Food & Agriculture Newsletter

Confederation of Asia-Pacific Chamber of Commerce and Industry

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Contents

Message from ACFA Chairman

As the Chairman of the Asian Council on Food and Agriculture (ACFA), I am pleased to present the 2023 1st Semester issue of the Newsletter to all our colleagues in the food and agriculture sectors, and other CACCI members and associates.

Food and agriculture scenario of Asia-Pacific region is facing increasing challenges due to demographic changes, changes in the demand of food, and climate change issues, among others. There is a growing need for more innovation and improved regulations to make the food and agriculture sector more productive. These challenges can be overcome through active collaboration of all concerned. The Council is the valuable platform for working together to address such challenges and identify opportunities on food and agriculture sectors in the Asia pacific region.

The newsletter has contributed in the exchange of information and sharing of knowledge on food and agriculture sector. Major highlights of this issue of the newsletter are: the innovation applied, policies launched for agriculture modernization and proper utilization of food, business perspectives of the agriculture sector, and other relevant topics. I hope that the readers find the articles in this newsletter valuable and informative. I very much look forward to receiving your regular contribution to this newsletter in order to make it more informative and broad enough to cover the pertinent issues of this sector.

We aspire to evolve this Council into more dynamic and valuable platform of information exchange and networking for all representatives and stakeholders from this region's food and agriculture sector. In this regard, I encourage all CACCI members to take full advantage of the Council and its newsletters for channeling their voices, concerns, suggestions, opinions and viewpoints.

My Best Wishes to you all.

Pradeep Kumar Shrestha
Chairman
The Asian Council on Food and Agriculture (ACFA)

West Asian Chefs Take on Fight Against Food Waste

Dubai-based chef and television presenter Leyla Fathallah recently came across a bowl of grapes that were starting to turn. But instead of throwing them away, she rolled them into a brioche and posted a picture of it on Instagram, where she has 1.3 million followers.

"I got so many comments of people saying 'Please keep giving us ideas for how to use left-over food,'" said Fathallah.

As the founder of the recently launched Fitkult, which makes ready-made meals, food waste has become a daily preoccupation for Fathallah. Her company prepares three dishes a day for her growing list of clientele. She has learned to calculate the exact amount of ingredients needed for each meal so that her chefs never cook more than is necessary.

Fathallah is part of a growing number of chefs who are trying to counter what they call an epidemic of food waste in West Asia, where an estimated one-third of all food is squandered. The wastage is taking a needless economic and environmental toll on a region already contending with poverty and climate change, say those in the industry.

Food waste isn't only a problem in West Asia. According to the United Nations Environment Programme (UNEP) 2021 Food Waste Index, almost 1 billion tonnes of food waste was generated in 2019 alone. More than 60 per cent of that came from households, 26 per cent from the food service sector and 13 per cent from retail. In all, the report found 17 per cent of food, from farm to table, goes to waste.

These figures are particularly hard to swallow given that an estimated 3.1 billion people worldwide do not have access to a healthy diet and some 828 million people go hungry. That, the Food Waste Index found, undermines progress on the UN Sustainable Development Goals relating to poverty, hunger, inequality and responsible consumption and production.

When food is wasted, all of the resources that went into producing it, such as water, energy for transportation and land are also squandered. Additionally, much of the food that is thrown away ends up in landfills where it decomposes and produces methane, a potent greenhouse gas that contributes to the climate crisis.

An estimated 34 per cent of all food in West Asia is squandered, according to a 2021 report from UNEP on food waste in the region. This is taking place in a part of the world that can scarcely afford it, said Sami Dimassi, UNEP regional director for West Asia.

"The region is heavily reliant on food imports and is also among the most vulnerable to the impacts of climate change due to scarce natural resources, such as water, and limited adaptation capacities," says Dimassi.

There are many contributors to food waste globally. These include poor planning on how much food is needed when shopping, improper storage and freezing and cooking or serving too much food.

There are also cultural influences that might contribute to West Asia's high food waste, say those in the industry. Issa Albalushi is a chef at Al Mouj Golf Restaurant in Muscat and the president of the Oman Chefs Guild. He often sees food go to waste at social events, like weddings.

Albalushi said food waste was once common at his restaurant, which serves 200 people on an average day and up to 1,000 for special events.

However, he has recently instituted a new system to track the exact weight of the ingredients in each dish. His staff also separate leftover food into two categories: food that has not been served to customers is donated to disadvantaged communities, and food that has been served is divided into meat and vegetables to be fed to livestock and pets. This reduces the amount of food that ends up in landfills producing methane, a potent greenhouse gas.

Reducing food waste is a critical part of countering climate change. Squandered food accounts for 8-10 percent of global greenhouse gas emissions, contributing to an unstable climate and extreme weather events, such as droughts and flooding.

To raise awareness about the consequences of food waste, in 2019 UNEP and The Food and Agriculture Organization of the UN launched the International Day of Awareness of Food Loss and Waste.

UNEP also launched the Recipe of Change Campaign, which encourages consumers in West Asia to be conscious of food waste. The initiative is designed to accelerate progress towards achieving Sustainable Development Goal 12, which covers sustainable consumption and production.

As well, a UNEP initiative, Global Opportunities for Sustainable Development Goals, helped 25 countries in Asia Pacific, West Asia, Africa, and Latin America and the Caribbean develop national strategies to reduce food loss and waste.

For many, combating food waste might seem like an overwhelming task that is best left to governments and institutions. However, for Leyla Fathallah, the process starts in kitchens. "It just takes a bit more work, creativity, and experimentation. Teach your kids these skills so they can learn the habit of not wasting food."

