

Problems of Thailand Agriculture and Farmer Productivity and Recommendations

Phastraporn Salaisook¹, Dinh Tran Ngoc Huy², Pham Anh Dung³, Le Ngoc Nuong⁴, Nguyen Thu Thuy⁵,
Dinh Tran Ngoc Hien⁶

¹Ministry of Agriculture and Cooperatives Thailand

²School of Management, Asian Institute of Technology, Thailand

³PhD (corresponding), Apollos University, Montana, US

⁴PhD, Thai Nguyen University of Economics and Business Administration (TUEBA), Thai Nguyen, Vietnam

⁵PhD, Thai Nguyen University of Economics and Business Administration (TUEBA), Thai Nguyen, Vietnam

⁶BSc, Electrical Department, HCM University of Technology, Vietnam

ARTICLE INFO

Article History:

Accepted: 10 Nov 2023

Published: 24 Nov 2023

Publication Issue

Volume 10, Issue 6

November-December-2023

Page Number

503-509

ABSTRACT

Recently, Many studies highlight SLM is a vital tool to support and enhance the capacity of food security (Scientific Workshop on Sustainable Land Management to Enhance Food Production of APEC Members, 2012). There are several benefits of SLMs adoption, (1) maintain and improve the ecosystem function of land, (2) counter land degradation and erosion, (3) provide good health of biodiversity and ecosystems (4) build climate change resilience by storing carbon in the land, and in improving production and long-term food security (Asian Development Bank, 2017, UNCCD, 2017). Balanced and Sustainable Management of Agricultural Resources and the Environment is needed.

Keywords: Farm structure, Farm management practices, SLM practices, Thailand, Vietnam

I. INTRODUCTION

The key element explaining farmers' decision to adopt or not adopt SLM technologies and practices according to Giger et al. (2015) is the perceived of farmers about the profitability of practices. The profitability of SLM technologies is an essential factor in influencing technology adoption. However, land

tenure security is the major concern of farmers for SLM investments.

The impacts of household endowments on SLM technology adoption and cost of input, both are contributing to factor adoption or not SLM practices by farmers (World Bank, 2007).

Srisopaporn et al. (2015), stressed that household labor constraints, land ownership, and market opportunities of productivity are highly influencing

on the adoption of good innovation practices. The study of Boulay et al. (2012) confirms that the perception of land tenure security with suitable land available matters in the adoption of tree planting. Likewise, land tenure security has positive effects on manure use. In addition, manure use is also influenced by the number of cattle and pigs, the education level and ethnicity of household heads, farmland size and non-farm income (Nguyen et al., 2016).

Pornpratansombat et al. (2011) highlight the access of water resource, farm-gate price and attitude to conventional production problems as the critical positive significant factors on the decision of adoption of organic farming. This implies that the organic adopter may have better access to water, the ability to seek and find higher prices, and have stronger attitudes toward conventional farming problems. While Chouichom and Yamao (2010), compared opinions and attitudes of organic and non-organic farmers towards organic rice farming system in northeastern Thailand and found that educational level, farm holding, and extension worker contact affected opinions and attitudes of organic farmers interviewees. Among non-organic farmers interviewees, their farming experiences affected their attitude towards organic farming.

Hence we choose this topic:

'Problems of Thailand agriculture and farmer productivity and recommendations'.

1. Previous studies

We look at below table:

Table 1- Previous studies

Authors	Year	Content, results
Medhi	1995	Agriculture used to be the engine of Thailand's industrial growth. In the 1960s and 1970s, agriculture facilitated industrialization by supplying cheap

		food and labor, generating tax revenues and foreign exchange, and providing a market for industrial output
Direk and Somporn	1990	Despite the arisen scarcity of water, surface water continues to be treated as a "free good." Farmers still enjoy free access to scarce natural and irrigated surface water, which has led to its highly inefficient utilization. Direk and Somporn (1990) found that each cubic meter of water in agriculture has a marginal product of 0.57 baht, while the price of urban water supply is about 6.1 baht per cubic meter.
Sayamol C et al	2014	Collecting and analyzing the viewpoints of local actors (e.g., farmers, staff from extension offices) regarding adoption decisions can help understand farmers' reasons for adoption. Approaches mixing a quantitative assessment of influencing factors and an analysis of actors' viewpoints have been used to analyze farmers'

