Journal of
Risk and Financial Management

MDPI

Article

Effects of Supplier's Competitive Factors on Relationship Performance and Product Recommendation in Crop Protection Retail Sector

Byungok Ahn [1], Boyoung Kim [1,*] and Jongpil Yu [2]

[1] Seoul Business School, aSSIST University, Seoul 03767, Republic of Korea
[2] Business Administration School, Sejong University, Seoul 05006, Republic of Korea
* Correspondence: bykim2@assist.ac.kr; Tel.: +82-10-4046-2428

Abstract: The changes in distribution channels of the crop protection industry are accelerating the influence of crop protection retailers on farmers' product purchase decisions. This study aims to identify the critical competitive factors; 'product quality', 'supply price', 'brand awareness', 'flexibility', and 'promotion support'; of crop protection manufacturers. And it empirically analyzes effects of the critical factors on relationship performance and product recommendation of crop protection retailers. This research also examined the difference among these major factors according to the level of trust of crop protection companies as suppliers. Survey data were collected from 660 retailers by the crop protection distribution market in South Korea. As for the results, the five factors were defined as the crop protection suppliers' competitive factors. Supply price, promotion support, brand awareness, and flexibility had a positive (+) effect on relationship performance. Brand awareness, promotion support, product quality, and flexibility had a positive (+) effect on customer recommendation. Furthermore, supply price significantly affected relationship performance in a group with high trust, and promotion support significantly affected a group with low trust.

Keywords: crop protection retail; competitive factor; relationship performance; product recommendation; trust

Citation: Ahn, Byungok, Boyoung Kim, and Jongpil Yu. 2022. Effects of Supplier's Competitive Factors on Relationship Performance and Product Recommendation in Crop Protection Retail Sector. *Journal of Risk and Financial Management* 15: 540. https://doi.org/10.3390/jrfm15110540

Academic Editors: Maria Palazzo, Mirela Panait, Alfonso Siano, Eglantina Hysa and Marian Catalin Voica

Received: 16 October 2022
Accepted: 17 November 2022
Published: 20 November 2022

1. Introduction

Crop protection refers to management that prevents damage from pests and weeds by sterilizers, pesticides, and herbicides used to control germs, insects, nematodes, viruses, and weeds (Shishatskiy 2021). Crop protection chemicals are used to enhance or inhibit a crop's physiological functions. Chemical products registered through effect tests on vermin or weeds; toxicity tests on humans, livestock, and the environment; and strict screening by comprehensively reviewing residual pesticide test results in crops and the environment (Sharma 2014; Carroll 2016). According to the International Food Policy Research Institute, the global market size of crop protection industry was valued at USD 637 billion in 2020 and will grow to USD 74.1 million by 2025; the market growth is attributed to the increasing of food security by the growing global population (Sparks and Bryant 2022).

In this status, crop protection retailers play a pivotal role in innovatively improving farming productivity and have continued their win-win growth as an assistant for agricultural production and quality improvement (Holm and Baron 2002). Most crop protection channel structures take on simple types of suppliers, retailers, and end users, so retailers freely select suppliers and form business relationships. An imbalance of power between suppliers and retailers appears, and the initiative of retailers becomes powerful (Ebert and Downer 2006). As small and medium businesses' low-priced generic products from China and India increase, a power transfer in the distribution channels from a manufacturing-centered to a distribution-centered one is accelerating (Schreinemachers

et al. 2015; Manogna and Mishra 2021). Eventually, the crop protection manufacturers playing the role of assistant to agricultural production need to manage distribution channels and the retail market in a fierce the market competition situation to achieve success in business (de Jonge 2004; Sparks et al. 2019).

The distribution eco-system of the crop protection sector mainly takes on such organizations as manufacturing companies, distribution companies, and farmers. As Sparks and Bryant (2021) mentioned, direct access to farmers is not easy from a manufacturer's perspective. When farmers, the end-users, buy products, retailers' recommendations take up more than half of their purchases (Fenn and Laycock 2017; Nishimoto 2019). Suppliers' marketing direction in a fiercely competitive environment needs to focus on retailers (Pissonnier et al. 2016; Li and Zheng 2021; Pilkington 2022). As market competition deepens and retailers' product recommendation power increases, the relationships between retailers and suppliers can be crucial (Prado and Martinelli 2018). Efforts to form and maintain cooperative relationships and accomplish transaction performance between suppliers and retailers are actively carried out in various fields in today's fierce-competition environment (Bianchi and Saleh 2020). In the crop protection industry maintaining reciprocal relationships between manufacturers and retailers can have a differentiated competitive edge in transaction performance, profitability, and continuous growth (García et al. 2021; Agarwal and Narayana 2020).

The related studies on critical factors affecting the retention of relationships between suppliers and distributors have been steadily carried out (Ng 2012; Kim 2000; Trada and Goyal 2020). Distributing companies want to protect business continuity from risks coming from market environment change and select suppliers who can meet diverse needs (Padgett et al. 2020). Many researchers (Sheu et al. 2006; Pan et al. 2020; Glavee-Geo et al. 2022; Shukla et al. 2022) have emphasized the importance of relationship performance for amicable and long-term business relationships between suppliers and retailers. However, the previous studies on crop protection market where relationships between suppliers and retailers are vital is very lacking because the most studies about crop protection sector have focused on industrial effects and economic ripple effects, the awareness of the safety of crop protection, and product development (Fan et al. 2015; Li et al. 2022).

To overcome research limitations this study explores the influence relationship between suppliers and retailers in the distribution channel of the crop protection industry. Among the competitive factors of manufacturing companies as suppliers, the research defines the critical factors affecting the relation performance with crop protection distributors and analyzes whether the factors affect the relationship performance and product recommendation to farmers. In addition, under the hypothesis that trust between suppliers and retailers is important, the difference in influencing factors according to trust is analyzed. Finally in conclusion, the research presents the specific implications to improve crop protection manufacturers' market competitiveness.

2. Literature Review

2.1. Suppliers Competitiveness and Relationship with Distributors

As the distribution channel trend shifts from a supplier-centered to a retailer-centered approach and competition between suppliers becomes fierce, suppliers use various strategies to survive the competition in the industry (Hewett et al. 2002). Suppliers' capabilities are diversely researched in that they significantly function for buyers to decide and evaluate their business relationship with suppliers. Agrawal et al. (2022) identified product quality, supply price, brand awareness, flexibility, and promotion support as indicated suppliers' competitive factors in crop protection agent market structure and environment. Pissonnier et al. (2016) also defined that the factors such as product quality, supply price, promotion support are important competitive factors of suppliers in the crop protection market. In other previous studies (Ferdows and Meyer 1990; Keller et al. 1998; Boyer and Lewis 2002; Kannan and Tan 2002; Kaufmann and Gaeckler 2015; Demestihas et al. 2019)

quality, prices, delivery deadline, flexibility, brand asset, and support activities were presented as factors to evaluate suppliers' competitiveness.

First, product quality is paramount in the crop protection agent market because safety and effectiveness should be proven through quality. For this reason, product quality and characteristics of a supplier with better technology than other competitors receive a positive evaluation from retailers (Sihotang et al. 2022). In this sense, the excellent quality of products provided by suppliers seems to be critical to purchasing decisions and the business relationship of retailers in the crop protection industry (Kaiser and Burger 2022). Furthermore, a supplier with product production technology that competitors do not have or differentiated technological capabilities is rated as solving retailers' problems or meeting retailer needs (Jerath et al. 2017; Zhang et al. 2020; Zhu and Lu 2022).

