CHAPTER 4

Producing the Commodified Nature: The Production of Hybrid Seeds and Competition among Companies

4.1 Introduction

Prior to this chapter, Nan Province and farmers in a village were described in order to show that seeds in such the context have become a nexus of inter- and intra-state governance, global market forces and the socio-environmental movements, meanwhile both rice and vegetable seed production and conservation have been promoted amongst GOs, NGOs and seed companies in Nan Province. In this chapter, the contract farming for hybrid vegetable seed production has been conceptualized as "the production of nature" (see Castree 2005: 160 - 166) as a part of the capital accumulation for the growth of the global seed industry. Thus, while the small-scale farmers in rural areas have been engaging with the hybrid seed production for global seed companies, "nature" in this circumstance has been internalized into the production and labor processes, contributing to the commodification of nature for generating profit. By this, producing the hybrid seeds in TK farmers' livelihood landscape can reflect the commodification of nature that re-shapes the certain relationship between farmers and nature in the neoliberal era.

Furthermore, the hybrid seeds had been attached with neoliberal regulations of plant genetic resources, like the privatization of plant variety under the PVP B.E. 2542 Act. Simultaneously, the control of the seed companies had been embedded in the production and labor processes. To put it more strongly, the capital accumulation of seed companies, as this chapter will show, was possible through technologies of control influencing temporal and spatial arrangements. Additionally, the technologies

of the self were employed in order to ensure that the farmers would effectively direct their efforts to produce hybrid seeds for the companies. Still, this chapter will show that there were limits to control while farmers employed their coping strategies in engaging with the seed companies. Their coping strategies have re-shaped the livelihood landscape and the utilization of plants simultaneously.

There are four main parts in this chapter. The first part details the formation of the links that have integrated farmers of a village into the global seed companies, while contract farming has expanded in rural areas, leading to the changing farmers' livelihood landscape. The second part illustrates how the seed companies controlled the producers through technologies of power found in the production and labor processes. The third part, with the notion of agency, shows the farmers' negotiation. Importantly, as we found in Chapter 3, not all farmers could be integrated into contract farming, and, in contrast to the poor and landless households conditionally excluded from the contract farming, the (upper and lower) middle-income and well-being household groups could engage with the globalization of the seed industry as part of their livelihood struggles under the neoliberal globalization. The last part is the chapter conclusion.

4.2 Transforming to the contracting farmers

The transformation of small-scale farmers in Thailand into contracting farmers had occurred under the Sixth National Development Plan since the late 1980s. In TK Village, farmers had engaged with tobacco contract farming since the 1980s. This can pinpoint to the spread of the tobacco industry as a state enterprise in specific areas in Northern Thailand, like TK Village. However, this part pays more attention to the hybrid seed production in order to understand how the small-scale farmers had been integrated into the global seed market in the neoliberal era.

In TK Village, the integration into contract farming in relation to hybrid seed production formed a new image of farmer in relation to hybrid seed production. In December, 2009, a 55-year-old female farmer, Mae Kwaun, told me about how to differentiate the farmers who had become the hybrid seed producer in comparison to

"Chao Na" (a Thai term in general for peasant). She told me that the word, "Chao Suan Pha Som", or a hand-pollinating farmer, could be seemingly matched with this production activity. In other words, this new farmer image emerged from their new experience with hybrid seed production. This image might be not applicable for the contracting farmers in other agro-industries because it is attached to a practice of hand-pollination found only in hybrid seed production. To say more, "Chao Suan Pha Som" had emerged from the expansion of the global seed industry in the North of Thailand just a few decades ago.

While we can see the role of GOs in promoting the villagers to set up rice and vegetable seed production groups (see Chapter 3) and state policies to support the growth of the seed industry under the Asian Seed Hub agenda (see Chapter 2), the relationship between seed companies and farmers in contract farming for hybrid vegetable seed production seems to have not been monitored much by the state extension officials. This does not mean that the state was no longer an important actor and there was only the agri-business that monopolized the socio-economic relationships in the terrain of contract farming. This was because so far this model of economic development had become one of the apparatuses, or politico-economical strategies, to govern the farmers. Thus, it might be rightly said that the population and nature have been governed by the state through market regulations in the neoliberal era. This can be seen as a form of neoliberal environmental fixes (Castree 2008b) that the state rolled out and let the companies govern property relations, reconfiguring access to resources and production processes.

According to the head of Tha Wang Pha Agricultural Office (Personal communication in 2009), officials would not intervene in the relationships between farmers and contracting companies in villages where the contract farming scheme was launched. He said that:

> "The state official will not intervene in the seed production areas. It is rare to find the co-optation between the state extension officials and the seed company staff. I mean they (the state extension officials) just observe (know but not

intervene) how the seed company staff deals with farmers in the village. Both parties (the state extension official and the seed company staff) do not join their work."

Perhaps, this might have occurred only in the case of Tha Wang Pha District, that the co-optation between the state extension officials and the seed company staff had not been implemented. If it was like what the head of Tha Wang Pha Agricultural Office said, the farmer and seed company relationship in the contract seed production in this place has shed light on a different story because it has not addressed the integrated 4 alliances (state – agribusiness – investment funds – farmers) since the late 1980s, when the contract farming was promoted by the Sixth National Development Plan (see Chapter 2).

In fact, it might have been different from the chili farming, which could also have been found in many villages in Tha Wang Pha District. In 2011, for example, when chili prices declined and there were conflicts between the middlemen and farmers, farmers in Tha Wang Pha gathered to call for government subsidy (ASTV Manager Online 2554). Indeed, such conflicts might have been left for the farmers and the companies to deal with each other in the fields if there was no protest by farmers. The phenomenon was also found in other cash crop production under contract schemes, such as garlic and corn. Walker (2012: 129) found that the local state extension officials denied to cope with the problem of delayed payment between the contracting companies and the garlic farmers in Chiang Mai. In contrast, it was found in the work of Jamaree Chiengthong (2013: 141 - 153) that the Thai government, with efforts to solve the farmers' protest, changed the liberal regulations and turned to set up protectionist policies blocking the flow of corn across the border in order to help domestic farmers.

But if the government left contract farming for seed production as a territory for the farmers and the companies to govern themselves, how could the small-scale farmer in TK Village be connected and transformed into a hybrid vegetable seed producer under the contract farming scheme? Indeed, there were still heterogeneous actors who became mediators in different nodes and places. In her study about the

contract farming in the cross-border trade of corn (both seed and grain) between Thailand and Laos, Jamaree Chiengthong (2013: 181 - 184) saw that informal contracts and social relations, such as kin relationship and trust built up over a long history and face-to-face interactions between the small-scale farmers, the local brokers and the middle traders along the frontiers, was important for capital accumulation, although the governments of both countries had attempted to emphasize on the formal trade contract. In Tay's (2002: 130) work, not just the ecological conditions but trust as a social condition has become an important factor considered by seed companies for selecting production sites for hybrid seeds in developing countries where the contract agreements have been respected and maintained between seed companies and farmers.

In TK Village, when I interviewed farmers whether or not they had signed any production contract with the seed companies, they told me that they did not need to sign any contract. Actually, they used to do it in the early period that Chia Tai Company introduced contract farming to the village. This meant that the contract relations between the companies and TK farmers did not rely mainly on the formal written contract but the verbal agreement. This relationship might reflect how both parties trust each other. Elsewhere, the contract relations had appeared as reciprocity between the equal parties. However, for Clapp (1994), this can be seen as a hegemony that had naturalized the unequal social relations and concealed the unjust control of the contracting companies. Walker (2012: 127) found that in the case of contracting companies in Chiang Mai Province formal written contracts would be used by the companies, but, after the relationship between the companies and the contracting farmers were well organized, informal verbal agreements were used instead. In TK Village, changing from formal to informal verbal agreements was not a simple relationship, per se. Indeed, this reflects the hegemonic relation, between the companies and farmers, based on the term "Sun-Ya-Jai" (literally means "the promise by heart", implying trust). This called for an effort by both parties to keep a heart of gold that has kept the farmers and the companies connected.

Also, this social value can be seen in the company title of Chia Tai. For the Chinese term, "Chia Tai", the former refers "being sincere, honest, and moral", while

the latter means “great” (see Chia Tai Company Limited 2006: 31). In other words, the contracting companies have employed both formal and informal relations in capital accumulation (Jamaree Chiengthong 2013: 181 - 184). This can imply that there had been different mediators in several nodes and places for several relations. Thus, the roles of lay people should be taken into account for the analysis of how the farmers were integrated into the global seed industry and transformed into hand-pollinating farmers, or “Chao Saun Pha Som”. In the case of TK Village, the role of the brokers and kin relations will be explained in the next part.

4.2.1 Farmer brokers and kin relations

The roles of broker and kin relations are important as it facilitates the embedding of contract farming into the livelihood of the farmers in TK Village. When I started my fieldwork in 2011, there were two brokers in TK Village. Both of them could have been classified as members of the well-being household group in the village. One was a 42-year-old farmer, Mr. Wiran, who once was a broker collaborating with Chia Tai for a decade but later changed to deal with East-West Seed. Another one was a 27-year-old extension staff of Chia Tai, Mr. Hut, who later became a son-in-law of 53-year-old ex-headman of TK Village, Paw Kiet. Wiran and Paw Kiet shared the same kinship. I first met Hut in TK Village in August, 2009. I told him that I was not a staff of an NGO, but a PhD student conducting research on hybrid seed production in order to see whether or not it could be a new economic opportunity for TK villagers. This made him feel more comfortable to talk to me about his work under Chia Tai Company and his engagement with TK farmers.

In the village, the household of Paw Kiet could be seen as a well-being household. Based on the Basic Need Survey by the government in 2013, Paw Kiet’s household could earn 560,000 baht a year. He owned 4 rai for paddy fields and 8 rai for orchard farms. In 2005, he began being a contracting farmer who utilized 2 rais of his paddy field in the dry season after the rice harvest for producing hybrid seed under Chia Tai Company. In TK Village, 74 out of 129 households, or 57.3%, belong to the

same kinship of Paw Kiet. This might be one answer to why he was elected as a member of the Tambon Administrative Organization in 2013.

