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T. J. Hansen

South Dakota State University

Evert Van der Sluis

South Dakota State University, evert.vandersluis@sdstate.edu

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ADDING VALUE TO SOUTH DAKOTA CORN: OPPORTUNITIES IN PET FOOD MARKETS



by
T. J. Hansen,
Research Associate
and
Evert Van der Sluis,
Associate Professor



While production agriculture remains important to South Dakota's economy, there is increased interest among South Dakota farmers and ranchers to become involved in agriculture beyond the farm gate. By participating in value-added agriculture endeavors, producers may be able to capture a larger share of total consumer spending on food and fiber products than is possible by exclusively producing and selling raw products. In this and the next *Commentator*, we examine the possibility of adding value to South Dakota corn and ethanol byproducts by marketing these products as inputs in the production of pet foods and human foods.

Corn as a Pet Food Ingredient

In recent years, ethanol production from corn has increased rapidly and become one of the most visible examples of value-added agriculture in South Dakota. Over the same time, pet food markets also underwent growth. Because pet food product ingredients are generally starch-based and because it is technically feasible to use ethanol production co-products as pet food ingredients, the South Dakota Corn Utilization Council sponsored research to investigate the economic opportunities for producing pet food using corn and ethanol byproducts as inputs.

Pet foods are produced using a combination of ingredients such as corn, soybeans, rice, lamb, fish, rendered meat products, and vegetables. The supply of pet foods depends largely on the relative price-competitiveness of these ingredients, their contents, and their quality. The demand for pet food products depends in part on consumer awareness and acceptance of specific pet food ingredients.

Corn is widely used as a processed pet food ingredient, mainly because it is relatively inexpensive. It generally serves as a carbohydrate source, but it also contains proteins and fat. Corn is less suitable as a protein source than other, more protein-rich products, such as fish and beef.

Animal by-products are also readily available and price competitive as pet food ingredients, because nearly half of every meat animal in the U.S. is not consumed by humans. Animal by-products are generally included in pet foods for nutritional reasons. That is, animal fats enrich pet diets by increasing the energy density, enhancing the contents of essential fatty acids, improving the palatability of the pet food, and increasing the utilization of nutrients such as fat-soluble vitamins in the pet foods.

Lately, the positive aspects of including meat by-products in pet foods have been dampened by concerns about bovine spongiform encephalopathy (BSE) or mad cow disease. The concern exists that meat or meat by-products from animals affected by BSE and other such diseases may lead to cross-species contamination. Thus, pet foods made from rice or corn would represent "safe" alternatives.

While the use of corn in pet food production is widespread, few sources explicitly describe the quantity of corn used in manufacturing pet foods. Companies use shrewd practices when marketing products to consumers. For example, when listing the ingredients on the product label, companies strive to appeal to consumer demands for a protein-rich product. Because the first ingredient listed on a product's label is the component in largest quantity, many pet owners seek products that list meat or fish first. However, even when meat or fish is the first mentioned ingredient, corn is often listed by several names (corn, corn gluten meal, ground corn, corn grits, corn bran, corn mill run, corn oil, etc.). Thus, while corn may not be the first ingredient on the label, it may cumulatively represent the most substantial ingredient in the pet food.

What We Set Out to Do

A preliminary feasibility study is a first, but crucial, step before conducting a full-scale feasibility study. It addresses whether the identified markets provide profit

opportunities for new entrants. Results of a preliminary feasibility study may reveal whether a comprehensive feasibility study that would include a greater level of detail and encompass firm-specific characteristics is justified.

Our approach to analyzing pet food markets was to conduct an external market analysis of dog food and cat food markets in the U.S. We identified under-served geographic locations and demographic groups, and assessed these markets' growth potential.

Findings

Dog Food and Cat Food Product Markets

Dog food sales make up about two-thirds, and cat food sales represent the remaining one-third of all pet food sales in the U.S. Dry food sales are increasingly important in both dog and cat food markets. This trend is not only due to consumers' desire for convenience – dry pet foods are easier to handle and store – consumers also perceive dry foods to be healthier for their pets.

The growth in dry dog foods may indicate further opportunities for marketing corn as a pet food ingredient. Corn and other carbohydrates are necessary to produce texturally, structurally, and nutritionally balanced dry pet food kibbles. This is why dry dog and cat foods contain between thirty and seventy percent carbohydrates.