Second, supply price is a cost occurring in the retailer's buying products, and it can be the price of providing products from a supplier's point of view. Dorr and Pannell (1992) commented that low prices to retailers can be a differentiated feature of a supplier in the crop protection market. Modak et al. (2016) explained that some cases where low prices are presented to induce high-quality products or for repeated purchases. In distribution channels, suppliers' presentation of high-quality products at low prices may function as a critical factor in forming a business relationship with retailers (Anderson and Bao 2010; Sant 2022; Sinambela et al. 2022).

Third, brand awareness refers to a buyer's ability to recall a specific brand belonging to a product group (Aaker 1996). When knowing about a brand well, purchasing possibility is known to go up. Numerous study results support that brand awareness is an essential factor for purchase. According to Dickson and Zhang (2004), brand awareness formed by brand recognition is connected to purchasing behavior and enhances the possibility of continuous purchase (Wiengarten et al. 2020). In the distribution channel environment, if the retailer's awareness of a specific brand is high, namely if brand awareness is higher than that of competitors, the retailer's supplier selection increases (Ilyas et al. 2020; Tan et al. 2021). In the crop protection agent market, where a retailer's purchase is connected to re-sale, brand awareness becomes a factor in deciding the supplier's characteristics (Hüter 2011; Copping and Duke 2007).

Fourth, flexibility refers to an ability to adapt to the environment, which is the level of adaptation to the changing environment (Dutta et al. 2002; Yu and Solvang 2020). In the distribution channel environment, it can be explained how suppliers can properly cope with all retailers' needs. Suppliers' ability to cope contains flexible responses to retailers' needs for everything that may occur in the business process, such as prices offered by suppliers, delivery deadlines, and delivery in addition to products (Sezen and Yilmaz 2007; Liao 2020). Suppliers with flexibility that meet retailers' requirements form trust, so the possibility of maintaining a continuous business relationship is high (Hirsch et al. 2020).

Fifth, promotion support refers to diverse activities conducted by suppliers targeting retailers to manage and maintain business relationship increase effectively (Bello et al. 2003). Continuous support for retailers can be the source of resale, and increases customers' loyalty (Erlangga et al. 2021). Namely, supplier promotion support can be connected to the resale of retailers, and it has a significant meaning in consolidating business relationships through retailers' loyalty (Sikdar and Vel 2010). In particular, in the crop protection industry, promotion support activities linked to supporting various agricultural activities are treated as important in business activities according to the market characteristics of farmers (Siskos et al. 2001; Maluin and Hussein 2020).

2.2. Relationship Performance, Product Recommendation, and Trust

The formation of a relationship between a supplier and a distributor provides an environment favorable to both sides, as mutual interests continue to be achieved while a distributor and a manufacturing company as a supplier maintain a continuous relationship (Ngelyaratan and Soediantono 2022). A supplier can maintain a comfortable and stable business with a long-term relationship with a distributor, and a distributor can also resolve

business risks on product supply or quality in terms of trust and relationship benefits and strengthen partnership in realizing an organization's sales strategy (Yeo and Lai 2020). The retail studies generally divide business performance into finance and relationship (Jiputra et al. 2020). Economic performance factors include retailers' contribution level to sales improvement, low product prices, order and inventory control cost savings, and transaction cost savings (Alshehhi et al. 2018). Relational performance deals with retailers' long-term orientation and relationship efficiency. Unlike all this, studies approaching from an economic perspective explain relationship performance based on efficiency and effectiveness aspects (Palmatier et al. 2007).

In crop protection distribution channels, relationship performance can be divided into financial and non-financial performance. Financial performance consists of sales, profitability, and market share (Weiss and Kurland 1997); and relationship performance indicates firms' trust, fairness, and recommendation (Hurtak et al. 2022). If the relationship performance between suppliers and retailers is strongly formed, loyalty to suppliers increases in terms of distributors as the relationship trust and synergy between the two organizations increases, leading to product recommendations to farmers who are end users (Rauyruen and Miller 2007).

In particular, retailer's product recommendation is defined as the overall satisfaction acquired in the purchasing process of products and is a process delivering positive details about the products by retailers in customer sales process (Frazier and Sheth 1985). The retailer's product recommendation refers to delivering product information and positive benefits to consumers who need the product (Draganska et al. 2010). When one wants to buy products or services in the crop protection market, farmers as customers tend to prefer and accept the opinions of experts or suppliers. Therefore, information through salesperson's recommendation changes buyers' attitudes and directly affects product selection. Relationship performance and trust in suppliers in particular are factors that influence the recommendation of products to customers (Dimitrova et al. 2020). Retailers work to foster a sustainable relationship with suppliers to their business development because dealing with stable product supply and transaction support by a product supplier are important to crop protection retailers for improving business performance. In this situation, the retailers recommend the supplier's product owing to a good relationship with their customer (Asmare and Zewdie 2022).

Trust also is essential to maintaining and reinforcing long-term relationships between suppliers and retailers. Trust is an expectation that the other transactional party fulfills obligations and responsibilities and intends not to use the other party's weakness in the exchange (Bialaszewski and Giallourakis 1985). In this context, trust reduces the possibility that the subject of transaction will exhibit opportunistic behavior and offers conviction that the problem will be solved in the long term when a short-term problem occurs. Trust also can bring about an effect of transaction cost savings because business relationships can be sufficiently maintained although the other party's behaviors are not monitored (Hamzaoui-Essoussi et al. 2013). Consequently, trust between suppliers and retailers can play a pivotal role in maintaining business relationships.

3. Methods

3.1. Research Model and Hypothesis Development

The study presents the research model as shown in Figure 1 to find out the effects of five factors selected as suppliers' competitive factors, namely product quality, supply price, brand awareness, flexibility, and promotion support, on relationship performance and product recommendation of retailers, and to explore if impact relationship differs depending on the trust level of retailers towards suppliers. This study examines the relationship between crop protection suppliers' competitive factors, retailers' relationship performance, and product recommendation by previous studies and theoretical implications.

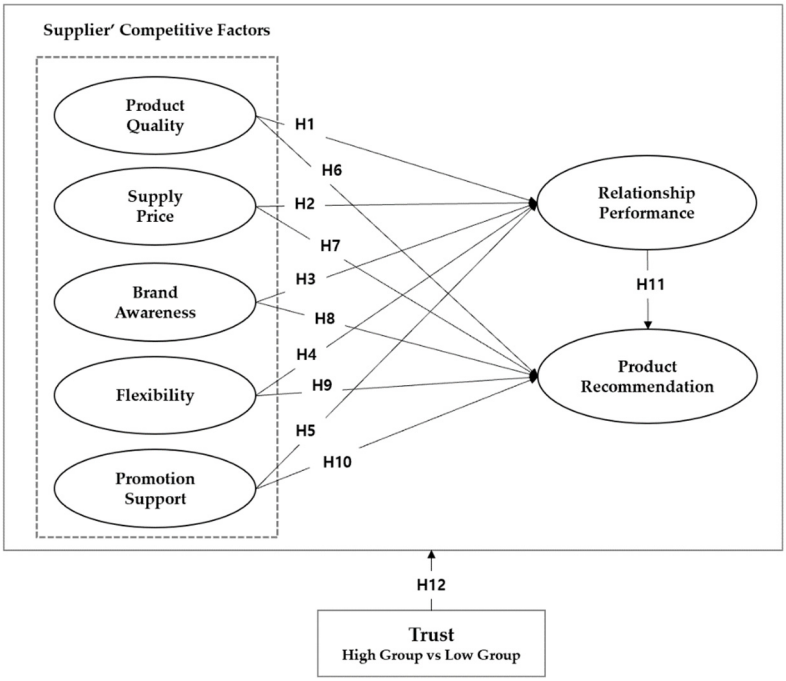

Figure 1. Research Model.

