Nanotechnology: Agriculture and Food R&D

WASHINGTON – Earlier this month, the Project on Emerging Nanotechnologies released the first online, searchable inventory of nanotechnology-based consumer products (www.nanotechproject.org/consumerproducts). The inventory contains information on over 200 products from 15 countries. It includes nanotechnology merchandise that can be purchased in local department stores, pharmacies and sporting goods shops or over the Internet—everything from cosmetics to athletic equipment and from clothing to electronics.

The inventory tells an important story about the number and variety of nanotechnology consumer products on the market, their possible benefits and risks, and the challenges faced in terms of oversight and consumer education around nanotechnologies.

While the Project’s nanotechnology consumer products inventory contains manufacturer-identified foodstuffs like a canola oil and a chocolate “slim” shake, the current number of nanotechnology food products being sold appears to be relatively small. But millions of dollars are being spent globally by both governments and industry to apply nanotechnologies in areas such as food processing, food safety and packaging, and agricultural production. When will this research result in large numbers of nanotechnology food products appearing on the market? Who will be impacted? What are the potential benefits and risks? How can consumers be engaged early on?

These are key questions which need to be addressed as soon as possible, not after products appear on the shelves of the local grocery store. The stakes, in terms of consumer perceptions and oversight of nanotechnology in the food sector, are high. Given the recent history of public concerns and policy missteps involving genetically engineered food, the introduction of any new technology into food and agricultural products offers challenges for both industry and governments.

At this point in time, before too many nanotechnology agrifood products have entered into commerce, there is a unique opportunity to better understand what is coming, to think through the potential impacts—both positive and negative—and to begin to engage the public and other key stakeholders in a dialogue about nanotechnologies’ use.

Along these lines, one challenge we face as consumers and policymakers is how to get a “heads up” concerning future applications which are still in the development stage. A research effort by the University of Minnesota’s Dr. Jennifer Kuzma and Peter VerHage is
Putting together a method to anticipate what food-related applications and products are likely to appear over the coming years. It looks at what areas are likely to see early commercialization. It begins to explore potential benefits and risks. Its aim is to help focus the attention of policymakers, educators, and others in the right places at the right times.

Their work, which has resulted in a database of nanotechnology food and agriculture-related research, looks at the landscape of research investments being made by the government. It uses that information to map the potential trajectories of products and applications in both the food and agricultural sectors.

This is not an exact science, nor is it complete. It has been reported that the worldwide nanotechnology food market will be $20.4 billion by 2010, and that five out of ten of the world’s largest food and beverage companies are investing in nanotechnology research and development (R&D).

Because the results of this corporate research are difficult to acquire, industry R&D in the food sector—which surely will have large impacts—is not included in this database. But even with the data’s current limitations, it is better than flying blind into the future waiting for large numbers of products to appear on store shelves or in farm fields.

This is the first step in a longer effort to explore the governance challenges around nanotech-based food and agricultural applications. The Project on Emerging Nanotechnologies hopes it will be useful to others who are working to understand and communicate the impact of nanotechnologies on our economy and everyday lives.

The Project on Emerging Nanotechnologies is making this database of nanotechnology food and agricultural related government research available online where it can be downloaded into Microsoft Access software for use and analysis by others. The Project welcomes comments and collaborations with others in this very important area. The database can be found at http://www.nanotechproject.org/index.php?id-11.

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The Project on Emerging Nanotechnologies was launched in 2005 by the Wilson Center and The Pew Charitable Trusts. It is dedicated to helping business, governments and the public anticipate and manage the possible health and environmental implications of nanotechnology.

For more information about the Project on Emerging Nanotechnologies, see: http://www.wilsoncenter.org/nanotech or http://www.nanotechproject.org.