

CABBAGE PRODUCTION IN THE VICINITY OF MAE HO^{1/}
MAE SARIANG DISTRICT, NORTHWESTERN THAILAND

การปลูกกะหล่ำปลีในท้องที่แม่เหาะ อำเภอแม่สะเรียง

by

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การผลิตกะหล่ำปลี (*Brasica oleracea* var. *capitata*) กำลังแพร่หลายอยู่ในท้องที่อำเภอแม่สะเรียง จังหวัดแม่ฮ่องสอน ศูนย์การผลิตอยู่ในบริเวณบ้านแม่เหาะเหนือซึ่งเป็นพื้นที่นิคมสร้างตนเอง ภายใต้การดำเนินงานของศูนย์พัฒนาและส่งเสริมชาวเขาจังหวัดแม่ฮ่องสอน ท้องที่แม่เหาะได้เปรียบกว่าส่วนอื่นของประเทศที่สามารถปลูกกะหล่ำปลีได้ดีในระหว่างฤดูฝน พื้นที่ระบายน้ำฝนได้ดีมีอากาศเย็น ปกติมีการใช้ปุ๋ยคอกและทำร่องระบายน้ำในแนวตั้ง พื้นที่ปลูกกะหล่ำปลีอาจมีถึง ๖๐๘ เฮกแตร์

ผู้อยู่ในขบวนการผลิตกะหล่ำปลีประกอบด้วยเจ้าของที่ดินซึ่งมีทั้งชาวกะเหรี่ยงและชาวไทยเหนือในท้องที่นี้ กรรมกรซึ่งส่วนใหญ่เป็นกะเหรี่ยง ผู้เช่าที่ดิน ผู้ซื้อกะหล่ำปลีแบบตกเขียว และพ่อค้าขายส่ง ซึ่งอาจจะมาจากที่ไกล ๆ เช่น กรุงเทพฯ ฯ ผลกำไรส่วนใหญ่ถูกถ่ายเทไปสู่กรุงเทพฯ ฯ และเชียงใหม่ จากการซื้อวัสดุอุปกรณ์ในการทำไร่ ผลประโยชน์ที่ตกแก่เกษตรกรท้องถิ่นมีน้อย

ปรากฏว่ามีผลกระทบต่องสิ่งแวดล้อมจากการปลูกกะหล่ำปลีอย่างชัดเจนในท้องที่คือมีการกัดเซาะดินสูงขึ้น มีการไหลบ่าของน้ำหน้าดินมากขึ้น และอาจมีการแพร่หลายของศัตรูพืชและโรคพืช ความล้มเหลวของการปลูกกะหล่ำปลีที่แคมป์สน จังหวัดพิษณุโลก เป็นข้อเตือนใจได้เป็นอย่างดี นโยบายสำคัญสำหรับท้องที่นี้เช่นเดียวกับอีกในหลายท้องที่ในสถานการณ์อย่างเดียวกัน ก็คือ จะต้องพยายามลดความขัดแย้งระหว่างผู้ใช้ที่ดินซึ่งประกอบด้วยชาวกะเหรี่ยงและชาวไทยเหนือพื้นเมือง ผู้ที่อพยพมาจากจังหวัดอื่นและหน่วยราชการต่าง ๆ นโยบายที่ดินจะต้องประสานการใช้ประโยชน์ทั้งทางภาคเอกชนและภาครัฐบาล หากพื้นที่ที่เหมาะสมสำหรับจะเป็นป่าไม้ไม่ได้รับการคุ้มครองป้องกันการผลิตกะหล่ำปลีก็อาจจะดำเนินต่อไปได้โดยแนะนำมาตรการในการอนุรักษ์ดินเข้ามาช่วย

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ABSTRACT

Production of cabbage (Brasica oleracea var. capitata) is flourished in Amphur Mae Sariang, Changwat Mae Hongson. The center of production is around Ban Mae Ho Hua, a resettlement area under the administration of the Mae Hongson Tribal Development and Welfare Center. The Mae Ho vicinity has advantage over other parts of the country in growing cabbage during rainy season, it possesses rapid drainage of rain water and cool temperature, use of cattle manure and vertical draining ditches are practised. The cabbage planting area may be as large as 608 ha.

