HEURISTICS AND BIASES OF BRAZILIAN RANCHER IN RELATION TO HERBICIDE'S DECISION

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Abstract

The current market requires decision-making ever more rapid and consistent. The technology has put the world connected in real-time: people, markets, exchanges and information. In this context of pressure and speed the individual uses a process of simplifying decision making, as shortcuts of cognitive process. However, it may lead to errors enabling the existence of heuristics and biases, which according to Hastie and Dawes (2001) demonstrates the systematization of human irrationality. This research has as presupposition that the decision-making of rancher should be studied as an individual contributor (Gasson, 1973; McGregor et. al. , 1995; Willock et. al. , 1994). Thus, the main objective of this work is to identify the biases of representative and availability heuristics in decision-making process of the rancher on relation to herbicide for pasture. The methodology is structured in two phases, qualitative and quantitative. At first it was used Laddering as method to understanding how ranchers translate the attribute of products in association with meanings about themselves, following the theory of means-end chains. In this step were individually interviewed 15 Brazilian ranchers, which could be identified four proposition: there is the presence of representative heuristic with the illusion of validity bias on farmer perceptions regarding the origin of the herbicide be from USA; there is the presence of representative heuristic with the illusion of validity bias on farmer perceptions regarding the origin of the herbicide be from China; there is availability heuristic with bias of illusory correlation in perceptions of farmers regarding the choice of herbicide based on the recommendation of other ranchers; there is availability heuristic with bias of illusory correlation in perceptions of farmers regarding herbicide be considered a poison but extremely necessary. Based on the proposition raised in this first phase, was applied a questionnaire with Likert scale with 75 ranchers. It is intended that these results could have important contribution on this field of study as well as to the companies in their marketing strategies and brand positioning.

Key words: heuristic, bias, decision-make, agribusiness

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1. Introduction

The current market requires decision-making ever more rapid and consistent. The technology has put the world connected in real-time: people, markets, exchanges and information. In this context of pressure and speed the individual uses a process of simplifying decision making, as shortcuts of cognitive process. However, it may lead to errors enabling the existence of heuristics and biases, which according to Hastie and Dawes (2001) demonstrates the systematization of human irrationality. Rathmann (2007) affirms that decision-making in agribusiness supply chains have a high degree of complexity. In this intricate environment, frequently the decisions made by farmers are strictly empirical, subject to high uncertainty (Nantes & Scarpelli, 2001).

The importance of the proposed topic is justified mainly by the representative of the agribusiness sector in the Brazilian economy, which is responsible for almost a quarter of Brazil's GDP and represents a sector that has a capacity of employment and income generation that accounts for 37% of the workforce employed in the country (MAPA - Ministério da Agricultura, Pecuária e Abastecimento, 2012). Within the agribusiness this study focus on Brazilian livestock sector that had a gross sales of 104.5 billion reais in 2011 (MAPA, 2012). This sector has been undergoing some major changes, especially in regard to legislation and environmental monitoring, which today are stricter regarding deforestation for new pasture. In this scenario arises the need of farmers to invest more in their pastures through fertilization and efficient pest management, and the herbicide is an important tool for this. Thus, it is considered that the research in this area should be undertaken in order to aggregate knowledge in this important national industry.

Investment in pastures necessarily involves the process of decision-making rancher's, thus the main objective of this work is to identify the biases of representative and availability heuristics in decision-making process of the rancher on relation to herbicide for pasture. For this, it is assumed the presupposition that the decision-making rancher's should be studied as an individual contributor so that factors related to personal goals, behavior, attitudes and factors are important components to be studied (Gasson, 1971; Mcgregor *et. al.* , 1995; Mcgregor *et. al.* , 1996; Willock *et. al.* , 1994).

The theme is also justified in relation to originality. Although heuristics and biases in purchasing decisions is studied for several decades by scholars from various fields, the relevance of this study is given by the scarcity in the scientific literature that addresses heuristics and biases in decision for products and services in this specific sector. This article is structured into 7 parts: 1 Introduction, 2 Bounded rationality and heuristics; 3 Attributes and values; 4 Research propositions. 5 methodology; 6 results of the qualitative phase; 7 results of the quantitative phase; and finally 8 discussion and managerial implications.

2. Bounded rationality and heuristics

In this paper we consider the individual in the decision-making process from the perspective of bounded rationality proposed by Simon (1957). The heuristic is the set of strategies adopted by a person from predetermined goals and values, to come up with solutions or product decisions (Miskulin, 1998). Simon (1957) sees the man as an economic actor bombarded by choices and decisions, but has a limited number of information and processing capabilities. Because the physical impossibility of getting all the information, and the problems of time and cost, the decision maker (DM) content himself with a limited

number of information - the satisfactory level- allowing identification of the problems and some workarounds.

