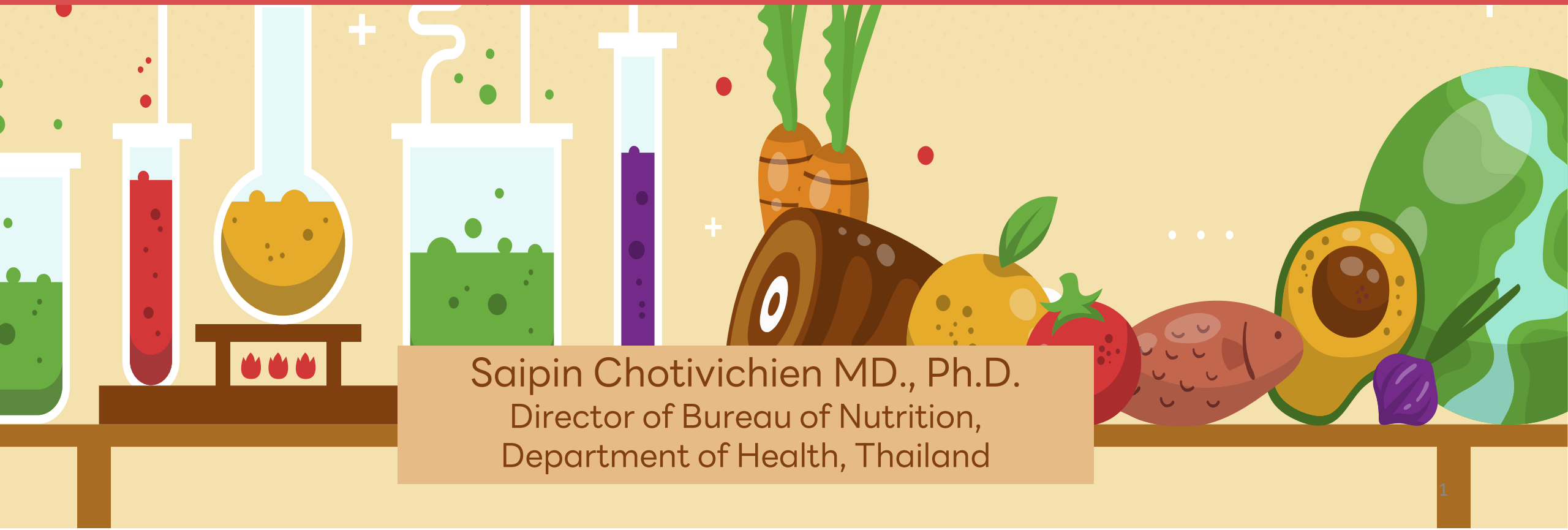


Addressing Food and Nutrition Security Risk : Experiences in Thailand



Saipin Chotivichien MD., Ph.D.
Director of Bureau of Nutrition,
Department of Health, Thailand

Outline

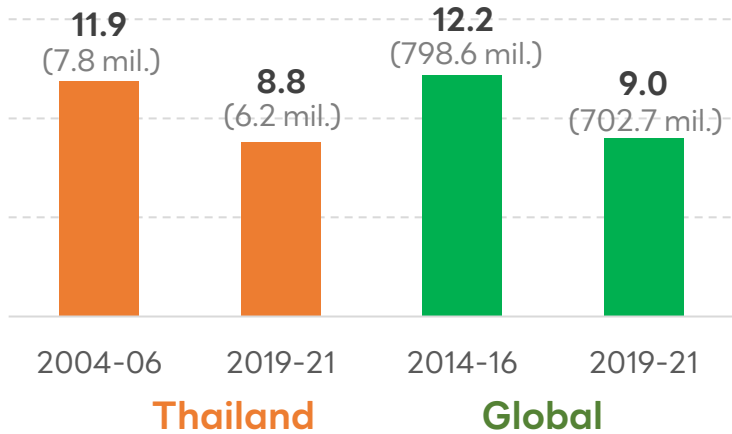
01 State of Food and Nutrition Security (FSN) in Thailand

02 Global Food Security Index (GFSI)

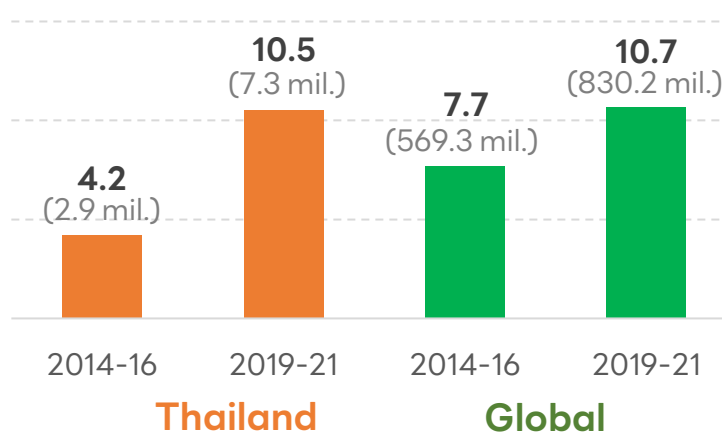
03 Approaches and Strategies Taken to Address Food and Nutrition Security

