# Economic figures of apple production at national level of Hungary 

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#### Abstract

Summary: Apple is the most important fruit in Hungary, despite of that, it is a paradox that during the last years, apple growing was the most unsuccessful enterprise among the prosperous ones in the country. The real cause of regression was unequivocally the low price, which could be obtained and the inadequate structure of apple varieties. A heavy problem is still the overweight of the quality doomed to supplying the processing industry instead to the fresh consumption. In order to improve the conditions, we aimed the economic analysis of the five year long period, 2005-2009, to trace the changes involving values and costs of production, income and all conditions combined with this activity. The data presented in the paper are means of a heterogeneous population of values, which cannot be utilised for immediate use in management, but they may reveal the challenges and tendencies of that branch in economics.


Key words: apple, calculation in the branch of economics, values, costs, incomes

## Introduction

Apple is the most important fruit in Hungary, unequivocally, meaning $60 \%$ of all fruits grown in the country (Apáti, 2010). Al apple plantations occupy 35000 hectares of the 96000 ha land assigned to fruit production (KSH, 2008). Fruit consumption is $70-80 \mathrm{~kg} /$ person/year, $25 \%$ of it, i.e. $15-20 \mathrm{~kg}$ is the fraction of apples. That rate of apple consumption shows a tendency of diminishing on the long run, though still dominant. Fresh consumption of apples is beneficial for health supplying Calcium, Potassium, Magnesium, fructose, Vitamins: A, B and C in the diet.

The main concern of apple growing is its biased structure of varieties, therefore the amplification of the series with varieties adapted to up to date requirements is indispensable. The modernization of the structure of technologies and innovations are also actual. Up to date varieties and new technologies are the conditions of producing uniform quality of stocks fund for a prosperous trade. Too high rate of obsolete apple plantations has been improved successfully by founding of new orchards. The irrational policy of state subsidies during the last 10 years did not promote the liquidation of uneconomic old plantations. The only issue from the dismal situation is the enhancement of competitiveness of enterprises.

The two main forms of utilising the apple fruit are industrial processing and fresh consumption. In Hungary, the rate of the latter amounts about 20-30\%, this means the dominance of the former. The stimulation of fresh consumption requires the adaptation of technologies and infrastructure of ware handling and packing according to up to date patterns.

We aimed to analyse the economic aspects of the five year long period, 2005-2009, costs and values of production as well as the background contributing to the economic conditions of enterprises.

## Materials and methods

Data utilised in our work are derived from the database of the Research Institute of Agricultural Economics (AKI) as processed data of test-farms over several years. The data regarding the period, 2005-2009, were surveyed retrospectively, as costs and values of production, earnings and taxes on the base of tables filled out with the documented facts. Original data were completed with derivates; results of processing, finally, main features of management could be calculated and expressed by the parameters obtained. The results are means earned from a rather heterogeneous population of enterprises, which are not suitable to be applied to concrete cases to make adequate decisions. All the same, they may reveal the general challenges and tendencies, which decide and answer questions to be solved on the level of everyday life. So we may find precious information for planning.

## Results

The data presented in Table 1 are results of an approach of the topic, not on the micro level but on the macro level (means of the apple growing branch). Mean yields of apples
were 22-25 tons per hectare on the country level. It is subject to some fluctuation, but is considered to be stable. The year 2007 produced extremely low yields, 10 t /ha because of frost damage. The bad weather decimated, nay, annihilated the apple yields on a countrywide level. The real reason of fluctuation stems on the heterogeneity regarding the intensity and age of plantations. Also the mean sales' results are fluctuating between $30000-39000 \mathrm{Ft} / \mathrm{t}$. After the catastrophe of 2007, the mean of prices was $73000 \mathrm{Ft} / \mathrm{t}$. In 2008, the prices fell to the half of it, which shows the eventuality of the case.

In the enterprises studied, the state subsidy amounted between $64000-102000 \mathrm{Ff} / \mathrm{ha}$ during the period 2005-2009, which increased clearly. Regarding the values of income, the change is important, they diminished.

Table 1. The values of apple production in commercial enterprises of relevance on the market

| Items | Unit | $\mathbf{2 0 0 5}$ | $\mathbf{2 0 0 6}$ | $\mathbf{2 0 0 7}$ | $\mathbf{2 0 0 8}$ | $\mathbf{2 0 0 9}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Value produced | Ft/ha | 884165 | 842583 | 726182 | 810350 | 682384 |
| Mean yield | $t / h a$ | 22.51 | 21.48 | 9.98 | 25.89 | 22.83 |
| Mean price of <br> apples | Ft/t | 39272 | 39231 | 72784 | 31300 | 29885 |
| Subsidies (nartional <br> and EU) | Ft/ha | 63824 | 85498 | 76336 | 102029 | 104209 |
| Value received | Ft/ha | $\mathbf{9 4 7} \mathbf{9 8 9}$ | $\mathbf{9 2 8} \mathbf{0 8 1}$ | $\mathbf{8 0 2 ~ 5 1 8}$ | $\mathbf{9 1 2} 379$ | $\mathbf{8 0 3} \mathbf{6 8 4}$ |