People involved in production process are landowners who are local Karens and northern Thais; laborers who are mainly Karens; land renters, green-buyers and wholesale traders who may come as far as Bangkok. The principal shares of profit flow to Bangkok and Chiang Mai for farm supplies, contributions to local economy are small.

There are apparent environmental impacts of cabbage cultivation in the vicinity, i.e., higher soil erosion, water runoff and probable expansion of pests and diseases. Failure of cabbage production in Pine Camp, Pitsanuloke is a reminder.

Policy issues in this area, as well as many others in the same situation, is to reduce conflicts among land users which comprise the local Karens and northern Thais, new immigrants from other provinces, and government agencies. The land policy is to coordinate uses by both public and private sectors. If the hilly areas suitable as forest lands are protected, cabbage production may continue while soil conservation measures are introduced.

INTRODUCTION

The cabbage production area of Amphur Mae Sariang, Changwat Mae Hongson covers various villages situated between latitude 18°05' - 18°15'N and longitude 98°00' - 98°15'E (see map). Plantations are located near the highway to facilitate transportation of the crop to market,



Cabbage field in Mae To Hua, note the
vertical draining ditches.

and of fertilizer to the fields. Cabbage plantations can be seen when riding along the highway from Chiang Mai after crossing Huai Mae Om Long. The center of production areas is around Ban Mae Ho Nua then decreasing westward and almost disappears around Nam Mae Ka Nai. The plantations extend to distant villages such as Mae Rid, Mae Lai, Mae Waen and Kong Koi.

The production area is not a solid block but is scattered in the forests along rivers and streams where most villages are situated. Some villagers located far from the road carry cabbages to the road by elephants, but the area near the roads has lower transportation costs.

The Mae Ho Nua Village itself is a resettlement area under the administration of the Mae Hongson Tribal Development and Welfare Center. It is within a national reserved forest (Mae Yuam Fang Sai), but an agreement has been made between the Public Welfare Department and Royal Forest Department to cancel this status. A few years ago, the Public Welfare Department asked for approximately 37.87 km² for the resettlement program. In 1980 they felt that some steep areas were not suitable for resettlement. The Royal Forest Department asked to reclaim about 25.52 km² of the original area to use as forest plantations.

The Mae Ho vicinity is suitable for cabbage production: The soil is lateritic resembling the Pak Chong Series, rainfall is around 1200mm/year, temperature ranges from 5-40° C, averaging 24°C. Elevation ranges from 900 - 1200m.

THE CABBAGE PRODUCTION AREA

Cabbage (Brasica oleracea var. capitata) is a common cash crop that can be grown all over the country, usually as a winter (cold, dry season) crop. One advantage of growing cabbages in the hills in the vicinity of Mae Ho is that they can be grown in rainy season while most other parts of Thailand are not suitable for planting. The advantage comes from rapid drainage of rain water, cool temperature. Planting techniques in the hills include use of cattle manure and vertical draining ditches.

The cabbage of Mae Ho vicinity is renowned for crispness, palatability and low insecticide-content. The area supplies cabbage all year round but production reaches a peak during rainy season while other areas are incapable of producing.

In the past, the main cash crops of this area were swidden rice, and very small amounts of soybeans. Cabbage planting was introduced by residents of Mae Sa Rieng about 1970, or about years ago. They came to Mae Ho, and learned from trial and error until the best seed variety was selected and appropriate cultivation techniques were invented. The product was sold in Mae Sarieng and showed promising returns. Other farmers, northern Thais as well as the Karen, followed. Some of the cabbage growers living at Mae Ho Nua came from Hod, where their land was flooded as a result of construction of the Bumiphol Dam reservoir. Many of them have now become big proprietors. There are also farmers from Bangkok and other provinces who buy or rent land for cabbage production. We have learned that there are now about 100-150 cabbage planters in the Mae Ho vicinity. Of these, 50 are big proprietors with more than 1.6 hectares. The small planters are mostly Karens.

Data on areas of cabbage production are scattered and difficult to compile. For example, a survey by Mae Hongson Tribal Development and Welfare Center in 1980 (in the files of the Welfare Center) showed that there were 16 cabbage planters at Mae Ho Nua, and the area planted totaled around 5 ha. Data from Department of Agricultural Extension showed that the area planted to cabbage in Mae Hongson Province was 163.68 ha for planting year 2522/23 (1979/80) and 93.76 ha for planting year 2523/24 (1980/81). This information is not consistent with the fact that in this growing season (1981) the cabbage production area expanded considerably.

