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Geographical indication and development plans in South Korea: a study on dried persimmons

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ABSTRACT

As a result of the 1994 “WTO/TRIPs Agreement”, and based on adherence to the 1999 Agricultural and Fishery Products Quality Control Act, geographical indication (GI) has been implemented in South Korea since 2000. As of the end of 2014 there were a total of 95 products registered for GI, including 32 forestry products, 53 agricultural products, and 11 fishery products. There are four registered regions for dried persimmons in a single product, which is the most of any of the 51 regions (32 forestry products) registered for GI. Accordingly, this study investigates the opinions of dried persimmon-producing farmers and purchasers to increase profits for farmers and to suggest plans for the advancement of the GI system (GIs). However, a large number of dried persimmon farmers and purchasers are not familiar with GIs. Consequently, we were able to conclude that there is a need to continually publicize the importance and aims of introducing GI, perhaps by opening a website or developing a smartphone application. Furthermore, producers must improve the product quality and the government requirements to implement quality control strategies for GI-registered dried persimmons, and to conduct thorough management and supervision of the illegal distribution of dried persimmons that misappropriates GI.

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Dried persimmon; forestry products; geographical indication; illegal distribution; publicity

Introduction

By registering and protecting geographical indication (GI) of domestically produced outstanding agricultural, livestock, forestry, and fishery products, South Korea aims to improve the product quality of local specialty products, ensure regional competitiveness, reinforce competitiveness through producer protection, and provide product purchasing information to purchasers. For these reasons, and to satisfy purchasers' right to know, South Korea has a GI system (GIs) (Yu 2012). The Agricultural and Fishery Products Quality Control Act (Ministry of Agriculture, Food and Rural Affairs 2016) defines GI as “where the reputation, quality, and other distinctive features of agricultural and fishery products or processed agricultural and fishery products ... fundamentally result from the geographical characteristics of a specific region, which is an indication describing that the relevant agricultural and fishery products or processed agricultural and fishery products have been produced, made, or processed in the specific region.” Currently, registration and management of individual items is conducted by the National Agricultural Products Quality Management Service (NAQS) for agricultural products, by the Korea Forest Service (KFS) for forestry products, and by the National Fishery Products Quality Management Service (FiQ) for fishery products. Beginning with green tea (*Camellia sinensis* leaves) in 2002, the NAQS has registered 93 products for 53 regions thus far, while the KFS has completed the registration of 32 products for 51 regions, beginning with pine mushrooms (*Tricholoma matsutake*) in 2006. The FiQ first registered blood cockles (*Tegillarca granosa*) in 2009, and has registered a total of 11 products for 19 regions to date.

On the other hand, studies on GIs were performed in various perspectives internationally, of which product qualification was considered a method to form connections between producers and purchasers (Tregear et al. 2007). In a study on the GI for the Hessian apple wine, Teuber (2011) reported that purchasers had limited awareness and knowledge about GIs; intentions on purchasing GI products were led by awareness and expectations of purchasers through positive effects on the local economy, and producers registered products for GI to maintain existing reputations. However, studies on the GI for tequila in Mexico showed that GIs not only protected traditional local products but also contributed to preserving biodiversity at various levels (domestic animal breeds, plant varieties, microbial ecosystems, and landscapes) (Bérard and Marchenay 2006), although it might be detrimental to the local economy and the environment (Bowen and Zapata 2009). Based on cases such as Basmati rice and Rooibos tea, Biénabe and Marie-Vivien (2015) suggested that both public quality standards for products and specific intellectual property rights should be considered in order to institutionalize GI, and a study on Basmati rice by Jena and Grote (2012) reported that producers were significantly affected by the expansion of training facilities, reliable measures prepared for risks, and usefulness of family workforces. As such, the results of some studies urge that governments should have proper regulations for production and consumption of public goods, and sustainable development through GIs (Bowen 2010; Zhao et al. 2014; Belletti et al. 2015).

