

SUSTAINABLE FOOD AND NUTRITION

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FEEDING A REGION

ENSURING SAFE & NUTRITIOUS FOOD FOR ASEAN

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ASEAN is a region of close to 650 million people (around half of whom live in urban centres; with, pre-COVID-19, some of the fastest economic growth rates in the world, averaging just above 5% in GDP growth terms annually over the last few years. Exceptionally high rates of urbanisation, primarily in second and third tier cities, and a growing middle class have put pressure on food supplies and agricultural output. COVID-19, and the associated lockdowns of economies that resulted in the first part of 2020, has served to highlight how fragile supply chains and food security in the region were.

“Whether it ends on a fork, between chopsticks, or between fingertips, food starts on a farm. And it takes a lot of people, time, and energy to get it from one place to another. But what if everyone tasked with growing, transporting, packaging, and selling food worked together for the sake of our planet and its people?”

<https://www.cropscience.bayer.com/people-planet/food-journey/a/building-a-stronger-food-system>

The second of the UN’s Sustainable Development Goals is “Zero Hunger” by 2030. The world is a long way from achieving that aim, with some 800 million people globally still suffering hunger or being undernourished¹. One of several key issues facing the ASEAN region today is how to feed its growing population in a sustainable way, ensuring that sufficient nutrition is being provided and the food produced and delivered to tables is safe to eat. Many European businesses are at the forefront of work in this area, be it in helping to boost production at the farm, through working to improve efficiency in the processing of foods, and then working to ensure adequate measures are in place to promote improved information for consumers on the food products before them.

“Farming today is more complex than ever before. The unpredictability of the weather, control of pest and weeds, market price development, scarcity of natural resources. To rise to this challenge, farmers need new technologies and solutions.”

<https://agriculture.basf.com/global/en/business-areas/crop-protection-and-seeds.html>

In ASEAN today, around 96.5 million people are employed in the Agriculture, Fishery and Forestry sector, with the largest levels being in Indonesia and Vietnam (35.7 million and 20.5 million respectively) and with about 31% of the land in the region being used for agriculture². Agricultural production accounts for around US\$243 billion of ASEAN’s total trade in goods, or about 9% of total trade in goods³, which means it is not an insignificant part of the region’s economy. And it is a sector that needs to become more efficient in terms of production volumes and delivery to the end user, as well as increasing the nutritional value of the food that we eat. Doing so would foster more equitable economic development, help alleviate rural poverty levels, and improve food security.

In short, ASEAN, collectively, needs to be promoting the concept of “sustainable food systems”. This is a farm to fork concept as it encompasses sustainable food production on the one hand, and sustainable diets and consumption (such as through the reduction of food waste) on the other. Measures for reducing food loss and waste have to be environmentally sustainable and should foster food and nutrition security, allowing people to live healthier and longer lives.

THE CASE FOR BOOSTING AGRICULTURAL PRODUCTION: USING TECHNOLOGY AND SMARTER USE OF AGRI-CHEMICALS

As the population of ASEAN continues to grow, and more people move to urban settings and those urban areas themselves grow, the issue of how to produce more food with fewer natural resources (land) becomes more paramount. According

1 <https://www.worldgovernmentsummit.org/api/publications/document?id=95df8ac4-e97c-6578-b2f8-ff0000a7ddb6>

2 ASEAN Statistical Yearbook 2019

3 Ibid

to the UN FAO, farmers globally will need to produce 70% more food by 2050 than they do today to feed the world's growing population. And they will need to do that in the face of reducing land availability and the impact of climate change.

At its most basic, food production begins with the seed. One way to increase production is utilise better and smarter crop types, ones that are higher yielding per hectare. Developing higher yielding more disease resistant crops is the first step in boosting agricultural output. In the Philippines, Bayer has been deploying a new variant of a corn crop that is producing yields up to 14 times greater per hectare than traditional corn crops used locally⁴. As noted by Croplife Asia⁵, plant biotechnology is being more widely adopted by the farming community as it delivers significant and tangible benefits, all the way from farm to fork helping increase crop production, conserve biodiversity, reducing CO₂ emissions and alleviating poverty and hunger.

