Southwest
SOUTHWEST STATE UNIVERSITY • MARSHALL, MINNESOTA

Assessment of Market Opportunities for Omega 3 Eggs

A Research Project Funded

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SMAC is committed to advancing businesses in southwestern Minnesota through market research, promotion and related marketing activities

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Executive Summary

As individuals become increasingly health conscious the world's food producers have developed new and innovative products to meet these new demands. In an effort to keep pace with changing trends egg producers have begun to produce eggs that have higher levels of Omega 3 fatty acids and possibly more Vitamin E than the typical egg. These eggs sell at a premium price compared to the typical egg.

Producer's intent on producing and selling Omega 3 eggs must be aware of several issues that will affect market success. Decisions related to product differentiation and the type of distribution channels used must be made after careful consideration of alternatives. An Omega 3 egg producer may choose to market by emphasizing unique product characteristics, using specialized distribution channels or producing the eggs and selling them to a larger distributor. The approach chosen by an individual producer would depend on the amount of control the individual wishes to assert over the production process, and the amount of risk he or she is willing to accept.

A survey to determine the public perception of Omega 3 eggs would offer direction for this decision process. This would allow producers to evaluate both the public awareness of Omega 3 eggs and also the market potential of the product in Southwest Minnesota. The survey may also reveal other differentiation approaches to enhance the development of Omega 3 eggs or suggest more profitable avenues for producers.

Recommendations

- Develop and administer a survey to determine the general public's perceptions of Omega 3 and organic/natural eggs and to learn the knowledge level and attitudes of consumers, distributors and retailers as to the egg's relative value.

- Use the survey to also determine other differentiation methods that might have public perception of value.

- If control *is not* an issue and minimal marketing effort is desired, pursue an independent contract with an existing Omega 3 egg producer.

- If control *is* an issue, develop channels to stores for Omega 3 distribution.

- Develop a coalition of Omega 3 egg producers to promote benefits.

Conclusions

- Feeding chickens a percentage of flax or other alternatives, along with a Vitamin E supplement can result in eggs having a higher than normal level of Omega 3 and Vitamin E. The cost justification for this added expenditure depends on the public's perception of value for this egg enhancement.

- Omega 3 and Vitamin E have been proven to provide health benefits that are wide-ranging but not widely understood in the domestic market.

- Market segments in Canada, Australia, Japan and England have an appreciation for the value and are willing to pay a premium for Omega 3 eggs.

- Omega 3 egg producers have a variety of alternatives available to them that vary as to the amount of risk involved and the amount of control that they would maintain.

- Selection of an alternative depends on the attitude toward risk and long-term development of the market.

- Education about benefits of Omega 3 is needed at all levels of distribution.

Detail of Findings

Background

The idea of organic products is not new, but is presently evolving in terms of poultry and eggs. Organic poultry can be fully organic or partially organic, by legal definition, but in general it means that they are partially or totally fed with organic feed. Until recently there were no federal guidelines for poultry and regulations for eggs are being developed. Natural poultry and eggs are similar to organic but have fewer regulations.

Other differentiating options for poultry that could have marketing potential include cage free and free range that expands the environment of the chicken. Omega 3 enhanced eggs are currently being investigated as a potentially effective marketing approach.

The development of Omega 3 designer eggs began in the United States at the University of Nebraska. Researchers found that adding a percentage of flax, canola oil, sea algae or other Omega 3 rich products to the ration of chicken feed would produce eggs that have an increased level of Omega 3. The most common addition, flax, must be added at a level of 10% to have optimal results (Flaxseed). Omega 3 eggs are not only available in United States but also in other countries such as Canada, Great Britain, Japan, and Australia where greater acceptance of Omega 3 eggs has occurred. In addition, including a small percentage of Vitamin E to chicken rations can raise Vitamin E levels in eggs. Vitamin E has its own health benefits but is often used to balance the effects of increased Omega 3 consumption.

