OPPORTUNITIES FOR JOB CREATION IN RURAL COMMUNITIES

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Abstract: *In Hungary today local educational institutes do not provide farmers with the practical information needed to turn their family holdings into a more fruitful and safer enterprise. Our program contributes to the strategy which aids unemployed people living in houses in rural settlements to utilize their backyards for generating additional income. The specific objectives of the project are: 1 to transfer valuable expertise related to agricultural techniques and skills needed for fostering competitiveness of agricultural products, 2 to create a knowledge base and promotional framework for supporting placement of agricultural products on the market and 3 to evaluate the agro-economic aspects of the model farms established. The project will promote the best production technologies that are optimal for the establishment and running of a successful 'backyard' gardening business.*

Key words: *rural development, economic models, local producers*

INTRODUCTION

The College of Kecskemét is a key player in the region's agricultural education, therefore the business organizations expect ongoing practical information from it. Accordingly, our targeted research and development activities cover three areas: horticulture, rural development and applied agro-economic research. These three areas of work are carried out towards reaching a common goal of pointing people thus far excluded from the labor market towards the path of self-reliance, where they can on one hand reach self-sufficiency and on the other hand can create additional income. Our research produces two main outputs: firstly, a model that summarizes the growing technology that is optimal for establishing and running farms around the house and, secondly, it provides for farmers and decision makers valuable information and model calculations. In addition, we count on the participants of the practical training (or those getting information through the project's website) as potential users, since we believe that this project gives a tool into their hands which can improve their quality of life and standard of living on the long-term based completely own their own efforts.

Literature Review. Analysis of agricultural enterprises is special because this sector has a number of characteristics that distinguishes it from other branches of the national economy. The general laws often apply themselves in peculiar ways [9]. The fruit and vegetable sector is one capable of the highest growth and largest job-creating segment of agriculture. It occupies only 4-5% of the agricultural areas but because of the high demand for manual labor its employment role is much more significant.

About 13-18% of agricultural production comes from the fruit and vegetable sector, which on the product output level equates to 200 billion HUF and on the value of merchandise can reach up to 600 billion forints. This provides nearly two-thirds of the entire revenue of horticultural production [1].

Financing means the creation of the necessary capital for the enterprise to carry out its business activities. Capital can come from own resources, or from external sources. In agricultural financing the financeer is facing a special situation [8]. They have to take into account the specific conditions relating to the external, natural environment and the internal factors of the business operation itself. These are the high-risk, high capital requirements, the uncertain return on investment, and the role of natural processes and their stationarity. Agriculture is one of most capital intensive industries with slow return on capital and from these it automatically follows that its efficiency is also low [5].

According to Ferencz et.al. [4], the following specific problems make it difficult to finance agriculture: shifts to other production processes have high time requirements; the production processes are also of long duration; it is difficult to adapt to market needs; returns depend greatly on the quality of the land, the need for specialized capital equipment investments are very expensive; production and working periods differ in times.

Financing and development of local farms belongs to one the cardinal tasks of the Hungarian state. Development of local economies is a deliberate interference into the local communities' economic processes which can utilize both internal and external resources. It aims to build the economic capacity of a region, bearing in mind the economic future of the region, and ensuring adequate standards of living of the population [7]. Amongst the basic areas of local economic development, such as the manufacture and promotion of local products, assuring the appropriate use of cash equivalents in the trade flows within the region, development and expansion of social economy, strengthening of micro-enterprises, development of the autonomous communities also plays an important role [2].

MATERIALS AND METHODS

Venue of research. The research was conducted at the Demonstration Garden of the Faculty of Horticulture, Kecskemét College. Tests were run on 300 m^2 open field area. The aim was to compile a production technology which on one hand will enable the highest possible level of self-sufficiency, on the other hand provide additional income, and thirdly, one person can see to its cultivation part-time. The selection of species for cultivation happened from well-known vegetable plants, native to two areas, so that the production of goods can be continuous from mid-February until the end of October. In addition to the selection of vegetable species, the aim of the research was also to find the appropriate proportions and production orders, as well as the development of non-chemical solutions for the production of healthier foods. In conducting the research project we definitely wanted to achieve a technology which is forward-looking and remains valid even 10 years later in horticultural production.

Research methods. In our model we wanted to show the income generating capability of vegetables produced by two types of technology. We have investigated in which succession is it possible to grow vegetables that would provide work and income to their producer throughout the year. The model calculated production costs of crops grown in open fields (material, labor, public charges, machine work) and the cost of services that may arise.

For calculating turnover we determined the yield of the various crops (or more precisely the quantity of goods). When calculating revenue it is important to keep in mind that the farmer consumes a portion of the crop, this value was calculated based on the standard cost of the product. We examined the average sales price for individual periods taking into account the quality and direction of the sales. This information is determined by the previous year's and this year's expected market price developments. In our model, we have calculated what net proceeds a given area can generate in case of various association of individual species. The income per unit of area can tell us on what surface area the entrepreneur should continue their activities to be sufficient for their livelihoods.

Cost Calculations. Labor cost was calculated based on the volume of manual work and the unit cost of a shift; the cost of machine work is given by the volume of machine work and the unit cost of a shift and raw material costs can be calculated multiplying each of the materials used and their unit price. Some costs were calculated on an aggregate level for the whole of the 300 m^2 field, these were: soil fumigation, fertilization and tillage. The majority of costs were calculated based on the work operations of the specific vegetables:

e.g. sowing, planting, harvesting. The model was tested in two ways. In one case, a minimum wage salary was calculated, in the other case, this cost was omitted. The farmer does not pay wages to himself, however, in the so-called gross income it is included. The model pro rates the cost of the high-value equipment.