Bohner and Diez (2020) interpreted relationship performance with financial indicators, including sales, margin, and inventory turnover. Wu and Chiu (2016) explained goal achievement level through relationship as effectiveness. A study explains relationship performance with the efficiency of transaction and relationship management costs. According to Ma et al. (2020), performance can indicate relationship performance by measuring each dimension or all dimensions. In addition, studies diversely measure relationship performance, and studies dealing with financial and non-financial performances are universal. In this study, relationship performance from an economic perspective is measured considering the relationship between suppliers' competitive factors as an independent variable and retailers' perspective as a dependent variable:

Hypothesis 1. *Product quality as supplier's competitive factors will positively affect retailers' relationship performance.*

Hypothesis 2. *Supply price as supplier's competitive factors will positively affect retailers' relationship performance.*

Hypothesis 3. *Brand awareness as supplier's competitive factors will positively affect retailers' relationship performance.*

Hypothesis 4. *Flexibility as supplier's competitive factors positively affect retailers' relationship performance.*

Hypothesis 5. *Promotion support as supplier's competitive factors will positively affect retailers' relationship performance.*

Kracht and Wang (2010) explained that high customer satisfaction increases loyalty toward a firm, has a positive recommendation effect, affects the firm's reputation, and increases the firm's profitability. The product recommendation effect directly affects purchasing behavior by delivering one's own positive experience to potential customers. In the distribution channel environment, the retailer's experience and satisfaction obtained from the transaction process with suppliers can be connected to recommendations upon product

sale. Mandal and Roy (2012) interpreted that the distributor acts as an intermediary to sell the producer's products to end users in the B2B distribution channel within the agricultural industry. According to Yang (2021), since the end customer receives introduction and recommendation of the product through the distributor, the product recommendation of the distributors and retailers play a very important role in selling the product. Based on these previous studies, this study designed the following hypothesis that the competitive factors of suppliers affect the product recommendation intention even in the pesticide industry:

Hypothesis 6. *Product quality as supplier's competitive factors will positively affect retailers' product recommendations.*

Hypothesis 7. *Supply price as supplier's competitive factors will positively affect retailers' product recommendations.*

Hypothesis 8. *Brand awareness as supplier's competitive factors will positively affect retailers' product recommendations.*

Hypothesis 9. *Flexibility as supplier's competitive factors will positively affect retailers' product recommendations.*

Hypothesis 10. *Promotion as supplier's competitive factors support will positively affect retailers' product recommendations.*

Fei et al. (2021) suggested that the formation of a positive relationship between suppliers and distributors is effective in improving sales and sales power. Van Der Grijp et al. (2005) mentioned that in the pesticide industry, retailers consider the formation of relationships with suppliers important, and that product sales and recommendations to trusted suppliers are generally made. Based on these preceding studies, this study developed the following hypothesis that healthy relationship performance between suppliers and distributors in the pesticide industry has a positive effect on retailers recommending products to end users:

Hypothesis 11. *Retailers' relationship performance will have a positive (+) effect on product recommendations.*

Henke et al. (2020) defined trust as being formed through continuous transactions between suppliers and retailers, and that high trust between distribution channel members enables the maintenance of business relationships. Trust can affect the behaviors of suppliers and retailers in a business relationship. Mungra and Yadav (2019) indicated that a business relationship is continuously maintained when trust between transaction parties is high. Based on these literatures the following hypothesis that the relationship between suppliers' characteristics, relationship performance, and customer recommendations will differ was set:

Hypothesis 12. *Impact relationship between suppliers' competitive factors, relationship performance, and customer recommendations will differ depending on the trust level.*

3.2. Measurement Variables and Data Collection

Measurement variables used in this study were set by revising some questions suitable for the study (Kannan and Tan 2002). All items were measured with a five-point Likert scale (see Table 1). This study defined 5436 retailers registered as stores selling crop protection distribution industry as population and selected samples. For sampling, convenient sampling was used. Sufficient samples made the survey area nationwide to reduce the population's representativeness problem. For data collection, this study employs an offline

questionnaire survey taken by retailers and sales managers who have crop protection sales experience. A total of 712 questionnaire copies were collected for 30 days from 18 September 2019, and 660 surveys were used as research data, excluding the questionnaire response surveys with no answers or abnormalities.

Table 1. Variable definitions and measurement items.

Factors		Survey Items	References
Supplier's competitive factors	Product quality	The company holds competitive technical standards. The company demonstrates a differential technology. The company's overall product quality is superior. The company's product quality is better than other companies' products.	Kim (2000), Hewett et al. (2002)
	Supply price	The company's supply price is low. The company's supply price is adequate compared with its quality. The company's supply price is competitive.	Anderson and Bao (2010), Modak et al. (2016)
	Brand awareness	I know much about the company's products. I can easily recognize the company's products. I believe the company's products are well-known in the market. I think the company's products' reputation is good.	Aaker (1996), Dickson and Zhang (2004)
	Flexibility	The company holds the capability of suitable time delivery. The company holds a stable production and distribution capability. The company is flexible enough to respond to our demand. A company is capable of responding to our urgent order.	Dutta et al. (2002), Sezen and Yilmaz (2007)
	Promotion Support	The company provides adequate rewards and incentives for our sales results. The company provides support for our return expenses. The company supports our sales promotion and events.	Bello et al. (2003), Sikdar and Vel (2010)
Relationship performance		Due to good relationship with the company, overall cost of business was reduced. Due to good relationship with the company, logistic and inventory management costs were reduced. Due to good relationship with the company, we pay a lower technical support cost. Due to good relationship with the company, our sales growth was supported. If we stopped our business with the company, our profit would be decreased. If we stopped our business with the company, our sales would be decreased.	Alshehhi et al. (2018) Kannan and Tan (2002)
Product recommendation		We tend to recommend a company's product to our customers. We will continue recommending a company's product to our customers.	Draganska et al. (2010), Mandal and Roy (2012)
Continuous use intention		We are maintaining a fair business transaction with a company. The company does its best to resolve claims. The company keeps its promises. The company is honest in its business process. The company is trustworthy in general.	Boyer and Lewis (2002), Hamzaoui-Essoussi et al. (2013)

SPSS 18.0 and AMOS 16.0 statistical package programs were used for data analysis, frequency analysis for sample characteristics, confirmatory factor analysis, correlation analysis, and reliability analysis for data verification. For hypotheses verification, structural equation model analysis was used.

4. Results

4.1. Demographic Information of the Data

The characteristics of 660 retailers and their relationship situation with suppliers are shown in Table 2. Gender ratio is included, 90.3% were male and 9.7% were female. Looking at age groups, those in their 50s accounted for the highest proportion with 49.5%. In addition, 30% were aged 60 or older, and 10.2% and 10.3% were aged 30–39 and 40–49, respectively. By business region in South Korea, there were many retailers in Gyeongsang-do (26.4%) and Jeolla-do (25.0%), followed by Chungcheong-do (21.2%). By period engaged in a retail business, those engaged for 10–20 years (40.0%) took up the highest, and 20 years and more (31.7%) took up a high ratio. Thus, 71.7% of the total respondents were identified to have more than 10 years of career experience.

Table 2. Demographic information of survey participants.

