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Corn-Based Pet Food Production in South Dakota: Preliminary Feasibility Study

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The authors would like to thank the South Dakota Corn Utilization Council, which provided support for the research on which this report is based. The research project was entitled: “Value-Added Uses of Corn and Dry-Mill Byproducts,” and involved researchers from various disciplines at South Dakota State University. The specific component of the research project on which this report is based is sub-titled: “Area I: Human/Animal Feeds.” The authors would also like to thank Burton Pflueger and William Gibbons for reviewing the report and Barbara Dininger for providing secretarial support.

Published in accordance with an act passed in 1881 by the 14th Legislative Assembly, Dakota Territory, establishing the Dakota Agricultural College and with the act of re-organization passed in 1887 by the 17th Legislative Assembly, which established the Agricultural Experiment Station at South Dakota State University. South Dakota State University is an Affirmative Action/Equal Opportunity Employer and offers all benefits, services, education, and employment without regard for race, color, creed, religion, national origin, ancestry, citizenship, age, gender, sexual orientation, disability, or Vietnam Era veteran status. B7741E. October 2005. Available on the web at: <http://agbiopubs.edu/articles/B7741E.pdf>



This report is an external analysis of the pet food market and precedes a full-scale feasibility study for a processing facility in South Dakota that would use corn products as a pet food ingredient.

The three objectives addressed in this report are:

1. define the product market for dog and cat foods,
2. identify under-served geographic locations and demographic groups regarding pet food markets in the U.S., and
3. assess the growth potential of these markets.

Dog food sales

- Expressed as a share of total sales in the U.S. dog food market, sales of dry dog food have grown or remained steady since noticeable growth between 1998 and 1999. Wet and semi-moist dog food market shares have seen annual declines since 1998.
- The market share held by dog treat sales, out of total dog food sales, has been less predictable over time: increasing between 1997 and 1998, decreasing between 1998 and 1999, and increasing since 1999.

Cat food sales

- As in the dog food market, a tradeoff between wet and dry cat food has happened since 1999. The dry cat food has enjoyed the most growth of any cat food product type. Semi-moist cat food has fallen out of favor since 1999. Although only a relatively small share of all cat foods sold, cat treats continue to grow in economic importance.

Sales projections

- In the next few years, the greatest overall growth is projected for the treats segment of the pet food market. Dry and wet pet foods are expected to maintain moderate growth. Declining sales of semi-moist pet foods indicate that this product segment fell out of favor among pet food consumers.
- Current product market analysis and trends in consumer dynamics suggest that successful new product introductions will likely complement the close relationship between pets and their owners and accommodate a desire for convenience. Many of the newly introduced products are pet food treats and dry pet foods.

Geography and demographics

- North American and Western European regions collectively account for 71% of international dog food sales and 81% of international cat food sales.
- Dog and cat populations are directly related to a region's human population. Nations and states with relatively large human populations have large dog and cat populations.
- In the U.S., there is a positive and strong correlation between states with large dog populations and those with large cat populations. Specifically, 15 states listed among the 20 states with the largest dog populations were also among the top 20 states in terms of their cat populations.
- In the U.S., the rate of dog ownership per household is highest in rural states such as South Dakota and Wyoming.
- The cat population is more dispersed than the dog population. In 1996, for example, 22 states had more than one million cats. Only 18 states had dog populations greater than one million.
- In the year ending September 9, 2001, sales of pet products (dog food, cat food, cat litter, pet supplies) grew at a rate of 11% in the Plains region (North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, and Minnesota), compared to no regional growth in the Northeast and 3.9% growth in the West.

1.

The pet food market: executive summary

- Internationally, pet food penetration levels are highest in countries with healthy economic conditions.
- Since 1987, there has been a trend in the U.S. of owning more than one dog and more than one cat per household.
- Despite this trend, most (62.2%) U.S. dog-owning households still owned only one dog as of 1996.
- The number of households with more than one cat has increased rapidly. In 1991, 57.8% of U.S. cat-owning households had a single cat. By 1996, 52% of U.S. cat-owning households had more than one cat.
- In terms of life stage, young couples, working older couples, parents of all ages, and roommates are a disproportionately high share of pet-owning households.
- Households with incomes greater than \$25,000 have a disproportionately high level of pet ownership.
- More than one-half of pet-owning households (55.9% of dog-owning households and 58.7% of cat-owning households) have at least three human family members.
- Home ownership is a common characteristic among pet owners.
- People own more cats and dogs per household in communities smaller than 100,000 than in larger metropolitan areas.
- Females are typically the primary caregivers of both dogs and cats, irrespective of the caregiver's age. Whether male or female, caregivers most frequently fall in the age bracket from 30 to 49 years.

Pet food market growth potential

- In 1999, the five nations with the world's largest dog populations were the U.S. (58.5 million), Brazil (23 million), China (19.4 million), Japan (9.6 million), and Russia (9.4 million).
- In 1999, the largest cat populations were found in the U.S. (72.6 million), China (46.8 million), Russia (12.5 million), Brazil (10 million), and France (8.7 million).
- Nations with the largest increase in number of dogs were Romania, Thailand, and South Africa.
- Countries experiencing the largest cat population increases were China, Japan, Indonesia, and Thailand.
- The cat population is expected to grow more rapidly than the dog population in the future because cat ownership better fits busy lifestyles than dog ownership.
- In the year ending September 9, 2001, average dog food prices increased by 7.5% and average cat food prices increased by 11.4% in the U.S.
- Despite a decline in spending following September 11, 2001, dog food sales increased by 8%, and cat food sales improved by 3% in the first half of 2002.
- Around the world, pet owners appear to be increasingly willing to pay for relatively high-priced premium, superpremium, and nutraceutical varieties.
- In 1998, the U.S. ranked among the top 15 nations in terms of pet food penetration levels (percentage of total dietary calories that a dog or cat receives via consumption of commercially produced dog or cat food) for both dog food (51.5%) and cat food (48.2%).

- Dog food sales were approximately two-thirds of total U.S. pet food sales. The remaining one-third of total pet food sales were cat food sales.
- Sales growth was driven by increased premium pet foods sales, increased product prices, and new product introductions—particularly in dog and cat treats. The current emphasis on short-term convenience products will be broadened to include both convenience and health products by 2006.
- Double-digit growth rates occurred in the U.S. in the 1990s, but future growth of the pet food market is expected to be moderate (approximately 5% per year).
- Both internationally and in the U.S., a small number of pet food firms hold large market shares and are responsible for most new product introductions. The deceleration of mergers and acquisitions will stimulate increased competition between the industry leaders and impose additional obstacles for new entrants.

Findings and recommendations

We have outlined a strategy for marketing pet food products by identifying opportunities and threats affecting the pet food market in this preliminary feasibility study. In support of that strategy, we report the following findings.

1. Double-digit annual growth rates experienced in the 1990s are no longer common in the pet food industry, but a moderate annual growth rate of nearly 5% remains.
2. Mergers and acquisitions have narrowed the number of pet food competitors.
3. Intense competition exists between industry leaders.
4. Little, if any, evidence exists suggesting that small entrants can be successful in pet food markets. However, product trends toward premium, superpremium, and nutraceutical pet food varieties may reveal niche market opportunities to serve higher-end pet owners.
5. Rather than seeking entrance to a market heavily dominated by large multi-national conglomerates, it may be more practical for agricultural producers to attempt to sell corn or corn products directly to one or more of the industry's leading pet food processors. Farmers may be able to accomplish this by selling their products on the open market or by contracting.
6. Since 1987, the trend among U.S. households has been toward owning multiple pets. If this trend continues, farmer affiliation with an industry leader may be necessary to exploit brand loyalty among individuals and households who currently own a single pet but may become multiple pet owners in the future.
7. Pet food producers (whether or not farmer-owned) will still acquire their raw grain products at prices determined at commodity markets. This is unlikely to lead to significant improvements in local economic development.

Market entry is likely to be deterred by the presence of established pet food companies with substantial market shares. Based on the external analysis outlined here, the current structure of the pet food industry does not appear to be particularly well suited for agricultural producers thinking of investing in a pet food production or marketing facility.

Based on the results reported here, we advise against developing a full-scale feasibility study of a facility constructed and operated in South Dakota that would use corn and corn byproducts as inputs in the pet food industry.

This report is one of several SDSU studies on value-added uses of corn and dry-mill byproducts. The overall purpose of these studies is to explore avenues for developing new markets for human and animal foods and for specialty chemicals originating from corn and byproducts created in the production of corn ethanol.

The studies are part of a joint research project led by W.R. Gibbons (Biology/ Microbiology), J. Julson (Agricultural and Biosystems Engineering), P. Krishnan (Nutrition, Food Science, and Hospitality), K. Muthukumarappan (Agricultural and Biosystems Engineering), E. Van der Sluis (Economics), C.Y. Wang (Nutrition, Food Science, and Hospitality), and T.P. West (Chemistry and Biochemistry) at SDSU. The joint project was funded by the South Dakota Corn Utilization Council.

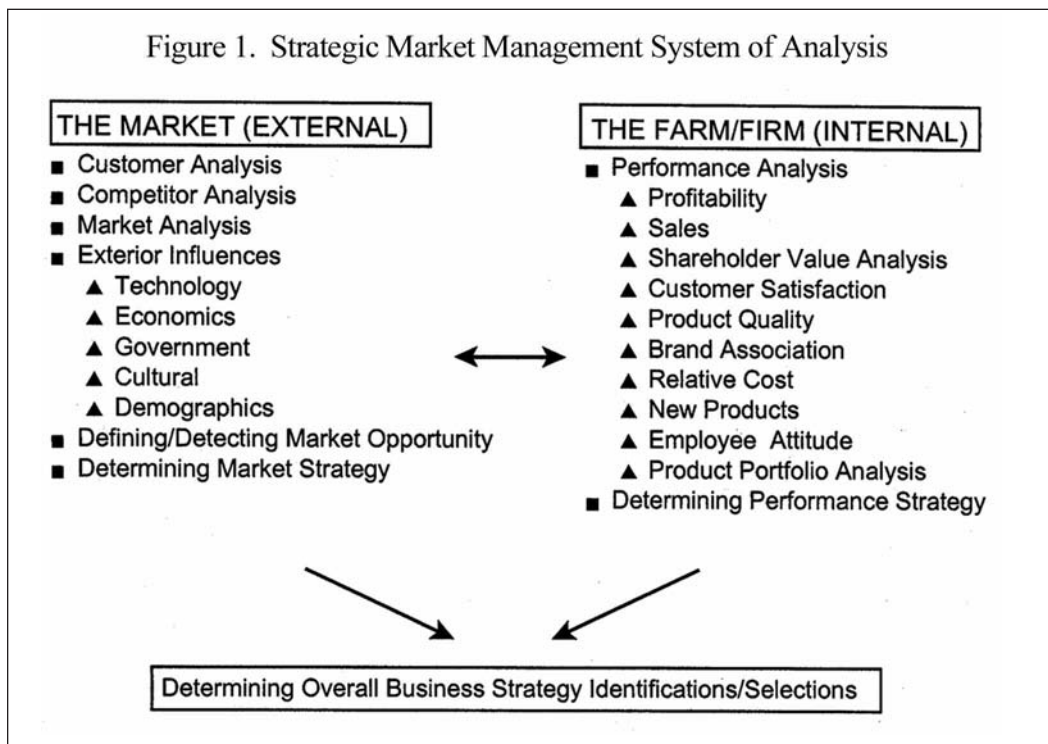
Research goals, objectives, methodology

We describe essential economic components of corn and corn-product market development and assess the potential for marketing corn and dried distillers grain (DDG) as inputs in dog and cat food production. We address three objectives:

1. define the product market for dog food and cat food,
2. identify underserved geographic locations and demographic groups regarding pet food markets in the U.S., and
3. assess the growth potential of these markets.

The results of this preliminary study provide a first and essential step for South Dakota corn producers in deciding whether investing in a corn pet food processing facility in South Dakota is financially feasible.

Kraenzel (1998) utilized the two-stage Strategic Market Management System methodology for conducting market analysis (Fig 1). The first stage, an external approach, considers aspects outside of a firm, and includes analysis of customers, competitors, markets, outside influences, new opportunities, and strategies. The second stage is an internal approach, and focuses on financial and economic considerations inside of the firm, such as profitability.



Source: Kraenzel (1998).

2.

Report on the pet food market: introduction

For this marketing study, we utilized the external approach for analyzing customers, competitors, exterior influences, and general conditions presently affecting the pet food market. In conjunction with this framework, we include a summary of publicly available research pertaining to dog and cat food markets as of August 2003. To help identify a viable marketing strategy, we also include an assessment of opportunities and threats associated with external factors that influence the pet food market.

Pet food ingredients

Consumers, researchers, and pet food processors differ in their opinions about the ingredients most suitable for inclusion in pet foods. In general, pet foods are a combination of products made from corn, soybeans, rice, lamb, fish, rendered meat byproducts (animal fats and proteins unsuitable for human consumption), and vegetables.

Demand for pet food products depends in part upon consumer awareness and acceptance of the ingredients in the pet foods they buy. Supply of pet foods depends largely on their relative price competitiveness, beneficial product contents, and quality of these ingredients.

Animal byproducts, for example, are readily available as pet food ingredients, because nearly half of every meat animal in the U.S. is not consumed by humans (Halpin et al. 1999). As a result of the relatively abundant supply of these products, meat byproducts have emerged as a price competitive ingredient for pet food processors.

Animal byproducts are also included in pet foods for nutritional reasons. For example, animal fats enrich pet diets by increasing energy density, enhancing the contents of essential fatty acids, improving palatability, and increasing the utilization of nutrients such as fat-soluble vitamins. Animal products are valuable sources of protein, amino acids, energy, calcium, phosphorus, trace minerals, and vitamins. The inclusion of animal fats in pet food may enhance the quality of pet coats as well as overall performance of the animals. Finally, and of particular importance for the pet food manufacturing process, the fats reduce the amount of dust particles in the pet food and decrease equipment deterioration by serving as a lubricant (Halpin et al. 1999).

In recent years, the positive aspects associated with the inclusion of meat by-products in pet foods have been dampened by concerns about bovine spongiform encephalopathy (BSE) and other related diseases affecting the central nervous systems of animals. Meat or meat byproducts from animals affected by such diseases may be used as ingredients in pet foods, giving rise to the possibility of cross-species contamination of such diseases.

Pet foods made from rice or corn represent “safe” alternatives for consumers with reduced confidence in the integrity of rendered meat sources. Rice-based pet foods have gained particular popularity because of their relatively high digestibility.

Corn-based pet foods interest consumers and manufacturers because of their high starch content. As byproducts in ethanol production made from corn, wet and dried distillers grain (WDG and DDG) may serve as ingredients in pet foods because of their high-protein and digestible energy contents. We consider only corn-based products as ingredients in dog and cat foods in this study.

Corn as an ingredient in processed pet food

Several factors make it difficult to determine the total amount of corn presently used as an ingredient in processed pet foods. First, corn is only one of a number of potential sources used to fulfill the carbohydrate requirements in pet foods. Second, corn is not only a carbohydrate source, it also increases the protein and fat contents of pet foods. Third, current labeling rules do not require processors to provide a cumulative listing of various corn products contained in pet foods. The use of corn in pet foods is apparent by reading the list of ingredients on individual

product labels. However, because few labels explicitly describe the quantity of corn used, it is difficult to estimate the total amount of corn in pet foods in the U.S. and elsewhere.

Corn is widely used as an ingredient in processed pet foods because it is relatively inexpensive and offers pet food companies versatility from a nutritional standpoint. While it can be used as such, corn is less suitable as a source of protein than other, more protein-rich products.

One way to measure the degree to which a product can be used as a protein source is expressed as the biological value of protein. This term describes the amount of usable amino acids in a protein. Eggs have the highest protein quality of any ingredient and therefore receive the biological value of 100. Other products and their biological values include fish meal (92), milk (92), beef (78), soybean meal (67), meat and bone meal (50), and wheat (50). Because corn contains relatively small amounts of protein and the types of protein have less desirable qualities than those in some other foodstuffs, corn has a relatively low biological value of protein of 45 (Foster and Smith 2001e, 2001f).

Using corn and other carbohydrates is necessary to produce texturally, structurally, and nutritionally balanced dry pet food kibbles. For this reason, dry dog and cat foods contain 30-70% carbohydrates (Foster and Smith 2001a, 2001b). Wet dog and cat foods are not as reliant upon carbohydrates for texture and structure, so the portion of corn and other carbohydrates in these products is generally lower than in dry pet foods. Nor are the diets of dog and cat families living in the wild as dependent on carbohydrates as those of their tame cousins. Specifically, wild canine and feline diets generally contain less than 30% and 5% carbohydrates, respectively (Foster and Smith 2001a, 2001b).

