Q&A

Martin Cole takes over as chief of food and nutritional sciences at the Commonwealth Scientific and Industrial Research Organisation in Australia in January 2010.

How did you get started in the food business?

I am a microbiologist by training. My PhD, funded by the food company Colman's of Norwich, UK, was focused on the prevention of yeast spoilage. That joint project between the University of East Anglia and the Institute of Food Research in Norwich gave me my first taste of the complexity involved in making food, and the interplay between academia and industry. I realized I enjoyed bridging disciplines as diverse as food engineering, chemistry and microbiology.

What early career move had a lasting impact?

Early on, I joined the International Commission on Microbiological Specifications for Foods. It was a productive, yet small, group of about 20 microbiologists from all over the world. We developed crucial standards, sampling plans and methods for food safety, as well as new approaches to risk management. It was a great opportunity to learn from the top scientists in my field. I tell students it is important to get involved in your field's professional associations because they provide a unique opportunity to learn from peers.

What have your industry experiences taught you?

I think the most important things I learned from the private sector are leadership and management skills. But industry was also a good scientific training ground. My first boss at Unilever was an expert on bacterial spores and food safety. I've used those industry-specific scientific skills to help develop new approaches to risk management. For example, as chairman of the International Commission on Microbiological Specifications for Foods, I helped to introduce the concept of a universal food-safety objective, which translates a food-safety goal into a quantifiable maximum hazard level. It's a metric used to communicate food-safety levels between governments and industry.

How is the field of food science changing?

We're finding ways to bridge the gap between food science and nutritional science. We need to close the loop between food processing and understanding the effect food has in the body. To do that, we need to harness the molecular-science advances that will allow us to ultimately do some clinical work. At end of the day, we've got to see what effect food has in the human population. I currently work at the US National Center for Food Safety and Technology, a collaborative venture between the US Food and Drug Administration and industry. There, we are engaged in efforts to change how we look at food — beyond food safety to include the health and nutritional aspects of food.

What is the biggest challenge in food production?

The global demand for food is going to double by 2050, with processed food making up much of the trade in food. Creating sustainable ways to feed 9 billion people living mostly in cities in a responsible, sustainable way — all while climate gets more unpredictable — is the biggest challenge we face.

Can we sustainably produce enough food to feed 9 billion people?

We've certainly gone through the sorts of change needed to realize big gains in production in the past, specifically from 1960 to 2000. But I don't think we're going to see the next big jump in production without strong science and technology advances, in molecular genetics and crop production for example. When I lecture, I tell people it is a good time to get into food science if you want to make a difference in the world.

What research opportunities are there for food scientists?

As the food supply chain gets more complicated, so does the need to protect the health of the consumer. We need to develop ways to characterize and respond quickly to new hazards. We also need to reduce the waste from food spoilage, while determining how to preserve the most beneficial aspects of food. To that end, we need to understand the molecular mechanisms that underpin the nutritional aspects of food. The big challenge is doing that in a way that helps the general population make good food choices.

What types of collaborations do you plan to foster at the Commonwealth Scientific and Industrial Research Organisation (CSIRO)?

We need to partner with industry because, ultimately, we aren't going to produce healthy, safe food without industry doing it. At the the CSIRO, we will aim to translate scientific principles into things that industry can adopt. Young minds are also needed to do this research, so we'll focus on collaborating with university partners to develop schemes that bring young scientists into the field. ■

Interview by Virginia Gewin.

IN BRIEF

Innovative energy

The US Advanced Research Projects Agency–Energy (ARPA-E) of the Department of Energy is seeking up to 20 energy-technology investigators for a two-year fellowship programme, which may lead to permanent positions at the department. Responsibilities will include seeking new areas for development and commercialization and helping to create energy policy. Inspired by the US Defense Advanced Research Projects Agency, ARPA-E supports high-risk 'transformational' research unlikely to be funded through traditional means.

Lab expansion opens

The Van Andel Institute, a non-profit biomedical research and educational organization in Grand Rapids, Michigan, has just opened a $178-million expansion — eight storeys of new lab space that will be fully operational by March 2010. In the next decade, as the institute expands from cancer research to translational medicine, administrators expect to add more than 20 principal-investigator posts, creating some 550 research and support-staff positions. Neurodegenerative disease, bone research, structural biology and pharmacogenomics are among the areas to be targeted.

J. DYKEHOUSE

Pharma job losses ranked

Of the dozens of drug companies worldwide that downsized this year, Pfizer has the dubious distinction of having made the most lay-offs. According to a top ten list compiled by newsletter *FiercePharma* in Washington DC, Pfizer slashed 19,500 jobs, partly as a consequence of its US$68-billion acquisition of Wyeth. Merck, which purchased Schering-Plough for $41 billion, came second with 16,000 lay-offs. Cost-cutting prompted Johnson & Johnson, in third place, and AstraZeneca, in fourth, to shed 8,900 and 7,400 jobs, respectively. GlaxoSmithKline cut 6,000 and Eli Lilly was sixth with 5,500.

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