

INFLUENTIAL FACTORS SHAPING RETAILER BEHAVIOR CONSIDERING PARTNERSHIP WITH PRODUCERS (CASE STUDY IN CENTRAL JAVA, INDONESIA)

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Abstract: This research explored the dynamics of agricultural cultivation in Indonesia, where vast rural areas, distant from urban centers, necessitated robust distribution channels involving distributors and retailers to expand the market for pesticide products. Given the limited information on business interactions between producers and retailers and their implications on product market development, this study sought to evaluate the factors influencing retail behavior when considering partnerships with producers. Employing the PLS-SEM analysis method, we examined the influence of exogenous variables such as capital on endogenous variables like repurchase decisions, incentive programs, collaborative relationships, supply chain management, partnership decisions, and commitment. This investigation involved 53 retailers in the Central Java region and utilized 21 reflective indicators measured through questionnaires. The findings revealed significant relationships among variables, with the exception of the link between collaboration and partnership decisions, as well as partnership decisions and commitment. This indicated that the retailer-producer relationship hinged on business sustainability not yet to the level of product commitment. The implications suggested that producers could strategically utilize supply chain management and incentive programs to foster partnerships with retailers.

Keywords: distribution channels, pesticide market, retail behavior, retail-producers partnership, supply-chain management

Abstrak: Ribuan merek pestisida telah terdaftar di Indonesia untuk memenuhi kebutuhan pasar dalam rangka mendukung kegiatan budidaya pertanian. Luasnya Indonesia dan perkembangan lahan pertanian yang berlokasi di area yang cukup jauh dari perkotaan, membuat peranan saluran distribusi yang melibatkan distributor dan ritel memainkan peranan penting dalam memperluas pangsa pasar produk pestisida. Minimnya informasi mengenai interaksi bisnis antara produsen dan ritel dan dampaknya bagi pengembangan pasar sebuah produk, maka penelitian ini memiliki tujuan untuk mengevaluasi faktor-faktor yang mempengaruhi perilaku ritel dalam memutuskan suatu kerjasama dengan produsen. Menggunakan metode analisis PLS-SEM, untuk melihat pengaruh antara variabel eksogen modal dan variabel endogen keputusan pembelian kembali, program insentif, hubungan kerjasama, aliran persediaan barang, keputusan kerjasama dan komitmen. Terdapat 21 indikator reflektif yang diukur melalui kuesioner, dengan melibatkan 53 ritel sebagai responden di area Jawa Tengah. Hasil pengukuran menunjukkan hubungan antar variabel yang signifikan terkecuali pada hubungan kerjasama dengan keputusan kerjasama dan keputusan kerjasama dengan komitmen. Hal ini memberikan indikasi bahwa hubungan pengecer dengan produsen berpusat pada keberlangsungan bisnis saja belum mencapai pada tingkat komitmen pada produk. Implikasi yang bisa ditarik adalah produsen dapat menggunakan strategi yang melibatkan aliran persediaan barang dan program insentif dalam mengembangkan kerjasama dengan ritel.

Kata kunci: rantai distribusi, pasar pestisida, perilaku ritel, kerjasama ritel-produsen, manajemen rantai pasok

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INTRODUCTION

The upstream agricultural sector, covering seeds, fertilizers, and plant protection products, significantly contributes to Indonesia's agricultural success (Amalia et al. 2023). While seeds and fertilizers take precedence, plant protection products play a crucial role in safeguarding productivity amid Indonesia's distinct geographical conditions (Joko et al. 2020; Istriningsih et al. 2022). They play a vital role in preserving yield quality and quantity by shielding plants from pests and diseases (Sălceanu et al. 2023). Global pesticide use reached 3.54 million tons of active ingredient in 2021, marking a 4% increase from 2020 and a 50% surge since 1990, as reported by FAO (2023). In Indonesia, FAO data for 2021 indicates pesticide use at 283.3 thousand metric tons, with leading industry sales by Syngenta and Bayer CropScience (Statista, 2023).

