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Eco-Friendly—Me?

For the last 20 years or so, my work has required me to travel internationally on a more-than-average basis. My “green” friends never miss an opportunity to go on about the “size of my carbon footprint” and the number of air miles that I must have. I suspect the reason some of them are “green” is that they think travelling around the world, visiting farms, flour mills, and bakeries in “exotic” locations is glamorous and secretly they would like to do it given the chance.

I have to admit to being politically incorrect when it comes to the whole carbon footprint and eco-friendly lobby. In part, it is because I have some difficulty with the rationale that is thrown at you. Take my green friends who challenge the “vast” number of air miles I travel. My counter argument is that I either walk or ride my bicycle to the stores; whereas they use their carbon-based fueled four-by-four automobile. When asked about this discrepancy, they respond along the lines of “we have to use the car because of all the food that we have to buy when we go to the store.”

Recent reports from E.U. government agencies suggest that between 20 and 30% of all food that is purchased (not to mention the associated packaging) is wasted by the “average” household, apparently the worst offenders include single males between 25 and 35 and the two items they waste most are bread and bananas. Waste food products generate more garbage for disposal, in addition to all of the consequential impacts on the environment and the economy. So, if we are being truly eco-friendly, wouldn’t we choose to purchase less food in the first place so that we could generate less waste to deal with later?

In my politically incorrect world, being eco-friendly means helping others to be more efficient with the resources they have available and improving the efficiency (and safety) of their processing operations in the production of food for human consumption. It also means helping others maintain and develop foods that do not lose their consumer appeal so quickly they’re consigned to the garbage within a matter of hours.

The concept of eco-friendly covers a broad spectrum of cereal framing and processing activities, stretching from limiting the use of fertilizers in the field through pest and disease control to concerns over carbon footprints. Making good use of our planet’s natural resources and living in relative harmony with nature makes perfect sense to me, but quite how we achieve these lofty goals is not easy to understand or explain.

Cereals and Global Trading

In the production of cereals, the difficulties come in part from the intensely global nature of the trade. While cereals are grown

in many parts of the world, those areas with the natural resources to generate large surpluses are not necessarily those in which population and consumption numbers are at their greatest. To move surpluses of cereals to those areas with the greatest need means transport, which in turns means using energy in some form. Does the high-energy usage mean that the cereals industry cannot be eco-friendly? Well, of course, the answer is “no.” It is true that reducing the carbon footprint associated with the transport of cereals is always going to be a constant factor working against us, but there are other potential ways in which the cereals industry can make positive contributions to achieving a better balance between humankind and nature.

More focused farming methods combined with new cereal varieties are reducing the overall levels of fertilizer applications. Large-scale farming practices allow for the effective mapping of crop growth patterns over quite widespread farming areas; even in the somewhat smaller fields in Europe such methods are being adopted. The overall reduction in fertilizer applications is leading to reduced nitrogen run-off from fields and reduced pollution of watercourses with subsequent benefits for wildlife, especially in and around streams and rivers.

In addition to the contribution made by farmers, the cereals industry makes other significant and positive contributions which are encompassed by the eco-friendly concept. Positive increases in crop yields, especially when grown under conditions of environmental stress, help to reduce the proportion of land which needs to be taken into agriculture. The breeding of new varieties of cereal has a major role to play in this context but breeding and evaluating new varieties of cereals takes time. One example of how wheat breeding is increasing the eco-friendly nature of the baking industry is illustrated by the U.K. milling and baking group, Premier, that is now making their products with 100% home-grown wheat (i.e., U.K. wheat) based on a Canadian variety adapted to grow in the U.K. environment (2). Readers of this column will have by now recognized a degree of cynicism in my opinions when it comes to industry initiatives, so I’ll not comment on the vigorous marketing and sales campaign which has accompanied the introduction of this new initiative.