Egg Industry

The per capita consumption of eggs in 2001 was 252.3 eggs or more than 72-billion eggs consumed per year in the United States (Egg). Designer eggs account for five percent of eggs consumed in the U.S., which equates to three billion eggs annually (Harder,2001).

Minnesota is the nations eighth leading egg producing state with more than 12.4-million egg laying chickens (Minnesota, 2001). Two of the United States top ten egg producers, Michael Foods Egg Products Co. (3^{rd}) and Sparboe Companies (6^{th}), are located in Minnesota (Top, 2001) (Exhibit A). These two producers have more than 20-million egg layers annually. In 2000, Minnesota produced 3.27-million eggs, an increase from the 3.13 million produced in 1999. The 82-million eggs produced in Southwest Minnesota represented only 2.6% of the total state egg production. Central Minnesota leads the state in egg production; 1.98-billion eggs are produced each year (Minnesota, 2001) (Exhibit B). Many of these eggs come from Kandiyohi County, the state's leading poultry production county.

Attitude Toward Eggs

In recent years nationwide consumption of eggs and egg products has increased as attitudes toward cholesterol and its relationship to eggs has changed. As a result of growing acceptance, the number of specialty eggs purchased by public has increased. Health conscious individuals often look for eggs that will provide a healthier alternative to the original egg such as *Egg Beaters* and Omega 3 eggs.

Benefits of Omega 3 and Vitamin E

Omega 3 is a fatty acid that is naturally found in deep water fish such as herring, trout, tuna and sardines but is also found in vegetable seed oils such as flaxseed, linseed,

soybean and canola. Studies on the dietary habits of the Japanese farmer and fisherman as well as the Eskimo people of Alaska have shown that increased consumption of Omega 3 fatty acids may decrease the risk of heart disease by fifty to seventy percent (Hee Kum). Other possible benefits of Omega 3 include the increased development of brain tissue in pregnant women and children, improved oxygen supply, increased brain function, and some relief of rheumatoid arthritis, inflammatory disorders, and other miscellaneous ailments.

The United States has no federal nutritional guidelines for the consumption of Omega 3 acids, but other countries such as Canada and Great Britain have instituted such guidelines. Canadian guidelines recommend 1100mg for the average woman and 1500mg for average man (Omega). The typical egg has only 60mg of Omega 3 fatty acids compared to an Omega 3 enhanced egg, which can have levels as high as 350mg (Scheideler and Lewis).

In addition to an increased level of Omega 3, designer eggs may also contain Vitamin E levels seven times higher than traditional eggs if Vitamin E is added to the chickens' feed (Omega). Vitamin E is naturally found in butter, milk, and vegetable and nut oils; but often the nutrient is lost during food manufacturing and production. Vitamin E has been shown to reduce free radicals in the blood. High levels of free radicals can cause damage to cell structure resulting in an increased risk of cancer and an acceleration of the aging process. Studies have also shown that Vitamin E may reduce the risk of heart disease since it is an antioxidant.

All the benefits that seem to be derived from the increase level of Omega 3 and Vitamin E come with drawbacks both for consumers of the Omega eggs and also for the producers of the egg. One issue that consumers face is the increased susceptibility of

blood clotting issues due to thinner blood and also possible long-term health effects that are not yet known due to the lack of long range studies. Issues that Omega 3 producers face are increased cost due to the higher cost of flax or other Omega 3 supplements for the chickens and also the availability of a market for their newly developed egg.

Alternatives

Omega 3 egg producers must develop effective ways to differentiate this product from traditional eggs. The current market in Southwest Minnesota for a specially designed egg is small, but some producers of Omega 3 enhanced eggs currently offer their product in the local markets. Eggland's Best and Sparboe Farms produce Omega 3 and Vitamin E enhanced eggs that are available at the Marshall Hy-Vee Store for approximately $2.15 per dozen. A survey would help determine the current public awareness and perceptions of Omega 3 eggs.