Nevertheless, recent research on GI in South Korea has consisted mostly of studies introducing GI and investigating the understanding of it (Kim 2014; Lee 2017), efficient plans

to improve GIs (Lee et al. 2011a), and plans to activate GIs (Na 2014, 2015; Jin et al. 2016). At present there has been no study on the phenomena and the effects of GIs after implementation of the system in South Korea, compared to countries that introduced it earlier. In particular, there have been few studies on identifying the problems, and the measures needed to avoid them, during implementation of the system targeting individual GI products.

Meanwhile, research on dried persimmons (a forestry product made by peeling and artificially or naturally drying fresh persimmons), which are the topic of our study, consists mostly of studies on promoting the consumption of persimmon (Choi and Kim 2016), product quality characteristics of dried persimmons (Hur et al. 2014; Oh et al. 2016), and analysis of their physicochemical composition (Lee et al. 2011b). Although dried persimmons are one of the main forestry products in the GIs, there has been a lack of studies on the GI of dried persimmons. In other words, GIs of South Korea was implemented to benefit producers and deliver accurate product information to purchasers. However, there has been no study on the effect of GIs on increasing incomes of dried persimmons-producing farmers and the purchasing intention decisions made by purchasers of dried persimmons. Demand has been persistently increasing over the last 10 years for use in ancestral rites ceremonies during traditional holidays, for snacks, and for gifts (Cho 2007).

Accordingly, we aimed to determine the opinions of purchasers and farmers producing dried persimmons regarding GI, to investigate problems of GIs related with dried persimmons, and to find methods to overcome these problems. This data will enable the sound establishment of GIs, contributing not only to promote purchasing desire for dried persimmons by purchasers, but also to increasing incomes of farmers. In addition, the results of this study will be useful to determine ways to promote GIs that can be utilized by other studies as well as the government.

Material and methods

Study area

For our study we selected the four survey areas registered by the KFS for GI of dried persimmons: Sancheong-gun and Hamyang-gun in Gyeongsangnam-do; Sangju-si in Gyeongsangbuk-do; and Yeongdong-gun in Chungcheongbuk-do (Figure 1). These four regions are all famous domestic production regions for dried persimmons. According to statistical data from the Census of Agriculture, Forestry, and Fisheries and internal data from each county's forestry management department and agricultural technology center, as of 2014, the 8104 persimmon farms and 4188 ha cultivation area respectively comprised approximately 19% and 31% of the total persimmon farms and cultivation area in South Korea. Moreover, the mean cultivation area per household in the four survey regions was 1.5 ha, which was about five times higher than the 0.3 ha mean cultivation area per household across all of South Korea.

Data collection and analysis

For our survey we used legislation, previous studies, statistical data, and Internet homepages from related organizations to gather information about the current state of GI and GI-

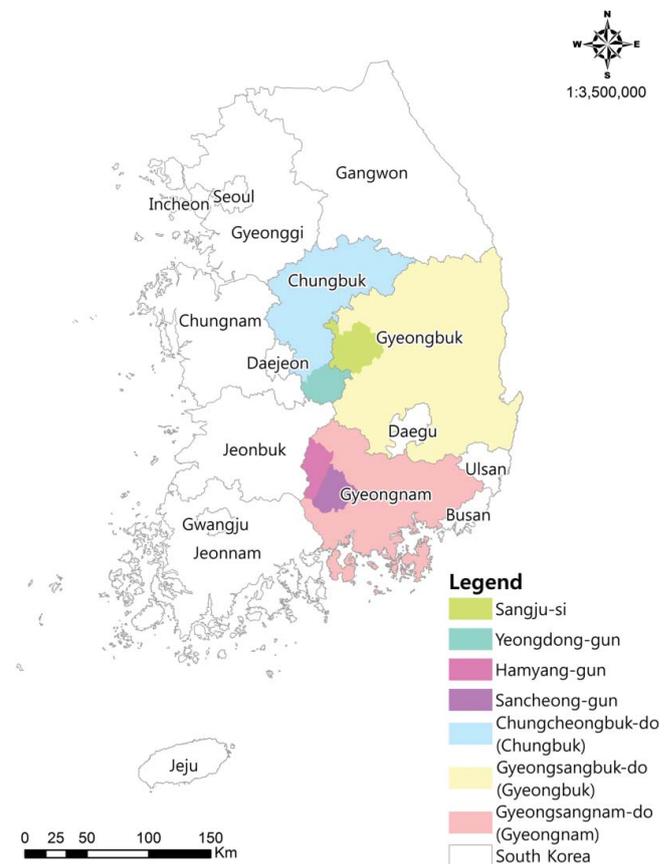


Figure 1. Study area.