In processed pet foods, however, carbohydrates keep costs low by acting as inexpensive “fill” ingredients. Other than marketing, the industry’s most expensive component is protein (Foster and Smith 2001e, 2001f). Therefore, pet food companies rarely include more protein in the ration than required. Ultimately, one of the most important reasons for companies to include corn as a pet food ingredient is to minimize production costs.

While corn and corn byproducts are often used to increase the carbohydrate contents of pet foods, corn oil may serve as a fat source. For example, the percentage of linoleic acid (an essential fatty acid) from corn oil is 55.4%. Other fat sources and their linoleic acid percentages include safflower oil (72.7%), poultry fat (22.3%), tallow (4.3%), and fish oil (2.7%). Most pet foods contain more fat than is strictly required for the purpose of obtaining a balanced diet, because the fats enhance caloric intake and increase the product’s palatability (Foster and Smith 2001c, 2001d). Corn oil serves as another example of corn’s widespread use in processed pet foods. Consequently, pet food labeling is an important source of ambiguity when trying to determine corn use in pet foods.

Pet food companies use shrewd practices when marketing their products. For example, when listing the ingredients on the label of their products, the companies strive to appeal to demand for a protein-rich product. Since the first ingredient listed on a pet food label is the component in largest quantity, many pet owners seek products in which the first ingredient listed on the label is meat or fish.

However, for many pet foods in which meat or fish is listed as the first ingredient, corn often goes by several names (corn, corn gluten meal, ground corn, corn grits, corn bran, corn mill run, corn oil, etc.) that all appear as separate ingredients in the pet food. By listing the “corn” ingredients individually, corn is not the first ingredient on the label, even though it may cumulatively represent a larger portion of the pet food than the first ingredient listed (Picozzi 1999). In addition, the amount of corn used in pet foods depends on whether the pet food is a wet or dry variety.

In spite of unreliable sources of information and degrees of variation in pet food contents, it is clear that corn is a major ingredient in commercial dog and cat foods, even if it is difficult, if not impossible, to provide a correct estimate of the amount.

South Dakota corn and ethanol byproducts as pet food ingredients

Agriculture has historically been a vital part of the South Dakota economy. As a result, the evolution from a small to a large-scale agricultural production system has led to concerns about the structure of agriculture in the state, not only among those directly and indirectly involved in agriculture, but also among South Dakota citizens at large.

To augment dwindling profits, farmers have become involved in agricultural production (value-added) beyond the farm gate—marketing intermediate and final agricultural products, as opposed to raw agricultural commodities only, in an effort to capture an increased share of the profits involved with producing and marketing food and fiber products.

In recent years, a common value-added option for Midwestern agricultural producers has been to process their corn into ethanol fuel. The high starch content of corn makes corn an excellent source for producing ethanol. During the ethanol production process, corn is first ground into flour and is then mixed into water, forming a mash. Enzymes added to the mash convert the starch to sugar during subsequent heating steps (cook and sterilization). After the mash cools, yeast is added to begin the fermentation process, which produces ethanol and releases carbon dioxide. The ethanol is removed by distillation, and the residual liquid portion (stillage) is centrifuged to recover the coarse solids (wet distillers grains). The centrifuge supernatant (thin stillage) may be partially dehydrated into a syrup-like substance known as condensed distillers solubles, which is typically dried onto distillers grains, forming distillers dried grains with solubles (DDGS) (Weigelet al. 1997).

The rapid growth of ethanol production from corn has resulted in the widespread availability of dry-mill ethanol byproducts such as distillers grain and condensed corn solubles in South Dakota and other states in the Midwest. Coinciding with the growth in corn ethanol production has been continued growth in pet food markets. Because a large component of pet food ingredients is starch-based, and also because it is technically feasible to use the ethanol production coproducts as pet food ingredients, it is worth investigating the feasibility of developing and operating a pet food production venture using corn and ethanol plant byproducts as inputs.

The U.S. has the largest total number of pets of any single country. According to the Pet Incidence Trend Report published by the Pet Food Institute (2003), the nation had 60.7 million dogs and 76.8 million cats in 2002.

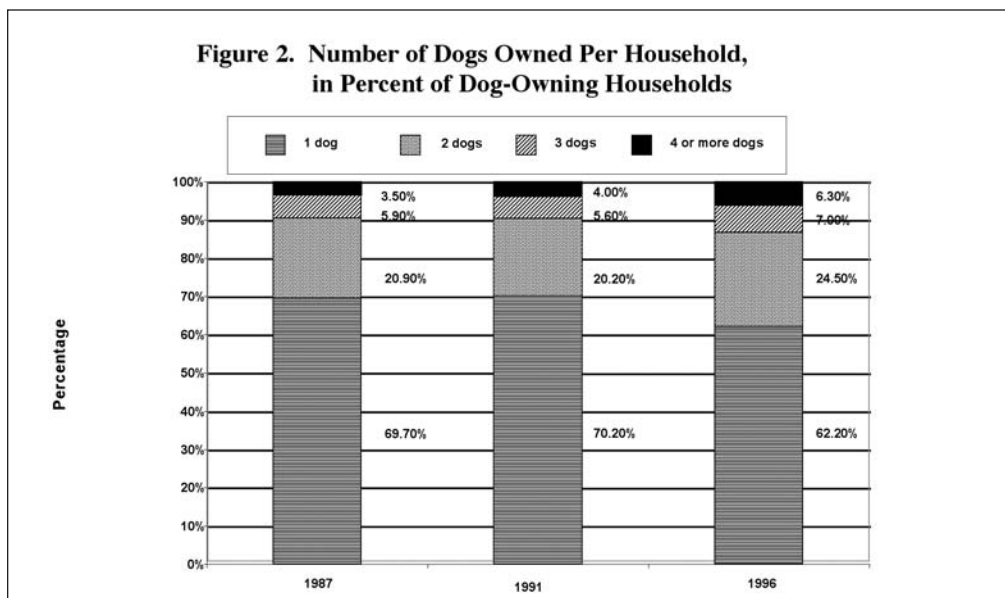
The size of a nation's total pet population is not a perfect estimate for the number of pet owners in that nation. However, based on the fact that the U.S. dog and cat populations outnumber those of other countries by a substantial margin, pet food industry observers agree that the U.S. has the largest concentration of pet owners purchasing dog and cat food within a single country.

The relatively high pet ownership rate in the U.S. is primarily a result of the nation's favorable economic conditions and high standard of living. Pets are often viewed as family members, not only in families with dependent children but also in families where parents and grown children are geographically separated by distance. In addition, pets serve as companions for an increasing number of Americans including singles and couples with no children.

The primary reasons for selecting dogs and cats as pets differ. Traditionally, dogs are selected to fulfill a companionship role. However, between 1994 and 1998, increasing crime rates induced people to also rely on dogs for security (Phillips, 2000b). Cats appeal to pet owners desiring companionship without large additional care requirements.

Both dog and cat ownership levels have increased among U.S. households in recent years. At the end of 1996, 18.3% of U.S. households exclusively owned dogs, 14.1% exclusively owned cats, and 13.3% owned both dogs and cats. By 2002, 33.9%, 36.2%, and 15.2% of U.S. households owned cats, dogs, and both types of pets, respectively (Pet Food Institute, 1997; 2003).

Another noteworthy trend in U.S. pet ownership since 1991 has been the relative increase in households with more than one cat and those with multiple dogs. A noticeable change in the number of dogs owned per household occurred since 1987. Figure 2 depicts the percentages of dog-owning households owning one or more (two, three, and four or more) dogs in the U.S. in 1987, 1991, and 1996.



Source: American Veterinary Medical Association (1997).

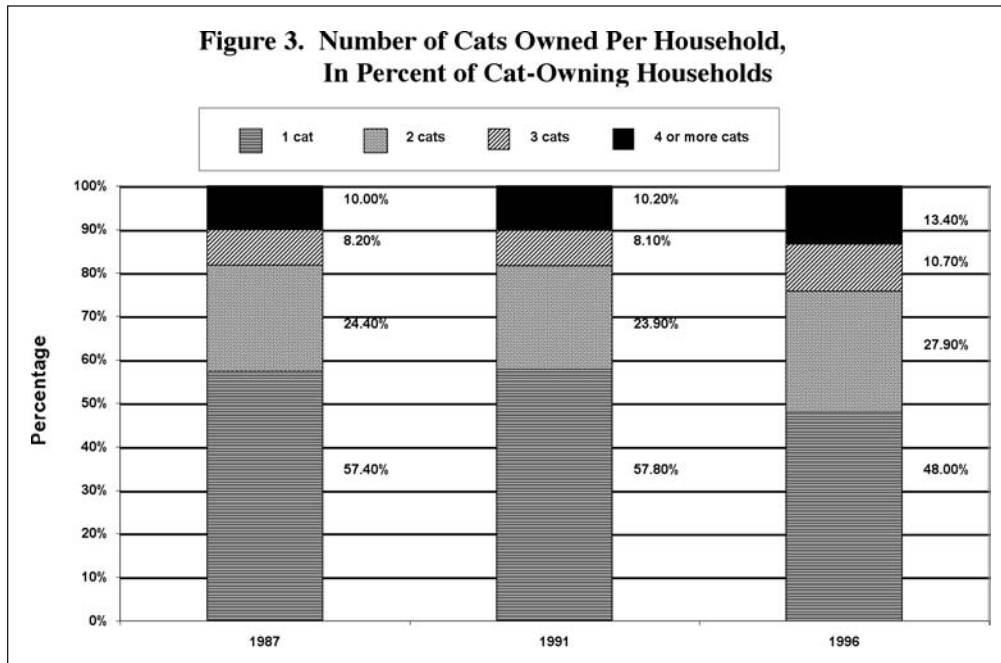
Figure 2 indicates that between 1987 and 1991, the number of households with a single dog remained fairly stable at about 70% of the total number of dog-owning households. However, from 1991 through 1996, the relative importance of each of the three multiple-dog household categories (two, three, and four or more dogs per household) increased as a proportion of the total number of households with dogs. The relative increase in multiple-dog households took place at the expense of single-dog households, which decreased to 62.2% of all dog-owning households.

3.

U.S. pet food market customer analysis

Gurkin and Fenstermacher (1999) and Gurkin (2000; 2001; 2002) reported annual estimates of the total number of dogs and households owning the dogs in the U.S. Gurkin's estimates indicate that 59.4 million dogs were owned by 37.3% of U.S. households in 2000, 60.2 million dogs were owned by 36.9% of U.S. households in 2001, and 61.1 million dogs were owned by 36.5% of U.S. households in 2002. These figures further support the earlier statements that in recent years the share of multiple-dog households as a percent of the total number of households owning dogs has increased at the expense of the share of single-dog households.

Cat-ownership patterns also changed since the late 1980s. The change in multiple cat ownership patterns between 1987 and 1996 is displayed in Figure 3.



Source: American Veterinary Medical Association (1997).

The share of households with only one cat remained virtually unchanged between 1987 and 1991, from 57.4% to 57.8% of all households with cats over this 5-year period. Consequently, the share of households with more than one cat as a percent of the total number of households with cats also remained virtually unchanged. Between 1991 and 1996, however, the shares of households having two, three, and four or more cats as a percent of all households with cats each noticeably increased. Consequently, the relative share of single-cat households declined from 57.8% to 48.0% of the total number of households owning cats.

Between 1996 and 2001, there was again little change in cat ownership patterns among households (American Veterinary Medical Association, 2002). In 2001, 50.8% of all cat-owning households had a single cat, 26.8% had 2 cats, 9.9% had 3 cats, and 12.6% had 4 or more cats.

The average number of cats owned by all U.S. households was 2.1 in 2001. South Dakota ranked first in terms of average cat ownership, with 2.9 cats per household (American Veterinary Medical Association, 1997; 2002).

Annual cat population estimates reported by Gurkin (2001; 2002) suggest that in 2000, 75.1 million cats were owned by 34.5% of U.S. households. By 2001, 34.3% of the households owned 75.6 million cats, suggesting growth in the number of households with more than one cat. Based on Gurkin's recent report that 34.4% of U.S. households owned 77.2 million cats in 2002, the slight growth trend in the relative share of households having more than one cat has leveled further.

In light of the upward trend in total pet populations and the increased occurrence of multiple-pet households, it is useful to provide a comprehensive description of pets and pet owners in identifying underserved geographic locations and demographic groups in the U.S.

Geographic trends in U.S. pet ownership

Regional and state data on pet ownership are collected and published in the U.S. Pet Ownership and Demographics Sourcebook every 5 years by the American Veterinary Medical Association. Some of these data from the 1997 and 2002 sourcebooks are included in this report. Appendix A lists the total dog population, and Appendix B lists the total cat population for each state and for various regions in the U.S.

Dog and cat ownership rates in U.S. households. Between 1991 and 1996, the share of all households in the U.S. that owned dogs decreased from 36.5% to 31.6%. Dog ownership rates decreased in all states and regions of the U.S. over the same time period, except in Wyoming and South Dakota.

Wyoming had the highest rate of dog ownership among the contiguous states (47.9% of all households) but ranked 44th in total dog population (137,000 dogs) among these states in 1996. Similarly, South Dakota's rate of dog ownership increased from 30.6% to 34.3% of all households over the same 5-year period, and its total dog population grew from 122,000 in 1991 to 145,000 dogs in 1996 (American Veterinary Medical Association, 1997). The Wyoming and South Dakota cases highlight the limitations of relying on household dog ownership rates to describe the dog food market because the total number of households in a state is not included in this measure.

Between 1991 and 1996, the proportion of U.S. households owning cats decreased from 30.9% to 27.3% and cat ownership rates decreased in all states and regions of the U.S. except Wyoming. In 1996, the highest and lowest U.S. cat ownership rates per household were in Idaho (42.7%) and New Jersey (21.2%), respectively. South Dakota's cat ownership rate of 26.5% closely resembled the national average of 27.3% (American Veterinary Medical Association, 1997).

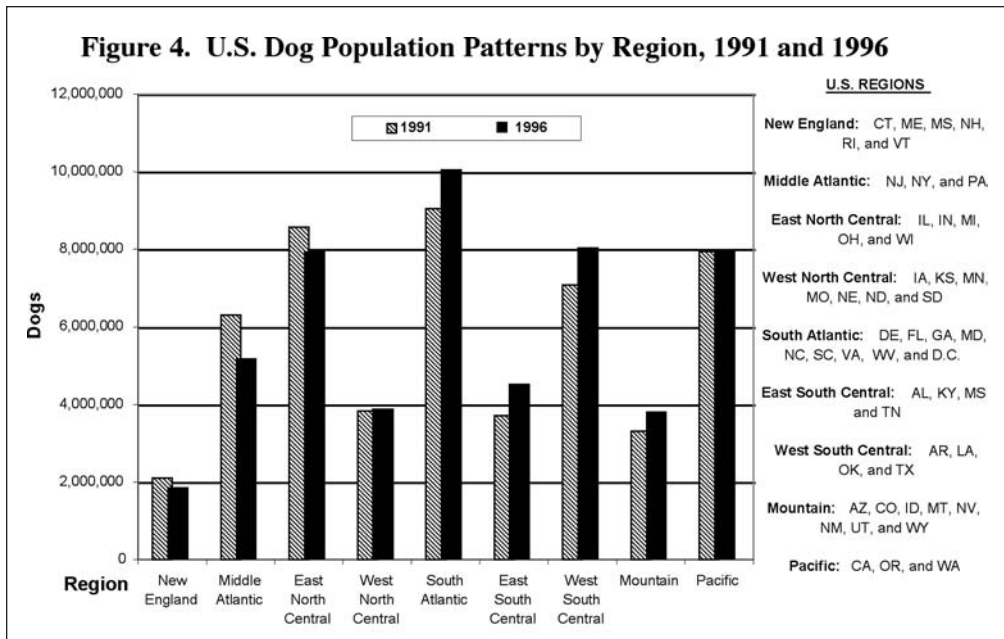
In 2001, the national cat ownership rate rebounded to 31.6% of the total number of U.S. households. Households with high cat-ownership rates were concentrated in the Northeast and Northwest regions of the U.S. Among states within these regions, 46.3% of households in Maine, 45.2% in Oregon, 44.6% in Idaho, Montana, and Wyoming, 41.8% in Washington, 39.9% in New Hampshire, and 38.8% in Vermont owned one or more cats. North Dakota and Nebraska rounded out the top ten states in terms of cat ownership per household, with 38.2% and 35.9% of their households owning cats, respectively (American Veterinary Medical Association, 2002).

