

CLIMATE CHANGES AND THE NEED TO SUBSIDIZE THE ACTIVITY OF SMALL-SCALE VEGETABLE FARMS IN ROMANIA

Paula STOICEA, Elena STOIAN, Elena TOMA, Carina Andreea DOBRE,
Marius Mihai MICU, Nicoleta NICOLAE

University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd,
District 1, Bucharest, Romania, E-mails: stoicea.paula@gmail.com, stoian_ie@yahoo.com,
elenatoma2001@yahoo.com, dobrecarina@yahoo.com, micumariusmihai@yahoo.com

Corresponding author: dobrecarina@yahoo.com

Abstract

The paper emphasizes the importance of subsidizing agricultural activities, taking into account the climate changes that are more and more evident making agricultural holdings particularly vulnerable from an economic point of view, the most exposed being the small ones. The technical-economic the economic-financial analysis methods drew a technical-economic diagnosis of a small-scale vegetable farm in Romania, in order to highlight the major impact that subsidies have in achieving incomes that ensure the continuity of the activity. The vegetable farm under study was established in 2018, being included in the category of micro-enterprises paying income tax. It owns agricultural land exclusively on lease, the existing crops being those of wheat, corn, alfalfa, bell peppers and melons, with average productions/ha achieved similar to or below the average productions/ha recorded at national, regional and county level. From an economic and financial point of view, this holding presents a financial instability during the analysis period, based on the losses recorded in 2018 and 2020 and a non-compliant financial autonomy based on insufficient equity capital. It does not have the ability to generate constant profit during the period included in the study by capitalizing on production, it being small and insufficient, which denotes the major dependence on the income from exploitation subsidies in order to be profitable. Liquidity indicators evolve fluctuating and solvency is generally downward and positioned above the safety threshold, which places small-scale vegetable farms at risk of insolvency.

Key words: small-scale vegetable farm, gross product, subsidies, revenues, expenses, performance, profitability, financial balance, solvency, liquidation of the activity

INTRODUCTION

As a form of financial support, subsidizing in agriculture aims to promote economic and social policy in Romania [1]. Subsidies are sums collected from the state budget, on a non-refundable basis, to support the current activity of agricultural holdings and are considered, from an accounting point of view, income in advance. Entities in agriculture can benefit from certain forms of financial support, regulated by various normative acts [3]. From the point of view of the legal basis, we highlight in this paper the direct payment schemes and the transitional national aids, which are applicable in agriculture. We mention in the structure of direct payment schemes, the single payment scheme per area, the redistributive payment, the payment for agricultural practices beneficial for the climate and the environment, the payment for

young farmers, the coupled support scheme, the simplified scheme for small farmers, but also the eco-schemes, among which we recall the ecoschema applicable in arable land [4]. We define the farmer as a natural or legal person or an associative form of natural or legal persons, regardless of its legal status, whose holding is located on the territory of Romania and which carries out an agricultural activity [12, 11]. By referring to the agricultural activity, we mean the production, growing or cultivation of agricultural products, including harvesting, milking, reproduction of animals and their holding for agricultural purposes, but also the maintenance of an agricultural area in a condition that makes it suitable for grazing or cultivation, without no preparatory action that goes beyond the usual agricultural methods and equipment.

In order to benefit from subsidies, farmers must be considered active farmers and must meet certain conditions. Verifiable evidence regarding the fulfillment of some of the conditions provided for in the legislative regulations regarding the granting of subsidies, must be included in the annual financial statements, respectively the annual accounting reports, accompanied by the "Informative data" form, drawn up according to the provisions of the accounting law [15]. Also, the farmer has the obligation to record in his own accounting, according to the legal provisions, the data from the internal accounting documents that he submits to APIA [8].

Through the diagnostic analysis carried out in the paper, we aimed to describe the functioning and evolution trends of the activity of a small-scale vegetable farm, taking into account the dynamic environment in which it operates as well as the major influence of climate change. In the category of climate changes, with a direct effect on the agricultural activity in vegetable farms, we mention the lack of precipitation that leads to a pedological drought and that led to the compromise of crops in previous years. Thus, the structure ratios of the asset and the liability were analyzed, which measure the relative importance of the elements of the nature of assets, capitals and liabilities in the total of the two structures of the balance sheet, appreciating the investment, exploitation and financing activity of this agricultural company but also the policy adopted by it in the financial sphere, by highlighting some aspects regarding financial stability, financial autonomy, as well as the degree of indebtedness [14].

