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# Breaking the food-system divide with Smart Food: good for you, the planet and the farmer

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& 'Smart Food'

## Abstract



The 'food-system divide' – which is rarely talked about, let alone challenged – is one of the biggest hindrances to achieving a healthy population and sustainable and viable agricultural systems in developing countries. For decades, the majority of investments, whether on R&D, or big company investment, or policy support, or product development or even development aid, have been funnelled into just three major crops: rice, wheat and maize. These 'Big 3' crops provide 50% of the world's calories and protein. As a result, their value chains are well developed and supported, making it very difficult to 'mainstream' other foods. The need for greater diversity in diets and on-farm is well known. Meeting that need will require mainstreaming and ensuring the viability of more foods. This should not be tackled with just any food but with food that is 'good for you (nutritious and healthy), good for the planet (environmentally sustainable) and good for the farmer (viable and climate smart)'; that is our definition of Smart Food. The Smart Food initiative aims to learn from the successes of the 'Big 3' and create the 'Big 5' and eventually the 'Big 7', and so on. Smart Food will focus especially on foods that can be eaten as staples. This way, we will have a major impact on some of the leading global issues. As Smart Food is good for you and the planet and the farmer, these three qualities can in unison contribute to healthy people and sustainable and viable agriculture.

This talk presents just one solution, but it is a solution that can have a huge impact. As Jessica Fanzo said earlier, we need 'business *not* as usual', and that is an idea that is relevant to both lower- and higher-income countries.

In the development world, decades ago, the main focus was on food security – about just having enough food to eat to stop starvation. Then came the awareness of 'hidden hunger' – adding nutrition security to food security. Nowadays, the UN talks about 'sustainable diets' – diets that are more sustainable on the environment. At ICRISAT we are saying that there should be a further step: that we should pull all those foci together into a new focus on what we call 'Smart Food'.

We define 'Smart Food' as: good for you, with high nutrition and health benefits; good for the planet, being environmentally sustainable; and good for the farmer. There is a need to find solutions that focus on smart foods and develop the value chains to support them. Our biggest challenge in that task is what I have termed the 'food-system divide'.

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This paper has been prepared from a transcript and the illustrative slides of the presentation.

### **The ‘food-system divide’ and how to cross it**

For decades the vast majority of investments have flowed to the ‘Big 3’ crops: wheat, maize and rice. Whether it is R&D, private industry investment, policy support, product development, or even development aid, the Big 3 have received the lion’s share across the globe.

This is a problem because it has led to crops being grown in inappropriate agroecologies. This can negatively impact on the natural resources, and increase risk for farmers. It is also well known that globally we need more diversity on-farm, we need more diversity in our diets and more nutritious diets. Yet, in lower- and middle-income countries, typically 70% of people’s meals will consist of just one staple\*. Where that staple is rice, for example, 70% of the food on a plate will be white refined rice, repeated for three meals a day.

Rice and wheat became big, industrialised and well supported foods during the Green Revolution when there was a dedicated focus on these crops. We need to learn from this – learn how such a radical change in the agricultural systems and consumer diets happened. We need to learn how revolutionary change can happen, and use this to make another revolutionary change to create the ‘Big 5’, and eventually the ‘Big 7’.

Key to the Smart Food movement is its focus on staples. The diversifying of diets is a big focus for most development agencies, but very few people are focusing on diversifying staples. Vegetables, for example, have a big focus and are extremely healthy, but they are not staple food and so typically form less than 30% of the food on the plate; possibly only 10%. This means it is more difficult for them to have a major impact on the nutritional intake.

We have to change peoples’ habits of eating mainly one food such as rice. If we do not change habits then there are not going to be the changes in global diets that are needed, both nutritionally and environmentally and for farmers’ sakes.

Therefore we have set up the Smart Food movement.

### **Smart Food movement**

Under the Smart Food movement, ICRISAT has chosen a couple of smart foods and dedicated resources to them, with the aim of converting the Big 3 into the Big 5. The smart foods we chose are millets and sorghum, which used to be traditional staple foods across many countries in Africa, and in India and some areas in China and other Asian countries.

These dryland cereals, now termed ‘nutria-cereals’ in India, fit the criteria of a Smart Food. For example, finger millet has three times the amount of calcium in milk – a huge amount.