registered products. We conducted the survey on 101 farmers in four regions producing GI-registered dried persimmons and on 324 dried persimmon purchasers visiting supermarkets or department stores. The main survey items for dried persimmon-producing farmers included persimmon tree cultivation area, composition of household gross income, production-related difficulties, and thoughts about GI for forestry products. The survey was conducted over approximately 2 months in January and February 2013. In September 2013 and January 2014 we also conducted a face-to-face survey of purchasers of dried persimmons who were all 20 years or older adults, both male and female, who purchased dried persimmons during the survey period. Survey items for dried persimmon purchasers consisted of awareness of GI for forestry products, experience purchasing GI-registered dried persimmons and future purchasing intentions, and plans for activation of the GIs.

The survey results were statistically analyzed using PASW Statistics 18.0 (SPSS Inc., Chicago, IL, USA). Chi-square independence test, chi-square goodness of fit test, correlation analysis (Pearson), and correlation test (Cramer's V) were conducted at the 95% confidence interval.

Results and discussion

Cultivation area of surveyed farms

We investigated the cultivation area of 101 farms in the four survey areas of Sancheong-gun and Hamyang-gun in Gyeongsangnam-do, Sangju-si in Gyeongsangbuk-do, and Yeongdong-gun in Chungcheongbuk-do. In the four survey areas the total number of persimmon-growing farms was 8013 and the total cultivation area was 4188 ha. Of these, the

Table 1. Persimmon cultivation area of dried persimmon farms.

Classification	Total farms ^a		Num.-f (farms)	Surveyed farms				χ^2	Ave.-f (ha)
	Num.-f (farms)	Cul.-a (ha)		Cul.-a (ha)					
				Forest	Farmland ^b	Total			
Sangju-si	4590 (57.3)	1870 (44.7)	31 (30.7)	0.0 (0.0)	62.7 (100.0)	62.7 (100.0)	120.068 ^c	2.0	
Sancheong-gun	1300 (16.2)	880 (21.0)	19 (18.8)	13.6 (57.9)	9.9 (42.1)	23.5 (100.0)		1.2	
Yeongdong-gun	1293 (16.1)	841 (20.1)	30 (29.7)	0.0 (0.0)	31.6 (100.0)	31.6 (100.0)		1.1	
Hamyang-gun	830 (10.4)	597 (14.3)	21 (20.8)	8.9 (34.2)	17.1 (65.8)	26.0 (100.0)		1.2	
Total	8013 (100.0)	4188 (100.0)	101 (100.0)	22.5 (15.6) (0.672 ^{**}) ^d	121.3 (84.4) (0.637 ^{**}) ^d	143.8 (100.0)		1.4	

Notes: Values in parentheses indicate % composition. Num.-f = Number of farms; Cul.-a = Cultivation area; Ave.-f = Average cultivation area per farm.

^a Internal data from the forestry management department and the agricultural technology center in each county.

^b Farmland refers to dry fields, paddies, and orchards.

^c Chi-square independence test, * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

^d Correlation coefficient for the total cultivation area, * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

cultivation area of the 101 farms we surveyed was 143.8 ha, and the mean cultivation area per farm was 1.4 ha. Of the four regions Gyeongsangbuk-do's Sangju-si had the most farms and the largest cultivation area at 4590 and 1870 ha, respectively. With 2.0 ha cultivation area per farm, the scale of farming was also the largest. However, no significant regional differences were noted in cultivation area ($P > 0.05$). Meanwhile, in the case of Sancheong-gun and Hamyang-gun in Gyeongsangnam-do, 57.9% and 34.2% of persimmon tree cultivation, respectively, takes place in forests, and cultivation areas were significantly correlated with forests and farmlands ($P < 0.01$) in which all correlation coefficients were at least 0.6, indicating high positive correlations (Table 1).

