ANALYSIS OF WINE GROWING PRODUCTION EFFICIENCY

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Abstract

This analysis has as a goal the cost study, beginning with the founding of the plantation until production is delivered, on different area situations and different capitalizing prices. The efficiency analysis of these activities will be made taking into account the critical point. Analysis of the critical point reveals the point until a property works to the bad and the turning point from where it will have profit. With this analysis system we can see the relationship between area, costs, production and capitalizing price, substantiating a decision given the circumstances.

Key words: wine-growing, critical point, efficiency, grapes

INTRODUCTION

Connection between sales volume and profitability is studied in the cost-volume-profit planning or the analysis of the critical point, as it is known. Analyses of the critical point is a method of finding the point where sales exceed costs, point that indicates the moment when the holding becomes profitable (if the sales exceed this point) or if the holding has issues to be solved (if the sales value is situated below this point). Practically, analysis of the critical point shows the area that can be efficient under the circumstances of a reasonable production and at a real capitalization price. (Cotea et al, 1997) Analysis of the critical point reveals the point until a property works to the bad and the turning point from where it will have profit. With this analysis system we can see the relationship between area, costs, production and capitalizing price, substantiating a decision given the circumstances. The goal of the present analysis is to find out which is the minimum area that, in rational exploitation conditions, ensuring a reasonable production, can be profitable, taking into account the possibilities of capitalizing production at the market price. For this study we considered many properties of different dimensions with all the expenses related to works until harvest and transportation. The areas considered for the study were of 1 ha, 5 ha, 10 ha, 50 ha and 500 ha. Capitalization price was established considering the market prices between 1 and 2 lei per kg, actually being a real and possible level. (Manole et al, 2004)

MATERIAL AND METHOD

This study comprises data from research made during 2011-2014 in wine-making centers of Recaş, Miniş and Diosig. Finding the critical point is based on the data related to costs, respectively income. Quantities measured in thousand kg/ha are represented on the horizontal axis, while costs and income (in thousand lei) are represented on the vertical axis. (Council on product, November 2005)

The critical point can be calculated algebraically, or graphical (Fig. 1). Algebraically, for the known data we calculate:

Production value (total income)

$$I = P \times Q$$

Where: I = total value of sales;

P = price per kg
Q = production
Total cost
CT = F + Q x V
Where F = fix cost per ha
V = variable cost per kg – it will be determined according to the achieved production. (Dobre, 2003)

In the critical point Q, total income and total costs are equal, so the sales and costs functions are equal for a certain volume. We can generalize the formula of algebraically calculus for finding the volume from the critical point of production Q_{pc}.

$$Q_{pc} = \frac{F}{P-V}$$

If we know the physical volume from the critical point and the unitary price of grapes capitalization, then we can establish the value volume in the critical point I_{pc}.
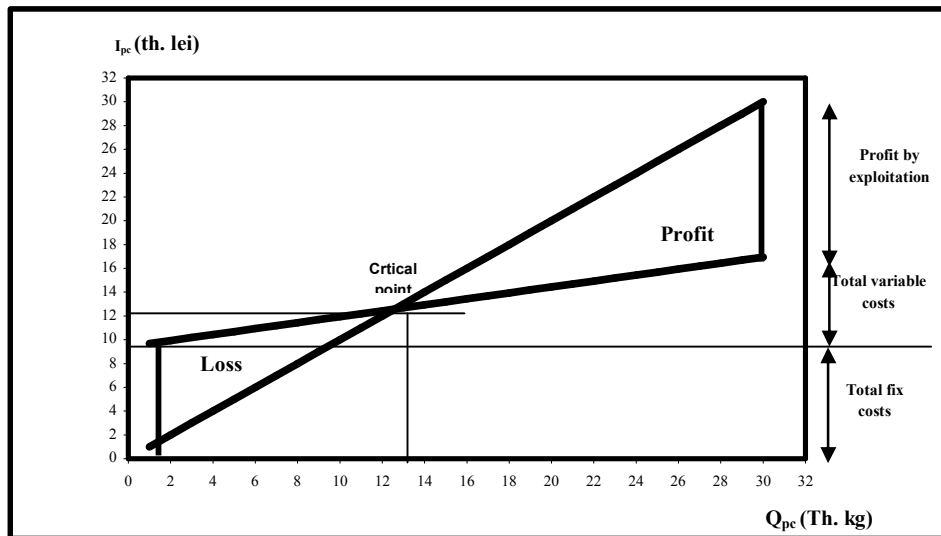
$I_{pc} = P \cdot Q_{pc}$

