The Influence of Crop Protection Companies on Their Dealers’ Market Orientation

Roberto Fava Scare, Julia Cavalheri Tittoto, Janaina Gagliardi Bara, Jonny Mateus Rodrigues
School of Economics, Business Administration and Accounting at Ribeirao Preto, University of Sao Paulo, Ribeirao Preto, Brazil
Email: rfava@usp.br

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Abstract
Over the past 15 years in Brazil, crop protection companies have invested in training and capacity programs in order to develop more efficient and professional dealers, as well as developing influence strategies to improve the relationship with them. The present study aims to describe and verify if influence strategies and training and consulting programs made by crop protection companies in developing their dealers have generated greater market orientation, better performance, revenue and partnership in dealers’ perceptions. The questionnaire was developed based on the initial literature review and applied to owners and managers of crop protection dealers during association meetings in late 2011 and 2012, concentrated in the states of Mato Grosso and Goias. Responses were obtained from 70 respondents from 42 different dealers located in 26 different municipalities. It was observed that there are some correlations between the components of Markor and between influence strategies, as well as observing correlations between the strategies of influence and the dealers’ market orientation.

Keywords
Crop Protection Companies, Relationship Programs, Influence Strategies, Dealers, Market Orientation

1. Introduction
Brazilian agribusiness, which is modern, efficient and competitive, plays an important role in providing food, fiber and energy to the world population. The estimative of the United Nations (UN) is that, by 2050, the world will have reached the mark of 9 billion people [1]. According to the Organization for Economic Co-operation
and Development (OECD), food production will need to grow 20% by 2020 in order to meet global demand. In this scenario, the EU will contribute to an increase of 4%, Australia with 7%, the United States and Canada with 15%, Russia and China with 26% and Brazil with 40% [2]. Furthermore, in 2011, agribusiness accounted for 22.15% of the Gross Domestic Product (GDP) of the country [3]. Besides, it also accounted for 36.9% of exports [4] and 37% of formal jobs generated in Brazil [5].

Agribusiness involves all activities “before”, “inside” and “after” the gate of farms, including from research and experimentation regarding the availability of food, fiber and energy for consumers [6]. Within this context, we highlight the production and marketing of inputs which accounted for 11.81% in 2011 of the total Brazilian agribusiness GDP, reaching approximately R$ 920 billion [3].

Those responsible for bringing these inputs from industries to farmers are the distribution channels (dealers). They are key players in supply chains and without them the new seeds, pesticides, machinery and implements and other technologies become unavailable to the vast majority of producers, not to mention their main activity of delivering value to the producer that is the provision of services such as technical assistance and lending [7].

However, the development of Brazilian agriculture in recent years, increasingly technified, and the trend of mergers and acquisitions in the input sector have required from dealers greater professionalism, which includes the development of management skills of entrepreneurs and groups involved in the business and the differentiation of their services to strengthen their market positions [7].

Over the past 15 years in Brazil, crop protection companies have invested in training and capacity programs in order to develop more efficient and professional dealers, as well as making them more competitive. This process should expand the relationships between the dealer and the crop protection company and improve relationships between the dealer and their customers.

Aiming to improve the relationship, and especially to exert some influence on the behavior of dealers, crop protection companies are also developing the so-called influence strategies. Frazier and his colleagues [8]-[10] highlighted the most important: promise, threat, legalistic plea, request, information exchange and recommendation.

From the strategies above, the following question was elaborated: Have influence strategies and training and consulting programs made by crop protection companies in developing their dealers given positive result? Have they generated greater market orientation, better performance, revenue and partnership in dealers’ perceptions?

2. Objectives

The present study aims to describe and verify if influence strategies and training and consulting programs made by crop protection companies in developing their dealers have generated greater market orientation, better performance, revenue and partnership in dealers’ perceptions.