The emotional motives of the decision involve the selection of goals according to personal or subjective criteria such as: the desire for individuality, pride, fear, affection and status (Kanuk & Schiffman, 2000). Even if individuals receive identical information, depending on the interest, the relationship may vary with the attribute (Bazerman, Diekman, Ross & Samuels, 1987). Also individuals can simplify your cognitive process to save time and resources in their decision-making or value judgment. To make a decision you must obtain data, information and then interpret them. Information is not always available in appropriate format and timing. An organization to offer a specific set of attributes may choose one that consider more important to emphasize in their communication, affecting its perceived value. It is also possible to omit certain aspects of the attribute or it all. The seller may have this power by having more information than the buyer. Another concept that explains the faults in the decision is the presence of information asymmetry (Akerlof, 1970).

Some decisions are very complex and would require major cognitive efforts for their solution. So people developed intuitive ways of solving problems by using emotional resources. These decisions ignore the laws of probability and statistics (Kahneman, Tversky, 1974) and people resort to representativeness, availability, anchoring and adjustment as a way of saving efforts while making decisions in scenarios or moments of uncertainty. The heuristics of availability is the frequency we evaluate the chances of occurrence by the ease in which we can remember the instances of that event. The Heuristics of Representativeness is the judgment by stereotype, where the bases of judgment are mental models of reference. The anchoring and adjustment heuristic is one that assesses the chance of occurrence by placing a base (anchor) and then making an adjustment.

3. Attributes and values

The products are seen as a way to satisfy the consumer's personal values (Olson, PETER, 1999), and human values can help explain the behavioral phenomenon by establishing causal relationship with him (Clawson; Vinson, 1978). Rokeach (1973, p. 65) defined a value as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence." This perspective rests on the assumption that exists constant values that transcend individuals and situations or that values are cognitive representations of universal human needs. Rokeach (1973) argues that people use their culturally learned values to help streamline on attitudes and behaviors that could be personally or socially unacceptable. Values are more related to behavior than personality traits, values are more central, less numerous and more immediately related to motivation than attitudes (Valette-Florence, 1986). According to Rokeach (1973), values are culturally derived, defining, maintaining and regulating the social structure, giving it cohesion and stability. Pitts and Woodside (1983) argue that personal values can explain consumer behavior as complex as choosing a brand or product. For Porter (1992) the consumer will not pay for a value that does not realize it, no matter how real it is. The judgments that client makes about the value of what is offered help in purchase decisions.

Considering this argumentation, an option of value treatment is the List of Values (List of Values - LOV) proposed by Kahle and Kennedy(1989) and developed by the Survey Research Center of the University of Michigan. This instrument has been mainly applied in studies related to the consumption values (Homer & Kennedy, 1989). The LOV consists of nine values: value self-respect which is related to the person who acts according to his

convictions; self-realization comprises prioritizing to obtain success in the things that is proposing to do, security value reflects the attempt of the individual to avoid mishaps that might occur; sense of presence value is the search for acceptance in the group; stimulus value prioritizes a life more exciting and stimulating; sense of accomplishment value prioritize behaviors that bring peace to the mind or conscience; fun / enjoy life prioritize pleasure and happiness in life, be respected seeks recognition and admiration of the group to which it belongs; warm relations have behaviors that promote closer ties with other individuals.

4. Research propositions

Four propositions are established based on the results in the first phase of field research through the laddering method and the concepts of Kahneman and Tversky (1982) and Simon (1957).

P1: There are a representative heuristics with illusion of validity biases in rancher's perceptions regarding the origin of the herbicide being American.

While doing a judgment about a person (or object or event), people tend to look for peculiarities that correspond to previously formed stereotypes, making use of the representativeness heuristic. Individuals tend to rely on such strategy even when the information is insufficient and when the best information available exists. Thus the authors call the illusion of validity bias: "The undue reliance which is produced by a good fit between the expected result and the information received may be called the illusion of validity. So people tend to have greater confidence in predictions based on initial information redundant." (Kahneman & Tversky, 1974, p. 6). Therefore, economic agents tend to have greater confidence in their expectations based on the representativeness bias. This happens because the behavior of the variables used in the prediction creates an illusion that validates the expectation formulated, also causing a loss of accuracy in the estimation. In the context of the purchase decision of herbicide, ranchers are using this bias to evaluate the products of American origin as technological. This hypothesis is based on the results of the interviews. In one of the issues were presented three hypothetical herbicides and asked to attribute the origin country of each product and the result was: 100% of respondents attributed the United States as origin of the product with high technology description . It stands out some parts of the interview that highlights this hypothesis: "*I prefer the United States because we know they have superior technology, right!?"; "Generally the products from there (USA) are more technological."; "American products are in a level above"*.