Gross income composition of dried persimmon-producing farms

The mean gross income of the 101 farms in the four regions was US\$46,000, and the mean gross income was highest in Yeongdong-gun (US\$68,100). However, no significant regional differences were noted in total gross income ($P > 0.05$). Meanwhile, although the proportion of gross income accounted for by dried persimmons was on average 54.0%, this proportion was highest in Sancheong-gun where dried persimmons accounted for 79.8% of gross income. Correlation coefficients of total gross income with dried persimmons and fruit trees were significant ($P < 0.001$) at 0.888 and 0.342, respectively, indicating positive correlations, and, in particular, the correlation coefficient of dried persimmons with total gross income was higher than 0.8, showing an

especially high positive correlation (Table 2). As such, since dried persimmons greatly affected gross incomes of cultivating farmers, it was considered necessary to place efforts on rapid settlement of GIs including promotion of GIs to farmers and induction of GI registrations of dried persimmons, which was considered a method to naturally increase the incomes of producers – one of the aims of GIs.

Dried persimmon farmers' thoughts about difficulties and GI for forestry products

In relation to dried persimmon production difficulties, farmers first mentioned weakening labor intensity owing to the labor shortage and aging workforce, in addition to poor sales and the drop in prices resulting from the expansion of the national persimmon cultivation area. Furthermore, in relation to the act of distributing non-GI dried persimmons as GI-registered dried persimmons, farmers demanded more thorough supervision by related institutions. Desires for the future included strategies to enable sales throughout the year rather than just around the holidays, efforts by local government to expand selling routes, stronger publicity, increased funding for equipment (e.g. warm air circulators, drying racks, and low-temperature storage), and support for the design and production of packaging to match purchasers' preferences. Meanwhile, of the 101 surveyed farms, approximately 90% did not know about GI and were completely unaware that their own region's dried persimmons were registered for GI. There are several reasons for this, including the lack of publicity by the government regarding GI, but the surveyed areas have long been known as famous producers

Table 2. Gross income of dried persimmon-producing farms.

Classification	Num.-f (farms)	Ave.-f (thousand US\$)	Gross income composition (thousand US\$)								χ^2
			Dp	Fr ^a	C	HI	Fu	A	O ^b	T	
Yeongdong-gun	30 (29.7)	68.1	1122.8 (54.9)	636.9 (31.2)	0.0 (0.0)	3.4 (0.2)	105.0 (5.1)	0.0 (0.0)	176.0 (8.6)	2,044.0 (100.0)	276.292 ^c
Sangju-si	31 (30.7)	45.9	728.1 (51.2)	0.0 (0.0)	0.0 (0.0)	23.7 (1.7)	319.8 (22.5)	130.8 (9.2)	219.8 (15.5)	1,422.2 (100.0)	
Hamyang-gun	21 (20.8)	33.1	271.6 (39.1)	89.4 (12.9)	48.9 (7.0)	90.4 (13.0)	54.8 (7.9)	0.9 (0.1)	138.4 (19.9)	694.4 (100.0)	
Sancheong-gun	19 (18.8)	25.7	389.5 (79.8)	0.0 (0.0)	0.0 (0.0)	2.8 (0.6)	51.7 (10.6)	1.9 (0.4)	42.0 (8.6)	487.9 (100.0)	
Total	101 (100.0)	46.0	2511.9 (54.0) (0.888 ^{***}) ^d	726.2 (15.6) (0.324 ^{***}) ^d	48.9 (1.1) (0.064) ^d	120.3 (2.6) (0.101) ^d	531.3 (11.4) (0.140) ^d	133.6 (2.9) (0.158) ^d	576.1 (12.4) (0.169) ^d	4,648.4 (100.0)	

Notes: Values in parentheses indicate % composition. Num.-f = Number of farms; Ave.-f = Average gross income per farm; Dp = Dried persimmons; Fr = Fruits; C = Chilipeppers; HI = Hired labor; Fu = Funding; A = Allowance; O = Other; T = Total.