To achieve the proposed objectives, the first step was to develop the theoretical framework, consists of the following topics: Overview of the distribution of agricultural inputs in Brazil; The Importance of dealers and the relationship with input companies; Market Orientation. Then, were described the methodological procedures, analysis and discussion of the results and, finally, the conclusions of the study.

3. Theory

3.1. Overview of the Distribution of Agricultural Inputs in Brazil

Nowadays in Brazil the distribution of agricultural inputs occurs primarily in four ways: through agricultural cooperatives, distributors of inputs (or dealers), distributor who acts as “wholesale inputs” (redistribution), or through direct sale from the supplier to large farmers or purchasing pools [7]. According to the authors, dealers play an important role in this context and are responsible for the purchase of these inputs from manufacturers, selling to farmers and ranchers generally serving a specific region.

In the mid-1960s, early stage of new agricultural frontier growth in Brazil, cooperatives was well structured to meet the producers, while few dealers had well developed commercial activities [7].

In the 70s, due to the worsening of frost, there was a need to be closer to the producers who developed and occupied new horizons, to guide them on how to take care for their crops bringing new technologies and helping to improve the productivity and quality of their products. Thus, the first dealers emerged. However, the lack of experience, administrative and managerial knowledge of owners led to the reduction of the life cycle of products. Due to this, owners sought ways to expand and professionalize their businesses, investing, hiring and training
professionals, systematizing some processes and became entrepreneurs and qualified managers. Nowadays, they diffuse techniques to increase food production, encouraging respect to human resources and environment, and aiming to differentiate their activities [7].

According to the National Association of Agricultural and Veterinary Inputs Dealers (ANDAV), in 2007, the sector was represented by about 7000 distributors and over 15,000 dealers distributed throughout the country, and South and Southeast regions totaled together almost 60% of the total distribution channels (Table 1) [7] [11]. In these regions, the number of dealers is relatively smaller, and they are widely spread on the market. However, in the Midwest, this kind of company is generally larger, more concentrated and newer, since the development of agriculture in this region is more recent [7].

Mazotini, Morais, Prado and Cônsoli [7] found that, in recent years, dealers have undergone a process of consolidation. From 2002 to 2008 the number of input distribution points dropped from over 8000 to less than 7000 points. With this trend, according to the authors, it is expected to have a closer relationship with a small number of suppliers and thus strengthening the concept of partnership.

Today, nearly 60% of sales of agricultural pesticides occur at the dealers, and the remainder is distributed through cooperatives and direct sales industry. In relation to veterinary inputs, about 90% is concentrated in distributors and dealers, which demonstrates the importance and strength of the dealers for agribusiness production chains. Moreover, according to research from ANDAV, dealers influence the producer’s decision at the time they are purchasing their products, for example, in 2004 only 21% of purchases were influenced and, in 2008, that number exceeded 35% [7].

Considering this scenario, Mazotini, Morais, Prado and Cônsoli [7] raised some challenges for the agricultural inputs sector in Brazil and the opportunities that open to the professionalized distribution channels (dealers) as shown in Table 2.

### 3.2. The Importance of Dealers and the Relationship with Input Companies

According to Cônsoli and Neves [12], distribution channels, or dealers, are of fundamental importance because they represent “a set of interdependent organizations involved in the process of making products or services available for use or consumption” [13]. In other words, channels are responsible for meeting the demand by offering products and services on-site, in quantity, in quality and suitable price, and thus creating value for consumers. They facilitate the creation of competitive advantage for business, since they allow access to a wide

<table>
<thead>
<tr>
<th>Region of Brazil</th>
<th>Number of distributors</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>487</td>
<td>7%</td>
</tr>
<tr>
<td>Northeast</td>
<td>1.204</td>
<td>17%</td>
</tr>
<tr>
<td>Midwest</td>
<td>1.130</td>
<td>16%</td>
</tr>
<tr>
<td>Southeast</td>
<td>2.181</td>
<td>31%</td>
</tr>
<tr>
<td>South</td>
<td>1.936</td>
<td>28%</td>
</tr>
<tr>
<td>Total Brazil</td>
<td>6.938</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Table 2. Challenges and opportunities for the distribution of agricultural inputs in Brazil.

