Economic figures of sour cherry production at national level of Hungary

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Summary: After the political changes of 1989, economical processes impaired heavily the Hungarian fruit growing branch, more particularly production of sour cherry. Paralleling with the increasing mass of production, producer's prices dwindled drastically. At present, Hungarian growers cannot cover the costs of production, nay, hardly raise income. My purpose was to analyse the cost and income relations of the sour cherry branch during the period of 2002-2009 years in order to find out what are the decisive features, which reveal the trends to be considered. 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 economics of the branch.

Introduction

The most drastic regression of fruit growing hit first of all the production of sour cherries in Hungary. Its main reason was the obsolete level of growing practices of plantations lagging behind the developing European standards. Statistical data (KSH, 2007) registered 16 000 sour cherry plantations all over Hungary, but their majority were neglected and cultivated on a primitive level. It is surmised that a substantial fraction of that area is abolished already. As a maximum of 1000 or 3000 hectares are sufficiently installed with acceptable, 8–12 t/ha yields as a mean. At the permanently low producer's prices, those yields are the preconditions of a profitable business. In spite of that, existence of the offer of the underdeveloped enterprises depressed the producer's prices with their mean yields less than 7 t/ha, which may baffle essentially the profitability of the whole branch. A series of papers is dealing with the economics of sour cherry growing by *Apáti* (2009a; 2009b; 2009c; 2009d).

The sour cherry branch supplies the processing industry, first of all. Fresh consumption of sour cherries is relatively very scanty. The increment of the rate offered for fresh consumption depends on the development of fruit handling and packing technologies.

This paper aims to enlighten the situation and suggest actions for the purpose to save the sour cherry branch.

Materials and methods

Relevant data are found in the database of the Research Institute for Rural Economics (AKI) being accumulated and ready for being processed. The period between 2009 and 2002 was consulted for being analysed regarding values, costs and incomes. Not only basic data but also derivates are processed to find the essential parameters of managements. As the results are means of an extremely heterogeneous population, they are not suitable to apply them to answer immediate questions of a particular management. They reveal general tendencies of the economic milieu and suggest valid regularities for countrywide decisions.

Results

As observed in *Table 1*, mean yields of sour cherry varied between 4.44 and 7.45 t/ha during the period 2002–2009 in Hungary. Means SD (standard deviation) was 18%, which cannot be considered as negligible. The value produced changed between 390 000 and 940 000 Ft/ha. Highest value appeared in the year 2007 and second highest in 2003 with 860 000 Ft/ha.

As analysed the producer's prices, we may state that the market of sour cherries is hectic. Since 2003, producer's prices fluctuated between 50 and 90 Ft/kg. 2007 is the sole year, when the late spring frost dropped the yields drastically countrywide to less than 40 000 tons. Producer' price rose to 210 Ft/kg. Subsidies paid to sour cherry growing land amounted in Hungary 30 000 – 80 000 Ft/ha during the period 2002-2009. Produced values plus subsidies rose from 430 000 Ft/ha in 2002 to 490 000 Ft/ha in 2005, but to 550 000 in 2009. The increment of values produced stems partly from the increasing yields as one third of the plantations is younger than 10 years, so it will continue to

Items	Unit	2002	2003	2004	2005	2006	2007	2008	2009
Values produced in main product	Ft/ha	393342	859747	432095	450080	684721	939013	528125	461448
mean yield	t/ha	4.99	5.14	5.92	4.44	6.63	5.36	6.98	7.45
mean producers' price	Ft/t	78 826	167 266	72 989	101 337	103 236	175 245	75 615	61 938
Subsidies (national & EU)	Ft/ha	34 974	21 371	32 881	36 886	68 293	53 618	66 339	85 064
Values produced	**Ft/ha**	**428 316**	**881 270**	**464 976**	**486 966**	**753 014**	**993 032**	**594 463**	**548 572**

Source: AKI and original calculation

grow as expected. New, up to date plantings may yield even 15–20 t/ha (*Apáti,* 2008). The subsidies also increased the values produced.

Figure 1. Constituents of direct costs of sour cherry production as means of relevant commercial plantations in Hungary
Source: AKI and original calculations

Direct costs of production are greatly influenced by the establishment of the plantation and by the technology to be applied as proved by *Nyéki-Soltész-Szabó* (2008). So direct costs of sour cherry production is explained in *Figure 1*. Its constituents are material costs, machine costs, amortisation, labour and other costs.

Relative to the year 2002, material costs of sour cherry production doubled until 2008 as a 20% component of direct costs. In 2002 it was 61 000 Ft/ha and 147 000 in 2008. In 2009 it decreased to 110 000 Ft/ha. The specific application of organic fertilisers was countrywide negligible, i.e. seldom used. Between the highest items, costs of phytosanitary expenses grew from 50 000 to 95 000 Ft/ha until 2009. Nutritional expenses took altogether 8% of direct costs only

