

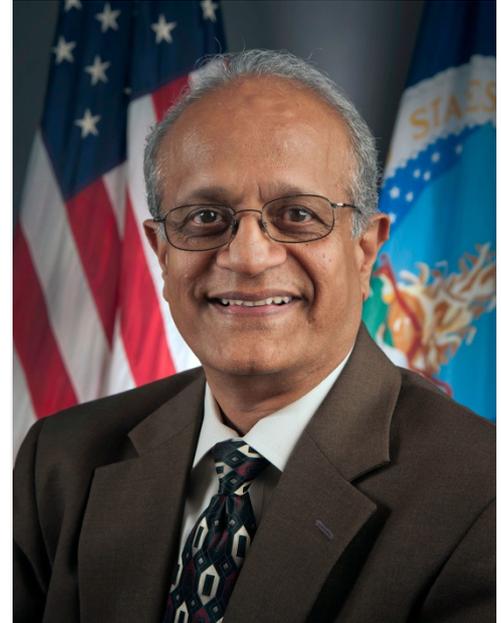
Food science deserves a place at the table

US agricultural-research chief aims to raise the profile of farming and nutrition science.

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Although it typically commands less attention than many areas of government-funded research, agricultural science accounts for roughly \$2 billion of this year's US federal budget. A key component of this spending is the \$705 million allocated to the US National Institute of Food and Agriculture (NIFA) where Sonny Ramaswamy was sworn in as director on 7 May. Ramaswamy is the former dean of agricultural sciences at Oregon State University and an entomologist by training. His research has focused on the fundamental nature of the relationships between plants and insects, and the development of tools for managing insect pests. Two months into his new role Ramaswamy chatted with *Nature* about NIFA research, working with a tight budget, how agricultural science needs a makeover and the 2012 US Farm Bill, now under active debate in Congress, which will set US agricultural and agricultural-science policies for the next 5 years.



USDA Photo by Bob Nichols

National Institute of Food and Agriculture director Sonny Ramaswamy.

Does agricultural science have an image problem in the United States?

It is unfortunate, but agricultural scientists are sort of an afterthought. The public perception is of small-town universities just doing meat-and-potatoes production agriculture. But we have some of the top agricultural-science universities in the world. They're developing tools related to robotics, informatics, nanotechnology, biotechnology and food safety, in addition to developing better ways to feed the world. Agricultural scientists — believe it or not — are a stoic lot. They don't go around beating their chests, saying, "Recognize me!" They just do their thing.

Why does agricultural science get overlooked?

In this country, we take food and agriculture for granted. The average American spends only nine cents per dollar on food. In India and China, the average person spends about one-third of their income on food. Suddenly it becomes part of your consciousness. It is in your conversations every day. You go to other countries, and folks are literally celebrating agricultural research.

We often hear about the importance of science education, but should it include agricultural science?

Science, technology, engineering and mathematics — STEM — education is a challenge, but it is all moot if we don't worry about food and agriculture education too. We should consider adding an A and calling it STEAM education, incorporating agriculture from kindergarten. Kids should know where food comes from, why it is important to think about the kind of food that we eat and not gorge ourselves on calories, and so on. A lot of health problems are attributable to people not knowing about food. Of course other factors are involved, but at the end of the day, education is where it's at.

Coming into the post of director amid budgetary constraints, what are your priorities?

My number-one priority is going to be conversations with stakeholders — everybody from average citizens to farmers, ranchers, scientists and people from the private sector and university faculties. Ultimately, those conversations and the priorities set out in the 2008 Farm Bill that established NIFA are what drive me, even with budget constraints.

What are the big research issues that NIFA has to tackle?

I'm very concerned with the immensity of the challenge of feeding a global population that is projected to reach 9 billion by 2050, with diminishing water and land resources, and climate change. It is pretty daunting. Take climate change: how do you improve water-use efficiency, nitrogen-use efficiency, nutrient-use efficiency or drought tolerance? How can you grow crops in incredibly arid conditions? Can you increase salt tolerance of crops such as rice, so that they can tolerate irrigation with sea water?

What do you think of the research section of the 2012 Farm Bill?

It would be really presumptuous of me to say, “Oh I’ve been here for a couple of weeks and I know exactly what this is all about.” But I’m trying to make sure we’re going to protect the two major buckets of funding that NIFA gets — capacity/formula funds and competitive funds — as well as the mandatory programmes, such as the organic research initiative and specialty crops research initiative.

I am also hearing a good bit of conversation about the Farm Bill becoming more prescriptive about areas NIFA should focus on, reporting requirements, matching funds, etc. If enacted, that would be unfortunate. Instead, I hope, at the end of the day, the 2012 Farm Bill enables NIFA to invest commensurate resources to facilitate the best science to address the societal challenges of agricultural production and food security, adapting to climate change, energy, water, nutrition, and food safety.

Which programmes do you think could get extra funding in the next 5–10 years?

Luckily for us, in the past couple of years NIFA has actually received a little bit more funding, especially in the competitive-grants arena. I hope that we continue on a trajectory to increase competitive grant funds that is commensurate with the challenges NIFA addresses—including food, fuel, fiber, health, and environmental security through enhancing the pipeline of a well-educated and trained workforce. I doubt there is an interest in increasing funds for research infrastructure. But, at the universities that focus on agricultural science we are in nineteenth- and twentieth-century buildings and trying to undertake twenty-first-century science. It is pretty tough — the greenhouses are falling apart, and labs aren’t up to speed. I hope that in the next 2–3 years things will turn around, and we can get some funding to improve the science infrastructure in the academic institutions.

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