

ROK Market Brief No.17

Herbicides Market

Opportunities under the Korea-Central America Free Trade Agreement

The Korea-Central America FTA (K-CA FTA) brings significant benefits for CA exporters. Under the agreement, the Republic of Korea and the Central American countries will immediately or gradually reduce tariff on more than 95 percent of traded products. Such benefit will help CA exporters compete with exporters from other countries which have trade deals with Korea.

This guide provides an overview of the herbicides category that benefit from tariff reductions under the K-CA FTA and have market access.



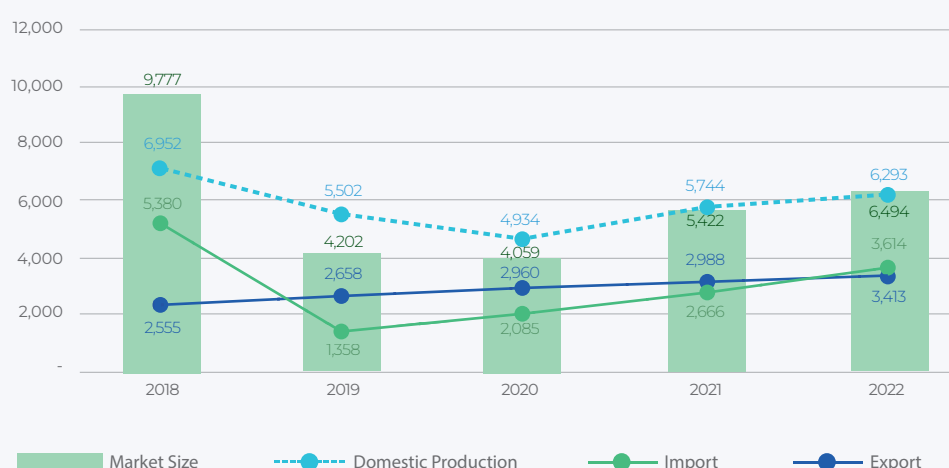
Market Snapshot

The ROK herbicides market volume has experienced a significant decrease in 2019, followed by relatively stable increase from 2020 to 2022. On the other hand, the market value has shown a consistent decline until 2022.

The proportion of domestic production is significantly higher than imports and exports, indicating that the ROK herbicides market relies heavily on domestic productions. However, the proportions of imports and exports are also significant, with imports contributing 56% in volume in 2022, while exports constitute 53% in volume.

Figure 1. ROK herbicides market trend in volume (2018-2022)

(Unit: Ton)

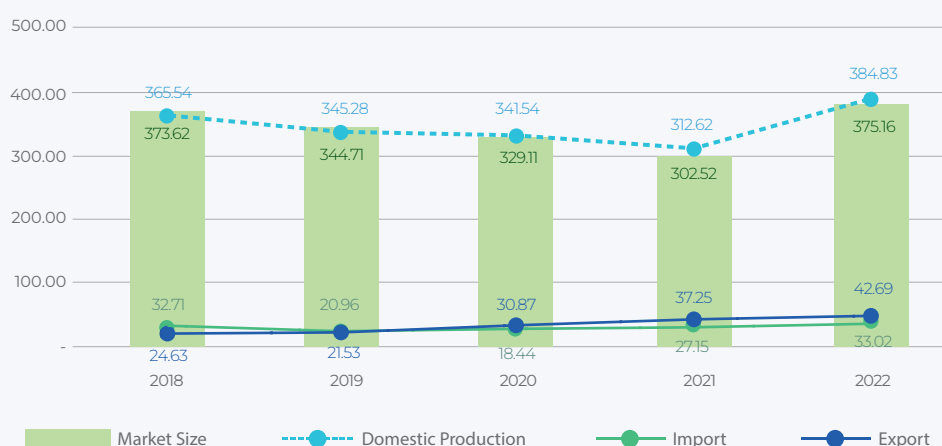


Source) Korea Customs Service Import and Export Statistics (2023)

Note) Market Size = (Domestic production+Import) – Export

Figure 2. ROK herbicides market trend in value (2018-2022)

(Unit: million USD)



Source) Korea Customs Service Import and Export Statistics (2023)

Note) Market Size = (Domestic production+Import) – Export

The ROK herbicide market size is anticipated to experience an annual growth rate of 1% in value and 4% in volume. This projection is based on the factors like diminishing agricultural land, a shrinking rural population, and heightened imports of agricultural produce. On the other hand, the volume of imported herbicides, which are usually low-cost products, is likely to increase gradually.