		declared reasons for adoption of SLM practices (McDonagh et al., 2014), for nonadoption of these practices
Krasachat et al	2021	Technical efficiency analyses have developed significantly due to the presence of a highly competitive business environment that necessitates more rational use of resources. Previous analyses on efficiency and productivity in the agricultural sector have applied two main approaches: parametric and non-parametric methods, with different variations

(source: author synthesis)

The findings of Thapa and Rattanasuteerakul (2011), indicated that the extent of adoption of organic vegetable farming, in Mahasarakham province of Thailand, depends on several factors including women's leading role, motivation by GOs and NGOs, motivation by community members and farmers' groups, training participation, the satisfaction of the price. Moreover, this study stressed that many farmers would surely be interested in practice only if the required amount of organic fertilizer is accessible and that the available bio-pesticides can effectively control pests. Many farmers were not able to grow organic vegetables due to the shortage of farmyard manure and compost, and the ineffectiveness of bio-pesticides in controlling pests.

The adoption of integrated pest management studied by Kabir & Rainis (2015), depends on the farmer field school training, land ownership status, perception toward practices, use of improved varieties and extension contact. In other words, farmers who had training facilities and frequent extension contact were more interested in adopting the practices. By contrast, the users of biological control and soil solarization were comparatively fewer, and vegetable cultivation area, age, household size, land ownership status and perception toward practices significantly influenced the adoption variation.

II. Methodology

Authors mainly use quantitative analysis combined with qualitative analysis (synthesis and inductive methods).

III. Main findings

4.1 Problems in SML practices with a case in Thailand
There are limit studies on the efficiency of AIS for SLM and rates of adoption of SLM in Thailand. Thus, the study on the factors and causes that limit rates of adoption of SLM practices are needed to introduce appropriate solution or policy for overcoming these problems.

According to LDD (2016) report of the strategy of the Land Development Department During the 12th National Economic and Social Development Plan (BE 2560-2564), the possible reasons for the limited rate of adoption of SLM practices of farmers according to SWOT analysis are :

1. Farmers do not see the importance of soil and water conservation and lack of knowledge and understanding of soil and water conservation systems.
2. Farmers in some areas adhere to traditional agricultural and do not want to change
3. The high cost of soil and water conservation systems and some practices are difficult to farmers to adopt.

4. Some farmers have limited in soil and water conservation system due to lack of land tenure security
5. Natural disasters and climate change such as drought problem bring about unstable farming income, farmers engage in the off-farm job and do not care about SLM.
6. Soil properties in some areas, such as the Northeast region is lack of fertility by the nature of the soil and most are sandy soil which is an obstacle of land and water conservation and lack of knowledge and understanding of soil and water conservation systems.
7. Farmers in some areas adopt and believe in private services more than LDD services
8. The demand for agricultural input and soil analysis of farmers is much more than using. Most farmers need agricultural input supporting from government and do not want to adopt by themselves.
9. Farmers do not follow the land use planning because of the social and economic factors
10. The young generation is not interested in adopting farming as a career; farming is for old people.
11. Lack of standard soil and water management model of consults

According to SLM regional Action Program workshop (2013), the adoption of soil and water conservation and SLM has been slow in Asia due to the number of barriers related to technology, policy, institutional and socioeconomic factors. These include low awareness among farmers, labor shortage, and lack of information and financing, limited human and institutional capacities, tenure insecurity, lack of land use policies, weak enforcement of environmental laws and regulation and even lack or inadequate technologies.