The analysis of the financial performance of the small-scale vegetable farm in the period 2018-2021 and the evaluation of its capacity to generate profit was also made, highlighting the income structure, generated by resource-producing transactions and the structure of expenses, related to resource-consuming transactions. The profitability analysis highlighted the degree in which the capital, in its entirety, generates profit and maintains a financial balance, that is, the small-scale

vegetable farm has the ability to carry out from the cash receipts the uninterrupted repayment of previously contracted debts, including the term ones briefly related to exploitation or fiscal legislation, in order to avoid the risk of bankruptcy and survival on the market [5].

MATERIALS AND METHODS

The small vegetable farm, established in 2018, whose main activity is the cultivation of cereals and oleaginous plants on a land area of 56 ha in 2022, is located in Romania, Ialomița county, Tândărei, in an agricultural area that offers a high pedological potential (soil type: chernozioms, cambic, reddish-brown, alluvial, saline-solonceacs and solonets) and a climate suitable for agriculture (temperate-continental climate, with relatively annual and diurnal thermal amplitude) high - average annual felt temperature, 10.4 °C - very hot, periodically dry summers - low annual amount of precipitation, about 450 mm annually - cold winters, frequently marked by strong blizzards) [10].

From an accounting point of view, this company is included in the category of micro-entities, being a limited liability company paying income tax, with a sole partner and no employees. In the paper, a series of technical-economic and economic-financial indicators were calculated and interpreted, based on the annual financial statements of this farm.

RESULTS AND DISCUSSIONS

In 2022, the small-scale plant farm has in operation a total area of 56 ha of agricultural land, exclusively leased, with lease contracts concluded for a period of 10 years. For the owned land areas, they benefit from different forms of subsidies, some as in the form of the package for green crops but also the package intended to protect the red-necked goose. In 2019, these subsidies had a total value of 95,621.8 lei, registering a decrease by 15.94% (80,377.7 lei) in 2020 compared to 2019 and an increase of 145.05% (196,968 lei) in the year 2021 compared to the year 2020. In order to preserve the soil structure and obtain large

productions with optimal quality, the small-scale vegetable farm has a rotation that takes into account a rotation that preserves the organic matter in the soil, being considered the optimal solution for this.

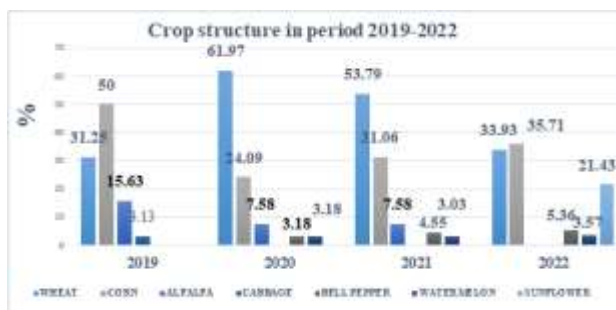


Fig. 1. Crop structure 2019-2022 (%)
 Source: The farm records of the small scale vegetable farm.

Within this holding we find that, the crops included for achieving an environment-friendly rotation are: wheat, corn, alfalfa in the years 2019, 2020 and 2021, to which are added the bell pepper and watermelon crops in the years 2020, 2021 and 2022 as well as the sunflower crop from the year 2022. Regarding the wheat crop, we notice an oscillation of the cultivated areas during the analysis period, as follows: in 2019 wheat is found on an area of 10 ha and increases significantly in 2020 by 30.72%, followed by a decrease in cultivated areas in 2021 and 2022, by 8.18% and 28.04%, respectively. Regarding the corn crop, we note an oscillation of cultivated areas as follows: in 2020 compared to 2019, a decrease of 3.13% was observed, followed by an increase of 32.26% in 2021 compared to 2020, but in the year 2022 the area cultivated with corn decreased by 2.44%.

