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## **THE RUNNING OF THE NOMINAL AND REAL PRICES OF THE SELECTED APPLE VARIETIES AT THE WHOLESALE MARKET**

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**ABSTRACT.** The aim of this paper was to analyse the running of the prices of four apple varieties: 'Idared', 'Cortland', 'Jonagold' and 'Golden Delicious' in the years 1996-2002. The prices of the selected varieties were diversified and the levels of price of new varieties were higher than the old ones. The prices of the analysed four apple varieties had risen for the initial period and next decreased. The real prices were lower than the nominal ones and they were in 61%-87% parts of the nominal prices.

**Key words:** nominal price, real price, apple variety, regression function

### **Introduction**

The fruits have to be sold for the purpose of achieving the production value, which is a necessary element for obtaining an income. This process takes place at the market, which is the place of meeting of the sellers and the buyers ratios. At the market the prices of goods are created and there are formulated the relations between the prices. The level of the prices is the stimulator for undertaking or expanding the production or the signals for reducing of the production. The prices have an influence on economic processes and they explain the behaviour of the producers and consumers. Also, they determine the amount of production and consumption of goods. The prices are the major parameters in the calculations of the production profitability because the price, besides the production costs and yield, determines the level of the income.

The aim of this paper was to analyse the running of the prices of four apple varieties in 1996-2002.

## Material and methods

The subject of this analysis were the prices of four apples varieties: the old varieties 'Idared' and 'Cortland' and the new varieties 'Jonagold' and 'Golden Delicious'.

Information about the apple prices came from the database of the Wielkopolska Agri-Horticultural Wholesale Market Plc in Poznań (WGRO), where about 5 thous. entrepreneurs from North and Middle-Western Poland supply themselves. The average prices of apples in each year of 1996-2002 were available from the base of the WGRO. The real prices were calculated according to the formula:

$$\frac{(\% \text{ change of the nominal price} - \text{the inflation rate}) \times 100\%}{100\% + \text{the inflation rate}} = \% \text{ change of the real price}$$

The inflation rates published by the Central Statistical Office (CSO) were used for the calculations. They amounted: 19.9% (1996 year), 14.9% (1997 year), 11.8% (1998 year), 7.3% (1999 year), 10.1% (2000 year), 5.5% (2001 year), 1.9% (2002 year).

There were estimated the parameters of the single, parabolic regression function using the Ordinary Least Squares method. The running of the nominal prices and the real prices in the 1996-2002 were analysed.

## Results

### The running of the nominal prices

The orchard is a long running investment and the decisions made during the apple production give an effect after a long time. The cost of the investment starts to return after a few years. That is why, for the rational decision making process, the level and variability of the seasonal prices are necessary. The most important is the price running in the long time because the producers can conclude which production should be developed and which should be limited.

The running of the four apples varieties prices is presented in Figure 1.

In the analysed period (1996-2002), the lowest prices, calculated from the regression function were for the 'Idared' variety. The price calculated for 'Idared' amounted 1.09 zł/kg in 1996. The next year the price was higher by 0.02 zł and amounted 1.11 zł/kg. This level was also for 1998 and it occurred to be the highest. The price of 'Idared' decreased in the next years and is amounted 0.92 zł/kg in 2002. It was above 17% less in relation to the 1997-1998 and by 15% less in relation to the first year of the analyses.

The running of 'Cortland' price was similar. The level and the increases of prices were higher and the curve was shaped more convex. The exception was in the first year (1996), when the price of 'Cortland' amounted 1.03 zł. It was by 5.5% higher than 'Idared's' price. In the 1997-1999 the price increased and achieved the highest level 1.21 zł/kg. It means, that through these four years of the analyses the prices increased by 17%. The next year the price went down and it amounted 1.02 zł for the 2002 – e.i. 85% of the 1999 level.