^a Fruits include fresh persimmons, apples, grapes, and peaches.

^b Other includes grains, farm produce, wild greens, apiculture, pine mushrooms, and lodging facilities.

^c Chi-square independence test, * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

^d Correlation coefficient for the total gross income, * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

Table 3. Awareness of GI for forestry products.

Total (number of people)	Knew about GI (number of people)					Total	χ^2	D.-GI (number of people)
	Bm	Ac	In	Pr	KFS			
324 (100.0)	47 (14.5)	33 (10.2)	12 (3.7)	8 (2.5)	5 (1.5)	105 (32.4)	63.143*** ^a	219 (67.6)

Notes: Values in parentheses indicate % composition. Bm = Broadcasting media; Ac = Acquaintance; In = Internet; Pr = Print; KFS = Korea Forest Service homepage; D.-GI = Did not know about GI.

^a Chi-square goodness of fit test, * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

of dried persimmons and the majority of farmers achieve strong sales through repeat clients. Accordingly, most of the farmers showed little interest in GIs, but they nevertheless wanted to see more thorough quality control in the future to ensure superior competitiveness for the region's dried persimmons.

Awareness of GI for forestry products

When we surveyed 324 dried persimmon purchasers about their awareness of GI for forestry products, including dried persimmons, we found that 32.4% of the respondents were aware of GI. The most common route of awareness was broadcasting media at 14.5%, followed by an acquaintance at 10.2% and the Internet at 3.7%. About half of the purchasers were aware of GIs for forestry products through the broadcasting media, and this difference was significant ($P < 0.05$) (Table 3). Since the broadcasting media mediated about half of the purchasers to be aware of GIs, it was determined to be more effective to utilize broadcasting media than other methods in order to raise awareness of GIs and promote GI products.

Experience of buying GI-registered dried persimmons and future purchasing intentions

Of the 324 respondents, 11.4% experienced buying GI-registered dried persimmons. Of these, the highest proportions by

category were 25.0% by 70 years or older respondents, 12.1% for females, 14.3% for US\$9600 or higher in monthly income, and 12.2% for the self-employed; however, these differences were not significant ($P > 0.05$). In terms of future GI-registered dried persimmon purchasing intentions, 59.0% of respondents responded positively. Of these, respondents aged 70 or older accounted for 75.0%, corresponding to the highest proportion, and showed a statistically significant difference ($P < 0.05$). In contrast, although the highest proportions in other items were 59.6% for males, 80.0% for US \$6700–9600 in monthly income, and 77.4% of skilled workers, these differences were not significant ($P > 0.05$). On the other hand, analysis of correlations between buying experience of GI-registered dried persimmons and future purchasing intentions resulted in 0.241 in the Cramer's V value, which was significant ($P < 0.001$) (Table 4). These results indicated that purchasers who had a buying experience of GI-registered dried persimmons tended to have future purchasing intentions of GI-registered dried persimmons.

Plans for GI promotion

To promote GI, 66.0% of respondents suggested that stronger publicity is required. This was followed by ensuring high quality at 19.1% and ensuring competitive pricing at 10.5%, and these differences were significant ($P < 0.001$), which re-emphasized the importance of publicity as an activation

Table 4. GI dried persimmon buying experience and future purchasing intentions.