Budhaka and Srikajorn (2001) stress that "Adoption of soil conservation measure and maintenance and improvement if such practices are the ultimate measures of success of any soil conservation initiative. Farmers, especially subsistence ones, have limited financial resources to invest in soil conservation. Also, various factors such as land tenure, credit, and

marketing systems discourage long - term investment and land productivity preservation. Farmers are reluctant to undertake efforts not providing income or reducing their input costs, either in cash or in-kind services. This means that conservation measures must have obviously seen short - term benefits to farmers; benefits they would appreciate might be increased yield per land unit or better production per unit of labor. Technology that is appropriately designed and properly implemented is necessary for success".

IV. Discussion

Thai agriculture used to be characterized by its strong comparative advantage, which is emphasized when one takes into account the past policy bias against agriculture (Ammar 1996). However, increasing shortages of water and labor, and an inefficient use of pesticides have recently impeded further enhancement of productivity.

As many people know, most of the rural population engage mainly in the agricultural activity, the rapid rise in the proportion of elderly people has changed significantly on the agriculture sector by changing farm structure and farm management practices of the country. Due to the lack of farm labor, most of the farmers are aging, and this brings about the interest less for farming. Old farmers are adopting less technology on the farming process since they are lack of power and education than the young (Rigg et al., 2018; 2019). The rapidly rose of farm labor of aged 60 years and over from approximately 4.33 % to 18.82 % from the year 1986 to 2016 has led to significant changing in the agricultural sector of the country .

V. CONCLUSION

Our Recommendations as below:

Strategy 1:

Strengthening the Farmers and Farmer Institutions

1) Strengthen farmers and farmer institutions to become Smart farmers & Smart Group with Smart

Enterprises. 2) Promote pride and security in the farming profession 3) Manage farm labor by replacing it with technology in support of the aging society.

Strategy 2:

Increasing the Productivity and Quality Standards of Agricultural Commodities

1) Develop the production efficiency and qualities of agricultural commodities to the world standards using science, technology and holistic knowledge base. 2) Promote agriculture throughout its supply chains by market demands and high commodity values toward being Smart Farms.

Strategy 3:

Increasing Competitiveness in the Agriculture Sector through Technology and Innovations

1) Develop technology and innovations to drive Agriculture 4.0 under the Thailand 4.0 economic model. 2) Manage the agricultural information technology for ready access and utilization among farmers. 3) Develop agricultural research works and information toward their commercialization, publication, and linkage with a global information network.

Strategy 4:

Balanced and Sustainable Management of Agricultural Resources and the Environment

1) Sustainably manage agricultural resources by SDGs 2)

Balanced and sustainably revive and conserve agricultural resources

(Source: MOAC, Office of Agricultural Economics, 2017)

Fig 2 - Thailand agriculture



(source: Phastraporn Salaisook , Thesis 2019)

Acknowledgement

Content: Phastraporn Salaisook

Writing: Dinh Tran Ngoc Huy, Le Ngoc Nuong, Pham Anh Dung

Revised: Pham Anh Dung, Nguyen Thu Thuy, Dinh Tran Ngoc Hien

VI. REFERENCES

- [1]. Asian Institute of Technology. (2013). Report of an expert consultation workshop on Sustainable Land Management (SLM) regional action programme formulation to respond to climate change in Synergy with the Three Rio Conventions. Thailand
- [2]. Asia-Pacific Economic Cooperation. (2011). Scientific workshop on Sustainable Land Management (SLM) to enhance food production of APEC members ... (n.d.). Retrieved July23,2018, from <https://aimp2.apec.org/sites/PDB/Lists/Proposals/DispForm.aspx?ID=352>
- [5]. Asrat, P., & Simane, B. (2017). Household-and plot-level impacts of sustainable land management practices in the face of climate variability and change: empirical evidence from Dabus Sub-basin, Blue Nile River, Ethiopia. *Agriculture & food security*, 6(1), 61.
- [7]. BT Suu, DTN Huy, NT Hoa. (2021). Sustainable value chain issues, insect traps and solutions for coffee berry borer in the north of Vietnam, *Plant*