The increased demand for dry pet foods has occurred at the expense of other varieties. Wet and semi-moist dog and cat foods are not as reliant upon carbohydrates for texture and structure, so their corn and other carbohydrate contents are generally lower than those of dry pet foods.

Another pattern in both dog and cat food markets is the relative growth of pet food treat sales revenue. 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 recent growth in pet treat sales has coincided with human snack food consumption increases. This supports the belief that pet diets are increasingly patterned after human diets. Specifically, trends in product sales 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). Also, pet food producers increasingly focus on developing premium varieties, and are moving away from low-priced varieties. Further, indulgence products are more popular than health

products in the new development of both pet food and pet treats segments.

Geographic and Demographic Trends

In 2002, there were about 60.7 million dogs and 76.8 million cats in the U.S. – the largest total pet population in any country in the world. The U.S. cat population is slightly more dispersed than the nation's dog population.

The Plains region of the U.S. – South and North Dakota, Nebraska, Kansas, Missouri, Iowa, and Minnesota – has experienced growth in pet product sales (dog food, cat food, cat litter, and pet supplies). In the year ending September 9, 2001, the region's pet products sales increased by 11%, compared to no regional growth in the Northeast and 3.9% growth in the West.

Within the preliminary feasibility study, we found disproportionately high levels of pet ownership among the following demographic groups in the U.S.:

- Households with three or more people
- Individuals and families with annual household incomes between \$25,000 and \$85,000
- Individuals (male or female) who had attended college or had completed a 2-year or 4-year degree
- Individuals living in communities of less than 100,000 residents

Among adults owning a dog and/or a cat, females were more likely than males to provide care for the pet. Pet caregivers most frequently fell in the age bracket from 30 to 49 years with parents representing over half of all dog and cat owning households in the U.S.

Today's pet owners are more likely to own multiple dogs, multiple cats, or a combination of dogs and cats than previous generations of U.S. pet owners. Interestingly, dog ownership rates per household are highest in South Dakota and Wyoming among all 50 states.

Pet Food Market Growth

Pet food markets – both domestic and international – experienced sales and volume growth throughout the 1990s, particularly in the latter half of the decade. The main driver of growth in pet food markets is the growing number of dogs and cats in the world. In recent years, cat populations have experienced greater growth than have dog populations. This trend is expected to continue in future years because cat ownership is more complementary to busy lifestyles than dog ownership.

The second driver is increased spending per animal. Around the world, pet food consumers appear to be increasingly willing to pay for relatively high-priced premium, superpremium, and nutraceutical varieties.

The third driver of the growth in pet food markets is the growing acceptance of processed pet foods among consumers, leading to increased competition between the major pet food producers. In 1998, the top eight companies in the industry had a market share of approximately 64% of total sales in the U.S. By 2002, the market shares of the seven industry leaders had increased to 87.4%. Similarly, 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.

The degree of concentration in the global pet food industry is also reflected in the number of new product introductions. Supermarket and drug store scanner data indicate that 185 new pet food products were successfully introduced in the year ending September 9, 2001, each with annual sales greater than one million dollars. However, new product success stories are common to only a few companies. Between 1999 and 2001, five companies were responsible for nearly 85% of all new

product introductions and each of the five companies introduced twenty or more new products.

Conclusions

We have reported on factors directly and indirectly influencing the supply of and the demand for pet foods and assessed general conditions of the pet food market. We found that double-digit annual growth rates, characteristic of the 1990s pet food market, have been replaced by moderate annual growth rates of approximately five percent. Further, mergers and acquisitions have decreased the number of pet food competitors, but intense competition exists between remaining industry leaders.

Results from our study of pet food markets suggest that market entry is likely to be deterred by the presence of established pet food companies holding substantial market shares and controlling most new product introductions. Based on our external analysis of pet food markets, the current structure of the industry does not appear to be particularly well suited for agricultural producers to invest in a pet food production facility which utilizes corn and ethanol by-products as inputs. As a result, we advise against developing a full-scale feasibility study of a pet food production or marketing facility for construction and operation in South Dakota.

For Further Reading

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The preliminary feasibility study on which this issue of the Economics Commentator is based is available by contacting the Economics Department.

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Economics Department
South Dakota State University
Box 504 Scobey Hall
Brookings, SD 57007-0895
Phone: 605-688-4141
Fax: 605-688-6386
E-Mail: Penny.Stover@sdstate.edu

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