P2 There are a representative heuristics with illusion of validity biases in rancher's perceptions regarding the origin of the herbicide being Chinese.

The same bias exists in the evaluation of Chinese products. Ranchers when evaluate herbicides from China make use of judgments that correspond to previously formed stereotypes about manufacturing in this country. 60% of ranchers attributed to China the hypothetical product with the following description: "The herbicide Q is from a large company. The product does not have an innovative technology, however, it has a lower price compared to other products on the market". It stands out some parts of the interview that highlights this hypothesis: "*These products from China are my last choice option"*;" *I prefer to avoid chemicals from china (Chinese herbicides) on account of the safety of the product and whether it will be effective or not.*"; *"I am afraid from safety of these products (Chinese)"*.

P3: There is the availability heuristic with illusory correlation bias in in relation to herbicide choice based on the recommendation of other ranchers.

People estimate the frequency, probability or probable causes of an event by the degree to which instances or occurrences of the event is readily "available" in memory. And people tend

to overestimate the probability of two events occur simultaneously based on the number of similar associations they can remember easily, either by experience or social influence.
The farmers believe that they will have the same productivity if they use the same herbicides and pest management used by others successful farmers. They don't consider that each property has its own peculiarities and factors that require a different pasture management. In relation to this hypothesis highlights are excerpts taken from the interview:
"... other producers used this herbicide last year, so I applied the same product and gave good results, so you see it is a serious guy, that works in a right way ... ";" If you have a neighbor and his stuff are working, you try do the same, ";" There are some guys in my area that has a productivity above the Brazilian average. I know it's just copy what they are doing that is a guaranteed success ";" Many farmers ask me what I'm doing in the land, how much calcareous, fertilizer, herbicide and so on";'' They want to mirror me back even when I explain that each case is different, but there's no way to change their minds. "
In the interview were presented three hypothetical situations which each herbicide was recommended by: other ranchers, specialized media in the sector and technical assistant from resale. 100% of farmers reported purchasing preference by one that had been recommended by a rancher. It stands out another excerpt from the interview: "*I definitely prefer that another rancher used and it worked. He goes through the same difficulties and I know that his assessment is suitable for me* ".For herbicide application is necessary expertise and technical background agronomist. However these same ranchers without agronomist knowledge prefer rancher's recommendation than the technical assistant from resale.

P4: There is the availability heuristic with illusory correlation bias in relation to herbicide, considering it a poison.

There is a strong association of the herbicide with the image of poison or something invasive to the environment. In this case the association is made because of the events availability in the memories related to agricultural pesticides. Herbicides act as a "medicine" which will mitigate damage caused in the pasture. However he associates the product as problem and not a solution. Highlights are excerpts taken from the interview: "*herbicide is a necessary evil*."; *"I avoid using afraid of contaminating the lakes and rivers that I have on the farm."*

5. Methodology

The methodology is structured in two phases, qualitative and quantitative. At first it was used Laddering as method to understanding how ranchers translate the attribute of products in association with meanings about themselves, following the theory of means-end chains. Based on the hypotheses raised in this first phase, was applied a survey with Likert scale with 75 ranchers in the second phase.

5.1 First phase

The sample of this stage is formed by fifteen ranchers located in Brazil's states: RJ, SP, TO, MT, and PA. They raise cattle free on pasture. Their properties are medium to large with an average 2200 heads in an area of 3400 hectares of pasture. All of them use herbicides for weed control. The average age of respondents was 44 years. Eleven of the interviewees works on this area because is a family business activity. Other three began their activities in agriculture through the opportunity for professional growth and investment. All respondents were male.

The sample selection was intentional through the snowball method (Marshal, 1996). According to Marshall (1996), an appropriate sample size for a qualitative study is that adequately responds to the research question. In practice, the required number of subjects

generally becomes obvious as soon as the study progresses, when new categories or topics stop emerge from the data (data overrun). In this research data from fifteen ranchers proved consistent and repetitive. For this step the data were collected from two sources: personal interviews and research reports provided by a chemical company sector. The interviews were scheduled by phone two weeks in advance, and were applied in the local indicated as appropriate for each rancher. However remained the concern of being a place holder without the influence of others people during the interview. The interviews lasted on average 1 hour and 30 minutes. The sampling technique used was personal in-depth interviews with structured questionnaire according to the laddering methods criteria.

In this methodology the cognitive structure of the consumption-relevance is organized in chains that bind the concrete perception of the attribute with a relevant personal consequence, and then with values of life. Laddering refers to an in-depth interview technique, individual, used to understand how customers translate the attribute of products in association with meanings about themselves, following the theory of means-end chains (Gengler & Reynolds, 1995). In these interviews the objectives were to identify the attributes and benefits and means-end chains associated with the consumption of the product analyzed (herbicides). For this, we used the approach of ladder up that matches a climbing by the sequence attributes, which has benefits as consequence, and therefore represents the values (Gengler & Reynolds, 1995).

