

Global competitive dynamics and innovation in the Brazilian wine sector: analysis of Vale do São Francisco pole

Dinâmica competitiva global e inovação no setor de vinho brasileiro: uma análise do polo do Vale do São Francisco

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Abstract: The wine sector is currently facing a transformation all over the world. Facing a surplus, it rebuilds itself. In Brazil, firms assist to the decline of their market share (but reflecting a tendency to protectionism) to imported wines although per capita consumption begins to overcome discreetly an historical stagnation with perspectives of sustainable growth. Thus, it is of utmost importance to look for new capabilities in order to achieve greater integration in a globally fragmented market and with low attractiveness rates. The wine pole of Vale do São Francisco (VSF), though emergent, already needs to find a new strategic innovative positioning. However, it reveals some innovative features. This study has as its main objectives (a) to analyze the strategic and innovative adaptations of local firms; (b) to propose innovative additional lines of strategic action; and (c) to perspective their success possibilities in the new globalized competitive environment. The methodological positioning is set out through the study of multiple and exploratory cases.

Keywords: Strategy; Innovation; Competitiveness; Vale do São Francisco; Wines

Resumo: O setor do vinho está atualmente a enfrentando transformações ao redor do mundo. Encarando o superávit está se reconstruindo. No Brasil, as empresas assistem o declínio de seus market-share (mas refletindo uma tendência ao protecionismo) para os vinhos importados, enquanto o consumo per capita continua a superar discretamente uma estagnação histórica com perspectivas de crescimento sustentável. Assim, é de extrema importância olhar para novas capacidades, a fim de alcançar uma maior integração num mercado fragmentado globalmente e com taxas baixas de atratividade. O pólo de vinhos do Vale do São Francisco (VSF), embora emergente, já precisa encontrar um posicionamento estratégico inovador. No entanto, ele revela algumas características inovadoras. Este estudo tem como principais objetivos (a) analisar as adaptações estratégicas e inovadoras das empresas locais; (b) propor linhas adicionais inovadoras de ação estratégica; e (c) mostrar as suas possibilidades de sucesso no novo ambiente competitivo globalizado. O posicionamento metodológico é estabelecido através do estudo de vários casos exploratórios.

Palavras-chave: Estratégia; Inovação; Competitividade; Vale do São Francisco; Vinhos.

JEL: L1; O32

Introduction

Benefited by comparative advantages (it produces 2,5 grape crops a year) that still cause surprise in the world wine sector, the emerging pole of Vale do São Francisco (Brazil) corresponds to 15% of Brazilian fine wine production (EMBRAPA, 2009). Greater producer concerning world inter-tropical area (in Pernambuco and Bahia states), this pole is considered the new latitude of world wine sector due to the fact of being located between the 8° and 9° parallels of south latitude. Traditionally,

grape production for quality wines was restricted to 40° parallel of North and South hemispheres.

It's perceived, however, that some firms of VSF keep contradictions concerning their strategic management, representing great challenges to their development: To compete in costs and/or differentiation or in approach (Porter, 1998, 2008)? To grow, exclusively, in anorganic way or to adopt the logics of mixed growth (Ansoff, 1990, 1994)? Which are the best innovative alternatives (Sarkar, 2007, 2010)? These are the background issues of the study and its objectives. After a brief theoretical framework, the methodology followed is presented. The results suggest the presence of innovation elements, inducing accrued competitiveness of firms of the emerging pole of Vale do São Francisco.

2. Theoretical framework and methodology

Paradoxically, the new era find in Scientific Chaos and Dissipative Structures Theories (Prigogine and Stengers, 1984; Popper, 1998; Pascale, 2002; Stacey, 1992, 2010) the origin of the crisis, the pursuit of complex systems (firms) rupture and regeneration and also of management itself. Additionally, in this line, it's referred to the need of "*reconciling change and continuity*" (MINTZBERG, 2001, 2009) so that organization finds a new way.

This is the environment to the emergence of strategies that now in the short term and in the cognitive assumptions, the basic variables to a new reflective logic. According to Ramalho and Sousa (2011), that logic of strategic "*dis-administration*" implies first, "*to destroy perceptions*" in a rupture perspective with the systemic contingent conception in which prevails the adaptive approach to environment coercions.

