



Fast Foods **Trends in frying fat usage**

The following article was prepared by JAOCs News Editor Barbara Fitch Haumann as the result of debate over using animal fats versus vegetable oils in frying operations in the fast food industry.

Due to consumer demands, the fast food industry has taken steps to switch from animal to vegetable fats in its frying operations.

A number of industry spokesmen explain that the change chiefly is a result of a campaign against animal fats, led by the Center for Science in the Public Interest (CSPI), which has made consumers more conscious of nutrition issues. Activist groups such as CSPI also have sought mandatory nutritional labeling by fast food establishments.

While mandatory labeling for the industry has not been adopted by the U.S. Food and Drug Administration, the fast food industry has taken note. Some fast food chains have switched from animal fats or animal-vegetable fat blends to all-vegetable fat shortenings for all or part of their frying operations. Some have printed brochures outlining nutritional information about their products.

The assault against animal fats has not gone unnoticed by those in the animal fats industry. According to Eugene Matern, vice-president of Ed Miniat Inc., which markets animal fats, that firm has lost several big chain customers to vegetable oil. But, he added, "They're not as satisfied with the vegetable oil; it costs more, it doesn't hold up as well as beef tallow and reverts to its normal state."

Meanwhile, the American Meat Institute's Rendering Committee has voiced concern that switching is

taking place, although it is unsure to what degree.

Emory Payne of Rustco Products Inc. of Colorado, however, believes the major shift in demand occurred a year ago, when Burger King and McDonald's made changes in their frying fat usage. "I do not believe there has been a significant change in recent demand, at least due to nutritional considerations. Instead, market conditions, making the price of some oils more attractive than some animal fats, could have affected decisions by some of the smaller buyers," Payne said, adding, "I don't see it as as big a change as had been anticipated."

Rustco, which markets 100% vegetable oils, 100% edible tallow and animal-vegetable oil blends, has developed a pourable tallow oil shortening for deep fat frying that it says is less saturated than typical beef fat products. Through fractionation, the company has reduced the amount of saturated fat to result in a product liquid at room temperature. According to Payne, the advantage of such a product in the fast food industry is that less fat is absorbed in the final product, thus reducing the calories and fat content in the fried food.

Ed Miniat Inc., which processes 150 to 200 million pounds of edible tallow and lard a year, has seen a decrease in volume sold to the fast food industry beginning in March 1986, according to Matern, who said the company's biggest customer is

the fast food industry, followed by the baking goods industry.

"The fast food industry is changing. Many are not cooking their fish or chicken in animal fats, although some still are using animal-vegetable oil blends, such as tallow with cottonseed, peanut or soybean oil," Matern said.

Ironically, while the cholesterol issue is being waged against animal fats, fast food chains may be incorporating other cholesterol sources in their products. "Chains have come out advertising products fried in all-vegetable oil in answer to the cholesterol issue, yet they use egg yolks in the batter they use. They seem to be misleading themselves," Matern said.

Fast food chains

McDonald's Corp. and Burger King Corp. switched from an animal-vegetable oil shortening blend to an all-vegetable blend during 1986 in response to growing consumer awareness over nutrition. Both chains, however, continue to fry french fries in a tallow and vegetable shortening.

McDonald's switch to an all-vegetable oil blend shortening for its other frying operations was completed in August 1986. "Consumers are showing a heightened sensitivity to the whole issue of cholesterol," Stephanie Skurdy, McDonald's director of media relations, said, adding, "Consumers are asking how we cook our food." She noted that company surveys had shown that at home, most consumers cook fish and chicken in vegetable oil.

Burger King changed from a predominantly tallow blend to a soybean and peanut oil blend when it

introduced its Chicken Tenders product in March 1986, according to Jo Hutcherson, Burger King's assistant manager of public relations. "A vegetable oil was right for that product so it made sense to convert for other products at the same time," she said.

The Bailey Co., a Denver-based firm that operates 58 Arby's franchises, switched in 1986 from a tallow-based shortening to a vegetable oil for frying. During the past two years, Church's Fried Chicken Inc. has switched to frying all of its products with a vegetable shortening. Kentucky Fried Chicken, meanwhile, has always used only all-vegetable shortening in its frying operations and voluntarily has made nutritional information available to consumers for more than a decade.