Fig. 1 Graphic of the critical point

I = sales thousand lei
I_{pc} = Sales critical point
Q = production in thousand kg
Q_{pc}= critical point of the sold production
F = total fix costa per ha
V = variable costs per kg
P = price for grapes' price (Ioanid , 1993)

In Romania, 37% from the total number of wine-growing holdings have the size under 1 ha, 55% between 1 and 5 ha, 6% between 5 and 10 ha and only 1% over 10 ha. (Csosz et al, 2005)

The high level of fragmentation of wine-growing areas in small agricultural exploitations have an unfavorable impact and the demonstration concerning the area size from where they become non-profitable by determining the critical point may be used to the strategy of changing this state of facts. The process of exploitation size optimization represents a permanent objective necessary to ensure Romanian wine-growing competitiveness alongside the other European countries. (Gavrilă , 2005)
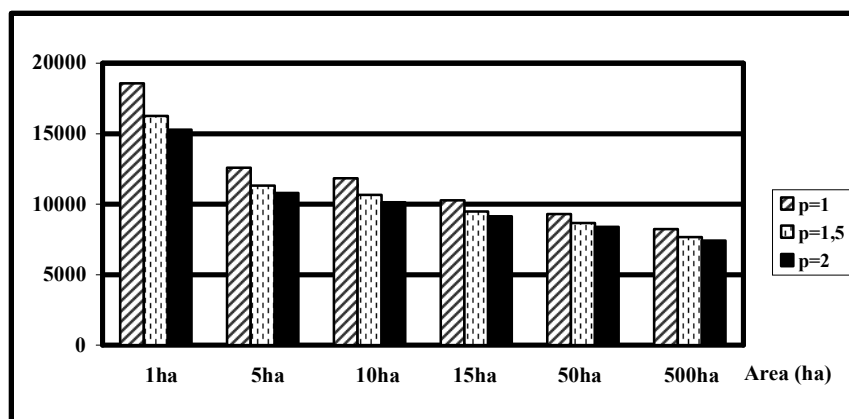
Fig. 2 Evolution of the critical point expressed in physic units (kg) at different efficiency prices

From this expenses analysis we can conclude that alongside with increasing of exploitation area the fix expenses are decreasing and also the conditions the maintenance procedures are made according to technology. This decrease is justified by the mechanization of the works done on own expense, using a stable working force that ensures a quantitative and qualitative productivity at the lowest costs possible. These costs are invariable because they are not influenced by the production level, being mandatory irrespective of the results they are going to obtain. (Fruja et al, 2003)

Variable expenses are determined by the procedures of harvest and transportation. The harvest procedures in Romania are done mostly manually, mechanization implying the existence of a plantation specially founded on this way of harvesting.

A major problem of harvesting is the fact that it implies a big quantity of working force during a very short period of time that can relatively diminish with plantations having a gradual ripening due to cultivated sorts. (Council on product, September 2005)

Analyzing variable expenses we can notice that these expenses decrease together with the increase of the exploited area, due to the possibilities of providing working force, working regulations and their negotiation as well as the way the transport is provided, by own means or rent. (ONIV)

RESULTS AND DISSCUSIONS

Yield is a vital part of the wine-growing plantation efficiency, being influenced by soil potential, pedoclimatic conditions and culture technology. Increasing yield by technological means implies extra costs, but usually quality is affected.

Therefore yield is a major factor in conferring the denomination of controlled origin. Under these circumstances, considering that the average yield is achieved in units having modern technology we can take into account a production of 6,000 kg/ha as being a reasonable yield that can provide quality grapes and consequently a better capitalization price. (Teodorescu et al, 1987)

Capitalization price is the essential argument in order to achieve the holding's efficiency. Purchasing price of grapes as raw material for wine making has two components, one being its level on the market at a certain time, the second being that yield quality that can increase the price over the average level at a certain time. Under these circumstances, we consider that the reasonable capitalization price in the case of a quality yield can be 1.5 lei/kg. (Antoce et al, 2004)

Considering this, the smallest area for an exploitation that is close to the elements of yield and capitalizing price, taking into account a reasonable production cost, would be 15 ha, which, at a fix cost of 8.218 lei/ha and a variable cost of 0.2 lei/kg reaches the critical point at a capitalization point of 1.5 lei/kg and a yield of 6.321 kg/ha. (ONVV)

Properties no bigger than 1 ha imply very high costs and, in order to be efficient, they should produce quantities over 10.000 kg/ha, with a capitalization of over 2 lei/kg, which is not possible, because if the production increases, the quality decreases and this leads to a much smaller price. Currently, these properties produce for own consumption and a part of the production is illegally sold.