Three of the millets are very rich in iron and zinc, which are two of the three micronutrients most widely lacked across the world. Anaemia, which is

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\* National Geographic Society defines staples as food that ‘makes up the dominant part of a population’s diet. Food staples are eaten regularly – even daily – and supply a major proportion of a person’s energy and nutritional needs’. <https://www.nationalgeographic.org/encyclopedia/food-staple/>

becoming increasingly prevalent, is counteracted by iron; iron is an important micronutrient for pregnant women, and lack of iron affects the next generation.

These millets contain typically two to four times the amount of iron in meat. Even though plant-based iron is not so easily absorbed as meat-based iron, consumers can still receive as much iron from these millets as from meat.

The chosen cereals have other benefits, including low glycaemic index and twice as much protein as milk. They need minimal pesticides and fertiliser; they have a low carbon footprint. They survive with three times less water than wheat, and ten times less water than rice – pearl millet is typically described as the last crop standing in times of drought – and they are very hardy and withstand extremely high temperatures as well. These cereals are going to be another important solution to maintaining food supplies in the face of climate change. They have multiple uses: as human food, as fodder, as biofuel, and in brewing.

Millets and sorghum also fit the key health-food trends in developed countries: being gluten-free, a ‘superfood’, an ancient grain, low glycaemic index, rich in antioxidants, high in fibre, and they even support weight loss.

Having identified these hidden resources, the next challenge is how to make these cereals not merely popular but ‘mainstreamed’; not just staples in developing countries but also major industrial crops in the developed world as well.

Our methodology to achieve this has four parts, as outlined here.

- (i) *Scientific backing for the concept.* The biggest criticism of superfoods was that they were not quantified, so anybody can call something a ‘superfood’. We are defining criteria for a Smart Food, and we will publish the scientific case behind our claim that these millets and sorghum are ‘good for you, good for the planet, good for the farmer’, while also developing a certification scheme for Smart Food.
- (ii) *Driving demand from consumers.* This needs to be undertaken at the country level. We are creating consumer awareness; creating a ‘buzz’ around these foods. We aim to change the image of these cereals – and we are working with food processors and the food service industry because to satisfy consumer demand we must have convenient tasty products available.
- (iii) *Ensuring that farmers benefit.* When market demand for these smart foods grows, it is important that the farmers receive a fair deal, especially the smallholder farmers in the lower-income countries. We need to develop the value chains so the farmers are engaged and maximise their benefits.
- (iv) *Filling knowledge gaps.* There are a lot of knowledge gaps for these less invested foods, and they need much R&D. We need to be a catalyst for more R&D and ensure this information feeds into the system and solutions.

In conclusion, there are three huge advantages in this initiative. First, because we are focusing on Smart Food, which is defined as being ‘good for you, good for the planet, good for the farmer’, we can help solve several big global issues in unison, such as rural poverty, hunger, malnutrition, environmental issues,



**Figure 1.** A still from the Smart Food reality TV show in Kenya.  
<https://www.youtube.com/watch?v=7i-LB9DNgQM&feature=youtu.be>

and dealing with climate change. The second big advantage is that because we aim to diversify staples, we can have a massive impact. The third big advantage is that in both low-income countries and high-income countries we can develop new large industries, benefiting farmers, food processors, traders, and the whole value chain.

### Looking for partners

I am here to find partners. We welcome anyone who would like to partner with us to achieve our vision of Smart Food.

For more inspiration, please watch the short ‘trailer’ video (50 seconds; Figure 1) of our Reality TV show, an initiative we have set up to drive consumer demand.

‘Reality TV for a cause’, as I call it, is a Smart Food reality TV show in Kenya. It was supported by USAID funding in its first year. This initiative was so successful in its first season that now it is self-sufficient through sponsorship.

Joanna is the Assistant Director General, External Relations, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and Executive Director of Smart Food. She began her career as an agricultural economist with the Australian Bureau of Agricultural and Resource Economics and later moved into market research in the agribusiness area of the Queensland Department of Primary Industries. She has also worked in private industry and with four CGIAR agricultural research centres in Sri Lanka, Italy, Malaysia and the Philippines and is currently based in India. She also leads the global Smart Food movement which was selected in 2017 by USAID and the Australian Department of Foreign Affairs and Trade as one of the 10 winning global food innovations.