Classification		Frequency	Percentage (%)
Gender	Male	596	90.3
	Female	64	9.7
	Total	660	100%
Age	30–39	67	10.2
	40–49	68	10.3
	50–59	327	49.5
	Over 60	198	30.0
	Total	660	100%
Business region	Gyeonggi	91	13.8
	Chungcheong	140	21.2
	Gyeongsang	174	26.4
	Jeolla	165	25.0
	Gangwon	56	8.5
	Jeju	34	5.2
	Total	660	100%
Period of the related business (year)	Under 2	17	2.6
	2 to 5	56	8.5
	5 to 10	114	17.3
	10 to 20	264	40.0
	Over 20	209	31.7
	Total	660	100%
Size of sales (year)	Less than 200 million won	33	5.0
	200–500 million won	216	32.7
	500–1000 million won	261	39.5
	1000–2000 million won	94	14.2
	More than 2000 million won	56	5.8
	Total	660	100%

4.2. Analysis Results of Reliability and Validity

Before an empirical analysis, the reliability and validity of measurement items explaining the factors were verified. According to the results in Table 1, Cronbach's α was 0.785~0.910, exceeding the reference value of 0.700 regarding reliability. The measurement items were confirmed to have internal consistency. Convergent validity and discriminant validity were verified. Concerning the significant fits of the confirmatory factor analysis conducted for verification, χ^2 = 1125.905 (p = 0.000), RMR = 0.052, GFI = 0.899, and CFI = 0.941, the measurement model was explained well. As a result of the analysis, the

measurement items' factor loading was λ = 0.583–0.863, which was statistically significant ($p < 0.001$). Average variance extracted (AVE) was 0.527~0.832, exceeding the reference value of 0.50. Construct reliability (CR) was 0.769~0.932, meeting the reference value of 0.70.

Consequently, the measurement items explained the factors desirably, and thus convergent validity was confirmed to be sufficient. A correlation analysis was conducted to secure discriminant validity verifying differences between factors. As for validity evaluation, discriminant validity is acknowledged if the most significant square value of the correlation coefficients between the factors suggested by Fornell and Larcker (1981) is smaller than AVE. As shown in Table 3, the smallest AVE of the eight factors is 0.527, and the fair value of the most significant value of the correlation coefficients is calculated as 0.330 or less. Hence, the relationship between all the factors meets AVE > 0.5, and discriminant validity is acknowledged.

Table 3. Results of reliability and convergent validity test.

Variables	Items	Standardized Regression Weight	*t*-Value (*p*)	CR	AVE	Cronbach α
Product quality	PQ1	0.863	-	0.733	0.932	0.910
	PQ2	0.857	28.186 ***			
	PQ3	0.848	27.709 ***			
	PQ4	0.821	26.280 ***			
Supply price	SP1	0.859	-	0.647	0.879	0.847
	SP2	0.723	19.937 ***			
	SP3	0.843	23.436 ***			
Brand awareness	BA1	0.764	-	0.585	0.875	0.856
	BA2	0.864	16.418 ***			
	BA3	0.688	14.723 ***			
	BA4	0.717	14.737 ***			
Flexibility	FLE1	0.764	-	0.585	0.875	0.856
	FLE1	0.864	21.140 ***			
	FLE1	0.688	17.065 ***			
	FLE1	0.717	17.878 ***			
Promotion support	PS1	0.690	-	0.527	0.769	0.785
	PS2	0.746	15.853 ***			
	PS3	0.794	16.399 ***			
Relationship performance	RP1	0.717	-	0.569	0.902	0.868
	RP2	0.661	19.902 ***			
	RP3	0.735	17.231 ***			
	RP3	0.813	18.779 ***			
	RP3	0.650	15.297 ***			
	RP3	0.648	15.257 ***			
Product recommendation	PR1	0.889	-	0.832	0.908	0.878
	PR2	0.881	23.839 ***			
Trust	TRU1	0.675	-	0.697	0.932	0.889
	TRU2	0.801	18.139 ***			
	TRU3	0.794	17.997 ***			
	TRU4	0.814	18.372 ***			
	TRU5	0.840	18.848 ***			

Measurement model fit: χ^2(df) 1125.905, χ^2/degree of freedom 2.801, RMR 0.052, GFI 0.899, AGFI 0.876, NFI 0.912, TLI 0.932, CFI 0.941, RMSEA 0.052/*** $p < 0.001$.

As shown in Table 4, it was ascertained that discriminant validity was obtained in this research. Because of the average variance extracted (AVE) and construct reliability (CR) values between the measurement variables in the research, each main variable's square root of AVE was larger than correlation coefficients between the variables.

Table 4. Discriminant validity.

Section	PQ	SP	BA	FLE	PS	RP	PR	TRU
Product quality (PQ)	**0.733**							
Supply price (SP)	−0.193 **	**0.647**						
Brand awareness (BA)	0.591 **	−0.183 **	**0.624**					
Flexibility (FLE)	0.403 **	0.171 **	0.416 **	**0.585**				
Promotion support (PS)	0.357 **	0.173 **	0.300 **	0.471 **	**0.527**			
Relationship performance (RP)	0.545 **	0.084 *	0.489 **	0.575 **	0.446 **	**0.697**		
Product recommendation (PR)	0.255 **	0.406 **	0.278 **	0.455 **	0.510 **	0.404 **	**0.569**	
Trust (TRU)	0.414 **	0.153 **	0.434 **	0.487 **	0.469 **	0.477 **	0.503 **	**0.832**

The square root of AVE is shown in bold letters. /* p <0.05, ** p < 0.01.

4.3. Analysis Results of Structural Model

As presented in Table 5 and as a result of the analysis of structural model fit, χ^2(p) was 1027.278 (0.000) and χ^2/degree of freedom was 3.709. Goodness-of-fit index (GFI) value was 0.886, normal fit index (NFI) 0.902, adjusted goodness-of-fit index (AGFI) 0.855, root mean square residual (RMR) 0.056, and root mean square error of approximation (RMSEA) 0.073. Therefore, fair component values were significant. Although not affected by the samples, the comparative fit index (CFI) indicating the model's explanation power was 0.926, and Tucker–Lewis index (TLI), judging the structural model's explanation power, was 0.931; therefore, the basic model was considered suitable.

Table 5. Results of hypothesis test.

	Hypothesis (Path)	Standard Path Coefficient	t-Value (p)	Status of Adoption
H1	Product quality → Relationship performance	0.059	1.098	Rejected
H2	Supply price → Relationship performance	0.472	10.411 ***	Accepted
H3	Brand awareness → Relationship performance	0.176	3.046 **	Accepted
H4	Flexibility → Relationship performance	0.124	2.430 *	Accepted
H5	Promotion support → Relationship performance	0.350	6.601 ***	Accepted
H6	Product quality → Product recommendation	0.107	1.983 *	Accepted
H7	Supply price → Product recommendation	0.059	1.138	Rejected
H8	Brand awareness → Product recommendation	0.209	3.507 ***	Accepted
H9	Flexibility → Product recommendation	0.154	2.983 **	Accepted
H10	Promotion support → Product recommendation	0.188	3.336 ***	Accepted
H11	Relationship performance → Product recommendation	0.259	4.187 ***	Accepted

Structural model fit: χ^2(df) 1027.278, χ^2/degree of freedom 3.709, RMR 0.056, GFI 0.886, AGFI 0.855, NFI 0.902, TLI 0.931, CFI 0.926, RMSEA 0.063/* p < 0.05, ** p < 0.01, *** p < 0.001.

As a result of the analysis, H2 to H5 were accepted. Supply price (β = 0.472, p < 0.001), brand awareness (β = 0.176, p < 0.01), flexibility (β = 0.124, p < 0.05), and promotion support (β = 0.352, p < 0.001) had a significant effect on relationship performance. However, product quality (β = 0.059, p > 0.05) of H1 was analyzed not to have a statistically significant effect

on relationship performance. As last, supply price, flexible ability, promotion support, and brand awareness were confirmed to be factors positively affecting retailers' relationship performance.

According to the analysis result, product quality (β = 0.107, $p < 0.05$), brand awareness (β = 0.209, $p < 0.001$), flexibility (β = 0.154, $p < 0.01$), and promotion support (β = 0.188, $p < 0.001$) significantly affected customer recommendations. Consequently, H6, H8, H9, and H10 were supported. Meanwhile, the effect of supply price (β = 0.059, $p > 0.05$) of H7 on product recommendations was not accepted. As a result, suppliers' product differentiation, excellent quality, high brand awareness, ability to cope, and a variety of support can be essential factors through which retailers recommend products.