04 Next Steps / Challenges

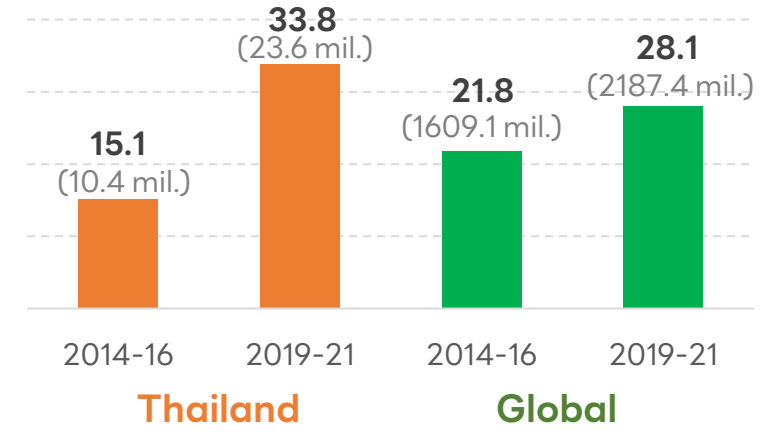
Prevalence of **Undernourishment** in the total population



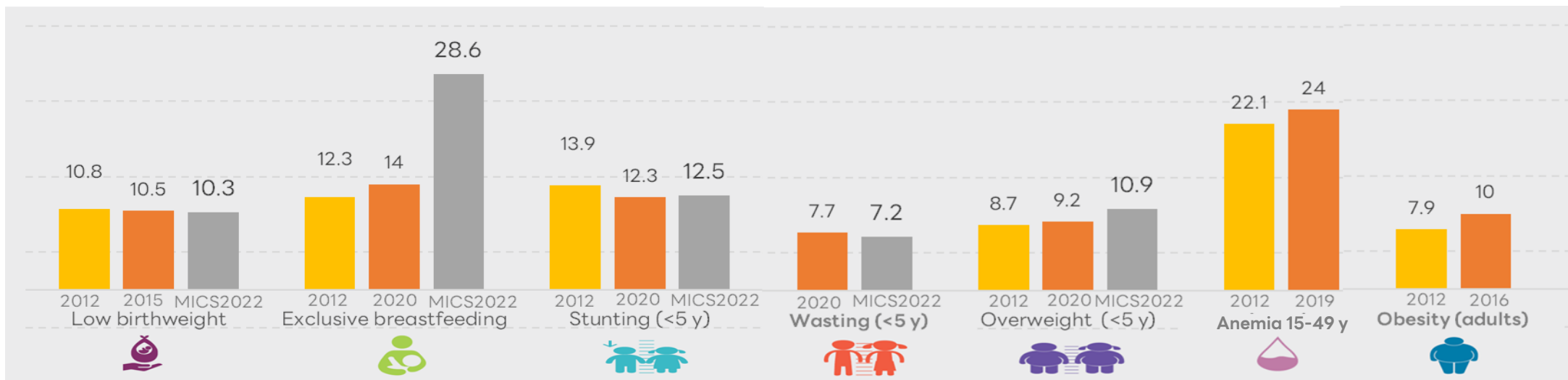
Prevalence of **severe food insecurity** in the total population



Prevalence of **moderate or severe food insecurity** in the total population

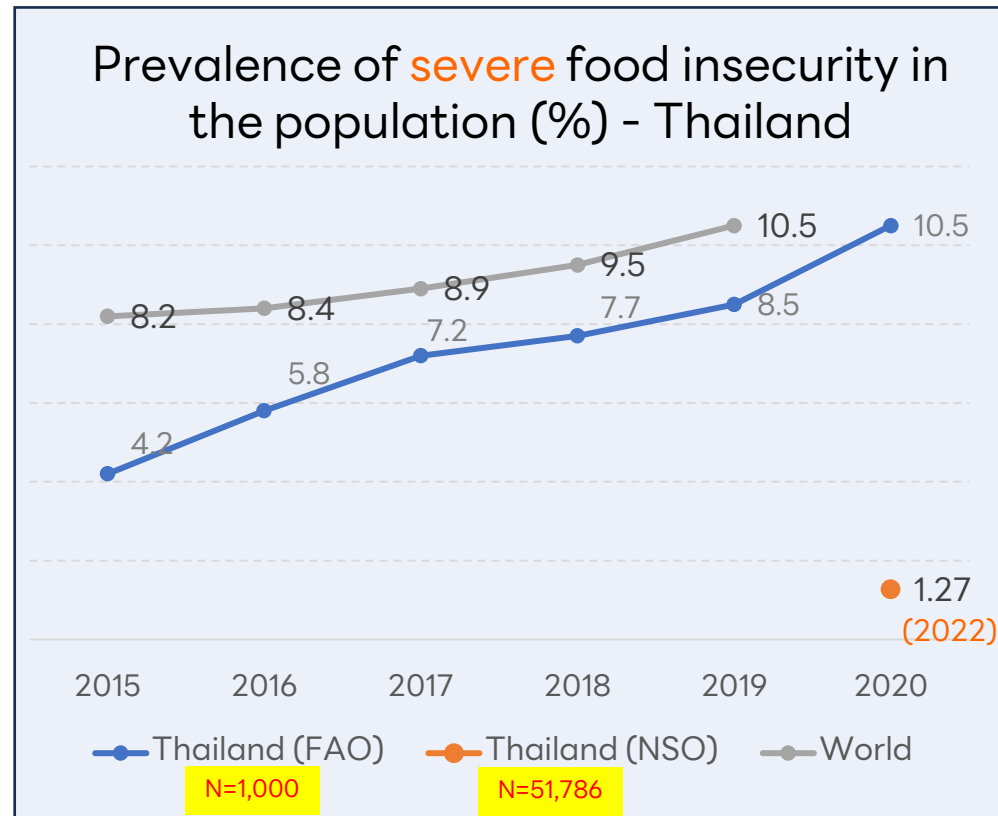
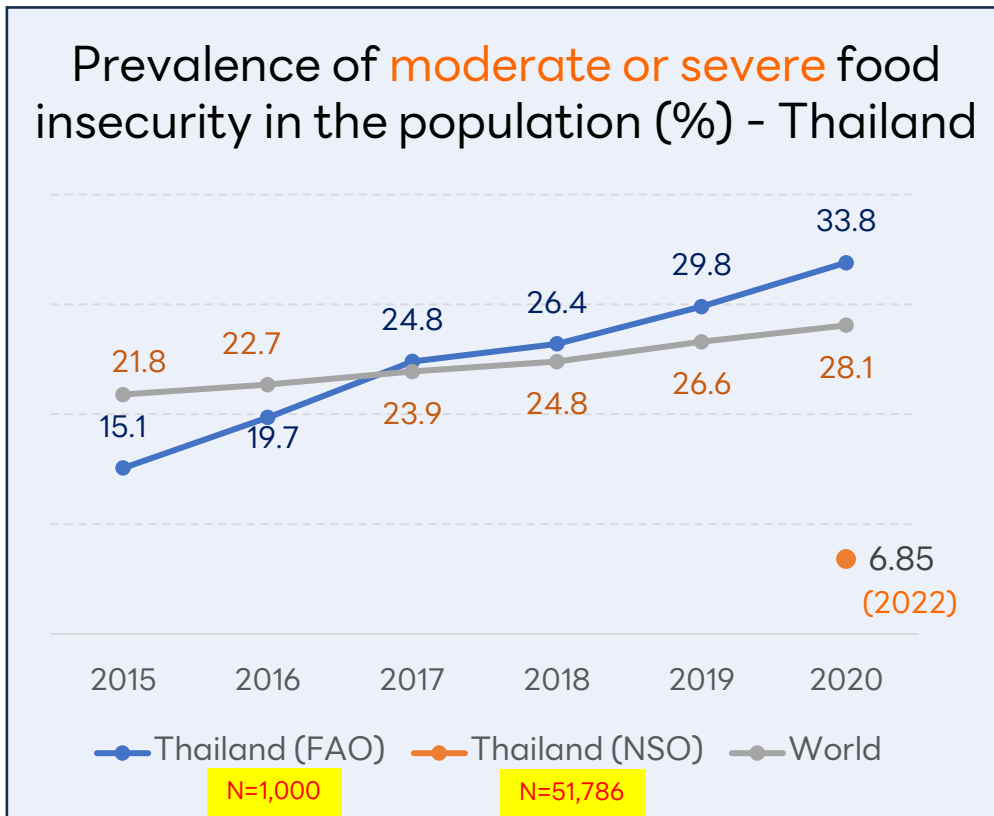