It seems that both Hut, with Paw Kiet's kinship, and Wiran attempted to persuade farmers in the village to join the contract farming, even though they dealt with the same seed company, Chia Tai. Hut also relied on his father-in-law, Paw Kiet, to assist in this task. One example is a 65-year-old farmer, Mr. Sung (Personal communication 2011) who I interviewed in TK Village. One day, I met him at his paddy field, watching his son ploughing the fields. I asked him if he used to produce hybrid seeds for Chia Tai. Mr. Sung told me that he did. He noted that he had joined this business because the ex-headman persuaded him. "He (Mr. Kiet) asked me to try, so I tried", said Mr. Sung. But, he tried only one crop and then stopped because he saw that it was too intense for him and his wife. This example can help to interpret that some older farmers did not engage with contract seed farming because of the intense labor process in the hybrid seed production.

Prior to marrying the daughter of Paw Kiet, Hut (Personal communication 2009, 2012) lived in Kalasin Province in Northeastern Thailand. He finished his BA in agriculture from Khon Khaen University. After his graduation, Hut became an extension staff of Chia Tai Company, being responsible for promoting and monitoring the hybrid seed production by 120 farmer households in TK Village and other nearby villages. He then rented a one-storey building near the market place in TK Village and became engaged with Paw Kiet's daughter in 2009. As son-in-law of Paw Kiet and staff of Chia Tai, Hut had to deal with both sides. Indeed, he seemed to take sides with the TK farmers. Because of this, his boss complained about him and insisted that Hut had to care about and protect the company's profit more than the farmers' because he received a salary and bonus from the company. Under this pressure, Hut decided to quit in 2011 and find a new job as a salesman working for an agricultural chemical company in Bangkok. With his new job, Hut used this opportunity to distribute agricultural and chemical products by opening a new agricultural shop in TK Village. This shop was then managed by Paw Kiet and his wife. Thus, the main broker in TK Village became Mr. Wiran.

In TK Village, Wiran (Personal communication 2014) told me that the number of households that used to participate in the contract farming was around 70-80 households. On the day I interviewed him, when being asked about the updated number, he estimated that there were around 60 households, according to his experience as a broker for the decade prior to the coming of Mr. Hut. So far, in the village survey about farmers engaging with contract farming in 2013 by this research, there were 44 households out of 129 households in total.

Wiran was also an assistant of the chairperson of the local irrigation organization that managed the water supply from a weir that blocked the Yang River. Thus, he knew about the conditions of the farmers and the locations of their paddy fields. Wiran's household earned 220,000 baht in 2013 according to the Basic Need Survey of the government. He owned 10 rai for paddy fields and 15 rai in other villages where he let his brother grow corn.

Prior to becoming a contracting farmer and later a local broker, Wiran earned his income through many activities, including on-farm and off-farm sectors. Wiran finished his education in the primary school level. When he was 18 years old, or around 1990, he followed his neighbors to work as a wage laborer for a few months in other provinces, such as Utraradit and Sukhothai, for sugarcane and groundnut harvest. At that time, TK villagers did not go to Bangkok to work in construction sites directly but would start from sugarcane plantations. Then, these farmers would move to Bangkok in order to find a new job in the construction sites. Some also went abroad to work as a wage laborer in construction sites for higher pay (see also Chapter 3). Most farmers would migrate to find a job to earn income in order to maintain their household consumption after they finished cultivating rice as a staple food. One reason for the temporary and long distance migration of TK farmers, as Wiran explained to me, was that the rice production and income from the on-farm sector were low. Although the farmers in TK produced crash crops, such as tobacco under contract farming for the local tobacco plant and chilies for the middlemen, the price of both crops was not attractive enough. For example, the dried chili price offered by the middlemen was 4 - 5 baht per kilogram in 1996.

As Wiran told me, he noticed that many farmers could not save money, even though they stayed longer in other provinces to earn more wages or even got a chance to work in the construction sites abroad. Thus, he ceased to work as a wage laborer in Bangkok and returned home in 1993 while the farmers' migration to earn income still continued. After returning home, Wiran made his living as a farmer growing rice and cash crops. He became a contracting farmer from his personal relationship with a man in a nearby village, Mr. Sanit. Indeed, Sanit had worked as an extension staff of Chia Tai Company and was responsible for recruiting the contracting farmers in two districts, Wieng Sa and Chiang Klang. Thus, in 2000, six farmer households in TK Village, including Wiran's, had started to produce vegetable seeds under the technical advice of Sanit. This is a point of departure prior to the present status of Wiran, who became the local mediator dealing with seed companies and his fellow farmers in TK Village.

The role of Wiran as the mediator is interesting because he had to maintain the relationship between the seed companies and farmers in TK Village. This could be seen especially when there were two brokers, Hut, as a son-in-law of Paw Kiet, and Wiran himself. All of them shared the same kin. To avoid direct confrontation, Wiran ended his role as the broker of Chia Tai Company in TK Village and left this role for Hut and Paw Kiet. However, Wiran later initiated contact to the other global seed companies, like Monsanto and East-West Seed. His fellow farmers also changed their contracts from Chia Tai to Monsanto. Notably, Wiran was the key person who made the first link to Chia Tai Company in 2000 and then built up the new links to Monsanto Company and East-West Seed Company after 2011.

The way that Wiran created the link to the global seed companies reflected his agenda to choose the good companies. This means that it was not just the companies that attempted to find desirable conditions for their hybrid seed production. Wiran told me that the reason why he brought Monsanto and East-West Seed to TK Village was actually based on two main factors. Firstly, Chia Tai Company had recently set up a seemingly enforcing condition: if the farmers accepted to grow cucumbers, they were allowed to grow other crops. That means, growing cucumbers was required if the farmers wanted to grow other crops for seed production, such as pumpkin,

cantaloupe, and gourd. The higher number of cucumber seedlings grown, the higher of other crop seedlings would be provided. Secondly, Wiran wished the seed companies competed with each other rather than seeing one company set monopolized conditions for farmers in the village. As he explained to me, this could be a better condition for farmers because companies would provide increased pay in order to attract and maintain the number of farmers joining the hybrid seed production. Some farmers I interviewed also told me that they noticed the changing atmosphere, especially the delay in payment after sending the seeds back to the company. It seemed that they could get their payment faster than in the past when there was only Chia Tai Company in TK Village.

But because Monsanto, according to Wiran, encouraged farmers to produce the hybrid tomato seeds which need more intensive production, farmers in TK were no longer interested in joining this company. Thus, Monsanto was accepted in TK for only one year. By this, it also means that in TK Village, not only the farmer brokers but the small-scale farmers who were also interested in earning income from getting entry into this economic sector became important to understand. Based on Wiran's story of Monsanto coming and leaving, this can point out that these small-scale farmers were also actors who, in part, reshaped the global production of hybrid seeds. In other words, not just the broker but the farmers also selected and negotiated with the contracting company in order to benefit from their relations. The case of Hut, who at last quit, was a manifested example for such interactions. Elsewhere, Walker (2012: 126 - 131) also found that it was not easy for the companies to impose their power on the farmers in Chiang Mai Province when they engaged with contract farming. Walker (2012: 126) proposed that "In the everyday exercise of power within rural political society, contracting companies have to operate in an environment where there is considerable competition for the land and labor of farmers. In this climate of economic diversity and choice, companies cannot simply impose their will. Inevitably, they are drawn into locally valued systems of sociality and exchange".

Based on Mr. Hut's explanation about the flow of hybrid seeds, I also drew a figure in order to better illustrate the linkage of TK farmers and the seed company (See Figure 4.1)

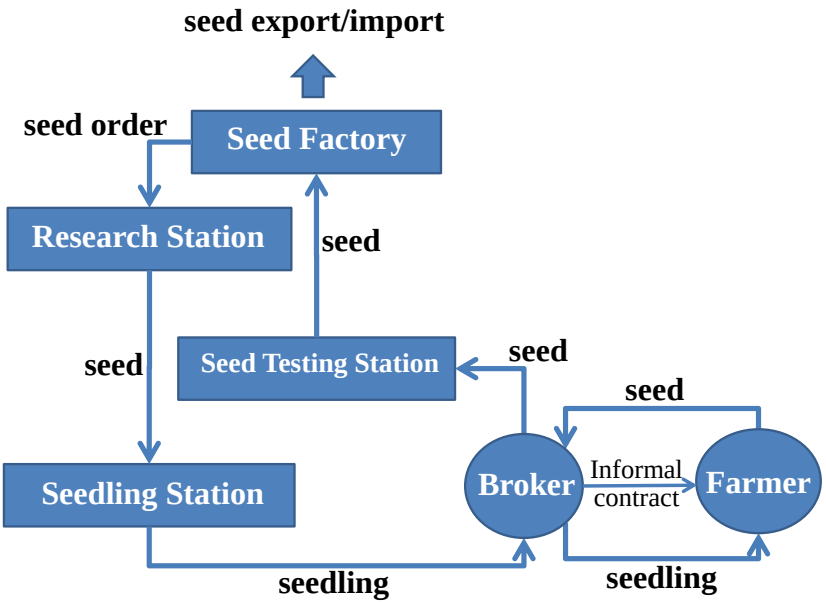


Figure 4.1 The model illustrating a linkage of brokers and farmers in the broader production line of the global seed company

When tracing from the position of Wiran and Hut with Paw Kiet in the Figure 4.1, this helps to understand how lay people with some capacities were important as actors who could make the global linkage possible and re-shape the global seed market integration in their place. In the next part, I will show that the production and labor processes have been merged into the livelihood landscape, while the small-scale farmers have engaged and transformed to be the contracting seed producers.

4.2.2 Merging the contract farming in the livelihood landscape

This part explains more about how contract farming as a neoliberal culture of labour merged with and transformed the farmers' life and the production landscape. As an ex-field staff of Chia Tai Company, Mr. Hut (Personal communication 2012) told me that the company realized that TK farmers wanted to use their lands intensively in order to produce cash crops after the rice growing season, but the farmers occupied small plots on average. Also, they already learned from each other the skills in cross pollination. Thus, the hybrid seed production with a higher income was more preferable when compared to fresh vegetable production. The companies, according to Hut, found that it was more difficult to persuade the farmers in Santhisuk

District to join because these farmers could access the large cultivated areas in the upland forest and transform them into corn farms. Thus, the farmers did not pay attention to the intensive farming for hybrid seed production. Somehow, I argue, the land use in Santhisuk District is more complicated than understanding it only as the ignorance of the farmers. This is because it involved the conflicts of protected areas where the small-scale farmers struggled over the land access. The intensive use of small land in the hybrid seed production was less interesting for the farmers who negotiated with the state to access to the forest land.