Classification	Total (number of people)	GI dried persimmon buying experience (number of people)			χ^2	Future GI dried persimmon purchasing intentions (number of people)			χ^2
		No	Yes			Yes	No	Not sure	
Age	20s	64 (100.0)	59 (92.2)	5 (7.8)	9.688 ^b	22 (34.4)	10 (15.6)	32 (50.0)	31.636*** ^b
	30s	93 (100.0)	83 (89.2)	10 (10.8)		59 (63.4)	2 (2.2)	32 (34.4)	
	40s	90 (100.0)	84 (93.3)	6 (6.7)		56 (62.2)	4 (4.4)	30 (33.3)	
	50s	62 (100.0)	49 (79.0)	13 (21.0)		45 (72.6)	3 (4.8)	14 (22.6)	
	60s	11 (100.0)	9 (81.8)	2 (18.2)		6 (54.5)	1 (9.1)	4 (36.4)	
	≥ 70s	4 (100.0)	3 (75.0)	1 (25.0)		3 (75.0)	1 (25.0)	0 (0.0)	
Sex	Male	151 (100.0)	135 (89.4)	16 (10.6)	0.190 ^b	90 (59.6)	11 (7.3)	50 (33.1)	0.475 ^b
	Female	173 (100.0)	152 (87.9)	21 (12.1)		101 (58.4)	10 (5.8)	62 (35.8)	
Monthly income (thousand US\$)	<2.9	222 (100.0)	198 (89.2)	24 (10.8)	1.122 ^b	120 (54.1)	15 (6.8)	87 (39.2)	14.401 ^b
	2.9–4.8	74 (100.0)	64 (86.5)	10 (13.5)		50 (67.6)	2 (2.7)	22 (29.7)	
	4.8–6.7	16 (100.0)	14 (87.5)	2 (12.5)		12 (75.0)	2 (12.5)	2 (12.5)	
	6.7–9.6	5 (100.0)	5 (100.0)	0 (0.0)		4 (80.0)	1 (20.0)	0 (0.0)	
	≥ 9.6	7 (100.0)	6 (85.7)	1 (14.3)		5 (71.4)	1 (14.3)	1 (14.3)	
Occupation	Office worker, civil servant	108 (100.0)	90 (83.3)	18 (16.7)	7.843 ^b	67 (62.0)	6 (5.6)	35 (32.4)	17.923 ^b
	Housewife	60 (100.0)	53 (88.3)	7 (11.7)		32 (53.3)	4 (6.7)	24 (40.0)	
	Skilled worker	53 (100.0)	49 (92.5)	4 (7.5)		41 (77.4)	3 (5.7)	9 (17.0)	
	Self-employed	41 (100.0)	36 (87.8)	5 (12.2)		22 (53.7)	4 (9.8)	15 (36.6)	
	Student	31 (100.0)	31 (100.0)	0 (0.0)		18 (58.1)	2 (6.5)	11 (35.5)	
	Other ^a	31 (100.0)	28 (90.3)	3 (9.7)		11 (35.5)	2 (6.5)	18 (58.1)	
Total	324 (100.0)	287 (88.6)	37 (11.4)		191 (59.0)	21 (6.5)	112 (34.6)	0.241*** ^c	

Notes: Values in parentheses indicate % composition.

^a Other: for example, agriculture and forestry industry employees, sales, and unemployed.

^b Chi-square independence test, * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

^c Correlation test (Cramer's V), * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

Table 5. Strategies for GI promotion.

Classification		Sp (number of people)	En.-q (number of people)	En.-p (number of people)	Not sure (number of people)	Total (number of people)	χ^2
Age	20s	45 (70.3)	12 (18.8)	7 (10.9)	0 (0.0)	64 (100.0)	51.146*** ^c
	30s	64 (68.8)	16 (17.2)	7 (7.5)	6 (6.5)	93 (100.0)	
	40s	62 (68.9)	16 (17.8)	11 (12.2)	1 (1.1)	90 (100.0)	
	50s	35 (56.5)	17 (27.4)	4 (6.5)	6 (9.7)	62 (100.0)	
	60s	8 (72.7)	1 (9.1)	1 (9.1)	1 (9.1)	11 (100.0)	
	≥ 70s	0 (0.0)	0 (0.0)	4 (100.0)	0 (0.0)	4 (100.0)	
Sex	Male	97 (64.2)	32 (21.2)	12 (7.9)	10 (6.6)	151 (100.0)	5.980 ^c
	Female	117 (67.6)	30 (17.3)	22 (12.7)	4 (2.3)	173 (100.0)	
Monthly income (thousand US\$)	<2.9	139 (62.6)	42 (18.9)	30 (13.5)	11 (5.0)	222 (100.0)	24.057** ^c
	2.9–4.8	60 (81.1)	13 (17.6)	1 (1.4)	0 (0.0)	74 (100.0)	
	4.8–6.7	7 (43.8)	4 (25.0)	3 (18.8)	2 (12.5)	16 (100.0)	
	6.7–9.6	3 (60.0)	1 (20.0)	0 (0.0)	1 (20.0)	5 (100.0)	
	≥ 9.6	5 (71.4)	2 (28.6)	0 (0.0)	0 (0.0)	7 (100.0)	
Occupation	Office worker, civil servant	76 (70.4)	20 (18.5)	9 (8.3)	3 (2.8)	108 (100.0)	20.434 ^c
	Housewife	35 (58.3)	11 (18.3)	10 (16.7)	4 (6.7)	60 (100.0)	
	Skilled worker	40 (75.5)	10 (18.9)	3 (5.7)	0 (0.0)	53 (100.0)	
	Self-employed	26 (63.4)	10 (24.4)	3 (7.3)	2 (4.9)	41 (100.0)	
	Student	19 (61.3)	8 (25.8)	3 (9.7)	1 (3.2)	31 (100.0)	
	Other ^a	18 (58.1)	3 (9.7)	6 (19.4)	4 (12.9)	31 (100.0)	
Total		214 (66.0)	62 (19.1)	34 (10.5)	14 (4.3)	324 (100.0)	305.531*** ^b