The competitive landscape in Indonesia involves both multinationals and regional corporations, with around 5960 pesticide brands distributed (Kementan, 2023). Local producers, notably Syngenta, Bayer, BASF, FMC, Corteva Agriscience, and Sumitomo Chemical Co., Ltd., dominate the market (Sparks et al. 2019). Local entities, often producing generic or off-patent products, bring both opportunities and challenges (EU, 2021). The introduction of new innovation and technology is crucial for farmers, given the age and decreasing efficacy of many registered products, such as organophosphate and carbamate insecticides (Andika, 2022). These early-stage strategic decisions among stakeholders play a crucial role in shaping the industry's landscape (Pratikno and Pattinussa, 2022).

Producers emphasize partnerships with retailers to penetrate wider markets, considering new technology introduction's effective influence through collaboration (Ahn et al. 2022). Retailers, especially in rural areas, play a vital role in shaping the crop protection product market by interacting with smallholder farmers (Kinshuk, 2023). Their interaction with smallholders' farmers operating small plots of land made them become the source of information and farmers will rely on them to fulfill their needs for farming activities (Matthews, 2008). One of the examples is when the farmers perceive the significant influences of retailers in rural areas on their purchase decisions of product preferences (Jin et al. 2015). The loyalty of dedicated retailers is crucial for market success, but fierce competition among agrochemical companies intensifies

efforts to secure this loyalty through beneficial programs (Tse et al. 2019). Partnership opportunities to distribution channels should be considered part of the marketing strategy (Suryati and Lusiah, 2022). The impact of changing distribution dynamics on product recommendations, based on competitiveness factors, has been observed in South Korea (Ahn and Kim, 2023).

This study aims to investigate overlooked aspects of the partnership between retailers and producers, exploring four critical factors influencing retailer decisions. By delving into these factors, we seek insights into strategic developments for market expansion in the agrochemical industry.

METHODS

The study presents quantitatively the factors that impact retailers' commitment on delivering the successful launch of the product. Hundred and ten retailers were selected as research subjects to be observed using the survey. The selected retailers are well-experienced owners of retail stores who contribute to the sales of the recent product launch for new crop-protection products in Q4 2023. Furthermore, the coverage of retailer includes village-level kiosk owners to district-level kiosk owners.

The survey includes the questionnaire which is accompanied by an explanatory cover letter and distributed to the research subject through WhatsApp application. The survey period is two months between June and July 2023. The questionnaire also includes various indicators of factors such as promotional programs, incentives, investment, inventory management, and business relationships to further investigate the related factor of retailers' commitment on product launches which directly impacted sales number in the market.

The hypotheses outlined in the study propose relationships between various factors in the context of agricultural retail. The factors hypotheses were displayed in the Figure 1:

Hypothesis 1: Amount of investment made will have a significant impact on the decisions of retailers to repurchase certain products.

Hypothesis 2: Decisions made by retailers regarding repurchasing products will significantly

influence inventory management.

Hypothesis 3: Decisions made by retailers in terms of repurchasing products will significantly impact their overall business relationships.

Hypothesis 4: Retailers' decisions on repurchasing will have a significant influence on the incentives provided.

Hypothesis 5: Significant influence of inventory levels on the formation of business agreements.

Hypothesis 6: Business relationships significantly influence the establishment of formal business agreements.

Hypothesis 7: Incentives provided will significantly influence the formation of business agreements.

Hypothesis 8: Business agreements significantly influence the commitment of retailers.

These hypotheses collectively aim to explore and understand the interconnected relationships between investment, repurchase decisions, inventory, business relationships, incentives, business agreements, and retail commitment in the agricultural retail sector.

Internal and external factors including investment and internal factors: promotional incentive programs and intention for repurchase orders. Inventory management, business relationships, business agreements, and retail commitment were further evaluated in this study. Collected data from questionnaires were projected using PLS-SEM. PLS-SEM is a modeling approach that aims to maximize the variation of the endogenous

latent variables explained by the exogenous latent variables (Hair et al. 2014). Furthermore, PLS is suitable for this inquiry, following the limited samples collected, as it can create models using several samples (Hair et al. 2011; Hair et al. 2019). The outer model illustrated the connections between each construct and its corresponding latent variable, offering insights into variable correlations. On the other hand, the inner model demonstrated the relationships between different latent variables. The statistical software SmartPLS version 3.2.9 was employed to carry out this analysis.