Progress Towards **Global Nutrition Targets**



Source: 1) 2022 The State of Food and Nutrition Security in the World; FAO, IFAD, UNICEF, WFP and WHO. 2) MICS2022

Food Insecurity Experience Scale (FIES)

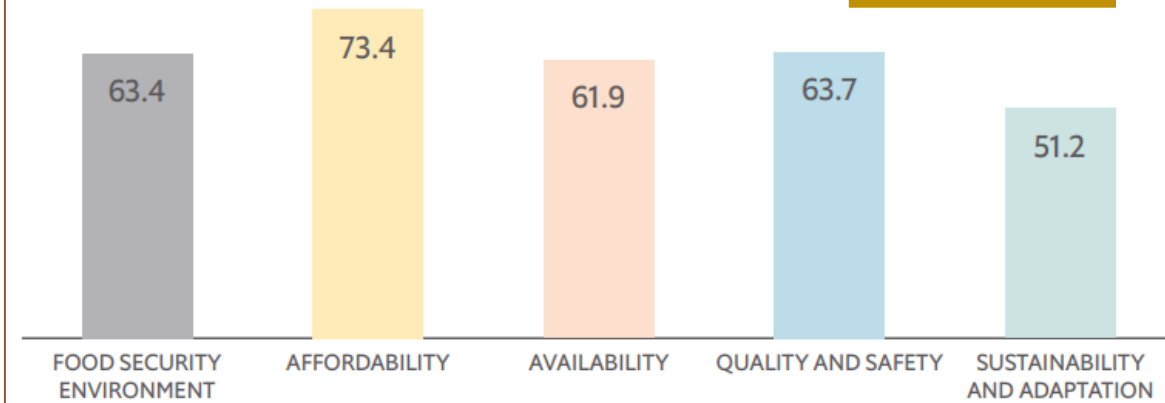


Source of Thailand (FAO) and World : <https://data.worldbank.org/indicator/SN.ITK.SVFI.ZS?locations=TH>
 Source of Thailand (NSO) : National Statistical Office, Thailand

In 2022, the National Statistical Office (NSO) initiated an analysis of FEIS data from an 8-question set developed by FAO to show Thailand's progress in achieving the SDGs. The indicators have been endorsed by the FAO and will be used in the 2023 edition of The State of Food and Nutrition Security in the World (SOFI)