UN Environment Programme

Indonesia Launches National Strategy on Agriculture Digitalization

Food and Agriculture Organization (FAO) in collaboration with the Ministry of Agriculture (MoA)'s Data and IT Center (Pusdatin) launched an agricultural digitization strategy in Indonesia, the E-agriculture National Strategy. Secretary General of the Ministry of Agriculture Dr. Kasdi Soebagyono said this cooperation will accelerate agricultural development. "The e-agriculture national strategy aims to facilitate instruments that are urgently needed by the Ministry to accelerate our agricultural development on upstream, on farm, and on post-harvest, so that farmers strengthen their position in the agricultural industry," he said during the launch of the E-agriculture National Strategy in Yogyakarta on Tuesday, February 28, 2023.

Instruments needed by the Ministry include data on the area of land cultivated, productivity data, marketing channels, diversification of consumption commodity prices, and food safety. Such comprehensive data can accelerate the development of an Early Warning System (EWS) that can reduce the impact of certain disasters in a country.

Accurate data is needed considering that Indonesia, as the fourth most populous country in the world, is a major producer of agricultural products. Almost 45 percent of the population lives in rural areas, and more than 90 percent of the rural population works in the agricultural sector as small farmers. Agricultural land accounts for 32 percent of the country's total land area, and the agricultural sector contributes about 14 percent of the national GDP.

But the fact is, the agricultural sector still faces various challenges. These include high production costs and labor-intensive practices. Smallholder farmers have always worked hard, but have not received an equal share of the benefits of their hard work.

The National E-agriculture Strategy Roadmap states, among other things, that by 2027 Indonesia will have an integrated database for farmland and farmers, as well as providing a digital early warning system for disasters that threaten agricultural production, and run a system for agricultural data collection, extraction, and analysis. "One of the main entry points for the transformation of the agri-food system in Indonesia is the digitalization of agriculture. Digitalization will generate reliable data and a platform for decision-makers to make right-on-target policies. We need to collect real-time data for more transparent information to enable farmers to get better access to markets", said Rajendra Aryal, FAO Representative for Indonesia and Timor Leste.

Indonesia Launches National Strategy on Agriculture Digitalization

Digitalization of agriculture, Rajendra continued, is also a way to attract young people to get involved in the agriculture business. "Digitalization is the future, and the future now is to empower women, men, and youth in agriculture," he said.

One of the core digital solutions in the National e-Agriculture Strategy is a reliable database for decision-making. This is outlined in the Data Collection Platform (DCP) system that can collate agricultural data from various sources and systems. "Once the data is available, the implementation of other electronic solutions is relatively easy to follow and integrate. The implementation of e-solutions for each region will be done selectively based on regional needs, infrastructure availability, and local wisdom," Rajendra said.

Together with the Faculty of Agriculture at Gajah Mada University, the Ministry of Agriculture and FAO created a web-based and mobile DCP that can record data in real time. The data collected and compiled by the DCP in the field is linked to the Ministry of Agriculture's Agriculture War Room (AWR) in Jakarta.

Agricultural Extension Officers in Margoluwih Village, Yogyakarta, and coffee farmers in Pupuan Village, Bali have been part of the pilot project of DCP. In January this year, the Ministry of Agriculture expanded the pilot project to Subang, West Java. FAO together with the National Research and Innovation Agency (BRIN) is also developing a database to calculate the total farmland area and ongoing crop yields.

This collaboration further aims to integrate BRIN's satellite data with on-the-ground data recorded in the DCP.

TEMPO.co

Australian Greens Push for Regenerative Agriculture, Sustainable Food System

The Greens have today outlined their vision for a sustainable food system and a broad transition to sustainable and regenerative agriculture practices across NSW. The comprehensive plan includes the establishment of the NSW Food Systems Council, made up of a cross section of key agriculture and food industry representatives. The Council will be tasked with developing a state-wide sustainable food strategy, that will include designing and building a $300 million NSW Regenerative Agriculture Centre, providing free training and funding for farmers to shift to climate-resilient practices.

Under the Greens plan, major supermarkets will be subject to regulations aimed at ending large scale food waste and aesthetic standards for farmers and the introduction of a 'food miles' label for NSW produce so consumers can easily track the history of their food.

The Greens will also create a $500 million Urban Agriculture Fund, aimed at creating a circular food economy through community-led initiatives, supporting First Nations 'bush food' industries and creating thousands of new jobs. The NSW Food Systems Council will be responsible for coordinating and administering the fund along with working with Australian Curriculum, Assessment and Reporting Authority (ACARA) to implement a Mindful and Sustainable Living program in NSW schools.

Greens NSW spokesperson for agriculture Sue Higginson said:

"This is a positive plan that aims to transition the agricultural sector into helping in the fight against the climate crisis. Agriculture has huge potential to be leveraged as a key part of a sustainable future, we just need strong policy, genuine community engagement and the resourcing to bring everyone along."

"The long distances our food travels, the use of synthetic fertilisers and toxic pest and weed management and large-scale exploitation of arable land means that our food supply is based on environmental degradation and contributes to the climate crisis. Instead of just slamming top-down climate regulations on farmers and landholders, we need government leadership that resources farmers to embrace innovative technologies and transition their farming practises to ways that will be resilient to the future."

"We have the knowledge to achieve this, we just need political will to build community networks and work with the sector to ensure we're climate ready and our landscapes are resilient." Ms Higginson said."

Greens candidate for Oxley Dominic King said: "I believe Oxley has a great opportunity to lead the way in developing a more sustainable food system. We have the farmers, community, natural assets, and climate to lead the transition into a robust, adaptable, affordable and holistic way to meet our communities needs into the future."

"The changing climate has thrown the current food system into a disarray. We need a new way to ensure that farmers, First Nations people, environmentalists and all levels of government work together to grow food and improve our environmental outcomes. The Greens Agriculture and Rural Lands Policy sets out a road map on how to start this journey." Mr King said.

