SESSION V. 2007 LAUREATE ADDRESS

October 19, 2007 – 11:30–11:50 p.m.
Speaker: **Philip E. Nelson**

Margaret Catley-Carlson
Chair, Global Water Partnership
World Food Prize Council of Advisors

We segue into the next part of this, which is our laureate address. And Al Clausi is coming up to have the task of doing the introduction. He is one of the pillars, the stalwarts, of the World Food Prize Council. If we have become the Nobel Prize for Food and Agriculture, it's because of people like Al. His knowledge is deep and profound. He was vice president and chief researcher for General Foods, now Kraft, for a very long time. He was both a food scientist and a research leader. And he pioneered some of the foods that sit on our tables – Tang, Cool Whip, Jell-O Instant Pudding, Alpha Bits, and more and more and more.

He is also a past president of the Institute of Food Technologists, which has recognized him for his global contributions in this area. So as I say, he's one of the pillars of this process. And so it's very appropriate that he has the task of introducing to you our Laureate. And in welcoming him, you're also thanking him for the contribution he's made to the World Food Prize. Thank you.

Al Clausi
Past President, Institute of Food Technologists
Senior Vice President (retired), General Foods Corp.
World Food Prize Council of Advisors

Thank you all very much. It's a great honor and a privilege for me to introduce our Laureate Address. To introduce our Laureate, it seems to me, would be totally unnecessary after that magnificent award ceremony last night and all the information that we got about Phil Nelson.

We know he's Hoosier, that's for sure – born in Indiana, raised in Indiana, went to Purdue, got his degrees at Purdue, and stayed at Purdue for some 40 years, creating a food science department there that didn't exist before he arrived, chairing that department. And to this day he holds an endowed chair on food processing at Purdue.

So Phil is truly a post-harvest food scientist and food engineer. And I emphasize that point, because, although I've been with the Prize since its inception, first as the founding chairman of the Prize and then on the Council of Advisors, we've had a marvelous record of

Laureates, fantastic – men and women who have done incredible things for food and agriculture around the world.

But when you look at the food chain, most of it has been at the production end of the food chain, and appropriately so, because without food there really isn't much you can do with it. But the message of the Prize is to recognize all links in the chain, from growing it to putting it on the table. And so it's special, I think, this year that we honor a Laureate who is a post-harvest food scientist and food engineer. Not only does it bring credit to all of us who participate in that discipline, but more importantly I think it underscores the relevance of post-harvest technology in preventing loss and preventing waste, in making more foods available for more people globally than otherwise would be possible, in a safe, nutritious and usable form.

So please join me in welcoming our 2007 World Food Prize Laureate, Dr. Philip Nelson.

Philip E. Nelson
Scholle Chair Professor in Food Processing, Purdue University
2007 World Food Prize Laureate

Thank you. After last night, I wasn't sure I could even talk today – quite an event. And later on I'll see if you all remember "Hail Purdue" as we close this event.

You know, it's an interesting time to find myself in this position, to say, "What do I say in my Laureate Address?" I could go back and go into detail over my research, but you got a glimpse of that last night. So I thought today I'd try to very briefly focus on the needs and particularly point out that this is a team. It is important that we're working together from production to consumption and that all of us have a major role to play.

Before I begin, I want to point out it is teamwork. My work and many of our Laureates' efforts would have been a good research project sitting on the shelf somewhere if we hadn't had this kind of industry-university alliance. The ideas are generated, but it's important that they get carried out, and it's with that kind of cooperation that all these kinds of things can occur.

Well, there are about 138 countries now using aseptic technology. And again, I didn't develop aseptic, but I've been training and following that development my whole career. There's 500 million gallons of bulk storage juice consumed annually, and this is growing. We're making major installations now in Spain and other parts of the world.

We think of Brazil, and maybe some of you saw the picture last night, but they produce a lot of orange juice, and it's very important to their economy. Think of the impact if they were to lose that market. And of course aseptic bulk ships are out there.

I guess one advantage to the environment, if we do have a catastrophe, this is biodegradable. So the orange juice – 8 million gallons, 16 tanks, a half a million gallons each,

carrying that product. But the point is that this is after harvest, and without this technology this kind of industry might not be.

Of course, I don't have blood in my vein, I've got tomato juice – because that's really where my roots are from. And it's interesting to note now that of tomatoes harvested globally, 90 percent are aseptically processed and packaged for off-season remanufacture. I know my father would have said, "Where were you back then when we needed it?" But you can see an impact that can take place after the farm gate.

Might be surprising to know now that China leads the world in tomato paste production, and it's followed by the United States and then down the line – not that they're next, but down the line is India. India produces 7.6 million tons of tomato products a year, but due to the lack of proper processing, the export of these products is limited. And they have tremendous food losses.

Again, in my laboratory, a little bag that we started working with, with an entrepreneur who came to my office saying, "I can pack battery acid. Can we do this to food?" And here now we see this application worldwide in many different products: a bag in box, the 300-gallon that you just saw, or the 55-gallon bag in drum.