In 2012, there were three global seed companies running their businesses in TK Village: Monsanto Thailand, East-Wet Seed and Chia Tai Company. Chia Tai Company had been established since the 1920s and ran its business in Thailand by importing vegetable seeds from China (see Chia Tai Group 2009). This company might not be recognized among the top ten global seed companies, but it is too soon to underestimate Chia Tai in the globalized market. We need to see Chia Tai, at present, as a company under the giant agro-business corporation Charoen Phokpand Group (CP Group) (see Chapter 3). At the same time, Chia Tai had its business connection with the other global seed companies through the sub-contract production. While TK farmers had worked under the contract farming of Chia Tai, the materials they were producing were sometimes sent to other global seed companies, like the Japan-based seed company Takii. This Japan-rooted seed company had a key role in the seed technology transfers for Chia Tai (see Chia Tai Company Limited 2006: 57). After 2011, two newcomers arrived. Monsanto just started its new production site in TK. There were twenty-two farmer households in TK relying on contract farming for hybrid tomato seed production. Nine of those farmers worked for East-West Seed Company.

The expansion of the global seed industry with the intensive labor extraction had reshaped the cropping pattern and the labor use in TK Village, as farmers had to prepare their paddy fields for growing the vegetable seedlings from the companies. Many farmers told me that they preferred the early mature rice varieties because they would have more time for cash crop production after rice harvest. In past decades, after the rice cultivation season, TK farmers might migrate to find jobs because the

cash crop price decreased until it was not worth using the land for production. But, after seeing that they could earn their living through contract farming, more and more TK farmers turned to stay in the village and use their paddy lands intensively throughout the year. Table 4.1 can show how farmers in TK Village adjusted their livelihood to cope with both rice production and contract farming for hybrid seed production.

Table 4.1 The production activities of TK farmers in 2012 survey

Month	Rice	Chili	Bitter gourd	Cucumber	Watermelon	Pumpkin	Cantaloupe
Jan	Boon Koa Mai ritual				harvest		
Feb		harvest	Seedling trans-planting			Harvest	
Mar							
April			Hand-pollination				Seedling trans-planting
May	Sowing seeds in paddy fields located in south TK		Harvest				
June	Sowing seeds in paddy fields located in north TK						Hand-pollination
	Transplanting in paddy fields located in south TK						
July	Sowing seeds in the rain-fed paddy fields						

Table 4.1 (Continued)

Month	Rice	Chili	Bitter gourd	Cucumber	Watermelon	Pumpkin	Cantaloupe
	Transplanting in the paddy fields located in north TK						
Aug	Transplanting in the rain-fed paddy fields						Harvest
Sept	Rice protection						
Oct	Harvesting the early mature rice	sowing		Seedling trans-planting	Seedling trans-planting		
Nov	Harvesting the long mature rice	Seedling trans-planting		Hand-pollination	Hand-pollination	Seedling trans-planting	
Dec				harvest		Hand-pollination	

Source: A survey by the researcher

Since 2000, after contract farming for hybrid seed production was gradually accepted by TK farmers to earn income after rice harvest, there were just a few households joining this business. Then, in 2013, there were 44 households out of 129 households (34.1%) in TK Village that joined contract farming for vegetable seed production for the global seed companies (see Table 4.2). This meant that more and more farmers had been transformed into hybrid seed producers. Based on the household survey of this research, it was found that more households from the upper-middle income group joined the contract farming for hybrid seed production than the other groups. This might not be surprising because the middle-income household group was the largest sector in TK Village. In other words, not the poor and rich but the middle-income group was the main population group in TK Village. Notably, the survey also found that, although more small-scale farmers engaged with this new

economy, there was unequal distribution of benefits emerging in the contract farming scheme. To say more, this survey confirmed a similar socio-economic problem that Little (1994) found in his study on contract farming in Africa; the poor were still conditionally excluded. This was due to the poor households having less capital, such as land access, labor force and income.

Table 4.2 TK household engaging with hybrid seed contract farming in 2013

Type of Household	**No. of Household (n=56)**	**Average Size of Paddy Field (rai)**	**No. of Household Engaging in Contract Farming for vegetable seeds**
Rich (>200,000 baht/year)	9 (16%)	4.13	6 (10.71%)
Upper-Middle (100,001 - 200,000 bath/year)	38 (67.8%)	3.55	19 (33.92%)
Lower-Middle (50,001 - 100,000 baht/year)	7 (12.5%)	2.96	1 (1.7%)
Poor (< 50,000 baht/year)	2 (3.5%)	0	0 (0%)
Source: the household survey by the researcher			

Based on the 56 households in TK Village randomly surveyed by the researcher (see Table 4.3) in order to see the households that had joined the contract farming in 2013, the poor households did not engage with this business, while farmers in other household types did. When considering land use, it was found that the rich, the upper-middle income and the lower-middle income households used around 2.41, 1.51 and 0.75 rai of land on average, respectively, for hybrid seed production. Most of the farmers in this survey finished their education at the primary school level, decreasing their choices of occupations. When I asked them about their migration to find on-farm and off-farm work in the other provinces, they said that they earned their

wages by working on construction sites, on sugarcane plantations, as cleaning staff in shopping malls, or as housekeepers.

Table 4.3 TK household and land use in 2013

Type of Household	**No. of Household (N = 56)**	**Education** [P: primary, H: high school, U: University]	**Average Size of Land Occupied (rai)**	**No. of Household Engaging in Contract Farming for vegetable seeds**	**Average Size of Land for Hybrid Seed Production (rai)**	**Average Size of Land for rice Production (rai)**
Rich (>200,000 baht/year)	9	P:6 H:2 U: 1	5.27	6	2.41	4.13
Upper-Middle (100,001 - 200,000 bath/year)	38	P:30 H:8	5.58	19	1.51	3.55
Lower-Middle (50,001 - 100,000 baht/year)	7	P:6 H:1	6.1	1	0.75	2.96
Poor (< 50,000 baht/year)	2	P:2	0.25	0	0	0
Source: the household survey by the researcher						

Under the contract farming, the production and labor process by TK farmers can be seen in three stages according to crop growth, including the vegetative stage, the flowering stage and the harvesting stage (see Figure 4.2). In the first stage, farmers took the seedlings from the companies to be grown in the prepared plots. In the second stage, farmers crossed the prepared flowers for producing the hybrid seeds by pollinating thousands of flowers in the short blooming period. The last stage was seed harvest, in which farmers gather only seeds and mostly throw the flesh away if they could not utilize it for any purpose. These stages required certain agricultural practices, not just responding to the company schedule but also the crop's life cycle. To say more, farmers had to adjust their life to the different life cycle stages of each crop.

For example, for pumpkin pollination, famers needed to cut the male flowers in order to collect the stamen needed for hand-pollination the next day and pinch the female flowers from late afternoon, around 2 pm, to late evening, around 8 pm. Then, in the early morning of the next day, farmers made the cross pollination from 4 am until 9 am. A large number of flowers meant an increased workload for the pollinating farmers as well as higher income from seeds. These processes also depended on the blooming period of different kinds of vegetable. For other plants, the cucumber flowers were ready for hand pollination in the early morning, while the gourd flowers blossomed in the late afternoon. As such, farmers needed to adjust their working hours in relation these different blooming periods.

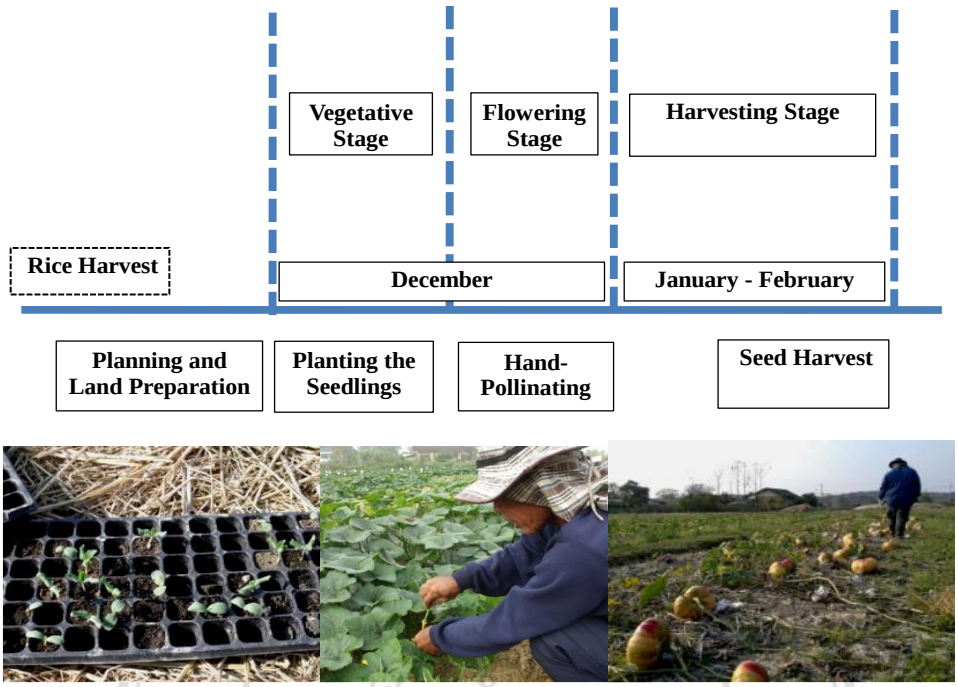


Figure 4.2 Three main stages of on-farm hybrid vegetable seed production, a case of hybrid pumpkin seed production

In order to show more details about how the small-scale farmers had merged their livelihood to contract farming and reshaped the production landscape in TK Village, the case of a 46-year-old farmer, Pii Noi Suan (Personal communication 2013) will be explained.

Being classified in this research as the upper-middle income household (112,000 baht a year), Pii Noi Suan was actually a landless farmer who recently attempted to join contract farming by renting land from other farmers in the village. He finished his education at the primary school level. Prior to being a contracting farmer, Pii Noi Suan had made his living through many activities in both on-farm and off-farm sectors. When he was 31 years old, he started migrating to many provinces for wage labor, such as Bangkok, Chon Buri, Rayong, Songkla and Phuket. The work he did included carpenter in the construction and off-shore labor on fishing ships in South Thailand. The latter work was intense and risky, as Pii Noi Suan told me. In such a job, he received 800 baht per month. At that time, there were not just Thai workers but also Burmese on the fishing ship in the gulf of Thailand and sometimes in

the Indonesian territorial sea. There were two ships that he worked on over ten years. Both were managed by strict captains who could kill the workers by throwing them into the deep sea (and indeed did, as he witnessed). Under this pressure, Pii Noi Suan came back to TK and got married in 1988. But he still migrated to find wage labor in construction sites in Nan Province. In 2012, he returned to stay at his own home in TK Village and began producing hybrid seed for Chia Tai Company.