Other fast food chains are interested in converting to an all-vegetable frying medium but claim finding one that produces the flavor consumers want is a big obstacle. Even McDonald's and Burger King said they have not converted frying operations for french fries to all-

vegetable shortening because of flavor considerations.

Other chains are searching for a suitable all-vegetable frying fat. Among these are Wendy's, Hardee's, Arby's, Jack in the Box, Burger Chef franchises and Dairy Queen. However, almost all of them said they also want to give customers the flavors they want.

"We are looking at a hardened soybean-cottonseed blend vegetable shortening and are testing it in a small group of restaurants to see how much we use and the cost of changing," Ken Dunkley, director of technical services for Foodmaker Inc., which owns Jack in the Box, said. He said Jack in the Box currently uses a nondeodorized tallow-cottonseed blend predominantly, although it has alternate blends, including a deodorized tallow-soy or cottonseed blend.

Wendy's always has used vegetable shortening for boneless chicken breast sandwiches and chicken club sandwiches, according to Paul Raab, Wendy's manager of corporate communications. "In

those products, this provides terrific quality and taste," Raab said.

However, he added, Wendy's research has shown that consumers prefer french fries cooked in tallow over fries cooked in vegetable shortening. "We don't see consumers wanting a change away from animal-vegetable shortening blends. They eat french fries because they like the taste."

John D. Merritt, vice-president of public affairs for Hardee's, agreed. "The real issue is whether you turn the customer off by switching. In our studies, we have found that consumers like what they're getting at fast food places. They say they know what they're getting and it tastes good."

"What is needed is some flavoring agent added after cooking to give that tallow taste," Mark Stine, Arby's director of marketing communications, said, adding, "We don't see this as a long-term obstacle." He noted, "Consumers are influenced by taste; otherwise, everyone would be eating bean sprouts."

Stine noted that Arby's was one of the first chains in the industry to disclose nutritional information in its restaurants. "While we are concerned with producing food that has a good taste, we're also concerned with providing food that provides good nutrition," he said.

Jack Kandl, field consultant with Burger Chef Systems Inc., believes a natural beef flavor will need to be added, either by potato processors before the fries are cooked or by fast food operators after frying, if chains do not fry french fries in tallow.

"The main question fast food operators are asking is, 'Am I willing to pay more and get a less appealing taste?'" he said.

The time the frying medium is exposed to oxygen and the holding temperature are important factors," Kandl said, noting that operators also must consider color stability and degree of foaming and smoking, as well as possibly investing in filtering aids to recycle the fat.

"Everyone is looking for quality and consistency, while also trying to save a few coins," Kandl said.

According to Harris Cooper, International Dairy Queen's president and chief executive officer, another

Labeling for fast foods

The issue of ingredient disclosure for the fast food industry still exists.

In 1986, the San Francisco Board of Supervisors enacted the first law in the U.S. that mandates nutrition and ingredient information disclosure by chain restaurant operators. The ordinance applies to fast food establishments of 10 or more units that serve ready-to-eat foods, primarily in disposable containers, for consumption on or off the premises. Those restaurants must have information available to consumers on calories, protein, carbohydrates, total fat, saturated fat and polyunsaturated fat, cholesterol, sodium, and vitamins and minerals in their products; they also must disclose the cooking medium used.

The legislation resulted from consumer pressure for ingredient labeling and nutrition.

On the federal level, in a petition organized by the Center for Science in the Public Interest, nine consumer groups and approximately 130 scientists asked the U.S. Food and Drug Administration (FDA) in late 1985 to require labeling of fast foods served in restaurants and also for an end to frying fast foods in beef tallow and other highly saturated fats. FDA, however, has said it will not do so.

U.S. Rep. Stephen J. Solarz (D-NY) has reintroduced federal legislation in early 1987 to require ingredient labeling of fast food products. His 1986 proposal, never acted upon by Congress, was supported by the American Heart Association, American Diabetes Association, American College of Allergists and CSPI.

Feature

reason fast food chains fry french fries in animal-vegetable blends is that blanching is done by potato processors with an animal-vegetable oil blend. "Manufacturers blanch the potatoes before the fast food chains get them," he explained.