Sell to a Larger Distributor

A small Omega 3 egg producer may want to develop a relationship with a larger company, like Sparboe Farms, and serve as an independent producer. In the past two years, Sparboe Farms has been increasing the number of eggs that it produces and provides its users. Sparboe Farms' Omega 3 eggs are labeled as all-natural, brown, cage free eggs. A relationship of this type would require the independent producer to relinquish control over some parts of the operation, but this partnership would also provide the security of a constant demand for the eggs produced.

Producers may be able to receive the flax and other feed needed for their chickens at a lower cost because of the large supply needed by the larger egg producer. This would help minimize the impact of a lower selling price needed to make the partnership mutually beneficial. Overall, this is the option that would result in the lowest risk to the

small producer because he would have no promotional costs associated with development of the Omega 3 egg market in the United States.

Establish Independent Distribution

Producers may choose to set up their own channels of distribution for Omega 3 eggs. This would allow for total control of the operation. However the producer would be forced to confront the limited market potential in Southwest Minnesota, high risks associated with development, existing competition and the high costs of product promotion.

The general population is largely unaware of benefits provided by increased consumption of Omega 3 and Vitamin E. Education could occur in grocery stores via coupons, samples and informational pamphlets, and through information booths set up at public events. These educational efforts would reach a large number of potential consumers of Omega 3 eggs.

Pursue Alternative Benefits

Omega 3 producers may choose to focus instead on the natural and organic side of egg production. Natural and organic food purchasing is an area of the food industry that is developing every year. The acceptance of organic foods is growing as is the number of people buying organic foods. Producers could follow similar steps as above, but focus more on the natural and organic market in regular grocery stores. Producers could also examine health and ethnic food type stores as possible distribution options. The problem with this option is that they face many of the same issues related to competition and distribution channels. A combination of marketing both organic/Omega 3 eggs is also an alternative.

Distributing the Omega 3 egg to foreign nations where the benefits of Omega 3 are more widely accepted is also an avenue that could be investigated. Canada would be the most feasible option in an export scenario. Problems associated with trade regulations and product transportation must be examined. A Canadian distributor would need to accept U.S. eggs when Canadian eggs are available locally. This may be feasible considering Canada imports a large number of eggs per year. In 2001, Canada imported 19.0-million dozen eggs valued at $11.8 million and total imports of 20.2-million egg products (Egg).

Recognition of Omega 3 by the FDA would also aid producers of this type of designer egg. If Omega 3 were in the recommended daily food guide the use of Omega 3 eggs would most likely increase as a result. Acceptance is not far away but increased lobbying efforts by the Omega 3 egg producers could speed up the process. Effective lobbying for Omega 3 requires the development of a nationwide coalition of Omega egg producers. Producers would be able to more effectively promote the products on a larger scale at a lower cost.

Summary

Omega 3 is only one approach for differentiation of the product in the marketplace. This approach for branding and creating the perception of a unique product must be weighed against the public's perception of range-free eggs, organic eggs and specialty egg products. If Omega 3 eggs carry a public perception of greater value than the other forms of differentiation mentioned, then that would be an indication that the time is right to pursue this avenue. In summary, careful surveying of public opinion and perceptions should transpire before further time, money and effort is invested in the promotion of Omega 3 eggs as a stand-alone differentiation of egg products.