Interpretation by Mr. Prasong Sanguantham, Department of Forest Management, Faculty of Forestry, Kasetsart University, of Landsat 3 imagery taken on 27 January 1980 shows different categories of land as follows:

Agricultural land (steep of moderately steep)	360.8	ha
Rice field	4041.0	ha
Cabbage planting area	607.8	ha

It should be noted that relatively few cabbages are planted during the season when this image was taken.

Interpretation of the single black and white Landsat image is difficult. Field observations suggest that the cabbage production area is large, perhaps as large as the Landsat imagery interpretation suggests, but the accuracy of distinguishing different categories of land use from each other is low.

PEOPLE INVOLVED IN CABBAGE PRODUCTION

Cabbage production in the Mae Ho vicinity involves many different groups of people. In the first place, the traditional users of the land are local Karens, who traditionally respected individual use rights to the land. Northern Thai, who recently migrated into the area acquired lands from the Karens by various means. The ownership of lands is usually right of usufruct, traditionally accepted. Land held in this manner may be exchanged without legal procedures. Actually most lands in this vicinity are in the status of national reserved forest, even though some parts of the forest are being transferred out of this category. Land renters, who may be big local planters, or may come from other provinces, sometimes as far away as Bangkok. Laborers who earn money on a daily wage or contract basis, are mainly the Karen. Few are Northern Thai who live in the villages or migrate from other places. When the cabbages have been planted, there may be a green-buyer or a middleman who comes from Mae Sariang or nearby areas. The middleman buys and takes care of the cabbage until it is ready to resell. In one example, the green cabbages were bought (in the field) at 7,000 baht for an area of about 2 rai (one rai = 0.16 ha) then resold at 20,000 baht yielding a large profit. There are also wholesale traders who come from Chiang Mai and Bangkok (especially, Pak Klong Ta Lat). These merchants may buy cabbages in the field by the

rai or harvested cabbages by the kilogram, and then transport them for resale in their provinces.

THE PRODUCTION PROCESS

Lands for cabbage planting may be obtained either by buying or renting. Rate of rent varies widely and may be from 50 baht to 500 baht per rai. Sometimes the rent is a lump sum, e.g., 2,000-3,000 baht per field of 3-5 rai. The land can be "bought" but without title of ownership because most lands are under status of national reserved forests or have been classified for resettlement under the Tribal Welfare Division. One informant reported that he "bought" his land from the Karen at 2,000 baht per rai.

Land preparation is done on contractual basis, 200-300 baht per block of 1/2 rai, or for a lump sum, for example, 2,000 baht for a land area of 6 rai. Sometimes tractors are used at 180 baht per rai, followed by hand labor to complete the preparation. Before planting, cattle manure may be applied. This is done by laborers who receive a wage of 30 baht per day. Cattle manure is obtained from Mae Sariang or Mae La Noi areas. The price is around 300-400 baht per pick up truck (about 6 tons) f.o.b.

Cost of seeds for a can of 440 grams is 1,000 baht. This amount is called 1 pound, and can produce seedlings to plant in 6-8 rai. Smaller cans of 1/4 or 1/8 pound are also available. Because this variety of cabbage is hybrid, with seeds imported from Taiwan, seeds cannot be produced domestically for commercial purpose.

In the Mae Ho vicinity, cabbages are planted along the hill slope during the rainy season, but in winter they are planted only on the plain where water is available. Production of rainfed cabbage begins around the end of April, the process starts with nursery work to prepare seedlings. This takes around 25-30 days. Transplanting into the field takes place early in May. Seedlings are spaced at 70 cm. between row and 60 cm. between plants. There are two varieties which can be harvested within 90 and 120 days, respectively. The process of planting can be

continuous as long as there will be rain. Thus the rainfed cabbage is supplied through the rainy season, and the hill slopes are left fallow in winter. The cabbage production then moves to flat stream side locations with irrigated water.

Additional work on the rainfed cabbage may be done before the harvest. Insecticides are sprayed 3 times per growing season by some big planters. This spraying is commonly done once a week in other areas. Weeding (by hand) is sometimes required in rainy season if grasses and climbers are growing rapidly. For these kinds of work, laborers may be hired at 30 baht per day.