- Cell Biotechnology and Molecular Biology 22 (55&56), 74-83
- [9]. BT Suu, VQ Giang, VP Lien, DTN Huy, HT Lan. (2021). The auto-infection trap with the native entomopathogenic fungus, *Beauveria Bassiana* for management of coffee berry borer (*Stephanoderes Hampei* Ferrari) in the northwest region, Alinteri Journal of Agriculture Science 36 (1), 191-198
- [10]. Breu, T. M., Hurni, H., Portner, B., Schwilch, G., Wolfgramm, B., Messerli, P., & Herweg, K. G. (2011). Sustainable land management and global development: Factors affecting land users' efforts to adopt and sustain the productive use of natural resources.
- [11]. Budhaka, B., and Srikajorn, M. (2001). Investment in land development in Thailand. Investment in Land and Water” Proceedings of the Regional Consultation at Bangkok, Thailand, during, 3-5 Oct 2001. Food and Agriculture Organization of the United Nations Bangkok, March 2002. Bangkok
- [12]. Budhaka, B., and Manu, S. (2018). Investment in land development in Thailand - Retrieved July 21, 2018, from <http://www.fao.org/docrep/005/ac623e/ac623e01.htm#bm21>
- [13]. Bangkok Post. (2018). Survey finds 40% of farmers live under poverty line. Retrieved August 3, 2018, from <https://www.bangkokpost.com/news/general/1475901/survey-finds-40-of-farmers-live-under-poverty>
- [14]. Dat, P. M., Mau, N. D., Loan, B. T. T., & Huy, D.T. N. (2020). Comparative China Corporate Governance Standards after Financial Crisis, Corporate Scandals and Manipulation. Journal of security & sustainability issues, 9(3).
- [15]. Deng et al. (2014). Effects of simulated puddling intensity and pre-drying on shrinkage capacity of a paddy soil under long-term organic and inorganic fertilization Soil Till. Res., 140 (2014), pp. 135-143
- [16]. DT Ngoc-Huy, NT Hang, P Van Hong. (2021). Food and drink processing from lychee products in the northern provinces of Vietnam-and roles of agriculture project financing, Revista de Investigaciones Universidad del Quindío 33 (1), 187-195
- [17]. DT Tinh, NT Thuy, DT Ngoc Huy. (2021). Doing Business Research and Teaching Methodology for Undergraduate, Postgraduate and Doctoral Students-Case in Various Markets Including Vietnam, Elementary education Online 20 (1)
- [18]. Hanh, P. T. M., Hang, N. T., & Huy, D. T. N. (2021). Enhancing Roles of Banks and the Comparison of Market Risk and Risk Policy Implications in Group of Listed Vietnam Banks During 2 Stages: Pre and Post-Low Inflation Period. Revista geintec-gestao Inovacao e Tecnologias, 11(2), 1723-1735.
- [19]. ThiHoa, N., Hang, N. T., Giang, N. T., & Huy, D. T.N. (2021). Human resource for schools of politics and for international relation during globalization and EVFTA. Elementary education online, 20(4), 2448-2452.
- [20]. Hoa, N. T., Huy, D. T. N., & Van Trung, T. (2021). Implementation of Students's Scientific Research Policy at Universal Education Institutions in Vietnam in Today Situation and Solutions. Review of International Geographical Education Online 11 (10)
- [21]. Krasachat, W.; Yaisawarn, S. (2021). Directional distance function technical efficiency of chili production in Thailand. Sustainability 2021, 13, 741
- [22]. Krause, H.; Lippe, R.S.; Grote, U. (2016). Adoption and income effects of public GAP standards: Evidence from the horticultural sector in Thailand. Horticulturae 2016, 2, 18
- [23]. Le, T. H., Huy, D. T. N., Le Thi Thanh Huong, N. T., & Hang, S. G. (2021). Recognition of user activity with a combined image and accelerometer wearable sensor. Design Engineering, 6407-6421.
- [24]. Limtong, P. (2012). Status and priorities of soil management in Thailand. Presented in Workshop on Managing Living Soil, 5-8 December 2012. FAO, Rome, Italy.