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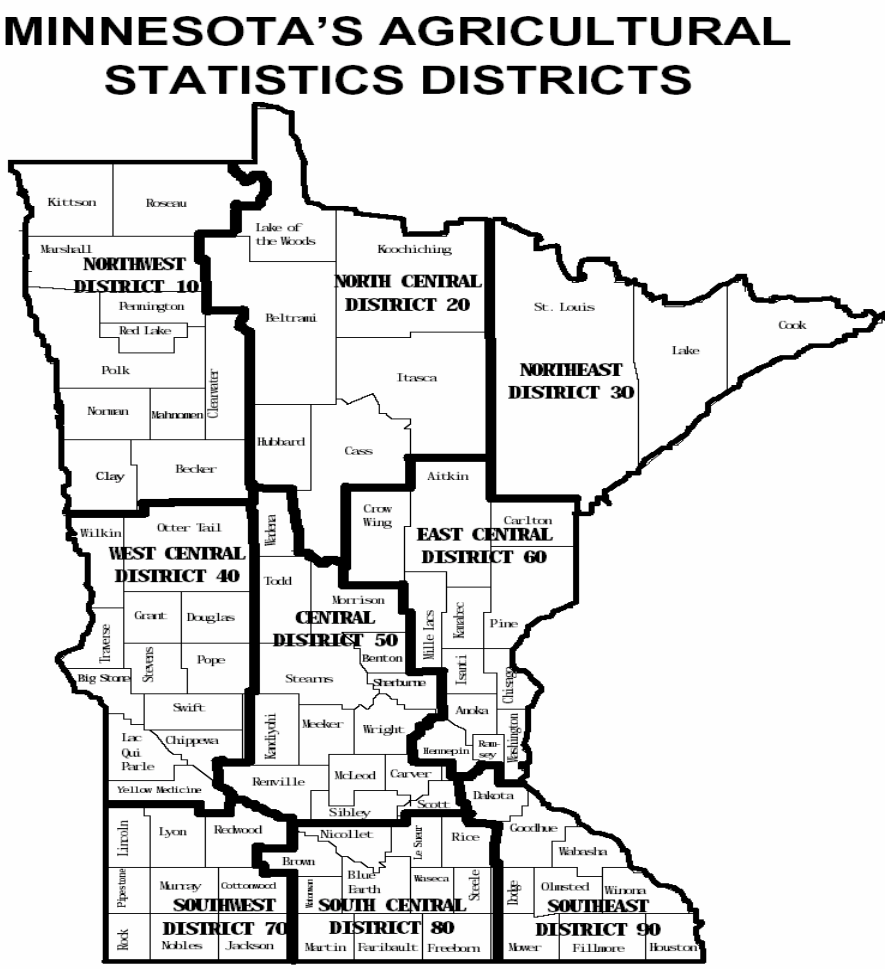
Exhibit A

Top US Egg Producers (Million layers in production on 12/31/2001)