Innovation has been one of the main driving variables of such phenomena, causing constant changes and introducing continuous perturbations upon markets and firms, in particular, with higher speed in the last 50 years (Ramos and Sousa, 2010). It is in such context that Hamel (2000) sustains that the crucial issue of post-industrial society is "*(...) who will create new wealth and who will exhaust the old one?*", in line with Schumpeter held (1934) on pointing out the prevalent role of innovation and what it represents to the capitalist system: "*(...) the fundamental drive which generates and sustains the capitalist machine in movement*", as a direct reference to "creative destruction".

This study, focused on the research global field of Vale do São Francisco (VSF) wine pole, analyses the competitiveness of 5 from its 7 firms according to strategic management, under the perspective of innovation. Essentially qualitative, the method used is Multiple Case Study. Primary data (in-depth interviews) and secondary data (institutional documents and published statistics), constitute the main sources of information. From the spatial point of view, an analysis of firm external environments, comprising the national and international spaces is carried out.

The "*Innovation Integrated Model*" developed by Sarkar (2007) and used here only in the quadrant "*Space-Archetypes*", gives complementary support to the study in terms of firm positioning concerning the binomial Market Pressure/Innovation. This is a model that originally describes the behavior of an enterprise or set of enterprises along four dimensions: a dimension of internal analysis, another of external analysis and two more concerning outcomes. The "*Space-Archetypes*" allows

the identification of competitive pressure of firm market, besides the degree of innovation/differentiation of product or process.

According to Sarkar (2007), depending on the combination between competitive pressure and the degree of innovation/differentiation, the quadrant is divided in four market archetypes (cf. Figure 01): i) the wolf archetype (space characterized by the existence of a few number of firms – low market pressure – offering products/services very differentiated/innovative); ii) the fox archetype (space characterized by the existence of a great number of firms operating in a competitive atmosphere with great differentiation/innovation); iii) the bear archetype characterized by few firms and low differentiation/products/services/innovation; and the sheep archetype (characterized by the existence of a great number of firms offering similar or homogenous products/services).

It is important to clarify that the method used, Case Study Method, doesn't allow the generalization for the whole universe. The only type of generalization admitted is the analytic one, that is, the one resulting from the confrontation of our cases outcomes with the theory established or similar studies in a process designed by Yin (2008) as “*analytic generalization*”.

3. Globalization and brazilian wine sector: the emerging pole of Vale do São Francisco

3.1 Firm environment and globalization: strategic refocusing and the wine new world

The world wine sector industry has been experiencing since the nineties a transition pointing out to a growing rupture with national boundaries and, thus, the accession to an economic, strategic and political transnationality. On the one hand, firms setting forward strategies towards the continuous expansion of high scale production with the formation of concentrated and diversified oligopolies constituted by large groups of firms that dominate the world wine sector and, on the other hand, smaller firms centered in strategies adapted to specialized markets. The strategic reconfiguration has been made based on operations concerning majority control takeover (54% of the cases) and alliances (30% of the cases), totalizing more than 800 operations accomplished by the 20 leading firms namely USA multinationals (California) and Australia (Coelho and Rastoin, 2004).

In the last two decades, from a relative participation in the world exports of about 3%, the designated “*new producing countries*”¹ turned to about 30% while the EU countries assisted to the reducing of their world market share from 79% to 61%. The world wine sector industry is characterized by chronic productive surplus of about 30 millions of hectoliters which depreciates prices (Ramalho and Sousa, 2011). In global terms, consumption has stabilized. However, it is evident the continuity of this decreasing tendency in the traditional producing countries and increasing in non-producing countries.

¹ South África, Australia, Argentina, Chile, USA.

3.2 Logics of development and present situation of Brazil wine sector: the “Brazilian counter model”

The Brazilian wine sector industry presents its own way to strategic development, in “*counter-cycle*” (DESPLOBINS, 2005) with traditional countries (UE) where the concept of terroir prevails as well as in relation to the designated “*new producers*” that possess industrial production systems of large volumes and specialized diversification. Brazil, anchored in its wine tradition, has its bases mostly in an industrial production model of undifferentiated wines, produced from American hybrid vine varieties. The strategic stability economic and financial that, however, was achieved and is due to three orders of factors: i) from monopoly of middle and low ranges of large volumes consumption market, mainly, by the increase of industrial fruit juices segment, of highly diversified range of products; ii) of minor investments in technical and productive innovations allowing higher cash flows to shareholders; iii) no external competition to its every day wines produced from *vitis labrusca* variety in trellised vineyard².