RESULTS

Sampling and Model reliability and validity

Result of the survey returned only with the 53 responses from retailers which actively participate in developing the new products. The latent variable was analyzed for causal association and correlation between factors of retailers' commitment using PLS-SEM analysis. Furthermore, the reliability test was utilized to evaluate the measurement model based on instrument's precision, consistency, and accuracy in gauging constructs for models' convergent validity and discriminant validity. The convergence validity evaluation was confirmed when the loadings, composite reliability (CR), and average variance extracted (AVE) were above 0.5, 0.7, and 0.5, respectively (Ghozali, 2008 and Hair et al. 2014). High internal consistency is observed in a robust composite reliability (CR) while substantial variability capture is highlighted by an average variance extracted (AVE)(Table 1).

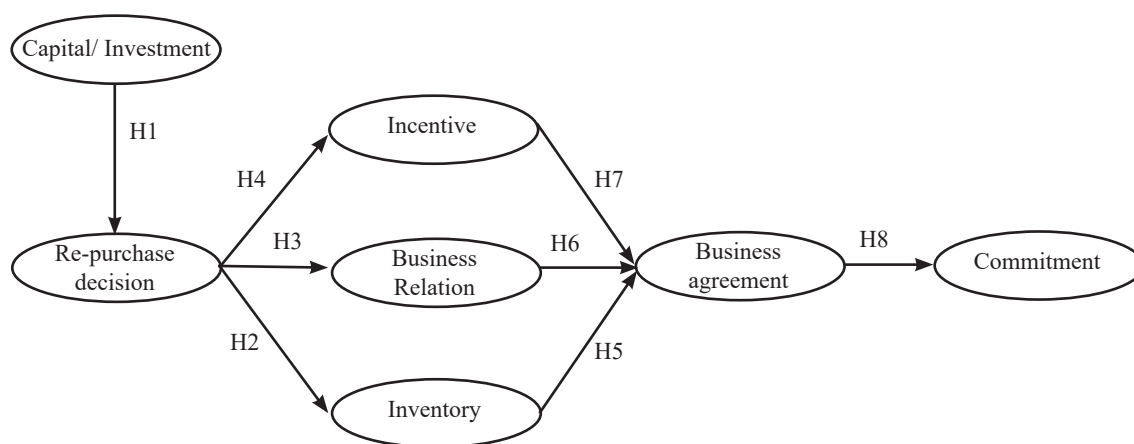


Figure 1. Generated hypotheses of retailers' indicators of commitment

Discriminant validity testing is carried out based on the principle that different constructs' (manifest variables) measures should not exhibit high correlations (Ghozali, 2008). Discriminant validity testing in Table 2 indicates that all indicators show higher cross-loadings with their respective latent variables compared to other latent variables, indicating that the model meets the requirements for discriminant validity. Additionally, it can be observed from the \sqrt{AVE} values exceeding the correlations between latent variables that the model satisfies discriminant validity.

Within the conclusive PLS-SEM model (Figure 2), we unravel the intricate interplay of factors influencing the decision-making dynamics within the pesticide retail sphere. This unveiling distinctly underscores retailers' paramount role in ensuring their business endeavors' profitability and flourishing.

Structural model evaluation

The path coefficients and corresponding statistical analyses comprehensively divulge the intricate relationships woven between diverse variables within the model. As illustrated in Table 3 for direct connections, these findings corroborate the hypothesized associations.

Table 1. Average variance extracted (AVE), composite reliability value of measurement model

	Average Variance Extracted (AVE)	Composite Reliability
Inventory flow	0.824	0.904
Business relationship	0.612	0.860
Re-purchase decision	0.777	0.874
Business agreement	0.770	0.909
Commitment	0.633	0.833
Investment	0.598	0.812
Promotion-Incentive program	0.756	0.925

Table 2. Final measurement model of correlation value between the latent variable and value \sqrt{AVE}

	Inventory	Business Relationship	Repurchase decision	Business Agreement	Commitment	Investment	Incentive program
Inventory	0.908						
Business Relationship	0.600	0.782					
Repurchase decision	0.689	0.488	0.881				
Business Agreement	0.688	0.487	0.787	0.877			
Commitment	0.473	0.278	0.410	0.243	0.796		
Investment	0.557	0.369	0.505	0.412	0.757	0.773	
Incentive	0.475	0.465	0.599	0.751	0.204	0.440	0.869

