

A Guideline for Developing Intensive Agriculture or Kasetpranit (Elaborate Agriculture) Indicators: Case Perception of Farmers in a Rural Area in Khon Kaen Province, Thailand

Patarapong Kroeksakul^{1*} and Suchint Simaraks²

ABSTRACT

This report aimed to find the meaning of Kasetpranit (Elaborate agriculture) to farmers in northeast Thailand (Isaan region) and to identify indicators of Kasetpranit for developing a pattern of agricultural practices in Thailand. The study's methodology was mainly qualitative; it focused on the interrelationship of the parameters involved in the activity and meaning of Kasetpranit. The study area was located in Khon Kaen province. It found that Kasetpranit can be divided into community-level indicators. This research on agricultural practices was conducted on small farms (0.75–5 ha). Kasetpranit is different from “intensive agriculture” on a large farm level and cannot be compared with such farms in northeast region communities. However, the research identified indicators of Kasetpranit ecology at the community level. The indicators were classified into three issues: 1) household, 2) farmland, and 3) environment.

Keywords: intensive agriculture, Kasetpranit

บทคัดย่อ

รายงานฉบับนี้มีวัตถุประสงค์ที่จะหาคำจำกัดความของคำว่า เกษตรปราณีต ในความหมายของเกษตรกรภาคตะวันออกเฉียงเหนือประเทศไทย (ภาคอีสาน) และจำแนกตัวชี้วัดของเกษตรปราณีต เพื่อพัฒนารูปแบบการดำเนินกิจกรรมการเกษตรในประเทศไทย สำหรับเครื่องมือที่ใช้ศึกษาเป็นวิธีการเชิงคุณภาพเพื่อพิจารณาความสัมพันธ์ของตัวบ่งชี้การเกษตรปราณีต ซึ่งการศึกษาค้นคว้าดำเนินการศึกษาในพื้นที่จังหวัดขอนแก่น จากการศึกษาพบถึง

ตัวชี้วัดการเกษตรปราณีตในระดับชุมชน โดยการนำเกษตรปราณีตเป็นการดำเนินกิจกรรมในพื้นที่การเกษตรขนาดเล็ก (0.75–5 เฮกตาร์) สำหรับคำว่าเกษตรปราณีต (elaborate agriculture) ในชุมชนภาคอีสาน แตกต่างจากการเกษตรแบบเข้มข้น (intensive agriculture) ในนัยของนักวิชาการต่างประเทศ ซึ่งเป็นรูปแบบการเกษตรในฟาร์มขนาดใหญ่ การเกษตรอุตสาหกรรม ทั้งนี้ในสัดส่วนที่แตกต่างกันมากของความหมายทำให้ไม่สามารถทำการเปรียบเทียบกันได้อย่างไรก็ตาม สำหรับการศึกษานี้พบตัวชี้วัดของการเกษตรปราณีตในระดับนิเวศชุมชน ซึ่งมี

¹ Division of Environment, Faculty of Environmental Culture and Ecotourism, Srinakharinwirot University, Bangkok 10110, Thailand.

² Department of Plant Science and Agricultural Resources, Faculty of Agriculture, Khon Kaen University, Khon Kaen 4002, Thailand.

* Corresponding author, e-mail: kula_esan@yahoo.co.uk

3 ระดับหลักคือ 1) ระดับครัวเรือน 2) ระดับฟาร์ม
ดำเนินกิจกรรม และ 3) ระดับสิ่งแวดล้อมในฟาร์ม
และชุมชน

คำสำคัญ: การเกษตรแบบเข้มข้น เกษตรปราณีต

INTRODUCTION

Intensive agriculture was common in old civilizations around Egypt, Mesopotamia, India, Pakistan, Northern China, Central America, and Northeast Africa (Dennis, 2009). However, intensive agriculture expanded into large sectors, so researchers had to consider developing a unit related to area and time (Herzog et al., 2006; Organization for Economic Cooperation and Development [OECD], 2009). Intensive agriculture increases production more than re-rotation or temporary agriculture and requires a larger area (Netting, 1993). Thus, intensive agriculture quickly spread around the world using farming technologies that depended on engine power and chemical fertilizers and pesticides; these modern agricultural practices gave rich countries control over raw products (OECD, 2009).

Intensive agriculture is called “Kasetpranit” in Thai. It does not have a real meaning; however, many researchers have tried to define it. For example, Phay (2005) cited local wisdom which provided the following definition: “Intensive agriculture (Kasetpranit) is integrated with agricultural practices starting from a small point to the biggest, to make from the simple to the complicated, not using chemicals, but reasonably starting from a small point for simulating and developing knowledge. This can be self-maintaining in the long term.” However, ‘intensive agriculture’ and Kasetpranit are different because “intensive” has a wider meaning, and when translated into Thai, it is complex and unclear. This research aims to find the meaning of Kasetpranit to farmers in northeast Thailand (Isaan region) and to identify guideline indicators of Kasetpranit for the development of agricultural practices in Thailand.