The Asia Pacific rank **3rd** out of the six region

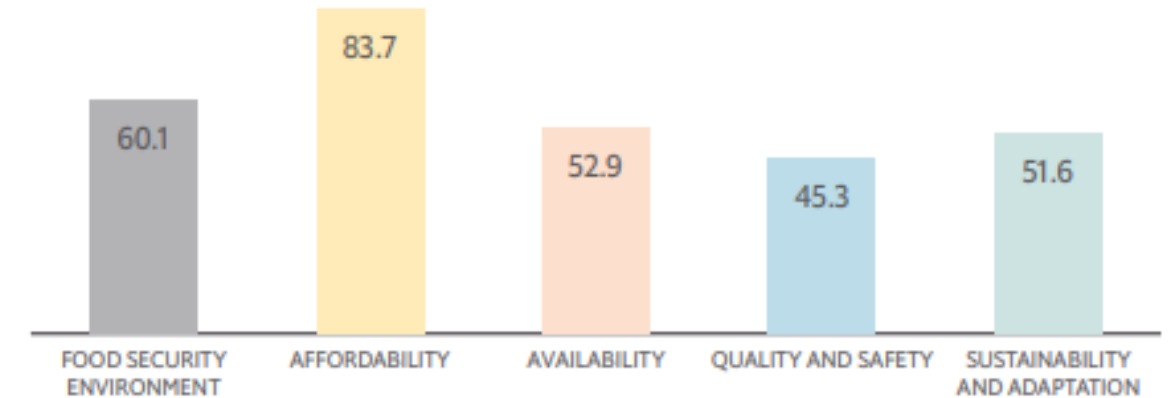
Global Food Security Index 2022: Average scores for Asia-Pacific (APAC)



Source: Global Food Security Index 2022.

Thailand ranks joint **64th** out of **113** countries in the 2022

Global Food Security Index 2022: Scores for Thailand



Source: Global Food Security Index 2022.



- **Affordability:** Thailand ranks **39th** globally on this pillar and **8th** in the region. ([Best-performing pillar](#))
- **Availability:** Thailand ranks **77th** on this pillar and **21st** in the region ([very weak](#))
- **Quality and safety:** Thailand's performance on this pillar is the country is weakest, placing it at **102nd** in the overall index and **23rd** in the region. ([very weak](#))
- **Sustainability and adaptation:** Thailand ranks **69th** in this pillar and **11th** in the region. ([good](#))

Global Food Security Index (GFSI)

FOOD SECURITY ENVIRONMENT			Score	Δ							
			60.1	↑ +4.6							
1 AFFORDABILITY	Score	Δ	2 AVAILABILITY	Score	Δ	3 QUALITY AND SAFETY	Score	Δ	4 SUSTAINABILITY AND ADAPTATION	Score	Δ
1.1 Change in average food costs	100.0	↑ +29.5	2.1 Access to agricultural inputs	56.2	↑ +6.2	3.1 Dietary diversity	36.0	↓ -0.6	4.1 Exposure	62.0	↔
1.2 Proportion of population under global poverty line	99.7	↑ +2.1	2.2 Agricultural research & development	33.0	↑ +4.7	3.2 Nutritional standards	20.2	↓ -48.3	4.2 Water	25.0	↔
1.3 Inequality-adjusted income index	59.6	↑ +10.5	2.3 Farm infrastructure	84.6	↑ +42.8	3.3 Micronutrient availability	39.3	↓ -0.7	4.3 Land	62.6	↓ -3.0
1.4 Agricultural trade	51.1	↓ -10.6	2.4 Volatility of agricultural production	44.2	↓ -27.2	3.4 Protein quality	59.1	↑ +0.3	4.4 Oceans, rivers and lakes	29.1	↓ -1.5
1.5 Food safety net programmes	100.0	↔	2.5 Food loss	87.6	↑ +4.4	3.5 Food safety	71.4	↓ -4.1	4.5 Political commitment to adaptation	52.9	↑ +30.8
			2.6 Supply chain infrastructure	55.9	↑ +14.3				4.6 Disaster risk management	77.4	↑ +77.4
			2.7 Sufficiency of supply	71.2	↑ +50.6						
			2.8 Political and social barriers to access	56.1	↑ +9.7						
			2.9 Food security and access policy commitments	0.0	↓ -52.5						

■ Very good (80–100)
 ■ Good (70–79.9)
 ■ Moderate (55–69.9)
 ■ Weak (40–54.9)
 ■ Very weak (0–39.9)

Source: Global Food Security Index 2022.

Key indicators with low scores

2. Availability 2.9 Food security and access policy commitments (Economist Impact calculation) (0 score)

Indicators	Primary source (s)	Status of Thailand
2.9.1 Food security strategy (0)	Qualitative scoring by Economist Impact analysts	<ul style="list-style-type: none"> Strategies on Food Security are contained in the Action Plan on Food Management in Thailand, Phase 1 (2023-2027). Not available in English.
2.9.2 Food security agency (0)		<ul style="list-style-type: none"> Thailand does not have a specific agency involved in food security but is driven by the Committee on Food Security, which includes both the public and private sectors involved. Not available in English.

3. Quality and Safety 3.2 Nutritional Standards (Economist Impact calculation) (20.2 scores)

Indicators	Primary source (s)	Status of Thailand
3.2.1 National dietary guidelines (0)	Qualitative scoring by Economist Impact Analysts	<ul style="list-style-type: none"> Food-based dietary guidelines has published on FAO website https://www.fao.org/nutrition/education/food-dietary-guidelines/regions/countries/thailand/en/
3.2.2 National nutrition plan or strategy (0)	Qualitative scoring by Economist Impact analysts based on WHO, FAO and national health ministry document	<ul style="list-style-type: none"> Thailand has the 5-Year National Plan of Action for Nutrition (NPAN) 2019-2023 Not available in English.
3.2.3 Nutrition labelling (100)		<ul style="list-style-type: none"> Thailand has nutrition labelling, including GDA and healthier choice logo.
3.2.4 Nutrition monitoring and surveillance (0)		<ul style="list-style-type: none"> Thailand has 1) Framework on nutrition monitoring and surveillance for NPAN 2) Annual Report on Nutrition 3) Real-time database through Health Data Center System (HDC) and Quarterly Report Not available in English.