Table 3. Path coefficient value and t-statistic of a direct relationship

	Path coefficient	T Statistics	P Values	Hypothesis
H1 Investment → Repurchase decision	0.505	4.924	0.000*	Significant
H2 Repurchase decision → Inventory.	0.689	8.374	0.000*	Significant
H3 Repurchase decision → Business relationship.	0.488	4.311	0.000*	Significant
H4 Repurchase decision → Promotion-Incentive Program	0.599	5.845	0.000*	Significant
H5 Inventory → Business Agreement-Partnership	0.447	3.718	0.000*	Significant
H6 Business relationship → Business Agreement-Partnership	-0.040	0.394	0.694	Non- Significant
H7 Promotion-Incentive Program → Business Agreement-Partnership	0.557	5.815	0.000*	Significant
H8 Business agreement-Partnership → Commitment	0.243	1.017	0.310	Non- Significant

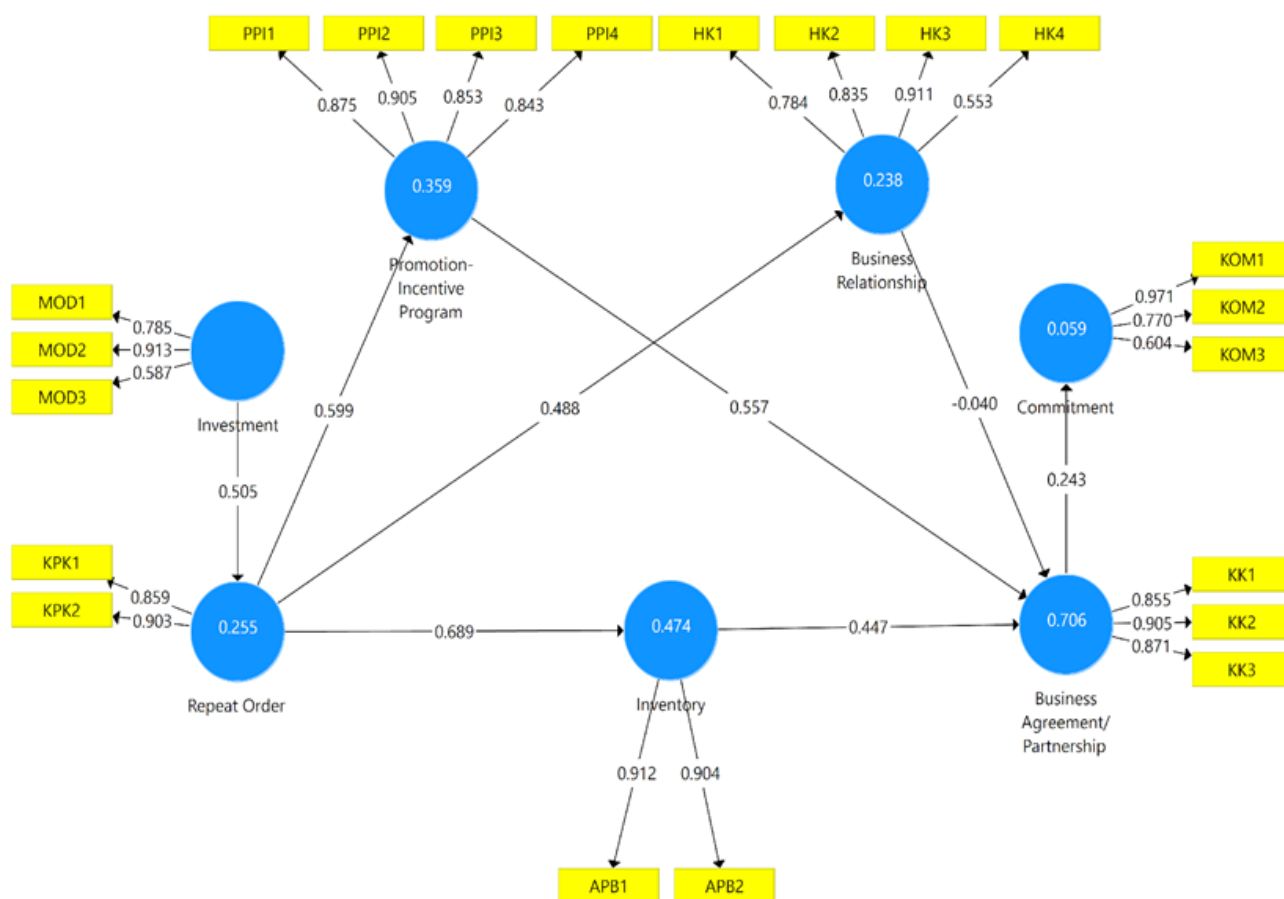


Figure 2. Path diagram of the PLS-SEM model

Hypotheses test analysis

The analysis of path coefficient values and t-statistics in Table 3 forms the basis for investigating eight hypotheses, revealing that six of them significantly correlate with retailer behaviors. Conversely, non-significant correlations are observed between business relationship and business agreement, as well as between business agreement and commitment. Firstly, financial investments (H1) wield a substantial and significant impact on retailers repurchase decisions, as indicated by a positive path coefficient of 0.505 (t-statistic: 4.924). This highlights the crucial role of financial investments in influencing retailers' choices in restocking specific items, underscoring the importance of strategic financial planning. This signifies that the amount invested significantly influences restocking choices. Survey respondents showed a willingness to allocate resources for new products as part of investment where payment terms align with turnover pace as shown in the model. Kotler and Lane (2007) stated that perceived value influences customer actions. Offers to align with expectations impact satisfaction and repeat purchases for retailers (Ibzan et al. 2016,

Farris et al. 1989). Repurchasing itself depends on customer-generated demand, primarily from farmers, shaping retail strategies. Interdependence with farmers influences retail investment and inventory. Retailers' sales rely on communicating value, balancing profit, and meeting customer needs (Hayati et al. 2017). Retailers' investment depends on understanding cost-effective opportunities offered by the product sold. Due to the importance of investment indicators, the repurchase decision is also being explored further to oversee the behavior of retailers which lead to the investment indicators. In repurchase decisions, retailers promptly reinvest incentives and offer cooperative services when it has positive expectations. The behavior strongly connects repurchase and investment decisions of retailers. This cycle might happen when strong demand is created at the farmers level.

