

THE LOYALTY ON THE MARKET OF AGRICULTURAL MACHINES

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Abstract

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The article is dealing with the market of agricultural machinery with the focus on the loyalty of agricultural subjects. In this market the brand is very important factor that can influence fundamentally the purchaser during buying a machine. Totally there are three types, the subjects that are totally not influenced by the brand mark, the subjects taking in their consideration the brand mark but just as one factor and the rest that is loyalty and buys just one brand. The main objective of this paper is to analyze the customers in this market and their loyalty to each brand. To reach the main goal there were analyzed data of agricultural subject's facilities, perception of brand marks and their relation. The data were used from own primary marketing research and analyzed by the help of statistics methods for marketing research as a Chi-square test, Pearson product-moment correlation coefficient, Spearman's rank correlation coefficient and testing the hypotheses. The other part of this paper was focused on the satisfaction of respondents with each brand that they own. According to the article objective there were set hypotheses for following testing that were main mean to solve the goal. The result of this paper is found loyalty for just one brand in the agricultural machinery market. For John Deere brand there was proven the loyalty – subjects perceiving the mark as the best in the market and also buying it. The results can help for our future analyses to understand factors influencing the market and analyses of each brand and how their strategy in the market is conformed to the subject perception and behavior.

agricultural machines, behavior, loyalty, brand mark

Using agricultural machinery is fundamental for every agricultural subject. On the base of the business size they chose the right solution for their farm, from hiring, using agricultural services, to the purchase of a new machine. The issue of picking the brand is influenced by numberless amount of factors as the previous experience, loyalty, servicing distance, availability of parts, price, necessary performance, accompanying services and so on. During focusing on the loyalty as the factor influencing the purchasing habits there are three groups of agricultural machinery owners that have different level of brand loyalty. First group represents the owners that are loyalty just to one brand and their machinery park is composed of one brand machines. In the sec-

ond group, farmers do not have strong relationship to the brand and their machinery park is composed of machines of different producers and they decide according to the actual supply and the price. The last group represents the farmers that are old machinery owners or they do not own any machine and are about the decision which group they will enter. The main objective is to find out the level of loyalty of Czech farmers during the machinery purchasing by analyzing own data from marketing research.

METHODS AND RESOURCES

Important source with information about the analyzed issue are the publications from Research of-

office of agricultural machinery¹ that is intensively focused on this issue. In the publication from Abraham (2002) there are analyzed the facilities of Czech farmers. The author presents the marked changes in farmer's facilities and indicates slow rate of machinery recovery as the big problem in the area of technical security of agricultural production. The average age of machinery is getting higher that has got negative impact on technical condition of machines and technological lines, on their operational reliability, ecological aspects of production and conditions for animals.

There are still proven marked changes in facilities and needs of machines in the relation to the size of agricultural company. From this it is presumed those small agricultural subjects that do not employ the machines so often have got higher operational costs (Abraham, Kovářová, 2009).

In this paper there were firstly analyzed these objectives:

- The today facilities of agricultural subjects divided on two levels – the type of agricultural machinery and the brand.
- Brand perception among questioned respondents.
- The satisfaction of respondents with each brand.
- The relation of farmers' facilities and brand perception.
- The relation of brand perception and the legal form of the respondents.

On the base of settled problem and formulated hypotheses there was set the plan of research that specifies the necessary information, the procedure of their receiving and the plan (Stávková and Dufek, 1998).

As the technique of the research there was chosen the questioning with the electronic questionnaire in RELA system which has a huge advantage in the possibility to export the data to the Excel that helps to modify the data for the program STATISTICA. As the sample of respondents there were used the agricultural subjects operating in the Czech Republic. There was only one condition for the subject to be part of the sample and that was that the subjects use the agricultural machinery for their business. For receiving the data there was used the inexhaustive research because of bad availability of agricultural subjects and high costs of this research. During sampling there was used the known purposeful selection of possible opportunity where the samples were chosen from the register Portal of farmers². Totally there were addressed 1258 respondents from all regions of the Czech Republic however the rate of return was quite low. Totally 143 respondents answer the questionnaire (rate of return just almost

12%). The questionnaire involved eight questions for the respondents about their machines facilities and preferences. During creating the questionnaire there was used the classification SITC³ for the answers. With regard to the following data analyses there were chosen just closed questions and the battery of questions with closed possible answers. During data analyzing firstly there was done the data sorting, specifically simple sorting, that is used for the word marks in which figure mark variation (Minařík, 2000).

The results are shown in graphs – in histograms. Consequently in analyzed data there were searched the dependence among the word marks with the help of the analysis of contingency. The information about the marks that was found out was the frequency of variation. For the information about the difference of the theoretical values and practical values there was used the analysis of contingency χ^2 that was determined from this relation (Kinnear and Tailor, 1999):

$$\chi^2 = \sum_{i=1}^R \sum_{j=1}^C \frac{(O_{ij} - E'_{ij})^2}{E'_{ij}}, \quad [1.1.]$$

where R is the number of variables in the table on the row and C is the number of variables in the table on the column. O_{ij} is the number of observed values in the table and E'_{ij} represents the number of expected values in the table. With the rise of the value of the contingency the dependence is getting higher. From the analysis of contingency there are derived other coefficients (Foret, Stávková, 2003).

Pearson's coefficient of contingency that is determined from this algorithm:

$$P = \sqrt{\frac{\chi^2}{\chi^2 + n}}. \quad [1.2.]$$

The second coefficient is Crammer's coefficient of contingency:

$$C = \sqrt{\frac{\chi^2}{n \times \min(k-1; l-1)}}. \quad [1.3.]$$

The value of these coefficients varies between number 0 to 1 and with the higher number the dependence rises.