Thailand is ranked ninth in terms of vulnerability to climate change



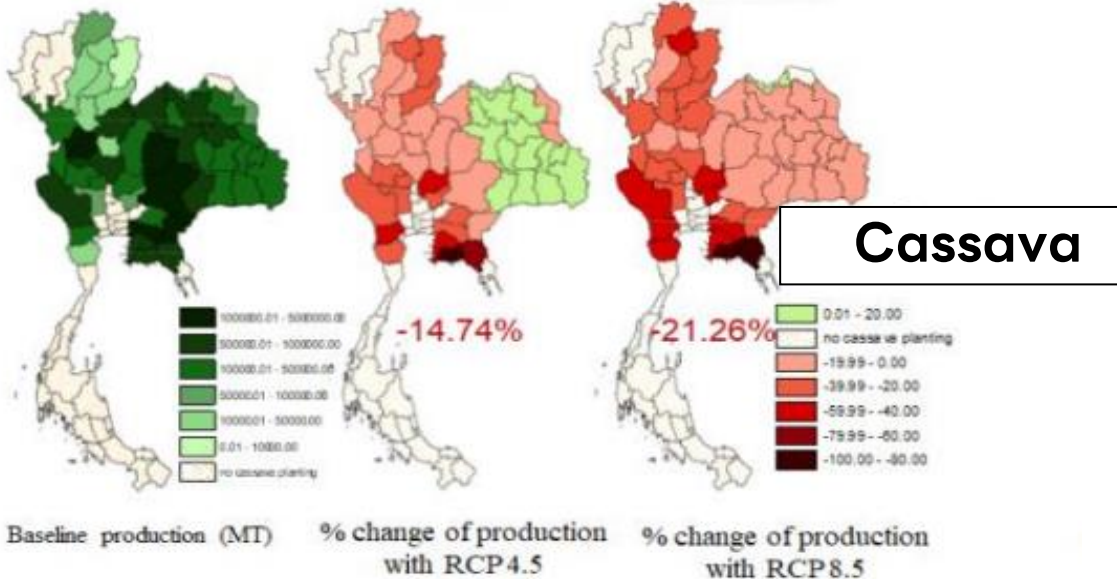
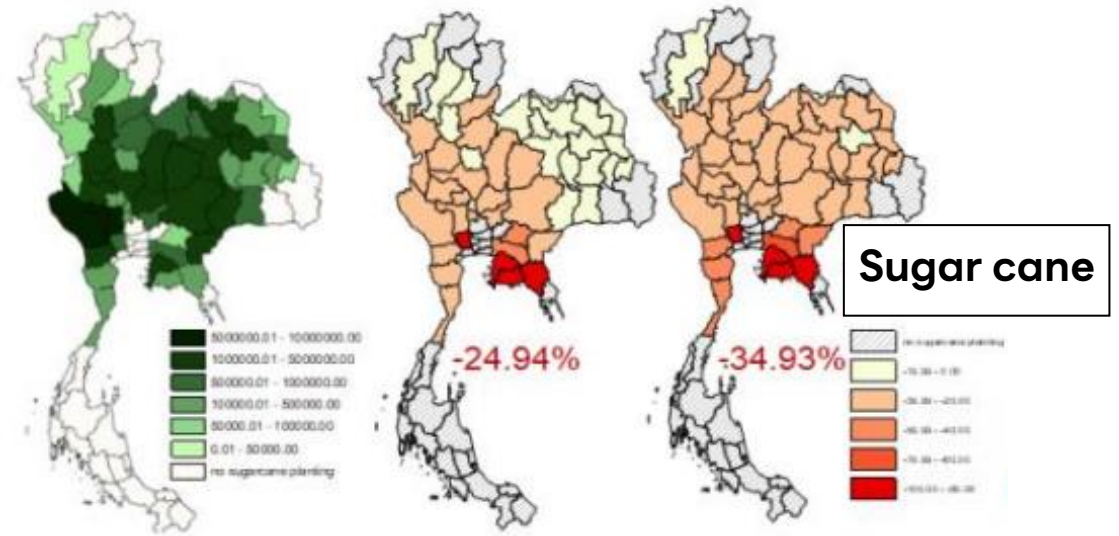
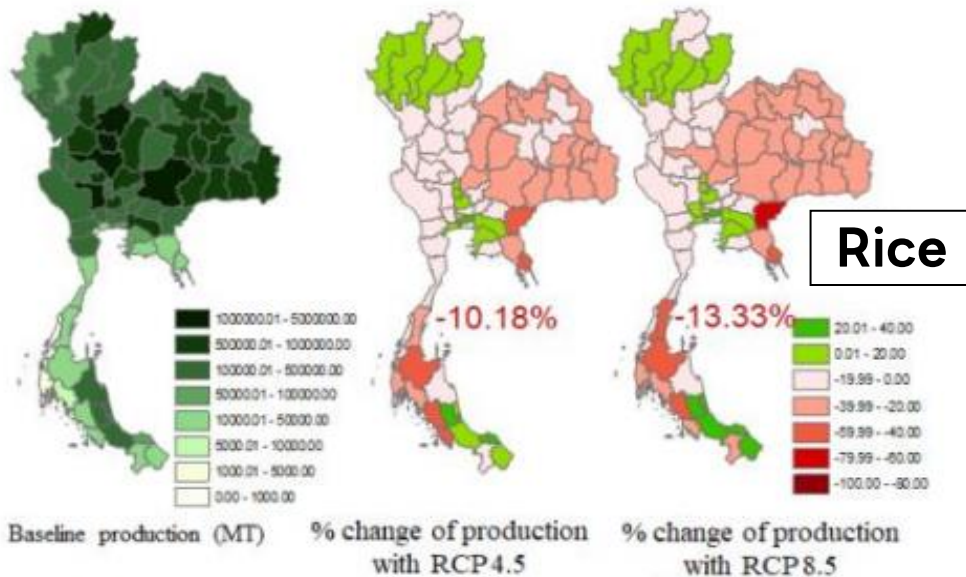
Global Climate Risk Index