Subsequently, repurchase decisions (H2) play a pivotal role in inventory management, with a robust path coefficient of 0.689 (t-statistic: 8.374), underlining their significant impact on stock levels. Effective inventory management is vital for retailers, emphasizing the need for informed decision-making in restocking to

maintain optimal stock levels. Managing pesticide inventory enhances customer experience, ensuring supply consistency and repurchase likelihood. Timely inventory matters for planting seasons to prevent shortages. Retailers clearly prefer selling their favored products over alternatives where they strategically emphasize sales for better profits and balancing slower-moving items. Furthermore, data supports moderate capability to invest in fast-selling new products. They rely on producer-driven market activity for demand. Retailers commit to product availability, aiding producers with ready products. Proficient inventory management helps retailers connect with customers (Biswas and Avittathur, 2019; Hofstra and Spiliotopoulou, 2022; Priyamvada and Kumar, 2022). However, retailers may face challenges with both premium and generic products (Lamberth et al. 2013) whatsoever when the products are considered as slow-moving products. Despite higher margins, retailers expect several benefits such as balanced profit and investment returns, prioritizing liquid, high-profit products for capital turnover. Furthermore, stocking premium pesticides requires evaluating costs, marketing, and profits against demand, perceptions, and competition (Arvianto et al. 2021). Because it impacts cash flow, profitability, and prevents stock issues, therefore communication and delivery matter. Producers should ensure ample pesticide supply, especially during peak demand (on season). In small-scale retail, efficient sales to farmers are shown as vital indicators as described. Overstock issues occur due to timing or efficacy. Balancing finances and inventory become essential factors in limited investment capacity. Moreover, the study establishes a significant influence of repurchase decisions on business relationships (H3) and promotion-incentive programs (H4), with path coefficients of 0.488 (t-statistic: 4.311) and 0.599 (t-statistic: 5.845), respectively. These findings emphasize the interconnectedness of restocking choices with both business connections and incentive structures. The results showed the importance of effective collaboration between producers and retailers for successful product launches (Guo and Chen, 2023). This highlights the symbiotic relationship between restocking choices and the incentive programs offered by producers or partners, showcasing the reciprocal nature of these interactions. Whilst the demand is high and stock are ready business on the go, producers.