However, Brazilian wine sector has made significant advances over the past decade and a half in terms of fine and sparkling wines quality (more than 900 national and international awards). In terms of quantity, its market share has also increased mainly in relation to sparkling wines.

It should be noted that from 2000 and 2010, according EMBRAPA/CIEF-UVIBRA (2011), the participation of imported fine wines increased from 46% to 75% concerning the totality of commercialized wines in Brazil. It is still observed that, in such period, the volume of commercialized national wines ranged from about 34.196 million litres to approximately 24.670 million litres, equivalent to a loss of relative participation of about 28%. The total consumption of fine wines reports an expansion in the period, of approximately 57%. Without any price gains for Brazilian wine riesin general. Such fact has led to producers ask for protective measures near the government (and this granting) against imported wines.

3.3 Wineries from Vale do São Francisco: benchmarks, behaviors and strategic architectures for innovation and competitiveness

Nowadays, in terms of macro and global context, it should be taken into account restrictions on free trade concerning Europe and United States, highlighting tariff barriers and non-tariff ones, the resolution of which has dragged on for so long since *Uruguay Round* (1982). The difficulties in such field are still huge for Brazil.

On the other hand, it is also important to remember the good perspectives of world exports growth through the increase of demand in Asian countries and region from Central and East European Countries (CEEC). Such fact doesn't mean neglecting markets such as from England (with strong growth in demand), other European Union countries and the United States. However, it is fundamental, at this time, to focus efforts in target markets. The business fabric from VSF reveals according to primary and secondary collected data, some strategic ambition (in

² The trellised vineyard system doesn't allow mechanized harvesting. Thus, this system presents disadvantages of costs in relation to global oligopolies concentrated and diversified. However, as its destination is the internal market where there is no competition in the every-day wine segment, of low quality, this disadvantage concerning costs is compensated by the scale generated by the wide dominance of such internal market.

differentiation and/or with a focus) according to a globalization perspective. However, it needs to escape from the trap of “middle term” strategy (cf. PORTER, 1998), otherwise it will be excluded from the more profitable consumer segments.

Still in the international domain, the strategic refocusing taking course adds complexity to the resolution of management problems since local firms often lack enough critical and management mass to challenge, in the short and medium term, the oligopolies from the great multinationals of “new world wines” and from Europe traditional producers (also focused on innovation and *terroir*). Unless if they take the way of “mixed growth” (ANSOFF, 1990) through strategic alliances.

3.4 General corporate, technical, producing and business features; most relevant characteristics of strategic positioning and innovation

Presently, the emerging pole from Vale do São Francisco has more than 800 ha of wine grapes in production and more than 300 ha undergoing implementation (EMBRAPA, 2009). From such total, about 70% belong to the five firms of this research. The majority was created in the last decade (2000-2010), comprising small and middle size enterprises (SME) two are small (02 and 04) whereas the remaining are medium (01, 03 and 05). Harvesting is manual and in the case of firm 01 undergoing the mechanization process (Ramalho and Sousa, 2011). Two firms present strong degree of vertical integration and don't buy grapes from others (firms 01 and 04). Firm 01 is the most integrated (upwards and downwards from production), enabling product and service differentiation and subsequent gains in added value. Concisely, according to technical and productive terms, the characterization of firms is the following:

Table 01 – Technical and productive table of wineries from Vale do São Francisco

Item	Firm 01	Firm 02	Firm 03	Firm 04	Firm 05
Surface wine in production (ha)	120	15	200	12	NI
Vineaverage age	04	04	07	NI	08
Grapesacquisitiontoothers	-	85%	30%	-	35%
Wineproduction in 2010 (type)	Fine	100%	-	100%	-
	Undifferentiated	-	100%	-	100%
Wineproduction in 2010 (colour)	White	20%	85%	75%	-
	Red	50%	14%	20%	100%
	Rosé	30%	1%	5%	-

Source: Elaboration by the authors based on the questionnaire. NI – Data not provided by the interviewee.

