF ANIMAL NUTRITION (BASF SE).....	220
BAYER AG	220
BEAPHAR B.V.	220
BEN VENUE LABORATORIES INC.....	220
BOEHRINGER INGELHEIM CORP.	221
BOEHRINGER INGELHEIM GMBH.....	221
BOEHRINGER INGELHEIM VETMEDICA INC.....	221
DSM NUTRITIONAL PRODUCTS LTD.	221
ECO ANIMAL HEALTH.....	221
ELANCO ANIMAL HEALTH.....	221
ELI LILLY & CO.....	221
ESTEVE.....	222
ESTEVE USA INC.	222
EUROVET	222
EVONIK INDUSTRIES AG.....	222
HESKA CORP.	222

HUVEPHARMA AD	222
IDEXX LABORATORIES INC.	223
LUITPOLD ANIMAL HEALTH	223
MERCK & CO. INC.....	223
MERIAL ANIMAL HEALTH, LTD.....	223
MOSAIC CO. (THE)	223
NOVARTIS AG.....	223
NOVARTIS ANIMAL HEALTH INC.	224
NOVUS INTERNATIONAL INC.	224
OPK BIOTECH LLC	224
PFIZER ANIMAL HEALTH	224
PHIBRO ANIMAL HEALTH CORPORATION	224
ROYAL DSM N.V.....	224
SANOFI	225
SYNBIOTICS CORP	225
VIRBAC SA	225
APPENDIX II: RELEVANT ASSOCIATIONS AND ORGANIZATIONS ...	225
AMERICAN ASSOCIATION OF FELINE PRACTITIONERS.....	225
AMERICAN ASSOCIATION OF SWINE VETERINARIANS.....	225
AMERICAN HUMANE ASSOCIATION.....	225
AMERICAN PET PRODUCTS ASSOCIATION INC.	225
AMERICAN SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS.....	226
AMERICAN VETERINARY DISTRIBUTORS ASSOCIATION (AVDA)	226
AMERICAN VETERINARY MEDICAL ASSOCIATION.....	226
CANADIAN VETERINARY MEDICAL ASSOCIATION.....	226
HUMANE SOCIETY OF THE UNITED STATES	226
NATIONAL ANIMAL CONTROL ASSOCIATION	226
PET FOOD INSTITUTE	227
SOCIETY OF ANIMAL WELFARE ADMINISTRATORS.....	227
UNITED STATES DEPARTMENT OF AGRICULTURE.....	227
UNITED STATES FOOD AND DRUG ADMINISTRATION	227
U.S. POULTRY AND EGG ASSOCIATION	227