Properties of 5 ha and 10 ha have quite similar fix costs per ha, having the same variable cost. Under these circumstances, the critical point is close to 1.5 lei/kg, production should be between 7549 and 7.101 kg/ha the case of exploitations of 10 ha. Still, in order to become profitable, these holdings should have much higher yield or much smaller prices, neither of these being possible. (MO no. 333)

Currently, holdings that exceed their own consumption use solutions of compromise that still work and ensure their living. These properties do not use the channel to sell grapes as raw material, but for vinification, the resulted wine being sold in bulk to the final consumer, at prices starting from 4 lei/l. Even under these circumstances, if we consider that efficiency in the case of a traditional wine making is 50%, the capitalizing price for the grapes would be about 2 lei/kg, which does not ensure the efficiency of this activity.

In order to solve this situation, these producers use methods forbidden by the Law of Vine and Wine, using spent grains and wine yeast combined with sugar juice, reaching to a much bigger production than normal, that can cover their expenses and get profit. These are low quality wines, using sub-products and sugar that are considered falsifications and punished by the law and this escapist system has to be stopped. (ONIV)

CONCLUSIONS

Conclusion of this analysis is that wine-growing production is not profitable at all on small areas and the only solution for the owners of these areas is to associate in order to make their holdings profitable. In order to have profit, these associations need to consider wine-growing production channel until the wine is bottled, its' selling and even further on, involving and capitalizing tourism potential of the areas where wine is produced, integrating them in the wine-growing tourism.

REFERENCES

1. Cotea V., Cotea V.V, 1997, Viticultura, Ampelografia şi oenologia, Editura didactică şi pedagogică Bucureşti
2. Manole, D., (coord.), Daniela G., L. Chivu, V. Câmpeanu, 2004, Ierarhizarea priorităţilor de dezvoltare agricolă şi rurală în România, Influenţele noii reforme a Politicii Agricole Comune, Studii de impact PAIS II.
3. Consiliul pe produs, 22 septembrie 2005, Propunerea cercetării experimentale în viticultură şi vinificaţie
4. Dobre I., 2003, Managementul structurilor de producţie în exploataţiile agricole, Bucureşti, Editura Expert.
5. Ioanid A., 1993, Strategii de dezvoltare a viticulturii în regiile autonome şi societăţi comerciale pe acţiuni în perioada 1993-1997 nr.4-5/1993, Bucureşti
6. Csosz I., Chis S., 2005, Managementul producţiei agroalimentare, Timişoara, Editura Orizonturi Universitare.

7. Gavrilă V., 2005, Economia viticolă a României. Adaptabilitatea şi competitivitatea din perspectiva integrării sale în Uniunea Europeană, teză de doctorat, Academia Română, Bucureşti.

8. Fruja I., Al. Jivan, Elena Porumb, 2003, Serviciile-Doemniu de marketing specific, Timişoara, Editura Nero-G.

9. Consiliul pe produs, 22 septembrie 2005, „Struguri, must, vin, produse pe bază de vin şi produse procesate

10. Studiu de piaţă vinul, Organizaţia Naţională Interprofesională Vitivinicolă ONIV

11. Teodorescu Ş., Popa A., Sandu G., 1987, Oenoclimatul României Editura Ceses

12. Antoce O., I. Nămoloşanu, P. Mocanu, D. Axente, iulie 2004, Transformări şi instrumente legislative în domeniul vitivinicol din România în contextul procesului de aderare la Uniunea Europeană (Sesiune Consiliu Director ONIV)

13. ONVV, Stabilirea tipurilor de vin pe areale naturale de producere

14. MO nr.333, Legea viei şi vinului în sistemul organizatorii comun a pieţei vitivinicole nr.244/2002

15. ONIV, Memorandum – Aprobarea programului de reabilitate a materialului săditor viticol, în perioada 2003-2007 prin asudarea Documentului de poziţie Cap.VII „Agricultura" privind aderarea României la Uniunea Europeană