MATERIALS AND METHODS

Qualitative research was used to collect data because most data needed had to be recalled by the general farmers and focused on the interrelationship of the parameters involved in the activity and meaning of Kasetpranit. The study took place during March 2008 to December 2009.

Study site

The research took place in Khon Kaen province, Thailand. However, the study stretched across 11 villages in six districts in Universal Transverse Mercator projection zone 48 with the eastings and northings, respectively, shown in parentheses for each village: Chonnabot district 1 village (230905, 1775456), Banpai district 3 villages (268377, 1766345; 269945, 1770723; and 268926, 1774920), Phon district 2 villages (220426, 1741489; and 234292, 1746665), Wangnoi district 3 villages (217521, 1746941; 222472, 1748108; and 215208, 1748333), Wangyai district 1 village (232553, 1765644), and Nongsonghong district 1 village (271875, 1741029).

Data collection

Secondary data on intensive agriculture and Kasetpranit were reviewed to classify the items and indicators in terms of an academic approach.

Primary data were made up of group interviews with 160 farmers in 11 villages of Khon Kaen province. A semi-structured interviewing technique was also used via direct observation to collect information.

Data analysis

After data were collected from fieldwork, they were analyzed and reviewed. Incomplete or conflicting data were filled and clarified, respectively, during further interviews. Thus, this research used the content analysis technique to analyze data and the triangulation technique to cross check the data with literature reviews and experts in farming systems.

RESULTS AND DISCUSSION

Farmers' perception of Kasetpranit

Ninety-seven percent of those interviewed did not know or understand the meaning of Kasetpranit and 3 percent had heard this word from the indigenous population. The farmers thought that Kasetpranit meant 1) handiwork of Thai silk, 2) *Mud-Mee*, a tie and dye textile technique, 3) an agricultural practice that is difficult but with easy steps, or 4) using labor in the household. After the content was separated from their perceptions, the components in the pattern were 'beautiful', 'labor,' 'time', and 'resource'. However, Mahoo et al. (2007) reported to perception of farmer is presentation to base of practice so related to livelihood or history in the community.

Farmers' perception of Meaning of Kasetpranit

Information from the group interviews about the meaning of Kasetpranit showed that the term meant a smart agricultural activity with an unfixable pattern, so farmers should heed all of the processes and cover to perception of decision making of agricultural production. However, activity in farmlands must diversify, for example, by planting, raising animals, aquaculture, weaving, and handicraft, so the activity will be supported and integrated into the environment or ecological systems in farmlands. For farmland activity, household labor is significant. However, farmers must feel free to discuss and share the information on agricultural production and management of farmland. Accordance to report of Phay (2005) present to Kasetpranit should be considered with component in environment and activity in farmlands, so in the meaning of Kasetpranit opposite to intensive agriculture because it is practice in the large scale and concentration in yield of production of farmlands (Mateja, 2006 ; Antonio & Alberto, 2007).

Farmers' perception of Indicators of Kasetpranit

Indicators of Kasetpranit from the group interviews could be classified into 15 issues with the number of times shown in parentheses.

1. Intensive production such as culturing in rows or zones of planting; however, this is not compatible with the plate style. (105)
2. Time to take care of farm production. (96)
3. Agriculture is the major activity of farmers. (130)
4. The activity will increase production and income. (70)
5. Independence to produce; farmers have the freedom to discuss production, plantation, management, etc. (57)
6. Good for health. (125)
7. Agricultural production on farms can support family consumption. (50)
8. Household labor is labor intensive on farms. (93)
9. Agricultural practice relates to other activities such as handicraft or weaving. (60)
10. Agricultural activity on a farm must include planting and animal husbandry. (140)
11. Environmentally-friendly, chemical-free agricultural activity such as biodiversity. (117)
12. Farmland management: 1) water management, 2) soil fertility, such as plant selection or soil conservation, 3) suitable technology at a comfortable and low cost, 4) stability of production. (84)
13. Farmers will plan or develop strategies for production. (70)
14. Farmers will search for knowledge to support their activity. (62)
15. Farmers will be proud of their occupation. (72)

The information content could be classified as indicator units are human, management and environmental, as presented to content of Kasetpranit according to farmers' perception as shown in Table 1. Thus, indicators unit of analysis intensive

agriculture and content of units in term of an academic approach, such as production and environment (Mateja, 2006) or biodiversity in farm (Wolfgang, 2003) are shown in Table 2. However,

information on the academic and farmers' perception in unit to consider of the term Kasetpranitand level of intensive agriculture are presented in Table 3.