Two of these firms have invested exclusively in fine wines (firms 01 and 03), that is, in product quality and differentiation (we point out this strong bet in red and white wines) whereas the remaining mainly in the production of undifferentiated wines. Regarding color, the production of rosé is relatively marginal, exception to firm 01 (30%).

According to data obtained from the questionnaires, all the firms project sales growth to the next three years through the expansion of actual markets and conquering new markets. At the moment, the destination of the total amount of wine production from Vale do São Francisco is the internal market. From the five firms, only firms 01 and 03 export, being this exportation restricted to minimal levels in 2010 (respectively, 5% and 3% from total sales – data questionnaire). The main

external markets are Europe and USA. Differentiation through introduction of new brands and products has grown substantially from 2006 to 2010.

Wineries from Vale do São Francisco, in its majority, pursuit a strategic positioning of innovation centered in product and brand differentiation, processes and business structures. Table 2 contains the collected data necessary to identify the positioning of wineries from Vale do São Francisco according to the “*Integrated Model of Innovation*” by Sarkar (2007).

Table 02– Characterization of analysis dimensions in the Integrated Model of Innovation

Firms	Market Pressure		Production Process		Outcomes	
	Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation
Firm 01	4,20	1,69	4,50	1,27	3,83	1,17
Firm 02	3,30	0,95	1,60	0,84	2,50	0,55
Firm 03	3,60	1,07	3,13	1,58	4,17	0,41
Firm 04	3,20	0,92	3,50	1,08	3,83	0,98
Firm 05	3,90	1,52	2,90	1,73	2,83	0,41

Source: Elaboration by the authors – According to tables of outcomes in Appendix – Data questionnaire.

Data analysis on the dimensions Market Pressure, Production Process and Outcomes in the integrated model, based on the perception of wineries top managers allows the positioning of firms in the Archetype Space of the model (cf. Figure 1). As may be observed, four wineries from Vale do São Francisco are positioned in the “*Fox*” Archetype (characterized by a market with a great number of firms operating in a very competitive atmosphere and with great product and process differentiation/innovation). The following variables were determinant to such positionings (cf. Appendix-I and II): (i) in the dimension *Market Pressure*, the variable X2 “number of competitors” (average of 4,6), X7 “price policies” (4,6) and X9 “substitute products” (4,2); (ii) in the dimension *Production Process (differentiation/innovation)*, the variable X10 “new techniques of land use” (3,8), X15 “new processes of harvesting, selection, de-stemming and pressing” (3,8) and X17 “new bottling processes” (3,6). Exception to Firm 02 positioned in the “*Sheep*” Archetype (characterized by firms operating in a very competitive atmosphere but based on undifferentiated products).