Consequently, there is a growing imperative in the herbicide market to establish distinctive competitiveness through the development of high-functionality, high-value products, eco-friendly options with low toxicity, and proactive marketing endeavors aimed at market expansion.

In case of the tariff reduction advantages, under the K-CA FTA, all six countries participating in this agreement enjoy the immediate elimination of tariffs on herbicides as of 2024.

Table 1. Tariff on HS Code 380893 as of 2024

Country	HS Code	WTO bound rate	Current rate (2024)	Elimination of custom duties ¹
Costa Rica	380893.1000	6.5%	0%	2019.11.01
El Salvador	380893.1000	6.5%	0%	2020.01.01
Panama	380893.1000	6.5%	0%	2021.03.01
Honduras	380893.1000	6.5%	0%	2019.10.01
Nicaragua	380893.1000	6.5%	0%	2019.10.01
Guatemala	380893.1000	6.5%	0%	-
China	380893.1000	6.5%	0%	2015.12.20

Source) Customs Law Information Portal. (2024); FTA powerhouse, KOREA. (2024); FTA agreement and basic documents

¹ Effective date of the FTA: Nicaragua and Honduras(Oct. 2019), Costa Rica(Nov. 2019), El Salvador (Jan. 2020), Panama (Mar. 2021), For Guatemala, it is assumed in the report that the FTA will come into effect within the year 2024.



Competitive Landscape

China, Indonesia, and India are the major suppliers of herbicides in terms of import volume. The total import volume reached 3,614 tons in 2022 and about 3,016 tons were from the three major suppliers, accounting for 83% of total herbicides imports. The detailed import statistics in volume from 2018 to 2022 is presented in the table below.

Table 2. Import volume of Herbicides per country (2018-2022)

(Unit: Ton)

	2018	2019	2020	2021	2022
China	3,001	830	800	1,122	1,769
Indonesia	1,272	0	318	696	636
India	74	137	139	244	611
Malaysia	423	0	396	248	328
USA	102	89	86	125	111
France	59	52	59	66	48
Germany	174	106	98	71	34
Japan	67	43	78	24	28
Israel	179	88	17	38	21
Others	29	13	74	32	28
Total	5,380	1,358	2,065	2,666	3,614

Source) Customs and Excise Department import and export statistics (2023); Export and import performance

Within imported products, Chinese products show firm dominance over the past five years. This can be attributed to one solid factor, which is China's strong dominance of pesticide raw material production in the world; Currently, China is practically monopolizing the global pesticide market, from consignment production to intermediate export and finished product export by global raw material companies. ROK's import reliance on Chinese pesticide raw material is 97%, hence, it is not surprising to say that ROK herbicides market is held by Chinese raw material companies.

In terms of domestic players, currently in ROK herbicide market, Farm Hannong stands out as one of the domestic manufacturer and supplier. Farm Hannong holds the leading position in crop protection material market share and ranks second in seed and fertilizer market share.

Another notable player is Sungbo Chemical, a well-established company in the domestic crop protection sector. It witnessed an 11.5% YoY surge in 2021, achieving a total revenue of 485.2 million USD.

Lastly there is Kyung Nong, the company who has contributed to the production of high-quality agricultural products by leading the technology of Korean agriculture, including the completion of the first grain mill in Korea, the success of the first herbicide original synthesis in Korea, and the launch of the first freshness maintenance in Korea.



Consumer Preference

Recently, there is growing awareness and interests in natural and eco-friendly herbicides for the sake of human health as well as environmental sustainability. This trend is also widely reflected in various policy measures; Agricultural herbicide sector faces substantial environmental regulations related to production quantity, methodologies, and sales pricing.

To keep pace with such growing preferences on natural herbicides, it is expected to expand the presence of natural crop protection agents. Agribusiness Global, a global agricultural magazine, said in 2020 that 75% of world's crop protection companies already have plans to sell or develop natural crop protection agents. This means that natural crop protection agents are entering the main market by compensating for the shortcomings of chemical crop protection agents.

Another growing selection standard on herbicides is whether it is resistant to the recent abnormal weather changes. Due to the frequent unprecedented events caused of climate crisis, the newly developed herbicides nowadays are focusing on such matter as well. In 2024, Nonghyup Chemical's new products increased the ease of use in unpredictable environments such as abnormal climates. This new launch shows the consumer preference is leaning towards the herbicides which help reduce costs and labor for farmers.