Revenue Calculations. Sales volume is given by multiplying the corresponding average sales price by the units sold. Revenue is examined not just for one plant, but for each variety, sales period and, per quality grade. The model we only summed up the price earnings of individual plants in different distribution dates. During the ripening period we monitored the weekly national retail market prices, and thus a typical average price was calculated. This was then multiplied by the available quantity for sale at the time. As a result, we were getting a well-modeled and accurately approximated sales for each tested vegetable.

Income Calculations. Income is calculated from the difference of cost and sales. We report a net and gross income. When calculating net income wages are cost eligible. In our case gross income is more realistic, as a small-holder itself does not recognize any wages. Thus, the resulting income (if any) includes the value of their work as well. The model includes the issue of cost-effectiveness as well. It is expected that with the use of the higher cost production equipment higher income can be generated.

RESEARCH RESULTS

The Cultivated Plants. Due to space limitations only the open field cultivation plants are described. Table 1 shows the first stage plants, varieties and breeding area.

Table 1

First stage of open field cultivation

Green peas 4 types (4 beds)	**Yellow wax beans 3 types (3 beds)**	**Lettuce 2 types (3 beds)**	**Kohlrabi 2 types (2 beds)**	**Radish 4 types 1 bed**	**Savoy cabbage 1 type 1 bed**	**Celery 1 type 1 bed**	**Carrots**	**Parsley**
Korvin, Favorit, Villő, Tiara	Rézi, Főnix, Carioca	Kobak (2 beds) Edina (1 beds)	Szentesi white, Szentesi blue	Slovana, Róza, Flamingó, Félegyházi	Rakétta	Hegykői	Nanti	Fél-hosszú
30×3 cm	30×7 cm row- and plant spacing	30×30 cm row- and plant spacing	30×30 cm row- and plant spacing	30×5 cm row- and plant spacing	30×40 row- and plant spacing	30×40 row- and plant spacing	2 lines per seedbed	2 lines per seedbed

Table 2 shows the plants, varieties and growing area of the second stage.

Table 2

Second stage of open field cultivation

White Cabbage 1 type (4 beds)	**Savoy Cabbage (2 bed)**	**Cauliflower (1 bed)**	**Bell peppers 2 types (4 beds)**	**Tomatoes 2 types (3 beds)**	**Celery 1 type 1 bed**	**Carrots**	**Parsley**
Taurus	Serpentine	Seoul	Start 3 beds, Almapaprika 1 bed	K-407 2 beds, Sanmarsano 1 bed	Hegykői	Nanti	Félhosszú
90+60x45 cm	90+60x45 cm	90+60x45 cm	90+60x33 cm	90+60x33 cm	30×40 cm	2 lines per seedbed	2 lines per seedbed

Production revenues for the white pepper are shown in Table 3.

Table 3

Revenue development of white pepper

Time of sale	Area	Qty.	Unit	Yield	Qty. sold	Unit	Avg. Price	Unit	Revenues	Unit
Week 32.		1	kg/m^2	78	70	kg	1,17	Euro/kg	82	Euro
Week 33.		1.5	kg/m^2	117	105	kg	1,01	Euro/kg	112,3	Euro
Week 34.		1.5	kg/m^2	117	105	kg	0,93	Euro/kg	98,3	Euro
Week 36.		0.5	kg/m^2	39	35	kg	0,87	Euro/kg	30,42	Euro
Total:	78 m^2	4.5	kg/m^2	351	315.9	kg	1,19		**323**	Euro

Economic evaluation of pepper production is summarized in Table 4.

Table 4

Production costs, cost structure, revenue and income trends for white pepper

Nr.	Definition	Area	Value	Structure %
1.	**Basic data**			
2.	**Area**	m^2	78	
3.	**Avg. yield**	kg/m^2	4.5	
4.	**Qty. of goods**		4	
5.	**Total crops**	kg	315,9	
6.	**Production time**	hrs	48.2	
7.	**Avg. price**	Euro/kg	1,1	
8.	**Revenue**	Euro	323	
9.	**Other costs***		290	
10.	**Material cost**	Euro	58,5	20.2
11.	**Labor cost**	Euro	100,5	34.7
12.	**Cost of nursery plants**	Euro	120,6	41.7
13.	**Amortization**	Euro	100	3.3
14.	**Income**	Euro	33,6	
15.	**Income /m^2**	Euro/m^2	0,43	
16.	**Income /kg**	Euro/kg	0,11	

** Fertilizers, pesticides, soil decontamination, water*

CONCLUSIONS

Our investigation helps to get an answer to how much area should be managed or how much crop quantity needs to be grown to support the entrepreneur's livelihood. If we can achieve that the first adopters pass their knowledge on in the local communities then in the long run a significant social impact can be expected both on local and national levels. On national level it can even mean a reduction in welfare system's financing requirements, or a decline in agricultural, horticultural imports.

On the local community level these small farms can be important because they can constitute the foundation for further development of a local community economy.

By placing the calculations in a spreadsheet handling program, it is possible to optimize production. The program allows you to calculate, if the basic information is changed (e.g. composition of species while leaving area the same), the cost structure, revenue or income levels. The farmer can easily calculate what surface they need to support their family. The calculation also shows how much it takes to produce the food that they consume, thus they can get answers to the question of self-sufficiency. The model does not address every problem, however, that was never the goal. It does not consider, for example, the issue of liquidity, i.e. how each month's income influences the producer's ability to pay their bills.

Using our model, the calculations can be carried out easily, however a lot of data is needed to see clearly. Many of these raw data, for example, the standards, the exact material consumption, etc. the farmer does not have.

However, if this model is supplied as a framework technology and the entrepreneur is willing to fill in the predefined cells, they can get valuable information about their business that will ensure a long-term, predictable livelihood.

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