The alfalfa crop, being a perennial plant, remains on a constant surface in the years 2019-2021, respectively on a surface of 5 ha. Regarding the bell pepper culture, we notice an increase in cultivated areas, as follows: in 2021 compared to 2020, the area increases by 50%, remaining unchanged in 2022. Cabbage was cultivated only in 2019 on an area of 1 Ha, representing 3.13% of the total area. The watermelon culture remains constant on an area of 2 ha, in the years 2019, 2020 and 2021. The small-scale vegetable farm introduced

crop irrigation on an area of 32 ha from the year 2022, of which: 20 ha for the corn crop and 12 ha for the sunflower crop.



Fig. 2. Income from subsidies (Lei).
 Source: [9].

Considering the favorability of natural conditions, climatic, edaphic and technological factors, the inputs used and how they are applied (seed, fertilizers and plant protection products) as well as the introduction of crop irrigation from 2022, the average productions per hectare achieved of small-scale vegetable farming are also favorable (Figs. 3, 4, 5, 6).

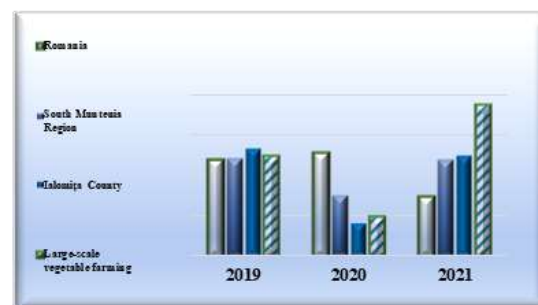


Fig. 3. Average production/ha in the wheat crop comparative situation by year and at Ialomita county, South Muntenia region and country level (kg/ha)
 Source: The farm records of the small scale vegetable farm.

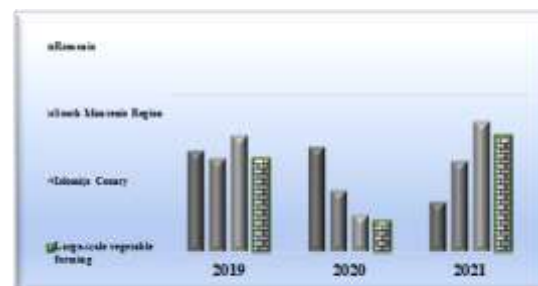


Fig. 4. Average production/ha in the corn crop comparative situation by year and at Ialomita county, South Muntenia region and country level (kg/ha)
 Source: The farm records of the small scale vegetable farm.

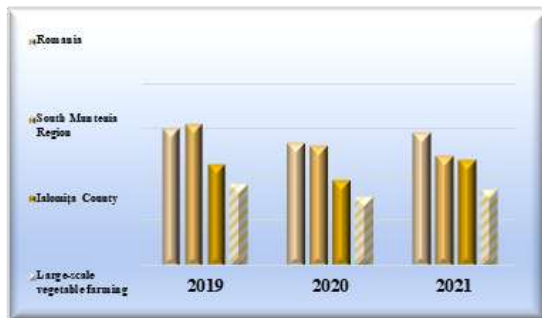


Fig. 5. Average production/ha alphaalpha comparative situation by year and at Ialomita county, South region and country level (kg/ha)

Source: The farm records of the small scale vegetable farm.

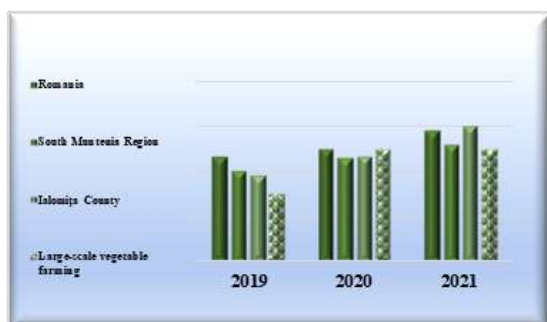


Fig. 6. Average production/ha watermelon comparative situation by year and at Ialomita county, South Muntenia region and country level (kg/ha)

Source: The farm records of the small scale vegetable farm.