Main Distribution Channels

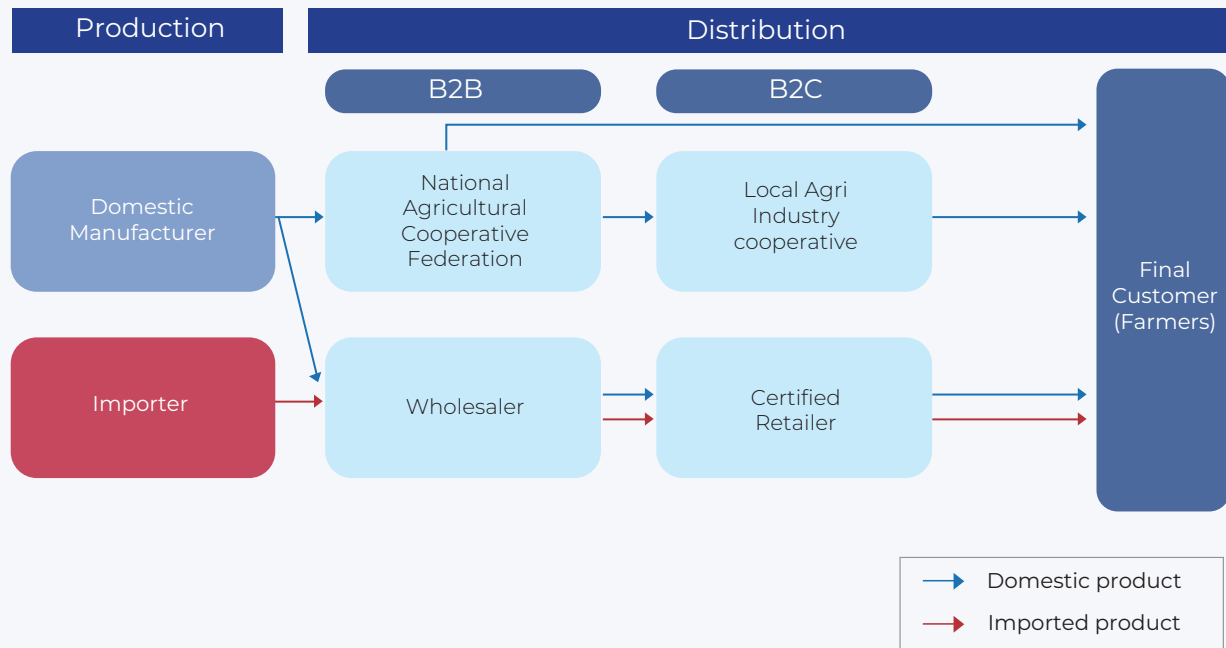
In Korea, unlike other agricultural goods such as fertilizers or machinery, herbicides are treated with stringent regulations on storage, transportation, and sales. The guaranteed efficacy period, variable items, and packaging units add complexity to product management. The short and seasonal supply and demand period, coupled with small transaction units, result in high handling costs.

The distribution can be broadly divided into two categories. One operates through a systematic purchasing system facilitated by the National Agricultural Cooperative Federation (NACF), primarily catering to patty fields.

The other involves a retail purchasing system with wholesalers, focusing on products for horticulture. It is important to highlight regional variations in the types of herbicides offered, emphasizing the diverse nature of herbicides distribution across different areas. Sales for home gardening pesticides or herbicides can be conducted without the need for specialized management.

As for imported herbicides, only herbicide or raw materials that are registered with or approved by the Commissioner of Rural Development Administration can be imported. Herbicides are subject to confirmation by the Head of Customs prior to customs clearance. After the registration and custom clearance, the products are distributed to wholesalers to reach B2C channels or the end consumers.

Figure 3. Distribution channel of herbicides



Source) Korea Crop Protection Association



Regulations

Import Requirements

Herbicides (380893) must be reviewed for two import requirements according to the relevant laws and regulations in Republic of Korea before export preparation. This includes Pesticide Testing and confirming chemical components. Here are the detailed requirements:

First, to export herbicides to South Korea, the importer shall be equipped with facilities, equipment, self-inspection officers, and qualified sales managers, and acquire the business registration certificate.

Once the importer has obtained a business registration, they must prepare a pesticide registration application and pesticide samples to undergo pesticide testing by designated testing research institutions.

