



Let us tackle climate change before it tackles us, said the writers.  
(credit: Daily Conversation)

# Feeding a growing world amid climate change



Berhe Tekola



Marcelo Martins



Johan den Hartog

**Because of a rapidly growing world population and rising incomes, global demand for feed and food is increasing fast. Experts warn there is no way production can keep up, especially considering the negative impact of rising temperatures on crop growing regions. BERHE TEKOLA, MARCELO MARTINS and JOHAN DEN HARTOG share their thoughts about feed safety and food security in a world seen to house 10 billion people in 2050.**

**G**lobal food demand is expected to increase anywhere between 59-98% over the next 30 years.

"It's impossible to feed the entire world if we continue going down our current path," said Berhe Tekola, Director of the Animal Production and Health Division of the UN's Food and Agriculture Organisation (FAO). "We will have 9.6 billion people in 2050. We can't double or triple our crop production."

Human population growth, economic growth and climate change are shaping up to become an explosive mix in the decades ahead. Its impact will be felt around the world, but most likely disproportionately in regions closer to the equator like Asia, South America and Africa.

#### Extreme weather

These developing regions will face an especially daunting challenge to meet the demands of the modern market, according to Marcelo Martins, Global Head of Oilseeds at Cofco International.

"It is clear that trade in feed grains and oilseeds is set to increase further in the future as the global economy continues to grow," he said. "Most of the increase in consumption and trade will happen in regions where standards for storage, transportation and handling of grains are



**Novel feeds (proteins of insects and microalgae) have tremendous potential for production capacity and research has shown their use does not impact food taste. (credit: iStock, Algaenovation)**

still in its infancy and not as well developed."

Add climate change to the mix and developing countries will have their work cut out for them. Worldwide temperature is expected to increase between 1.8°C and 4°C this century, which will have severe long-term effects on crop growing regions. Droughts, floods, extreme weather all directly impact crop production and with that, food security as well.

Studies have shown that with rising temperatures come an increase in mycotoxin contamination. For instance, a 2% increase in temperature almost doubles the presence of B1 Aflatoxin in EU corn (Battilani, P. et al, Aflatoxin B1 contamination in maize in Europe increases due to climate change, 2016).

"Pests thrive under warmer circumstances. This leads not just to more contamination, but also to increased pesticide use and the risk of pesticides residues in feed and food," confirmed Johan den Hartog, Managing Director at GMP+ International, owner of the world's largest feed safety certification scheme.

Mr Martins added that as crop production increases to meet the ever-growing demand, chances of wide spread contamination also increase, hence jeopardising feed and food safety.

#### **Moving agricultural zones**

In Asia, climate change will move agricultural zones northwards as freshwater availability declines in the south. It will also lead to a decline in rice fields and limited expansion of livestock because of heat stress. It

comes as no surprise then, that not only farmers, but entire industries, economies and governments will share in the potentially devastating consequences.

"Climate change is the enemy we have to tackle before it tackles us," said Mr Tekola.

But how? Or at least how can the feed and food sector adapt to these new circumstances?

Experts place faith in feed and food producing companies themselves. Mr Martins cited English business magnate Richard Branson who calls business 'the force of change'.

"Business is essential to solving the climate crisis, because this is what business is best at innovating, changing, addressing risks and searching for opportunities," he said.

Experts also expect a lot from improving agricultural practices, like more crop rotation, and precision farming tools, such as GPS fertiliser dispersion and advanced irrigation systems. Also, storage and transport conditions need to become safer in developing countries by means of temperature control, moisture control and proper ventilation. All agree that more should be done to utilise by-products in striving for a circular bio-economy.

#### **Producing more with less**

They also point towards novel feed (proteins of insects and microalgae).

"For the global feed industry, there is no way around novel feeds. Novel feeds have a tremendous potential of production capacity and research has shown its use has no impact on the taste of food. As a sector we need to be on the forefront of producing more with less, and novel feeds could

well be our saving grace," said Mr den Hartog.

Mr Tekola likes the potential of soybeans. "Corn and wheat production is decreasing, while worldwide soybean production has doubled since 2000. This doesn't mean soybeans can feed the whole world, but a mix is certainly a possibility. Let's look for the food of the future, in an open debate with all stakeholders. Let's be bold and bring ideas together," he said.

#### **Uniform standards**

A complicating factor in the way forward is the different standards countries use.

"It will be difficult to measure how much feed safety will be jeopardised or how big the threat of contamination is when each country or region uses different standards," said Mr Martins.

At GMP+ International, much work is done each day to expand the feed safety and feed responsibility standards of the scheme to every corner of the world. Almost 20,000 companies in about 80 countries worldwide take part in the scheme.

"We strongly believe uniform norms and standards are key for the sector to cope with the challenges ahead," said Mr den Hartog.

"Every company that wants to contribute to safe feed and a sustainable future for the next generation, is welcome to join our scheme. The problems we face are real. But with every company committing itself to professional feed safety standards, and by working together as one chain, we believe we bring our goal of feed safety worldwide a little closer every day." Af