Source: AKI and original calculation

The direct costs of apple production are presented in Figure 1. Costs of materials were $173000 \mathrm{Ft} / \mathrm{ha}$ in 2005, and increased in 2009 to $231000 \mathrm{Ft} / \mathrm{ha}$. Within this item, the use of specific organic fertilisers was already negligible being a consequence of the reduced planting tendencies. Costs of the nursery are also minimal because of the subsidised development. The major $(90 \%)$ item of material costs is spent for phytosanitary substances, which amounted 210000 $\mathrm{Ft} / \mathrm{ha}$ in 2009. The increment was $30 \%$ after 2005. For fertilisers $15000-30000 \mathrm{Ft} / \mathrm{ha}$ was spent.


Figure 1. Direct costs of apple production in commercial farms

Direct costs of machine services were $90000 \mathrm{Ft} / \mathrm{ha}$ in 2005, and increased by $33 \%$ to $116000 \mathrm{Ft} / \mathrm{ha}$. Costs of machines owned and used by the growers took between 2005-2009 between $52000-85000 \mathrm{Ft} / \mathrm{ha}$. Mechanic services hired from enterprises took costs during that period was essentially constant: 21 000-23 $000 \mathrm{Ft} / \mathrm{h}$. Activities required costs for maintenance was unimportant, only in 2007 attained once $12000 \mathrm{Ft} / \mathrm{ha}$. Regarding the costs for services, the tendency was showing a movement toward buying machines.

The costs for specific amortisation changed during this period typically, as then a wave of high activity of mechanisation was experienced in Hungarian agriculture on behalf the joining to the European Union. In 2005, as specific costs, growers ought to calculate $55000 \mathrm{Ft} / \mathrm{ha}$ as a mean, and regarding the new plantations much more costs were spent, $50-70 \%$ more in 2007-2008. During those years, 110000 $140000 \mathrm{Ft} /$ ha specific costs are considered for amortisation.

Labour costs increased in relation to the basis of 2005 by about $50000 \mathrm{Ft} / \mathrm{ha}$ until 2008. This means more than $30 \%$ increment. Components of this item are the wages and their accessories. The wages were $150000 \mathrm{Ft} / \mathrm{ha}$ in 2009 already and the accessories increased from $32000 \mathrm{Ft} / \mathrm{ha}$ to 38000 Ft /ha during that period. The yearly increment of wages was $14 \%$ as a mean and $10 \%$ of the accessories.

Other costs were $38000 \mathrm{Ft} / \mathrm{ha} /$ year in 2005, subsequently diminished until 2009 to $22000 \mathrm{Ft} / \mathrm{ha}$. Direct costs increased during 2005-2009 to $150000 \mathrm{Ft} / \mathrm{ha}$, which is really very significant.

The general costs varied specifically between 40000 and $48000 \mathrm{Ft} / \mathrm{ha}$, and the yearly variation was unimportant.

As proved in Figure 2, the gross margin apple production changed conspicuously during the 2005-2009 period. Three components are presented separately: the produced value, the price of the ware increased by the subsidies and the income after sale. The direct costs have been subtracted in order to facilitate easier comparison. All the three calculations represent the sums of gross margin, however, the results are different.

The calculation based on the value produced changed along the same trends maintained its positive value during the period 2005-2009. After subtracting the general costs, the results kept its positive value, however, the sales were unable to realise the values (Figure 3).

The return from sales varied yearly, but at the same time direct costs increased gradually and therefore together with the general costs the net income turned to become negative during the two last years, 2008 and 2009.

Subsidies given to apple growers may turn the results to rise above the zero point. They appear already in 2005 and diminished the deficit, subsequently increased the income, while inverted the deficit to a modest income in 2008.


Figure 2. The gross margin of apple production from different aspects


Figure 3. Changes in return from sales, value produced and costs of apple production in commercial enterprises relevant on the market during 2005-2009
processing industry. Apáti (2009) stated that the profitability of Hungarian apple growing should not lag behind that of the German apple growing, but the rate of modern plantations is still low in Hungary. The yields fluctuated during the period studied, but the costs of production increased continuously. Material costs increased between 2005 and 2009 as well as labour and machine costs. Only the further expenses diminished slightly. The continuous fluctuation of return from sales and increasing direct costs, the moderate incomes of earlier years turned to deficits in 2008 and 2009. Considering those facts of the present situation, Gonda and Apáti (2009) call our attention to the abolition of plantations, which will ensue in the near future. A challenge, which we shall cope with on the long run. Experts and participants of that branch are most affected and ought to face with the dismal events counteracting their interests.

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