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of strategic planning, which is a key to the success of dealers;</td>
<td>Storage services;</td>
</tr>
<tr>
<td>Granting of credit and risk management of default required through knowledge of their customers and their activities;</td>
<td>Services and guidance in managing the farm;</td>
</tr>
<tr>
<td>More realistic rural insurance policies, according to the different regions of Brazil;</td>
<td>Application of new technologies according to customer needs and reduction of distribution operational cost;</td>
</tr>
<tr>
<td>Increase the supply of generic products, which benefits the farmer by reducing the prices of inputs but can derail this kind of business in the future.</td>
<td>Targeting customers with different profiles (characteristics); Special attention to the trend qualification and certification of distribution channels (dealers).</td>
</tr>
</tbody>
</table>
network of intermediaries and customers, providing services, reducing distribution costs and facilitating access to the target market, also enabling the use of advanced technologies.

Mazotini, Morais, Prado and Cônsoli [7] consider dealers an important link of agribusiness production chains due to proximity and good relationship with farmers, full portfolio of products, including new technologies, ability to provide services (technical assistance) and granting of credit for their clients. Distributors or dealers are actually the “bridge” between suppliers and producers. Without them, it would be impossible for any producer to be found, since not everyone would have access to products, services and technologies directly from the producing industries [14].

According to the same authors, dealers usually choose their suppliers based on the following aspects: a) Company that has a good portfolio of products for the prevalent culture in the region; b) Company that has a good position in terms of region and culture; c) Company that is able to offer preference or territorial exclusivity for the distributor; d) Company that offers discount programs (relationship); e) Company that provides management support, marketing and sales (training); f) The development of a long-term partnership and g) A logistics structure capable of meeting the local demand [14].

They also emphasize that the most important thing is that input companies and distributors (dealers) focus on strategies that can develop together to add value to producers. For example, the distributor is required to develop a regional coverage, sales and market penetration, to meet the needs of industry partners and have credibility, good relationships and access to producers in their region. The goal here is to support the development of industry products and dissemination of their brands in order to strengthen the relationship and to encourage greater investments in business distributor [14].

Attempting to influence the behavior of their dealers, crop protection companies may still develop influence strategies, i.e., the means by which a firm’s personnel communicate with its partners to achieve this goal [15]. As an example, we mention the taxonomy of influence strategies created by Frazier and his colleagues [8]-[10], which are:

1. Promise (PRO): Source certifies to extend specified contingent reward on the target compliance;
2. Threat (THR): Source informs the target that fails to comply will result in negative sanctions;
3. Legalistic plea (LEG): Source contends that target compliance is required by formal agreement;
4. Request (REQ): Source asks target to act; no mention of subsequent sanctions;
5. Information exchange (IEX): Source supplies information with no specific requested or indicated action;
6. Recommendation (RCO): Source stresses that specific target action is needed so that the latter can achieve desired outcomes.

In order to contribute to this theory, Boyle, Dwyer, Robicheaux and Simpson [15] developed a new measure of influence strategies in marketing channels to measure the relational structure of manufacturer-dealer linkages (relationalism) and test the association with the use of each influence strategy and also to examine relationalism and the use of influence strategies across alternative formal channel arrangements (market, administered, franchise, and corporate). The authors define relationalism according to the dealer’s structure, which can be “a continuum with discrete trading market structures at one pole, and long-term interdependent partners in relational structures at the other”. In this study were considered the six influence strategies above and the three standards that seem central to relational exchange: solidarity, mutuality, and flexibility to build the new measure. In general, the authors concluded that relationalism association with requests, legalistic pleas, and threats is negative. Recommendations, information exchange and promises are associated positively with relationalism. The frequency of almost all supplier communications differs across the four governance structures [15].