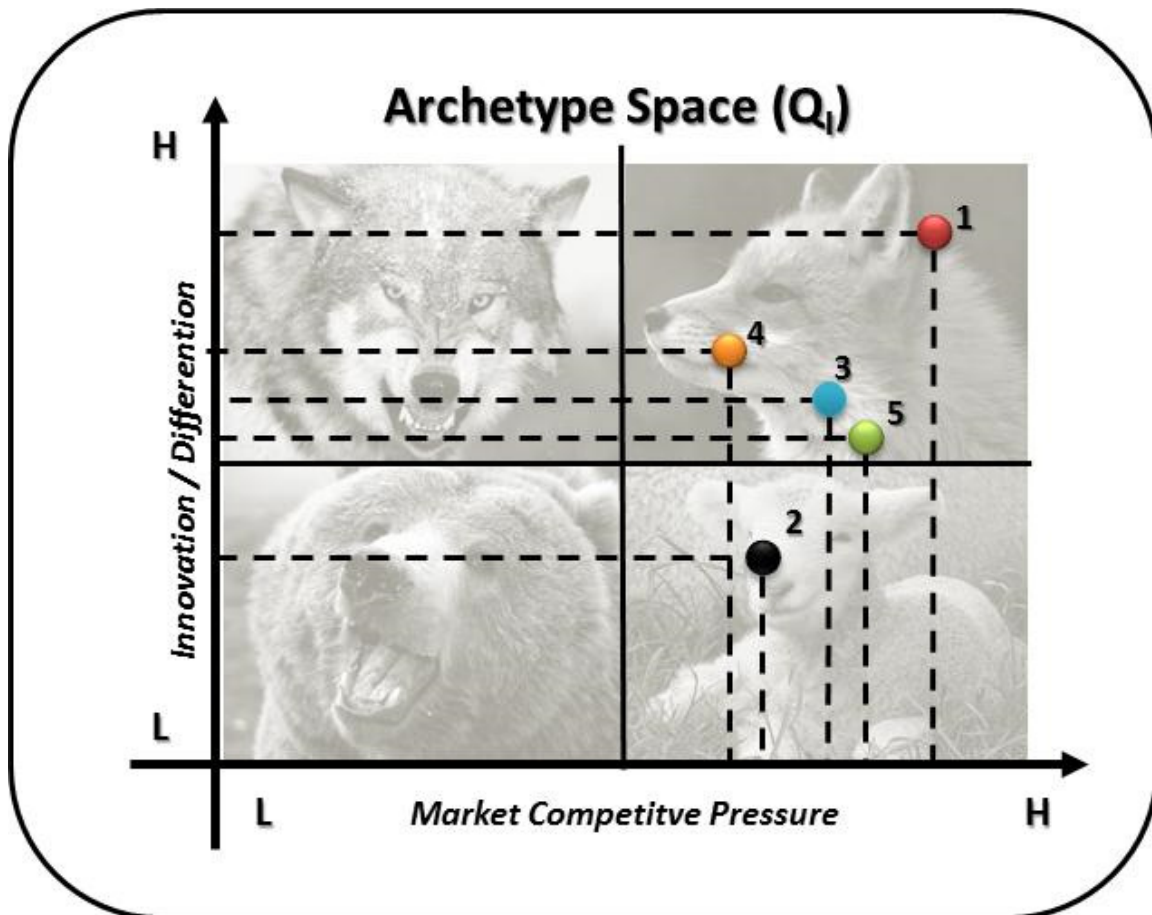


Figure 01 – Positionings in Archetype Space
Source: Elaboration by the authors inspired in Sarkar (2007).

These positionings, based on the implementation of strategies appealing to product innovation, production processes and business model of wineries, reveal a well established strategic way to face a more difficult, restrictive and competitive context. This strategic way is in line with the expectations revealed by managers (in the questionnaire) for the next three years: sales growth through the expansion in present markets and conquering new ones. The direction defined and the expectations assumed guide, thus, the strategic attitude of wineries from the emerging pole of Vale do São Francisco, characterized by focusing in strategic innovation in order to grow in a context of increased competitiveness. If such strategic attitude involves more risks, on the other hand, reveals the degree of ambition of such firms in terms of growth in the market and economic performance. Firms 01, 03 and 04 (“Foxes”, with a higher degree of differentiation/innovation) are the ones with a superior economic performance (outcomes)³, showing a better profile of economic and financial flexibility (liquidity) to set forward such strategic attitude towards growth, mainly within a more restrict space (national). These firms have the financial “muscle” providing fast reaction capacity to offensive movements.

Conclusions and recommendations

³ Economic performance, on account of the difficulty in obtaining quantitative indicators, was calculated through six variables of perception of results from top managers of firms in relation to the main competitor (cf. Appendix-III).

Concisely and from the perspective of strategic management, which includes the innovation variable, the main conclusions and recommendations we refer, don't have prescriptive or normative pretensions but only the description of some topics deserving our attention for accrued firm competitiveness. The main challenge faced by these ones is the achievement of transforming local comparative advantages (2,5 annual grape crops) into competitive advantages (through differentiation/innovation generating value). Therefore, firms must consider eight critical factors: (i) priority to strategic management, not neglecting marketing and logistics; (ii) avoidance of competitive strategy of "middle term", as it is risky in order to achieve advantages in differentiation and costs; (iii) the gain of critical mass to face concentrated and diversified oligopolies globally; (iv) to innovate to reach recognition within international market niches through the creation origin denominations (strategies focusing in markets that add value to the terroir); (v) to fight and overcome the preference of internal market on imported wines; (vi) to overcome tariff and non-tariff barriers to free commerce with Europe and United States; (vii) to group material and immaterial management resources necessary to the diversification of Central and East Europe (CECC) and China markets; (viii) to overcome time, increasing agility in the strategic and innovation repositioning.