Regarding the **wheat crop**, the average production per ha achieved by the small-scale vegetable farm was as follows: in 2019 it recorded increases of 5.29% compared to the productions recorded at national level and 2.94% compared to of the average productions recorded at the regional level, but compared to the average wheat production recorded at the level of Ialomita county, this being 5.89% lower. The year 2020 was a poor agricultural year for the wheat crop with an average production/ha that did not exceed the national level (lower by 60.91%) nor the regional level (lower by 32.57%). But the small agricultural holding exceeded the average wheat production recorded in Ialomita county, by 23%, but the production was small (2,000 kg/ha), an aspect that determined the small vegetable agricultural holding to reduce the areas cultivated with wheat in the years next and to reorient towards more drought-resistant crops, as well as the introduction of crop irrigation from the

year 2022, to maize and sunflower crops [7]. The year 2021 was a beneficial year for the wheat crop, a year in which the small-scale vegetable farm exceeded the average production/ha of this crop by 57.55% compared to the national level, by 56.35% compared to the level recorded in South-Muntenia region and by 50.51% compared to the county level.

Regarding the **corn crop**, we note the following situation: in 2019, the average production achieved by the small-scale vegetable farm was lower than that recorded at the national level, by 7.28%, but at the same level as the average production/ha registered at the regional level, and 19.38% lower than the one registered at the level of Ialomita County. The 2020 agricultural year was a poor agricultural year for the corn crop, the agricultural holding being below the average production per hectare in Romania (by 71.14% lower), in the South-Muntenia Region (by 49.71% lower), and county (15.86%), the agricultural society taking the decision to introduce irrigation to this crop, an objective achieved for the agricultural year 2021-2022. But the average corn production/ha achieved in the following year, which exceeded the national average by 131.48% and the regional one with 29.27%, but it was below the average production per hectare at the county level by 10.65%.

In the alfalfa crop, we notice an oscillation of the average production per hectare achieved, which was every year below the average production recorded at national level (in 2019 by 40.27% lower, in 2020 by 44.44% more low and in 2021 by 42.85% lower), at the regional level (in 2019 by 42.03% lower, in 2020 by 43.09% lower and in 2021 by 30.89% lower) as well as compared to the level of Ialomita County (in 2019 19.72% lower, in 2020 21.42% lower and in 2021 27.47% lower).

In the **watermelon crop**, in 2019 we note a decrease in the average production/ha achieved by small-scale vegetable farms compared to the national average (-35.80%), the regional average (-25.37%) and the Ialomita County average (-22.30%). In 2020, the average production/ha followed the same

trend as the average productions recorded below the national level (-0.25%), above the regional level (+8.40%) and the county level (+6.86%). In the year 2021, there is a decrease in the average production of melons, compared to the national average (-14.45%), the regional average (-3.53%) and the Ialomița county average (-16.88%).

Regarding the capitalization prices of agricultural products, the upward evolution from one year to the next can be noted.

The most spectacular growth was highlighted in wheat (an increase of 101.22% in 2022 compared to the previous year) and corn (an increase of 58.33% in 2022 compared to the previous year). Analyzing the gross product made by the small vegetable

farm for each hectare cultivated with wheat, it is found that, in 2020, the most unfavorable economic situation for this crop is recorded, with a gross product located at a level of 56.54% compared to than the one recorded in 2019 and at 64.87% compared to the gross product of 2021. Production expenses per hectare registered an oscillating trend during the analysis period, with a decrease of 22.67% in 2020 compared to 2019 and an increase of 35.08% in the year 2021 compared to the year 2020. The total expenditure on the wheat crop evolved upward, taking into account that the area cultivated with wheat fluctuated during the analysis period, by 213.19% in the year 2020 compared to year 2019 and by 18.4% in 2021 compared to 2020 (Fig. 7).