In TK Village, without his own paddy field, Pii Noi Suan relied on his relatives for access to land (around 3.3 rai) to grow rice, mainly for his household's annual consumption. The cost of land access was affordable through the shared cropping system, or "Na-Paa" (นาผ่า), in which Pii Noi Suan used his household labour (himself, his wife and his daughter) while the owner invested the agricultural production inputs. Under the system of Na-Paa, according to a lower-middle income farmer, Mae Phin, there are two types of crop sharing in TK Village: 1) "Paa-Song" (ผ่าสอง), in which a half of the rice grain will be given to the land owner after harvest, and 2) "Paa-Sam" (ผ่าสาม), in which a third of the rice grain will be given to the land owner after harvest. The second type is mostly applied to farmers who use the paddy fields far from the Yang River because they encounter more production problems, leading to fewer amounts of rice grain, such as water shortage and lower soil quality.

Although he was a landless farmer, Pii Noi Suan had a two-wheel tractor to support his family labor. After rice harvest, half of the rice grain was given to the land owner. Importantly, under the Na-Paa system, the owner of the land allowed the renting farmer to use such land temporary after the rice harvest season. Pii Noi Suan preferred growing the early mature rice varieties, such as RD 10, Hom Sakon and Dor Nong Kai, because he could have more time to use the land to produce hybrid seeds for the seed companies.

Pii Noi Suan also rented a paddy field (1.2 rai) by paying 3,000 baht a year to the land owner. On this land, he can grow cucumber for hybrid seeds under contract with Chia Tai Company. Moreover, he cultivates the cucumber in the same growing

season as the rice. This practice is indeed different than the early stage of contract farming for hybrid seed which had been introduced to TK Village in 2000 because the farmers would produce the hybrid seed in the post rice harvest season.

Importantly, finding a new plot was important in order to gain good yield, even though farmers might use only a 0.25 rai paddy field to produce the hybrid seeds. One female farmer (personal communication 2009) who had 3 plots told me that she utilized a 0.25 rai paddy field to grow hybrid cucumber and got 10,000 bath each cropping season. To keep utilizing the same plot, the yield could decline, as she told me, that "It depends on the farming practices and the seasonal conditions. For cucumber, however, farmers who use only the same land may not get 10,000 baht (per a 0.25 rai) because they have no land to rotate. Their yield might decline. For me, I have many plots. In rainy season, I keep a plot, not for rice, but for (hybrid) vegetable cultivation. The other plots are utilized for rice farming, and, after rice harvest, I grow vegetables. That's why I like early maturing rice varieties". In this sense, the changing production landscape clearly indicated the intensification of labor in the spread of contract farming for hybrid seed production in TK farmers' livelihood landscape (see Figure 4.3).

Figure 4.3 The contemporary changing pattern of land use for hybrid seed production in the rice growing season, for cucumber (left) and cantaloupe (right)

Along with intensive land use was the intensification of the labor process, in which family labor was recruited to produce hybrid seeds for the global seed industry. As in the case of Pii Noi Suan, he had exploited his household labor and used the rented land intensively to produce hybrid seeds throughout the year (see Table 4.4).

By this, he could earn an annual income of around 110,000 – 120,000 baht. By saving some money, Pii Noi Suan rebuilt his one-storey house and bought a new motorcycle for his daughter. The Table below represents his cropping pattern in 2013. Significantly, Pii Noi Suan, as a landless farmer, did not grow the processing chilies but rice as a staple crop for his family's consumption and the hybrid vegetable seed as a cash crop production after rice harvest. The diversified cropping pattern (growing the staple crops together with hybrid vegetables) actually can clarify the agrarian transition from subsistence farming to the specialized farming as a global market response of the small-scale farmers in developing countries.

Table 4.4 The production activities of Pii Noi Suan in 2013

Month	Rice	Bitter gourd	Cucumber	Watermelon	Pumpkin
Jan	Boon Koa Mai ritual			Harvest	Hand-pollination
Feb		Growing bitter gourd seedlings			Harvest
Mar		Hand-pollination			
Apri		Harvest			
May					
June	Sowing seeds in paddy fields located in north TK		Growing cucumber seedlings		

Table 4.4 (Continued)

Month	Rice	Bitter gourd	Cucumber	Watermelon	Pumpkin
July	Transplanting in the paddy fields located in north TK		Hand-pollination		
Aug	Transplanting in the rain-fed paddy fields		Harvest		
Sept	Rice protection	Growing bitter gourd seedlings			
Oct	Harvesting the early mature rice	Hand-pollination			
Nov		Harvest		Seedling trans-planting	Seedling trans-planting
Dec				Hand-pollination	

Source: Survey by the researcher

The case of Pii Noi Suan might be one of many cases of small-scale farmers who had attempted to join contract farming to produce the high-value commodities. This case could be reflective of the new global economy that still relies on some local socio-economic conditions, such as local land tenure and labor relations. However, there were still farmers who lost their profits in both sectors. This could point out to certain conditions of why a lot of small-scale farmers, including the landless farmers, in TK Village could join hybrid seed production and only the plant contract farming industry, not contract livestock farming, was competitive in this area.

To summarize, some farmers in TK Village had connected to the hybrid seed production since 2000. It is clear that the education background influenced their chances to earn money through low paying jobs, such as wage labour in construction sites, housekeeping, and off-shore fisheries. When comparing to the intense work in contract seed farming with the guaranteed income and working at home, many farmers turned to engage with this sector. Some joined more recently. Under this linkage, we can see the role of the local brokers and kin relations becoming part of the assemblage of the global division of labor manifested in TK Village.

Critically, the relationship between the farmers and the contracting companies had not been monitored much by the state extension officials. This meant that farmers had been governed mainly by the companies under such relationship. Thus, the next part will describe how the global seed companies had employed the technologies of power to make their long distance control possible in TK farmers' livelihood landscape.

4.3 The technologies of control of the global seed companies

In his latest translated work, *The Birth of Biopolitics: Lectures at the College de France 1978 – 1979***,** Foucault addresses his idea of *homo economicus*, or the economic man. According to Foucault who investigates the existence of a subject in the English empiricist philosophy, interest is seen as the essence of what can be referred to the existence of an irreducible, non-transferable, atomistic individual choice (see Foucault 2008: 272-273). To say more, a subject is not given but

constructed in a form of "individual choices which are both irreducible and non-transferable". By this, one would be governed and govern oneself according to the formation of the subjective will in terms of interest. Foucault (2008: 270) proposes that:

> "Homo economicus is someone who pursues his own interest, and whose interest is such that it converges spontaneously with the interest of others. From the point of view of a theory of government, homo economicus is the person who must be let alone. With regard to homo economicus, one must laisser-fair; he is the subject or the object of laissez-fair…*Homo economicus* is someone who is eminently governable. From being the intangible partner of *laissez-faire*, homo economicus now becomes the correlate of a governmentality which will act on the environment and systematically modify its variables".

This idea helps us to profoundly understand the domination of the state and market forces in the model of contract farming. In other words, when looking at the formation of the calculative subject, farmers in the neoliberal era can be governed through the government of the global seed companies which have employed the disciplinary power together with the technologies of the self, or the care of self.

In this part, the technologies of control employed by the companies as the dominance of neoliberalism in the global seed industry can be seen in three main aspects: 1) building up farmers' incentive as the technologies of neoliberalism under the disciplinary power of the companies, 2) using contract relations to intervene for effectiveness of farming practices of farmers in the fields, and 3) using seed law to claim on ownership and ceasing the saving of parental and hybrid materials.

4.3.1 Building up farmers' incentive as the technologies of neoliberalism under the disciplinary power of the seed companies

In academic debates, contract farming has been criticized for its burdened risks on producers but seen as beneficial in terms of its providing of seed money, technologies, and knowledge (Kirsten and Sartorius 2002; Patrick 2004; Singh 2002). However, according to some farmers, contract farming has also been meaningful for them, perhaps differently from the perspectives of people of other professions. As many farmers told me, not only the income but the contract farming had also contributed to a chance for farmers to work in their own village so they could stay in their own house together with their families. This motivation of the farmers, I might argue, had been constructed inseparably from the effort and competition of the seed companies for accumulating capital. The incentive in this circumstance had been merged to the formation of the calculative subject which could turn the farmers into a governable subject, meanwhile the companies could achieve their control. In the field, the incentives had been constructed through several things and apparatus, such as buying price, tour visiting, seed purity, and the OP seeds.

One of the apparatus employed by the companies, like Monsanto, East-West Seed, and Chia Tai to compete with each other, was the attractive buying price. This economic tool increased the farmers' level of interest. In the Foucauldian perspective, interest is the essence of the homo economicus existence. On the ground, with a higher guaranteed price for hybrid tomato seeds offered to newcomers by Monsanto Company, 22 farmers in TK Village changed their contracts from Chia Tai Company to Monsanto in 2011. The guaranteed price of hybrid tomato seeds was 15,000 baht per kilogram. The farmers would get their money around five months after one crop. Some farmers could earn nearly 100,000 baht by using a 0.12 hectare plot. In 2012, there were 9 farmers who began their contracts for hybrid cucumber seeds under the East-West Seed Company.

To persuade the farmers to join, an extension staff of the East-West Seed Company took around 10 farmers to check out the seedling factories in Lampang Province, in North Thailand. A couple of farmers, Paw Nain and Mae Kwaun

(personal communication in April, 2012), who changed their production contract from Chai Tai to East-West Seed Company, told me that the companies took them to see their seed factories and the contracting farmers who told them about the amount of income and showed them the real receipt they had received from the seed companies.

For Monsanto as a new comer, TK farmers were taken to other provinces for a study tour in Northeast Thailand, like Khon Kaen Province, Northeast of Thailand. A 50-year-old female farmer who never produced hybrid seed, Mae Yaeng (personal communication in December, 2013), told me that the company took them to visit the seed plants and the successful small-scale farmers who had earned more than 100,000 baht a year from this business. Mae Yaeng, having a health problem that decreased her ability to do on-farm work, had decided to grow tomatoes for hybrid seed. But, with more complex techniques and a delicate process (see Chapter 2 for the global division of labor), Mae Yaeng and her husband could not earn as much money as she expected.

