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INTERNATIONAL FOOD STANDARDS

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## CODEX IN ACTION

# Hygienic food, healthy sales: HACCP implementation in Thailand

The aroma in the machine room at Udonkijpaisarn foods is mouth-watering. Employees wearing hair nets and rubber gloves operate pristine packing and labelling machines as the latest batch of spices gets measured and sealed into sterile packaging, ready to be shipped to Europe. And it's not just the delicious smells that are making factory manager, Thanyarat Charoenchitsawat, smile. **“Sales have increased by 20-30 percent,”** she reveals, **“and complaints have halved.”** This has

all happened since the company started to implement the Hazard Analysis Critical Control Points (HACCP) system.

HACCP is a system for identifying and controlling foodborne hazards all along the food chain. Developed in the 1950s for the US space programme, HACCP then became an American domestic standard by which the safety of food chains could be assured. Today, it is thanks to the Codex Alimentarius Commission's inclusion of HACCP in global standards, in particular

in the key *General Principles of Food Hygiene* (CXC 1-1969), that it has become an internationally recognized part of global food safety management systems and a cornerstone in food trade. HACCP is now a key part of the Thai government's push to improve food safety domestically and to raise the profile of the Thai food export industry. And now, the investment into years of work dedicated to improving food safety in this Southeast Asian country is beginning to pay dividends.

The statistics coming out of Udonkijpaisarn are welcome news to Virachnee Lohachoompol, Standards Officer at the National Bureau of Agricultural Commodity and Food Standards. The National Bureau has reported a 150 percent increase in the number of food businesses adopting the HACCP system in the last four years alone, which has in turn led to a significant increase in trade. **“The export value of our food commodities increased by almost 25 percent in the three years to 2018,”** she says, **“to USD 35 478 billion.”**

The year 2020 marked the 25th anniversary of the introduction of the HACCP system in Thailand. Its adoption began in 1995 following governmental concerns about the impact of foreign competition on the country’s exports, as international importers of Thai products were refusing to trade in food that did not carry food safety certification. Although HACCP was becoming well established worldwide, only the larger Thai companies had invested in applying the system. Introducing it to the 10 000 food and feed businesses and 6.5 million farms across Thailand was a daunting task for the government. The work began with assistance from the Food and Agriculture Organization of the United Nations (FAO), which stepped in to start a training-of-trainers programme based on the Codex *General Principles of Food Hygiene* and the HACCP guidelines.

The following 15 years saw the training of private companies, government officials and academics. Certification bodies were established, and many hundreds of food businesses were brought on board. **“The HACCP system helps us to compete, to ensure product safety and to reduce the cost of production in the long term”** says Charoenchitsawat, **“and the food trade is very competitive, so even though HACCP implementation does involve a serious investment**

**in time, training and money, the investment is definitely worthwhile.”** Yaowaluk Krutta, Quality Control Manager at Suree foods, a company that produces and exports authentic Thai sauces, agrees: **“HACCP is fundamental for food manufacturers,”** she says,

**“customers demand HACCP and other certification.”** Thailand’s 2007 food law, the Thai Agricultural Standard (TAS) saw the translation into Thai of the Codex Alimentarius *General Principles of Food Hygiene* (CXC 1-1969), and this was directly adopted into law TAS 9023-2007.

**+150%**

**The increase in the number of food businesses in Thailand adopting the HACCP system in the four years 2018-2022 alone.**



**A critical control point** at a spices factory in Kerala, India

# HACCP is a 12-step process that involves seven principles, as follows:

<b>Step 1</b>	<b>Step 2</b>	<b>Step 3</b>	<b>Step 4</b>
Assemble HACCP team	Describe product	Identify intended use and users	Construct flow diagram
<b>Step 5</b>	<b>Step 6</b> Principle 1	<b>Step 7</b> Principle 2	<b>Step 8</b> Principle 3
On-site confirmation of flow diagram	Conduct a hazard analysis and consider any measures to control identified hazards	Determine the Critical Control Points (CCPs)	Establish validated critical limits for each CCP
<b>Step 9</b> Principle 4	<b>Step 10</b> Principle 5	<b>Step 11</b> Principle 6	<b>Step 12</b> Principle 7
Establish a monitoring system for each CCP	Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control	Validate the HACCP plan and then establish procedures for verification to confirm that the HACCP system is working as intended	Establish documentation concerning all procedures and records appropriate to these principles and their application

The implementation of HACCP was made non-mandatory, but certification was highly recommended, under law TAS 9024-2007.