Mirage News

N. Korea wants more Control Over Farming Amid Food Shortage

North Korean leader Kim Jong Un vowed to strengthen state control over agriculture and take a spate of other steps to increase grain production, state media reported on March 2. But experts say it won't effectively address a worsening food shortage.

Kim's measures unveiled during a recent four-day meeting were largely a repeat of his past policies. Prospects for quickly resolving its food insecurity are dim, as North Korea restricts the operation of markets and devotes much of its scarce resources to its nuclear program.

While experts believe the food situation is the worst it has been under Kim's 11-year rule, they still say they see no signs of imminent famine or mass deaths.

During the ruling Workers' Party meeting that ended March 1, Kim said his government sees agricultural development as a matter of "strategic" importance and that farming goals should be settled without fail, according to the official Korean Central News Agency.

"In order to attain the gigantic long-term objective of rural development, it is necessary to decisively strengthen the party guidance over the agricultural sector and improve the rural party work," Kim was quoted as saying.

Kim also ordered officials to overcome unspecified "lopsidedness in the guidance on farming" and concentrate on increasing farm yields. He said provincial, city and county authorities must boost their guidance on agriculture.

KCNA didn't elaborate how Kim wants to reinforce his government's guidance on farming. But experts say Kim's instructions were a reaffirmation of his push to restore elements of a socialist-style planned economy — under which a central authority controls the market rather than participants — on grain supply. They say that's one of the factors behind North Korea's worsened food situation.

"In our views, they're going backward and returning to the past," said Kwon Tae-jin, a senior economist at the private

GS&J Institute in South Korea. "To resolve the food problem, they should let markets play a greater role. But they're rather returning to a planned economy."

North Korea's state rationing system remains largely broken since a crippling famine killed an estimated hundreds of thousands of people in the mid-1990s. The country had since tolerated some levels of open market activities, a move that experts say has helped the North achieve a slow, modest economic growth but could eventually pose a threat to its authoritarian leadership by the Kim family.

North Korea's chronic economic difficulties and food insecurity have deepened with toughened United Nations sanctions, the COVID-19 pandemic that decimated its external trade, and the North's own mismanagement.

Further aggravating its food shortage was authorities' unsuccessful attempts to supply grain via state-run facilities while restricting private dealings at markets. Other factors attributed to the food shortage include dwindling personal incomes and sharply decreased unofficial grain purchases from China due to the pandemic curbs, Kwon said.

"Market participants are still very cautiously acting, so the volume of grain at markets hasn't increased much," Kwon said. "If authorities view markets negatively, they can't be properly recovered."

Lim Eul-chul, a professor at Kyungnam University's Institute for Far Eastern Studies in Seoul, said the latest North Korean meeting was meant to review the progress in existing long-term strategies to improve national food production, remind officials of related goals and discuss ways to implement them.

But he said there was still no description of meaningfully new strategies or direction.

North Korea's 2022 grain production was estimated at 4.5 million tons, a 3.8% drop from a year earlier, according to South Korean assessments. In the previous decade, its annual production was an estimated 4.4 million to 4.8 million tons. South Korea's spy agency has said North Korea needs 5.5 million tons of grain to feed its 25 million people each year.

Previous plenary meetings mostly concentrated on the country's nuclear program or rivalries with the United States and South Korea. Holding an agriculture-focused plenary meeting of the party's Central Committee could be an acknowledgement the food situation is serious. But some experts say the country also likely aims to burnish Kim's image as a leader caring for his people and boost domestic support of his push to expand his nuclear arsenal.

During the meeting, Kim called for faster construction of new irrigation systems that would help the country cope with extreme weather conditions brought by climate change. He also called for manufacturers to build and supply more efficient farming machines and for workers to accelerate their efforts to convert more tideland into farmland.

Kim said that all state sectors and units must provide "mental and moral, material and technical support and assistance to the rural communities." He reiterated his calls for greater internal unity behind his leadership to attain agricultural goals.

"It is difficult to be optimistic about the food supply as long as Pyongyang insists on implementing North Korean-style socialism and isolating the country from international trade and assistance while developing nuclear missiles," Leif-Eric Easley, a professor at Ewha University in Seoul, said.

While North Korea is about 1 million tons of grain short of sufficient annual levels, Lim said that such degrees of shortages have not resulted in mass famines in the past. Kwon said food is still available at markets, though at expensive prices.

"It's like very poor people are starving but the government won't let them die of hunger. Things could continue like that," Kwon said.

ABC News

In Focus: ASEAN Regional Guidelines for Sustainable Agriculture

Agriculture is one of the key industries in ASEAN, with 8 out of 10 ASEAN Member States (AMS) dependent on the agricultural industry. ASEAN is a major producer and exporter of palm oil, crude rubber, rice, sugar, seafood, and fruits. In 2021, the region produced 150,43 million tons of rice, 42,08 million tons of maise, 14,29 million tons of sugar, and 0,74 million tons of soybean. However, the agriculture sector has been perceived as one of the drivers of land degradation and emission, and at the same, one of the most vulnerable sectors to the adverse impact of climate change. Climate and weather characteristics such as rainfall, water resource, temperature, and carbon dioxide (CO2) directly influence the health of plants and agriculture production. Studies estimated that rice yield in Southeast Asia might decrease by up to 50% because of floods, droughts, and heat stress.

With high awareness of the adverse impact of climate change on the agriculture sector in the region, ASEAN has

made continuous efforts to enhance resilience to climate change through national and regional efforts. Recently, ASEAN Leaders welcomed the adoption of the ASEAN Guidelines for Sustainable Agriculture to promote a sustainable and circular economy in the food and agriculture sector.