Notes: Values in parentheses indicate % composition. Sp = Strong; En.-q = Ensuring high quality; En.-p = Ensuring competitive pricing.

^a Other: for example, agriculture and forestry industry employees, sales, and unemployed.

^b Chi-square goodness of fit test, * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

^c Chi-square independence test, * $P < 0.05$, ** $P < 0.01$, and *** $P < 0.001$.

strategy for GIs. Of the purchasers who considered that stronger publicity is more important, the 60s age group and monthly income group of US\$2900–4800 accounted for the highest proportions with 72.7% and 81.1%, respectively, which showed statistically significant differences ($P < 0.05$). In contrast, although females and the skilled worker occupation groups were highest with 67.6% and 75.5%, respectively, these differences were not significant ($P > 0.05$). In addition, there was a relatively high proportion of “ensuring high quality” responses among the 50s age group and those with monthly income greater than US\$9600, and there was a relatively high proportion of “ensuring competitive pricing” responses among the 70s age group and those with monthly income greater than US\$4800–6700 (Table 5).

Conclusion

In order to activate GI-registered dried persimmons, dried persimmon-producing farmers should comply with their own quality standards and quality management plans that they promised at the time of registration for GI to ensure the best quality of dried persimmons, which will be the most important method to raise the trust of purchasers. In the case of false indication with non-GI-registered dried persimmons as GI-registered dried persimmons, Agricultural and Fishery Products Quality Control Act (Act 40 [1]) cancels GI registration. And thus, relevant authorities should thoroughly manage and supervise the fresh persimmons produced in the registration region, and also to be proud of the dried persimmons produced in the region being enrolled in the GI due to the superior geographic feature, producers make efforts to produce the high quality products.

On the other hand, dried persimmon purchasers need to recognize that buying GI-registered dried persimmons means selecting safe foods that the government has certified and that by doing so they are helping farmers achieve higher incomes as well as supporting the goals of GIs, including the protection of the food industry and biodiversity in South Korea. For this, the government of South Korea should focus on

raising awareness of GIs among people through active promotion of GIs. In addition, the government of South Korea needs to support farmers with storage facilities considering dried persimmons by the characteristics of being consumed around national holidays, such as Lunar New Year and the Harvest Festival, and also regulate illegal distribution of non-GI-registered dried persimmons that are falsely claimed to be GI-registered dried persimmons through strict control and supervision.

Finally, studies on GIs in South Korea have focused on backgrounds, definitions, and explanations about system characteristics, and the cases of foreign countries. Thus, to enable GIs to be established correctly in South Korea in line with the worldwide trend, additional research similar to our study is urgently required to develop measures to activate GIs, such as studies on comparative analysis of various GI-registered products before and after implementation of the system, followed by analysis of individual outcomes from the system and suggestions to complement it. As a result of the 1994 “WTO/TRIPs Agreement,” GIs, brands, patents, and designs have been expanded as targets of multilateral trade negotiations, including the EU. Hence, South Korea should make active efforts to expand GI protection items and enhance GIs protection through multilateral registration systems.