Relationship performance of H11 was predicted to affect product recommendations positively. According to the analysis, as retailers are more satisfied with relationship performance, customer recommendations are higher (β = 0.259, $p < 0.001$). Therefore, the hypothesis was accepted.

4.4. Moderated Effect of Trust

Multiple group analysis was performed to verify H12, which impacts the relationship between suppliers' competitive factors, relationship performance, and product recommendations. An analysis of the two groups depending on retailers' trust level towards suppliers was performed, and the interpretation of the analysis results are presented in Table 6. As the results show, H12 was partially accepted. The impact relationship between suppliers' competitive factors, relationship performance, and product recommendations showed partial differences depending on the retailers' trust level.

Table 6. Results of moderated effect.

Path	High Trust (n = 336)		Low Trust (n = 324)	
	Estimate (β)	***t*-Value (.Sig)**	**Estimate (β)**	***t*-Value (.Sig)**
Product quality → Relationship performance	0.049	0.686	0.048	0.667
Supply price → Relationship performance	0.478	7.249 ***	0.466	6.936 ***
Brand awareness → Relationship performance	0.199	2.529 *	0.106	1.372
Flexibility → Relationship performance	0.111	1.605	0.090	1.278
Promotion support → Relationship performance	0.278	4.073 ***	0.470	5.556 ***
Product quality → Product recommendation	0.005	0.066	0.186	2.505 *
Supply price → Product recommendation	0.100	1.292	0.005	0.057
Brand awareness → Product recommendation	0.206	2.427 *	0.183	2.265 *
Flexibility → Product recommendation	0.056	0.780	0.226	3.102 **
Promotion support → Product recommendation	0.281	3.701 ***	0.029	0.303
Relationship performance → Product recommendation	0.210	2.468 *	0.380	3.635 ***

Structural model fit: $\chi^2 = 1358.157$, $\chi^2/df = 2.452$, RMR = 0.056, GFI = 0.860, AGFI = 0.823, NFI = 0.860, TLI = 0.896, CFI = 0.911, RMSEA = 0.047/* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

First, regarding the effect of suppliers' competitive factors on relationship performance, the product quality was not significant both in the group with high trust and in the group with low trust. Consequently, there was no difference according to trust. Supply price was confirmed to affect both, namely the group with high trust (β = 0.478, $p < 0.001$) and the group with low trust (β = 0.466, $p < 0.001$). Brand awareness significantly affected the group with high trust (β = 0.199, $p < 0.05$), but it did not significantly affect the group with low trust. Eventually, brand awareness' influence differs depending on trust, and it is analyzed that since the group that highly trusts suppliers was aware of products more, their relationship performance was positively affected. As for flexibility, a significant impact relationship was not formed in the group with high trust nor the group with low trust.

While promotion support had a significant effect in both the groups, the effect of promotion support was higher on relationship performance in the group with low trust (β = 0.470, $p < 0.001$) compared to the group with high trust (β = 0.278, $p < 0.001$).

Second, regarding the effect of suppliers' competitive factors on product recommendations, product quality was not significant in the group with high trust but was significant in the group with low trust (β = 186, $p < 0.001$). Supply price was not significant in both groups, namely in the group with high trust and the group with low trust. Brand awareness was analyzed to be significant in both the groups. The effect of brand awareness on product recommendations was higher in the group with high trust (β = 0.206, $p < 0.05$) than in the group with low trust (β = 0.183, $p < 0.05$). Flexibility did not have a significant effect in the group with high trust. However, it had a significant effect on product recommendations in the group with low trust (β = 0.226, $p < 0.01$). On the contrary, regarding the effect of promotion support on product recommendations, it was significant in the group with high trust (β = 0.281, $p < 0.001$) and no significant impact relationship was formed in the group with low trust. Third, concerning the effect of relationship performance on customer recommendations, it was significant in both the groups with high trust (β = 0.210, $p < 0.05$) and with low trust (β = 0.380, $p < 0.001$). The impact of relationship performance in the group with low trust was higher.

5. Conclusions

5.1. Findings and Discussions

Relationship performance between retailers of crop protection and suppliers' competitive factors affecting customer recommendations were identified. An analysis of differences depending on retailers' trust levels toward suppliers was carried out, and the research findings drawn through study results are as follows: First, as Hypothesis 2 to Hypothesis 5 were accepted, supply price, brand awareness, flexibility and promotion support had a significant effect on relationship performance. Crop protection retailers were revealed to highly perceive relationship with suppliers, as product supply prices are lower, brand awareness are higher, suppliers' flexibility is satisfactory, and much support is offered in the relationship retention process. However, the results show that product quality directly affects product recommendation but does not affect relationship performance. This was in contrast to the results of previous studies (Jerath et al. 2017; Zhang et al. 2020; Zhu and Lu 2022) suggested product quality affects the relationship performance between suppliers and distributors in other industries. The relationship performance is valued based on retailers' financial benefits. Suppliers usually do not provide competitive financial benefits to retailers when they are selling the high-quality products. Therefore, the retailers attain less financial benefits when they deal with high-quality products.

Furthermore, as has been pointed out by Kaiser and Burger (2022), products in the crop protection industry are not highly differentiated by similar ingredients and effects for same type of product. For this reason, the difference in product quality is not high depending on the manufacturers, even if the product quality could be directly affected by product purchase and is an especially important selection factor for farmers who are end-users (Kaufmann and Gaeckler 2015). The quality of supplier products does not have a significant impact on the sales of retailers within a market environment where the product quality by the manufacturers is similar. Hence, it means the quality of crop protection products could be a recommended factor for end-users, but not a factor influencing retailers to choose suppliers or maintain relationships with them.

Second, Hypothesis 7 to supply price on product recommendations was rejected in this study. Although supply prices affect relationship performance between suppliers and retailers, they do not directly affect customer recommendations. Supply prices affecting relationship performance are derived from that margin, which is the difference between supply and retail prices and are not proportionate in exclusive products. Because reasonable sales prices of the crop protection market are formed depending on product groups, margin increases if supply prices are low. However, retailers in the crop protection industry

tend to recommend a product that has the least conflict of farmers' interests, and they do not recommend the products based on the calculation of their potential gain from the transaction (Dorr and Pannell 1992). As a result, suppliers' efforts for product differentiation and brand awareness campaigning, building an ability to respond to urgent orders, excellence in quality, and a variety of field support activities are proved to be effective and essential factors for retailers' product recommendation. Therefore, as Copping and Duke (2007) commented, suppliers allocate resource input to the marketing costs for brand awareness and promotion support that have the most influence on product recommendation.

Third, the results of moderated effect to Hypothesis 12 pointed out that product quality and flexibility did not significantly affect the formation of a relationship based on trust, while supply price and promotion support were affected by trust level. In particular, brand awareness had a significant influence on relationship performance with the high trust group. This means that the high trust group considers the suppliers' brand power when they build relationships with crop protection manufacturers. In addition, on the side of product recommendation, the price was not affected by the level of trust. It shows that product quality or flexibility affects product recommendation in the low trust group, whereas the higher the trust, the greater the effect of promotion support on product recommendation. Marketing-related factors such as brand and promotion support had a positive effect on relationship sustainability or product recommendation in the high trust group within the crop protection industry. In contrast, in a state of low trust, price, product quality, and flexibility were found to affect relationships and recommendations. As Hamzaoui-Essoussi et al. (2013) and Mungra and Yadav (2019) argued, these results confirm that in the case of the industry, sales support and marketing factors have a greater impact on business sustainability and partnership management.