Cooper said he believes that if a vegetable-oil blanch were used, the best taste probably would result by frying the fries in vegetable oil.

"Certainly some segment of the market is interested in cholesterol. But the question to watch is health aspects versus taste preferences. Is the health segment strong enough to warrant a taste change?" Cooper asked. Dairy Queen is doing taste tests to see how potatoes blanched and fried in vegetable oils compare to those blanched and fried in an animal-vegetable blend.

"What consumers don't realize is that the frying at the fast food establishment is only half the story. Seven percent fat is added when the potato processors blanch the french fries, before the fast food chains get them. The fast food restaurants then add another 7% in the frying operation," Kandl said, explaining that potato processors in Oregon, for instance, use an animal-vegetable shortening.

Potato processors

Ken Hamilton, manager of technical services of the food division of J.R. Simplot, an Idaho potato processor supplying the food service industry, verified that some of the fat in french fries is put there by the processor, before the fast food chain buys the fries. "A good portion of the oil which will be in the ready-to-eat french fry is put in by the processor," Hamilton said, adding that this averages more than half of the final fat content, varying with the cut of the fry.

Processors generally steam and/or water-blanch the potato strips, then pre-fry them before freezing. Exceptions to this would be the fresh strippers on the West Coast, which might pre-cut raw potatoes into strips, water-blanch them, and possibly use sulfites—another agent under attack by activist groups—to help preserve them.

"Most of our products are packed for the fast food chain. Most processors have some fries processed in

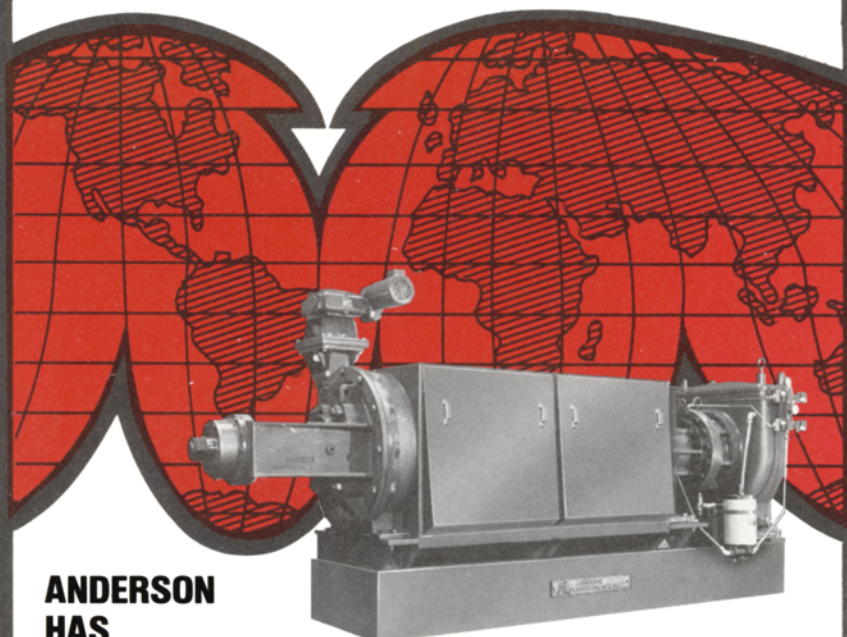
animal-vegetable blends, probably for flavor reasons," Hamilton said, adding that Simplot does have one all-vegetable oil label. "Some of the fast food chains specify all-vegetable oil, some specify vegetable-animal oil blends. We have seen some concern by chains about converting to all-vegetable oil use, but I have only

seen a few major moves away from tallow," Hamilton said.

Many flavor houses are considering coming up with some flavoring that captures the beef tallow taste and can be incorporated into vegetable oils, he added.

Carnation, also a major potato processor, uses whatever oils are

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specified by its fast food accounts. Although certain customers require 100% vegetable oil, Carnation uses predominantly edible tallow, with blends generally ranging from 90/10 to 99/1 tallow-vegetable oil. The percentage of fat contributed by the potato processor in the final fried product can range from 70% for a shoestring fry to less than 50% in a steak-cut fry, according to a Carnation spokesman, explaining that the difference lies in the time needed for the final frying at the fast food business.