Total dog and cat populations. Not surprisingly, the largest dog and cat populations are found in states with large human populations. In 1996, the two states with the largest dog populations were California and Texas, with 6.0 million and 5.2 million dogs, respectively (American Veterinary Medical Association, 2002). Appendix A shows that 16 other states had dog populations in excess of one million in 1996.

At the other end of the spectrum, largely rural states had small human and dog populations. In 1996, the combined total number of dogs of the 18 states with the smallest dog populations was 5.0 million dogs, less than the dog population of either California or Texas.

Figure 4 provides a regional view of the U.S. dog population in 1991 and 1996.

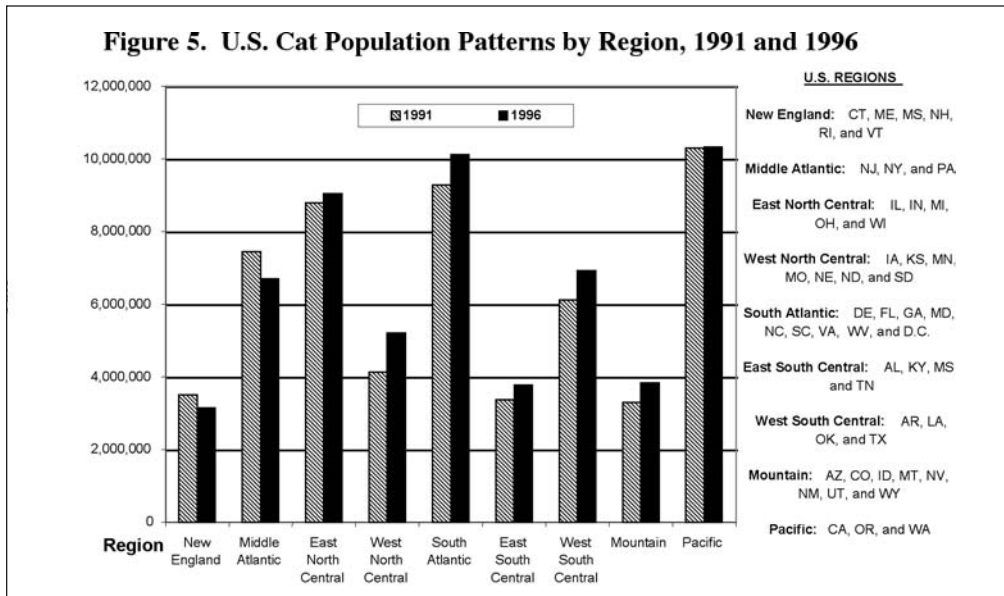
The largest dog populations are concentrated in the South Atlantic and East North-Central regions of the U.S. Between 1991 and 1996, the dog population increased in four regions (South Atlantic, East South-Central, West South-Central, and Mountain), decreased in four regions (New England, Middle Atlantic, East North-Central, and Pacific), and remained relatively constant in the West North-Central region.



Source: American Veterinary Medical Association (1997).

The geographic distribution of cat ownership closely follows the total dog population patterns in the U.S. In 1996, the largest total cat populations were found in California and Texas, with 7.6 million and 4.5 million cats, respectively (American Veterinary Medical Association, 2002). Appendix B shows that 20 other states had at least one million cats in 1996. The 14 states with the lowest cat populations in 1996 had a combined total of 4.3 million cats, less than the cat populations of either California or Texas.

Figure 5 provides a regional view of the U.S. cat population in 1991 and 1996.



Source: American Veterinary Medical Association (1997).

The largest cat populations are located in the Pacific, South Atlantic, and East North-Central regions of the U.S. Between 1991 and 1996, the number of cats increased in six regions (East North-Central, West North-Central, South Atlantic, East South-Central, West South-Central, and Mountain), decreased in two regions (New England and Middle Atlantic), and remained relatively constant in the Pacific region.

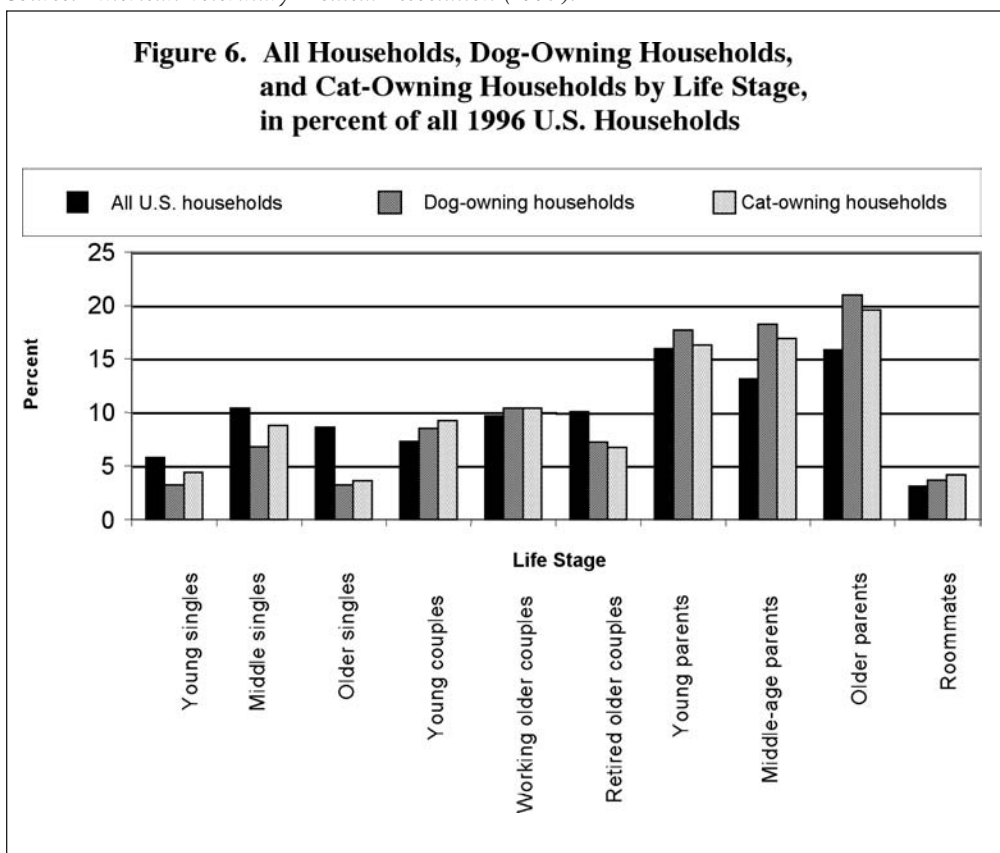
The geographic concentration patterns of cats closely resemble those of dogs. In fact, 15 states (California, Florida, Georgia, Illinois, Indiana, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, Virginia, and Washington) were among the top-20 states in terms of both dog and cat populations in the U.S.

Demographic trends in U.S. pet ownership

To describe prospective customers in the pet food market, we examine dog and cat ownership patterns in this section with respect to the following demographic variables: life stage, household income, household size, community size, and education level, age, and gender of the pet owner.

Life stage. Ownership by life stage is shown in Figure 6. Young couples, working older couples, young parents, middle-age parents, older parents, and roommates each had a disproportionately high share of pet ownership. Young, middle-aged, and older parents jointly represent more than half of dog and cat owning households. Dog and cat ownership patterns by life stage changed little between 1996 and 2001 (American Veterinary Medical Association, 2002).

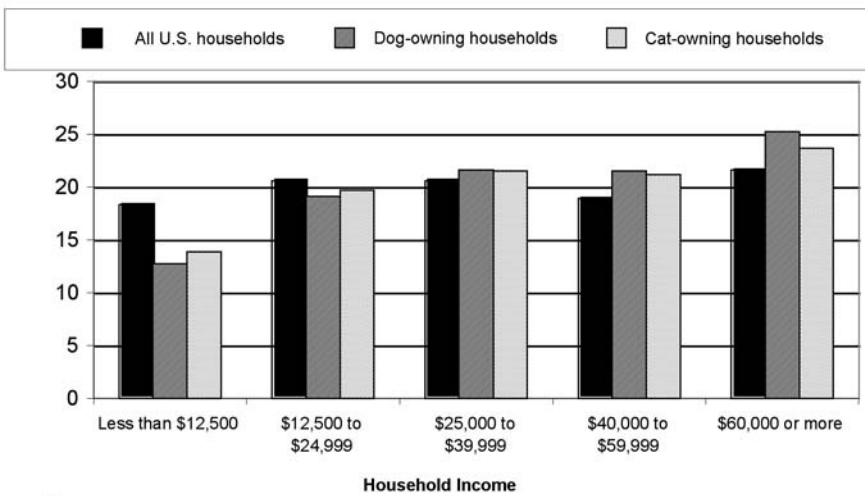
Source: American Veterinary Medical Association (1997).



Household income. Household income also influences pet ownership levels. Figure 7 provides a comparison between incomes of households in general and those of pet-owning households.

Dog and cat ownership among households with income levels of at least \$25,000 per year is greater than that of U.S. households at large. Both dog and cat ownership levels increase with increases in household incomes up to an annual household income of \$85,000. Pet ownership declines slightly at even higher household income levels (American Veterinary Medical Association, 2002).

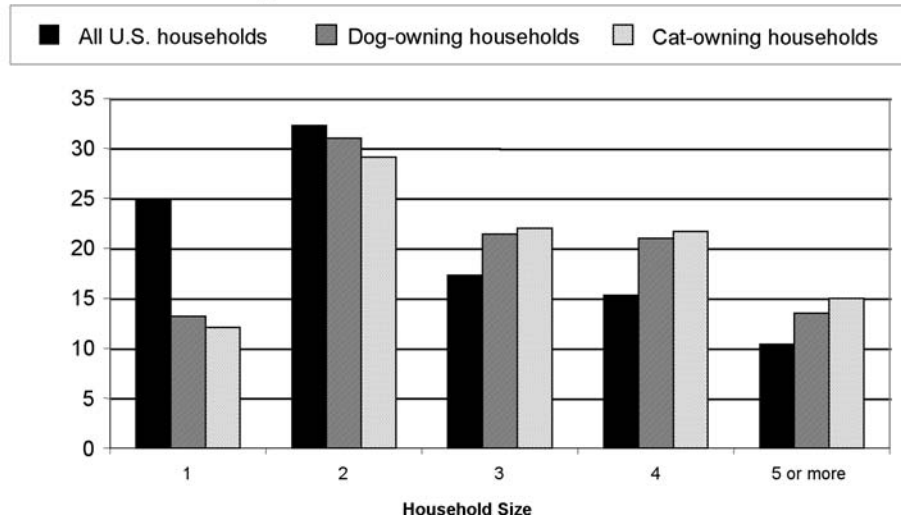
Figure 7. All Households, Dog-Owning Households, and Cat-Owning Households by Household Income, in percent of all 1996 U.S. Households



Source: American Veterinary Medical Association (1997).

Household size. Household size is another demographic determinant of pet ownership. Figure 8 examines pet ownership according to household size.

Figure 8. All Households, Dog-Owning Households, and Cat-Owning Households by Household Size, in percent of all 1996 U.S. Households



Source: American Veterinary Medical Association (1997).

The most common household size in the U.S. consists of two persons and constitutes more than 32% of all U.S. households. Two-person households that had one or more dogs and those having one or more cats were slightly under-represented. Specifically, dog-owning two-person households comprised approximately 31% of all households, whereas cat-owning two-person households made up only 29% of all U.S. households.

Single-person households are the next most prevalent type of household, comprising nearly 25% of all U.S. households. Even more pronounced than among two-person households, pet

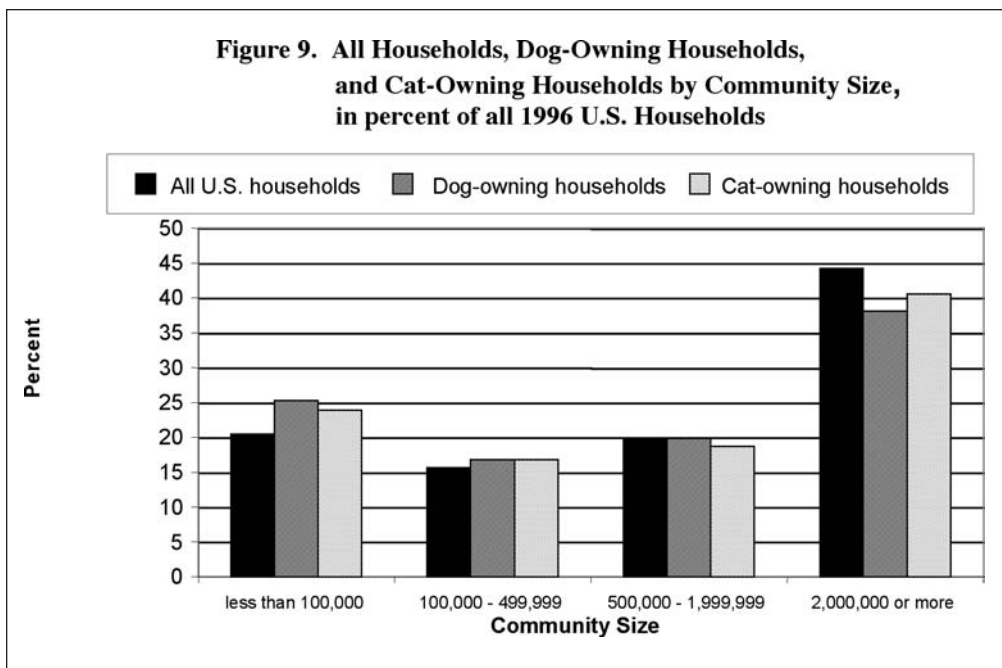
ownership among single person households is disproportionately low. In particular, single-person households represent just 13.2% of dog-owning households and 12.1% of cat-owning households (American Veterinary Medical Association, 1997).

Households with one individual have become more prevalent in recent years. If the trend toward single-person households continues to hold in the future and if pet ownership rates remain relatively low in this household category, the country’s dog and cat populations would be expected to increase at a lower rate than the nation’s human population.

In contrast to patterns observed among single and two-person households, households with three or more people have disproportionately high pet ownership rates. Specifically, while 43% of U.S. households in 1996 had three or more members, 55.9% of dog-owning households had three or more household members, and 58.7% of cat-owning households consisted of at least three people.

Thus, dog and cat ownership among households is directly related to household size – relatively small households are less likely to own pets than relatively large households.

Community size. A related aspect of pet ownership is community size. Figure 9 provides an overview of U.S. households in general, dog-owning households, and cat-owning households by community size, as of 1996.



Source: American Veterinary Medical Association (1997).

In communities between 100,000 and 2 million people (Table 1), the share of pet owning households is similar to that of U.S. households in general. Dog- and cat-owning households in

Table 1. Pet ownership levels by community size, 2001.

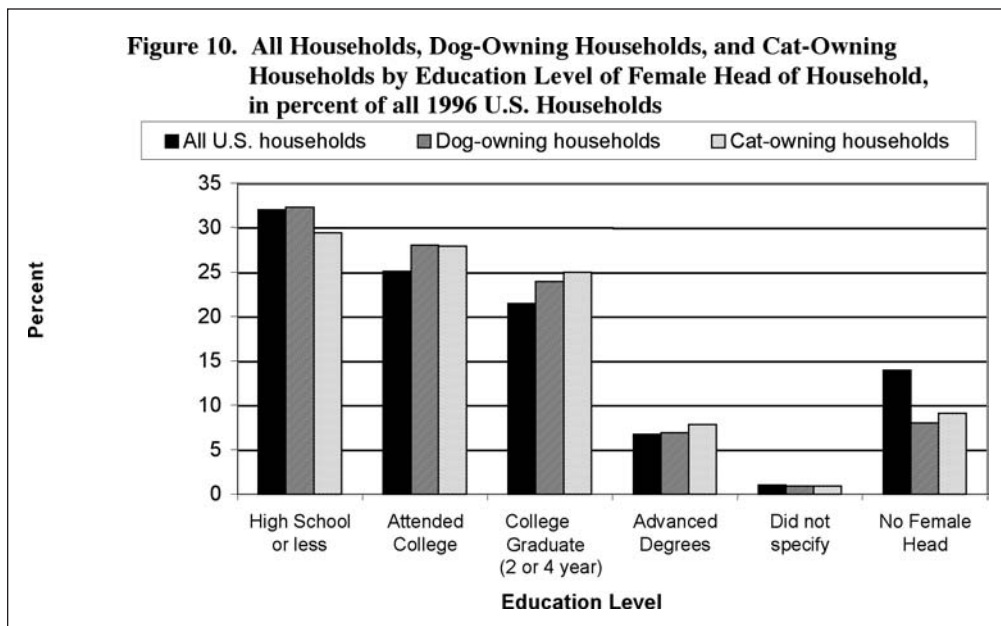
Community size	Percentage of households that own dogs	Percentage of households that own cats
Less than 100,000	44.60%	36.50%
100,000 to 499,999	39.00%	33.30%
500,000 to 1,999,999	36.80%	30.30%
2,000,000 or more	31.10%	29.70%

Source: American Veterinary Medical Association (2002).

communities smaller than 100,000 represent a relatively larger share of households while on the other end of the community size spectrum, households in communities of at least 2 million have disproportionately low levels of dog and cat ownership. Information included in Table 1 further emphasizes how household pet ownership rates decrease with community size.

