

# What Good Chaos?

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Most definitions of chaos refer to states of disorder and confusion.

I suspect that this year's events will prove the tipping point toward an era of great disorder—not just for society, but for our chosen field of cereal science as well. The parameters of our comfort zones are about to undergo a phase transition. *CEREAL FOODS WORLD* first began red flagging the implications of ethanol on the food supply last

September. Subsequent events have exceeded expectations.

Barring a major collapse in world petroleum prices, our industry confronts limited harvests, climatic stresses, and soaring grain futures as we enter the second half of this year. This spring, price futures for barley, wheat, oats, and other grains bumped up sharply as acreage traditionally devoted to these crops converted to corn for ethanol. And it isn't just cereal grains—milk proteins are in short supply, and a mysterious disappearance of pollinating bees in North America has put fruit crops at risk. All this gives consumers and cereal foods manufacturers serious indignation: food manufacturers are squeezed to restrain both their cost of goods and retail price inflation.

Other factors add to the chaos: Australia's continuing drought hasn't helped the trend lines for world grain futures either. In addition, as Hayden Wands, Sara Lee director of grain procurement, noted at the recent (excellent!) American Society of Baking's "BakingTech 2007" meeting in Chicago (March 4–7), this year's harvest woes will be compounded by a lack of trucking resources to deliver grain to both ethanol *and* food plants, a challenge probably not confined to North America.

To add to a further sense of pending disorder, Dennis Gordon's paper in our current issue highlights a significant regulatory threat to one of the brightest points of our industry—definitions for what constitutes "dietary fiber" and its role in human nutrition. It is a must read, as much lies at stake for how we use dietary fiber ingredients to define and enhance the nutritional value of cereal-based and other foods. In addition to the fiber issue, we also see the FDA applying its regulatory oversight to the definition for and labeling of functional foods, which should have implications for major segments of our industry. And finally, the carbo-phobic Atkins diet proved itself once again a winner in a widely publicized, long-term comparison of various diet plans among American women, co-funded by the eminently credible National Institute of Health and published in the March 7 issue of the venerable *Journal of the American Medical Association* (1). Let us not forget, the Atkins Diet's last appearance on the scene proved highly problematic for major segments of our industry. It appears that reports of its demise were greatly exaggerated.

Short of primal screaming or curling in fetal positions under our desks, what are we to do?

I, the perennial optimist, would like to posit that none of this is really bad news.

In nature, phase transitions mark where the action is: between shallow and deep water, between forest and field, between hot and cold, where lipid layers meet water, where enzyme meets substrate—this is where the chemistry of life flourishes most actively and where conditions are most "chaotic." In society, as in nature, chaotic times signal great, even epic, transitions. By contrast, the further one removes oneself from these transition zones, the more likely one is to find themselves in a state that is placid, static, and subject to decay.

Our chosen fields of endeavor are no different.

We have experienced similar phase changes in the past. I recall the 1991 Nutritional Labeling & Education Act (NLEA), for example, as a time when the U.S. food industry issued a great wailing and gnashing of teeth as it confronted the spiraling compliance and packaging cost implications of the new regulations. Instead, the food industry fattened bottom lines with an unprecedented new product development boom to liposuction offending nutrients out of their newly designated nutritional disclosure labels.

So, yes, we do live in interesting times. And my prediction is that we will, once again, rise to the challenge by creating another boom in product development and other innovations. I have no doubt that, as with the energy industry, higher grain prices will prove a spur to technical innovation and bottom-line value enhancement. Who knows? It may even boost long-neglected Third World agriculture toward self-sufficiency. But, more fundamentally, as professionals, don't today's phase transitions offer all of us a more attractive option to excel than the alternative of wasting entropy in the comfort zones of the status quo? So, let's roll up our sleeves and start innovating solutions.

OK, I admit, that last point was really the lead to the following announcement:

AACC International and *CEREAL FOODS WORLD* will sponsor a Workshop titled "Ethanol and Food: Mitigating the Impact of Ethanol Demand on Food Ingredients July 26–28, at the Hyatt Lodge in Oakbrook, IL (Chicago). Details to follow shortly. Hope to see you there!

## Reference

1. Gardner, C.D., Kiazand, A., Alhassan, S., Kim, S., Stafford, R.S., Balise, R.R., Kraemer, H.C., and King, A.C. Comparison of the Atkins, Zone, Ornish, and LEARN Diets for change in weight and related risk factors among overweight premenopausal women: The A to Z weight loss study: A randomized trial. *JAMA* 297:969, 2007.