Table 1 Indicator units and content of Kasetpranit according to farmers' perceptions

Unit of analysis	Indicator	Content
Human	Family	• Household labor is significant
	Time	• Time to rest and relax • Number of activities on a farm
	Independence	• Decision systems to produce • Farmers' perceptions of their occupation
	Health	• Good health
	Knowledge	• Medium of perception formation, such as newspapers and television
	Income	• Having major and minor income to support themselves
Management	Pattern of growing	• Zone of plantation • Unfixable pattern
	Time	• Everyday agricultural activities • Full day of activities on a farm
	Production	• Enough for family consumption • Selling • Planting / raising / aquaculture • Activities harmonize with other activities • Year round
	Water	• Farm pond / underground water
	Income	• Enough to cover expenditures • Saving money
	Safety	• Chemical free
Environment	Food	• Can use product on the farm • Clean and safe chemicals
	Diversity	• Type of plants and animals
	Soil management	• Soil fertility • Management technique

Table 2 Unit of analysis and indicators from an academic perception

References	Unit of analysis	Indicators	Content
Mateja (2006)	Production area and effect on environment	<ul style="list-style-type: none"> • Value of nutrients from fertilizers • Wholesale pesticides • Average animal to land use ratio • Milk production to animal ratio • Consideration of organic farming systems and balance of soil-plant-animal-human-nutrient cycle 	<ul style="list-style-type: none"> • Database of production to import and export production to support the farm • Plantation and animal husbandry using sustainable natural, chemical-free production • Negative effect from farm processes on the environment and consideration of pattern formations such as integrated farming systems
Wolfgang (2003)	Indicators of biodiversity and agro-ecology on boundaries and practices in residential areas	<ul style="list-style-type: none"> • Production systems • Self-sustaining ecosystems • Geo-ecological systems 	<ul style="list-style-type: none"> • Consider suitable balance of parasites and predators • Relationships between ecological system and activity • Consider biodiversity of species in area
Antonio and Alberto (2007)	Evaluate function of land use systems for agricultural activity	<ul style="list-style-type: none"> • Traditional self-sufficiency agriculture • Conventional intensive agriculture • Sound, sustainable land use system 	<ul style="list-style-type: none"> • High: yield and ecology system; medium: culture; and low: economic • High: yield and economy; medium: social system; and low: culture and ecology • Sustainability of production. Economics and the medium level will be considered along with culture. So, ecology and society are at a high level
Herzog et al. (2006)	Whole area	<ul style="list-style-type: none"> • Nitrogen input for suitable to plant production • Animal Unit • Balance of suitable use of pesticide chemical 	<ul style="list-style-type: none"> • Low biodiversity of plants is related to a high level of intensive agriculture • Intensity of animal raising will decrease on permanent grassland • Big farms use intensive management, which can be correlated with farm size and density • Increasing the grassland size requires intensive management. The increase in nitrogen is correlated to the number of animals on a farm. However, it was significant in that it was a statistic of nutrient

Table 3 Level of analysis indicators between intensive agriculture and Kasetpranit

Unit to consider	Level of analysis		Unit to consider
	Documentary	Community	
Productivity to area and effect to environment	Regional		Human
Indicators of biodiversity and agro-ecology boundary and general practices in area	Regional and ecology in farmland	Farm	Practice to farm management
Assessment function and land use system of complicated agriculture	Farm		Environment
Land	Farm to regional		

Table 4 Level of analysis and indicators of Kasetpranit of farmers in rural areas in Khon Kaen province

Level of analysis	Indicator	Content
Ecology of community	Household	<ul style="list-style-type: none"> • Household labor is significant • Time for work in farmland about six hours per day • Time to rest • Participation of household members • The power to decide what to produce mostly comes from the husband
	Farmland small scale	<ul style="list-style-type: none"> • The main income comes from farm production • Multiple activities on the farmland, for example, animal husbandry, planting, aquaculture, weaving, and handicraft • Year-round activity • Enough water to support the farmland • Production can support the farmer's household consumption • Relationships between animals, plants, and aquaculture
	Environment	<ul style="list-style-type: none"> • Ground cover species • Biodiversity • Soil fertilizing • Cleanness of natural food • Chemical free

CONCLUSION AND RECOMMENDATIONS

The research aimed to develop indicators of Kasetpranit at the community level; thus this research was studied on small farms (0.75–5 hectares) for agricultural practices and differences

with “intensive agriculture” in terms of an academic approach. Thus, the effects of operations at a big farm level involving industrial agriculture could not be compared with the academic indicators and farmers' perceptions in communities in northeast Thailand. However, the research could classify the indicators of Kasetpranit at the level of the ecology

of the community as: 1) household, 2) farmland, and 3) environment, with their content presented in Table 4.

However, the research merely developed indicators of Kasetpranit at the community level, without generating a scale or score with which to weigh the indicators. Therefore, it is very important to carry out further research and apply the approach in other areas to check on the completeness of the indicators and to develop suitable weights.

ACKNOWLEDGEMENT

This research project was financially supported by Khon Kaen University Thailand in 2009.

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