Promoting education and training to farmers and local communities is also a key part of the equation. Teaching farmers how to use agri-chemicals correctly and safely, utilising technology to know when and where to use them most effectively and efficiently is a key task for agri-science industry. For example, in Indonesia BASF are running Farmer Field Schools to teach effective rice growing practices⁶. BASF is also developing and rolling out technology services to assist farmers in identifying problems with their crops, using scouting technology to identify pests, diseases and requirements for boosting the use of fertilisers where nitrogen levels might be low⁷. Other leading agri-science firms are also developing similar tools.

At the forefront of today's agricultural innovation is digitalisation. Farmers are increasingly relying on digital technologies that can analyse and transform millions of bytes of data into meaningful insights that help them make real-time decisions. Goldman Sachs has predicted that the farming sector will soon become the second largest user of drone technology in the world as their use for crop monitoring increases⁸. Such technology will help farmers not only to better protect their crops and boost yields, but also to ensure that pesticides, herbicides and fertilisers are only used where they are truly needed, rather than applied in blanket fashion across the entire crop, thus saving both time and money and reducing the use of chemicals.

Using science and technology, and utilising the significant research and development resources that leading agri-science firms have, is the future of farming globally and in Southeast Asia. It should ensure increased production, reduced food loss, and reduced impact on the general environment.

THE ISSUE OF FOOD LOSS

Food loss, as opposed to wastage, relates to the reduction of food products available during production, post-harvesting (handling, storage, and transportation) and processing stages of the food supply chain. Food waste is generated by retailers' activities and consumers' behaviour. The latter can be minimised by changes in attitudes and education, for instance by not rejecting some fruits and vegetables due to minor bruising or perceived imperfections when the food is still entirely edible and fit for human consumption. The former requires a higher degree of intervention through employing more advanced storage and transportation techniques, and processing facilities that result in less wastage.

The Food and Agriculture Organisation of the United Nations estimates that about a third of the food the world produces annually is lost or wasted before it reaches the market, due to problems ranging from the lack of proper post-harvest storage, processing or transportation facilities. In stark financial terms it amounts to US\$ 1 trillion per annum⁹. In Vietnam it is estimated that food loss rates between the farm and processing or distribution centres are almost 25%¹⁰, or around 8.8 million tonnes. This represents not only an economic loss, but also a significant social and environmental impact on the country. As the UN Food and Agriculture



4 <https://www.cropscience.bayer.com/people-planet/food-journey/a/building-a-stronger-food-system>

5 <http://www.croplifeasia.org/2017/07/biotechnology/#/>

6 <https://agriculture.basf.com/global/en/business-areas/crop-protection-and-seeds/use-areas/crops/rice.html>

7 <https://agriculture.basf.com/global/en/business-areas/digital-farming.html>

8 <https://www.goldmansachs.com/insights/technology-driving-innovation/drones/>

9 <http://www.fao.org/3/a-i4068e.pdf>

10 <https://www.cel-consulting.com/single-post/2018/08/10/Food-losses-in-Vietnam-the-shocking-reality#:~:text=Total%20losses%20are%20estimated%20at,is%209%25%20of%20total%20Vietnam.>



Organisation states “Food loss and waste have negative environmental impacts because of the water, land, energy and other natural resources used to produce food that no one consumes¹¹. Reducing loss levels should be seen as being as critical as boosting production levels in the first place.

Unfortunately, tackling the issue of food loss is not simple, due mainly to the number of actors involved – from the farmer, to transportation companies, storage facilities, handlers, packers, and processors. It is critical therefore that a multi-disciplinary private-public sector approach is taken to the issue. From the planning of production (i.e. types of crops, sowing and harvesting times, proximity to markets), through ensuring the right infrastructure is in place to allow for speedy transportation, correct storage and processing is in place, to ultimately how the raw produce is then processed – all stages represent points where food loss can happen and, therefore, an opportunity to improve efficiency.