Also aware of consumer concerns over cholesterol, Carnation has done research on vegetable oil frying of the potatoes it processes for the fast food industry and has experimented with artificial flavors to provide the tallow flavor. "However, we've been unsuccessful in getting the artificial flavors to withstand the heat of processing," the Carnation spokesman said. The company does process one potato product in all-vegetable oil, but it is one not typically deep fried, he said.

Synthetic tallow flavor?

Development of a tallow flavor is at least a five-year research project, predicted AOCS past president Stephen Chang of the food science faculty at Rutgers University. Chang, who has worked on isolating a minor constituent of commercial fatty acids made from tallow, believes that researchers need to determine which minor constituent produces the distinctive tallow flavor when heated.

"I do not believe that the pleasant flavor of foods prepared from tallow is from the fatty acids, but rather is from some minor constituent of the animal fat," Chang said. Tallow and lard, he said, have long been recognized and used as frying fats and fats in other products because of their flavor.

AOCS member Robert Regutti, who has set up his own consulting service in Valparaiso, Indiana, is among those trying to develop a synthetic product to provide the tallow taste in deep-fried foods such as french fries.

"It is feasible, but it will take time to test such a synthetic product, particularly as consumers are used to a

natural product," Regutti said, adding, "Synthetic tallow flavor is probably much like the efforts to produce butter-like flavors in margarines. It, too, will become usable, but never duplicate the tallow taste. Synthetic tallow-like flavor may become acceptable to the consumer, the way margarine flavor has." He added, "Besides the saturated fatty acid and cholesterol issues, I foresee the use of a tallow-like flavor to mask or neutralize undesirable off-flavor notes produced in vegetable oils and/or shortenings during the frying process."

Regutti said there are several ways of incorporating the tallow taste. "Most food manufacturers would rather include it in the shortening, rather than adding it afterward," he said.

Regutti, however, is hopeful a tallow flavor can be synthesized for fast food chains and any other industry desiring such a characteristic for its products.

Nutrition controversy

Not all agree that a furor is warranted over fast food frying with vegetable versus animal fats. Dean Specht of the National Renderers Association, calling the controversy "a tempest in a teapot," questioned whether it is a valid issue. "French fries fried in tallow taste better. If it were harmful, that would be different. But the average person can consume a year's supply of french fries and not take in as much cholesterol as he or she does in one week of eating normal breakfasts or from many other foods. Why change to a poorer taste for a non-problem?"

Matern of Ed Miniut Inc. and Hamilton of Simplot believe that the cholesterol issue has been blown out of proportion. "Studies show that 25 regular servings of shoestring french fries fried in animal-vegetable shortening blends contain the cholesterol equal to eating one egg. The chances are very slim that anyone would sit down and eat that many french fries," Hamilton said.

Fast food researchers noted that the current issue is complex. Much of the current concern about fat focuses not only on dietary cholesterol but on saturated versus unsaturated fat intake and total fat

consumption. Other questions needing more research, they suggested, are the health effect of consuming highly hydrogenated vegetable oils and such factors as overeating or genetic predisposition. Others believe there should be more concern over the by-products formed and compositional changes from deep-fat frying, such as polymers.

According to Matern, the meat industry is frustrated that it doesn't have the funds to counteract misleading information given to consumers. "The American Meat Institute can't spend multi-millions to fight this," he said. "There is a lot of controversy over dietary cholesterol. Serum cholesterol and heart disease may be more related to calories, genetics, exercise and stress than to the intake of cholesterol. It just isn't a simple issue."

Rustco's Payne, meanwhile, noted that the public impression is that vegetable oils are unsaturated, while animal fats are saturated. "Yet vegetable oils are only unsaturated if they aren't hydrogenated," he said. "The fast food industry uses partially or highly hydrogenated vegetable oils, which have higher saturated fat content than unhydrogenated oils."

Dunkley of Foodmaker agreed. Criticizing fast food chains that say they fry in all-vegetable oil when they use a hydrogenated vegetable shortening, Dunkley said, "I think this is very misleading to the public, as this is a shortening, not an oil. There has been a great deal of misinformation, with advertisements capitalizing on consumer concerns without providing scientific information to allow the public to sort out the issues."