ASEAN Regional Guidelines for Sustainable Agriculture

The ASEAN Regional Guidelines for Sustainable Agriculture emphasise the need for the sustainable production of agricultural inputs from available resources within ASEAN, such as agriculture biomass and food wastes, promoting circularity in agriculture, and affordable farming inputs. The guideline converges other sustainable agricultural guidelines and Good Agricultural Practices (GAP) and will build increased trust and confidence in the global supply chain regarding the quality and value of the agricultural products from ASEAN. It proposes a menu of solutions under several key strategies that will bring forward the region to deliver a sustainable food future. Therefore, policymakers, business, and other stakeholders across the food supply-chain are able to decide the menu items which are relevant to them. The guideline applies to sustainability in agriculture, aquaculture, and animal husbandry systems, the incorporation of renewable energy systems, and the interaction between the farmers, inputs, land, water, and the environment, including the greater total sustainability of the farms, the communities, and the economy.

The Five Key Principles of ASEAN Regional Guidelines for Sustainable Agriculture

The Guideline consists of five key principles that balance social, economic, and environmental dimensions of sustainability. The five key principles provide a basis for developing national policies, strategies, programmes, regulations, and incentives that will guide the transition to agriculture that is highly productive, economically viable, and environmentally sound. The five key principles include:

i. Improving efficiency in the use of agricultural resources;
ii. Conserving, protecting, and enhancing natural ecosystems; promoting and enhancing natural resources and communities;
iii. Protecting and improving rural livelihoods and social well-being;
iv. Enhancing the resilience of people, communities, and ecosystems, and;
v. Promoting good governance of both natural and human systems.

The ASEAN Secretariat (ASEC) spoke with Mr. Bayu Syerli, Co-founder and CEO of Elevarm, to understand the business perspective and experience in growing business in the area of sustainable agriculture.

ASEC: Could you tell us briefly about your business and how that contributes to sustainable agriculture?

Elevarm: Elevarm is one of the fastest-growing AgriTech startups in Indonesia and one of the few companies focused on the upstream side, providing comprehensive solutions and services that uplift farmers. We work with farmers in our mission to (i) unlock access to high-quality agricultural inputs to farmers by providing quality input needs, (ii) assist farmers in implementing the Good Agricultural Practices (GAP) to enable farmers to increase crop productivity and optimise the yield capacity, (iii) enhance farmers' linkages to market, and (iv) provide financing for farmers in the form of agricultural inputs. On the implementation of GAP, Elevarm's agronomists provide a wide range of recommendations, such as identifying the planting period and the use of Agrochemicals to minimise the negative impact of agricultural activity on the soil, water, and other agricultural ecosystems.

ASEC: What do you see as challenges to implementing sustainable agriculture?

Elevarm: We see there are at least three main challenges. First, most farmers still adopt traditional cultivation culture and have limited digital access and literacy as well as a lower level of education. This hinders them from being aware of a more sustainable practice of cultivation. Second, government contribution in Indonesia is very project-based, and there are limited tangible actions in reducing carbon emissions through incentives and carbon tax for agriculture. Third, there is a gap in human resource as the number of skilled manpower in agriculture is limited.

ASEC: How business or start-up like yourself could further the contribution to the the implementation of sustainable agriculture in ASEAN?

Elevarm: Start-ups like us make it possible to reach a broader range of farmers to apply the best GAP. With technology, we are not limited by distance and can reach farmers from wider locations. Also, start-ups can empower all stakeholders in the upstream agriculture sector, including the traditional traders and middlemen, in developing massive sustainable agriculture.

It is important to note that we are not disrupting; instead, we are empowering all stakeholders beyond the farmers. We hope that our action will inspire more business to come taking part in promoting sustainable agriculture and will trigger the government to respond with regulations that support the agriculture start-up ecosystem to develop even more massively.

ASEC: What are the supports that you expect from the government in ASEAN for business to accelerate the implementation of sustainable agriculture in ASEAN?

Elevarm: We hope that the ASEAN government could

together develop sustainable agriculture practices and innovation that leverage the benefits offered by digital solutions. There is huge potential to use digital technology to enhance the current practice of land cropping, cultivation, harvesting, and land conservation, as well as to track carbon emissions from agriculture which will be useful to be used as a reference in building the roadmap toward net-zero emission. ASEAN governments could also consider partnering with NGOs and companies, including start-ups to empower smallholder farmers through capacity building on responsible farming.

ASEAN for Business

Some like it Hot – The Rise of Chilli Crisp is A Case Study in How Foods Become Fads

For some, cooking during lockdowns was a chance to try out the kind of time-consuming, intricate food preparation that the rush of ordinary life makes impossible. Endless loaves of sourdough were produced, along with bubbling kombucha. For others, it was an experience of drudgery. Making three meals a day, especially if your diners included small children, was tedium defined – an endless loop of eggs and beans and eggs and toast and beans and toast and eggs.

Enter condiments. They satisfied both tribes. For the enthusiasts, it was a chance to make the dips and drizzles usually provided by the local deli. For the weary, a jar of something spicy or sour was an easy way to enliven the umpteenth cheese toastie. Chilli crisp – a glowing red oil, heady with chilli and heavy with crisp fragments of garlic and shallots as well as fermented black beans and sesame – became the sauce of the moment. The place it has secured in many fridge doors since then hints at how foods become fashionable.

People in China may have been bemused by the revelatory joy with which those in countries such as America seized on chilli crisp. They have been eating varieties of the stuff for centuries. Lao Gan Ma, made in the south-western province of Guizhou, is the most famous brand. Its founder, Tao Huabi, started selling noodles coated with the sauce in 1989., setting up a factory a few years later. Her face peers out sternly from every label on the 1.3m bottles the company says it now produces a day. (Heinz's plant in the Netherlands makes about 10m bottles of ketchup a week.)

It took a pandemic to bring the delicacy to the rest of the world's attention. Chilli crisp had many of the necessary characteristics to be a hit. It is spicy, but not overly so. It is delicious slathered on noodles, as originally intended, but it can also be added to fried eggs and other dishes familiar to Americans. It satisfies humans' love of crispy foods, rooted in an evolutionary preference since crunchiness is often an indicator of freshness.