The last part of the methodology is the hypotheses testing. Hubík (2006) describe the term of hypothesis – hypothesis represents the common statement that constructs the scientist theory. The procedure of testing hypothesis is focused on the falsification.

1 Research office of agricultural machinery was found by the Ministry of agriculture with the main objective to do the basic and applied research and development in agricultural machinery and technology (www.vzut.cz).

2 Portal of farmers represents the public list of farmers administrated by the Ministry of agriculture (www.mze.cz).

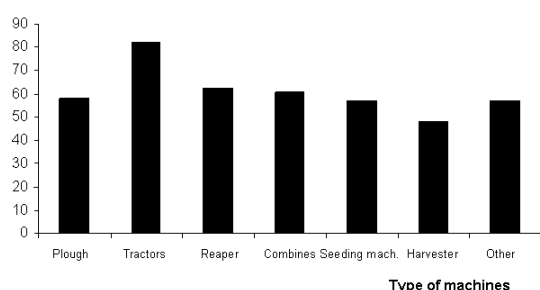
3 SITC – Classification used for the import/export by the Czech statistic office (www.szso.cz).

RESULTS

During data analysis there were firstly analyzed the percent occurrence of chosen values of own marketing research. In the area of agricultural machines facility the respondents mostly own tractors (picture 1).

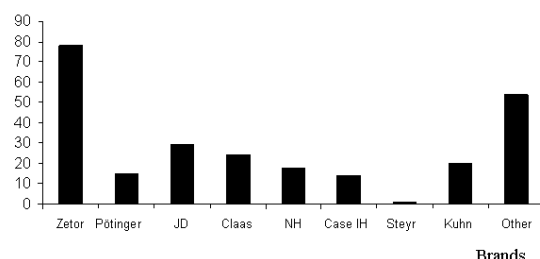
Secondly there were analyzed the variation of brand that respondents own. The most respondents answered that own machines Zetor that is the results of investments in the time before the economic transformation (picture 2). For this graph it is evident that quite big part of agricultural machinery has to be restored in following years.

During analyzing the brand perception the respondents indicate brand John Deere as the most known brand in the market. John Deere was indicated by 42% respondents, Zetor 33% and New



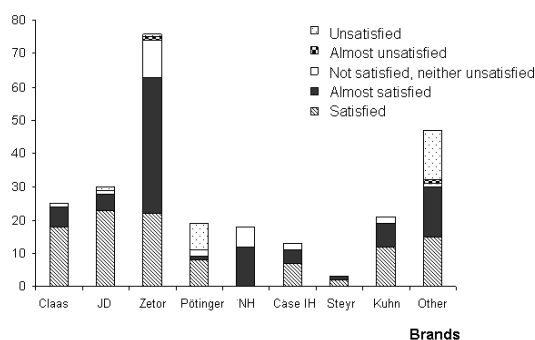
1: Machinery facilities of respondents

Source: own research



2: Brand facilities of respondents

Source: own research



3: Satisfaction with each brand

Source: own research

I: Testing of the independence between brand perception and the type of respondent

	Contingence	p-value
Contingence	26.24617 ⁰⁰⁰	p = 0.55952
Pearson's coefficient	0.48807	
Crammer's coefficient	0.27960 ⁰⁰⁰	

Source: own research

II: Dependence between the brand perception and brand ownership

	Contingence	p-value
Contingence	33.60413 ⁰⁰⁰	p = 0.00002
Pearson's coefficient	0.48887	
Crammer's coefficient	0.56040 ⁰⁰⁰	

Source: own research

Holland by 9%. There was also analyzed the satisfaction of respondents with the brands they own. The most satisfied respondents were with the brand Zetor (picture 3).

The second part of this paper was focus on the testing of possible dependence. Firstly, the hypothesis about the independence between the brand perception and the type of respondent was tested. The received values are shown in the table I.

From analyzed data it was proven that there is dependence between brand perception and type of respondents. The second hypothesis that was proven was describing the dependence between the brand perception and brand ownership. This dependence was proven just for the brand John Deere. For this brand it is apparent that respondents having high perception about the brand are also the owners of these machines. The results are shown in the following table II.

DISCUSSION

As was said at the beginning there are three groups of farmers that have different relationship to the brand. To receive the set objective there was analyzed primary data got from own marketing research. Totally there were addressed 1258 respondents however the rate of return was quite low, just 12%. That has the impact on representativeness of the sample. In analyzing the type of machine respondents own the results show that respondents own all set categories but the most tractors. The following analysis was focused on the satisfaction with brands they own. The most satisfied there were respondents with Zetor brand. This was influenced by the big investment in agriculture before the transformation of the economy. This is very positive factor for the market because big part of machines needs to be restored and can show future needs for investment.

Part of this paper was focused on hypothesis testing. There was proven middle dependence between the brand perception and the brand ownerships for

John Deere brand. That shows that farmers take this brand as the best one in the market and are also loyalty to this brand and buy these machines.

SUMMARY

This paper is focused on the brand loyalty of farmers in the market of agricultural machinery. In the analysis there was put an emphasis on the farmers' facilities with on two levels – the type and brand, finding out the satisfaction with the machines that the respondent own, brand perception. The results were made fundamental with the help of testing chosen hypothesis. The loyalty was proven just for one brand – John Deere that achieved middle dependence. In the market of agricultural machines there are many factors that influence the purchaser. And for John Deere brand a factor that has big or crucial power is loyalty. The authors run on the research of the analyzing loyalty on the market of agricultural machines in following years to compare changes in brand laoyalty.

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