FINANCE AND ACCOUNTING

PRE-CALCULATIONS RELATING TO THE ESTABLISHMENT OF A FRUIT PROCESSING PLANT

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Abstract: *We carried out the financial planning of the establishment of a fruit processing plant in Bács-Kiskun County. After visiting realized plants of similar type and making interviews with the investors, we planned our own investment. The company with the biggest operating area has 50 partners who farm approximately 1000 hectares of land. They produce mainly elderberry and apple juice concentrate. We carried out our financial estimates taking grant opportunities into consideration. In this study we planned the investment solely on equity. We applied DPB, NPV, IRR and PI indicators. Of course, in the future we will also be preparing a scenario funded by the application.*
Keywords: *fruit processing plant, field survey, interviews, financial estimates, investment, economic feasibility*

INTRODUCTION

Food production and processing is a major economic sector in all countries of the world. The food demand of the growing population of our planet is growing enormously, but the ecological limits of food production are given (Medina, 2005).

All those involved in the processing and production of food are in competition with each other. Hungarian producers and companies have to stand their ground in this global competition both in the national market and the unified market of the EU, and in the world market, as well (Kormos, 2017). Of course, these companies also need to take both stringent consumer protection requirements and sustainability requirements into account (Turi et al., 2014).

The key to create competitiveness is to equip the farmers, managers and skilled workers who live here to take advantage of their

opportunities and thus to raise their standard of living and to improve their quality of life in the long run (Illés, 2007).

It is in the fundamental interest of the country that by exploiting the outstanding capabilities of the food industry and by creating its competitiveness, it can meet the domestic food demand in a stable manner and sell its products efficiently across the border, thus contributing to economic development (Andrási et al., 2009). This interest is especially important because in Hungary the food industry has a bigger weight in the national economy regarding production, export and employment than in other countries of similar development (Kanyó et al., 2008).

This is also evidenced by the fact that in the 4th quarter of the year 2018 the volume of developments in the food-processing industry, which takes more than a quarter of investments of the national economy, was 17% higher than in the same period of the previous year.

Continuous improvements, the processing of the fruits produced, and the use of modern technologies are essential for maintaining competitiveness (Illés, 2013).

Based on the interviews with owners made while visiting food-processing plants, we planned our own investment. Information, plans and recorded documents given by processing plants of various size helped us to carry out our calculations. The company of the biggest plant size has 50 partners who farm around 1 000 hectares of land. They produce mainly elderberry and apple juice concentrate.

For the time being we have made our own financial estimates through self-financing, but in the future we will also consider an EU grant source "VP - Adding value to agricultural products in processing", a call for proposals of 50% intensity. We will compare the two scenarios and decide which financing form ensures profitability in shorter time, which scenario is worth to realise.

The expected investment cost of the investment is HUF 136.770.000 gross. The expected useful life is 50 years.

The annual income expected by the investors is 6%.

MATERIAL AND METHOD

In order to carry out our calculations, we visited food processing plants performing activities similar to our investment plan between June and August 2019. At the request of the owners, we refer to them anonymously as a fruit processing plant in Bács-Kiskun County. The company which is the closest to our expectations has about 50 partners

who they keep in touch with throughout the year and have a contract with an obligation to purchase the goods they produce. An interview with the plant manager revealed that the most intense period was clearly around the harvest (July-September). In this period the plant completely exploits its processing capacity available and in addition to its permanent employees, expands their number with more 50 people on average. The concentrates produced here are sold both within the country and abroad, in a rate of 30-70%, due to their well-established partnerships.

For further questions, which were essential for our economic calculations, the financial manager and the accounting staff were available. Of course, current legislation must also be taken into account (Sava, Pinteala, 2016). We applied investment economic calculations in our work, including net present value (NPV), internal rate of return (IRR), payback time (PB), discounted payback time (DPB) and profitability index (PI) (Bélyácz, 2007). In addition, in the future we will examine the risk aspects of the investment and compare the success of the investment with two different types of financing: self-financing and funding. The expected intensity of the grant is 50%. The annual income expected by the investors is 6%.