Education level. The pet owner's education level is shown in Figures 10 and 11.

Female-headed households whose head attended college, completed a college degree, or completed an advanced degree each represented a disproportionately large share of dog- and cat-owning households in 1996.



Source: American Veterinary Medical Association (1997).

Dog ownership among households headed by a female individual who had at most a high school education was similar to the percentage of all U.S. households with the same level of education. Households headed by females with no more than a high school level of education represented a smaller share of all cat-owning households than households in general.

In general, dog ownership patterns by education level in male-headed households were similar to those for female-headed households in 1996. Households headed by males whose head completed high school or less, attended college, or graduated from college had disproportionately high levels of dog-ownership.

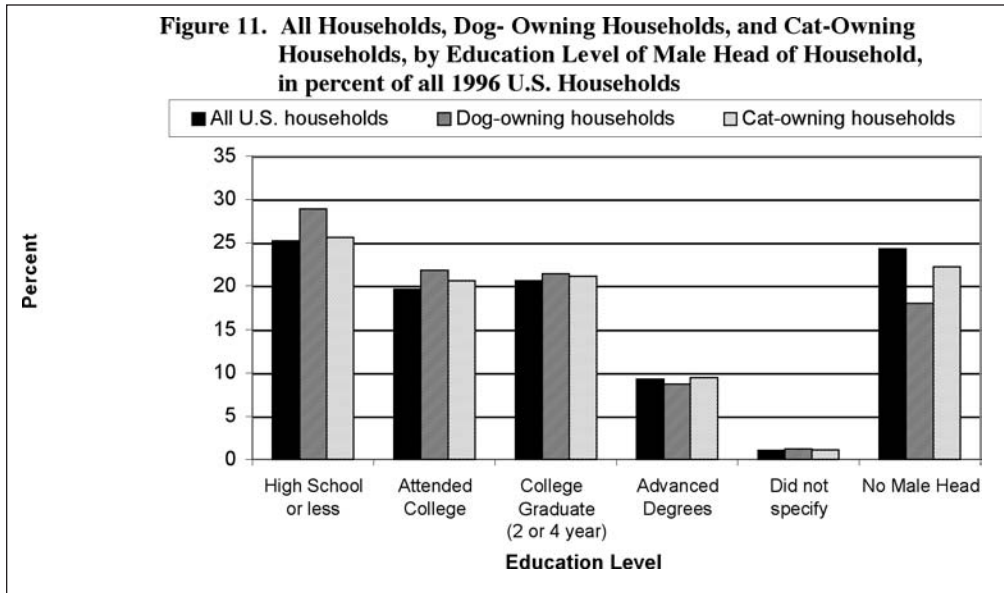
One slight difference between male-headed and female-headed households is that households headed by a male who had an advanced degree represented a smaller share of all dog-owning households than households in the same category of education in general. Female-headed households in this category of education represented a slightly larger share of all dog-owning households than households in the same education category in general.

Cat ownership patterns by education level among male-headed households differed from those of female-headed households. Figure 11 shows that cat-ownership patterns of male-headed households mirrored the percentage of households in general, regardless of the education level of the male head. This phenomenon was not observed for female-headed households.

In 2001, both male- and female-headed households exhibited similar pet ownership patterns by education level. Dog ownership rates varied less than 3% across all education levels while cat

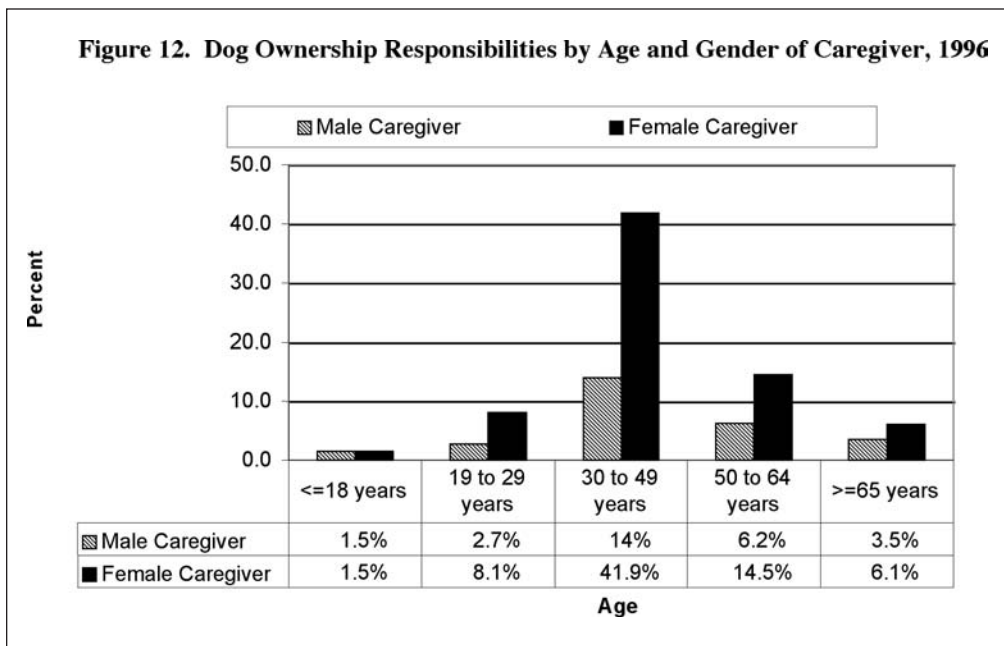
ownership rates varied less than 5% across all education levels. Over 42% of the households at each education level owned dogs and over 31% of the households at each education level owned cats in 2001.

Households headed by college graduates had the highest rates of dog ownership and cat ownership in 2001 at 44.9% and 36.1%, respectively (American Veterinary Medical Association, 2002).

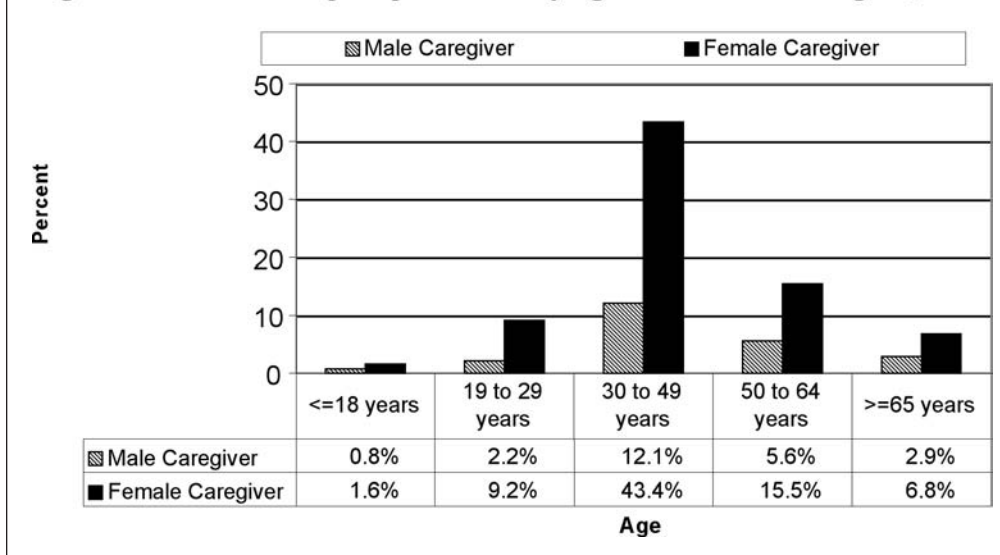


Source: American Veterinary Medical Association (1997).

Age and gender. Figures 12 and 13 show age and gender of the caregiver. The figures closely resemble one another, suggesting that dogs and cats have similar primary caregivers. In 1996, both dogs and cats were more likely to be cared for by females than by males, irrespective of the age of the caregiver. The only subgroup where responsibility was equally shared between males and females was dog owners who were no more than 18 years of age.



Source: American Veterinary Medical Association (1997).

Figure 13. Cat Ownership Responsibilities by Age and Gender of Caregiver, 1996

Source: American Veterinary Medical Association (1997).

Regardless of gender, the most common age bracket for pet caregivers was between 30 and 49 years of age and the second most common age bracket was between 50 and 64 years of age. These ages correspond to the parenting life stage which was reported earlier as a common pet ownership characteristic.

Females serve as primary caregivers for both cats and dogs. For the youngest age grouping (age 18 or younger), women served as primary caregiver in 59.6% of households in 2002. At all other age groupings (19-29, 30-49, 50-64, and 65 or more), women were even more likely to serve as primary caregivers. In the age group from 19 to 29, 85% of the households reported that a female was the primary caregiver, leaving only 15% of those households for male pet caregivers (American Veterinary Medical Association, 2002).

Home ownership. Home ownership is our final determinant of pet ownership. Households owning homes were more likely than rental households to own dogs or cats (American Veterinary Medical Association, 2002).

Summary of pet ownership trends

In 2002, there were 60.7 million dogs and 76.8 million cats in the U.S. – the largest dog and cat populations in any country in the world.

In recent years, and particularly between 1991 and 1996, multiple dog ownership and multiple cat ownership have become increasingly common among households in the U.S. Also in recent years, cat populations have experienced greater growth than have dog populations. Pet owner demographic characteristics included:

- **Life stage:** Young, middle, and older parents represented more than half of dog and cat owning households.
- **Household income:** Pet ownership is disproportionately high among households with an annual income between \$25,000 and \$85,000.
- **Household size:** Households with three or more people had disproportionately high levels of pet ownership.

- **Community size:** Pet ownership is comparatively high in communities with a population of less than 100,000.
- **Education level:** Pet ownership among households headed by males and those headed by females who had attended college or had completed a 2-year or 4-year degree was disproportionately large. Households headed by females who had completed advanced degrees and households headed by males with a high school diploma or less also had higher levels of pet ownership than U.S. households in the same education category in general.
- **Age and gender:** Females were more likely than males to provide care for both dogs and cats in virtually all age categories of the primary caregiver.

In the first section of this report, we described important geographic and demographic characteristics of U.S. pet food consumers. In this section, we describe purchasing patterns among U.S. pet owners by identifying recent trends observed in various types of dog and cat food products purchases.

Dog food

Both consumers and producers of pet food products respond to market determinants. Between 1997 and 1998, for example, dry dog food emerged as the largest and fastest growing product segment in the pet food industry. During this time, pet food snacks recorded a 3% increase in sales, while wet dog food sales remained constant and semi-moist dog food sales declined by 3% (Bregenzer, 1998).

Data from the 1999-2002 Pet Food Reports were combined in Figure 14 to describe dog food sales by type of dog food (Gurkin and Fenstermacher, 1999; and Gurkin, 2000; 2001; 2002).

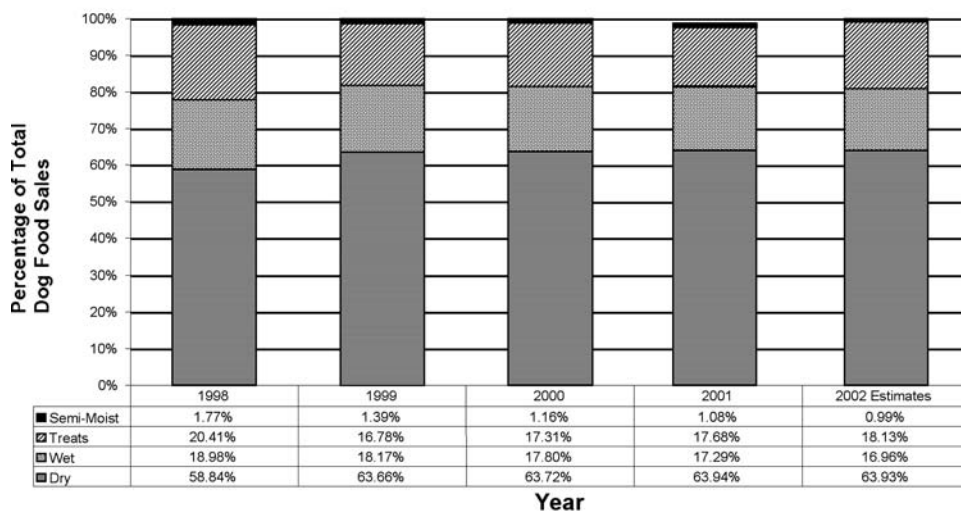
Sales of dry dog food as a proportion of total dog food sales increased only slightly since 1999, after experiencing a noticeable increase between 1998 and 1999. The increase in dry dog food sales took place at the expense of wet and semi-moist dog food, both of which declined annually between 1998 and 2002. The market share held by the dog treats segment was less predictable over this time period, decreasing between 1998 and 1999 and increasing since 1999.

If semi-moist and wet dog foods continue to decline in relative popularity, the market share of the dry dog food segment is likely to strengthen even further. The dog treats market share may also remain sizable, but the complementary nature of this product suggests that it will not overcome the dominant sales position held by dry dog food.

4.

Pet food market product analysis

Figure 14. U.S. Annual Sales of Dog Food by Product Type, 1998 - 2002

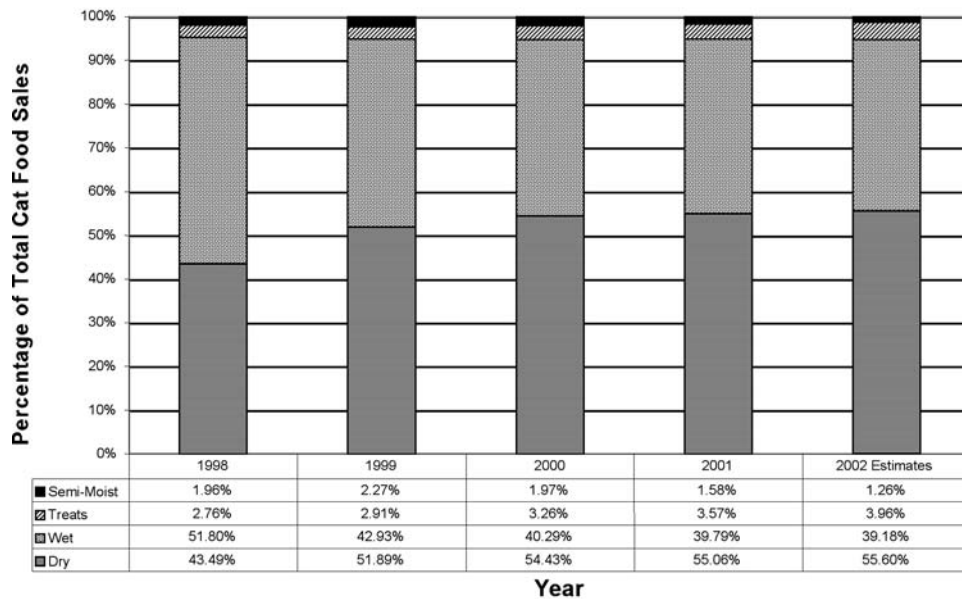


Source: Gurkin and Fenstermacher (1999) and Gurkin (2000; 2001; and 2002).

Cat food

Annual growth in cat food sales has decelerated from more than 8% in 1996-1997 and 1997-1998 to approximately 4% in 2001-2002 (Maxwell, 1998; Gurkin and Fenstermacher, 1999; Gurkin, 2002). Figure 15 displays annual sales of cat food products between 1998 and 2002, based on grocery, drug, and mass merchandise outlet scanner data collected by Information Resources, Inc. and reported in the Pet Food Industry's annual Pet Food Report.

Dry cat food sales as a proportion of total sales increased only slightly since 2000, after experiencing noticeable increases between 1998 and 1999 and 1999 and 2000. The relative increase in dry cat food sales took place at the expense of wet and semi-moist foods, both of which declined in annual market share between 1999 and 2002.

