

Roger Beachy

Plant scientist Roger Beachy has joined the Obama administration to lead the National Institute of Food and Agriculture (NIFA), the new research funding arm of the US Department of Agriculture (USDA). Beachy, whose research led to the first transgenic crop, was previously the long-time head of the not-for-profit Donald Danforth Plant Science Center in St. Louis. Emily Waltz talks to Beachy about his plans for the new agency.



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Why do we see such an emphasis on transgenic strains of major crops rather than other crops that would benefit small-scale farmers and consumers?

There is relatively little profit in minor crops like blueberries and sweet potatoes compared with the large commodity crops. So the major seed companies aren't very interested in developing them; that is left to the public sector and small seed companies. And while public sector science is putting a lot of effort into researching these smaller crops, the cost of navigating the regulatory process is so high that it essentially eliminates public sector participation in commercialization. Noncommercial researchers also lack the expertise and infrastructure to provide regulatory authorities with the necessary documentation for regulatory approval. Without additional support, there will likely be few genetically enhanced crops developed by public sector researchers in the marketplace in the near future.

Are you going to attempt to change the regulatory process so that these minor crops can make it to the market?

In the early days of agbiotech, regulations were

Did you have any idea you were on President Obama's short list for this job?

I had no idea. Rajiv Shah, who had just been appointed USDA's chief scientist, attended a meeting in St. Louis and during his visit he quizzed me about what I thought NIFA should be like. A month later he called and asked if I would consider taking the job as director.

Do you think you were hired because the current administration wants to push the agbiotech agenda?

Not at all. They wanted a scientist who has a reputation for having accomplished both fundamental and applied science and has a grasp on the importance of international programs. The best science I have done in my career has not been biotech; it has been what I have taught about virus structure and pathology and how viruses move between cells.

What are society's most urgent agricultural challenges, as NIFA sees them?

Sustainable food production and nutrition, readiness for climate aberrations that will impact productivity and developing renewable options like biofuels and industrial and pharmaceutical materials. To address these challenges, we will create sub-institutional structures within NIFA. One of the institutes would address biofuels, climate and environment; another would address food safety and nutrition; a third would address food production and sustainability; and a fourth institute would focus on youth, families and communities.

What opportunities does your new position offer that your previous job didn't?

I'm a scientist and I'd like to see agricultural science benefit humankind. This job gives me a far greater opportunity to do that than my previous roles. We need a new generation of scientists who understand the importance of the environment, of sustainability, food production, biofuels and climate, and I'm not sure that has been as much of a focus at the USDA as it should have been.

How will NIFA differ from its predecessor, the Cooperative State Research, Education

and Extension Service (CSREES)?

With NIFA there will be a greater focus [than under CSREES] on competitive grants, and greater linkage between fundamental and applied research with extension and education. We want to ensure that the knowledge we gain from research reaches farmers and consumers; from the lab to the field to the fork. Our agency will be unique in that regard. The NIH [National Institutes of Health] doesn't have the same capability of going from the lab to the bedside.

How will you accomplish these linkages?

We will request that a significantly greater percentage of the research grants that NIFA awards include a component for extension or education. In the past, about 25–30% of our grants included these components. We'd like to double that.

Do you think that the financial support from Monsanto at the Donald Danforth Plant ScienceCenter will affect how you form relationships with industry at NIFA?

No. As president of the Danforth Center I encouraged relationships with private companies, including Monsanto. But it should be understood that those relationships did not result in significant influences over the mission of the Center. It's unfortunate that some people think that that relationship has tainted me in some way, although I guess it's not unexpected.

Will more money find its way into research grants or will we simply see a reshuffling of funding priorities?

We had a budget increase for a competitive grants program, called Agricultural and Food Research Initiative (AFRI), this year from \$201 million to \$262.5 million, which suggests that the Obama administration is keen to invest more heavily in agriculture research. And the farm bill states that we are eligible for up to \$700 million in AFRI funds [2008–2012 period]. That's a good start, but we need more than a billion dollars per year to meet the major societal challenges that involve agriculture.

Q & A

fairly minimal, which kept development costs low. The safety of a product was judged on the product itself and not the method used to develop it. Regulatory agencies have lost some of that focus in the past ten years. Now crops made with genetic intervention are viewed through a different lens than those made by classical breeding. I am very interested in having a regulatory structure that is science based and gets back to what we originally had.

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How will you go about making these regulatory changes?

I’ve been on the job for four weeks, so I don’t have an answer yet. But it is an interest of mine. NIFA is not a regulatory agency and is not part of the regulatory process, and to put a lot of immediate effort into changing the regulatory structure before we have a sense of how much need there is for change would not be prudent.

Can NIFA hope to achieve an impact beyond the US?

In the past, the USDA supported a larger number of foreign students and other trainees who would attend our agricultural universities and then return to their home countries to implement their knowledge. The resources for such programs have shrunk in recent years. In the next few months, we will create a Center for International Programs, reporting to me, that will seek to rebuild international partnerships based on local agriculture, rather than imported goods.

Some scientists have criticized the USDA for becoming conservative in the kinds of crop research it supports. Do you think this is true?

I agree there has been a narrow focus and it’s partly because Congress has gotten involved in telling the USDA what to fund. That

hasn’t made it easy to be more exploratory in research. During my tenure we expect to award larger grants that are longer in term. We hope this will engage a broader range of scientists and engineers who haven’t traditionally come to USDA for funding. For example, we would bring together biomedical researchers, plant biologists and extension agents to work on increasing the nutritional value of food.

What will it take to get grant managers at the USDA to think differently and direct funding toward a broad range of scientists?

When I arrived, I was impressed by the willingness of the management team to consider doing things in a different way. They are ready for change. But we may also bring in a few people as advisors or staff to help stimulate the change.

What are your ideas on how to provide accurate, science-based information that the public will actually read?

Communication of any type of science in lay language is terribly important. The USDA has not always kept good track of the impact of its research. Instead, we leave it to the universities to publicize discoveries. We need to find more proactive ways to let people know that we are part of those discoveries.

Will NIFA fund research that examines the potential risks of biotech crops?

We’ve had more than 15 years of successful deployment of biotech crops. That history alone tells us a lot about how safe transgenes are under current regulatory guidelines. I think it’s important that we stop talking only about risks and talk more about risk-benefit analyses.

So if a scientist applies for a grant to study only the risks of a crop, is that person out of luck?

If there is a legitimate concern about the safety of a product, absolutely there is an opportunity for support from NIFA.

Emily Waltz, Nashville, Tennessee