First is asked respondents to indicate one of the attributes that characterized the analyzed product and describe what it means. Then seeks to investigate what benefits are perceived as associated with this attribute. In the next step we seek to identify the benefit in response to the question "why is this a important attribute?". After understanding the relationship between attributes and consequences, it is insisted that the respondent describe "why is it important to have these sensations (benefits)?".The perception of the meaning of value for the respondent is interpreted and characterized based on List of Value (Homer & Kahle, 1988).

5.2 Second phase

From the results of the first stage was developed and applied a survey in order to obtain more conclusive results with statistical endorsement. The sample of this stage is formed by a mailing of 75 farmers from medium to large property, with at least 500 hectares of pasture, located in the states of: RJ, SP, TO, MT, BA, MA, PA and RO. Working with free cattle on pasture. They all use herbicides for weed control in pastures.

The technique of data collection was through a survey sent to a thousand farmers from the selected sample. The questionnaire was developed in software online Adobe form due its ease of navigation and attractive interface. According to Malhotra (2006) surveys conducted via the internet has as main advantages: lower costs, speed and ability to reach specific populations. And from respondent's point of view it is possible to respond in most convenient way, time and place. Malhotra (2006) also points out that the main disadvantage would be the response rate of the questionnaires. To this disadvantage imminent, the mailing used was updated in in March 2013, and was transferred by a company in agricultural sector which has interest in the outcome of the study. In ethical commitment to good practices related to spam the mailing was validated and authorized by option for everybody who were contacted. The rate of return was 7.5% of valid responses.

Section 1 from Survey was designed to filter out respondents that meet the criteria. In summary, the main "filters" are the independent variables that you want to control the sample: using pasture as herbicide weed management in pasture, farm size (hectares and livestock),

type of activity (milk production or meat production); properties only in the states listed; cattle raised on pasture, and finally the respondent shall influence or participation in the decision-making process of the herbicide for grazing on the farm. In section 2 were exposed scenarios and asked to respond on a Likert scale of: Very Unlikely (1) to very likely (4) or strongly disagree (1) to strongly agree (4).

6. Results of the qualitative phase.

6.1 Hierarchical value map

Figure 1 are represented attributes, consequences and values of hierarchical value map of farmers, and the relationships detailed in Table 1. The attributes are identified in green (Figure 1) and are concerned about the environment, high price; efficiency; ignorance / uncertainty, and difficulty of implementation. The consequences of the attributes are represented by the color orange: lower toxicity; tradition manufacturer, high technology, productivity, higher profit; unskilled labor; need for technical assistance; solves the problem. And in purple are represented values: safety, self-realization, and more time to enjoy life.

Table1 - relations of value map

CODE	SEQUENCE OF RELATIONS
A1	1-6-9-11-13-14
A2	1-6-9-11-13-15
B1	2-9-11-13-14
B2	2-9-11-13-15
C1	3-7-9-11-13-14
C2	3-7-9-11-13-15
D1	4-10-12-16
E1	5-8-10-12-16

Source: Authors.

The attribute that represents the central image of the herbicide "Concern about environmental impact" is consistent with the study of Cezar (2002) who speaks about the rancher perspective that incorporates environmental issues, sustainability and the quality of the product and supply chain as components that guide the process of decision-making of farmers. It is observed that most modern and capitalized ranchers have already incorporated this vision. It stands out excerpt from interview: "*We live on the farm. So must have capital to improve the business, if not you will not prosper*". In addition all ranchers referred many times during the interview to the herbicide with the word "poison", which reinforces the herbicide association with contamination and impacts on the environment (figure 1). Therefore, as consequence they desire a "low toxicity" products. The "lower toxicity" is directly associated with "high-tech", since new molecules and products on the market have the challenge of being more efficient, but at the same time with a favorable environmental profile. Exists an international trend by certified meats, and one of the criteria is the use of less toxic herbicides in pasture management (Neto, 2004).