Siriwan Saowapichart is the Quality Assurance Director at Prime Foods, a pineapple processing company. She explains: **“HACCP is used to ensure that a hazard analysis has been carried out for every step in the production process,”** she says, **“and the likelihood and severity of each hazard is evaluated.”**

From farm to factory, critical control points are identified, and preventive and hygiene monitoring measures are put in place to ensure food moves along the supply chain as safely as possible. Implementing food safety measures like HACCP

does not only involve training and awareness-raising. For many food companies, compliance with both the TAS 9023-2007 law and HACCP can involve investment into hygiene and safety equipment from hair nets and gloves to factory infrastructures and even machinery. For smaller companies, this can prove prohibitive. Not only is it expensive, but Small and Less Developed Businesses (SLDBs) are not likely to have the necessary food safety personnel, knowledge or technical information necessary, which puts them at a disadvantage. **“A large number of SLDBs cannot afford an external consultant to help implement the documentation system under HACCP,”** explains Lohachoompol,

**“so local competent authorities oversee safety of their product based on our GHP (Good Hygiene Practices) regulations under the Ministry of Public Health.”** The service is free, and the government hopes that this will help to include even the smallest producers like community enterprises and farmer groups. Cost has not been the only challenge. At Udonkijpaisarn, getting the message through to employees initially proved to be difficult. **“At the beginning, most operators felt that the HACCP processes seemed complicated,”** says Charoenchitsawat, **“they thought it was a burden. They had to learn about forms and records. More attention was needed during production.”** But the advantages

of the system soon became clear: **“When they understood the reason for the HACCP system, they became more cooperative and helpful.”** Saowapichart tells a similar story from Prime Foods: **“At the beginning, it was difficult to motivate all operators. But training soon helped.”** In 2015, Thailand and France led an electronic working group established by the Codex Committee on Food Hygiene, to review and recommend updates for CXC 1-1969. This review led to new work to revise the guidelines, which was successfully completed in November 2019. **“Thailand’s active contribution to the revision of the General Principles of Food Hygiene and its HACCP annex was highly appreciated,”** says Verna Carolissen, Food Standards Officer with the Codex Secretariat. **“Thailand brought to the table its immense experience in the application of GHPs and the HACCP system, not only in larger**

**food producers, but also how it could be made more relevant and applicable also for small or less developed industries.”**

Thai food export companies are directly attributing sales growth to HACCP certification and with growing awareness across the whole agrifood sector in the country, food safety is becoming an important factor both at home and abroad. These successes do much to bring the Thai food sector into alignment with the Codex mandate to protect consumer health and promote fair practices in the food trade. **“Gradually, we hope to see increasing HACCP-certified products in both export and domestic markets,”** says Lohachoompol. **“As a result, recall and rejection of food products from import countries will reduce even more and foodborne disease across the country will eventually be a rare occurrence.”**

With the revision of the *General Principles of Food Hygiene* (CXC 1-1969) by the Codex Alimentarius Commission in 2020, there will be a need for Thailand to update their legislation. However, given their experience in the implementation of HACCP and their strong engagement in the work of Codex, they are well positioned to continue to strengthen their implementation of HACCP in line with the updated Codex standards and continue to benefit from improved food safety and market access. ■

## The history of HACCP

Developed in the 1950s by NASA and the Pillsbury Company to ensure the safety of food used in the US manned space program, HACCP was a food safety system involving Critical Control Points and consisting of three key principles.

In the early 1970s, Pillsbury applied HACCP principles to the management of a food contamination incident involving infant food<sup>2</sup>. The successful application of HACCP in managing that issue led to the wider application of HACCP within the food canning sector. In the mid-1980s, HACCP became the predominant food safety

system in the US and in 1989, the National Advisory Committee on Microbiological Criteria for Foods (NACMCF) codified HACCP, which was now composed of 7 principles. At the same time, a period of rich discussion made way for the Codex Alimentarius Commission to start introducing HACCP into its codes of practice.

In 1987, HACCP was added to Codex’s universal General Principles of Food Hygiene CXC 1-1969 as an annex and was recommended for use internationally as the primary food safety control system across all food industries from the farm through to consumption.

In 1993, NACMCF added 5 steps to the 7 principles of the HACCP process.

In 2003 Codex Alimentarius adopted revisions to the General Principles of Food Hygiene CXC 1-1969 to take into consideration the needs of small and less developed businesses.

In 2020 Codex Alimentarius adopted a further revision of the General Principles of Food Hygiene CXC 1-1969 to ensure this important standard remained up to date and relevant for current risk management.



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