Under the competition of seed companies, in addition to different guaranteed prices, some specific farming practices had become part of the control of the companies and a chance for farmers to get more seed and higher income. It was found that some farmers who changed to East-West Seed were offered 950 baht per kilogram for hybrid cucumber seed, while they were offered 1,000 baht per kilogram by Chia Tai Company. Farmers who preferred the East-West Seed scheme to Chia Tai explained that they could get a higher profit with East-West Seed. One example, Mae Kwaun, a female farmer who supported her two daughters to finish their university education at the bachelor level, explained to me that Chia Tai Company might have offered a higher price for seed, but it did not allow farmers to have more than one branch on each cucumber plant. In contrast, the East-West Seed allowed farmers to leave two branches per plant. As a result, farmers could produce more seeds. She compared the number of cucumber seeds that she produced using the same paddy field. She found that with the same number of seedlings (1,200 plants) grown in the same plot, her best production of hybrid cucumber seeds for Chia Tai was 16 kilograms, but she got 25 kilograms of hybrid cucumber seeds for East-West Seed. This came out to 16,000 baht from Chia Tai and 23,750 baht from East-West Seed for

one crop of cucumber. Thus, this might appear to be the voluntary practice of farmers, to engage with more intensive labor, while in part it is inseparable from the effort of the seed companies to extract the farmers' labor force.

Clearly, the formation of the incentive was inseparable from the control of the seed business. To say more, the formation of the competitive subject was compatible with the control of the companies. This could be a part of the neoliberal governmentality under the global seed market's integration, turning farmers to a subject of responsibilization so that they can exist as an atom of self-interest with responsibility under his/her rational choices and cost-benefit calculation. This can be seen from a case of the proper farming to achieve farmers' income encouraged by the extension staffs. As I found that the farmer's performance were recorded and some data sets, such as revenue, percentage of germination, and seed purity after seed testing, were displayed for farmers later. Actually, these data sets would be presented on the office's board in front of the village's marketplace (see Figure 4.4). The reason to show such data, as Mr. Hut (Personal communication 2014) explained to me, was that it could make the farmers feel competitive with each other and then voluntarily work harder in order to break the records made by themselves as well as by the other farmers. Hut told me that:

> "The farmer's performance and revenue data can show that one can get lots of money because of his care of the plant seed. What I use here can be called psychology".

In particular, Hut pointed to the data labeled "seed purity", which represented seed quality and a boundary of consent between the contracting farmers and the companies. This contributed to the possibility of companies' control. After collecting, drying and applying the fungicide for the seed treatment, the seed company staff would take the seeds from TK farmers to seed testing stations located elsewhere to check seed quality in terms of purity and germination rate. Then, farmers would get their payment after this process. It took around two to five months after the seeds were harvested in the village. This led to delayed payment for the farmers who still

needed to spend money for their everyday life. The seed purity would be measured from the seed produced by each farmer. Hut explained that:

> "The purity data will be shown for determining how much money each farmer would be paid based on the rate of purity, such as 100%, 98% and so on. The farmers who had high purity would be esteemed in contrast to the farmers who had lower purity and would be viewed by everyone as the farmers who produced bad seed and had conducted bad performance."

Figure 4.4 The product record and revenue of each contracting farmer attached on the board in front of TK market place

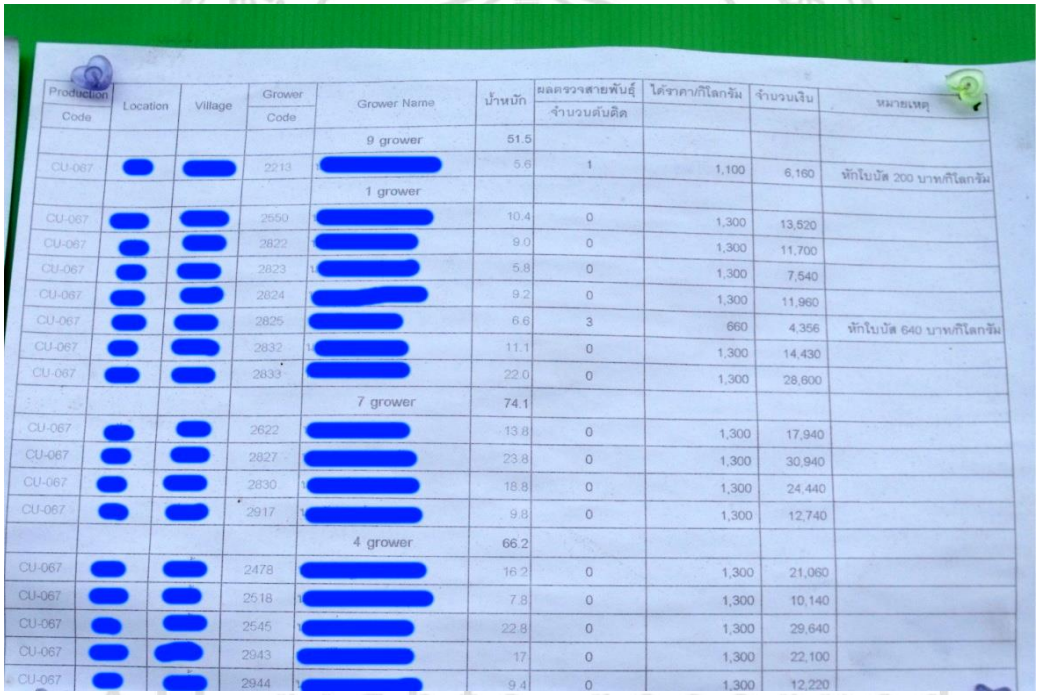
If farmers could produce their seeds to meet the standard of seed purity, they would get "bonus" money. However, it could be said that the incentive of interest indeed was constructed not just through rewards but also through punishment. Hut explained about the bonus money that:

> "The farmer would get the bonus money from the company if their seeds passed the purity test. If they passed completely, they would get the full guaranteed price. But for one who cannot pass completely, suppose that the purity of seed is about 98% after testing, the farmer would not get the bonus price but a lower price".

According to Hut, if the bonus price is 1,000 baht, a farmer would get 800 baht per kilogram for the 98% seed purity and 600 baht per kilogram for 97% seed purity. Hut explained further that:

> "This drop in price correlating to lower purity can be an incentive for farmers to make more of an effort to produce quality seed at 100% purity".

By this, we can see that the seed purity was conditionally related to the formation of the calculative subject, leading to the companies' technique of controlling the farmers' practice in hybrid seed production (see Figure 4.5).



Production Code	Location	Village	Grower Code	Grower Name	น้ำหนัก	ผลตรวจสายพันธุ์ จำนวนต้นดิด	ได้ราคา/กิโลกรัม	จำนวนเงิน	หมายเหตุ
				9 grower	51.5				
CU-067	[redacted]	[redacted]	2213	[redacted]	5.6	1	1,100	6,160	หักใบมัส 200 บาท/กิโลกรัม
				1 grower					
CU-067	[redacted]	[redacted]	2550	[redacted]	10.4	0	1,300	13,520	
CU-067	[redacted]	[redacted]	2822	[redacted]	9.0	0	1,300	11,700	
CU-067	[redacted]	[redacted]	2823	[redacted]	5.8	0	1,300	7,540	
CU-067	[redacted]	[redacted]	2824	[redacted]	9.2	0	1,300	11,960	
CU-067	[redacted]	[redacted]	2825	[redacted]	6.6	3	660	4,356	หักใบมัส 640 บาท/กิโลกรัม
CU-067	[redacted]	[redacted]	2832	[redacted]	11.1	0	1,300	14,430	
CU-067	[redacted]	[redacted]	2833	[redacted]	22.0	0	1,300	28,600	
				7 grower	74.1				
CU-067	[redacted]	[redacted]	2622	[redacted]	13.8	0	1,300	17,940	
CU-067	[redacted]	[redacted]	2827	[redacted]	23.8	0	1,300	30,940	
CU-067	[redacted]	[redacted]	2830	[redacted]	18.8	0	1,300	24,440	
CU-067	[redacted]	[redacted]	2917	[redacted]	9.8	0	1,300	12,740	
				4 grower	66.2				
CU-067	[redacted]	[redacted]	2478	[redacted]	16.2	0	1,300	21,060	
CU-067	[redacted]	[redacted]	2518	[redacted]	7.8	0	1,300	10,140	
CU-067	[redacted]	[redacted]	2545	[redacted]	22.8	0	1,300	29,640	
CU-067	[redacted]	[redacted]	2943	[redacted]	17	0	1,300	22,100	
CU-067	[redacted]	[redacted]	2944	[redacted]	9.4	0	1,300	12,220	

Figure 4.5 The announcement of farmers' income based on the seed purity test; some farmers lost 640 baht per kilogram because three other seed varieties were found contaminated

As a newcomer in the late 2012, East-West Seed introduced not only the hybrid seed but also the open-pollinated (OP) seed production. The open pollination was different from the controlled hybridization because it relied on the wind or insects to take pollen from one plant to another (Kingsbury 2009b: 430). In 2012, the failed

scheme of Monsanto Company that attempted to introduce the hybrid tomatoes with more complicated processes became an opportunity for the East-West Seed Company to attract the disappointed farmers. Thus, the less complicated production of the OP seeds was introduced to new farmers, although they would get a lower price in comparison to the hybrid tomato seed.

Still, the effort to introduce the OP seed production can be seen as a means of capital accumulation emerging in the unequal competitive environment of the seed industry. In their study, Niwat Maswansa and Kamol Lertrat (2007: 43) found that the small seed companies and seed traders would employ such a strategy to compete to recruit the farmers to cut their cost of training their own contracting farmers. The big companies, which aimed to run their business in the long term, had to invest their cost in maintaining their relationship with the old farmers and establishing the new relationships with new farmers in order to compete with other companies.

This was the case of the open-pollinated lettuce of which the contracting farmer got 200 baht per kilogram. This production of lettuce seeds attracted some farmers because they found it to be easier for them since the production and labor processes for open-pollinated seeds did not require hand-pollination but left it to natural pollinators instead, such as bees. Thus, farmers took care of their lettuce after growing, until it matured and was ready for seed harvest. This was different than the bees in the case of hybrid seed production in which famers saw them as a negative pollinator, not assisting the farmers who produced the OP seed.

Notably, the production of OP seeds, or the plants that were "easier" for farmers, was one of the strategies that the seed companies would use to attract the farmers to join contract seed farming. In TK Village, the strategy of introducing OP seed production was found in an effort of Chia Tai Company. A female farmer (personal communication 2009) told me that she was asked to produce not the hybrids but the OP sugar pea seeds the first time that she joined contract farming for hybrid seed production in 2006. She got 60 baht per kilogram.