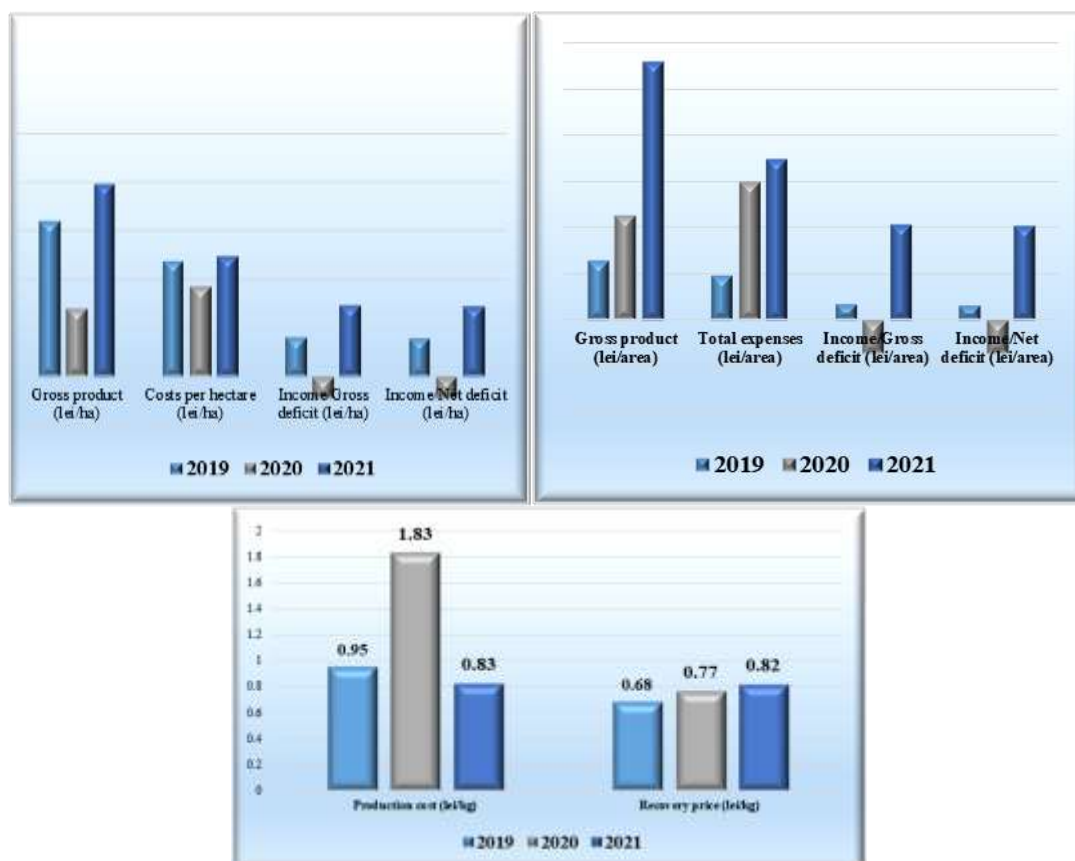


Fig. 7. Economic indicators per ha, per total area and production cost and recovery cost evolution for wheat 2019-2021

Source: Results obtained from data processing from Interview Guide addressed to small scale vegetable farming.

Considering the small productions in 2020, the small-scale vegetable farm recorded a wheat crop deficit, which could not be compensated even by the subsidies received. The best year for the wheat crop in terms of income was 2021, with a net income that

exceeded by 543.7% the net income in 2019. The cost of production, influenced both by the total expenses incurred to the wheat crop as well as the productions achieved, it increased in 2020 compared to 2019 and 2021, against the background of quantitatively small

productions, respectively 1.83 lei compared to 0.95 lei in 2019 and 0.83 lei in 2021, prolific agricultural years, in which the small-scale vegetable farm obtained quantitatively significant productions, which led to a decrease in the production cost of wheat. As for the wheat capitalization price, it is mainly influenced by the market, the quality of the product and the negotiation with customers that the small-scale vegetable farm has achieved. It is noted that, except for the year 2021 when the wheat capitalization price was approximately equal to the production cost, in 2019 and 2020 the agricultural company capitalized wheat production at prices lower than the expenses incurred, respectively by 0.27 lei in year 2019 and by 1.06 lei in 2020. It is necessary to underline the fact that in the respective years, 2019 and 2020, this deficit of expenses for the wheat crop was partially

covered by the operating subsidies received by the vegetable farm analyzed, but the economic results were not positive.

Regarding the gross product made on each hectare cultivated with corn, it is found that in 2020, the most unfavorable economic situation is recorded with a gross product located at a level of 59.80% compared to that recorded in 2019 and at 70.96% compared to the gross product of 2022. Production expenses per hectare registered an oscillating trend during the analysis period, with a decrease of 21.72% in 2020 compared to 2019 and an increase of 67.81% in year 2021 compared to year 2020.