Figure 15. U.S. Annual Sales of Cat Food by Product Type, 1998 - 2002

Source: Gurkin and Fenstermacher (1999) and Gurkin (2000; 2001; and 2002).

Sales of the four broad categories of cat food products generally underwent similar changes as those of their counterparts in the dog food market. In particular, between 1998 and 1999, the relative share of dry cat foods sales increased considerably, while sales of wet cat food decreased substantially.

Also similar to observations made about patterns in U.S. dog food markets, the tradeoff between wet and dry cat food continued since 1999 but at less dramatic levels. That is, the relative share of dry cat food sales increased at the expense of the share of wet cat food sales, as proportions of total cat food sales.

Again akin to dog food market patterns, semi-moist cat food appears to be falling out of favor among consumers. The small share of semi-moist cat food sales has continued to dwindle since 1999. On the other hand, cat treats sales continue to grow, despite the small market segment of this product type as a share of total cat food sales. If the cat food market follows a similar pattern as the dog food market, the market segment share of cat treats will further increase in the future. It also appears likely that the market segment of dry cat food will remain stable or increase in the future, amidst the declining popularity of semi-moist and wet cat foods.

Product trend summary

Dry food sales are becoming increasingly important in both dog and cat food markets. This trend is directly related to consumers' desire for convenience. Not only are dry pet foods easier to handle and store, consumers also perceive dry foods to be healthier (Downing, 1999).

Another pattern in both markets is the relative growth of treat sales as a proportion of total sales in each market. The major difference between the dog and cat treat sectors is that dog treats represent a much larger share of total dog food sales than do cat treats as a share of total cat food sales. At nearly 20% of total dog food sales, dog treats are the second largest dog food product category. Cat treats, on the other hand, represent less than 5% of total cat food sales.

The growth in pet treat sales in recent years has taken place simultaneously with a growth in human snacks. This supports the belief among observers of pet food markets that pet diets are increasingly patterned after human diets. Current product market analysis and consumer dynamics suggest that successful new product introductions will likely respect consumers' desire for convenience (dry pet foods) and the familial relationship between pets and their owners (pet treats).

In this chapter of the report we assess the growth potential of dog and cat food markets, based on a brief description of historical developments and an overview of the existing competition in the industry. The historical perspective sheds light on how the pet food industry has responded to geographic, demographic, and market influences over time. The overview of various pet food competitors helps in portraying the general climate in the industry.

Maturation of the pet food industry

Concentration in the U.S. pet food market. The commercial pet food industry in the U.S. dates back to the 1920s, when Ralston Purina developed the first commercial pet food products (Irwin, 2001a). In its early stages of development, the industry primarily produced dog biscuits and canned pet food (Rich, 2000).

As a whole, the industry was slow to prosper due to the economic hardships of the Great Depression and World War II. During the latter half of the 20th century, however, many new companies entered the U.S. pet food industry, and product lines became increasingly diversified.

Annual sales and market shares of leading U.S. pet food manufacturers for the end of the 20th and the beginning of the 21st century are listed in Table 2.

Table 2. Leading U.S. pet food manufacturers by annual sales and market share, 1998 and 2002 estimates.

Company	1998	Company	2002E
	U.S. \$ millions (market share)		U.S. \$ millions (market share)
Ralston Purina	\$1,587.8 (14.8%)	Nestlé Purina	\$3,780.0 (30.6%)
Friskies (Nestlé)	\$1,279.5 (11.9%)	Iams	\$1,820.0 (14.7%)
H.J. Heinz	\$1,195.2 (11.1%)	MasterFoods USA (Mars)	\$1,270.0 (10.3%)
Doane (Ol' Roy)	\$722.9 (6.7%)	Hill's (Colgate)	\$1,190.0 (9.6%)
Hill's (Colgate)	\$804.4 (7.5%)	Ol' Roy (Wal-Mart)	\$1,185.0 (9.6%)
Iams (P&G)	\$524.5 (4.9%)	H.J. Heinz	\$975.0 (7.9%)
Kal Kan (Mars)	\$514.3 (4.8%)	Nutro	\$585.0 (4.7%)
Nutro	\$264.3 (2.5%)		
All others	\$3,870.8 (36.6%)	All others	\$1,547.0 (12.6%)
Total	\$10,763.7 (100%)	Total	\$12,352.0 (100%)

Source: Phillips (2000a) and Kvamme (2003).

In 1998, the top five leaders in domestic pet food sales were Ralston Purina, Friskies (Nestlé), H. J. Heinz, Hill's, and Doane. Jointly, the top eight companies in the industry had a market share of approximately 64% of total sales.

Only 4 years later, the pet food industry had become much more concentrated. The market shares of the seven industry leaders increased to 87.4%, leaving a combined market share held by other firms of only 12.6% in 2002.

The move to greater concentration in the pet food industry was particularly strong among the very largest of the market leaders. By far the most dominant player in the U.S. pet food market is Nestlé Purina Petcare, owned by the Swiss multinational Nestlé and formed as a result of the merger of the Friskies PetCare Company and Ralston Purina in 2001.

The second largest pet food manufacturer is Iams, owned by Procter & Gamble since 1999. The third largest company is MasterFoods USA, formed as a result of a merger between Pedigree

5.

Pet food market industry overview

Masterfoods and Mars Confectionary UK in 2001. Hill's Pet Nutrition, Inc. (owned by Colgate-Palmolive), and OI Roy (owned by Wal-Mart) were the fourth and fifth largest pet food manufacturers in 2002, respectively (Kvamme, 2003).

Concentration in international pet food markets. Annual sales of the leading international pet food manufacturers for fiscal years 2000 and 2001 are listed in Table 3. The global pet food market is dominated by a small number of large companies. In 2000, the top five pet food manufacturers captured over 50% of global pet food sales. By 2001, company acquisitions and mergers further increased the concentration in the global pet food industry. Nestlé Purina PetCare and Mars, in particular, distanced themselves from other global competitors in terms of their relative market shares.

Table 3. Leading international pet food manufacturers by annual sales, fiscal years 2000 and 2001.

<i>Company</i>	<i>2000 U.S. \$ millions</i>	<i>Company</i>	<i>2001 U.S. \$ millions</i>
Mars Inc.	\$ 5,900	Nestlé Purina Pet Care	\$ 6,300
Nestlé SA	\$ 3,800	Mars (Mars, Masterfoods USA, Royal Canin SA)	\$ 5,900
Ralston Purina	\$ 2,500	Iams	\$ 1,400
H.J. Heinz	\$ 1,200	Hill's Pet Nutrition	\$ 1,100
Hill's Pet Nutrition	\$ 1,100	H.J. Heinz	\$ 970
Iams	\$ 1,000	Doane	\$ 900
Doane	\$ 933	Nutro Products	\$ 400
Royal Canin SA	\$ 522		(approx)

Source Kvamme and Phillips (2002) and Kvamme (2003).

The degree of concentration in the global pet food industry is not only reflected in sales data, but also in the number of new product introductions. Supermarket and drug store scanner data indicate that 185 new pet food products were introduced for the year ending September 9, 2001, corresponding with annual sales greater than one million dollars. Between 1999 and 2001, five companies were responsible for nearly 85% of all new product introductions, and each of the five companies introduced 20 or more new products. Those companies and the number of new products introduced were Ralston Purina (40), Nestlé (35), Mars/Kal Kan (33), Procter and Gamble/IAMS (25), and Heinz Pet Products (21) (Henninger, 2001).

Pet food company profiles

The frequency of mergers and acquisitions in the pet food industry substantiates the need for reviewing the history of major pet food companies. A brief description of each company follows.

Mars, Inc., the parent company of Masterfoods USA PetCare, was the 2000 global pet food market leader in terms of total sales. En route to dominating the global market, the company led all pet food companies in wet dog food and wet cat food sales. Mars, Inc. produces Pedigree and Whiskas, the world's top selling dog and cat foods, respectively.

Mars, Inc. is neither a sales leader in the U.S. nor in the North American market, despite its dominance in European markets. Mars, Inc. controlled 52.2% and 49.4% of the Eastern European dog and cat food markets in 1999. In the same year, Australasia (Australia and Asian countries) and Western Europe ranked as the company's next strongest geographical markets (Irwin, 2001a; Kvamme and Phillips, 2002).

In 2002, the European Commission approved a take-over bid of Royal Canin SA by Mars, Inc. Royal Canin's specialization in dry pet foods, superpremium, and nutritional lines provides a way

for Mars, Inc. to diversify its product markets. As a result, the company has become strategically positioned in the fastest growing sectors of pet food (Kvamme, 2003).

Nestlé Purina PetCare Company was formed on December 31, 2001, following the merger of two historically successful companies, Nestlé SA and Ralston Purina. Nestlé SA became a large pet food producer by acquiring other companies including Carnation (1985), Alpo (U.S., 1994), Perravina (Venezuela, 1997), Spillers Pet Food (United Kingdom, 1998), Jupiter (Austria, 1998), and Cargill Pet Food (Argentina, 2000) (Irwin, 2001a). Ralston Purina, the world's largest dry pet food producer, increased its global market share as a result of the success of its leading dry pet food products, Purina Dog Chow, Purina Cat Chow, and Meow Mix (Kvamme and Phillips, 2002).

The two original companies were largely dependent on the U.S. pet food market at the time of the merger. In 2001, Nestlé and Ralston Purina held 10% and 28% of the U.S. dog food market, respectively. In addition, Nestlé controlled 32% of the U.S. cat food market while Ralston Purina held 26% of that market. U.S. regulators approved the merger on the condition that the Meow Mix and Alley Cat varieties be sold off (Kvamme, 2003).

H. J. Heinz, an industry leader in both dog and cat snacks, is the most common name in the pet snacks industry. The Heinz Pet Products Division has experienced growth outside the U.S., primarily in Europe and Canada. H.J. Heinz also has been successful in South Africa and Argentina. Its future plans are to continue to expand its presence in Canada, the U.S., and other locations including Italy, New Zealand, Australia, and the United Kingdom (Kvamme and Phillips, 2002; Irwin, 2001a).

Hill's Pet Nutrition has developed as the industry leader in specialty cat and dog food markets. In recent years, this company has experienced international growth in Europe, the South Pacific, and Latin America. Hill's "Science Diet Feline Hairball Control" formula has been particularly popular in Japan and several European countries.

The company's focus on super-premium varieties is consistent with marketing its products in developed nations. Continued international growth for Hill's Pet Nutrition products is expected to be centered in Japan, Australia, New Zealand, Korea, Taiwan, Malaysia, France, Scandinavian countries, the Netherlands, and Eastern Europe (Kvamme and Phillips, 2002; Kvamme, 2003).

Iams Company established a strong industry presence in the premium cat and dog food market segments. One unique feature of the Iams Company is its method for distributing its products at different outlets, depending on whether the product type is sub-premium, premium, or super-premium. Iams also has a diverse network of distributors that facilitates home delivery service.

Iams pet foods are sold in 70 countries, including European, Japanese, Asian, and Latin American countries in addition to the U.S. While Iams was the premium pet food leader in the U.S. in 2001, nearly 30% of the company's total revenue was generated in international markets. In 2001, the company experienced 14.7% sales growth (Irwin, 2001a; Kvamme and Phillips, 2002; Kvamme, 2003).

Doane Pet Care is the private label leader in the U.S. and the world. As the fourth ranking U.S. pet food sales leader in 2000, Doane's Pet Care primarily distributes its products to price-conscious pet food consumers at Wal-Mart, Costco, Sam's Club, and Petsmart.

Approximately 80% of Doane's sales occur in the U.S., while Europe and Mexico account for most of the remaining 20%. Net sales in the first 9 months of 2002 were down by 5% compared to 2001, and the company considered selling its European pet food business, Arovit Pet Food (Irwin, 2001a; Kvamme and Phillips, 2002; Kvamme, 2003).

Globalization

Sales data and company profiles suggest that the U.S. pet food industry is global in nature. Phillips (2000a) identified falling trade barriers, homogenized consumer preferences, large technology investments, decreased transportation costs, and easier product movement as general factors contributing to a globalized industry.

Falling trade barriers. A consequence of reduced trade barriers is increased international trade opportunities for pet foods due to easier market access. Reduced trade barriers also permit pet food processing plants to be located near important pet food markets to serve a broad network of consumers.

Homogenized consumer preferences. The increased dominance of dry foods in both dog and cat food markets is an example of homogenized preferences of pet food consumers. Another example of market homogenization is the increased desirability of nutritionally enhanced pet food varieties.

Large technology investments. In conjunction with processing nutritionally enhanced varieties, large technology investments are being incurred by pet food producers, providing an advantage to producers with large-scale facilities.

Decreased transportation costs and easier product movement. Easier movement of information, money, and people facilitates globalization. When resources can be dispersed in an easier, faster, and more economical manner, the costs associated with international market access decline.

The large number and size of the acquisitions in the pet food industry are indicative of the industry's transition from a domestic to an international industry. The four major factors of globalization (falling trade barriers, homogenized preferences, large technology investments, and easier product and input movements) continue to influence pet food industry developments.

Expansion opportunities will be most prevalent in regions such as Latin America and Asia, which have traditionally constituted relatively small components of the international pet food market.

Given the ongoing trends described above, it is likely that the pet food industry will become even more concentrated in the future as pet food companies become larger, increasingly international, and more specialized in the areas of formulation, processing, and packaging (Phillips, 2000a).

Pet food markets in the U.S. have expanded throughout the 1990s in response to increased pet populations and spending per animal and as a result of the growing acceptance and purchases of processed pet foods (Gurkin, 2001). The large dog population and high penetration level of prepared dog food in the U.S. have contributed to this country's status as a global dog food market leader, in terms of both total value and volume of dog food sales (Irwin, 2000). The U.S. also has a dominant position in global cat food markets. In 1998, the country's share of global cat food sales was 37.7% and that of global cat food volume produced was 42.2% (Irwin, 2000).

Market size and growth trends

Gurkin (2001) reported that retail dog and cat food sales in the U.S. totaled \$11.1 billion in 2000, marking a 3.1% increase from 1999 levels. Between 2000 and 2001, dog and cat foods sales experienced a growth rate of 5.9% at the retail level, resulting in total U.S. dog and cat food sales of \$11.8 billion in 2001 (Gurkin, 2002). Industry experts predicted slower growth (4.6%) for 2002, projecting sales of \$12.4 billion.

Continued growth in pet food sales in the U.S. is driven by several factors, including increases in pet ownership levels and growth in premium pet foods and treats (Gurkin, 2002). Double-digit growth rates experienced in the 1990s are no longer common, but growth rates remain at a moderate level of nearly 5% per year.

Because of its large size, changes in domestic U.S. pet food markets have a large impact on international pet food market conditions. This is illustrated in Table 4, which lists the market values and contributions of each regional market as a share of the total economic activity in global pet food markets in 1999. The North American market accounted for 41% of the value of the global pet food market in 1999. Not surprising, the U.S. represented the vast majority of the North American market. The table further shows that the North American and Western European regions jointly represent nearly 75% of the total sales in the international pet food markets. Of the remaining geographical markets, only Asia accounts for more than 10% of all international pet food sales. U.S. and international pet food markets experienced growth throughout the 1990s, particularly in the latter half of the decade. Pet populations, increased spending per animal, and growing acceptance and purchase of processed pet foods (including treats) served as primary stimulants (Irwin, 2000).

Table 4. International pet food market value and market share by region, 1999.

<i>Markets</i>	<i>Approximate value in US \$ billion</i>	<i>Percentage of global share</i>
North America	\$11.30	41%
Western Europe	\$9.10	33%
Asia	\$3.00	11%
Latin America	\$1.60	6%
Australia	\$1.40	5%
Eastern Europe	\$0.80	3%
Middle East	\$0.30	1%
Total	\$27.50	100%

Source: Promar International in Kvamme (2002)

Now we further examine factors of growth in U.S. pet food markets.

Pet population. An important factor in the growth of a nation's pet food market is the number of pets held by the nation's inhabitants. In turn, the relative size of a nation's pet population depends on the amount of land available for urban households, and on the level of development of its agricultural industry (Phillips, 2000b). Thus, densely populated countries typically have lower pet ownership levels than nations with low population densities.

In 1999, the U.S. had 58.5 million dogs, ranking the nation first among countries in terms of total dog population. The U.S. dog population was more than two and a half times as large as that of the second most populous nation, Brazil, which had 23.0 million dogs (Irwin, 2001b). In addition to having relatively large amounts of land available per citizen and a highly developed agricultural industry, the U.S. has a relatively large human population with a high standard of living and widespread pet ownership.