In conclusion, the strategic "*dis-administration*" in the sense of "*destroying*" in real time conceptions, processes and models rooted in order to "*construct*" new management approaches in a virtuous spiral of "*creative destruction*".

Finally, it is important to remember the assumed exploratory nature of this study. Therefore, there are domains treated superficially and necessitating further research. Such aspect, together with the reduced number of existing and studied firms as well as the impossibility of generalization of results, constitutes the major limitation to the study (assumed since the beginning). Anyway, and on the other hand, we also know that one of the great virtues of an exploratory study is the survey of research tracks for future studies.

References

ANSOFF, I. **A Nova Estratégia Empresarial**. Atlas. São Paulo, 1990.

ANSOFF, I. Comment on Henry Mintzberg's. **Rethinking Strategic Planning**, Long Range Planning, vol. 27, 1994.

COELHO, A.; RASTOIN, J-L. **Stratégie des grands groupes internationaux**. In: François d'Hauteville et al (Org.), *Bacchus 2005*. Editions LaVigne. Dunod. Paris, 2004.

DESPLOBINS, G. **La dynamique qualitative en viticulture: le contre-modèle brésilien**. In: Etienne Montaigne, et al (Org.), *Bacchus 2006*. Editions LaVigne. Dunod. Paris, 2005.

EMBRAPA. **A vitivinicultura no Semiárido brasileiro**. José Soares e Patrícia Leão (Org). DF: Embrapa informação tecnológica, Brasília. Embrapa Semi-Árido, Petrolina, 2009.

EMBRAPA/CIEF-UVIBRA (2011). **Vitivinicultura: Panaroma**, 2011.

- HAMEL, G. **Leading the Revolution**, Harvard Business School Press, 2000.
- Mintzberg, H. (2009). **Managing**. FT-Printice Hall.
- MINTZBERG, H.; QUINN, J. (2001). **O Processo da Estratégia**. Bookman. 3ª Ed. Porto Alegre, 2001.
- PASCALÉ, R. **Surfando à beira do caos**. In: Pensamento Estratégico, Cusumano e Markides (Org.). Campus. p. 111-132. Rio de Janeiro, 2002.
- PORTER, M. **Competitive Strategy: Techniques for Analyzing Industry and Competitors**. Free Press/McMillan, 19998.
- PORTER, M. **On Competition**. Harvard Business School Press. Boston, 2008.
- PIGOGINE, I.; STENGERS, I. **Order Out of Chaos: Man's New Dialogue with Nature**, Heine-mann. London, 1984.
- POPPER, K. **Misère de l'historicisme**. Paris: Presses Pocket, 1988.
- RAMALHO, P.; SOUSA, A. **Estratégia Empresarial: Setor vitivinícola brasileiro, globalização e empresas do Vale do São Francisco**. Printpex. Petrolina, 2011.
- RAMOS, V.; SOUSA, A. **Mudando a maneira como pensamos e agimos: Uma análise da gestão estratégica inovadora em ambiente de complexidade e caos**. In: XX Jornadas Luso-Espanholas de Gestão Científica, Setúbal. Atas, vol. I., p. 72-72, 2010.
- STACEY, R. **Managing Chaos: dynamic business strategies in an unpredictable world**. Kogan Page, 1992.
- STACEY, R. **Complexity and organizational reality; uncertainty and the need to rethink management after the collapse of investment capitalism**. 2nd Ed. Rontledge, 2010.
- YIN, R. **Case study research: design and methods**. Fourth Edition. Sage. London, 2008.
- SCHUMPETER, J. **The theory of economic development**. Harvard University Press, 1934.
- SARKAR, S. **Innovation, market archetypes and outcome – an integrated framework**, Heidelberg: Springer-Verlag, 2007.
- SARKAR, S. **Empreendedorismo e inovação**, 2ª Ed., Escolar Editora, 2010.