He added, "I have the feeling that a lower saturated fat content is a more important objective to health professionals than to consumers, who are more concerned about lowering cholesterol consumption because of the publicity about that issue."

Beef industry's response

On the defensive, the Beef Industry Council has undertaken promotional efforts on behalf of beef. In its booklet "Facts about Beef," the council points out, "Those people

concerned about the possible significance of such dietary factors as cholesterol and saturated fats owe it to themselves to understand how controversial these issues still remain among health professionals and scientists.

"The fat contained in beef is not all saturated fat, as some people may think. In fact, only 48% of the fat in beef is saturated; the remaining 52% is monounsaturated and polyunsaturated."

Noting "it's a difficult time for the animal fats industry," Matern said the baked goods industry doesn't want to disclose on ingredient labels

that they contain animal fats "as they're worried people won't buy the products."

He and others said the anti-meat/cholesterol issue has not been presented accurately to the public. "Consumers are not receiving good information, but we don't have the money to retaliate," Matern said. "The anti-cholesterol or pro-vegetable people have made a lot of statements, with no answer from our people."

The Washington, D.C.-based American Meat Institute (AMI), meanwhile, has been surprised at findings from its survey measuring

consumer awareness of frying fats used in fast foods, according to AMI's Mary Burnette. Survey results showed consumers generally thought french fries sold at fast food chains were fried in vegetable oil. The reason for this perception, she said, may be because people frying french fries at home use vegetable oil.

Rustco's Payne, meanwhile, understands the consumer's dilemma because the information presented to the public is not objective. "Everyone seems to have a bias on this issue," he said.



Oil use in the food service industry

The following article was written by AOCS member Frank T. Orthoefer based on his presentation at the 36th annual Mississippi Valley Vegetable Oil Processor's Oilseed Processing Clinic in March in New Orleans. Orthoefer, currently director of chemical sciences for Nabisco Brands Inc., East Hanover, New Jersey, was director of technical services for Lou Ana Foods Inc. at the time of the presentation.

The food service industry, which uses approximately 20% of U.S. edible fats and oils production, represents a major market for processed vegetable oils. The oils are used primarily as frying oils, bakers' shortenings, margarines, and cooking and salad oils. Growth has been greater in this industry than in other oil uses, due in part to a shift in usage from animal fats to vegetable oils.

Food service markets

The food service market consists of restaurants, hospitals, nursing homes, colleges, motels, hotels and other institutions. This market totaled nearly \$200 billion in sales in 1986 (1). Growth in dollar sales was approximately 6.6% over 1985 sales, compared to a 4.8% increase in consumer spending for food and beverages. This represented 2.4% growth

when adjusted for inflation. Through 1979, restaurant sales increased at a 6.8% compound annual growth rate. Growth has since slowed as a result of two recessions. However, a 7.2% increase in food service sales has been projected for 1987.

Continued growth in food service is predicted due to:

- an anticipated increase in disposable incomes;
- favorable consumer buying trends;
- an increase in the 35-55 age group; and
- continued low commodity prices.

Restaurant annual growth is projected at 3-5%, while higher projections are made for the fast food segment. New markets, representing additional growth potential, are developing as well, including supermarket delis and convenience stores that, alone or in conjunction with

franchises, offer fast foods. For example, test units of 7-Eleven stores that include a Hardee's operation have opened.

Food service consumption of edible fats and oils is over two billion pounds a year. The oils are utilized as oils and shortenings, margarine and butter, and mayonnaise and salad dressings. Oils and shortenings made up about 60% of the total usage in 1979. Mayonnaise and salad dressings accounted for about 22%, while table fats (margarine and butter) represented about 18%.

The makeup of fats and oils consumed depends on the type of food service market. Fast food establishments consume a larger portion of the frying oils produced because of convenience, rapidity and consumer preference for fried foods. Hospitals and nursing homes often use margarine over butter because of perceived health benefits as well as economics. Restaurants likely will use butter because of its image as a better-tasting, higher-priced spread, although both butter and margarine often are provided to meet consumer demands. Restaurants account for