Upon issuance of the pesticide test report, the test report and pesticide samples must be submitted to Rural Development Administration (RDA) for import pesticide registration. If there are no abnormalities in the registration information received by RDA, a pesticide registration certificate will be issued.

Figure 4. Application form for Pesticide registration

[illegible]

Source) Korean Law Information Center (<https://www.law.go.kr/>)

Secondly, according to the regulations of the Chemicals Substances Control Act, substances such as 2,4,5-T [2,4,5-T; 93-76-5] and mixtures containing it in concentrations of 1% or more, Trifluralin [Trifluralin; 1582-09-8] and mixtures containing it in concentrations of 1% or more, Paraquat salts [Paraquat, salts] and mixtures containing them in concentrations of 1% or more, and 4,5-Dichloro-2-N-octyl-4-isothiazolin-3-one [4,5-Dichloro-2-N-octyl-4-isothiazolin-3-one; 64359-81-5] and mixtures containing it in concentrations of 1% or more cannot be imported as prohibited substances.

However, if they have been granted import approval by the Ministry of Environment for experimental, research, or testing purposes, they may be imported.

Under the Pesticide Control Act, herbicides, which fall under the term pesticides, are subject to labeling requirements. The information that must be displayed on the packaging under the Article 3 of the Act is listed in the table below. The color of the label background and the lid of the container should be yellow (RGB: 230, 230, 0) for herbicides.

For imported items, the name and location of the importer and the name of the country of manufacture and the manufacturer are separately indicated in the manufacturer name and location column. However, if the importer and the seller are different, the name of the seller's company should be additionally indicated and distinguished.

Figure 5. Labeling Requirements for Herbicides

Details

1. Display of the term “Pesticide”
2. Item registration number
3. Name of the pesticide and its formulation
4. Generic name and content of the active ingredients, and the content of other ingredients
5. Packaging unit

6. Target pests for each crop (in the case of herbicides, growth regulators, or pesticides that enhance efficacy, it refers to the designation of the land for application or its specific purpose) and usage amount
7. Instructions for use and suitable timing of use
8. Safety usage standards and handling restrictions (applicable to pesticides with established standards)
9. For pesticides falling under any of the following categories, corresponding pictograms, warning messages, and precautions must be included:
 - a. For highly toxic, crop residue, soil residue, water pollution, and aquatic toxicity pesticides: pictograms, warnings, or precautions are needed
 - b. For pesticides harmful to humans and livestock: main points and detoxification methods
 - c. For pesticides harmful to aquatic organisms: main points
 - d. For pesticides with risks such as flammability or explosion: main points and special handling methods
10. Precautions for storage, preservation, use
11. Trade name and address
12. Serial number of the population designed to ensure product uniformity during pesticide manufacturing
13. Guaranteed efficacy period
 - a. Display the sequential number of the population, which is configured to ensure uniformity of the pesticide product at the time of manufacture. In this case, the first four digits of the population's sequential number should represent the manufacturing year and month. For pesticides that are repackaged by an importer, the number should be indicated based on the date of repackaging, and in this case, the term "Repackaged" should be displayed before the number. Additionally, around the number, the phrase "Extended Efficacy Period Pesticide" should be displayed in red, with a font size of at least 10 points.
14. Action mechanism group
15. Pictograms and explanations for toxicity, prohibited actions, etc.
 - a. Highly toxic pesticides (additional lock symbol)
 - b. Moderately toxic pesticides
 - c. Aquatic toxicity Grade I and Grade II among pesticides for water use
 - d. Pesticides highly toxic to bees
 - e. Pesticides highly toxic to silkworms
 - f. Pesticides highly toxic to birds
 - g. Irritant Pesticides (Include the corresponding pictogram for mandatory labeling of action)
 - h. Pesticides in powder form that can be mistaken for edible (flour)

[별표 1] **농약등의 그림문자**

1. 행위 금지의 표시		2. 행위 강제의 표시	
■ 고독성 농약	■ 꿀벌독성농약	● 마스크 착용	● 불임투성장갑 착용
■ 보통독성 농약	■ 누에독성농약	● 보호경 착용	● 농약보관장소상자에 잠금장치 보관

■ 고독성 농약중 액체농약 	■ 조류독성농약 	● 불임투성장갑 착용 	● 주의 · 경고마크
■ 어독성 I 급 농약 및 수도용 어독성 II 급 농약 	■ 분말상태 농약 요리금지 		

16. Detoxification and first aid tips
17. Trademark
18. Classification of pesticide uses
19. Barcode (including electronic tags)
20. Explanation on the disposal of empty pesticide containers

Source) Korean Law Information Center, Pesticide Control Act

For the labeling of herbicides, it is prohibited to utilize misleading labels specified under the Article 9.