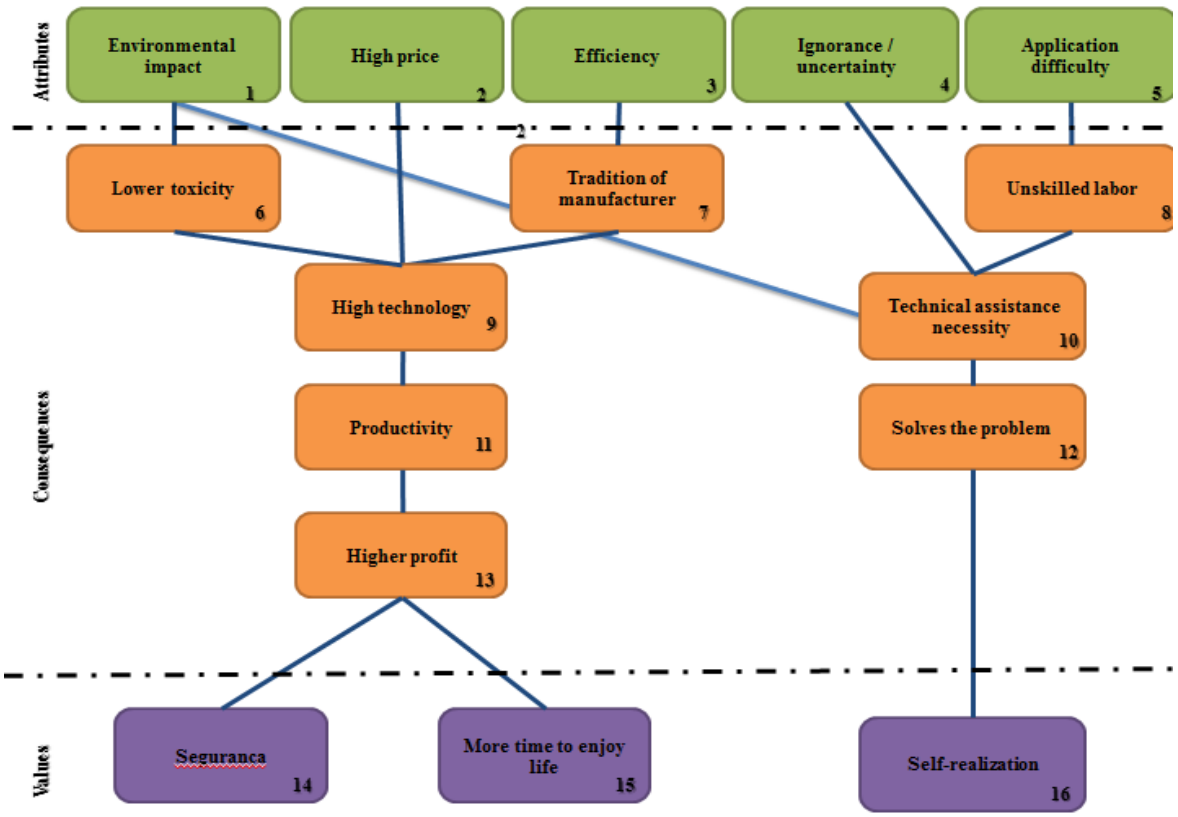

Figure 1. Hierarchical value map
Source. Authors

The rancher has tacit knowledge about animal physiology but do not have specific agronomic knowledge. Since weed management is high complexity they characterize "ignorance / uncertainty" as an image from first periphery of a pasture herbicide. And so, the farmers attributed as consequence "need for technical assistance" to guide them and provide information about weed management and chemical formulation. In this context, highlights from interview: *"I understand about cattle, this herbicide stuffs is agronomists guys...*

The application technology is one of the most important factors that determine the efficiency of herbicides, until 70% of product sprayed on crops may be lost by runoff, uncontrolled drift and misapplication (Manual application technology / ANDEF, 2004). In this aspect the farmers attributed the "difficulty of applying" as periphery image of herbicide. There are many factors that involves herbicide application such as: adjustment and calibration equipment, spray volume to be used, droplet size, tips spraying, climatic influence, choice of spray equipment - manual knapsack sprayer, knapsack motorized, tractor with spray gun, tractor bar, airplane; care about environment, drift control, care not to contaminate collections of water and washing empty containers. According Cobucci *et. al*. (1999) by managing the application can increase the efficiency of herbicides but also improve cost-effectiveness. To do so, is necessary training the hand labor for the effective use of application equipment (Manual application technology / ANDEF, 2004). This argument is pertinent with E1 (Table 1) that shows as consequence of difficulty in applying the "workforce disqualification" available.

The value that triggers as a result of "solve the problem" is to "enjoy life". Ie, solved the issue of invasive weed of pasture, he may worry about what he likes to do, which is to

enjoy the farm and family. The "price" is an attribute that is directly associated with the perception of "high tech" product. The "efficiency" of the product is directly associated with the "tradition of the manufacturer" that is associated with "high-tech". Respondents consider herbicide as an efficient tool compared with other methods of weed management plan that requires more time and labor. The "high tech" is also strongly associated with "productivity." And the greater the weight gain of the Ox "higher profits" for the rancher. And as consequence emanate two values: "security" and "self-realization". The "security", according to Kahle and Kennedy (1989), can be represented in two distinct types: individual, in this case would be the security and prosperity of their business; in groups would be concern about the environment impact and health of their employees. The "self-realization" refers to the individual's quest for tranquility and makes the best use of their skills. And it can be achieved with or without the acceptance of other individuals. According to Kahle et al. (2000), this value is independent of the internal social relations. Individuals with this lifestyle are in constant search for perfection and challenges in the workplace as well as in personal relationships.