5.2. Research Implications

This study presented empirical research results on the identification of influencing factors and relationships between suppliers and retailers in the crop protection industry. Until now, previous studies on the industry have focused on the research issues of product development or social influence. However, as agriculture is in the spotlight as a new industrial field, and the size of the crop protection industry market, one of the important areas in agriculture, continues to grow, various management administration-related studies are needed to improve business and corporate or organizational competitiveness. In this respect, this study was able to derive specific results from the perspective of relationship, recommendation, and trust of the distribution structure and partnership of manufacturers as suppliers and retailers in the crop protection industry.

This research suggests practical implications from two perspectives. First, as product quality is higher and product awareness level is higher, suppliers' flexibility is better, more promotion support is offered, and customer recommendations increase. Moreover, if relationship performance is satisfactory, customer recommendations increase further. Consequently, suppliers securing the influence of retailers recommending products by listening to and diagnosing farms at the purchasing point of contact with end-users, namely farmers, can gain a competitive edge and expand market share. Crop protection manufacturers as suppliers should focus on consolidating relationship performance with retailers by inputting resources to invigorate all suppliers' characteristics, including product quality, supply price, brand awareness, flexibility, and promotion support. This is regarded as an investment to secure retailers' customer recommendations, influencing consumers' decisions to purchase.

Second, the crop protection industry highly related to the connection and support project of the government and public institutions. Therefore, it can be said that economic, policy, and marketing support for agricultural activities based on crop protection agents is a familiar beginning. Considering the characteristics of this market, distributors in the crop protection industry also suggest various support methods to induce more sales. Accordingly, agricultural manufacturers are necessary to strengthen partnerships with

distributors by seeking appropriate promotion support strategies according to market changes rather than simply emphasizing product quality or price aspects.

5.3. Research Limitation and Future Plans

This study has meaning in that it laid the foundation for a follow-up study in the crop protection agent industry by exploring and demonstrating distribution channels that existing studies have not dealt with. The study is also meaningful to structurally identifying retailers' perception of suppliers and providing the information required for suppliers' competitiveness improvement measures and marketing strategies. However, the study has limitations, and a supplementary study direction is presented as follows: First, since this study explored, centered on literature study, selecting factors to evaluate suppliers' competitive factors, there can be insufficiency in identifying suppliers' factors that retailers significantly perceive for relationship performance and customer recommendations. In particular, retailers' brand awareness should be reflected in the crop protection agents' distribution structure. In a further study, drawing various factors reflecting people in charge of sales is suggested.

Second, although this study obtained enough samples in the sample survey, convenience sampling was used for a smooth survey; therefore, there may be a limitation to representing the population. To supplement this, a survey for generalization of study results is expected. Third, this study identified retailers' customer recommendation intentions, and there is a need to study how much the products recommended by retailers are reflected in a decision to purchase. If product purchasing decision factors are identified as targeting farmers, who are the buyers of crop protection agents, meaningful study results are conjectured to be drawn.

Author Contributions: Conceptualization, B.A.; methodology, B.A. and J.Y.; software, B.A. and J.Y.; validation, B.K.; formal analysis, B.A. and J.Y.; investigation, B.A. and B.K.; resources, B.A.; data curation, B.A.; writing–original draft preparation, B.A. and B.K.; writing–review and editing, B.K.; visualization, B.K.; supervision, B.K.; project administration, B.K.; funding acquisition, B.A. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable for data availability.

Conflicts of Interest: The authors declare no conflict of interest.

References

Aaker, David. A. 1996. Measuring brand equity across products and markets. *California Management Review* 38: 102–20. [CrossRef]

Agarwal, Upasna A., and Sushmita A. Narayana. 2020. Impact of relational communication on buyer–supplier relationship satisfaction: Role of trust and commitment. *Benchmarking: An International Journal* 27: 2459–96. [CrossRef]

Agrawal, Sakshi, Vineet Kumar, Sunil Kumar, and Shshil Kumar Shahi. 2022. Plant development and crop protection using phytonanotechnology: A new window for sustainable agriculture. *Chemosphere* 299: 134465. [CrossRef] [PubMed]

Alshehhi, Ali, Haitham Nobanee, and Nilesh Khare. 2018. The impact of sustainability practices on corporate financial performance: Literature trends and future research potential. *Sustainability* 10: 494. [CrossRef]

Anderson, Edward J., and Yong Bao. 2010. Price competition with integrated and decentralized supply chains. *European Journal of Operational Research* 200: 227–34. [CrossRef]

Asmare, Aregu, and Shimelis Zewdie. 2022. Omnichannel retailing strategy: A systematic review. *The International Review of Retail, Distribution and Consumer Research* 32: 59–79. [CrossRef]

Bello, Daniel C., Cristian Chelariu, and Li Zhang. 2003. The antecedents and performance consequences of relationalism in export distribution channels. *Journal of Business Research* 56: 1–16. [CrossRef]

Bialaszewski, Dennis, and Michael Giallourakis. 1985. Perceived communication skills and resultant trust perceptions within the channel of distribution. *Journal of the Academy of Marketing Science* 13: 206–17. [CrossRef]

Bianchi, Constanza, and Md Abu Saleh. 2020. Investigating SME importer–foreign supplier relationship trust and commitment. *Journal of Business Research* 119: 572–84. [CrossRef]