ECONOMIC INCENTIVES

The boom in cabbage production in Mae Ho area has certainly been induced by economic incentives. As mentioned earlier, the people from Hod started experimenting with this plant about 10 years ago. The profit obtained from this venture had a demonstration effect on both the Karens and Northern Thais. The suitability of climate and soil, and low cost of land and labor helped the expansion of planting areas.

More recently, renters and middlemen recognized the profit margin and started investing. The District Agricultural Officer informed us that in the planting year 1981, the area increased around 48 ha.

The price of cabbages sold on site varies considerable. It can be bought per rai or per kilogram. For per kilogram basis the range of 3-5 baht has been reported, this will leave some profit margin after costs of transportation, marketing, etc., are subtracted. The per rai basis will yield lower return but planters receive easy money.

The largest shares of profit go to big planters, middlemen, and wholesale traders. The native Karens who are small planters receive a smaller share, but Karen wage earners have opportunity for employment which otherwise would not exist. In addition, cabbage has implications for overall economic development: new technologies have been introduced, such as plowing by tractors, spraying with insecticides, and big planters

are experimenting with the use of chemical fertilizers. Some of the investment goes to the two farm suppliers in Mae Sariang. A large part of the investment flows to Bangkok and Chiang Mai for farm supplies.

The cost of land at present, is relatively low. It will increase in the future due to demand for forest plantations by the Royal Forest Department. The government policy of land reform will also keep the big owners or renters of land from expanding their planting areas.

Competition among growers could have the effect of lowering prices and thus exert a negative incentive to grow more cabbage. Conflict of land use between the local Karens and the Thai Government in this area may create a sensitive atmosphere in which investors may hesitate to do business.

ENVIRONMENTAL IMPACTS

There are apparent impacts of cabbage cultivation in Mae Ho Vicinity: soil erosion, water runoff and probable expansion of pests and diseases.

As regards erosion, rainfed cabbages are grown on hilly slopes. This type of land is usually classified as land which cannot be safely cultivated at any time and must be kept in permanent cover such as pasture or forest. Soil fertility has been maintained each planting season by use of cattle manure. When subsoils are already eroded it is doubtful that how long soil fertility can be maintained.

Another problem is the heavy rate of runoff. Flash floods are common along the Mae Hongson highway, experience from other areas suggest that mountainous areas with wide clearing of lands can cause severe floods. These phenomena have been seen in Tak, Nan and Chiang Rai where shifting cultivation along the hill side was extensive.

The problem of pests and diseases usually appears where monoculture is extensively practiced. The District Agricultural Officer is of the opinion that large area of cabbage cultivation might induce insects and diseases. In some cases, use of insecticides may create resistance

from those insects.

One experience of cabbage growing in Pine Camp, Pitsanuloke Province showed that such production flourished and then withered away^{1/} This was due to combinations of the three environmental impacts mentioned above.

POLICY ISSUES

Problems of land rights in the Mae Ho vicinity are difficult for the Thai Government to solve. The local Karen have lived on this land for generations. They practiced shifting cultivation which traditionally had only minor environmental impacts. Once shortages of lands occur, and conflicts among use rise, the problem is both political and environmental.

At first, the Mae Hongson Tribal Development and Welfare Center was given responsibility to suppress shifting cultivation and provide welfare to the hill tribes, mostly Karens. Then many agencies of the Royal Forest Department began developing forest plantation programs with the intent that areas under the status of the national reserved forests should be kept as a forest. These actions have been the basic conflict over use and ownership of lands traditionally used by Karens for swiddening. The conflict may lead to political unrest if proper solutions are not found.

The land use policy here is to coordinate uses by both public and private sector. Programs must be devised to draw the Karens into fixed areas, and their welfare has to be insured. At the same time, expansion of the cabbage production area must be halted and probably the area under cabbage should be reduced. If the hilly areas which are suitable for classification as forest lands are protected, cabbage production may be continued, and some measures of soil conservation may be introduced. If the area is expanded freely, the history of the Pine Camp in Pitsanuloke may be repeated.

^{1/} Personal communication with Mr. Banjong Sikkhamonthol, Horticulture Division, Department of Agricultural Technique, Ministry of Agriculture and Cooperatives on 2 July 1981.