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References

- Belletti G, Maescotti A, Touzard JM. 2015. Geographical indications, public goods, and sustainable development: the roles of actors' strategies and public policies. *World Dev.* 98:45–57.
- Bérard L, Marchenay P. 2006. Local products and geographical indications: taking account of local knowledge and biodiversity. *Int Soc Sci J.* 58(187):109–116.
- Biénabe E, Marie-Vivien D. 2015. Institutionalizing geographical indications in southern countries: lessons learned from Basmati and Rooibos. *World Dev.* 98:58–67.
- Bowen S. 2010. Embedding local places in global spaces: geographical indications as a territorial development strategy. *Rural Soc.* 75(2):209–243.
- Bowen S, Zapata AV. 2009. Geographical indications, *terroir*, and socio-economic and ecological sustainability: the case of tequila. *J Rural Stud.* 25(1):108–119.
- Cho DR. 2007. Variation tendency and enlargement scheme of market scale for dried persimmons in Korea. *Korean J Food Mark Econ.* 24(4):131–148.
- Choi JH, Kim CM. 2016. A study on promoting the consumption of Sangju-dried persimmons as functional food through scientific inquiry. *J Environ Sci Int.* 25(4):543–556.
- Hur SS, Kang BH, Lee DS, Lee SH, Lee JM. 2014. Quality characteristics of domestic dried persimmon and imported dried persimmon. *Korean J Food Preserv.* 21(1):140–145.
- Jena PR, Grote U. 2012. Impact evaluation of traditional Basmati rice cultivation in Uttarakhand state of northern India: what implications does it hold for geographical indications? *World Dev.* 40(9):1895–1907.
- Jin L, Hwang SY, Jeong JS, Choe YC, Moon JH. 2016. Consumers' purchasing behavior toward geographical indications (GIs) certificated produce. *Korean J Food Mark Econ.* 33(2):1–38.
- Kim BK. 2014. A study on the protection system of geographical indications. [MS thesis]. Seoul: Grad. Sch. Law, Yonsei University.
- Lee HH. 2017. A study on the protection of GI. *HanYang Law Review.* 34(1):437–460.
- Lee DP, Choi KH, Hong JP. 2011a. A study on the geographical indication system for promotion of regional industries. Seoul: Korea Rural Economic Institute.
- Lee SW, Moon HK, Lee WY, Kim JK. 2011b. Physicochemical characteristics of cold-air dried persimmons and traditional dried persimmons. *Korean J Food Preserv.* 18(4):481–487.
- Ministry of Agriculture, Food and Rural Affairs. 2016. Agricultural and Fishery Products Quality Control Act. Available from http://elaw.klri.re.kr/kor_service/lawView.do?hseq=25355&lang=ENG.
- Na DK. 2014. Study on the efficient utilization by analyzing the form of geographical indication collective mark. *Sci Tech Law Review.* 20(1):123–152.
- Na DK. 2015. The method of crackdown against the illegal use of geographical indication collective mark. *Sci Tech Law Review.* 21(2):25–52.
- Oh SI, Kim CW, Lee U. 2016. Effect of SO₂ generating pad treatments on the quality of dried persimmons during storage. *J Korean For Soc.* 105(2):202–207.
- Teuber R. 2011. Consumers' and producers' expectations towards geographical indications: empirical evidence for a German case study. *Br Food J.* 113(7):900–918.
- Tregear A, Arfini F, Belletti G, Maescotti A. 2007. Regional foods and rural development: the role of product qualification. *J Rural Stud.* 23(1):12–22.
- Yu KJ. 2012. Historical geographical approach of geographical indication system in Korea. [MS thesis]. Seoul: Grad. Sch. Educ., Sungshin Woman's University.
- Zhao X, Finlay D, Kneafsey M. 2014. The effectiveness of contemporary geographical indications (GIs) schemes in enhancing the quality of Chinese agrifoods – experiences from the field. *J Rural Stud.* 36:77–86.