- [25]. Longpichai, O. (2013). Determinants of adoption of crop diversification by smallholder rubber producers in Southern Thailand: Implications on natural resource conservation. *Kasetsart Journal of Social Science*, 382, 370-382.
- [26]. Lorsirirat, K., & Maita, H. (2006). Soil erosion problems in northeast Thailand: A case study from the view of agricultural development in a rural community near Khon Kaen. Disaster mitigation of debris flows, slope failures and landslides, 675-686.
- [27]. Land Development Department. (2018). Main projects of land development department (n.d.).
- [28]. Retrieved July.22.,2018,.from http://www.ldd.go.th/EFiles_html/main%20project/Mainproj.htm#13.%20Soil%20and%20Water%20Conservation
- [29]. LT Hue, NT Thuy, DTN Huy, NV Binh, DTT Huyen, NTM Thao. (2020). Factors affecting the access to bank credit of smes in northeastern region, vietnam, *International Journal of Entrepreneurship* 24, 1-12
- [30]. Nam, V. Q., Tinh, D. T., Huy, D. T. N., Le, T. H., & Huong, L. T. T. (2021). Internet of Things (IoT), Artificial Intelligence (AI) Applications for Various Sectors in Emerging Markets-and Risk Management Information System (RMIS) Issues. *Design Engineering*, 609-618.
- [31]. NT Hang et al. (2021). Educating and training labor force under Covid 19: Impacts to meet market demand in Vietnam during globalization and integration era, *JETT* 12 (1), 179-184
- [32]. NT Diep, TD Trang, LT Hue, DTN Huy. (2022). Analysis of Marketing Strategy of Food and Milk Products for Children in Vietnam Market-And Legal Matters of Protecting Rights of Consumers Who Are Children in the Economy, *International Journal of Early Childhood Special education* 14 (3)
- [33]. PT Anh, NTN Lan, NTM Hanh, DTN Huy, BTT Loan. (2020). SUSTAINABLE CONSUMPTION BEHAVIORS OF YOUNG PEOPLE IN THE FIELD OF FOOD AND DRINKS: A CASE STUDY, *Journal of Security & Sustainability Issues* 9
- [34]. Ponnampereuma, F.N. (1984). Straw as a source of nutrients for wet land rice, 117-136. *Organic Matter and Rice*. International Rice Research Institute. Los Banos, Philippines
- [35]. Saothongoi, V. et al. (2014). Effect of Rice Straw Incorporation on Soil Properties and Rice Yield, *Thai Journal of Agricultural Science* 2014, 47(1): 7-12
- [36]. TTH Ha et al. (2019). Modern corporate governance standards and role of auditing-cases in some Western european countries after financial crisis, corporate scandals and manipulation, *International Journal of Entrepreneurship*, 24(1S)
- [37]. VQ Nam, DT NGOC HUY.(2021). Solutions to Promote Startup for the Youth in Minority and Mountainous Region of Thai Nguyen Province-Vietnam, *Journal of Contemporary Issues in Business and Government* 27 (3), 2113-2118
- [38]. Binh, V. T., & Huy, D. T. N. (2021). Further Analysis on Solution Treatment for Diabetes of Patients at Hospitals in Vietnam. *NeuroQuantology*, 19(8), 88-93
- [39]. Yao , S et al. (2015). Effects of rice straw incorporation and tillage depth on soil puddlability and mechanical properties during rice growth period, *Soil and Tillage Research* Volume 146, Part B

Cite this article as :

Phastraporn Salaisook, Dinh Tran Ngoc Huy, Pham Anh Dung, Le Ngoc Nuong, Nguyen Thu Thuy, Dinh Tran Ngoc Hien, "Problems of Thailand Agriculture and Farmer Productivity and Recommendations ", *International Journal of Scientific Research in Science and Technology (IJSRST)*, Online ISSN : 2395-602X, Print ISSN : 2395-6011, Volume 10 Issue 6, pp. 503-509, November-December 2023. Available at doi : <https://doi.org/10.32628/IJSRST52310642>
Journal URL : <https://ijsrst.com/IJSRST52310642>