Reducing Waste

In the short term, there is huge potential for the cereals and cereals-processing industries to make significant contributions to waste reduction. This time, I am thinking of what happens to cereals post-harvest rather than losses in the field. Improved handling and storage conditions can significantly reduce crop losses and at the same time improve both the quality and safety of the raw materials concerned. In many cases, the methods by which such improvements can be achieved are not “high tech” but only require some fairly basic handling practices to be implemented

at all processing stages. If we lose less grain during storage then we have more for food production further down the chain.

It strikes me that we have not paid enough attention to waste in the food chain; however, it is true that some parts of the food chain have looked individually at waste. There are now a number of studies which have highlighted the waste of processed cereal products such as bread. While it is true that waste bread from manufacturing and retail environments can often be used for animal feed, this is becoming increasingly more difficult to achieve because of concerns that some products, especially those that are moldy, may be carrying other unwanted components (e.g., mycotoxins) into the animal and, perhaps, the human chain.

In an increasingly eco-conscious world, household waste is now being segregated and increasingly recycled. Waste food products, including those that are cereal-based, from households are now regularly composted and put back at the start of the agricultural chain. The wastage figures for bread products with relatively short shelf-lives remain significant at the consumer level but vary considerably in different countries. For example, a study by the Danish enzyme manufacturer, Novozymes, found that 74% of consumers in France claimed not to throw away bread, while the figure was only 47% for Germany, 46% for Sweden, and 38% for the United Kingdom (1). Naturally, there are differences between what consumers say in a survey and what they do in practice but if we assume that consumers exaggerate the positive aspects of their behavior then the figures become even more alarming.

There is no simple answer to reducing food wastage and there is a need to adopt a holistic view of the whole food chain. Any studies of waste reduction in the food chain will be complicated since loss of raw material and finished product and energy usages will all need to be taken into account. Both flour milling and baking are relatively energy-hungry operations which have become increasingly efficient but they still represent suitable subjects for research into energy reductions. The recovery of “waste” heat lost during bread baking has received some attention in the past few years and with rising fuel prices and an in-



How much of this valuable commodity do you waste?

creasingly green approach being adopted by manufacturers this subject is receiving ever greater attention. Fortunately, the carbon dioxide emissions from bread baking are relatively low when compared with other manufacturing operations so bakers have not yet been included on the list of contributors to global warming. The sweet, slightly alcoholic smell associated with bread baking is still seen in a positive light and would be considered “natural” by many people.

Water—An Increasingly Valuable Resource

As well as using a lot of energy, baking uses a lot of another valuable natural resource—water. In fact, around 35% of the bread we provide to consumers is water. An irony of baking is that we need to hydrate wheat flour to make dough which will trap gas bubbles and rise but in order to create the appropriate structure in the final product we have to drive some of the water off during baking. Now there is a challenge—how to make bread with less water, or at least how to lose less of it during baking.

Moving the cereals industry toward what some of my green friends would consider eco-friendly is never going to be easy; in part because of the global nature of wheat trading and cereal-based food consumption being balanced with appropriate agricultural and environmental resources. In broad terms, the industry takes a positive and responsible attitude toward matters of ecology and economy, and if we were to take further steps to reduce waste then we will have a very positive message to convey to consumers.

In some parts of the world, we need to focus more closely on reducing food waste but this could be a tale of two halves. On the one hand, using less raw material or making less product can contribute to reducing food wastage and potentially help with re-balancing food resources between the “haves” and “have nots” that I referred to in previous columns. The downside (and there is always two sides to an equation) is that we may not need to produce food on the same scale; thus changing the economic position in some parts of the world. In turn, this would mean that there would be less for me to do since I wouldn’t have to travel so much, thereby reducing my carbon footprint. Hey, that would please my green friends as it will make me much more eco-friendly! Ahhh, if only life were that simple.

References

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2. Williams, A. Hovis, Health and hitting the headlines. *British Baker* 4:20, 2009.

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