The OP plants were, in this situation, an apparatus for training the new farmers before they could produce the hybrid seeds, which needed more complicated processes of production and labor. To put it more strongly, not just hybrids, the OP seed could have been the spearhead of the seed companies before the full production of hybrid seed would later be introduced to the new farmers. I argue, however, that whether farmers produced the hybrids or the OP seeds, it would be found that the contracting companies still made their efforts to control the farmers at the center of the contract relationship. Their efforts occurred at places and times under what seemed to be mutual consent between the companies and the farmers. This aspect will be shown in the next part.

4.3.2 Using contract relations to intervene for the effectiveness of farming practices of farmers in the fields

In the early stage of my research in TK Village, when I visited some farmers at their plots, many farmers who did not recognize me thought that I was an extension staff of the seed companies coming to inspect them at their paddy fields. One example was a 65-year-old farmer, Paw Chan, who used to work as a carpenter at construction sites in Singapore in the 1990s. Early one morning during cold season, I took a walk to see the farmers and observe their practice of hand-pollination as part of the production and labor processes. In my hand, there were camera and a notebook. I walked on the paddy ridge and sometimes stopped at some of the paddy fields to take some pictures and talk to some farmers. Then, around fifty meters away, I saw a farmer in a small pumpkin patch, sitting beside his basket. Like many farmers who saw me walking to their paddy field, Paw Chan might have been afraid that I would scold him because he did not destroy the open-pollinated pumpkin fruits but left them growing together with the hybrids on the mother plants. Before I reached his paddy field, Paw Chan had already picked the young OP pumpkins away from the mother plants (see Figure 4.6). This practice could imply something unsmooth in the relationship between the extension staff and the farmers.

Figure 4.6 Paw Chan and his practice of hand pollination for hybrid pumpkin (left); the materials for pumpkin hand-pollination (right), including male flowers with ready pollen, red treads, paper bags, and a stapler

One of the strategies to make sure that the farmers correctly followed the contract scheme could be seen from the way that the seed companies sent the staff to not just visit the farmers to give some advice but also to directly intervene with their practices in the fields. The control of the companies was legitimized by referring to the contract as the consent which bonds the relationship between the company and the farmers. In many cases, it was seen that staff of the companies had come to the village and checked the farmers' on-farm practices without prior notice. Indeed, the consent intervention became a spatial practice that turned the farmland and the village to the consent space where the power of the companies upon the farmers was naturalized – appearing as reciprocity but concealing the unequal relationship.

As I have mentioned prior to the story of Mr. Hut who was an extension staff of Chia Tai, Hut had rented a small office in front of TK Village's market place since he started his work in 2006. Meanwhile, many staff and breeders of Chia Tai had visited TK Village to monitor the farmers' practices, ensuring that farmers were organized to follow the contract scheme. This office might look like a panopticon because it could be used as a center for observing farmers or a node of long distance control linked to the global seed company, Chia Tai. As I have shown, the billboard of this office displayed the effective performance of each farmer within a calculated parameter, the seed purity measurement.

Hut (personal communication 2014) explained that the intervention of the extension staff was aimed to maintain the purity of the hybrid seed. So far, I have seen that this had nothing to do with the purity of nature but the commodified nature. Hut said that:

> "In order to achieve 100% seed purity, every extension staff has to look carefully after all plots and farmers under his responsibilities".

He further insisted that:

> "This is at the heart of our work as the company extension staff. All plots under our monitoring have to reach 100% purity. This is because farmers place their income with us in order to secure their family. Thus, we go to give them advice, inspect them, control them to do the correct things and prohibit them from doing anything beyond the contract scheme. If the extension staff ignore the farmers and let them do things without any intervention, some farmers may even cheat. The resulting seed purity will not pass the standard".

Based on Hut's explanation, this could further imply that the companies did not just direct the control upon the contracting farmers but they also attached the ethics together with the order upon their extension staff. The mistakes of the farmers were then morally interpreted as "irresponsibility" of the staff, as Hut said. Thus, it became clear that there were the double ethics whipping in the intervention of contract farming: one for contracting farmers and another for the company staff who were hired to check, calculate and report the farmers who could not pass the seed purity standard.

If one came to TK Village at the right time, one might have seen that the extension staff not only monitored the farming practices of farmers in the fields but also followed them to their homes where they kept the produce. This was explained as part of the effort to maintain the seed purity and quality in relation to the consent

standard. The extension staff would visit the farmers' houses, as the storage place, and the paddy fields to check the contracting farmers' practices, but, to effectively monitor, they would not tell farmers the exact time and place each week. Sometimes they visited early in the morning, and sometimes late in the evening. Staff might have come with their equipment to measure the quality of seed by cutting the produce to calculate the seed size (see Figure 4.7). The visiting of extension staff, as I noticed, seemingly occurred like a simple practice. Even if there was nobody at home, the extension staff just drove their car, stopped in front of the farmers' houses, chose some fruits from the storage places beside or beneath the houses, cut them so as to see the flesh and seed inside, recorded some measurable data, took some pictures, and then moved to other houses. Was it just simply that anyone can visit anybody's house and do whatever they wanted while the owner was not at home?

Figure 4.7 Extension staff of a seed company destroying the open-pollinated fruits in the fields before harvest (left) and coming to check for the quality and quantity of seeds at a farmers' house (right)

Seed purity, moreover, required the company staff to intervene in the practices of farmers in order to ensure the control over the environment needed for the hybrid plants. This was the reason for cutting the OP fruits that could mix with the hybrids, thus preserving the seed purity of the companies. A staff of the East-West Seed explained this to me when I met him trying to divide the "good" and "bad" produce. While he marked the desirable ones in red, the OP were identified as the bad ones and would be cut into pieces (see Figure 4.8).

Figure 4.8 The open-pollinated female pumpkins being destroyed by extension staff left in the paddy (left) and the male pumpkins being collected by contracting farmers for feeding the animals in their own home or sometimes selling to other farmers as fodder (right)

To protect the purity of the hybrid seed from contamination, uprooting was also employed not just by the extension staff but also by the contracting farmers. This contributed to a social tension between the contracting farmers and the lay farmers who grew the other plant varieties outside the contract scheme because these plants were considered as a threat that could contaminate hybrids with their unwanted pollen coming from pollinators like bees. A life history of Winai's household can be one example of this phenomenon.

Winai and his wife were seen as the nearly landless household in TK Village. Actually, Winai was from Chiang Rai Province. His wife was born in TK Village. Both of them finished their education at the high school level. When he was young, he tried to earn his living through wage labor in the off-farm sector. He met his wife while he worked at a construction site in Chiang Mai. After getting married, Winai came to stay at his wife's house in TK Village. But as they were landless, they earned their living through wage labor. After Winai's household could save some money, he went abroad to work in a factory in 1997.

After working in a factory in Taiwan for many years, they could buy land (1 rai) from another farmer in TK Village. On this land, Winai and his wife grew many kinds of vegetables. In his small farmland (see Figure 4.9), as they aimed to follow the agricultural model under the ideology of self-sufficiency economy, they divided a part of their 1 rai paddy field for a pond and grew many vegetables after the rice harvest season, such as cabbage, yard long bean, Chinese kale, sugar pea, pumpkin and chili. Some of these vegetables, in particular his local pumpkin, irritated the nearby farmers who produced the hybrid pumpkin seeds because they worried that their hybrid pumpkin would be contaminated by Winai's. Thus, they asked Winai's wife, Hatairat, to uproot the "bad" plants. As Winai and Hatairat understood that seed purity was very crucial for contracting farmers who had to earn money to support their children like her. She agreed to uprooting without any compensation. About this situation, Hatairat said that:

> "According to the discipline of the Chia Tai Company extension staff, they won't let the different varieties grow close to each other because they are afraid that the (undesirable and uncontrollable) pollen from the male and female plants would mix together".

Winai further explained:

> "I grow my pumpkin just for my family's consumption. If insects take the pollen from my pumpkins to cross with the other farmers' pumpkins, their pumpkin seeds will be degraded. If they want to uproot my pumpkins, I have to accept it because they grow to sale. We just grow for eating. We grow just one or two pumpkins but they grow one or two hundred. We have to accept it, even though we are the owner of the land".

For Winai's household, the main income was the wages he earned by working abroad, so uprooting the plants that could contaminate the hybrid plants was

acceptable. This tension could point to relationships that were beyond the contract in the hybrid seed production.

However, it should be noted that the practice of uprooting was chosen when there were different varieties that could result in undesired cross-pollinating. Also, there were many factors that have to be taken into account. Paw Kiet (Personal communication 2014) explained to me by pointing out an example of hybrid pumpkin varieties which were produced for the export market. He told me that, whereas the local pumpkins could be grown throughout the year, the companies' hybrid pumpkin varieties could be grown only in the dry season because they required the cold weather, and their blooming period lasted only 20 days. Thus, for him, the problem of crossing between hybrids and TRVs in the case of pumpkin was not very serious.

Figure 4.9 Winai and his wife coming to see the chili grown on their farmland with a small pond

By monitoring control through the contract embedded in the hybrid seed production as a consented practice for legitimizing the companies' intervention, it is understandable that the companies could re-arrange the relationship with the farmers and simultaneously intervene in the relationship of humans and nature in the farmers' livelihood landscape. In terms of flexible production, the companies could avoid the responsibilities in labor welfare through outsourcing the production and benefit from the construct of the calculative subject by employing technologies of the self. In terms of production of nature, the "nature" was divided into good and bad or the desirable and the undesirable. The desirable would be kept pure while the undesirable would be

destroyed, not only by the extension staff but also by the contracting farmers themselves. These practices for protecting hybrid seed purity could better explain how the global seed companies dealt with the small-scale farmers in the fields in order to maintain their control through long distance intervention without a formal written contract. However, this was stated beautifully that the companies needed only a trust – a promise with a heart of gold – that bonded the company's profit with the farmers.

In the next part, I will show that the control and intervention of the companies in the production and labor processes were possible not just by claiming on the contract but also by relying on the seed law which could re-arrange the property rights and relations, in particular the ownership and access to seed.

4.3.3 Using seed law to claim ownership and ceasing the saving of parental and hybrid materials

Seed stealing was one of serious problems and was a reason why many seed companies had to protect their commodity. In the PVP B.E. 2542 Act (see Chapter III of Thailand' PVP law), the new plant varieties, after being granted, are protected under the plant breeder's rights (PBRs). This legitimized the extension staff's ability to intervene in the farmers' farming practices and simultaneously claim the ownership of the hybrid seeds and parental materials. But when looking back to the seed villages where seed companies engaged with a lot of local farmers, how could the seed companies deal with the agency of farmers and plants in the production and labour processes?