Usually tastemakers visit restaurants and interview chefs to immerse themselves in what people are cooking and eating, say Kevan Vetter of McCormick's Flavour Forecast, which predicts and influences which tastes become popular. In lockdown that was no longer possible. Instead, they had to watch what cooks, both home and professional, were making via social media. The answer, along with banana bread, was chilli crisp.

Today's question is not whether people will keep eating it. The liberation of post-pandemic dining has not dulled the delight of the condiment. The East-Asian population in America and Britain is growing. Many new brands have joined Lao Gan Ma. Like salsa, which once seemed exotic, chilli crisp is set to become a pantry staple.

The question is whether amateurs will keep making it. Nobody bothers making ketchup: as a condiment is assimilated, people develop a taste for the mass-produced version. And in the case of chilli crisp, Ms. Tao might argue that the commercial option is as authentic as it gets.

The Economist

Industrial Enzymes Market – Major Revenue Gain is Predicted by 2033

The industrial enzymes market is a rapidly growing industry that is expected to continue its upward trajectory in the coming years. Industrial enzymes are used in a variety of applications across several industries, including food and beverages, animal feed, biofuels, detergents, and textiles.

Key Takeaways:

- The market is driven by factors such as the growing demand for biofuels, increasing use of enzymes in various industries, and rising demand for packaged and processed foods.
- The largest market for industrial enzymes is the food and beverage industry, followed by the detergent industry.
- The fastest-growing market is expected to be the biofuel

industry.

- Asia-Pacific is the largest market for industrial enzymes, followed by North America and Europe.

Market Demand and Trend:

The global industrial enzymes market is driven by the growing demand for biofuels, increasing use of enzymes in various industries, and rising demand for packaged and processed foods. The food and beverage industry is the largest market for industrial enzymes, as they are used to enhance the quality and texture of various products, including bread, cheese, and beer. In addition, enzymes are increasingly being used in the detergent industry to improve cleaning efficiency and reduce the environmental impact of cleaning products. The biofuels industry is also expected to be a fast-growing market for industrial enzymes, as enzymes are used to convert biomass into biofuels.

Largest Market and Fastest Growing Market:

The food and beverage industry is the largest market for industrial enzymes, accounting for more than half of the total market share. The detergent industry is the second-largest market, followed by the biofuels industry. The fastest-growing market for industrial enzymes is expected to be the biofuels industry, as the demand for renewable energy sources continues to increase.

Regional Snapshot:

Asia-Pacific is the largest market for industrial enzymes, accounting for more than a third of the total market share. The region is driven by the growing demand for packaged and processed foods, as well as the increasing use of enzymes in various industries. North America and Europe are the second and third-largest markets, respectively.

Market Dynamics:

Drivers:

- Growing demand for biofuels
- Increasing use of enzymes in various industries
- Rising demand for packaged and processed foods

Restraints:

- High production costs
- Limited availability of raw materials
- Regulatory hurdles

Opportunities:

- Increasing demand for natural and organic products
- The growing use of enzymes in the pharmaceutical industry
- Advancements in enzyme engineering and biotechnology

Challenges:

- Intense competition among market players
- Limited consumer awareness regarding the benefits of enzymes
- Complex regulatory landscape

One of the recent developments in the industrial enzymes market is the increasing demand for sustainable and eco-friendly products, which has driven the use of enzymes in various industries. For instance, enzymes are being increasingly used in the production of biofuels as they are efficient, cost-effective, and produce fewer emissions than traditional fossil fuels. Additionally, enzymes are being used to develop new and improved products, such as high-protein animal feed and plant-based meat alternatives.

Another significant development in the industrial enzymes market is the increasing use of enzymes in the food and beverage industry. Enzymes are used to improve the texture, flavor, and nutritional value of food products. They are also used in the production of plant-based proteins and to reduce sugar content in processed foods.

Furthermore, the development of advanced biocatalytic processes and the increasing use of enzymes in the pharmaceutical industry are also driving the growth of the industrial enzymes market. Enzymes are being used to produce high-value pharmaceutical products, including biologics, biosimilars, and vaccines.

Taiwan News

UNICEF-supported campaign promotes healthier food environments in Asia-Pacific

Chen Feipeng (C), a 24-year-old Chinese postgraduate student, takes part in the UNICEF-supported "Fix My Food" campaign in Bangkok, Thailand, Feb. 27, 2023. (UNICEF China/Handout via Xinhua)

Youth and celebrities from eight countries, including China, took part in a UNICEF-supported campaign in Bangkok this week, to promote the need for healthier food environments in the Asia-Pacific.

The “Fix My Food” campaign is a two-day co-creation workshop brainstorming ideas and identifying potential partners to assist in the campaign’s rollout in their respective countries.

Traditional healthy fresh food diets are being replaced by highly processed and unhealthy junk food and drinks, “resulting in poor diets that have a devastating impact on the health and well-being of children in the region,” Roland Kupka, regional nutrition adviser for UNICEF East Asia and Pacific office, told Xinhua on February 27.

Participants of the UNICEF-supported "Fix My Food" campaign pose for a group photo in Bangkok, Thailand. (UNICEF China/Handout via Xinhua)

Meng Qianshan (C), a nutrition educator from Chengdu, southwest China's Sichuan Province, takes part in the UNICEF-supported "Fix My Food" campaign in Bangkok, Thailand. (UNICEF China/Handout via Xinhua)

More than one in three adolescents in the region drink at least one sugary drink a day, while over half consume fast food once or more a week, and less than half are eating enough fruit and vegetables every day, according to UNICEF.

UNICEF has been working closely with governments and partners to introduce policies and legislation to curb the increase of the sale and the marketing of unhealthy food and drink in the region.