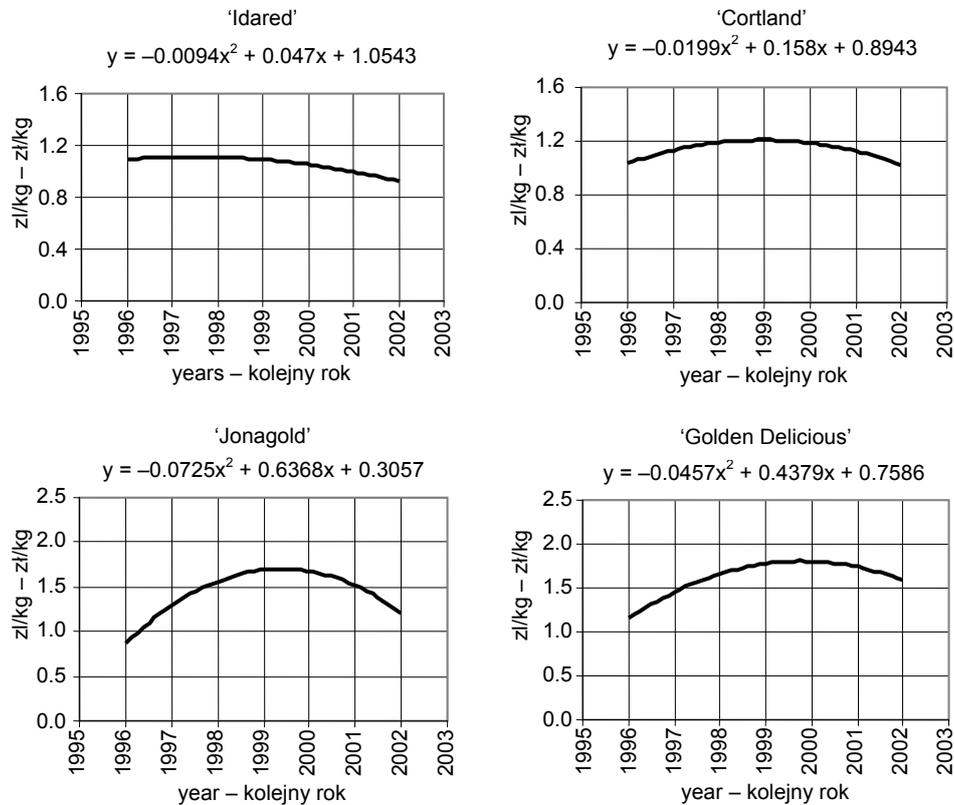


Fig. 1. Running of nominal apple prices in 1996-2002

Ryc. 1. Kształtowanie się nominalnych cen jabłek w latach 1996-2002

The regression function describing the running of the prices of 'Jonagold' was more convex than the previous ones. From quite a low level of 0.87 zł/kg in 1996, the growth of 'Jonagold' variety's price followed in quick succession – by 0.42 zł, in 1997, by 0.27 zł in 1998 and 0.13 zł in 1999 – so achieved the highest level, amounted 1.69 zł in 1999. According to the regression functions, in the first year of analyses, the prices of 'Jonagold' were by 20% lower than 'Idared' and by 16% lower than 'Cortland', but in the fourth year it was by 55% higher than 'Idared' and 40% higher than 'Cortland'. The prices of 'Jonagold' decreased in 2000-2002. The price calculated for 2002 amounted 1.21 zł/kg and it was by 39% higher than in the first year of analyses (1996) but more than 28% lower than the highest price for 1999.

The highest prices were achieved for the 'Golden Delicious' variety. In 1996 the price for 'Golden Delicious' amounted 1.15 zł and it was by 5.5% higher than 'Idared' and by 12% higher than 'Cortland', but by 32% higher than 'Jonagold'. The prices of 'Golden Delicious' had been increasing for the four years and they achieved the highest level and amounted 1.81 zł in 2000. This price was by 7-63% higher than the maximum prices for the remaining three varieties. In 2002 the price for 'Golden Delicious' was nearly by 13% lower and amounted 1.58 zł/kg. It was by 30% higher than 'Jonagold' and by 72% higher than 'Idared'.

### The running of the real prices

The real prices for 'Idared' and 'Cortland' were running according to the different regularity. The highest levels of both were in the first year of the analyses and they decreased through the following years (Fig. 2). Within seven years of the analyses the real prices of 'Idared' decreased from 1.13 zł to 0.59 zł per 1 kg, and from 1.05 zł in 1996 to 0.63 zł in 2002 decreased the real prices for 'Cortland'. It means, that after elimination of inflation influence, in the last year (2002) the producers received only 52% of the price of 1996 for 'Idared'. In case of 'Cortland', the real price in 2002 amounted only 60% of the price in 1996.