Submetido em 03/05/2015.

Aprovado em 17/06/2015.

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APPENDIX

I – The following phrases are related with the dimension *Market Pressure* (2010). For each phrase, the top manager (in the questionnaire) indicates his perception, according to the following scale: 1 – Completely disagree; 2 - Disagree; 3 - Neither; 4 - Agree; 5 – Completely agree. The results were the following:

MARKET PRESSURE Analysis of Variables	Firm 01	Firm 02	Firm 03	Firm 04	Firm 05	Variabl e averag e
(X ₁) – The entry of new enterprises in the market was marked by acts of retaliation on the part of others firms.	1	2	1	3	3	2,00
(X ₂) – Last years, we have an increasing number of competitor in the niche market where our firm is operating.	5	5	4	4	5	4,60
(X ₃) – Entry high costs in our market are a great barrier to our competitors exit.	5	4	4	2	3	3,60
(X ₄) – Costs involved in supplier change are quite high, such fact makes this change difficult.	1	2	3	3	5	2,80
(X ₅) – Presently, suppliers exercise strong bargaining power.	5	3	4	2	1	3,00
(X ₆) – Bargaining power of customers is quite high.	5	4	4	2	5	4,00
(X ₇) – Firm customers are price-sensitive.	5	4	5	4	5	4,60
(X ₈) – The price of substitute products is inferior when compared with those of the firm.	5	3	4	4	2	3,60
(X ₉) – Substitute products have influenced our performance.	5	3	4	4	5	4,20
Variable average by firm	4,11	3,33	3,67	3,11	3,78	
Standard deviation	1,69	0,95	1,07	0,92	1,52	

II - The following phrases are related with actions of *Production Process*– innovation component (2010). For each, the top manager indicated the implementation intensity according to the following scale: 1-None/Very Reduced; 2- Low; 3-Medium; 4- High; 5 – Very High. The results were the following:

PRODUCTION PROCESS Analysis of variables	Firm 01	Firm 02	Firm 03	Firm 04	Firm 05	Variabl e averag e
(X ₁₀) - New techniques for land use	4	2	4	5	4	3,80
(X ₁₁) - New techniques of vine care	5	1	4	4	3	3,40
(X ₁₂) - New cultivars of national origin	1	3	1	1	1	1,40
(X ₁₃) - New cultivars from other countries	5	1	3	4	4	3,40
(X ₁₄) - New technologies (irrigation systems, agricultural, etc.)	5	2	3	4	1	3,00
(X ₁₅) - Changes in harvesting processes,selection, destemming, pressing	5	3	3	4	4	3,80
(X ₁₆) -Changes in the conduction process in stainless steel vats and fermentation	5	1	0	3	5	3,50
(X ₁₇) - New bottling processes.	5	1	4	3	5	3,60
(X ₁₈) - New aging processes in caves	5	1	0	4	1	2,75
(X ₁₉) - New technologies (refrigeration, mechanization, etc.)	5	1	3	3	1	2,60
Firm average	4,50	1,60	3,13	3,50	2,90	
Standard Deviation	1,27	0,84	1,58	1,08	1,73	

III – Top managers gave their perception on *Economic Performance* of their firms (2006-2010), regarding the main competitors based on the following variables and according to the following scale: 1-Even worse; 2- Something worse; 3-Equippable; 4- Something better; 5 – Even better. The results were:

ECONOMIC PERFORMANCE Analysis of variables	Firm 01	Firm 02	Firm 03	Firm 04	Firm 05	Variabl e average
(X ₂₀) – Sales growth	3	2	4	5	3	3,4
(X ₂₁) –Net profit margin	2	2	4	2	2	2,4
(X ₂₂) –Customer retention	5	3	4	4	3	3,8
(X ₂₃) –New customers acquisition	5	2	4	4	3	3,6
(X ₂₄) – Sucess of new products	4	3	4	4	3	3,6
(X ₂₅) – Quality of products/services	4	3	5	4	3	3,8
Average by firm	3,83	2,50	4,17	3,83	2,83	
Standard deviation	1,17	0,55	0,41	0,98	0,41	