Bohner, Teresa, and Jeffrey Diez. 2020. Extensive mismatches between species distributions and performance and their relationship to functional traits. *Ecology Letters* 23: 33–44. [CrossRef]
Boyer, Kenneth K., and Marianne W. Lewis. 2002. Competitive priorities: Investigating the need for trade-offs in operations strategy. *Production and Operations Management* 11: 9–20. [CrossRef]
Carroll, Michael J. 2016. The importance of regulatory data protection or exclusive use and other forms of intellectual property rights in the crop protection industry. *Pest Management Science* 72: 1631–37. [CrossRef] [PubMed]
Copping, Leonard G., and Stephen O. Duke. 2007. Natural products that have been used commercially as crop protection agents. *Pest Management Science: Formerly Pesticide Science* 63: 524–54. [CrossRef] [PubMed]
de Jonge, Anne Marie. 2004. Eco-efficiency improvement of a crop protection product: The perspective of the crop protection industry. *Crop Protection* 23: 1177–86. [CrossRef]
Demestihas, Constance, Daniel Plénet, Michel Génard, Christiane Raynal, and Françoise Lescourret. 2019. A simulation study of synergies and tradeoffs between multiple ecosystem services in apple orchards. *Journal of Environmental Management* 236: 1–16. [CrossRef]
Dickson, Marsha A., and Li Zhang. 2004. Supplier-retailer relationships in China's distribution channel for foreign brand apparel. *Journal of Fashion Marketing and Management: An International Journal* 8: 201–20. [CrossRef]
Dimitrova, Boryana V., Brent Smith, and Trina Larsen Andras. 2020. Marketing channel evolution: From contactual efficiency to brand value co-creation and appropriation within the platform enterprise. *Journal of Marketing Channels* 26: 60–71. [CrossRef]
Dorr, Gary J., and David J. Pannell. 1992. Economics of improved spatial distribution of herbicide for weed control in crops. *Crop Protection* 11: 385–91. [CrossRef]
Draganska, Michaela, Daniel Klapper, and Sofia B. Villas-Boas. 2010. A larger slice or a larger pie? An empirical investigation of bargaining power in the distribution channel. *Marketing Science* 29: 57–74. [CrossRef]
Dutta, Shantanu, Mark Bergen, and Daniel Levy. 2002. Price flexibility in channels of distribution: Evidence from scanner data. *Journal of Economic Dynamics and Control* 26: 1845–900. [CrossRef]
Ebert, Timothy A., and Roger A. Downer. 2006. A different look at experiments on pesticide distribution. *Crop Protection* 25: 299–309. [CrossRef]
Erlangga, Heri, S. Sos, and Heri Erlangga. 2021. Effect of Distribution Cost and Promotion Cost on Tyre Industries Sales Performance. *Annals of RSCB* 25: 12672–84.
Fan, Liangxin, Haipeng Niu, Xiaomei Yang, Wei Qin, Célia P. M. Bento, Coen J. Ritsema, and Violette Geissen. 2015. Factors affecting farmers' behaviour in pesticide use: Insights from a field study in northern China. *Science of the Total Environment* 537: 360–68. [CrossRef] [PubMed]
Fei, Shiruo, Chanho Kwon, and Changhyun Jin. 2021. The Role of Corporate Ethical Management on Trade Relationship Trust and Commitment: B2B. *Sustainability* 13: 5290. [CrossRef]
Fenn, Henry R. W., and Elizabeth Laycock. 2017. A socio-economic investigation of pre-harvest and post-harvest crop loss between producers and retailers in Fenland. *Sheffield Hallam University Natural Environment Research Transactions* 3: 38–55.
Ferdows, Kasra, and Arnoud De Meyer. 1990. Lasting improvements in manufacturing performance: In search of a new theory. *Journal of Operations Management* 9: 168–84. [CrossRef]
Fornell, Claes, and David F. Larcker. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18: 39–50. [CrossRef]
Frazier, Gary L., and Jagdish N. Sheth. 1985. An attitude-behavior framework for distribution channel management. *Journal of Marketing* 49: 38–48. [CrossRef]
García, Daniel, Marcos Miñarro, and Rodrigo Martínez-Sastre. 2021. Enhancing ecosystem services in apple orchards: Nest boxes increase pest control by insectivorous birds. *Journal of Applied Ecology* 58: 465–75. [CrossRef]
Glavee-Geo, Richard, Per Engelseth, and Arnt Buvik. 2022. Power imbalance and the dark side of the captive agri-food supplier–buyer relationship. *Journal of Business Ethics* 178: 609–28. [CrossRef]
Hamzaoui-Essoussi, Leila, Lucie Sirieix, and Mehdi Zahaf. 2013. Trust orientations in the organic food distribution channels: A comparative study of the Canadian and French markets. *Journal of Retailing and Consumer Services* 20: 292–301. [CrossRef]
Henke, Jakob, Laura Leissner, and Wiebke Möhring. 2020. How can journalists promote news credibility? Effects of evidences on trust and credibility. *Journalism Practice* 14: 299–318. [CrossRef]
Hewett, Kelly, R. Bruce Money, and Subhash Sharma. 2002. An exploration of the moderating role of buyer corporate culture in industrial buyer-seller relationships. *Journal of the Academy of Marketing Science* 30: 229–39. [CrossRef]
Hirsch, Stefan, Ashok Mishra, Miklas Möhring, and Rober Finger. 2020. Revisiting firm flexibility and efficiency: Evidence from the EU dairy processing industry. *European Review of Agricultural Economics* 47: 971–1008. [CrossRef]
Holm, Robert E., and Jerry J. Baron. 2002. *Evolution of the Crop Protection Industry*. London: CRC Press of Taylor & Francis Group.
Hurtak, Stefan, Vishal Kashyap, and Michael Ehret. 2022. Lightening the dark side of customer participation–The mitigating role of relationship performance in business-to-business project contexts. *Journal of Business Research* 140: 220–31. [CrossRef]
Hüter, Ottmar Franz. 2011. Use of natural products in the crop protection industry. *Phytochemistry Reviews* 10: 185–94. [CrossRef]
Ilyas, Gunawan Bata, Sir Rahmi, Hasmin Tamsah, Abdul Razak Munir, and Aditya Halim Perdana Kusuna Putra. 2020. Reflective model of brand awareness on repurchase intention and customer satisfaction. *The Journal of Asian Finance, Economics and Business* 7: 427–38. [CrossRef]

Jerath, Kinshuk, Sang-Hyun Kim, and Robert Swinney. 2017. Product quality in a distribution channel with inventory risk. *Marketing Science* 36: 747–61. [CrossRef]
Jiputra, Juan Alexander, Zeplin Jiwa Husada Tarigan, and Hotlan Siagian. 2020. The Effect of Information Technology on Retailer Satisfaction Through Supply Chain Management Practices and Retailer-Distributor Relationship in Modern Retailer Surabaya. *Petra International Journal of Business Studies* 3: 126–34. [CrossRef]
Kaiser, Antonia, and Paul Burger. 2022. Understanding diversity in farmers' routinized crop protection practices. *Journal of Rural Studies* 89: 149–60. [CrossRef]
Kannan, Vijay R., and Keah Choon Tan. 2002. Supplier selection and assessment: Their impact on business performance. *Journal of Supply Chain Management* 38: 11–21. [CrossRef]
Kaufmann, Lutz, and Julia Gaeckler. 2015. On the relationship between purchasing integration and purchasing decision-making speed. *International Journal of Physical Distribution & Logistics Management* 45: 214–36.
Keller, Kevin Lane, Susan E. Heckler, and Michael J. Houston. 1998. The effects of brand name suggestiveness on advertising recall. *Journal of Marketing* 62: 48–57. [CrossRef]
Kim, Keysuk. 2000. On interfirm power, channel climate, and solidarity in industrial distributor-supplier dyads. *Journal of the Academy of Marketing Science* 28: 388–405. [CrossRef]
Kracht, John, and Youcheng Wang. 2010. Examining the tourism distribution channel: Evolution and transformation. *International Journal of Contemporary Hospitality Management* 22: 736–57. [CrossRef]
Li, Yi, and Yang Zheng. 2021. Regional agricultural industry economic development based on embedded system and Internet of Things. *Microprocessors and Microsystems* 82: 103852. [CrossRef]
Li, Zhongju, Ruifa Hu, Chao Zhang, Yankun Xiong, and Keven Chen. 2022. Governmental regulation induced pesticide retailers to provide more accurate advice on pesticide use to farmers in China. *Pest Management Science* 78: 184–92. [CrossRef]
Liao, Ying. 2020. An integrative framework of supply chain flexibility. *International Journal of Productivity and Performance Management* 69: 1321–42. [CrossRef]
Ma, Wanglin, Alan Renwick, and Xiaoshi Zhou. 2020. The relationship between farm debt and dairy productivity and profitability in New Zealand. *Journal of Dairy Science* 103: 8251–56. [CrossRef]
Maluin, Farhatun Najat, and Mohd Zobir Hussein. 2020. Chitosan-based agronanochemicals as a sustainable alternative in crop protection. *Molecules* 25: 1611. [CrossRef]
Mandal, Kaushik, and Koushick Roy. 2012. Impact of marketer's influence strategies on distribution channel partners: A comparison among distribution channel partners. *South Asian Journal of Management* 19: 82–97.
Manogna, R. L., and Aswini Kumar Mishra. 2021. Does investment in innovation impact firm performance in emerging economies? An empirical investigation of the Indian food and agricultural manufacturing industry. *International Journal of Innovation Science* 13: 233–48.
Modak, Nikunja Mohan, Shibaji Panda, and Shib Sankar Sana. 2016. Pricing policy and coordination for a distribution channel with manufacturer suggested retail price. *International Journal of Systems Science: Operations & Logistics* 3: 92–101.
Mungra, Yogesh, and Prabhat Kumar Yadav. 2019. The mediating effect of satisfaction on trust-commitment and relational outcomes in manufacturer–supplier relationship. *Journal of Business & Industrial Marketing* 35: 219–30.
Ng, Eric. 2012. An empirical study on the success factors of supplier-distributor relationships. *Contemporary Management Research* 8: 161–79. [CrossRef]
Ngelyaratan, Dodi, and Dwi Soediantono. 2022. Customer Relationship Management (CRM) and Recommendation for Implementation in the Defense Industry: A Literature Review. *Journal of Industrial Engineering & Management Research* 3: 17–34.
Nishimoto, Ray. 2019. Global trends in the crop protection industry. *Journal of Pesticide Science* 22: 141–47. [CrossRef]
Padgett, Daniel, Christopher D. Hopkins, and Zac Williams. 2020. Buyer dependence in B2B relationships: The role of supplier investments, commitment form, and trust. *Journal of Business Research* 119: 13–24. [CrossRef]
Palmatier, Robert W., Rajiv P. Dant, and Dhruv Grewal. 2007. A comparative longitudinal analysis of theoretical perspectives of interorganizational relationship performance. *Journal of Marketing* 71: 172–94. [CrossRef]
Pan, Xuan, Shuwei Zang, Yiyang Hu, and Jinyang Liu. 2020. Identifying the positive sides of power use between (in) congruence in distributive fairness perception and supplier-buyer relationship quality. *Industrial Marketing Management* 91: 362–72.
Pilkington, Lisa I. 2022. Towards the use of natural compounds for crop protection and food safety. *Foods* 11: 648. [CrossRef] [PubMed]
Pissonnier, Solène, Claire Lavigne, Jean-François Toubon, and Pierre-Yves Le Gal. 2016. Factors driving growers' selection and implementation of an apple crop protection strategy at the farm level. *Crop Protection* 88: 109–17. [CrossRef]
Prado, Lucas Sciencia do, and Dante Pinheiro Martinelli. 2018. Analysis of negotiation strategies between buyers and sellers: An applied study on crop protection products distribution. *RAUSP Management Journal* 53: 225–40. [CrossRef]
Rauyruen, Papassapa, and Kenneth E. Miller. 2007. Relationship quality as a predictor of B2B customer loyalty. *Journal of Business Research* 60: 21–31. [CrossRef]
Sant, Tatavarty Guru. 2022. Distribution channel coordination in green supply chain management in the presence of price premium effects. *International Journal of Services and Operations Management* 41: 142–62. [CrossRef]
Schreinemachers, Pepijn, Victor Afari-Sefa, Chhun Hy Heng, Pham Thi My Dung, Suwanna Praneetvatakul, and Ramasamy Srinivasan. 2015. Safe and sustainable crop protection in Southeast Asia: Status, challenges and policy options. *Environmental Science and Policy* 54: 357–66. [CrossRef]

