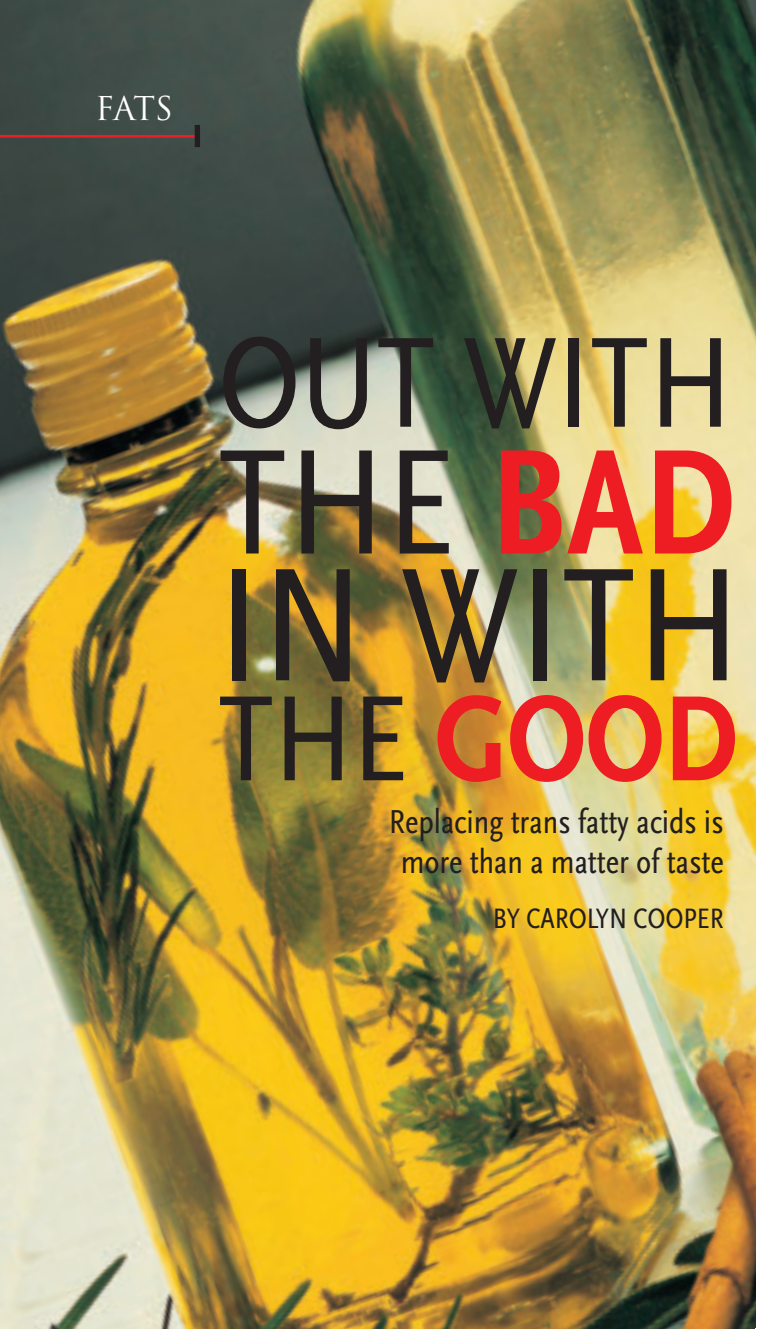

OUT WITH THE BAD IN WITH THE GOOD

Replacing trans fatty acids is more than a matter of taste

BY CAROLYN COOPER

As consumers are increasingly realizing, not all fats are created equally. Awareness of the "bad" fats – saturated and trans fatty acids – is growing among Canadians, especially following this fall's release of the federal government's multi-stakeholder Trans Fat Task Force interim report. While Health Canada says the final report on strategies for reducing trans fats in Canada's foods should be due out sometime this month, the preliminary report points to education, food product labelling and healthy alternatives as the way to reduce trans fatty acids in our diets.

And it is an area of concern – Health Canada research shows that Canadians eat an average of 8.4 g of trans fatty acids each day (10 per cent of total fat intake), while Canadian men age 18 to 34 eat an average of 38.9 g per day. At the same time, the study "Canadians and Trans Fats," prepared by Montreal-based Leger Marketing, found that out of 1,500 consumers polled this September, 51 per cent thought trans fats were "a major concern."

Most food manufacturers already recognize that consumers want their food to contain less fat. According to ACNielsen Homescan statistics released in September, over the previous three months 56 per cent of Canadian households reduced their fat intake, while 37 per cent intentionally lowered their consumption of trans fatty acids. Prompted both by this growing concern and awareness, and by impending mandatory nutrition labelling, manufacturers are now researching alternative fat substitutes to either eliminate or reduce the trans fat content of their products. To market a product in Canada as trans fat free, a serving must contain no more than 0.2 per cent trans fat. That number is 0.5 per cent in the U.S.