Machine services required 137 000 Ft/ha in 2002, and changed to 101 000 Ft/ha in 2009, i.e. dropped by 25%. As shown in the table, highest costs appear in 2002 and

diminished continuously. In 2008, 100 000 Ft/ha was paid, but only some one third of that to other enterprises for service: 36 805 Ft/ha. The costs paid for machines owned by the grower itself increased.
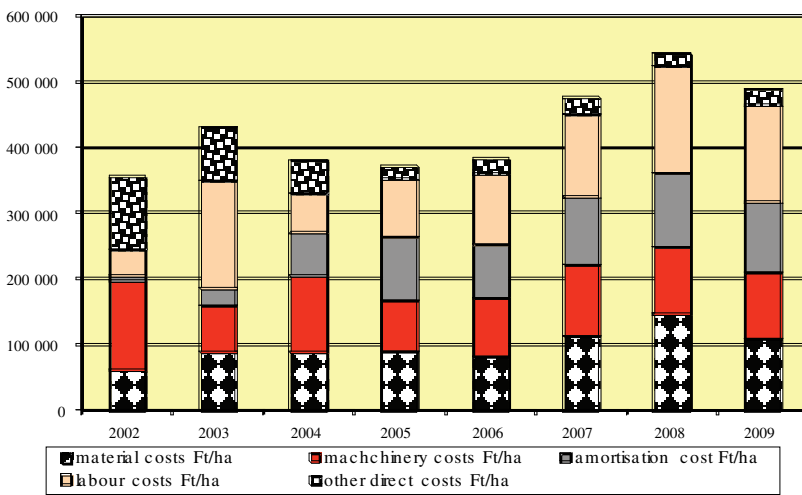
Amortisation (allowance for depreciation) costs increased from 6 000 Ft/ha to 105 000 Ft/ha, which is due to owning more machines and to the higher value of the modern plantation.

Labour costs increased from 40 000 Ft/ha in 2002 to 150 000 in 2009. Its components are the wages paid and their accessories. Their main increment was yearly up to 14% and 10% that of the accessories. The most dynamic component, the wages may amount up to 133 000 Ft/ha. Their major section is paid for harvesting operations. Its sum depends entirely on the actual yield, therefore, the labour costs fluctuate with the yields.

Other costs diminished after 2005. In 2002, they were 110 000 Ft/ha, while 25 000 in 2009. It contains the insurance and rents, which are relatively negligible.

All direct costs fluctuated during the 2002–2009 period between 350 000 and 540 000 Ft/ha. General costs contributed to the sum of costs by some 47 000 Ft/ha, which is the double of the its value in 2002.
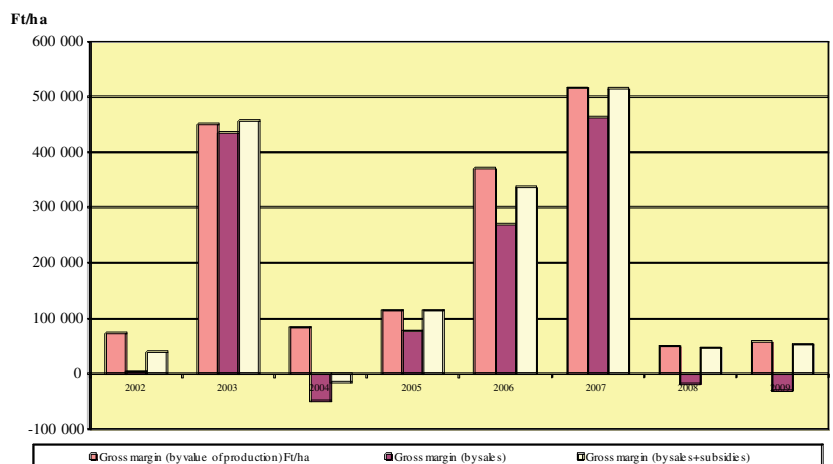

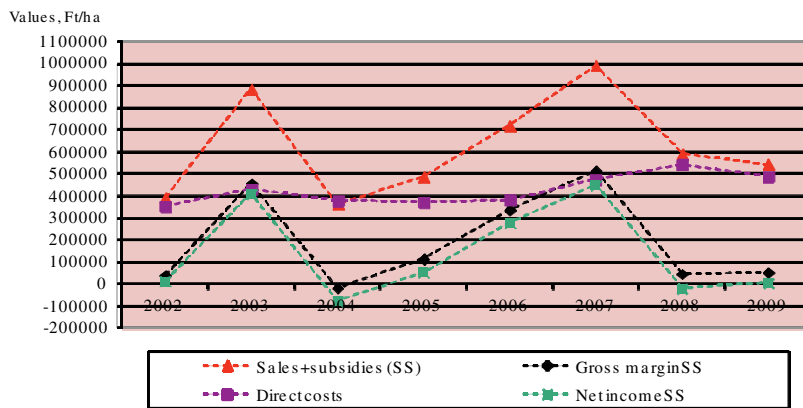**Figure 2.** The gross margin pattern for sour cherry production

Figure 3. Sales, costs and incomes during the period 2002–2009
Source: AKI and original calculations
Remark: Gross marginSS = Sales+Subsidies (SS) minus direct costs of enterprise production; Net IncomeSS = Gross marginSS minus indirect costs for the enterprise

In *Figure 2,* changes of gross margin of sour cherry production are illustrated during the period 2002–2009. Three value categories are explored: the values of production, the sales plus subsidy and the sales, and we subtracted the direct costs of the enterprise production from all the three sums to facilitate an easier comparison. All three methods of calculating gross margin furnished different results.

The gross margin based on the values of production followed the changes according to the values of production, and it was throughout the period 2002–2009, and was always positive. However, the result was not realised by sales. (*Figure 3*).

The incomes fluctuated yearly, but direct costs increased permanently, therefore, incomes were negative in 2004, 2008 and 2009, if general costs were subtracted too. Data show deficits in spite of the added subsidies.

Conclusions

Mean yields were generally 6–7 t/ha of sour cherries on the national level, which is still lagging behind the desirable expectations. Yields are tending nevertheless to increase slowly since 2002. In producer's prices, however, the changes follow an opposite trend, which means that 50 Ft/kg is not an exception. Incalculability of the market is increased by the remarkable fluctuations even during the ripening period.

Direct costs of production are increasing monotonously from year to year. Material costs, labour costs as well as amortisation grew similarly in spite of decreasing expenses of hiring machine costs. Regarding net income alone, sour cherry production is at present considered to showing deficit.

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