China, which has friendly cooperation with UNICEF, is taking an active role in children and food issues, said Lely Djuhari, Chief of Communication and Advocacy of UNICEF China. "We are aware that progress has been made in the realization of children's rights in China, and much work remains to be done to improve children's nutrition."

With youth leading the campaign and support from celebrities and influencers, UNICEF hopes to create awareness about the impact of the changing food environment on the lives of girls and boys and the urgent need for governments, the private sector and civil society to take collective action to build a healthier food environment across the region.

"Upon coming home, I hope to work with my peers and youth groups in China," said Chen Feipeng, a 24-year-old postgraduate student, who was recommended by the All China Youth Federation to attend the workshop.

"Through Hope Kitchen (a government nutrition program), which will contribute to improved access to affordable, available, well-packaged, and well-marketed healthy food options that everyone wants to buy," he said.

This initiative will be implemented in the eight participating countries, China, Cambodia, Federated States of Micronesia, Fiji, Mongolia, Solomon Islands, Timor-Leste and Vietnam, and supported by UNICEF country offices and partners as part of UNICEF's work to mobilize and empower young people to take action.

"Children's diets influence both their physical and mental health, and all sectors of the society need to collectively build a child-friendly food environment, and promote a sustainable food system," said Meng Qianshan, a nutrition educator from Chengdu, capital of southwest China's Sichuan Province.

Xinhua

Farm Software Startups in Asia Pacific Raised More Funding in 2022 Despite Downturn

A sneak peek at AgFunder's upcoming global agrifoodtech investment report shows that investment in Asia-Pacific farm management software, sensing and IoT startups increased 13% in 2022 to $300 million. Up from $285 million in 2021, the category bucks the overall decline in investment seen across agrifoodtech but also more broadly in global venture capital during 2022.

The pullback was evident in the number of deals, however, which was down to 62 from 70 in 2021, according to AgFunder's Asia-Pacific AgriFoodTech Investment Report.

In the Asia-Pacific, the farm management software segment could be valued at $2 billion by 2028, according to some estimates, catalyzed by increasing demand for food, more need for automation in agriculture and the increasing application of data and cloud computing in farm management.

Farm management software, sensing and IoT systems give farmers insight into where and when to make improvements on their farms. This can be through optimizing inputs, minimizing manual errors, remotely monitoring their operations, recording and tracking data, reducing labor costs, and overall making better management decisions to drive more productivity.

A significant portion of startups in this category serve the aquaculture industry and appear to be catering to booming demand for management and monitoring solutions. FAO estimates that around 90% of global aquaculture production is done in the APAC region. The sector is however undergoing rapid change and uncertainty, resulting in diminishing fish yields, a situation calling

for advanced aquaculture management.

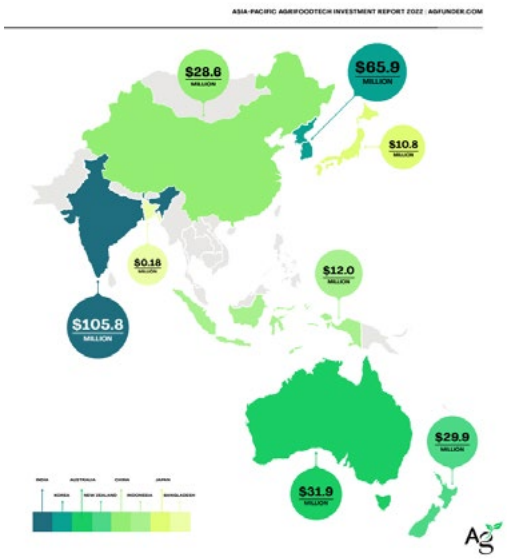
Other startups in this category broadly fall under farm management, specifically from India, a country with the second-largest agricultural output in the world. FAO says even though India's agricultural sector has achieved grain self-sufficiency, it is still very resource intensive which causes stress on resources such as water.

Apart from India, other countries with significant adoption of these technologies like Indonesia, Japan, South Korea and Australia share the same need for efficiency, agricultural digitization, and increased agricultural output.

A look at 2021 data shows that India took a massive lead in investment in the category; Indian startups secured $105.8 million. In second place with $66 million raised was South Korea.

In 2022, Indian startups were still the most active, constituting nearly 50% of deal activity with 23 deals. Raising $83 million in total, India was behind South Korea but only because a single Korean startup raised a whopping $140 million. See below for more details on that deal and others in 2022.

AgFunder



2021 investments by country in farm management software, sensing & IoT startups

Vertical Farming and Plant Factory Market Increasing Demand with Industry Professionals

The Vertical Farming and Plant Factory Market report contains a complete analysis of the industry's major drivers and constraints, opportunities, and challenges throughout the forecasted timeframe. With the greatest facts and figures, meaning, definition, SWOT analysis, research findings, and the newest developments throughout the world, the research report provides essential analysis on the Vertical Farming and Plant Factory market. The market size, Sales, Price, Income, Gross Margin, and Market Share, as well as the cost framework and rate of growth, are all calculated in the report.

Vertical Farming and Plant Factory Market Size was valued at USD 569.33 billion in 2022. The Vertical Farming and Plant Factory market industry is projected to grow from USD 851.262216 billion in 2023 to USD 3185.4560043 billion by 2030, exhibiting a compound annual growth rate (CAGR) of 24.6% during the forecast period (2023 – 2029).

There are many companies that have their presence in Vertical Farming and Plant Factory market. The players involved in the Vertical Farming and Plant Factory market include a host of companies, right from the OEMs to network operators, software companies, and networking equipment suppliers. The report profiles all the prominent companies involved in the market which are mentioned as AeroFarms, Lufa Farms, Gotham Greens, Sky Greens, Plenty (Bright Farms), Mirai, Spread, Scatil, TruLeaf, Sky Vegetables, GreenLand, Nongzhongwulian, SANANBIO, AgriGarden and others.