Furthermore, inventory levels (H5) significantly shape the formation of business agreements, evident from a path coefficient of 0.447 (t-statistic: 3.718). The amount of stock held by retailers is expected to play a role in shaping formal agreements with producers or partners. To achieve that goal, negotiating pricing and profit margins is important for a mutually beneficial agreement (Lassar, 1998; Qu et al. 2021; Andriani and Tseng, 2023). In contrast, new technology introduction often means premium pricing due to research costs.

Meanwhile, the impact of business relationships (H6) on business agreements is statistically non-significant, as reflected in a negligible path coefficient of -0.040 (t-statistic: 0.394). link between the dynamics of relationships and the formation of concrete agreements. Trust and collaboration are integral components in shaping concrete business agreements. In this dynamic of relationship, retailers actively propose solutions for new product development and collaborate with sales staff for advancement. They work closely with sales officers to train farmers and communicate effectively. Retailers' insights into customer preferences benefit producers (Yang, 2021; Zeba and Shaheen, 2021). They handle customer complaints, aiding product success (Lekei et al. 2014; Devi et al. 2017; Hermanto et al. 2019; Ali et al. 2020). Effective manufacturer-retailer cooperation addresses customer concerns, fostering loyalty and repeat purchases (Salmen, 2021). Retailers support product launches and bridge sales gaps (Shukla et al. 2023). Manufacturers benefit from insights for product and marketing strategies. Strong retailer-manufacturer relationships enhance product flow, satisfaction, marketing, and innovation adoption. Effective communication and trust are key. This signifies the construct's role in understanding relationships, crucial for successful launches and outcomes. Interdependence grows through mutual needs, impacting success.

Conversely, the promotion-incentive program (H7) significantly influences the establishment of business agreements, with a notable path coefficient of 0.557 (t-statistic: 5.815), highlighting the program's role in formalizing relationships. suggesting that higher incentives lead to increased business agreements. The nature and extent of incentive programs are expected to impact the formalization of business relationships. An attractive incentive program drives target achievement. Prioritizing high-benefit sales is natural behavior for the retailers. Simple incentives redemption speeds up

sales, and intensifies efforts. Specific promotions can improve sales and margins (Priyamvada and Kumar, 2022). Together with that, loyalty programs foster collaboration, preventing retailer brand building (Grewal et al. 2011; Yu et al. 2022). A pesticide retailer loyalty program encourages higher investment (Jarosz, 2022). Managed by manufacturers, it builds retailer relationships, motivating active pesticide promotion. Programs offer benefits and rewards like rebates, points, and tiers. This construct clarifies changes in promotional and incentive factors.

Lastly, the influence of business agreements on retailer commitment (H8) appears to be non-significant, with a modest path coefficient of 0.243 (t-statistic: 1.017). The terms and conditions set out in formal agreements play a role in determining retailer commitment. The study also revealed key aspects of business agreements in retail commitment for new product launches. Collaboration between companies, retailers, and farmers is essential for achieving success of product launches (Ahn et al. 2022). The partnership brings significant benefits and meets payment terms among the stakeholders. Thoughtful partner selection becomes crucial for business continuity (Padgett et al. 2020). This signifies its importance in understanding changes in business agreements and partnerships. In the end, survey participants eagerly prioritize meeting sales targets for emerging products and invest heavily in innovation, even with similar alternatives or lower prices. In terms of commitment, satisfaction evaluates post-sale fulfillment of retailer expectations by producers. Satisfaction doesn't always ensure loyalty (Nandonde, 2019; Bakhshi and Dubey, 2021). Contentment might not guarantee unwavering allegiance.