6.2 Other Results

In order to better understand the validity of illusion bias in perceptions of farmers regarding the origin of the herbicide to be American or Chinese (H1 and H2), we elaborated the question below. Were presented three hypothetical products in the form of cards that contained the following descriptions: The Herbicide X is from large company with a tradition in the market, it has innovative technology and its price is higher considering the other products on the market; The herbicide Y is from smaller company with medium price and does not have a new technology; The Herbicide Z is from a large company, does not has innovative technology and its price is lower compared to other products on the market. Then the farmer was asked to relate each hypothetical product with just one country among the following: China, United States and Brazil. All farmers associated the United States (100%) as the country comes from the product X. In this problem the farmers made use of the representativeness heuristic, relating herbicides Americans as more technological. Brazilian products were more associated with the description Y (60%), with new technology and median price. China was more related to the product Z (60%), which describes a product with technology but with below-market price.

It was also prepared an issue in order to better understand the existence of the heuristic regarding herbicide choice based on the recommendation of other ranchers. It was presented three cards and each described the only source of information that the farmer had about the herbicide: You read in a magazine sector about the efficiency and W herbicide results; Your neighbor (another farmer) used the herbicide K and commented about the good results obtained; the technical assistant from resale recommended you to buy the Z herbicide. The respondent should order the cards of K, W and Z herbicides as buying preference. Thus, analyzing the results ranchers prefer herbicides that are recommended by another rancher (product K, average 1.3), as well as addresses the hypothesis H3 already presented. And the recommendation of the technical assistant (product Z, average 1.8) is more important than the recommendation from magazines sector (product W, average 3).

7. Quantitave phase results

Figure 2 shows the results relative propositions 1, 2, and 3. The green represents the percentage of responses that disagree, neutral responses are red, and blue represents the agreement. Through three scenarios exposed attempted to ascertain the existence of representative heuristics with illusion of validity biases in rancher's perceptions regarding the

origin of the herbicide being American and Chinese (propositions 1 and 2 respectively). The first scenario presented "I can affirm that the herbicide is American if it is from a large company, that has innovative technology and higher price" evaluated the proposition 1. In this case 63% disagreed with the statement denying the presence of heuristics. However 17% said they agree confirming the proposition 1 in this portion of the sample.

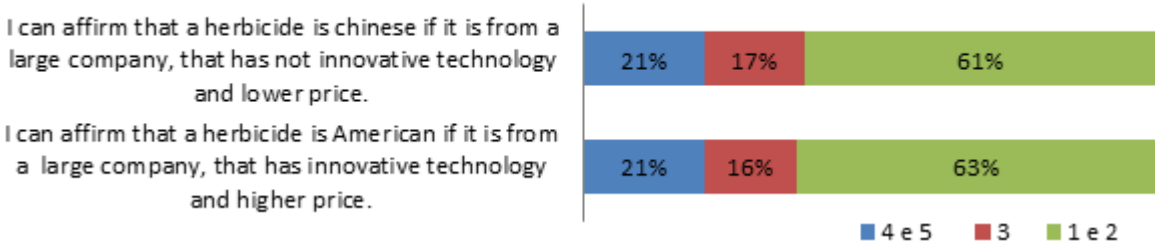

Figure 2. Results of representative heuristics graph
Source. Authors

Proposition 2 also had similar results, with 61% disagreement with statement, also denying the presence of representative heuristics with illusion of validity biases. However 21% agree with the statements confirming the proposition for this is smaller group of ranchers.

To check the proposition 3 were presented four scenarios which proposed change herbicide that they usually use based on information exclusively from: magazine, technical assistant and another rancher. 65% declare the intention of buy other herbicide if the assistant coach of resale examines the area recommend a product. But 48% reported changing herbicide basis on other rancher's recommendation, which confirm the proposition in this group of respondents. And just 29% would change the herbicide based on magazine's recommendation (figure 3).