Trans fats are formed when liquid oils are partially hydrogenated to make them semi-solid, which in turn makes them more stable at room temperature and more adaptable in food processing. Trans fatty acids also occur naturally, in much smaller levels, in animal products such as beef, lamb and milk, and sometimes in refined vegetable oils. As opposed to monounsaturated and polyunsaturated fats – the "good" fats – high doses of saturated and trans fats raise LDL cholesterol levels, and increase the risk of heart disease and possibly Type 2 Diabetes. But finding substitute sources of fat isn't necessarily as easy as it may seem. "Polyunsaturated and monounsaturated fats are more unstable. And oil oxidizes fairly quickly without partial hydrogenation, so the product goes rancid," says John Michaelides, technical director at the Guelph Food Technology Centre. The challenge then for food manufacturers is finding a viable fat substitute that does not alter the product's taste, while producing the same texture, shelf stability and mouth feel as trans fats.

Finding an alternative fat generally depends on the type of product being formulated, as well as the combination of ingredients used. "The challenge is for crispier, flakier products such as pie shells or cookies, those that have to stay on the shelf for a while, or those products that upon re-heating or frying need to have a crispy texture," says Carolyn O'Brien, Scientific and Regulatory Affairs consultant for Food and Consumer Products of Canada. "For some of these types of products we're seeing combinations of palm, palm kernel oils or coconut oils with a poly or monounsaturated liquid vegetable oil. In some products a blended oil is used, which has been produced by combining small amounts of hydrogenated oils with the unsaturated vegetable oil, known as interesterification. There will be some saturated fats, but the process doesn't produce the trans fat." Michaelides adds that some companies are also testing products that will absorb less oil when fried. "There's also development in the composition of certain oils, which are not metabolized the same way in the body, and without the same health problems," he says.

Other products that don't require a crispy or flakey texture, such as soft-textured cookies and snack products in packaging that provides a good oxygen barrier, are being reformulated with high or mid oleic, low linolenic vegetable oils, generally canola, sunflower or soy. These plants are grown from modified seeds with a different fatty acid

profile, to develop more stable oils without requiring partial hydrogenation. "For many products using these oils, they are still in the test stage," says O'Brien, who notes that the choice of oil depends on functionality and the impact on the product, as well as on availability. But, she adds, "We still have a fair bit of research to do on this issue. We want to ensure that we have responsible, long-term solutions as opposed to going to the quick solution of simply changing back to the use of tropical oils." Michaelides agrees: "Fifteen, 20 years ago tropical oils were considered very bad for you because they contain mostly saturated fat. Now since some studies have shown trans fats are actually worse, there's been a return to those. But there are still considerable issues with them as well."

While Michaelides doesn't believe many companies will replace traditional lines with "low-fat" substitutes, he notes that many of the large manufacturers are finding success by working directly with suppliers on product development. "On the other hand, small- to medium-size companies rely on technical centres such as the Guelph Food Technology Centre to help them with reformulation of their products."

Jim Wispinski, director of Marketing for Calgary-based Dow AgroSciences Canada Inc., makers of Natreon canola oil, says the company has been working with manufacturers and processing partners to create samples and perform shelf-life trials. "That way companies can do the conversion with confidence," he says. "For frying oils and liquid spray oils it's a relatively easy substitution. It becomes more challenging when you're dealing with replacing shortening or margarine used in baking because there are several different types to be replaced. In this case Natreon can become a component in making a blend to replicate the different margarines and shortenings and how they melt at different temperatures." But, he adds, "more work needs to be done."

NEED HELP?

Agriculture and Agri-Food Canada has identified not-for-profit facilities in each province that can help processors reformulate their products to eliminate or reduce the level of trans fat. These include:

- The Centre for Aquaculture and Seafood Development, St. John's, Nfld.
- The Prince Edward Island Food Technology Centre, Charlottetown, P.E.I.
- The Canadian Institute of Fisheries Technology, Halifax, N.S.
- The New Brunswick Research & Productivity Council, Fredericton, N.B.
- Cintech Agroalimentaire, Saint-Hyacinthe, Que.
- The Guelph Food Technology Centre, Guelph, Ont.
- The Manitoba Food Development Centre, Portage la Prairie, Man.
- The POS Pilot Plant/Saskatchewan Food Industry Development Centre, Saskatoon, Sask.
- The Food Processing Development Centre, Leduc, Alta.
- The British Columbia Institute of Technology (Food Process Resource Centre), Burnaby, B.C.