Digital Journal

Antibiotics in livestock dung 'harming soil quality'

By Ranjit Devraj

Antibiotics used on livestock can impact microbes in the soil and negatively affect soil carbon, reducing resilience to climate change, claims a study conducted in India's trans-Himalayan region.

Maintaining soil organic carbon can mitigate against climate change, land degradation and global hunger, offsetting greenhouse gas emissions caused by human activity, according to the Food and Agriculture Organization of the United Nations (FAO).

Results of the study, published February in Global Change Biology, found native herbivores such as yak, bharal (blue sheep), kiang (wild ass) and ibex in the Spiti valley, in India's Himalayan state of Himachal Pradesh, to be healthier for soil carbon than livestock, which includes cattle, goat, sheep and horse. "Microbial carbon use efficiency was 19 per cent lower in soils under livestock," the study said.

The researchers set up 30 fenced, paired plots for native herbivores as well as livestock and studied their differential impacts on the soil carbon during the 2005 to 2016 period. The aim was also to find out the different impact on plants and microbes to grazing by livestock and that by native herbivores.

Sumanta Bagchi, an author of the study and assistant professor at the Centre for Ecological Sciences of the Indian Institute of Science in Bangalore, says that livestock can disturb soil microbial communities, which is detrimental to carbon use efficiency and ultimately also to soil carbon.

Supporting evidence in the study pointed to a link between veterinary antibiotics and soil microbial decline. "Our study suggests that conserving native herbivores together with better management of livestock can go a long way towards improved soil carbon stewardship to achieve natural climate change solutions," says Bagchi.

The study evaluated factors that influence soil carbon quality and quantity such as dead plant matter, microbial biomass, and microbial community composition as well as traces of veterinary antibiotics in the soil.

Livestock in Spiti was found to be frequently treated with antibiotics such as tetracycline. Meanwhile, veterinary care for native herbivores, such as yaks, was rare and practically absent for ibex and bharal.

Plots where livestock grazed exclusively were found to contain nearly three times more tetracycline residues than those populated by native herbivores, soil analysis showed. Excluding grazing animals resulted in the depletion of antibiotic residue in fenced plots and this reduction was greatest in plots containing livestock, soil analysis showed.

"Our paper focused on climate impacts linked to the use of antibiotics for livestock rearing but there are other undesirable consequences such as the accelerated evolution of antibiotic resistance which is a global trend," says Bagchi.

"The misuse of antibiotics in livestock rearing is certainly a serious and growing phenomenon with many ramifications, including negative impacts on soil microbes and soil organic carbon," says Krishna Gopal Saxena, an independent consultant on ecosystem conservation and former dean at the School of Environmental Sciences, Jawaharlal Nehru University, New Delhi.

However, antibiotic misuse in livestock rearing is only partially responsible for depletion of soil carbon along the Indo-Gangetic plain and contributes to climate change, said Saxena. "Factors behind the loss of soil carbon include, irrigation, the use of chemical fertilisers instead of organic manure, temperature and rainfall and climate change itself."

"Temperatures rising from climate change and antibiotics in livestock dung are both known to disrupt soil microbial communities resulting in the degradation of the efficiency of soil microbes in trapping carbon," says Malvika Chaudhary, a biocontrol specialist with CABI's office in India. CABI is the parent organisation of SciDev.Net with its main office in the UK.

"This study confirms the effects through a long-term study," Malvika adds.

SciDev Net

Women, Youth are 'Unseen Leaders' in Rural Indonesia

Women and young farmers can spur others to implement new sustainability and development initiatives, even though they are less likely to be seen as opinion leaders in their local communities, according to a study.

Women make up 43 per cent of the global agricultural labour force, but face significant discrimination when it comes to land ownership, access to credit and financial services, and participation in decision-making, according to the Food and Agriculture Organization of the United Nations (FAO).

For the study, published this month in the journal *Agriculture and Human Values*, researchers surveyed about 2,000 farmers on the island of Sulawesi in Indonesia and asked them to identify leaders they would consult for advice and information in their smallholder farming communities.

These leaders, largely older men, were then asked to convince other farmers to use pruning scissors to improve the health of their cocoa trees.

"Correct pruning of cocoa trees can decrease unwanted shading, help control diseases and pests, and limit transfer of nutrients to unproductive parts of the plant thereby increasing the yield of cocoa trees by optimising their growth patterns," says Petr Matous, the study's lead researcher from The University of Sydney's School of Project Management and John Grill Institute for Project Leadership.

Contrary to common perceptions of older men as being the most influential in their networks, it was the randomly selected second group, comprised largely of young farmers and women, that was successful in convincing twice as many of their peers to trial the new scissors.

"Our results perhaps suggest that while women and young people don't usually occupy formal leadership positions in their communities and are not typically central to information and resource networks that result from roles like heading a farmer group, they may have access to alternative informal networks and

Out of 84 global policies and plans to address hunger released between September 2020 and December 2021, only 4 per cent refer to women as leaders who should be part of the solution, according to the NGO Care International. Image: Club Med UK, CC BY-SA 3.0, via Flickr.

capacity that may not be recognised by the broader community," says Matous.

"Online communication platforms also played a role. When given this rare opportunity, some women and young farmers were able to leverage virtual social networks, which the senior farmers did not do, or not to that extent", he adds.

In developing countries, women make up on average 45 per cent of the agricultural labour force, ranging from 20 per cent in Latin America to up to 60 per cent in parts of Africa and Asia, according to FAO.

"Social norms, traditions, cultural stereotypes and biases influence who is seen as a source of important advice or an opinion leader in a farming community. Studies from multiple societies have shown that men may be more vocal and visible in their roles, while women's crucial contributions to smallholder agricultural production can be less appreciated, less rewarded and less visible," Matous tells SciDev.Net.