Major cat populations also are concentrated within a small number of countries. Between 1995 and 1999, the 20 countries with the largest cat populations had a combined growth rate in terms of cat numbers of approximately 9%, resulting in a total of 221.2 million cats (Irwin, 2001b). In 1999, there were 72.6 million cats in the U.S., approximately one-third of the total number of cats in the world and representing more than one and a half times the cat population in the second most populated country in terms of cats, China, which had 46.8 million cats.

Increased spending per animal. The second major contributing factor to the growth of a nation's pet food market is the amount of spending per animal. The amount of money spent on pet foods by U.S. consumers has increased in recent years. In fact, for the 52 weeks ending on September 9, 2001, average dog and cat food prices increased 7.5% and 11.4%, respectively, compared to a price increase of 7.8% for all non-edible groceries (Henninger, 2001).

Several factors contributed to increased spending. In recent years, it has become increasingly common for American consumers to purchase high-value, high-priced products for their pets, including "superpremium" or nutraceutical varieties (Henninger, 2001). Pet owners have also become increasingly willing to pay for convenience products that accommodate busy lifestyles.

Henninger (2002) reported that pet food and pet products markets were depressed following September 11, 2001, but recovered and grew by 5.7% in the first 24 weeks of 2002. These positive results were confirmed by information collected by Information Resources, Inc., which reported dog food sales increases of 8%, and cat food increases of 3% during the first half of 2002 (Henninger, 2002).

Growing acceptance and purchase of processed pet foods. In addition to pet population size and the amount of money spent per animal, pet food market growth has been affected by people's changing attitudes toward their pets. This is illustrated by the fact that the use of processed pet foods is most common in developed nations such as the U.S., where pets are often viewed as family members. In contrast, in nations where pets are considered working animals, processed pet foods have been slow to replace animal products obtained through hunting or human food scraps.

Pet food penetration is one means of measuring processed pet food acceptance in a nation. Dog or cat food penetration reflects the percentage of total dietary calories that a dog or a cat receives via consumption of commercially prepared dog or cat food. Therefore, 100% minus the dog or cat food penetration percentage would represent the percentage of the diet of the dog or the cat that comes from sources other than processed dog or cat food. Dog and cat food penetration levels by country for 1994 and 1998 are included in Appendices C and D.

Phillips (2000b) described a three-step procedure for calculating the pet food penetration level in a country. In the first step, the total number of calories needed for a nation's pet type is found by multiplying the number of calories required by an average dog or cat by the nation's total dog or cat population. Second, the total number of calories sold as industrially-prepared pet food is calculated based on sales figures and estimates of product caloric content. In the final step, an estimate of industrially prepared pet food penetration is found by dividing the total number of calories from industrially prepared pet food sources by the total number of calories needed in each nation.

According to Phillips (2000b), the U.S. ranks among the world's top 15 nations in terms of pet food penetration levels of both dog and cat food. The U.S. dog food penetration level increased

from 45.7% in 1994 to 51.5% in 1998. The increase in the U.S. cat food penetration level was smaller, from 47.8% in 1994 to 48.2% in 1998. Phillips (2000b) qualified these results by noting that the pet food penetration calculation procedure is less accurate for dogs than for cats because variations in size, type, and caloric needs are more common among dogs than among cats.

Estimates of dog and cat food sales by product type provide an indication of the nation's dependence on the various types of dog and cat food products, as reported in Table 5.

Table 5. U.S. dog and cat food sales at the retail level, 2000-2002 (U.S. \$ million).

<i>Combined dog and cat food sales</i>	<i>2000 sales</i>	<i>2001 sales</i>	<i>2002 estimate</i>	<i>% change (2000-2001)</i>	<i>% change projected (2001-2002)</i>
Dry food	\$6,744.00	\$7,190.00	\$7,545.00	6.60%	4.90%
Wet food	\$2,846.00	\$2,955.00	\$3,031.70	3.80%	2.60%
Treats	\$1,390.00	\$1,515.00	\$1,642.00	9.00%	8.40%
Semi-moist food	\$160.60	\$148.00	\$133.30	-7.80%	-9.90%
Total pet food	\$11,140.60	\$11,808.00	\$12,352.00	6.00%	4.60%

Source: Gurkin (2002).

The table shows that U.S. pet food sales at the retail level increased from \$11.1 billion in 2000 to \$11.8 billion in 2001. Projections suggested that sales would continue to grow to over \$12 billion in 2002. Total sales increased 6.0% between 2000 and 2001, but were projected to increase only 4.6% between 2001 and 2002, following the September 11, 2001, tragedy.

Dry food, wet food, and treats continued to experience positive growth between 2001 and 2002, albeit at lower rates than in the preceding year. Between 2001 and 2002, the greatest overall growth rate was projected for treats, while sales of dry foods and wet foods were expected to maintain moderate growth.

Semi-moist cat and dog foods fell farther out of favor among pet food consumers, thereby contributing to the overall decline in total pet food sales. In particular, semi-moist cat and dog food sales declined even faster between 2001 and 2002 than during the previous year.

It is useful to separate the data presented in Table 5 into dog food and cat food purchases by U.S. consumers. Dog food sales comprised approximately two-thirds of total sales, while cat food sales represented the remaining one-third of total sales. Tables 6 and 7 display total U.S. dog food and cat food sales, respectively, for the years 2000 through 2002.

Table 6 shows that between 2000 and 2002, changes in total dog food sales closely matched those of total pet food sales. Total dog food sales between 2000 and 2001 increased by 6%. The category with the largest growth was dog treats. The same category was also expected to experience the largest continued growth between 2001 and 2002.

One difference between dog food sales and pet food sales as a whole was that the relative decline in semi-moist dog food sales was smaller than the decline in semi-moist pet food sales in general. Appendix E displays U.S. dog food sales by category and brand for 2001, as well as comparable sales estimates for 2002.

During the period from 2000 to 2001, the rate of change in total cat food sales was similar to that of total dog food sales. The category that experienced the largest rate of growth was cat treats. The same cat food category was also expected to experience the largest continued growth between 2001 and 2002. However, sales of semi-moist cat food declined faster than those of pet foods in general. Appendix F displays U.S. cat food sales by category and brand for 2001, as well as comparable sales estimates for 2002.

Table 6. U.S. dog food sales at the retail level, 2000-2002 (U.S. \$ million).

<i>Dog food sales</i>	<i>2000 sales</i>	<i>2001 sales</i>	<i>2002 estimate</i>	<i>% change (2000-2001)</i>	<i>% change projected (2001-2002)</i>
Dry dog food	\$4,657.00	\$4,955.00	\$5,201.00	6.40%	5.00%
Wet dog food	\$1,301.00	\$1,340.00	\$1,379.70	3.00%	3.00%
Dog treats	\$1,265.00	\$1,370.00	\$1,475.00	8.30%	7.70%
Semi-moist dog food	\$85.00	\$84.00	\$80.30	-1.20%	-4.40%
Total dog food	\$7,308.00	\$7,749.00	\$8,136.00	6.00%	5.00%

Source: Gurkin (2002).

Table 7. U.S. cat food sales at the retail level, 2000-2002 (U.S. \$ million).

<i>Cat food sales</i>	<i>2000 sales</i>	<i>2001 sales</i>	<i>2002 estimate</i>	<i>% change (2000-2001)</i>	<i>% change projected (2001-2002)</i>
Dry cat food	\$2,087.00	\$2,235.00	\$2,344.00	7.10%	4.90%
Wet cat food	\$1,545.00	\$1,615.00	\$1,652.00	4.50%	2.30%
Cat treats	\$125.00	\$145.00	\$167.00	16.00%	15.20%
Semi-moist cat food	\$75.60	\$64.00	\$53.00	-15.30%	-17.20%
Total cat food	\$3,832.60	\$4,059.00	\$4,216.00	5.90%	3.90%

Source: Gurkin (2002).

Supermarket and drug store scanner data for the year ending September 9, 2001, suggest that the largest rate of growth in pet-product sales (dog food, cat food, cat litter, and pet supplies) occurred in the Plains states (North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, and Minnesota) (Henninger, 2001). These states experienced pet product sales growth of 11% over the preceding year. The double-digit growth rate was exceptional in comparison to growth rates in other regions, which varied from 0% in the northeast to 3.9% in the west.

Future market growth potential

The U.S. is expected to continue to be a major component of the global pet food markets due to the nation's large dog and cat populations and modest pet food penetration levels. While the double-digit growth rates experienced in the 1990s are not predicted to continue, the pet food market continues to experience moderate annual growth of approximately 5%. Four important drivers of economic activity in pet food markets were reported by Downing (1999) and include new product developments, consumers, retailers, and manufacturers.

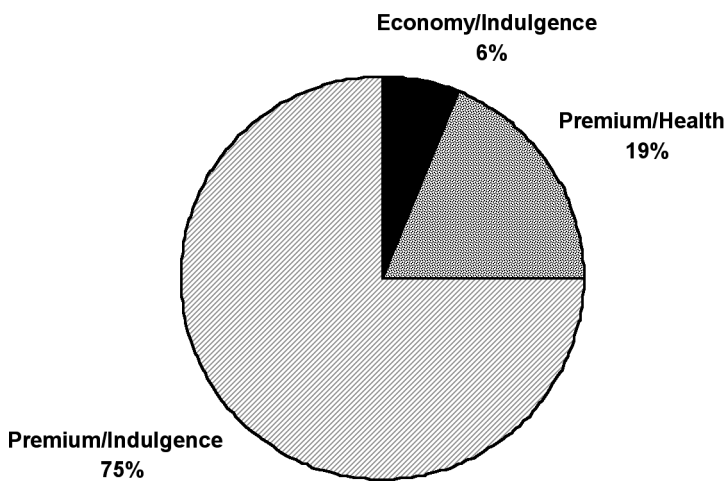
New product development. An analysis of supermarket and drug store scanner data showed that there were 185 new pet product introductions with annual sales greater than U.S. \$1 million for the year ending September 9, 2001 (Henninger, 2001). Among the leading dog products introduced were 38 dry food, 30 biscuit or treat, and 22 canned food products. The leading cat products included 28 dry food, 25 canned food, and 22 litter products. Based on the large number of newly introduced products, it appears that dog food and cat food producers continue to see value in introducing new dry and canned pet food products.

The direction of new pet product development is largely expected to mimic patterns observed in human food industry markets. Downing (1999) stated that consumer spending on pet food is increasing because pets form an integral part of family life and pet owners want to provide the

best nutrition to their pets. As a consequence, there has been growth in superpremium and nutraceutical products. Further, pet owners place an increased emphasis on pet health and demand product varieties made from natural ingredients.

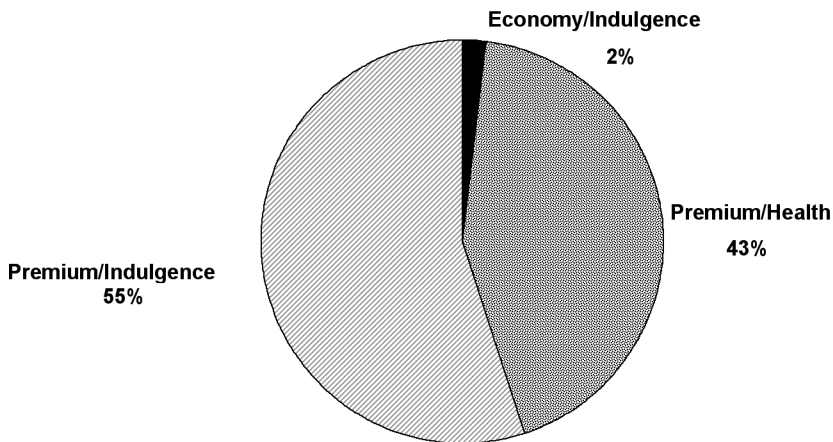
Results from a global survey of managers involved with the development of new pet products conducted by Euromonitor suggested that new product introductions are largely focused on convenience and health (Downing, 1999) (Figures 16 and 17). While health was rated as one of the least important product development factors at the time of the survey, the managers expected health-related aspects to become increasingly important in the development of pet foods in the future. Convenience ranked as the factor expected by these managers to become most important in the near future.

Figure 16. Pet Food New Product Development Sectors



Source: Downing (1999).

Figure 17. Pet Treat New Product Development Sectors



Source: Downing (1999).

Research results reported by Downing (1999) suggest the emphasis in the development of a new pet food product is on premium and indulgence products. Figures 16 and 17 display the division of pet food and pet treat introductions between economy/premium and health/indulgence products. The two figures show that the pet food market is increasingly focused on premium varieties, moving away from economy varieties. Furthermore, indulgence products are more popular than health products in the new development of both pet food and pet treats segments. Examples of premium and indulgency types of pet food products are dental, vegetarian, dietetic, and premium meat varieties.

Consumers. The second key driver of economic activity in global pet food markets is the consumer. Consumers are expected to increase their demand for “low-maintenance” pets to fit busy professional and personal lifestyles.

Downing (1999) reported that economic and demographic changes among consumers have had critical effects on pet food markets. Consumers are spending increasing amounts of time at work, more and more women are participating in the labor market, and there has been an upsurge in the number of single-adult households. The combination of these and other factors has placed increasing pressure on time, creating strong demand for pets that are easy to maintain. Because pets must coexist with modern lifestyles, cats will likely increase in popularity, while the dog population is expected to stabilize or possibly decline.

Retailers. Aggressive competition among retailers will serve as an additional market driver. Henninger (2002) reported cat and dog food purchases among households by type of outlet (Table 8).

Table 8. Dog and cat food purchases among households by type of outlet, in percent of total dog and cat food purchases, 2002.

<i>Outlet</i>	<i>Dog food</i>	<i>Cat food</i>
Supermarkets	36.6%	32.9%
Mass merchandisers	29.6%	25.2%
Supercenters	16.7%	13.4%
Pet stores	12.5%	10.7%
Club stores	6.5%	6.3%
Dollar stores	4.3%	4.5%
Drug stores	2.6%	4.0%

Source: Henninger (2002).

The table shows that supermarkets and mass merchandisers remain the leading locations for pet food purchases among households. Wal-Mart is one retailer that has focused on marketing pet foods in several settings that include Wal-Mart stores (mass merchandisers category), Super Wal-Marts (supercenters category), and Sam’s Club (club stores category). This strategy has proven successful, measured both in terms of the average number of shopping trips involving pet food and product purchases, and in annual household spending on pet food (Henninger, 2002).

Manufacturers. The final key driver of economic activity in pet food markets —after new product developments, consumers, and retailers—is the manufacturer. Recent market trends indicate that pet food manufacturing will continue to become increasingly concentrated around the world. Further mergers and acquisitions will likely continue to reduce the number of firms in the industry.

As a result of increased concentration, industry leaders have little to fear from new entrants into the pet food industry. On the other hand, competition between existing firms in the industry is expected to increase in the foreseeable future (Downing, 1999).

International pet food markets experienced growth throughout the 1990s, particularly in the latter half of the decade. Growth in international pet food markets paralleled that of the U.S. economy in general.

Market size and growth trends

Increases in pet populations, spending per animal, and acceptance and purchases of processed pet foods (including treats) served as the most important growth stimulants of pet food markets in both developed and emerging nations in the 1990s (Irwin, 2000).

The pet population. The international demand for pet food is primarily determined by the total number of dogs and cats in the world. In 1999, the total number of dogs in the 20 countries with the largest dog populations was 202.4 million. Table 9 lists dog numbers for the 20 most populated countries. Between 1995 and 1999, dog numbers increased by approximately 4% in these 20 countries (Irwin, 2001b).

The majority of the world's total cat population also is concentrated within a small number of countries. The total number of cats in the 20 countries with the most cats in the world was 221.2 million in 1999 (Table 10). Between 1995 and 1999, the number of cats increased by 10% in these 20 nations (Irwin, 2001b).

Table 9. Twenty largest dog populations, by country, 1999.

Rank	Country	Dogs (millions)
1	United States	58.5
2	Brazil	23.0
3	China	19.4
4	Japan	9.6
5	Russia	9.4
6	France	8.1
7	South Africa	7.8
8	Poland	7.4
9	United Kingdom	6.7
10	Italy	6.3
11	Philippines	5.7
12	Ukraine	5.5
13	Germany	5.2
14	Romania	5.2
15	India	4.8
16	Thailand	4.6
17	Mexico	4.6
18	Canada	3.8
19	Spain	3.5
20	Argentina	3.3

Source: Euromonitor in Irwin (2001)

Table 10. Twenty largest cat populations, by country, 1999.

