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## **Do Thai Cut Orchid Producers Benefit from Q-GAP Certification?**

Henning Krause, Rattiya S. Lippe and Ulrike Grote

Leibniz Universität Hannover, Institute for Environmental Economics and World Trade, Germany

### **Introduction**

Fresh cut orchids are the most important floricultural crop in Thailand, with half of its production leaving the country (CAI, 2013). Because of this strong export orientation, Thai cut orchid producers depend on the acceptance of their products on the global market. Due to increased end-customer awareness about social and environmental problems in the countries of origin, standards and certification schemes recently became more important in international flower trade (Rikken 2010; Raynolds et al., 2004).

In 2004 the Thai government introduced the Q-GAP certification program to enhance competitiveness of Thai horticultural products on the global market. It is a public voluntary standard in which certified producers can label their products with the Q-GAP logo. Q denotes quality and GAP is a synonym for Good Agricultural Practices. The scheme aims to reduce pesticides usage and their residues on products, to increase product quality and uniformity, to improve working conditions and to enhance the participating farmers' knowledge about Good Agricultural Practice and integrated pest management (Schreinemachers et al., 2012; Sardud, 2007). Even though its implementation and auditing are free of charge for the farmers, statistical data shows a decline in orchid growers participating in the Thai Q-GAP scheme. This decrease in cut flower producers could indicate low marginal welfare benefits from the scheme. Accordingly, this paper raises the question to what extent Thai orchid growers benefit from participating in the Q-GAP certification scheme.

Literature shows that the main reasons for growers to comply with certification schemes are the ability to enter and continuously serve high value markets (Henson & Jaffee, 2007), as well as the receipt of a price premium for the certified product (Blackman & Naranjo, 2012). Previous impact studies found various positive effects on household welfare of horticultural producers such as increased household income (e.g. Becchetti et al., 2012; Asfaw et al., 2010; Bolwig et al., 2009), higher savings, easier access to credits (Ruben & Fort, 2012), or higher investment into land or agricultural assets (Kamau et al., 2010). Other studies found improved farm management (Colen et al., 2012), enhanced social capital (Mendez et al., 2010), better pesticide handling and health protection (Asfaw et al., 2010; Okello, 2005), and enhanced worker's welfare (Riisgard, 2009; Hale & Opondo, 2005). However, especially in Business to Business (B2B) communicated standards, small-scale farmers were often found to be marginalized (e.g. Amekawa, 2009; Maertens et al., 2007).

Up to this point, no study exists which analyzed the impact of Q-GAP certification on floricultural producers' welfare. Given this research gap, this study aims at quantifying the impact of Q-GAP certification on several economic welfare indicators and on pesticide use in cut orchid production.

## Material and Methods

A total of 256 cut orchid producers were selected using a stratified random sampling technique and were interviewed in 2012. Study areas are the five provinces with the highest orchid production in Thailand namely Nakornpatom, Samutsakorn, Bangkok, Ratchaburi and Chonburi.

To avoid selection bias, Propensity Score Matching was used following Rosenbaum & Rubin (1983) with the likelihood of participating in the Q-GAP certification scheme as a balancing score. This likelihood of participation was calculated with a logit model of choice. Then the average treatment effect on the treated (ATT) was calculated between weighted pairs of certified and non-certified farmers. To assure robustness against different matching algorithms, three different algorithms have been used: Nearest-Neighbor-Matching (NN), Radius-Matching and Kernel-Matching. The quality of the matching estimators was evaluated by comparing bias reduction for the three matching algorithms; a sensitivity analysis with Rosenbaum Bonds was performed to detect hidden bias.

## Results and Discussion

The econometric results do not show a significant direct impact of Q-GAP certification on household income (Table 1). This can be explained by the fact that certified and non-certified orchids follow the same value chains, whereby certified producers do not receive a price premium. Moreover, Q-GAP certification does not improve the access to high value markets indicated by the insignificant impact of Q-GAP on the share of sold orchids to export markets. Furthermore, a severe flooding in 2011 in the major production areas influenced the farm gate prices as a result of limited supply of cut orchid products. The increased market price might have overlaid the effect of certification. Nevertheless, positive effects from participating in the Q-GAP certification program on other household welfare indicators are visible. Certified producers have significantly higher investments into household insurances and into farmland during the last five years.

**Table 1: Average treatment effect on the treated (ATT) of Q-GAP certification for selected welfare indicators.** Source: own calculation

	Nearest Neighbour	Radius	Kernel
<b>Welfare indicators</b>			
Income from orchid [THB/y]	1,990,312 (1,507,329)	900,442 (1,060,821)	1,020,145 (1,182,339)
Exported share	-0.09 (0.09)	0.00 (0.07)	-0.02 (0.07)
Insurance payment [THB/y]	36,235 (17,347)**	20,834 (14,596)	35,139 (16,215)**
<b>Farm investments</b>			
Farm land investments <sup>1</sup> [rai]	5.06 (1.85)***	5.18 (1.68) ***	5.17 (1.71) ***
Agricultural asset investments [THB]	32,145 (84,911)	23,429 (62,556)	55,467 (68,589)

**Notes:** <sup>1</sup>Result not robust against sensitivity analysis, hidden bias cannot be excluded

\*= significant at the 10 %-level, \*\*= significant at the 5 %-level, \*\*\*= significant at the 1 %-level

Bootstrapped standard errors in brackets; 1 rai = 0.16 ha; 1 THB = 0.024 € (2014-10-22)

## Conclusions

Overall the Q-GAP program does not fulfill Thai government's goal to reduce pesticide usage and increase competitiveness of the cut orchid sector. Thai cut orchid producers do not benefit from an increased income thanks to Q-GAP certification and thus have limited incentives to participate in the scheme. One reason for this might be that insufficient resources are dedicated to the scheme's administration, indicated as well by prior research on the scheme (Schreinemachers et al., 2012; Sardud, 2007). This is confirmed by the fact that many former certified producers could not be recertified even though they wished to do so, because there were no auditors available in the year prior to the study. Moreover, our data shows that certified producers still sell more than a third of their orchids as certified products, even though they do not have the right to do so. More stringent controls and audits with higher frequency, which increase the reliability of the scheme, are needed.

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