			2001	2000	1999
1.	Cal-Maine Foods, Inc.	Jackson, MS	20.4	20.4	19.9
2.	Rose Acre Farms	Seymour, IA	16.0	16.2	15.7
3.	Michael Foods Egg Products Co	Minneapolis, MN	14.0	13.5	15.0
4.	DeCoster Egg Farms	Turner, ME	12.8	12.6	12.6
5.	Buckeye Egg Farm	Croton, OH	10.5	10.5	10.5
6.	Sparboe Companies	Litchfield, MN	8.0	7.0	5.0
7.	Dutchland Farms L.P.	Lancaster, PA	7.3	4.3	4.3
8.	(includes all contract farms)				
9.	Moark, L.L.C. (includes Norco)	Neosho, MO	6.4	6.5	6.5
10.	Fort Recovery Equity	Fort Recovery, OH	6.3	8.0	8.0
11.	Midwest Poultry Services, L.P.	Mentone, IN	5.9	5.9	5.7
12.	ISE America, Inc.	Newberry, SC	5.5	5.5	4.8
13.	Hillandale Farms Inc.	Lake City, FL	5.4	5.3	4.6
14.	Daybreak Foods	Lake Mills, WI	5.0	4.3	4.0
15.	Mahard Egg Farms	Prosper, TX	4.8	4.8	4.8
16.	Golden Oval Eggs	Renville, MN	4.7	2.8	3.0
17.	Fremont Farms of Iowa LLD	Oskaloosa, IA	4.2	2.0	2.9
18.	Wabash Valley Produce	Dubois, IN	3.7	4.2	4.2
19.	National Food Co.	Seattle, WA	3.3	3.0	2.7
20.	Sonstegard Foods, Inc.	Sioux Falls, SD	3.0	2.5	2.5
21.	Valley Fresh Foods	Turlock, CA	3.0	3.2	3.1
22.	Maxim Egg Farm	Boling, TX	2.9	3.2	3.0
23.	Crystal Farms	Chestnut Mtn., GA	2.8	2.8	2.7
24.	Creighton Brothers LLC	Warsaw, IN	2.5	2.5	2.5
25.	Daylay Egg Farm, Inc. West	Mansfield, OH	2.5	2.5	2.5
26.	Kofkoff Egg Farms	Fitchville, CT	2.5	2.8	2.7
27.	Tampa Farm Service, Inc.	Dover, FL	2.5	2.4	2.4
28.	Herbruck Poultry Ranch	Saranac, MI	2.4	2.3	2.2
29.	Weaver Bros.	Versailles, OH	2.4	2.4	2.4
30.	Cypress Foods Inc.	Winter Haven, FL	2.3	2.4	2.4
31.	Pilgrim's Pride Corp.	Pittsburg, TX	2.1	2.3	2.0
32.	Red Bird Farm	Bear, DE	2.1	1.7	1.8
33.	Esbenshade Farms	Mt. Joy, PA	2.0	1.9	2.0
34.	Farm Egg Products	Humboldt, IA	2.0	2.1	2.0
35.	Gemperle Enter. & Nulaid Foods	Turlock, CA	2.0	2.4	2.4
36.	Kreider Farms	Manheim, PA	2.0	2.0	2.0
37.	Land O'Lakes	Massilon, OH	2.0	2.0	1.0
38.	McAnally Ranch LLC	Yucaipa, CA	2.0	2.4	2.4
39.	Zephyr Egg Co.	Zephyr Hills, FL	2.0	2.0	2.9
40.	Dixie Egg Company	Jacksonville, FL	1.6	1.4	1.3
41.	Hemmelgarn & Sons	Coldwater, OH	1.5	1.5	1.4
42.	Delta Egg Farm LLC	Delta, UT	1.5		
43.	Hamilton Farm Bureau (Coop)	Hamilton, MI	1.5	1.4	
44.	Hickman's Egg Ranch	Glendale, AZ	1.5	1.2	1.2
45.	J.S. West Milling Co.	Modesto, CA	1.5	1.3	1.5
46.	Sunrise Acres	Hudsonville, MI	1.5	1.3	1.1
47.	Wilcox Farms, Inc.	Roy, WA	1.3	1.9	1.0
48.	Braswell Milling	Nashville, NC	1.3	1.5	1.8
49.	S & R Egg Farms, Inc.	Whitewater, WI	1.3	1.3	1.3
50.	Williamette Egg Farms	Canby, OR	1.3	1.3	1.3

Top U.S. Egg Producers
http://www.poultryegg.org/Industry_Info/Economic_Information/economic_information.html



POULTRY: Layers and Egg Production by District, Minnesota 1999-2000

District	Annual Average Layers		Annual Average Eggs per Layer		Total Egg Production	
	1999	2000	1999	2000	1999	2000
	Number		Number		1,000 Eggs	
Northwest	1,095,000	1,060,000	260	257	285,000	272,000
West Central	505,000	505,000	257	261	130,000	132,000
Central	7,290,000	7,576,000	255	262	1,856,000	1,986,000
Southwest	305,000	320,000	256	256	78,000	82,000
South Central	2,230,000	2,255,000	252	255	563,000	576,000
Southeast	235,000	275,000	255	255	60,000	70,000
Other Districts	650,000	590,000	255	259	166,000	153,000
MINNESOTA	12,310,000	12,581,000	255	260	3,138,000	3,271,000

2001 Minnesota Agricultural Statistics
<http://www.nass.usda.gov/mn/>