The R-square values, confirming the correlation of each retailer commitment factor in the model, elucidate the model's variability with external factor attribution (Table 4). Higher R-square values indicate a stronger impact of exogenous latent variables on endogenous latent variables. Business agreement exhibits the highest R-square value at 70.6%, emphasizing its crucial role in understanding changes in business agreements and partnerships. Additionally, inventory and the promotion-incentive program contribute R-square values of about 47.4% and 35.9%, respectively, underlining the importance of efficient sales to farmers in small-scale

retail. The "Repurchase Decision" has an R-square of 0.255, attributing 25.5% of the variation to this latent variable, explaining fluctuations in repurchase factors. Commitment, with the lowest R-square value at 5.9%, contributes modestly to understanding variability in commitment-related factors.

This study offers a comprehensive exploration of the interplay between the global agrochemical industry and retail in Indonesia's rapidly growing agricultural sector, with a specific focus on the pesticide market. The competitive landscape, featuring both multinational and regional corporations, underscores the importance of strategic collaborations among manufacturers, distributors, and retailers in introducing new agricultural technologies. The discussion extends to various pesticide distribution models in Indonesia, emphasizing the crucial role of local retailers and dealers in successful product launches and market penetration, particularly for smallholder farmers. The study's objectives center on identifying key factors influencing channel distribution commitment for new product success. The methodology employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the constructs, including investment, repurchase decisions, inventory, business relationships, promotion-incentive programs, business agreements, and commitment. The results provide a nuanced understanding of the relationships among these constructs, emphasizing their significance and contributions to successful product launches. The discussion interprets path coefficients, statistical significance, and R-square values, highlighting the varying explanatory power of each construct and its implications for understanding pesticide retail dynamics.

Tabel 4. R-Square value

	R Square
Inventory	0.474
Business relationship	0.238
Repurchase decision	0.255
Business agreement	0.706
Commitment	0.059
Promotion-Incentive Program	0.359

Implication Managerial

The research focuses on optimizing collaboration among pesticide producers, and retailers. Strategic support, including relationship management and inventory flow, is crucial, given their simultaneous impact on commitment. At the retail level, Structural Equation Modeling-Partial Least Squares (SEM-PLS) analysis emphasizes the importance of inventory flow support and competitive incentive programs to drive farmer demand. Transparency in incentive calculations is identified as crucial, emphasizing the need for sustained efforts to enhance transparency, strengthen relationships, and build trust.

Considerations for business improvement include prioritizing the understanding of distribution channel roles for smooth inventory flow and timing. Efficient sales closing processes and negotiation skills are vital for reaching agreements without compromising strong working relationships. Structured product information presentation by producers to retailers is crucial, particularly in a competitive context. In response to changing market dynamics, integrated online marketplaces can be considered for efficient and safe product delivery. These recommendations provide a roadmap for enhancing business processes, product development, and online market strategies, ultimately improving operational efficiency, strengthening relationships, and increasing profitability in the pesticide retail sector.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In summary, the discussion deeply explores factors influencing pesticide retailers' commitment to new product development, highlighting their interconnectedness and role in successful agricultural technology product launches. The study enriches knowledge about distribution dynamics and retailer involvement in new product development, particularly in the pesticide industry.

Recommendations

The study's findings hold significant implications for the pesticide retail industry and producers. Retailers are advised to optimize investments by aligning payment

schedules with product turnover and enhancing accessibility. Producers should balance payment terms and inventory flow for effective engagement with retailers and market expansion. Strengthening collaborative services and promptly reinvesting incentives fosters customer loyalty. Prioritizing preferred products and ensuring a consistent supply is crucial for effective inventory management, adapting approaches to customer needs. Fostering partnerships with producers and maintaining open communication builds strong business relationships. Retailers can maximize incentive schemes, and collaborative agreements with synchronized payment terms benefit both parties, enhancing overall profitability. Retailers' commitment to investing in emerging products demonstrates dedication to sustainable innovation. Implementing these recommendations can improve operational efficiency, strengthen relationships, and increase profitability in the pesticide retail sector, providing nuanced insights for stakeholders and aiding retail's role in optimal producer selection.

The study's limitations include a small sample size of 53 participants from a single province in East Java, potentially introducing bias that may affect result validity. Despite efforts to diversify the sample, its composition and size limit the generalizability of findings. Further analysis is needed to validate the model across specific pesticide distribution methods. While the statistical analysis supports the proposed structural equation model, there's potential for additional dimensions to the constructs with the inclusion of relevant variables.

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