www.germanwatch.org/en/cri

CRI 2000-2019 (1999-2018)	Country	CRI score	Fatalities	Fatalities per 100 000 inhabitants	Losses in million US\$ PPP	Losses per unit GDP in %	Number of events (2000-2019)
1 (1)	Puerto Rico	7.17	149.85	4.12	4 149.98	3.66	24
2 (2)	Myanmar	10.00	7 056.45	14.35	1 512.11	0.80	57
3 (3)	Haiti	13.67	274.05	2.78	392.54	2.30	80
4 (4)	Philippines	18.17	859.35	0.93	3 179.12	0.54	317
5 (14)	Mozambique	25.83	125.40	0.52	303.03	1.33	57
6 (20)	The Bahamas	27.67	5.35	1.56	426.88	3.81	13
7 (7)	Bangladesh	28.33	572.50	0.38	1 860.04	0.41	185
8 (5)	Pakistan	29.00	502.45	0.30	3 771.91	0.52	173
9 (8)	Thailand	29.83	137.75	0.21	7 719.15	0.82	146
10 (9)	Nepal	31.33	217.15	0.82	233.06	0.39	191

The 10 countries most affected from 2000 to 2019 (annual averages)

Effects of Climate Change Impact on Economic Crops



- Climate change has resulted in reducing the source of carbohydrate in each province of Thailand.
- Production of rice, sugarcane, and cassava is expected to decrease during 2046-2055.

RCP = Representative Concentration Pathway (a greenhouse gas concentration)
 MT = Moderately tolerant

Mechanism for Driving Food System in Thailand

National Food Committee Act B.E.2551 (2008)

National Food Committee

Chairman: Deputy Prime Minister

Secretariat: Secretary-General of FDA & ACFS

Committee on Food Security

Chairman: Mr. Yukol Limlamthong
Secretariat: Office of Agricultural Economics (OAE) National Bureau of Agricultural Commodity and Food Standards (ACFS)

Committee on Food Quality and Safety

Chairman: Professor Vichai Tienthavorn
Secretariat: Food and Drug Administration (FDA) National Bureau of Agricultural Commodity and Food Standards (ACFS)

Committee on Strategies to build food and nutrition links for better quality of life

Chairman: Dr. Suwannachai Wattanaying-charoenchai
Secretariat: Department of Health (DOH)

Committee on Management

Chairman: Mr. Yukol Limlamthong
Secretariat: Food and Drug Administration (FDA) National Bureau of Agricultural Commodity and Food Standards (ACFS) Office of Agricultural Economics (OAE)

The Strategic Framework for Food Management (SFFM), 2018-2037

Action Plan on Food Management in Thailand, Phase 1 (2023-2027)

1. Food Security

2. Food Safety and Quality

3. Food Education

4. Food Management

Sub-committee Driving Action Plan

Action Plan on Food Management in Thailand, Phase 1 (2023-2027)

1. Food Security

- Sub-committee on agriculture development for **future food**
- Sub-committee on **food loss reduction**
- Subcommittee on **food waste reduction**

- (Draft) Food Waste Management Action Plan Phase 1 (2023-2027)
- Set working group for develop Plan on Loss Reduction in Production Chain (2023 - 2027)

2. Food Safety and Quality

- Sub-committee on **monitoring consumer confidence targets** on food quality and safety
- Sub-committee on **monitoring food trade value targets**
- Sub-committee on study models and mechanisms for management on effectiveness of **Food with Function Claim (FFC)**
- Sub-committee on **food safety risk** assessment and management and **foodborne diseases**

3. Food Education

- Sub-committee on develop and promote the use of **Healthier Choice Logo**
- Sub-committee on develop food and nutrition **management in educational institutions and communities**
- Sub-committee on goals to **reduce hunger and malnutrition**

- 5-Year National Plan of Action for Nutrition (NPAN) 2019-2023
- (Draft) NPAN 2023-2027

4. Food Management

- Sub-committee on **plan integration and evaluation** of implementation for Action Plan on Food Management in Thailand, Phase 1
- Sub-committee on **study the organizational structure** that drives Thailand's food management



Multisectoral Collaboration



Crop

Research :
Climate resilience of local food system
in Thailand Project



International Joint
Research Center
on Food Security



National Science and Technology Development Agency (NSTDA),
Government of United Kingdom, South Asia Research Hub (SARH),
Ubon Ratchathani University

Innovation :

Provincial crop calendar
2023/2024



Office of Agricultural Economics

Food

Programmes :
Food-Based Dietary Guidelines
(FBDGs) and Nutrition Flag



Bureau of Nutrition

Innovation :

Food of the Future

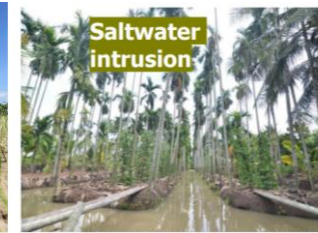
Academic Partners, Foundations, Entrepreneurs

Case study : Climate impact of food & nutrition security

- Local area **Ubonratchathani**
- Urban and Peri-urban area **Bangkok Metropolitan**

