THE FUTURE OF FOOD:
How to feed the planet without destroying it
(อาหารโลกวันข้างหน้า: วิทยาศาสตร์แห่งการกินที่จะตัดสินมนุษยชาติ)

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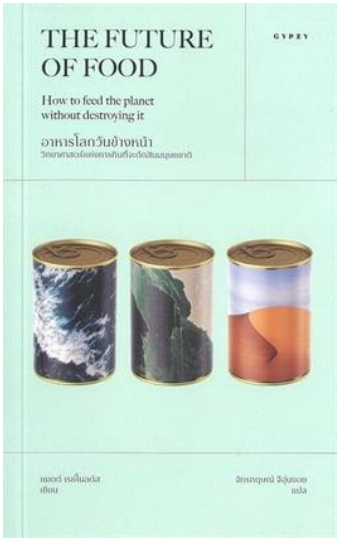

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Unquestionably, we as human beings are at a crucial crossroads. A long time ago, we used to worry about the population bomb that might cause food shortage and starvation. However, the coming of the green revolution led to a substantial increase in agricultural production, and partial reduction in poverty and hunger. Unfortunately, like Bloch (1991) said that “Every solution breeds new problems.”, the post-revolution era had a lot of negative consequences in terms of environmental degradation, over-consumption, increase in inequality, and challenges in sustainability. This book consists of five chapters. It starts with Chapter 1: Meat substitutes; follows by Chapter 2: Plant breeding, Chapter 3: Reduction of the carbon footprint of agriculture, Chapter 4: Unlock potential of the ocean; and ends with Chapter 5: War on waste. The main interesting details in each chapter are as follows:

In chapter 1, the author shows that the livestock sector is a major contributor to agricultural economies worldwide, with a substantial share of agricultural gross value and significant growth in developing countries; however, he also points out that livestock production has caused serious problems to our world, especially in terms of environmental consequences, which include greenhouse gas emissions, land use, deforestation, soil degradation, and water pollution. Fortunately, nowadays, there is increasing focus on sustainable livestock production practices such as improving resource efficiency, reducing environmental impact, and promoting animal welfare. Moreover, there are many alternatives to meat called plant-based meat alternatives (PBMA) such as tofu and various beans

that have become more popular. Besides, cultured meat, also known as cultivated or lab-grown meat, which is real meat produced by growing animal cells in a lab setting, is attracting substantial investment and research worldwide. This kind of meat is still in its early stages, and it undeniably confronts significant challenges such as cost reduction, safety and nutritional equivalence, and consumer acceptance. Nevertheless, cultured meat is considered an innovative food technology with the potential to revolutionize the food industry with a more sustainable and ethical alternative to traditional animal agriculture. In chapter 2, the author concentrates on plant breeding, which is the science and art of improving the genetic makeup of plants by selecting and combining plants with favorable traits to produce offspring with enhanced qualities for various applications. Plant breeding creates desired characteristics such as increased yield, improved quality, disease and pest resistance, stress tolerance, as well as adaptation to mechanization. However, these days, plant breeding also faces several challenges, including limited genetic diversity, erratic weather patterns, pests and diseases, soil factors, complex trait inheritance, and long breeding cycles. These difficulties are further amplified by the need to adapt crops to a changing climate, which includes addressing issues like drought tolerance, heat stress, and changing growing seasons. In chapter 3, the author talks about the reduction of carbon footprint of agriculture, which involves implementing some important practices that help minimize greenhouse gas emissions and enhance carbon sequestration in soil and vegetation. In summary, reducing carbon footprint can be achieved through various strategies such as adopting sustainable farming methods, water management, optimizing resource use, promoting the use of insects in agricultural ecosystems, using robots in plantations, reducing the use of herbicides, which include integrated weed management, precision agriculture techniques, as well as promoting soil health.

In chapter 4, the author illustrates the importance of the ocean as a food resource and convinces us to increase consumption of aquatic animal foods. Because the oceans of Earth cover more than 70 percent of the planet's surface, it is unquestionable that the ocean serves as a vital food source for humans, providing a wide array of seafood and other marine products that contribute to global protein intake and nutrition. This main point that the author wants to indicate is that although seafood and livestock both provide essential nutrients, they differ in their environmental impact and nutritional profiles. Seafood, particularly fish, offers a good source of protein, omega-3 fatty acids, and micronutrients while generally having a lower environmental footprint than livestock production, which requires more land, water, and energy, as well as can contribute more to greenhouse gas emissions worldwide. To help meet global food needs while potentially easing pressure on wild fish stocks, aquatic food farms, also known as aquaculture, involving the farming of aquatic organisms like fish, shellfish, and algae for human consumption and other uses, are increasing around the world. However, aquatic food farms, while providing a source of protein, can pose several environmental and human health problems. These include pollution from fish waste and uneaten feed, the spread of diseases and parasites to wild fish populations, and the reliance on wild-caught fish for feed, which can contribute to overfishing. Additionally, there are concerns about the use of chemicals like antibiotics and pesticides in aquaculture, as well as the potential for habitat destruction and the introduction of invasive species.

Finally, in chapter 5, the author has worries about food loss, the decrease in the quantity or quality of food along the food supply chain before it reaches the retail level, and food waste, edible food that is discarded, thrown away, or left uneaten, whether at the consumer level, during food preparation, or at any point in the food supply chain. Both food loss and food waste pose significant environmental, social, and economic concerns. Environmentally, they contribute to greenhouse gas emissions through methane production in landfills and waste valuable resources like water, land, and energy used in food production. Socially, they exacerbate food insecurity and hunger,

particularly in impoverished communities. In addition, economically, they represent a waste of resources and money, impacting individuals, businesses, and governments.

In conclusion, this book provides some insights into the future of our food. It envisions a sustainable, resilient, and nutritious food system that addresses global challenges like climate change and population growth. This transformation involves innovative farming practices, evolving food processing technologies, and shifting in food consumption patterns, such as increased plant-based diets and a greater focus on food safety and security. It is certain that for our future food matters, there is a long way to go for humanity. While significant advancements in food production targeting to curb our consumption have been made, there are still abundant areas where further development and improvement are still needed.

References

Bloch, A. (1991). *The Complete Murphy's Law*. PSS Adult.

Reynold, M. (2568). *อาหารโลกวันข้างหน้า: วิทยาศาสตร์แห่งการกินที่จะตัดสินมนุษยชาติ (The Future of Food: How to feed the planet without destroying it)*. Gypsy Group.