Rank	Country	Cats (millions)
1	United States	72.6
2	China	46.8
3	Russia	12.5
4	Brazil	10.0
5	France	8.7
6	United Kingdom	7.7
7	Japan	7.5
8	Ukraine	7.2
9	Italy	7.0
10	Germany	6.5
11	Philippines	6.4
12	Poland	5.4
13	Canada	4.8
14	India	3.9
15	Spain	2.8
16	Australia	2.7
17	Netherlands	2.3
18	Hungary	2.2
19	Romania	2.1
20	Thailand	2.1

Source: Euromonitor in Irwin (2001)

The size of a nation's pet population is affected by the country's overall economic conditions. This is exemplified by Russia, which experienced concurrent declines in both dog and cat ownership and economic conditions between 1995 and 1999.

A number of other countries experienced large increases in dog ownership over the same period. In Romania, Thailand, and South Africa, the total number of dogs increased by 49.7%, 52.8%, and 25.8%, respectively, between 1995 and 1999. By 1999, these three countries ranked as the 14th, 16th, and 7th nations with most dogs, respectively, in the world.

Growth in cat ownership was also regionally concentrated during this time period. China, Japan, Indonesia, and Thailand were among countries that experienced the largest cat population increases between 1995 and 1999 (Irwin, 2001b).

Increased spending per animal. As is the case with pet food expenditures among U.S. consumers, the amount of money spent on pet foods by international consumers has increased in recent years. Globally, the most important factors contributing to the increased spending per animal were similar to those in the U.S.

In developed nations, for example, consumer concern about animal health and nutrition has fueled growth in sales of premium, superpremium, and nutraceutical pet food varieties. In less developed nations, increased spending per animal resulted from a decreased dependence on human food scraps and greater reliance on commercially produced pet foods.

Growing acceptance and purchase of processed pet foods. Global pet food markets are subject to social, demographic, and attitudinal changes in various nations. Because the U.S. constitutes a very important component of global pet food markets, changes taking place in the U.S. pet food market, in turn, greatly affect global pet food markets.

Between 1994 and 1998, market growth in the U.S. was primarily due to increased demand for premium brand products and additional spending for pet treats and accessories. In turn, the move towards these “luxury” varieties manifested itself as a global trend. The second most influential country in global pet food markets is the United Kingdom. During the same 5-year period, premium varieties prospered due to increased emphasis on nutritionally appropriate diets for families and their pets in the United Kingdom. Brazil, Italy, and Spain were responsible for additional growth in global pet food markets as people’s perceptions of pets changed from working animals to family members. This attitudinal change has resulted in changing consumer demands as owners supplement or replace human food scraps with processed pet food (Irwin, 2000).

The volume of pet foods sold in global pet food markets depends on the number of pets, as well as the adoption levels of processed pet foods in each market. For example, China has one of the world’s highest pet populations, but most consumers have little disposable income, resulting in a low pet food penetration level for that country (Irwin, 2000). A concise description of global pet food adoption is included in the pet food penetration levels of Appendices C and D.

Countries with relatively high pet food penetration levels generally have rather healthy economic conditions, because pet owners in these nations are able to allocate more money to their pets than their counterparts in less prosperous economies (Phillips, 2000b). This is illustrated by the fact that dog food penetration levels ranged from zero in Vietnam to 73.5% in Norway, and cat food penetration levels varied from zero in Vietnam to 93.9% in Germany in 1998.

Pet food penetration levels may also depend on a nation’s income distribution. For example, in the Latin American, Asia-Pacific, and Eastern European regions, most sales are tied to a minority of people in the upper income brackets.

Table 4 displayed pet food market value and market share by major regions of the world. The table indicates that in recent years, processed pet foods have gained increased acceptance in regions where pet food traditionally involved feeding human food scraps to pets. Japan and other parts of the Asia-Pacific market serve as examples of regions where the practice of feeding scraps from human consumption has been substituted by feeding processed pet foods. Similar changes have taken place in Eastern European and Latin American countries. Advertising strategies focused on educating consumers on the nutritional benefits of feeding processed pet food versus human food scraps to the animals have further opened nontraditional markets (Irwin, 2000).

Tables 11 through 14 list the purchasing behavior of consumers buying cat food and dog food by global region, expressed in both value and volume for 1994 and 1998. Table 11 shows that

Eastern Europe, Latin America, North America, and Western Europe each experienced increases in the total value of dog foods sold between 1994 and 1998, while the Australasia, African and Middle Eastern, and Asia-Pacific regions all went through declines in terms of the value of dog foods sold. The North American and Western European regions continued to dominate the global dog food market – jointly the two regions represented 71% of the total value of international dog foods sold. Growth in dog food value was particularly strong in Eastern European and Latin American nations.

Differences in values of cat foods sold between regions were similar to those found in dog food markets (see Table 12). In terms of value, the fastest growing regional cat food markets were in Latin America and Eastern Europe. North America and, to less extent, Western Europe experienced a solid increase in the value of cat foods sold from 1994 to 1998. The Africa and Middle East region reported modest increases in the total value of cat foods sold. Both the Australasia and the Asia-Pacific regions experienced declines in the total value of cat foods sold. North America and Western Europe jointly comprised 81% of the total global value of cat foods sold, placing these two regions in an even more dominating position than in global dog food markets.

Table 11. Dog food value by global region, 1994 and 1998 (U.S. \$ million).

	1994 value	1994 value as % of total	1998 value	1998 value as % of total	1994-1998 % growth
North America	\$4,366.10	37%	\$4,998.00	37%	14.50%
Western Europe	\$4,093.70	34%	\$4,630.10	34%	13.10%
Asia-Pacific	\$1,560.90	13%	\$1,417.10	11%	-9.20%
Latin America	\$987.10	8%	\$1,383.60	10%	40.20%
Australasia	\$464.10	4%	\$446.00	3%	-3.90%
Eastern Europe	\$179.50	2%	\$318.90	2%	77.70%
Africa and Middle East	\$308.10	3%	\$294.00	2%	-4.60%
Total	\$11,959.50	100%	\$13,487.70	100%	12.80%

Source: Irwin (2000).

Table 12. Cat food value by global region, 1994 and 1998 (U.S. \$ million).

	1994 value	1994 value as % of total	1998 value	1998 value as % of total	1994-1998 % growth
Western Europe	\$4,339.60	42%	\$4,900.00	41%	12.90%
North America	\$3,778.10	37%	\$4,700.30	40%	24.40%
Asia-Pacific	\$1,354.80	13%	\$1,221.20	10%	-9.90%
Latin America	\$258.60	3%	\$421.60	4%	63.00%
Eastern Europe	\$158.00	2%	\$243.50	2%	54.10%
Australasia	\$260.90	3%	\$243.10	2%	-6.80%
Africa and Middle East	\$91.20	1%	\$95.40	1%	4.60%
Total	\$10,241.20	100%	\$11,825.10	100%	15.50%

Source: Irwin (2000).

Global trends appear somewhat different when observing the volume of dog food and cat food sold (Tables 13 and 14). Regions with relatively mature markets, as in North America and Western Europe, experienced smaller increases in the volume of dog foods than in the value of dog foods sold (see Tables 11 and 13). This appears to confirm the earlier observed trend toward an increased emphasis on high-value products in these markets. The same phenomenon was true

for Eastern Europe, where the increase in dog food value exceeded the increase in the volume sold. Conversely, the increase in the volume of dog foods sold outperformed the change in the value of dog foods sold in the Latin America, Asia-Pacific, Australasia, and Africa and Middle East regions. This indicates a price decline, perhaps as a result of increased competition in these markets between 1994 and 1998.

Similar dichotomies between value and volume sold were found in regional cat food markets (see Tables 12 and 14). As in the case of dog foods, the relatively mature markets of North America and Western Europe had smaller increases in volume than in the value of cat foods sold. In Latin America, the increase in value was also larger than the increase in the volume, perhaps indicating a maturation of cat food markets in that part of the world.

Table 13. Dog food volume by global region, 1994 and 1998 (thousands of tons).

	1994 volume	1994 volume as % of total	1998 volume	1998 volume as % of total	1994-1998 % growth
North America	3,386.00	43%	3,817.70	41%	12.70%
Western Europe	2,710.00	34%	2,978.40	32%	9.90%
Latin America	571.9	7%	938.5	10%	64.10%
Asia Pacific	507.2	6%	579.8	6%	14.30%
Australasia	383.1	5%	413.0	4%	7.80%
Africa and Middle East	273.0	3%	345.1	4%	26.40%
Eastern Europe	98.1	1%	164.8	2%	68.00%
Total	7,929.30	100%	9,237.30	100%	16.50%

Source: Irwin (2000).

Table 14. Cat food volume by global region, 1994 and 1998 (thousands of tons).

	1994 volume	1994 volume as % of total	1998 volume	1998 volume as % of total	1994-1998 % growth
North America	2,152.80	45%	2,379.60	44%	10.50%
Western Europe	2,080.50	43%	2,316.50	43%	11.30%
Asia Pacific	234.5	5%	280.6	5%	19.70%
Latin America	113.4	2%	168.2	3%	48.30%
Australasia	148.5	3%	141.6	3%	-4.60%
Eastern Europe	57.7	1%	94.0	2%	62.90%
Africa and Middle East	34.2	1%	43.4	1%	26.90%
Total	4,821.60	100%	5,423.90	100%	12.50%

Source: Irwin (2000).

In the Eastern Europe and Africa and Middle East regions, increases in volume outweighed increases in the value of cat food sold. The implicit price decreases seem to indicate increased competition. The contrast between changes in cat food volume and value sold was even more pronounced in the Asia-Pacific region, which experienced declines in the value of dog foods sold, but saw increases in total dog food volume sold between 1994 and 1998, perhaps also suggesting increased competition in these regional markets. In the Australasia region, decreases in value and volume matched one another.

Despite the increase in the shares of both volume and value of cat and dog foods sold in Latin America and Eastern Europe between 1994 and 1998, the two regions' shares of total global volume and value remained relatively constant in both cat food and dog food markets. Because

the North American and Western European regions control around three-quarters of the total volume and value of the international dog and cat food markets, growth in the latter two regions largely determines growth in the international markets.

Future market growth potential

Four important drivers of economic activity in pet food markets were identified by Downing (1999). In the preceding chapter, these drivers were used to describe future growth potential in U.S. pet food markets. Potential future growth in international pet food markets is similarly driven by these factors.

Phillips (2000b) suggested that new pet food products can be successfully introduced in both mature and immature markets. An examination of pet food penetration data (see Appendices C and D) supports this hypothesis, because only nine nations report dog food penetration levels, and 12 nations have cat food penetration levels in excess of 50%.

The success rate of introducing new products in both mature and immature markets, however, is largely dependent upon the lifespan of cultural customs such as feeding human food scraps to pets and expecting pets to hunt for their own food. In their efforts to increase global pet food penetration levels, pet food producers will tailor their future marketing efforts primarily toward educating consumers about the nutritional advantages of processed pet food over traditional ways of feeding pets.

As stated by Downing (1999), global pet food markets will continue to undergo rapid changes, including industry consolidation, new product distribution opportunities, and new product developments. While industry experts predict that mergers and acquisitions will slow down in the near future, competition between pet food manufacturers will increase in developed as well as emerging markets. Competition between grocery and non-grocery retailers is expected to remain intense, and on-line shopping and home delivery will increasingly serve as tools for attracting customers. New pet food product introductions will mirror those of human new product introductions. Finally, pet food ingredients will become increasingly similar to human food ingredients over time, as pet food quality continues to improve.

We have analyzed factors directly and indirectly influencing supply and demand in the pet foods industry. Our investigation of general conditions within the U.S. and international pet food markets enables us to outline a strategy for marketing pet food products by identifying opportunities and threats affecting these markets.

Key findings of the study are the following.

1. Double-digit annual growth rates experienced in the 1990s are no longer common in the pet food industry, but a moderate annual growth rate of nearly 5% remains.
2. Mergers and acquisitions have narrowed the number of pet food competitors.
3. Intense competition exists between industry leaders.
4. Little, if any, evidence exists to suggest that small market entrants can be successful in pet food markets. However, product trends toward premium, superpremium, and nutraceutical pet food varieties may reveal niche market opportunities to serve higher end consumers.
5. Rather than seeking entrance to a market heavily dominated by large multinational conglomerates, it may be more practical for agricultural producers to attempt to sell corn or corn products directly to one or more of the industry's leading pet food processors. Farmers may be able to accomplish this by selling their products on the open market or by contracting.
6. Since 1987, the trend among U.S. households has been toward owning multiple pets. If this trend continues, affiliation with an industry leader may be necessary to exploit brand loyalty among individuals and households who currently own a single pet but may become multiple pet owners in the future.
7. Improved pet food market access would at most provide pet food producers with an avenue for market diversification. Pet food producers (whether or not farmer-owned) would still be able to acquire their raw grain products at prices determined at commodity markets. This is unlikely to lead to significant improvements in local economic development.

The external analysis of customers, competitors, and outside influences signals several opportunities and threats present in pet food markets.

In terms of opportunities, a sufficient customer base exists in both established and emerging markets, and modest growth rates are projected. Because pet diets are increasingly patterned after human diets, the present emphasis on low carbohydrate and high protein human diets suggests that similar pet food varieties may become popular.

Recognition of the transparency between human and pet food product markets may best position a new entrant to capitalize on emerging market opportunities. However, established pet food companies with substantial market shares are a genuine threat to new entrants in the forms of frequent mergers and acquisitions and increased competition. Industry history reveals that several specialty pet food brands of smaller companies were ultimately acquired by pet food industry leaders.

While product trends toward premium, superpremium, and nutraceutical pet food varieties may reveal niche market opportunities to serve higher end consumers, the past performance of previous minority product innovators is discouraging. Industry structure does not appear to be particularly well suited for agricultural producers considering investment in a pet food production or marketing facility.

Based on the results reported here, we advise against developing a full-scale feasibility study of a pet food facility using corn and corn by-product inputs for construction and operation in South Dakota.

8.

Pet food market findings and recommendations

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Appendix A

Dog Population by State in 1991 and 1996, in Thousands of Dogs

State	1991 Population	State	1996 Population
1 California	5,708	1 California	6,085
2 Texas	4,581	2 Texas	5,189
3 New York	2,749	3 Florida	2,758
4 Florida	2,435	4 New York	2,222
5 Pennsylvania	2,296	5 Ohio	2,166
6 Ohio	2,294	6 Illinois	2,059
7 Illinois	2,253	7 Pennsylvania	1,976
8 Michigan	1,962	8 North Carolina	1,865
9 North Carolina	1,529	9 Michigan	1,678
10 Georgia	1,479	10 Georgia	1,677
11 Tennessee	1,243	11 Tennessee	1,447
12 Virginia	1,222	12 Missouri	1,368
13 Missouri	1,221	13 Virginia	1,346
14 New Jersey	1,205	14 Indiana	1,182
15 Indiana	1,178	15 Alabama	1,136
16 Washington	1,173	16 Washington	1,116
17 Alabama	991	17 Kentucky	1,066
18 Louisiana	934	18 Oklahoma	1,026
19 Oklahoma	916	19 Louisiana	976
20 Kentucky	894	20 Arizona	959
21 Wisconsin	887	21 New Jersey	954
22 Massachusetts	873	22 Colorado	934
23 Maryland	861	23 South Carolina	928
24 Colorado	859	24 Mississippi	835
25 Arizona	855	25 Wisconsin	818
26 Minnesota	829	26 Arkansas	816
27 South Carolina	799	27 Minnesota	758
28 Oregon	720	28 Maryland	758
29 Arkansas	662	29 Massachusetts	757
30 Kansas	595	30 Oregon	700
31 Mississippi	594	31 Kansas	572
32 Iowa	579	32 Iowa	538
33 Connecticut	532	33 West Virginia	534
34 West Virginia	510	34 Connecticut	498
35 New Mexico	396	35 New Mexico	498
36 Nebraska	388	36 Utah	366
37 Nevada	335	37 Nebraska	365
38 Utah	300	38 Nevada	358
39 Idaho	243	39 Idaho	293
40 Maine	229	40 Montana	226
41 New Hampshire	212	41 Maine	196
42 Montana	207	42 New Hampshire	148
43 Rhode Island	151	43 South Dakota	145
44 Delaware	137	44 Wyoming	137
45 North Dakota	123	45 Delaware	134
46 Wyoming	123	46 Rhode Island	127
47 South Dakota	122	47 Vermont	109
48 Vermont	93	48 North Dakota	106

Note: No data were obtained for Alaska or Hawaii.

Source: American Veterinary Medical Association (1997).

10.