Climate impact is bringing;

- Heavier rain and flooding
- Drought
- Saltwater intrusion



Adaptation Plan



Production

- Changing from single farming to agricultural diversification
- Plant suitable crops that are resistant to flooding
- Using digital technology i.e., weather forecast applications, warning about climate change



Process & Distribution

- Market supports farmers to grow seasonal vegetable and fruit.
- Improving packaging to increase the length of shelf life.
- Smart farmers becomes suppliers/retails themselves by selling directly to consumers



Consumption

- Consumer grown their own vegetables backyard
- Co-share space (vegetable & fruit) in community
- Training knowledge from production to consumption, can select/purchase of nutritious foods

Provincial crop calendar 2023/2024

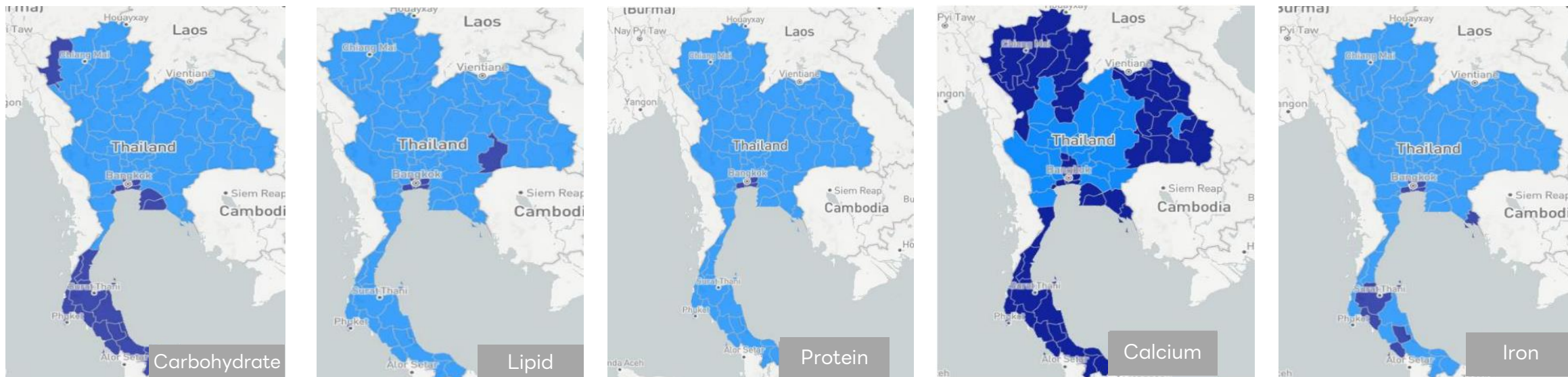
- **Background :** The Office of Agricultural Economics has prepared the provincial crop calendar for monthly agricultural products
- **Database system :** covers and links the entire system to forecast the production of agricultural products (production time, harvest time, market launch)
- **Benefits :** production planning, marketing, product distribution, and food security and nutrition management for the whole system in both normal and crisis situations

Products	Year 2023 (percentage)												Year 2024 (percentage)												Yield (Ton)
	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	
In-season rice							0.15	8.01	8.45	8.21	64.48	8.42	1.27	0.52	0.20	0.21	0.08							25,760,529	
Out-of-season rice		11.22	11.58	29.65	15.69	7.67	3.38	0.67	0.13	0.01														7,722,356	
Maize						0.004	0.68	2.14	10.67	20.60	34.89	17.29	2.17	0.60	4.89	5.23	0.84							4,770,601	
Cassava										4.20	5.90	9.65	18.48	20.22	21.58	7.32	4.18	2.43	1.53	1.96	2.55			33,766,212	
Pineapple	7.57	7.54	8.18	9.63	15.48	14.70	6.95	3.13	4.02	6.72	8.85	7.23												1,461,546	

Harvesting month
 Peak harvesting month

(Source: pcc.oae.go.th, The Office of Agricultural Economics, 2022)

Analysis of nutrients availability in each province



■ Sufficient nutrients
 ■ Insufficient nutrients

Analysis results

- Provincial crop calendar and Dietary Reference Intake for Thais (DRIS) were compared. To determine the nutritional availability in each province.

(1) **Insufficient nutrients** ■ = the amount of nutrients available in the province is less than the amount of nutrients recommended by the DRIs

(2) **Sufficient nutrients** ■ = the amount of nutrients available in the province is more than the amount of nutrients recommended by the DRIs.

Building Health Literacy in Food-Based Dietary Guidelines (FBDGs) and Nutrition Flag