In a seed village like TK Village, to stop farmers from saving and hiding seeds, the practice of uprooting the male plants and destroying the OP fruits in the female plants can be seen as an effort by the seed companies to control both nature and the farmers. In addition to monitoring, the farming practices of farmers in the paddy fields and at their houses, the extension staff had to be able to calculate the expected total amount of seed harvested by each farmer. Technically, this capacity can help them to check whether or not all seeds harvested by contracting farmers are sent back and that the farmers are not hiding and selling them to other companies.

When I met the extension staffs of East-West Seed, Mr. Kan and his colleague (personal communication, 2014), they told me about their work. Kan had rented an office in Pua District and monitored farmers in many villages. They visited TK Village once a week. When I asked him how they could know the amount of seeds, such as pumpkin, being produced by each farmer, they explained to me that they calculated by using some data obtained from some pumpkin samples, helping them estimate the yield. Kan said that:

> "We look at, for example, the thickness of the flesh, number of seeds in a fruit, and the seed size".

Another staff explained to me that they had to weigh these seed samples after they cut a pumpkin so as to calculate the flesh and seeds inside. He further said that:

> "If we check by using the standards already researched by the company's breeders, we just count the number of fruits. Then we can know how many kilograms of seeds that can be produced by this farmer and how much money he can get paid".

Although a number of farmers in TK never read about the seed regulations (referring to laws that protect the breeder's rights on new plant varieties, like Seed Act 2518 and Plant Variety Protection Act 2542), they perceived the property relations and private rights of seed companies over the plant varieties throughout their dwelling landscape – the landscape of hybrid seed production. To say more in this circumstance, companies not only had the power to terminate the contract but they could use the production contract and the seed law to determine their relationship between farmers and themselves in order to define the property relations and rights on the seeds. I was told by a farmer that the companies would sue any farmers that stole the seeds bound by the production contracts. In August, 2009, a farmer told me that farmers could not save the hybrid seeds. "It is their intellectual rights," that farmer told me when I asked whether farmers could save the seeds produced for seed companies. But, until that time in TK Village, according to the farmer interviewed, no

farmers had been sued by the seed companies in a case of intellectual property rights. Actually, only one case was found many years before and the company did not sue him but decided to end his contract.

Why did seed companies respond like that? It might be a way of maintaining a good relationship between the seed company and the farmers in the seed village. Stealing of breeding materials, however, did not take place only in TK Village. In the broader context, it can be found that breeders also did such a "crime". This was told to me by a vegetable breeder, Mr. Mongkol (personal communication 2013). Once having worked for a Swiss-based company, Syngenta, Mongkol established his own seed company in Nan Province and also became a consultant for many seed companies in Thailand for restructuring their seed programmes. In a village near TK Village, Mongkol rented farmland to produce the hybrid vegetable varieties and seeds.

At one of his breeding stations located at his own house in Phu Pieng District, Nan Province, he explained to me about the problem of seed stealing. According to him, for many seed companies, their parental varieties are not really registered under the PVP Act, yet. He further explained that there were indeed a number of segregated materials emerging in their breeding process prior to getting a successful stable line which later could be accepted as a new plant variety. To register all these breeding materials so as to be protected, breeders had to pay for the registration fee, but they did not want to pay. Thus, a lot of their parental varieties could not be protected according to PBRs under the recent PVP Law, leading plant breeders to difficulties in protecting their breeding materials. This also happened to him when his parental varieties were stolen by his fellow breeder, who also produced some vegetable varieties for a global company. To cope with this situation, he did not sue that breeder but released a new competitive variety with better traits so as to occupy the better position in the seed market.

To stop the seed saving, not just farmers' agency but also nature's agency has to be controlled. The ability of plants to produce their offspring helps farmers in general to save seeds for the next cropping season, contributing to a challenge that the

seed companies needed to find ways to intervene with the natural process in order to accumulate capital. Thus, the control of the plant's agency to produce its offspring was necessarily merged by the companies to the technologies of government. As an extension staff, Kan told me about a reason of why companies preferred the "heterozygous gene" for the hybrid seed production. His explanation can reflect that hybridization was not just the technique per se.

As an extension of East-West Seed Company, Kan had monitored the production processes in TK Village. There were three hybrid pumpkin varieties under his responsibility. One variety was produced for the Thai market while the other two varieties were exported to the global market. Kan said that:

> "The foreign pumpkin varieties are preferred for their big size and thick flesh suited for making soup. But they are not preferred by Thai customers because their flesh is too soft and the size of fruit is too big. If we take these seeds to grow, their offspring traits will change. These are seeds from the 'mother'. There are the 'father' [variety] and the 'mother' [variety] which are taken to make a cross. Then, we get the 'child' [hybrid] according to the scientific discipline. We make them *heterozygous*. We make them have the dominant traits stronger than their 'father' and 'mother', such as disease tolerance. If the taste of the 'father' is good and the 'mother' is tolerant to diseases, the 'child' will get both traits [good taste and disease tolerance]. We have to select them from different varieties in order to get different traits. When we take the seeds of the 'child' [hybrid] to grow the next crop, they cannot be the same. Thus, they [farmers] have to come back to buy new seeds from us. This is the seed business".

To sum up, hybridization is, in part, a subsumption strategy of the seed companies so as to cease the cultural practice of seed saving among farmers in general. However, the control in a seed village like TK Village is more complicated

because the seed companies employed several strategies. To put more it strongly, farmers became a governed subject under the new seed regime since Thailand had restructured the seed industry to the new economic model under neoliberalism. The seed companies have employed the technologies of power to control farmers and nature simultaneously. In order to understand the agency of the farmer, the next part will describe how farmers engaged with the seed companies within the production and labor processes.

4.4 Farmers' coping strategies under the contract farming scheme

There were mainly five coping strategies of farmers found in my fieldwork. But, not all strategies could work in the same degree for all farmers. It was found that farmers had engaged directly and indirectly with the controls of the seed companies. Importantly, while farmers might not have aimed to change the total structure of the seed industry, they still had their own political practice in relation to the hybrid seed production. The five coping strategies were shown in the following.

4.4.1 Selling seeds back to the company but claiming access to some parts of plant

Some farmers told me that they utilized some parts of the plants from which they gathered hybrid seeds to send to companies. Normally, the extension staff asked the farmers to destroy the open-pollinated female fruits in order to prevent the OP seeds from mixing with the hybrids. Sometimes, the staff would destroy them before harvest, like in the case of pumpkins. So, if there was enough time, as I found, farmers who grew them would take OP fruits home. A female farmer (Personal communication 2013), whom I interviewed, also took the OP pumpkins back to her home before the extension staff could come to destroy them. She told me that she did not have any idea how she would have used them yet but just thought that it would better to keep them rather than leaving them to be cut away in her plot. Somehow, she might find a reason to use them later. She said that "Perhaps, they would be useful for my pigs". She told me that the OP pumpkin could be used as fodder.

Another example was the OP watermelon. In February of 2014, I revisited TK Village for observing the local festival of the TK Village held for celebrating their new building in TK temple. Tai Lue villagers from other villages also arranged their procession to join this ceremony. After this, many of them visited their relatives in TK village. At Mae Touy's house, I found that food and fruits were served to her guests. I noticed that there was watermelon on the menu. Mae Touy, who was a lower-middle income farmer, told me that she collected the OP watermelon from her farm where she produced the hybrid watermelon seeds for Chia Tai Company (see Figure 4.10). Mae Touy was also a landless farmer who had to rent a land from other farmers. After sending rice grains to the land owner as a rent payment, Mae Touy could use such a land to produce hybrid seed under the contract farming.

Figure 4.10 The open-pollinated watermelon collected for everyday household consumption (left), food served for quests during celebration of TK temple (right)

While keeping the seeds for the companies, the farmers found that they could use some parts of the plants they grew for producing the hybrid seed for the companies in their everyday life. This practice could be found in different parts of vegetable plants, like pumpkin stems, young cucumbers on male plants, and the flesh of cantaloupes. These plant parts were utilized as food in households or sold as fresh vegetables in local markets (see Figure 4.11). These practices, at the beginning, were not allowed by the seed companies' staff, who not only said it might impact the seed quality but also claimed the rights of the seed companies as the owner of the plants under the intellectual rights and seed production contract. However, farmers argued

the point that they did not sell the seeds, which were collected and sent to the companies. Several parts of the plants were still useful to farmers in terms of food and extra income during the months they had to wait for the companies to send them money from hybrid seed production. This conflict was finally resolved while, in the seed law, these hybrid plants and varieties were privatized to belong to the seed companies.

Figure 4.11 The young pumpkin collected for everyday household consumption

4.4.2 Buried fruits under the ground to hide the parental seeds

A farmer (personal communication 2009) told me that when some farmers wanted to keep the desired fruits and save the seeds from the parental lines, they covered them with rice straw or plastic sheets already utilized in the vegetable beds. By this, they could hide them from the extension staff's eyesight. But this way become uncommon because the company staff also knew about the game, so they destroyed the male plants by uprooting them after hand-pollination was completed in order to cease the maturing stage of seeds contained in the fruits. Another way that companies ceased the seed saving practice of farmers was destroying the opened-pollinated female fruits that were left by farmers on the beds beside the hybrid fruits.

All of these were simply explained by extension staff of seed companies as an effort to maintain the good quality control of seed. Such as one day in 2013, when I met a staff of the East-West Seed Company using a long knife to cut some pumpkins and spraying red color on others on a small farm. He said that the destruction of OP seeds

contained in the female plants was necessary for controlling the quality of the product by protecting the hybrids from mixing with the OP seeds.

In December 2013, I revisited a farmer in TK village in order to tell her that I was returning to Chiang Mai Province to write my dissertation. To update the data about the changing situation of TK, we discussed about the future of TK farmers and the control of seed companies through the contract farming. After that, she asked me to wait for a gift. She then walked to a barn where she stored fodder for her cattle, picked up a cucumber that was covered under the rice straw, walked back and handed the cucumber to me. That was quite surprising for me actually because I thought that the practice of hiding seeds had disappeared. As she told me later, this OP cucumber was from a female plant and its seeds could be saved. I took it from her and then put it in my luggage. This secretive practice thus clearly represents the agency of small-scale farmers under the global seed market integration.