Out of 84 global policies and plans to address hunger released between September 2020 and December 2021, only 4 per cent refer to women as leaders who should be part of the solution, according to the NGO Care International.

"In smallholder Indonesian farms, there is division of labour between men and women, which differs amongst provinces. Men may take care of a certain crop – rice or maize – that is their main source of income, and women are particularly involved in cocoa farming," says Nadya Aulika Runnisa, Inclusive Market Specialist at Swisscontact Indonesia, which organised the Indonesian survey.

Swisscontact Indonesia, an independent non-profit organisation, has been training cocoa farmers in polyculture and agroforestry to improve yields and income, reduce carbon emissions and address climate change challenges.

"Women are very much a part of household farm management and finances and have more say or influence in how the family finances are used for buying seeds or fertilisers, or expanding their farm," Runnisa tells SciDev.Net. "We provide training to raise awareness about the role of husband and wife in a farming household so together they can envision their goals and increase productivity."

Barbara Pamphilon, Family Farm Teams programme director at the University of Canberra's Centre for Sustainable Communities, says that the study demonstrates how rural development projects that work with men and women together offer greater potential for change.

"For example, in the Pacific men have certain, often heavy roles in farming – digging the ground or felling of trees, whereas women typically do the weeding, irrigating, watching for pests and diseases. That's where women will have particular knowledge because they notice changes every day," Pamphilon tells SciDev.Net.

She says: "This study invites us to not assume the old ways of model farmers are the ways of today. While men may be culturally the head and able to lead in the public space, women lead in different ways. In the Pacific, women are particularly well networked, often through the church and local farmers' markets where they exchange agricultural information about produce, yields and prices."

Eco-Business

Thai Rice Exports to Philippines Set to Double as Vietnam Cuts Back

Thailand's rice exports to the Philippines are expected to double this year, the Thai Rice Exporters Association said, as rival supplier Vietnam faces capacity constraints.

Philippine rice imports hit 3.7 million tons last year, making it the world's second-largest importer of the staple. The figure is likely to remain roughly the same in 2023. The country, which is battling inflation and various food shortfalls, is forecast to produce about 12.4 million tons, below the 15.8 million tons needed, according to the U.S. Department of Agriculture.

Of the Philippines' total rice imports last year, some 90% came from Vietnam -- the country's biggest supplier for decades due to its competitive pricing and close bilateral trade ties. The remainder of Philippine imports came from Thailand.

"This year, the Philippines is expected to buy more rice from Thailand as Vietnam is having a smaller crop," said Chookiat Ophaswong, honorary president of the Thai Rice Exporters Association.

Land used for the 2022-2023 growing season in Vietnam shrunk 3% from the previous season, likely pushing production down 1% to 27 million tons. Local rice consumption is forecast to be 21.5 million tons in 2023, unchanged from the previous year. That would leave about 6 million tons of rice available for export in 2023, versus 7.1 million tons in 2022.

Adding to the problem is a drought that has been hammering poorly irrigated Cambodian farms since late last year. "Over the past few years, Vietnam had a stable supply of rice because about 1 million tons a year was being smuggled into the country from Cambodia, allowing Vietnam to export 7 million to 8 million tons," said Chookiat. "But this year there's no more rice from Cambodia to bolster Vietnamese exports."

With supplies somewhat limited, Vietnam exported only 400,000 tons of rice in January, down 20.9% from the same period last year, according to the Ministry of Agriculture and Rural

Development of Vietnam.

In contrast, Thailand foresees a large harvest this year, with reservoirs across the country at or near capacity, allowing cultivation of rice outside the usual growing season.

During the 2022-2023 season, Thailand is expected to produce around 20.2 million tons of rice, up from 19 million tons in the previous season. Domestic consumption will account for 12 million tons, with the remainder earmarked for export.

Traders and exporters said the Philippines has already reached out to Thai exporters, hoping to secure rice for the second quarter.

The Philippines' switch to a new supplier comes as the government tries to keep a lid on prices of food staples amid inflation that is at a 14-year high.

Inflation reached 8.7% in January, the highest recorded since November 2008, partly on rising food prices. President Ferdinand Marcos Jr. has agreed to import more agricultural products such as sugar and onions amid domestic shortages.

"The situation has forced Manila to buy rice from Thailand to meet demand and curb inflation," said a trader at an international trading house in Thailand. Strong demand from the Philippines was expected to double Thai rice exports to Manila to 300,000 tons in 2023, up from 180,000 tons the previous year.

Even with fresh demand from the Philippines and the usual orders from the Middle East, the Thai Rice Exporters Association predicted that total rice exports in 2023 will be 7.5 million tons -- almost unchanged from 7.6 million tons the previous year.

"That was a conservative forecast," said Chookiat. "In fact, we have up to 8.2 million tons or more left for export, as we can grow rice all year round."

He added that the association is monitoring the situation and will raise the 2023 export forecast if it sees production increasing or finds fresh demand.

Nikkei Asia

About CACCI

The Confederation of Asia-Pacific Chambers of Commerce and Industry (CACCI) is a regional grouping of apex national chambers of commerce and industry, business associations and business enterprises in Asia and the Western Pacific.

It is a non-governmental organization (NGO) serving as a forum for promoting the vital role of businessmen in the region, increasing regional business interaction, and enhancing regional economic growth. Since its establishment in 1996, CACCI has grown into a network of national chambers of commerce with a total now of 27 Primary Members from 25 Asian countries and independent economies. It cuts across national boundaries to link businessmen and promote economic growth throughout the Asia- Pacific region.

As an NGO, CACCI is granted consultative status, Roster category, under the United Nations. It is a member of the Conference on NGOs (CoNGO), an association of NGOs with UN consultative status.

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