### 3.3. Market Orientation

In recent years, the concept of market orientation has gained enough prominence in academic field and business as it represents the foundation of high-quality marketing practice. According to Narver and Slater [16], market orientation is “the organizational culture that is most effective and efficient creates a necessary behavior for the creation of superior value for buyers and thus continuous superior performance for the business”. The same authors developed a construct based on this concept consisting of the following elements: a) Customer orientation; b) Competitor orientation; c) Interfunctional coordination; d) Long-term focus; and e) Profitability [16].

Lambin [17] defined the concept of market orientation in a similar way but broadened the definition of market provided by [16], adding the following market players: distributors, prescribers and macro-marketing environment. Also stressing the development of customer relations and increasing their value is responsible for all
functions of the organization, not just the marketing department.

Kohli, Jaworski and Kumar [18] also developed a construct of market orientation (MARKOR) and considered the following components: market intelligence, intelligence dissemination and responsiveness. The first is subdivided into six items and refers to the collection of consumer needs and the forces that influence the development and refinement of these needs. The second contains five items and is the dissemination of information collected in the organization. And the third contains nine items and refers to the action taken against generated and reported information.

4. Procedures

This study is a descriptive quantitative research [19]-[21]. Based on the initial literature review on market orientation and the relationship between input companies and their dealers, an instrument for data collection was developed. The questionnaire was applied to owners and managers of crop protection dealers during association meetings in late 2011 and 2012.

The questionnaire contains 17 questions, open and closed, and allowed us to evaluate the following aspects: the portfolio of product of the organizations studied, the number of units, the size according to the number of employees, the company’s situation regarding the distribution of pesticides (partnership perception variable), the number of active clients, the supplier representativeness in the supplier’s revenue (sales revenue perception variable), participation in training or consulting programs offered by crop protection companies, influence strategies adopted by the supplier as the new measures of influence strategies in marketing channels developed by Boyle, Dwyer, Robicheaux and Simpson [15] and the market orientation of the organization such as Markor [18].

It also measured dealers’ performance, by dividing the total revenue of the year by the number of employees in the organization.

Due to the growing potential faced by agricultural production in Midwest of Brazil in the last 15 years and the operational size of dealers in the region, our research concentrated in the states of Mato Grosso and Goiás. Responses were obtained from 70 respondents from 42 different dealers located in 26 different municipalities and the information obtained has been tabulated. According to Booth, Colomb and Williams [22] a research problem has a situation or a condition and desirable consequences caused by that condition.

The assumptions of this research can be described as:
1. There is a correlation between the components of MARKOR with influence strategies considered in the study;
2. Greater revenue perception generates better performance which generates greater partnership perception of dealers;
3. There is a correlation between investments made by crop protection companies in training and consulting programs with the components of MARKOR and influence strategies;
4. There is a correlation between influence strategies with revenue and partnership perceptions, and dealers’ performance.

To analysis these assumptions, the correlation was used to determinate if there is a relationship between the variables and report if variations suffered by a component are accompanied by changes in the other. Correlation is usually used in statistics when we mean the force that holds together two sets of values. A measure of the degree and sign of the correlation is given by the covariance between the two components \( X \) and \( Y \). This measure is a linear association exists between them and defined by:

\[
\text{cov}(X,Y) = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{n}
\]  

As a measure of correlation is more convenient to use the linear correlation coefficient of Pearson, as an estimator of the correlation between variables defined by:

\[
\rho_{XY} = \frac{\text{cov}(X,Y)}{\sigma_X \sigma_Y}
\]  

Thus the value located between \(-1\) and \(1\) reflects the intensity of a linear relationship between two data sets. When the relationship between variables is equal to zero the variables do not linearly depend on one another. Although the correlation does not mean causation, its use helps to highlight important points of view of the in-
tive respondents regarding their supplier.