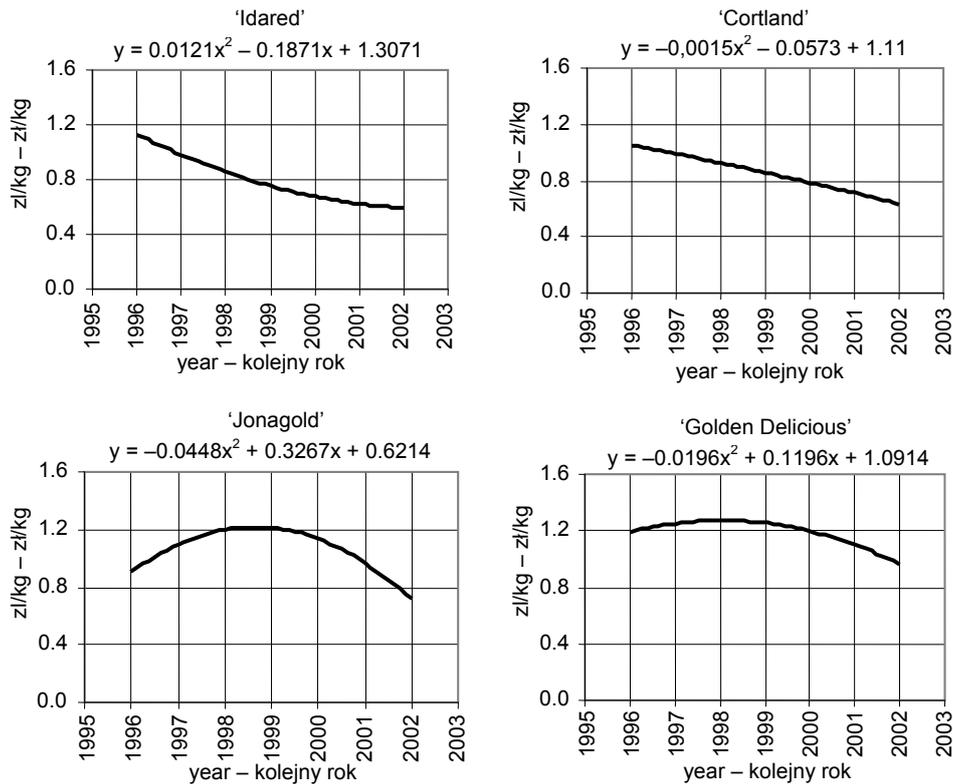


Fig. 2. Running of real apple prices in 1996-2002

Ryc. 2. Kształtowanie się realnych cen jabłek w latach 1996-2002

The real prices for the 'Golden Delicious' were relatively high. From 1.19 zł in the 1996 they increased in the next two years and in 1998 the price amounted 1.27 zł, i.e. it was nearly by 7% higher. The price through the next four years decreased quite rapidly and for the last year it amounted 0.97 zł/kg. The real prices for 'Golden Delicious' decreased by nearly 24% in the 1999-2002 years. The level of price in the 2002 was also lower by 19% in relation to the first year.

The real prices of 'Jonagold' increased in the first years of the analyses but in the next they decreased. From the level of 0.90 zł in 1996 they grew at 1.21 zł in the 1999,

that means they increased by above 34%. They decreased by the 41% through the next three years and they amounted 0.71 zł in 2002. This price was by 19% lower than in 1996.

Taking into consideration the decrease of buying power of money caused by inflation, the real prices of apples were visibly lower than the nominal prices. The real prices for 'Idared' and 'Cortland' were the highest in the first years of the analyses. After seven years of the analyses, the real prices were in 53-80% part of the prices reached in 1996.

## Conclusions

1. The prices of the selected varieties were diversified and the levels of price of new varieties were higher than the old ones.
2. The prices of the analysed four apple varieties had risen in the initial period and next decreased.
3. The real prices were lower than the nominal ones and they were in 61-87% parts of the nominal prices.
4. The real prices of 'Idared' and 'Cortland' were the highest in the first year of the analyses and the real prices of 'Jonagold' and 'Golden Delicious' were the highest in the fourth and third years respectively.

## KSZTAŁTOWANIE SIĘ NOMINALNYCH I REALNYCH CEN WYBRANYCH ODMIAN JABŁEK NA RYNKU HURTOWYM

### Streszczenie

Celem pracy była ocena kształtowania się cen wybranych odmian jabłek na rynku hurtowym, jakim jest Wielkopolska Giełda Rolniczo-Ogrodnicza w Poznaniu. Dla każdej z czterech odmian: „starych” – 'Idared', 'Cortland' i „nowych” – 'Jonagold', 'Golden Delicious' wyznaczono funkcje regresji parabolicznej, opisujące zmiany cen w latach 1996-2002.

Z przedstawionej analizy wynika, że ceny za poszczególne odmiany były zróżnicowane, a poziom cen za jabłka „nowych” odmian był wyższy niż za jabłka odmian „starych”. Ceny jabłek analizowanych odmian w pierwszych latach analizy wzrastały, a następnie zmniejszały się. Ceny realne były niższe niż nominalne: stanowiły od 61 do 87% cen nominalnych. Ceny realne odmian 'Idared' i 'Cortland' były najwyższe w pierwszym roku analizy, a ceny odmian 'Jonagold' i 'Golden Delicious' – w roku czwartym i trzecim.