RESULTS OF OUR OWV RESEARCH

This image shows the plan of the new fruit processing plant. (*Figure 1*)
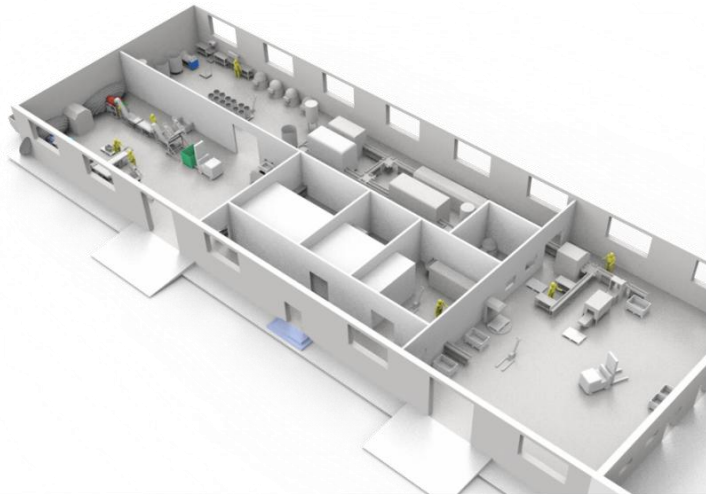

Figure 1: The planned processing plant
Source: The plan given by one of the companies

It can be seen from our calculations what future results can be expected from self-financing. *Table 1* shows our cash flow calculation. At the end of each year, the expected operating cash flow is HUF 27,894,000.

Table 1: Cash flow calculation

+ Turnover	HUF 330.000.000
- Current operating costs	HUF 300.000.000
- Depreciation	HUF 6.600.000
Profit before tax	HUF 23.400.000
- Corporate Tax (CT 9%)	HUF 2.160.000
Profit after tax	HUF 21.294.000
+ Depreciation	HUF 6.600.000
Cash Flow	**HUF 27.894.000**

Source: Edited by the authors based on their own pre-calculation results

In our economic calculations we calculated the internal rate of return (1), the profitability index (2), the discounted payback time (3) and the net present value (4).

➥ Internal rate of return (IRR):

$$-C_0 + \sum_{t=1}^{n} \frac{C_t}{(1+\text{IRR})^t} = 0$$

$$IRR = \frac{\text{start} - \text{up capital investment}}{\text{annual net cash flow}} = \frac{136.770.000 \text{ HUF}}{9.346.186 \text{ HUF}} = 14,63 \qquad (1)$$

$$PVIFA\left(r\%, 50 \text{ years}\right) = 14,63$$
IRR=9%

➥ Profitability index (PI):

$$PI = \frac{\sum_{t=1}^{n} \frac{C_t}{(1+r)^t}}{C_0} = \frac{166.034.994 \text{ HUF}}{136.770.000 \text{ HUF}} = 1,21 \qquad (2)$$

➥ Discounted payback time (DPB):

$$DPB = \frac{\text{start} - \text{up capital investment}}{\text{annual net cash flow}} = \frac{136.770.000 \text{ HUF}}{9.346.186 \text{ HUF}} = 14,63 \qquad (3)$$

$$PVIFA\,(6\%, \text{t year}) = 14,63$$
DPB= 24 years

➡ Net present value (NPV):

$$NPV = -C_0 + \sum_{t=1}^{n} \frac{C_t}{(1+r)^t} = 29.264.999 \text{ HUF} \qquad (4)$$

The net present value resulted a value more than 29 million HUF, which is higher than 0, so the investment will increase the company's value. The value of the internal rate of return is 9% which is higher than the expected income, so it is worth to realise the project.

The value of the discounted payback time is 24 years, which means that the investment will be paid off in 24 years. As this value is less than the expected life of the investment (50 years), so this indicator proves that the investment will be paid off within the useful life (Illés, 2009).

Finally, we calculated the profitability index which shows that 1,21 HUF income can be expected after each invested 1 HUF.

SUMMARY

The results of all our economic indicators have a positive value for the realisation of the investment, so we can conclude that it is worth to start a fruit processing plant.

All in all, we can conclude that the investment will be paid off within the expected period of time even with self-financing.

In our future research we will examine the economic feasibility of funding from a grant, then we will compare the two scenarios.

Based on our previous and future estimates, we will make our investment decisions (Fenyves et. al, 2019). Quoting György Hampel (2011): It is important that well-informed decisions are made in any area of the organization's operations, whether it is finance, production and factors of production or even trade, they have to be always in the interests of the organization.

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