By some estimates 20% of food loss is at the farm itself, perhaps through crops being over-ripe and not being harvested early enough, or through disease or rot. A further 20% during storage, with a lack of suitable storage facilities or infestation by rodents or pests being primary causes. Transportation issues can account for up to another 15% of the loss, with the remainder being the result of overly stringent requirements on quality by processors and consumers¹². Shortening supply chains, ensuring better storage (e.g. more airtight bags), and utilising different processing techniques and requirements can all help to reduce losses.

THE CASE FOR BETTER NUTRITION

The saying goes “we are what we eat”. To large extent it is true. The quality of the food that we consume, and its nutritional value is one of the most singularly important factors in overall health. A poor diet has been proven as a cause of conditions such as hypertension, heart and blood vessels diseases, obesity, and diabetes.

Not having the right levels of nutrition in our food, getting the right mix of proteins, fats, vitamins, minerals etc. can adversely affect our health and, in early years, physical and mental development. A 2018 WHO report found that in ASEAN 25.7 per cent of children were stunted. In the same report the WHO pointed out that “Children suffering from stunting may never attain their full possible height and their brains may never develop to their full cognitive potential¹³ a situation which will then impact them for the rest of their lives as they face learning difficulties in school, earn less as adults, and face barriers to participation in their communities.

Bringing a child into this world is a miracle – a precious journey that begins well before pregnancy and continues through early life. In all phases it is critical that optimum nutrition is available.

<https://www.frieslandcampinaingredients.com/segment/early-life-nutrition/>

It is vitally important, therefore, that we all, and especially our children, receive food that is both of the right nutritional value and content. As Rickett & Benckiser have noted “the right nutrition during the first 1,000 days has a critical impact on a child’s ability to learn and thrive and provides the essential building blocks for brain development, healthy growth and a strong immune system¹⁴. Ensuring the availability of supplements for breast-feeding mothers where they themselves are not receiving the right levels of nutrients in their own diet, or allowing for the availability of formula milk when breast-feeding is not an option or for children older than babes-in-arms is critical in the fight against stunting.

¹¹ <http://www.fao.org/3/a-i4068e.pdf>

¹² <https://www.yara.com/knowledge-grows/how-to-reduce-food-waste/>

¹³ <https://www.who.int/nutgrowthdb/2018-jme-brochure.pdf?ua=1>

¹⁴ <https://www.rb.com/sustainability/sustainable-business/infant-and-child-nutrition/>

Nutrition is fundamental for good health and development during the early years of life. If children do not eat the right amounts of macronutrients like protein, fat, and carbohydrates and micronutrients like vitamin A, iodine, iron and zinc, they may become ill, have delayed mental and motor development that can have enduring adverse effects beyond childhood, or die.

<https://www.who.int/topics/early-child-development/child-nutrition/en/>

But ensuring a nutritious and balanced diet is also important we age or are sick. Malnutrition is something that can affect adults too. Danone have noted that 1 in 3 adults in care homes are malnourished¹⁵, highlighting the need for better quality of food and the availability of supplements.

For those of lucky enough to have regular meals, ensuring that the food that reaches our tables is of the right nutritional quality is not an easy task. Much can be lost in terms of nutritional value and content from the point of harvesting or slaughter to the time it reaches our dinner plates. Poor storage, processing, or cooking techniques will diminish the quality of the food. For many supplementing diets with vitamins or other products becomes a necessity, and it is an option that should be made available to parents, families and individuals to help them lead healthier lives.