I wish we had a magic wand and could say, "Okay, we've got aseptic processing – that solves all the problems" – but obviously it doesn't. There are things that we have control of, and there are things that we have no control over – obviously, conflict, terrorism, corruption, governmental regulations. But certainly post-harvest losses are something that we can address and we need to look at a great deal with more effort.

Obviously, my background focuses on food preservation. And really post-harvest losses occur when a harvested product does not reach its intended use – in most cases, a hungry stomach. There's a lot of argument over the post-harvest losses, whether it's 2 percent or 5 percent or 10 percent or 40 percent. We know it can be as high as 50 percent.

And we know it's not as simple as saying – okay, well, let's put a factory there, and we'll take care of everything. It's a process that requires a step-by-step scrutiny in order to reduce those losses. You know, this just shows the example of harvest of rice along the way. There are many steps there, and we can see that it can eventually mount up to a significant number – each step along the way, losing a little bit of the product that was intended for someone's stomach.

We're not talking about changing practices. It's looking at practices, and can we, as an economist would say, can we optimize it? Because we're not going in and changing traditions that have occurred over years, traditions that have been successful.

But. certainly. reports in Vietnam that, of a bumper crop of rice, only half of it was used; the other half was lost, where it could have been preserved and reached a much wider reception by people. You know, it breaks one's heart to think of product that you have there – you've really done a great job in growing and producing that and getting the yields up. but if half of that is going to waste, we've got some work to do.

Whether you believe this report or not – in 1999 the World Bank said that post-harvest losses amounted to 12 to 16 million metric tons of food grains each year. And they quote an amount that the World Bank stipulates could feed one third of India's poor.

Teach a man to fish, and he can catch a lot of fish. But what happens to that fish? This particular shows that these fish will spoil. And we've seen what can be done with simple installation where their goal is to market that product: those fish can be saved.

Just a recent report estimated that in a province in Afghanistan, 50 percent of the fruits and vegetables will spoil. They've been very well supported, and the farmers have really prospered. They've done a great job in agriculture. But can you imagine if half of your crop, you watch it spoil?

Well, there are all kinds of simple ways that can be introduced to protect that product until it can get to market, not expensive major processing plants, but just simple units like this cooling unit that could be used to extend the shelf life of these perishable commodities.

And of course as nations develop, milk becomes a very important commodity to the nutrition of the countries. Here we see milk that will be delivered to a small processing plant where they're going to learn techniques of preservation and also making new products, adding value to that product that was all ready to spoil.

And of course the real successes have been utilizing further technology to get this product distributed to the people that really need it, our children. And this has been very, very successful.

Here's just an example. India has over 15 million gallons of aseptic milk. This is growing and will continue to grow. Pakistan, even more, 43 million gallons. And China, about 156 million gallons. Some of this would be even soy milk, but the point is – it's now being distributed without refrigeration throughout their parts of the world.

Still, we're faced with disasters, catastrophes; still, hunger. And of course we've got a long way to go. Food security now means just getting enough food to the individual to survive that day, and we know we're faced with that and we will continue with that. But when you have a chance to see some of your efforts being used, such as an example of Katrina where water was being distributed in our bags that we worked so hard on back in the '70s, it gives one heart that you can make a difference. And you didn't plan on it, but just keeping at that technology, you have an opportunity to make a difference.

I wanted to just touch a bit on the fact that we are a global society. We, in the developed parts of the world, want our product there on the grocery shelf the year around. So there are some concerns of imports and developing markets that we will be facing in the next decade.

And if I could say two words and say, if you want to do research in a university right now where there's funding, not only would biofuel be the big word today but also food pathogens and biosecurity.

When we talk about food pathogens, we're saying – do we have control of our food? Is this food, coming to us and other parts of the world, handled properly? Is it getting to the marketplace in the right shape and form? Are we bringing that product from the inner parts of our country, or a country – in this case, China – by boats, by barges and coming to a port? Are they safe? And while I'm sure this is a Ruan truck, we're moving products from inland to the coast by truck – again, opportunities to either contaminate our food or to have a breach in security.

And then you begin to think of the shipments abroad in containers. Containers have changed the whole food delivery system. There's no question that this kind of market has changed your lives, of what you see in your store and what you buy year around.

And of course think of the security, now, of this product that started in China on a cart and ended up in a container and manages to get to one of our ports. Now, let's see. I think that little red one in the background is destined for Des Moines. We hope so.

Well, security then, not only from food pathogens but from bioterrorism, is important. And we do have opportunities with many countries, where we actually are on their shores or they are on our shores, to be assured that what goes into the container is what it says it is and it's safe. But how can we be assured of that?

Just to point this out, that developments are happening. There's no question now that, with GPS capabilities and our radio frequency indicators, we will be following that product from where it's produced until it's unloaded and available to us to consume. We're a ways off from that, but certainly that's in the future, and it will make us assured then that we have a safe food supply.

Well, we've made tremendous advances in agriculture. You know, I stand here and look at the Laureates before me, and I'm thinking – wonderful, marvelous – and more to come. But certainly we still have much to be done. And if I could quote my Swiss friend, Felix Escher, – *we can do it!*

Thank you.