1. For liquid pesticides, it is prohibited to display images related to fruits, vegetables, or other agricultural products that may be mistaken for food or beverages. However, images of crops may be inserted on the front side for elderly farmers.
2. For solid pesticides, it is prohibited to display images that may be mistaken for edible or feed products. However, images of crops may be inserted on the front side for elderly farmers.
3. Images or illustrations that may mislead children and adolescents into thinking the product is food or beverage-related, including cartoon characters, are prohibited.

On all pesticide packaging, the following explanation regarding the disposal of empty pesticide containers must be provided: "Empty pesticide containers used by farms are collected at the village collection site, and the Korea Environment Corporation will handle the collection. (The Korea Environment Corporation provides cash payments.)" Barcodes on the packaging should use the 'GS1 standard code' and be placed in a size large enough for recognition by a barcode reader, arranged arbitrarily on the packaging.

If the packaging of the pesticide is small and cannot accommodate the entire description, the full description must be written in a separate document and inserted into or attached to the outer packaging.

Import Process

To export herbicides to ROK, it must prepare documentation regarding ingredient details, product status, manufacturing processes, and usage methods to verify compliance with pesticide and chemical import requirements.

Once the relevant documentation is prepared, the importer must register as a pesticide importer, and cooperate in facilitating pesticide testing and registration, which the importer can conduct. If the importer lacks samples for pesticide testing, they must obtain pesticide import approval through the RDA for experimental purposes.

Upon issuance of a pesticide registration certificate or pesticide import permit, proper customs clearance procedures can be initiated, and upon satisfactory inspection, the goods can be received after tax payment. It is important to note that before exporting, it is crucial to confirm whether the regulated prohibited substances under the Chemicals Substances Control Act are contained in the product.

Other Obligations and Cautions

Herbicides to be sold after importation must have the country of origin indicated on the product or retail packaging. The origin must be labeled in Korean, Chinese characters, or English, and should be marked as "MADE IN [Country Name]" or its equivalent. Additionally, for OEM (original equipment manufacturing) products, the country of origin must be indicated in Korean on the front of the item or packaging/container. The method of labeling may vary depending on the packaging area, but it must be at least 12 points font size.



SWOT Analysis



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Strengths

Most importantly, the ROK-Central America Free Trade Agreement (K-CA FTA) would further enhance the appeal by eliminating the tariff, providing a competitive edge for potential CA suppliers, and facilitating their entry into the Korean market. As of 2024, CA exporters are enjoying the full tariff-free status.



W

Weakness

The shared value of eco-friendly agriculture is spreading among Korean consumers. In this sense, Korean consumers tend to prefer organically grown food, which means grown and processed using no synthetic fertilizers or pesticides. As a result, many are willing to pay higher price for organic Agri-food or grow Agri-products.

In response, the government is advocating policies to promote eco-friendly agriculture by reducing or eliminating the use of pesticides and chemical fertilizers. The government has an ambitious goal outlined in the 5th (2021-2025) Five-Year Plan for Eco-friendly Agriculture Promotion to increase the proportion of certified eco-friendly agricultural areas to 10% by 2025.

Aside from Agriculture industry, there emerged "herbicide-free" golf courses because of the escalating concerns regarding deteriorating water quality and soil pollution due to the use of chemicals during golf course maintenance.

Such practices impact the herbicide, pesticide, and other similar chemical product market, as they continue to advocate for the removal or reduction in the use of environmentally harmful chemicals.



Opportunities

Despite the government and general consumer's demand, the domestic Agriculture industry still ponders shifting towards eco-friendly farming. There has been a consistent decline in the size and number of eco-certified farms and the market size over the past decade. The certified area for eco-friendly agriculture has been shrinking for the past 3 years from 81,827,000 ha in 2020 to 67,238,000 ha in 2023. Concurrently, the number of farming households has declined from 59,249 households in 2020, 48,383 households in 2023. This tendency is attributed to the loss of distribution channels of organic products during the pandemic and the high requirements for Environmentally Friendly Agricultural Products Certifications which makes the environmentally friendly agricultural product market very unstable.