Since the coefficient $\rho_{XY}$ is only an estimator it is necessary to check if the estimates of sample correlation can be generalized to the population, thus verifying the occurrence of an error of inference. A test of hypothesis was applied to verify if the correlations at a significance level $\alpha$, can really ensure that there is a linear correlation between the components.

5. Results

The results of this study are presented a statistical analysis of the data. The study sample is characterized by small, medium and large companies, most of them (67%) have up to 50 employees, 26% have 51 - 500 employees and only 7% more than 500 employees. The average number of employees in the sample is 120, the highest with 2800 employees and the lowest with 5. The average number of people working in marketing/commercial area of these companies was 32%, 26% compared to the general average of employees.

These companies are distributors of agricultural inputs, and the main products that comprise line are shown in Table 3.

Almost all dealers sell crop protection and seeds, a large majority offers fertilizers and liquid fertilizers, and some sell animal nutrition, machinery and implements and other products. All respondents are companies, 29% of them just have one unit, 61% have 2 to 10 units, and just 7% have more than 10 units. The approximated numbers of active costumers of all sample is 50,500, and half of the major revenues dealers have 69% of these costumers. The average of active clients in the sample is 742; the largest number of active clients is 10,000 and the smallest 15. The average of clients that represents 80% of the revenue is 141 clients, a rate of 19% of the total active clients.

The questionnaire was applied to owners and managers of crop protection dealers. 17% of them were owners main managers, 14% were partners and managers of specific area, 10% main managers (no partner), 37% managers of specific area, 10% were responsible of internal activities in the company and 11% responsible of marketing activities.

When asked about the dealer’s situation regarding the distribution of crop protection inputs, over half of respondents (54%) say that they distribute various brands, but have a stronger partner, 27% say they have a primary crop protection supplier, but they are not exclusive, 16% say they are exclusive distributors of a great brand partner, and only 3% distribute all major brands and are considered independents.

In relation to the revenues 57% of respondents confirmed that their main supplier of inputs represents about 50% of revenues, 24% say they represent 50% to 60% of revenues, 14% greater than 60% to 70%, 4% greater than 70% to 80% and no greater than 80% of revenues. The data above shows that there are strong partnerships between dealers and their suppliers, and that these partnerships have a great importance in their revenue.

To measure market orientation MARKOR scale was used [18]. This method identifies three basic components of market orientation of the dealer’s companies. The first is market intelligence generation that refers to the collection and assessment of both customer needs/preferences and the forces that influence the development and refinement of those needs. The second is intelligence dissemination that refers to the process and extent of market information exchange within a particular organization. In addition, the dissemination of intelligence occurs both formally and informally. Finally, the last one is responsiveness that is the action taken in response to intelligence that is generated and disseminated.

There is statistical evidence to state that a positive relationship between information dissemination, information generation and responsiveness to information generated (Table 4). This confirms that, for the sector analyzed, an increase in any of these constructs will result in an increase in the others.

Among the influence strategies of the supplier there are significant correlations between several items (Table 5). The demands of supplier (REQ) are positively related to legalistic pleas, recommendations and threats. For

<table>
<thead>
<tr>
<th>Table 3. Product line.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products</td>
</tr>
<tr>
<td>Crop protection</td>
</tr>
<tr>
<td>Seeds</td>
</tr>
<tr>
<td>Fertilizers</td>
</tr>
<tr>
<td>Animal nutrition</td>
</tr>
</tbody>
</table>
these people, demands of supplier are better understood by those who feel less threatened and legally pressured, as well as positive recommendations are observed. However, those who have a greater information exchange also have a higher level of promises and recommendations, but the relation with legalistic pleas is negative. The relation between legalistic pleas with the level of promise and recommendations is negative and positive with issues of threat. It was also found a positive correlation between promises and recommendations.