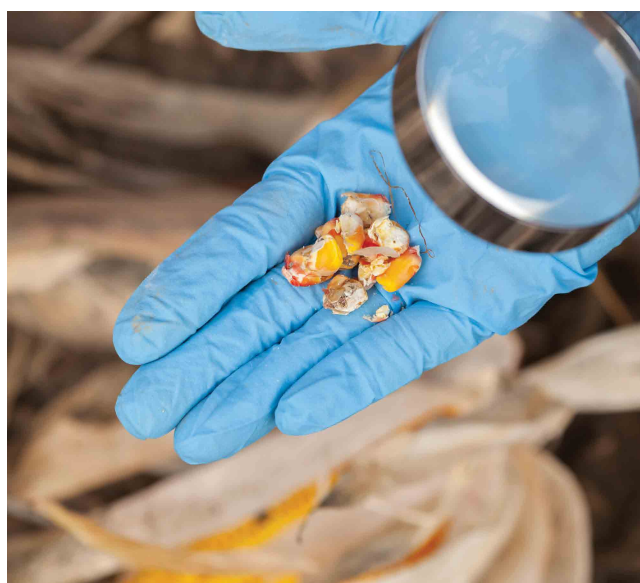
KNOWING WHAT YOU EAT: USING TECHNOLOGY TO PROVIDE BETTER INSIGHTS

It follows from the previous section that improving our understanding of what we are eating is important to ensuring that we are getting the right levels of nutrition for our bodies. Nutritional labelling of products is not new, though it is an area that has been fraught with difficulty for regulators and producers. Different countries have different requirements for what is shown on labels, both in format and information required, and also on which products such labels are mandatory and which are voluntary. Despite their ambition to reach a harmonised approach on this issue, the ten ASEAN member states presently operate several different systems within the region, adding cost and complexity to manufacturers, and confusion for consumers.

As the ASEAN Food & Beverage Alliance noted in their 2018 report on the subject “Variances in nutrition labelling (requirements and format) within the region will indeed pose difficulties to exporters. It represents increased compliance costs to firms as they have to pay multiple product adoption costs that are related to many national standards¹⁶. Adopting a standardised approach across the region, as is called for under the AEC Blueprint 2025, will reduce those costs, and make it easier for consumers across the region to better understand the information presented to them. But making progress on a harmonised approach within ASEAN is proving to be difficult.

Among consumers today, there is a desire for more knowledge about what is contained in the food that they are eating, and also where it has come from. Fortunately, technological solutions are close at hand that can solve not only the desire for more information for consumers, but also the regulatory issues over standardisation and harmonisation, and also the cost and compliance concerns of producers.

The advent of QR codes and the widespread use of smartphones, means that possibilities now exist for multiple levels of information to be stored and accessed by consumers. A single QR code on, say a packet of rice, can be scanned and then consumer can then see instantly all of the nutritional information on the product (and this can be displayed in a variety of formats to meet all the needs of the regulators in the region), as well information on where the rice was grown, processed, and packaged and which market it was intended for sale in. And all of this can be done in the base language on the user’s phone. This technology, which is being developed by GS1 (a global, neutral, non-profit standards organisation that developed the first bar codes), is available today and can not only support the desire of consumers for more information, but also be useful for track and tracing of producing thus enhancing food safety. A simple solution, but yet not one that the regulators of the region seem ready to embrace or accept.



¹⁵ <https://www.danone.com/brands/specialized-nutrition.html>

¹⁶ <https://foodindustry.asia/documentdownload.axd?documentresourceid=30656>

TO END

ASEAN has a rich diversity of cultures and foods. One factor that unites all of the region is the love of food. How to produce more of it, maintain the nutritional value of the food, ensure that the people of the region get the right levels of nutrition, and can understand more about the food that they are eating, is becoming more and more important. Doing all of that in a sustainable way is also important.

From farm to fork, there are solutions out there. Improved farming techniques; embracing technology to make smarter use of agri-chemicals or using plant technology to grow higher yielding or disease resistant plants; better transportations, storage or processing techniques to reduce wastage; improving availability of nutrition and vitamin supplements; and using technology to give consumers more understanding, are all readily available solutions that can and should be used to help alleviate hunger and poverty in ASEAN.

CONTRIBUTORS

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