Sezen, Bulent, and Cengiz Yilmaz. 2007. Relative effects of dependence and trust on flexibility, information exchange, and solidarity in marketing channels. *Journal of Business & Industrial Marketing* 22: 41–51.
Sharma, Hari C. 2014. Climate change effects on insects: Implications for crop protection and food security. *Journal of Crop Improvement* 28: 229–59. [CrossRef]
Sheu, Chwen, HsiuJu Rebecca Yen, and Bongsug Chae. 2006. Determinants of supplier-retailer collaboration: Evidence from an international study. *International Journal of Operations & Production Management* 26: 24–49.
Shishatskiy, Oleg N. 2021. Global Crop Protection Industry. *Journal of Siberian Federal University. Biology* 14: 541–49. [CrossRef]
Shukla, Shukla, Rohit Kappor, Narain Gupta, and Deepak Arunachalam. 2022. Knowledge transfer, buyer-supplier relationship and supplier performance in agricultural supply chain: An agency theory perspective. *Journal of Knowledge Management* 27. [CrossRef]
Sihotang, Corri Satria, Enda S. Padang, and Jarungjung Hutagaol. 2022. Analysis of the effect of product quality, distribution channels, and personel selling on fish sales volume at PT Lautan Persada Belawan. *Journal Ekonomi* 11: 261–69.
Sikdar, Arijit, and Prakash Vel. 2010. Getting the customer interested in your innovation: Role of distribution and promotion strategies. *Business Strategy Series* 11: 158–68. [CrossRef]
Sinambela, Ella Anastasya, Elok Imroatul Azizah, and Arif Rachman Putra. 2022. The Effect of Green Product, Green Price, and Distribution Channel on The Intention to Repurchasing Simple Face Wash. *Journal of Business and Economics Research* 3: 156–62.
Siskos, Yannis, Nikolaos F. Matsatsinis, and George Baourakis. 2001. Multicriteria analysis in agricultural marketing: The case of French olive oil market. *European Journal of Operational Research* 130: 315–31. [CrossRef]
Sparks, Thomas C., and Robert J. Bryant. 2021. Crop protection compounds–trends and perspective. *Pest Management Science* 77: 3608–16. [CrossRef]
Sparks, Thomas C., and Robert J. Bryant. 2022. Impact of natural products on discovery of, and innovation in, crop protection compounds. *Pest Management Science* 78: 399–408. [CrossRef]
Sparks, Thoans C., Frank J. Wessels, Beth A. Lorsbach, Benjamin M. Nugent, and Gerald B. Watson. 2019. The new age of insecticide discovery-the crop protection industry and the impact of natural products. *Pesticide biochemistry and Physiology* 161: 12–22. [CrossRef]
Tan, Yomgso, Shuang Geng, Sotaro Katsumata, and Xiong Xiong. 2021. The effects of ad heuristic and systematic cues on consumer brand awareness and purchase intention: Investigating the bias effect of heuristic information processing. *Journal of Retailing and Consumer Services* 63: 102696. [CrossRef]
Trada, Sandip, and Vikas Goyal. 2020. Tripartite role of communications in channel relationships: Mitigating exchange hazards, reducing opportunism, and curtailing its ill effects on relationship performance. *Industrial Marketing Management* 85: 281–94. [CrossRef]
Van Der Grijp, Nicolien M., Terry Marsden, and Josefa Salete Barbosa Cavalcanti. 2005. European retailers as agents of change towards sustainability: The case of fruit production in Brazil. *Environmental Sciences* 2: 445–60. [CrossRef]
Weiss, Allen M., and Nancy Kurland. 1997. Holding distribution channel relationships together: The role of transaction-specific assets and length of prior relationship. *Organization Science* 8: 612–23. [CrossRef]
Wiengarten, Frank, Hugo K. S. Lam, and Di Fan. 2020. Value creation through expanding the online distribution channel. *Industrial Management & Data Systems* 120: 714–29.
Wu, Wen-Kuei, and Singa Wang Chiu. 2016. The impact of guanxi positioning on the quality of manufacturer–retailer channel relationships: Evidence from Taiwanese SMEs. *Journal of Business Research* 69: 3398–405. [CrossRef]
Yang, Yankun. 2021. The application of big data in the analysis of factors affecting agricultural business and product marketing in the intelligent agricultural platform. *Acta Agriculturae Scandinavica, Section B—Soil and Plant Science* 71: 589–603. [CrossRef]
Yeo, Amy Chu May, and Marcus Ee Ken Lai. 2020. The influence of B2B relationship quality on opportunism and firm performance. *HOLISTICA–Journal of Business and Public Administration* 11: 59–87. [CrossRef]
Yu, Hao, and Wei Deng Solvang. 2020. A fuzzy-stochastic multi-objective model for sustainable planning of a closed-loop supply chain considering mixed uncertainty and network flexibility. *Journal of Cleaner Production* 266: 121702. [CrossRef]
Zhang, Zhe, Sen Liu, and Ben Niu. 2020. Coordination mechanism of dual-channel closed-loop supply chains considering product quality and return. *Journal of Cleaner Production* 248: 119273. [CrossRef]
Zhu, Lilong, and Bingjie Lu. 2022. Product quality control strategy of dual distribution channel structure in three-echelon supply chain. *Soft Computing* 26: 829–40. [CrossRef]