4.4.3 Delaying the seedling growth to maximize the number of seed

In the expansion of the seed companies through rural industrialization, the farmers had to adjust their labor process to the seed supply system of the global seed companies. In their everyday life, the TK farmers' on-farm tasks were conditioned differently from the farmers in other villages. Sometimes, their work began around 2 am and finished around 9 am and would be like this along the blooming stage of the company's crops. There was no time for gathering, just resting and then continued pollinating. They were criticized for this because they could not join the ceremonies held by their fellow farmers in nearby villages. This was one tension of livelihood changes from contract farming that the seed farmers had to deal with.

With a heavy load of work, how can the small-scale farmers bargain with this situation? A female farmer, Mae Kwaun (personal communication 2009) told me that she noticed in 2008 that there was a difference in blooming of the seedlings grown in different times. This happened when she tried to hide some seedlings from the extension staff of the company as there was too much of a load of on-farm work for her husband and herself to handle for growing seedlings. She said that:

> "If seedlings are not grown in the same time, they will not bear the fruit in the same time. I used to grow more than 1,000 cucumber seedlings, but I can't grow them all in the same time. Then, I had learned from this situation. Suppose that when I have to grow 1,000 vegetable seedlings, and I can grow only 500 seedlings, so there are still 500 seedlings left. But our land is not ready because it is not plowed yet. I noticed that those latter seedlings did not blossom. I could not find their flowers for hand pollination. My knowledge about delaying seedling growth is from this situation".

However, at the beginning, the practice of delaying seedling growing was not accepted by the seed companies' staff. Some farmers had to lie that they grew all of the seedlings or say that they were still preparing the plot. In fact, there were some seedlings left covered in somewhere else in their house. For Mae Kwaun, the extension staff asked her to grow all seedlings at the same time. But she didn't. She said that:

> "At first, they did not accept it and asked us to grow all of seedlings at the same time. But we still kept practicing what we have already learned. When they gave us ten seed trays, we just divided and grew only five. Later, we grew the others although our land was already prepared. Thus, our tasks would not be very heavy. For me, I have to grow 1,800 cucumber seedlings. I just divide and grow them not in the same time. If I do not delay, I have to hire other people to help me in hand pollination".

With such discovery, contracting farmers could reduce their heavy task load occurring in the busy time of the blooming stage. This can help them in achieving the number of seeds if they can manage the labor process in time for producing hybrid seeds. In 2013, some farmers, whom I interviewed, told me that they noticed the delayed blossom was also caused by applying fertilizer at a different time. These

tactics were spread to other farmers in the village. Interestingly, it turned out that the seed company later adjusted their seedling supply in response to the delayed growing tactics by farmers. Mae Kwaun said that

> "In the past, we would be forced to grow all seedlings in the same time. Now it turns out that this technique is applied by the seed companies. Suppose that I have to grow 1,000 seedlings. We will tell the extension staff to divide and send us 500 and 4-5 days later send us the other 500. Thus, the companies will sow their seeds and send their seedlings according to our request. They have to adjust because we cannot finish pollination in time".

By this, we can see that the farmers were not passive as they tried to negotiate with the production and labour processes. Importantly, their disobedient knowledge emerged in the cooperative performance of the companies' seedlings. To put it more strongly, it can be said that the limits of government were indeed within the commodified nature.

4.4.4 Turning to work for other companies

Some farmers, even some farmers who had been in this work for more than a decade, could not always meet the seed quality standards and get the bonus money all the time. I was told by a 54-year-old female farmer, Mae Kwaun (Personal communication 2011), that it was because the companies usually changed the vegetable varieties to varieties that the farmers had never grown before. Thus, they had no experience to understand their specific traits of the new plants. And then, after farmers had gained experience about some varieties after many crops, other new varieties were introduced to be grown.

For example, a lot of TK farmers failed to produce the hybrid tomato seeds for Monsanto Company when a new variety was introduced to them in 2012. As a result, they did not get paid for their labor and time spent for months (see Figure 4.12). In

response, farmers decided to stop producing the hybrid seeds for Monsanto and look for new companies. This can be reflective of the trend of seed companies and farmers in the production relation in the transition under the neoliberal era. When the companies gradually moved some production sites to other countries for cost cutting, such as China and Vietnam, farmers in Thailand were still important, but the companies would expect them to produce the more complicated plants that needed more delicate techniques in order to produce quality seeds.

Figure 4.12 Farmer shaking a container to collect the stamen from the flowers of a male tomato plant inside (left), requiring more intensive labor than the open-pollinated seed production, the lettuce being recently re-introduced (right)

Importantly, the strategy of turning to work for other companies was possible whenever there was more than one company in the village. Indeed, the role of Mr. Wilan as both a local broker and a contracting farmer in the village should be taken into account. As mentioned in the earlier part of this chapter, Wiran aimed to find other companies to compete with each other. Thus, keeping only the good contract companies became important for farmers. As I noticed, all farmers who used to produce the hybrid seeds for Monsanto decided to find new companies. Some returned to Chia Tai Company while others chose East-West Seed Company instead. However, this was limited because there were only two seed companies, including Chia Tai Company and East-West Seed. Thus, Wiran's strategy was effective but with a limited number of choices in comparison to the situation that there were 3 companies competing with each other.

4.4.5 Leaving the hybrid seed production to other on-farm and off-farm activities

This strategy was also employed by farmers so as to engage with the global seed companies. Still, there are several conditions that need to be taken into account for better understanding that every decision was not always free. One would be misled to believe that contract farming was useful for every household and that every farmer household surely got profit from joining contract farming under the growth of hybrid seed industry. In this sense, it is understandable why farmers left the high value commodity production. Thus, this part will show some cases for drawing upon such a point. There are three cases in the following part.

Lung Sung (Personal communication 2011), a 65-year-old male farmer, is the first case that shows the limits of joining contract farming. He told me that his household could produce enough rice for the annual consumption and still have some amount of rice grain to sale to the merchants. In the past, the head of Tha Wang Pha Agricultural Extension Office chose him to be a farmer leader to co-opt with the government extension officials. When he was young, his family used to grow the upland rice on farmland located on the Phu Ka Mountain, but after the government expanded the National Park, his family had to stop using that land. In his paddy field close to TK Village's market place, he was persuaded by the ex-headman to join the hybrid seed production. But, Lung Sung ended his involvement with contract farming after one crop. This is because he saw that this farming was too intensive for his family. He then turned to use his paddy field for producing the processing chilies instead.

The second case is Winai who could reflect that contract farming could not integrate all small-scale farmers. Winai (personal communication 2013), who was a wage laborer in Taiwan, used to work in hybrid seed production under Chia Tai Company in 2011. That year, he returned home and tried to enter contract farming like other farmers in TK Village. But he found that the income was not enough, especially when many farmers needed money for supporting their children's education. At the time, Winai also had two daughters who were studying in high

school. After his first year trying out contract farming, he found that he got around 40,000 - 50,000 baht in total from producing hybrid seed. This amount of money was not enough for the expenses of his family, especially for his young children's education, so he quit contract farming and left TK Village for Taiwan in 2012.

Notably, as Winai told me about his future, he said that he would return to be a farmer after his children finished their education at the university level like other children in TK Village. This can point out that there was an agrarian trajectory, which on-farm and off-farm sectors were contingently important for some villagers in contrast to the idea of disappearing farmers and nature in the agricultural modernization. Winai said that:

> "The contracting farmers in TK Village have worked hard in order to support the children to finish their education. So do I. My children will finish their education at the high school level. Next year, they will study at the university level. If they finish just for 4-5 years from now, I will quit my job abroad and return home. I might continue farming, growing chilies, raising a couple of cattle, and living like this until I and my wife get old".

Whereas Winai's household chose the off-farm sector, in the third case of a well-being farmer, Mr. Wilai turned to the on-farm sector. This might be interesting in terms of choice shifted from the hybrid seed of the global seed companies' varieties to the open-pollinated seeds of the local vegetable varieties. However, I took this case to Chapter 6 (see 6.8) because it helps illustrate how TK farmers managed the seed and situated the agrobiodiversity conservation and commodification in their everyday life under the neoliberal era.

So far, the coping strategies were not always employed as the resistance by the small-scale farmers so as to escape from the capitalist market. It seems that most of the coping strategies could not change the total network of the global seed market. Still, farmers influenced it in some nodes and places. In fact, those strategies, as the

agency of small-scale farmers, were utilized in their everyday life in order to help them survive in the changing livelihood landscape. In this sense, these coping strategies were, in part, useful in sustaining the capital accumulation of the seed companies in the neoliberal era.

4.5 Chapter conclusion

In this chapter, it was seen that the changing livelihood landscape of TK Village was overlapped with the changing macro-economic structure of Thailand, where the high value commodities, like the hybrid seeds, were produced and sent out to the national and global markets. The seed management by the farmers in this chapter cannot fit into the nostalgic image of rural peasants just simply staying in peaceful surroundings, sowing seeds and waiting for the harvest season year by year. On the one hand, they were, most if not all of them, a contracting farmer whose labor was exploited to make hybrid seeds for exporting to other countries. Farmers, as a petty producer under contract farming, were engaging with flexible production – a neoliberal culture of labour – in the neoliberal globalization. They encountered the problems of production while receiving higher income from producing specific commodities like hybrid seeds. The sowed seeds and seedlings they grew were protected by the seed regulations under the private regime. This seed regime helped the companies and plant breeders claim ownership on commercial plant varieties in order to integrate Thailand into the global seed market.

On the other hand, these farmers were not passive when they engaged the global seed companies as seen by the coping strategies they employed in order to negotiate with the global division of labor. This meant that farmers also had an important role in commodifying nature under the changing socio-economical and environmental conditions. By this, the farmers should not be seen as mute cogs simply connected to contract farming for hybrid seed production under global seed market integration. This could theoretically contribute to the importance of the actor-oriented approach in profoundly understanding the small-scale farmer integration into contract farming and the process of the commodification of nature.

The integration of the small-scale farmers and their livelihood landscape into the global seed market, however, revealed the asymmetrical relationship where the elements and processes come together, articulating to the differences among the small-scale farmer households. With fewer limited resources at hand, the poor household farmers had to calculate their choices, indirectly excluding themselves from earning income from the globalization of agriculture in contrast to the well-off and the middle-income households. I proposed that there was no simple solution for the uneven social, economic, political and environmental conditions and tensions emerging in the integration of the small-scale farmers into the global seed market.

In the broader picture, the agrarian transition in TK Village was (re)shaped not only by the farmers but also the involvement of heterogeneous actors. The next part then brings the idea of the cultural politics to reflect the small-scale farmers engaging with the socio-environmental movements and the invention of nature being linked to the cultural identities of peasantry in such a circumstance.