Aiming to establish a relationship between market orientation and influence strategies of the supplier, Table 6 provides a correlation between variables. It can be seen that information exchange, promises and recommendations have a positive correlation with information dissemination. Thus, the supplier increases information dissemination when the strategies of information exchange, promises and recommendations are well understood. For information generation the survey found a positive correlation with the degree of promises established as well as responsiveness.

Partnership relationship with the supplier has positive correlation with its sales revenue perception, as well as with performance (revenue divided by number of employees). Companies of the sample tend to have a better perception of partnership when their performance improves (Table 7).

When relating market orientation of the sample and partnership perception, it was found no significant correlation between them. However, there is a positive correlation between performance and information dissemination. Regarding influence strategies, partnership perception had a positive relationship with information exchange, since sales revenue perception is higher where there is a greater information exchange and lower where there are legal aspects. Performance has a positive correlation with recommendations and negative with threats (Table 8).

The level of training offered by the supplier does not have significant correlation with Markor in the sample, although influence strategies have a positive correlation with training level (Table 9). Companies that participate in training are also those that have a greater information exchange and promise with the supplier, suffering less with legalistic pleas of the supplier.

### 6. Conclusions

This study concluded that, in overall, there is a correlation between the components of Markor (scale measuring market orientation of dealers) and between influence strategies and observed correlations between the strategies of influence and the dealers’ market orientation when compared.

It was also observed that the companies of the sample tend to have a better perception of partnership when
Table 6. Markor and influence strategy correlation.

<table>
<thead>
<tr>
<th></th>
<th>REQ</th>
<th>IEX</th>
<th>LEG</th>
<th>PRO</th>
<th>RCO</th>
<th>THR</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDS</td>
<td>0.058</td>
<td>0.431*</td>
<td>-0.132</td>
<td>0.270*</td>
<td>0.333**</td>
<td>-0.059</td>
</tr>
<tr>
<td>IGN</td>
<td>0.032</td>
<td>0.086</td>
<td>-0.115</td>
<td>0.320**</td>
<td>0.128</td>
<td>0.030</td>
</tr>
<tr>
<td>RES</td>
<td>-0.112</td>
<td>0.046</td>
<td>-0.020</td>
<td>0.233*</td>
<td>0.054</td>
<td>0.096</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level; *Correlation is significant at the 0.05 level.

Table 7. Correlation between perception and performance.

<table>
<thead>
<tr>
<th></th>
<th>Partnership perception</th>
<th>Sales revenue perception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnership perception</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sales revenue perception</td>
<td>0.306**</td>
<td>1</td>
</tr>
<tr>
<td>Performance</td>
<td>0.287*</td>
<td>0.297**</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level; *Correlation is significant at the 0.05 level.

Table 8. Markor and influence strategy correlation with perception and performance.

<table>
<thead>
<tr>
<th></th>
<th>Markor</th>
<th>Influence strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IDS</td>
<td>IGN</td>
</tr>
<tr>
<td>Partnership perception</td>
<td>0.130</td>
<td>-0.152</td>
</tr>
<tr>
<td>Sales revenue perception</td>
<td>0.151</td>
<td>0.027</td>
</tr>
<tr>
<td>Performance</td>
<td>0.282*</td>
<td>0.142</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level; *Correlation is significant at the 0.05 level.

Table 9. Correlation between markor, influence strategies and training programs.

<table>
<thead>
<tr>
<th></th>
<th>Markor</th>
<th>Influence strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>0.138</td>
<td>0.191</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level; *Correlation is significant at the 0.05 level.

their performance improves. Also, there is a positive correlation between performance and information dissemination (Markor) and the dealers’ performance has a positive correlation with recommendations and negative with threats, similarly to what was found by Boyle, Dwyer, Robicheaux and Simpson [15].

Furthermore companies that participate in training programs are also those that have a greater information exchange and promise with the supplier, suffering less with legalistic pleas of the supplier.

The findings of this study bring to light of the need for further studies, preferably with larger samples, to check for influences of the training programs offered by crop protection companies and their influence strategies in the market orientation of their dealers.

References


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