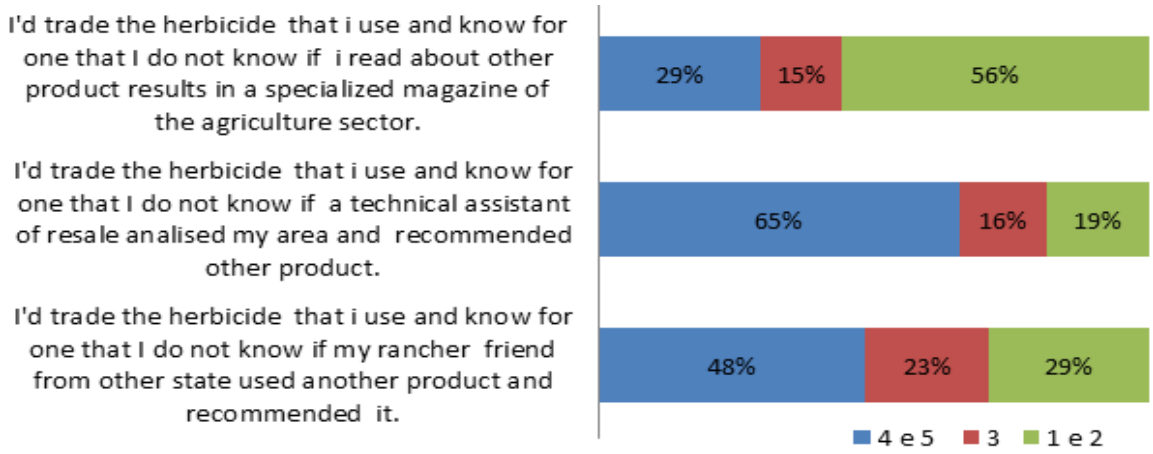

Figure 3. Results of availability heuristic graph
Source. Authors

The proposition 4 which the herbicide is a poison was confirmed by 48% of respondents that agree with the statement. And 51% agree that environmental impact is strongly related to herbicide. These results indicate an availability heuristic with illusory correlation bias in relation to herbicide, considering it a poison (figure 4).

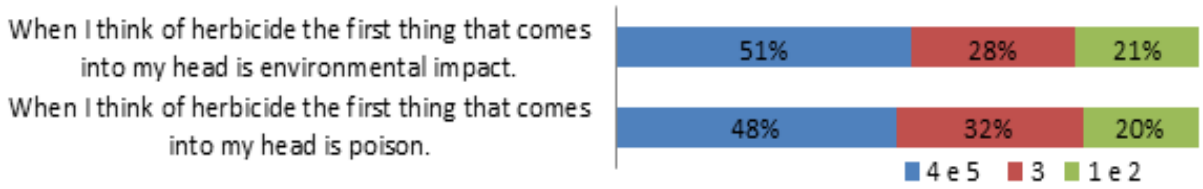

Figure 4. Results of herbicide image graph
Source. Authors

8. Discussion and managerial implications

In a smaller parcel of the sample, still exists representativeness heuristic with bias about pre-established stereotype of American's and Chinese's companies. This suggests that the managers of this sector should try to better understand the characteristics of these images, and explores it in products and company's communication. In the case of American companies could take advantage of its technological image and enhance it in their campaigns. However Chinese companies should take actions that increase the security on the market perception in relation their products. In relation to herbicide's image is possible to notice that environmental impact and difficulties of application are important components. Sector companies should invest in technical assistance in order to overcome application difficulty, ignorance and unskilled labor. As well as assuage the bias of association assumed that herbicide is a poison.

The Technical Assistant proved to have a strong influence on the purchase decision of the farmer; however, it should build this relationship through trust. The influence of other farmers in the purchase decision is also representative for 48% of these. For the most part of ranchers does not presented heuristics with bias as propositions had indicated, which shows that they are becoming more professional and supported by further information. As the sample had many filters the respondents' characteristics were homogeneous what precluded cluster formation. Thus, it is suggested to apply to future studies on larger samples with more demographic variables in order to identify the groups that propositions are confirmed.

References

AKERLOF, G. The market for "lemons": quality uncertainty and the market mechanism. In: STRIN, S; MARIN, A (Eds.). **Essential readings in economics**. London: Macmillan Press, 1970. p. 175-188.

BAZERMAN, M. H; DIEKMANN, K. A.; SAMUELS, S. M.; ROSS, L.. Self-interest and fairness in problems of resource allocation: allocators versus recipients. **Journal of Personality and Social Psychology**, v. 72, n.5, p. 1061-1074, 1997.

CEZAR, I. M. Recuperação de pastagens: uma abordagem sistêmica no processo decisório. Campo Grande: **Embrapa Gado de Corte**, p.12, 2002.

CLAWSON, C. J.; VINSON, D. E. Human values: a historical and interdisciplinary analysis. Provo: **Advances in Consumer Research**, v. 5, n. 1, 1978, p. 396-402

COBUCCI, T.; DI STEFANO, J.G.; KLUTHCOUSKI, J. Manejo de plantas daninhas na cultura do feijoeiro em plantio direto. Santo Antônio de Goiás: Embrapa Arroz e Feijão, 1999. p. 56 (Embrapa Arroz e Feijão. Circular Técnica, 35).