Appendices

Appendix B

Cat Population by State in 1991 and 1996, in Thousands of Cats

State	1991 Population	State	1996 Population
1 California	7,203	1 California	7,572
2 Texas	3,920	2 Texas	4,523
3 New York	3,622	3 New York	3,213
4 Florida	2,550	4 Florida	2,984
5 Pennsylvania	2,416	5 Ohio	2,533
6 Ohio	2,374	6 Pennsylvania	2,314
7 Illinois	2,202	7 Illinois	2,224
8 Michigan	2,033	8 Michigan	1,878
9 Washington	1,610	9 Washington	1,692
10 Massachusetts	1,531	10 North Carolina	1,572
11 Virginia	1,465	11 Georgia	1,564
12 Georgia	1,464	12 Virginia	1,479
13 New Jersey	1,412	13 Missouri	1,375
14 North Carolina	1,307	14 Indiana	1,358
15 Indiana	1,284	15 Massachusetts	1,269
16 Tennessee	1,187	16 Tennessee	1,212
17 Missouri	1,186	17 New Jersey	1,178
18 Oregon	1,009	18 Oregon	1,066
19 Maryland	977	19 Wisconsin	1,052
20 Minnesota	937	20 Minnesota	1,018
21 Colorado	903	21 Kentucky	1,010
22 Wisconsin	881	22 Oklahoma	1,007
23 Connecticut	855	23 Iowa	946
24 Louisiana	848	24 Maryland	944
25 Kentucky	828	25 Alabama	907
26 Alabama	807	26 Colorado	890
27 South Carolina	789	27 Arizona	889
28 Arizona	717	28 South Carolina	855
29 Oklahoma	697	29 Kansas	817
30 Kansas	647	30 Connecticut	789
31 Arkansas	643	31 Arkansas	731
32 Iowa	626	32 Louisiana	662
33 Mississippi	537	33 Mississippi	643
34 West Virginia	472	34 Nebraska	549
35 Nebraska	422	35 West Virginia	494
36 Maine	405	36 New Mexico	431
37 New Mexico	372	37 Utah	423
38 Utah	350	38 Maine	414
39 Idaho	308	39 Idaho	407
40 Nevada	300	40 Nevada	361
41 New Hampshire	295	41 New Hampshire	295
42 Montana	244	42 North Dakota	271
43 Rhode Island	227	43 Montana	267
44 Vermont	196	44 South Dakota	237
45 North Dakota	167	45 Rhode Island	191
46 Delaware	145	46 Vermont	190
47 South Dakota	142	47 Delaware	183
48 Wyoming	116	48 Wyoming	162

Note: No data were obtained for Alaska or Hawaii.

Source: American Veterinary Medical Association (1997).

Appendix C
Dog Food Penetration Levels by Country, 1994 and 1998, Percent

Country	1994	1998
Norway	69.6	73.5
Australia	60.0	65.0
Israel	34.3	60.0
Switzerland	54.0	60.0
Netherlands	50.9	56.0
Germany	49.0	55.6
United Kingdom	52.0	53.0
Sweden	52.3	51.5
United States	45.7	51.5
France	47.9	49.9
Hong Kong	29.7	44.0
Denmark	36.2	41.1
Spain	27.0	40.0
Japan	28.8	37.8
Austria	16.0	33.8
Brazil	16.5	32.8
Canada	34.4	32.8
Ireland	24.0	31.0
Finland	20.0	30.0
Singapore	20.0	27.0
Saudi Arabia	15.8	23.9
Belgium	19.6	23.5
South Africa	18.0	23.0
Italy	17.0	22.0
New Zealand	21.6	21.3
Colombia	11.5	16.3
Mexico	12.6	16.0
Chile	11.4	14.9
Argentina	13.5	14.3
Greece	6.0	12.0
South Korea	10.6	12.0
Malaysia	13.6	11.0
Hungary	3.0	10.5
Taiwan	10.8	9.0
Slovak Republic	3.0	8.5
Czech Republic	4.5	8.4
Portugal	2.9	7.8
Venezuela	6.1	6.5
Poland	2.6	4.7
Indonesia	8.0	3.0
Bulgaria	2.1	2.7
China	1.7	1.7
Morocco	0.8	1.1
Thailand	1.4	1.1
Egypt	0.4	0.9
Turkey	0.6	0.9
Romania	0.3	0.8
Ukraine	0.7	0.8
Philippines	0.5	0.5
Russia	0.9	0.5
India	0.1	0.1
Vietnam	0.0	0.0

Source: Phillips (2000b).

Appendix D
Cat Food Penetration Levels by Country, 1994 and 1998, Percent

Country	1994	1998
Germany	92.1	93.9
Israel	64.6	80.0
Denmark	67.0	70.5
United Kingdom	66.0	70.0
Japan	52.9	63.0
Switzerland	57.0	61.0
Netherlands	48.9	59.0
France	55.4	57.3
Taiwan	58.6	56.0
Belgium	43.6	55.0
Australia	47.8	53.4
Sweden	50.5	53.0
USA	47.8	48.2
Ireland	27.0	48.0
Canada	45.6	47.9
Hong Kong	31.2	45.0
Singapore	35.6	41.5
Norway	36.3	41.0
Austria	23.0	38.8
Brazil	20.8	38.8
New Zealand	36.7	37.6
Venezuela	31.7	34.4
Argentina	34.2	33.9
Mexico	31.6	33.2
Italy	26.0	33.0
Chile	27.4	32.8
Finland	22.0	32.0
Spain	20.0	30.0
Greece	16.0	24.0
South Africa	18.0	24.0
Colombia	20.5	21.3
Portugal	9.6	16.5
Hungary	3.0	13.4
Malaysia	17.0	12.5
South Korea	9.6	12.5
Czech Republic	5.0	11.0
Saudi Arabia	10.1	10.3
Slovak Republic	2.0	9.0
Poland	5.4	8.5
Bulgaria	6.0	7.3
Indonesia	12.0	5.0
Morocco	1.5	2.4
Egypt	1.1	1.8
Russia	1.9	1.8
Turkey	1.0	1.8
Ukraine	1.4	1.7
Romania	0.6	1.0
Thailand	1.1	1.0
China	0.3	0.3
Philippines	0.1	0.1
India	0.0	0.0
Vietnam	0.0	0.0

Source: Phillips (2000b).

Appendix E

U.S. Categorical Dog Food Sales per Brand, 2001 and 2002 Estimates

Dry Dog Food Brand	Dog Food Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Dog Chow	Ralston Purina	372.20	384.80
Puppy Chow	Ralston Purina	172.50	175.60
Meal Time	Kal Kan (Mars)	89.20	87.20
O.N.E.	Ralston Purina	74.30	75.20
Come 'N Get It	Friskies PetCare	74.90	74.10
Kibbles & Chunks	Ralston Purina	71.10	72.30
Fit & Trim	Ralston Purina	58.50	58.90
Field Trial	American Pet	53.20	51.80
Gravy Train	Heinz	29.30	27.80
Grravy	Ralston Purina	49.20	49.70
Main Stay	Ralston Purina	47.30	47.60
Alpo Beef Flavored Dinner	Friskies PetCare	43.50	42.10
Chuck Wagon Stampede	Ralston Purina	38.80	39.40
Pro Plan	Ralston Purina	38.60	39.80
Field Master	Ralston Purina	30.10	31.00
Hearty Chunks	Private Label	27.80	26.80
Sunshine	American Pet	19.20	18.30
Lucky Dog	Ralston Purina	12.90	12.90
Trail Blazer	Martha White	10.80	10.00
Choice Blend	Heinz	1.00	0.60
Dad's	Dad's Products	8.50	7.90
Bench and Field	Martin Feed Mills	7.60	7.60
Alpo Lean	Friskies PetCare	6.70	6.80
Beef Complete	Ralston Purina	5.50	5.50
Atta Boy	American Nutrition	4.00	3.50
Alpo Senior	Friskies PetCare	4.00	4.10
Friskies Dinner & Cubes	Friskies PetCare	3.90	3.70
Pedigree Mealtime	Kal Kan (Mars)	2.90	3.10
Purina Blends	Ralston Purina	2.80	2.60
Hunters Choice	Friskies PetCare	2.80	2.90
Pedigree Puppy	Kal Kan (Mars)	2.70	2.20
Jim Dandy Classic Dinner	Friskies PetCare	1.90	1.80
Natural Premium	The Pet Pantry	1.00	1.20
Lamb and Rice Premium	The Pet Pantry	0.90	1.10
Kasco	Pet Products Plus	7.40	7.00
Sturdy	Strongheart	0.60	0.60
Strongheart	Strongheart	0.70	0.70
Puppy Chow Chewy Morsels	Ralston Purina	0.50	0.50
Prime	Ralston Purina	0.50	0.50
Dog Chow Senior	Ralston Purina	0.40	0.40
Meaty Meal	Ralston Purina	0.30	0.30
Butchers	Ralston Purina	0.30	0.30
All Other		3,417.40	3,644.00
TOTAL		4,798.10	5,033.90

Wet Dog Food Brand	Dog Food Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Kal Kan Pedigree	Kal Kan (Mars)	131.1	120.4
Skippy, Premium	Heinz	55.4	49.9
Pedigree Choice Cuts	Kal Kan (Mars)	79.1	81.9
Alpo	Friskies Pet Care	77.9	79.1
Mighty Dog	Friskies Pet Care	74.4	73.3
Friskies Gourmet	Friskies Pet Care	73.0	73.0
Alpo Prime Cuts	Friskies Pet Care	71.0	71.2
Reward	Heinz	10.8	8.6
Pedigree Select Dinners	Kal Kan (Mars)	30.4	28.6
Twin Pet	Allied Foods	13.0	12.2
Alpo Wet Puppy	Friskies Pet Care	9.2	9.6
Cadillac	Cadillac	7.2	6.6
Pedigree Puppy	Kal Kan (Mars)	4.3	3.9
Strongheart	Strongheart	1.9	1.8
Alpo Prime Cuisine	Friskies Pet Care	1.8	1.8
Blue Mountain	Friskies Pet Care	0.1	0.1
Delight	Strongheart	0.1	0.1
Husky	Strongheart	0.1	0.1
Ken-L-Ration	Heinz	6.4	5.6
Cycle	Heinz	8.5	4.5
All Other		684.4	747.4
TOTAL		1,340.0	1,379.7

Soft-Dry Dog Food Brand	Dog Food Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Kibbles 'N Bits 'N Bits 'N Bits	Heinz	139.3	149.0
Jim Dandy Tender Moist Chunks	Jim Dandy	11.2	11.1
Tender Chops	Heinz	3.1	2.7
Dinner Rounds	Private Label	1.0	0.9
Puppy Kibbles 'N Bits 'N Bits	Heinz	2.1	3.2
Moist & Chunky	Ralston Purina	0.2	0.2
TOTAL		156.9	167.1

Dog Treats Brand	Dog Treats Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Milk Bone & Others	Nabisco	138.9	132.6
Pup-peroni (inc. Nawsomes!)	Heinz	61.9	66.6
Meaty Bones (inc. Savory Bites)	Heinz	41.3	42.8
Cheweez, Master Choice, etc.	Friskies PetCare	44.4	44.0
Jerky Treats	Heinz	33.8	32.8
Purina Biscuits	Ralston Purina	30.7	31.4
Beggin Strips	Ralston Purina	30.5	31.1
Snausages	Heinz	25.0	26.1
Private Label Soft Chews	Heinz	31.5	35.9
Bonz	Ralston Purina	18.0	18.6
Wagwells	Heinz	4.2	2.9
Beef Burgers	Friskies PetCare	12.2	13.2
Canine Carry-Outs	Heinz	20.7	24.7
Beef Bites	Friskies PetCare	8.3	8.2
Alpo Snaps	Friskies PetCare	7.7	7.6
Kibbles-n-Bits Jerky	Heinz	5.1	5.5
Attaboy	American Nutrition	4.8	4.7
Alpo Beef Biscuit	Friskies PetCare	4.2	4.1
Reward Grill Sticks	Heinz	4.1	4.2
Hearty Chews	Ralston Purina	3.6	3.7
Beef Bones	Friskies PetCare	3.5	3.7
Reward Hot Dogs	Heinz	3.2	3.4
Skippy Recipe Treats	Heinz	1.4	1.3
Alpo Jerky	Friskies PetCare	3.0	2.9
Pet-Life Products	Pet-Life	2.9	3.1
Purina Hearty Chew Treats	Ralston Purina	2.0	2.0
Hartz Jerky Treats	Hartz	1.9	1.8
Marrow Bone	Kal Kan (Mars)	1.3	1.2
Beef Chip Cookies	Friskies PetCare	1.3	1.2
All Other		818.9	913.7
TOTAL		1,370.0	1,475.0

Semi-Moist Dog Food Brand	Dog Food Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Moist & Meaty	Ralston Purina	23.1	22.2
Moist & Beefy	Heinz	15.0	15.4
Smorgasburger	Heinz	0.8	1.1
Gaines Burgers	Heinz	0.6	0.8
All Other		44.5	40.8
TOTAL		84.0	80.3

Source: Gurkin (2002).

Appendix F

U.S. Categorical Cat Food Sales per Brand, 2001 and 2002 Estimates

Dry Cat Food Brand	Cat Food Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Cat Chow	Ralston Purina	177.5	183.0
Friskies	Friskies Pet Care	135.3	137.2
Meow Mix	Ralston Purina	109.9	110.4
9-Lives	Heinz	69.2	67.6
Chef's Blend	Friskies Pet Care	52.5	52.8
Alley Cat	Ralston Purina	52.3	53.9
Deli-Cat	Ralston Purina	38.5	38.2
O.N.E.	Ralston Purina	40.1	47.9
Kitten Chow	Ralston Purina	31.4	30.9
Kozy Kitten	Windy Hill	13.7	12.3
Crave Whiskas	Kal Kan (Mars)	13.0	12.5
Special Dinners	Ralston Purina	12.3	12.1
Kitten Chow Dairy Formula	Ralston Purina	11.9	11.8
Cat Menu	Ralston Purina	9.5	9.5
ALPO Dry Cat Food	Friskies Pet Care	6.8	6.6
Dad's Dry	Dad's Products	5.9	5.7
Smart Cat	Ralston Purina	5.6	5.5
Friskies Kitten Formula	Friskies Pet Care	4.1	3.9
Pounce Dry	Heinz	1.5	1.6
Felix	Strongheart	1.5	1.5
Thrive	Ralston Purina	1.0	1.0
Purina Select Dinners	Ralston Purina	1.0	1.0
ALPO Urinary pH Formula	Friskies Pet Care	0.5	0.5
Whiskas Expert Dry	Kal Kan (Mars)	0.5	0.5
All Other		1,439.4	1,536.0
TOTAL		2,235.0	2,344.0

Wet Cat Food Brand	Cat Food Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Friskies Buffet	Friskies Pet Care	312.8	316.6
9-Lives	Heinz	225.4	216.1
Fancy Feast	Friskies Pet Care	157.9	154.8
Whiskas	Kal Kan (Mars)	73.1	72.0
ALPO Wet Cat Food	Friskies Pet Care	58.7	55.8
Purina Premium	Ralston Purina	31.8	29.4
Sheba	Kal Kan (Mars)	28.9	27.8
Amore	Heinz	4.2	3.1
Figaro	Unicord Ltd	6.9	6.8
Gourmet	Heinz	6.0	6.0
Kozy Kitten	Private Label	4.8	4.1
Twin Pet	Allied	4.4	4.6
Unique	Ralston Purina	3.5	3.3
Puss 'n Boots	Private Label	2.4	2.2
Whiskas Expert	Kal Kan (Mars)	2.4	2.2
Friskies Kitten	Friskies Pet Care	1.9	1.8
Bright Eyes	Friskies Pet Care	0.5	0.5
Whiskas Gourmet	Kal Kan (Mars)	0.5	0.5
All Other		689.1	744.5
TOTAL		1,615.0	1,652.0

Cat Treats Brand	Cat Treats Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Pounce	Heinz	56.2	58.2
Whisker Lickins	Ralston Purina	17.0	19.8
Bonkers	Beatrice	2.5	2.4
9-Lives Finicky Bits	Heinz	0.8	0.7
All Other		68.5	85.8
TOTAL		145.0	167.0

Semi-Moist Cat Food Brand	Cat Food Manufacturer	2001 Sales (US\$ million)	2002 Estimates (US \$million)
Tender Vittles	Ralston Purina	32.7	31.4
Happy Cat	Ralston Purina	16.8	16.3
All Other		14.5	5.3
TOTAL		64.0	53.0

Source: Gurkin (2002).