FBDGs revised in 2022

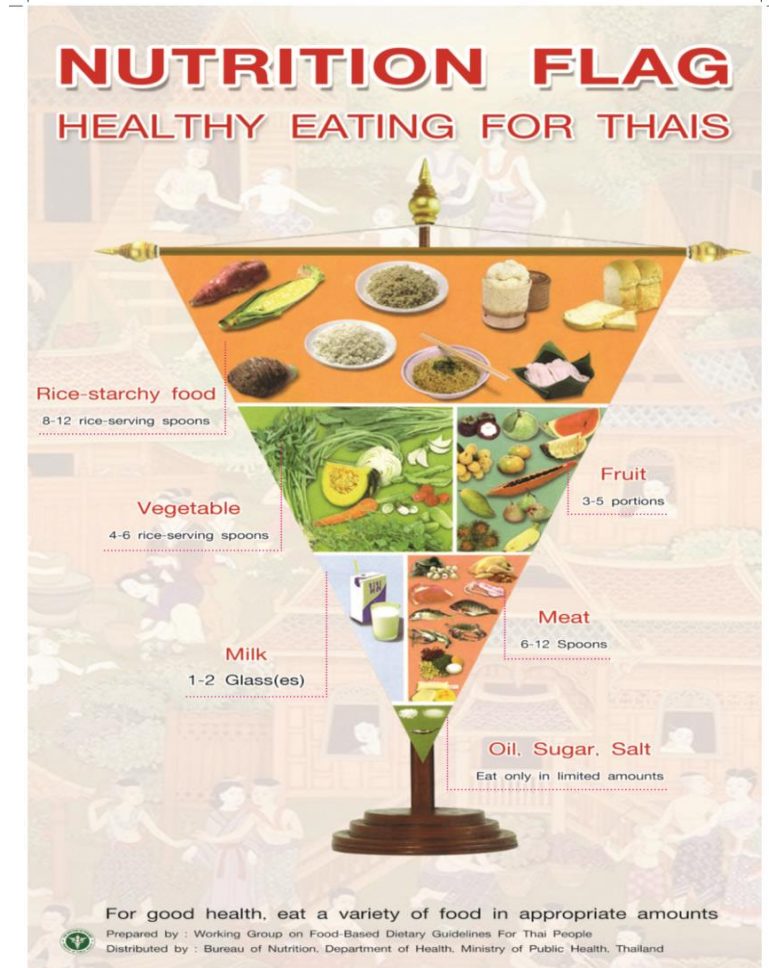
Categories in 7 groups

- 1) Overall
- 2) Pregnancy
- 3) Breastfeeding
- 4) Infant (0-12 month)
- 5) Young children (1-5 yrs.)
- 6) School age children / Adolescent
- 7) Adults / Elderly



THAI FOOD-BASED DIETARY GUIDELINES
Young children (1- 5 years)

- 1 Feed 3 meals and not more than 2 healthy snacks a day.
- 2 Feed varieties of food from all 6 main food groups every day.
- 3 Maintain breastfeeding up to 2 years of age or beyond, and supplemented with plain whole milk.
- 4 Encourage the child to eat vegetables and low sugar fruits regularly.
- 5 Encourage the child to eat natural-flavored food and avoid high sweet, salt, and fat foods.
- 6 Feed clean and safe food.
- 7 Provide clean water and avoid sweetened or carbonated drinks.
- 8 Practice healthy eating habits with national dietary guidelines based on the child's age.
- 9 Bond with the children through playing and frequent monitoring their growth and development.



NUTRITION FLAG
HEALTHY EATING FOR THAIS

- Rice-starchy food**
8-12 rice-serving spoons
- Vegetable**
4-6 rice-serving spoons
- Fruit**
3-5 portions
- Milk**
1-2 Glass(es)
- Meat**
6-12 Spoons
- Oil, Sugar, Salt**
Eat only in limited amounts

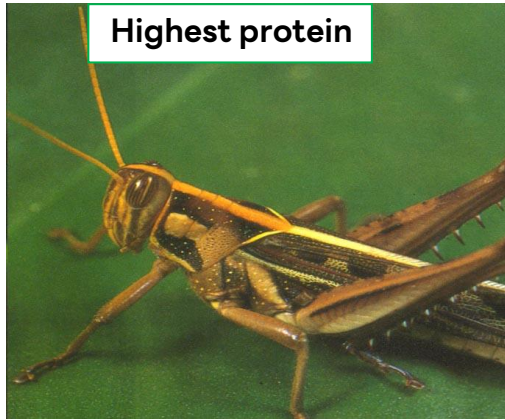
For good health, eat a variety of food in appropriate amounts
Prepared by : Working Group on Food-Based Dietary Guidelines For Thai People
Distributed by : Bureau of Nutrition, Department of Health, Ministry of Public Health, Thailand

(Source: Bureau of Nutrition)

Opportunities for innovation in Food of the Future



Alternative food sources “Insect-based protein, Algae-based protein, Plant based protein”



Highest protein

Bombay Locust
protein 27.6 g/100g



Highest energy and fat

Pupae in bamboo
energy 231 kcal/100g
and fat 20.4 g/100g



Water meal (dried)
Calcium 513 mg/100 Phosphorus 420mg/100 g
Protein 18g/100g Fiber 14g/100g

Source: Pachanumas Thongkham. Effect of temperature on antioxidant activity in dried water meal. 2019



Mushroom; Hed kamin
protein 2.7 g/100g

Source: <https://nutrition2.anamai.moph.go.th/>

Source: <https://nutrition2.anamai.moph.go.th/>

Retort package

“Food of the future” : (ready to eat meals)

- Sealed with retort pouch for sterilization
- Storage at room temperature for about 3 month – 1 year without preservations



Source: <https://www.posttoday.com/market/sme/497813>

Healthy snack

“Egg white Chip”

- Developed by Kasetsart University
- High protein snack
- Low cholesterol



Source: <https://www.bangkokbiznews.com/tech/798633> 18

- 1) Drive the **Action Plan on Food Management** in Thailand, Phase 1 (2023-2027) and relevant plans or strategies
 - **(Draft) Food Waste Management Action Plan** Phase 1 (2023-2027)
 - **5-Year National Plan of Action for Nutrition (NPAN) 2019-2023**
 - **(Draft) NPAN 2023-2027**
- 2) Develop and Implement on **FBDGs** and **Nutrition Flag** to communicate guidelines for healthy eating behaviors
- 3) Develop the potential of **Smart Farmers**
- 4) Build **Health Literacy** for all sectors involved throughout the food system, from production sector to consumers

T H A N K

Y O U



กรมอนามัย
สำนักโภชนาการ