GASSON, R. Goals and values of farmers. Journal of Agricultural Economics, Ashford, v.24, 521-537, 1973. GASSON, R. Use of sociology in agricultural economics. Ashford: **Journal of Agricultural Economics**, v.22, 1971, p.29-38.

GENGLER, C.; REYNOLDS, T. Consumer understanding and advertising strategy: analysis and strategic translation of laddering data. *Journal of Advertising Research*, v. 35, n. 4, p. 19-32, 1995.

HASTIE, R.; DAWES, R. M. **Rational choice in an uncertain world**: the psychology of judgment and decision making. USA: Sage Publications, 2001.

HOMER, P. M.; KAHLE, L. R. A structural equation test of the value–attitude–behavior hierarchy. Washington: **Journal of Personality and Social Psychology**. v. 54, n. 4, 1988, p.638–646.

KAHLE, Lynn; KENNEDY, Patricia. Using the list of values (LOV) to understand consumers. **The Journal of Consumer Marketing**, v. 6, n. 3, p. 5-12, Summer, 1989

KAHLE, L.; ROSE, G.; SHOHAM, A. Findings of LOV Throughout the world, and other evidence of cross-national consumer psychographics: introduction. Haworth : **The Haworth Press**, 2000.

KAHNEMAN, D.; SLOVIC, P.; TVERSKY, A. (Coord.). **Judgment under uncertainty:** heuristics and biases. Cambridge: Cambridge University Press, 1982.

KAHNEMAN, D., TVERSKY, A. Judgment under uncertainty: heuristics and biases. **Science**, v.185, n.4157, p.1124-1131, 1974
SCHIFFMAN, L. G.; KANUK, L. L. **Comportamento do consumidor**. 6. ed. Rio de Janeiro: LTC, 2000.

MALHOTRA, N. **Pesquisa de marketing:** uma orientação aplicada. 3. ed. Porto Alegre: Bookman, 2006. 719 p.

MAPA - Ministério da Agricultura, Pecuária e Abastecimento.Disponível em: <http://www.agricultura.gov.br/> Acesso em: 12 set. 2012.

MARSHALL, M.N. **Sampling for qualitative research**. Family Practice. Ed.13(6), 1996, p.522-525.

McGREGOR, M.; WILLOCK, J; DEARY, I. Farmar stress. Autumn: **Journal of Farm management**, v. 9, n. 2, 1995, p. 57-65.

NANTES, José Flávio Diniz, SCARPELLI, Moacir. Gestão da produção rural no agronegócio. In: BATALHA, Mário Otávio (Coord). Gestão Agroindustrial. 2 ed. SãoPaulo: Atlas, 2001.

NETO, H. V. Rastreabilidade e certificação, a nova realidade da pecuária. Anualpec - Anuário da Pecuária Brasileira, São Paulo, 2004, p. 53-54.

PETER, J. P.; OLSON, J. C. **Consumer behavior and marketing strategy**. 5. Ed. Boston: Irwin Mcgraw-Hill, 1999.

PORTER, Michael E. **Vantagem competitiva:** criando e sustentando um desempenho superior. 4 ed. Rio de Janeiro. Editora Campus. 1992.

RATHMANN, R. ; DUTRA, A. S.A ótica da economia dos custos da transação no processo de tomada de decisão em cadeias produtivas agroindustriais: uma proposta de estrutura analítica. In: XLVI CONGRESSO DA SOCIEDADE BRASILEIRA DE ECONOMIA, ADMINISTRAÇÃO E SOCIOLOGIA RURAL, Rio Branco: v. 46, Anais. 2008

ROKEACH, M. The nature of human values. New York: **Free Press**, 1973.

SIMON, Herbert. A. ***Models of man: Social and rational***. New York: Wiley, 1957.

SILVA, E. M. B. ; MISKULIN, R. G. S. . A importância da heurística no processo de resolução de problemas. In: 1º ENCONTRO DE PROFESSORES PESQUISADORES, Franca, 1998, p. 490-491.

VALETTE-FLORENCE, P. Les démarches de styles de vie: concepts, champs d‟investigations et problème actuels. Paris: **Revue Français e du Marketing**, v. 1, 1986, p. 94-109.

WILLOCK, J; DEARY, I.; McGREGOR, M. Farmer stress. Autumn: **Journal of Farm management**, v. 9, n. 2, 1995, p. 57-65.

WOODSIDE, A. G.; PITTS, R. E.Personal values influence on consumer class and brand. Worcester: **Journal of Social Psychology**, v. 119, 1983, p. 37-53.