When it comes to the golf course, most have heavily relied on pesticides for grass management over the years. According to the Ministry of Environment, the overall pesticide usage in 545 golf courses nationwide increased by 5% YoY or 11 tons to reach a total of 213 tons in 2021. The amount used per area (ha) also increased from 5.15 kg in 2010 to 7.18 kg in 2021. In addition, as of 2021, there are only three golf courses in the country have completely abstained from pesticide use, underscoring the complexities of managing golf course grass without traditional pesticides.

Considering the witnessed gap between the ideal concept of reducing and eliminating the use of herbicides and practical challenges from under-performance of natural products, the domestic market for herbicides, pesticide, and other plant-growth regulator products still has a significant demand.



T

Threats

One of the main threatening factors for CA potential herbicide suppliers can be the large share of ROK domestic production in the total ROK herbicide market. As of 2022, the volume of domestic production was 6,293 tons, whereas the volume of imported herbicides was 3,413 tons. Out of the total ROK herbicides market, the proportion of domestic production is notably substantial.

Another factor of threat is that even with such low proportion of import, the volume of import itself is constantly decreasing. From 2018 to 2022, there was an overall decrease of 14.83%.

Most importantly, the competition with other major exporting countries is fierce. In ROK herbicide market, China held the top position among exporting countries; As of 2022, the proportion of China's export, solely, to the total imported volume in ROK herbicide market was 59% as 1,595 tons. Combining the export volume of the second place, India (610 tons), the proportion goes up to 82%. Such strong dominance of these two major exporters can be a significant threat factor to CA suppliers.



Business Case

ROK Market Insights

- High proportion of domestically producing herbicides
- Growing concerns and policy measures focusing on environment friendly agriculture

Niche

- To target and partner with industries that are irrelevant to human diet responding to the growing perception on health and environment friendly products

Cultural Adaptation

- Understand Korean's main usage of herbicides
- Understand the rapidly growing perception over eco-friendly products
- Understand Korean's particular concerns regarding health issues

Strategy Snapshot



- To enhance the visibility and exportability of Central American countries' herbicides to ROK market, it is recommended to use and participate in the various B2B promotional campaigns hosted in ROK on the preferential basis.
- To foster a successful and sustainable export of Central American countries' herbicides to ROK market, it is recommended to partner with dependable ROK importers who has a good relationship and networks with non-human diet industry companies.

References

- Korea Customs Service Import and Export Statistics (2023)
- Korea Crop Protection Association, Agrochemical yearbook (2023)
- MAFRA opendata - Pesticide production and shipment (2017-2021)
- <https://unipass.customs.go.kr/clip/index.do/>
- <https://www.fta.go.kr/main/>
- <https://tradedata.go.kr/cts/index.do>
- <https://dart.fss.or.kr/dsaf001/main.do?rcpNo=20230320000919>
- <https://dart.fss.or.kr/dsaf001/main.do?rcpNo=20230310001031>
- <https://dart.fss.or.kr/dsaf001/main.do?rcpNo=20230322000774>
- https://www.koreacpa.org/wp-content/uploads/2023/12/%EC%9E%90%EC%97%B0%EA%B3%BC%EB%86%8D%EC%97%85_23.11.12%EC%9B%94%ED%98%B8.pdf
- <https://www.afnnews.co.kr/news/articleView.html?idxno=262875>
- "How are Pesticides Distributed?," KCPA, <https://new.koreacpa.org/crop-protection/qa/143/>
- Korea Crop Protection Association
- Korean Law Information Center <https://www.law.go.kr/%ED%96%89%EC%A0%95%EA%B7%9C%EC%B9%99/%EB%86%8D%EC%95%BD,%EC%9B%90%EC%A0%9C%EB%B0%8F%EB%86%8D%EC%95%BD%ED%99%9C%EC%9A%A9%EA%B8%B0%EC%9E%90%EC%9E%AC%EC%9D%98%ED%91%9C%EC%8B%9C%EA%B8%B0%EC%A4%80>
- "[Editorial] We Can No Longer Overlook Setbacks in Eco-friendly Agriculture," Nongmin News, November 27, 2023, <https://www.nongmin.com/article/20231124500476>
- Kwon-pil Cheon, "Discovered While Walking Along the Coast... The Secret of Pesticide-free Jeju Golf Course Without Herbicides," The JoongAng, April 16, 2023, <https://www.joongang.co.kr /article/25155345#home>

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