The total expenses for the corn crop had an oscillating evolution during the analyzed period, noting a decrease of 24.16% in 2020 compared to 2019 and an increase of 121.95% in 2021 compared to 2020 (Fig. 8).

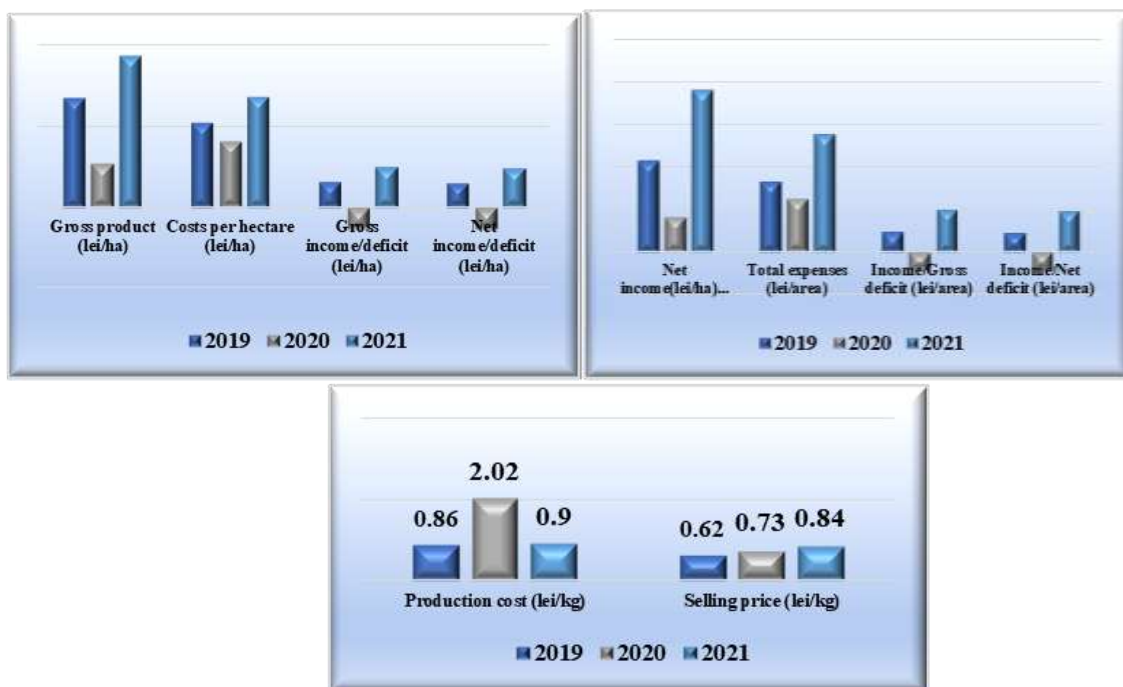


Fig. 8. Economic indicators per ha, per total area and production cost and recovery cost evolution for corn 2019-2021

Source: Results obtained from data processing from Interview Guide addressed to small scale vegetable farming

Considering the small productions in 2020, the small-scale vegetable farm recorded a deficit in the corn crop, a deficit that could not be compensated by the subsidies received. The best year for the corn crop in terms of income was 2021, with a net income that exceeded by 25% the net income in 2019.

Regarding the cost of production, there is an increase in the year 2020 compared to the years 2019 and 2021 for corn, against the background of quantitatively small productions, respectively 2.02 lei compared to 0.86 lei in 2019 and 0.9 lei in 2021, favorable agricultural years in which the agricultural

holding of small dimensions obtained quantitatively significant productions. With regard to the corn capitalization price, it is noted that, in 2019, 2020 and 2021, the agricultural company capitalized the corn production at prices lower than the expenses incurred, i.e. 0.24 lei lower than the production cost in 2019, 1.29 lei in 2020 and 0.06 lei in 2021. It is necessary to emphasize also for this crop, in the respective years, this deficit in corn expenditure was covered by the

operating subsidies received by the vegetable farm analyzed, but in 2020 losses were recorded for this crop.

Regarding the gross product achieved per hectare cultivated with alfalfa, it is noted that the most unfavorable situation is recorded in 2020, with a gross product located at a level of 43.42% compared to that recorded in 2019 and at 47.20% compared to the gross product of 2022 (Fig. 9).

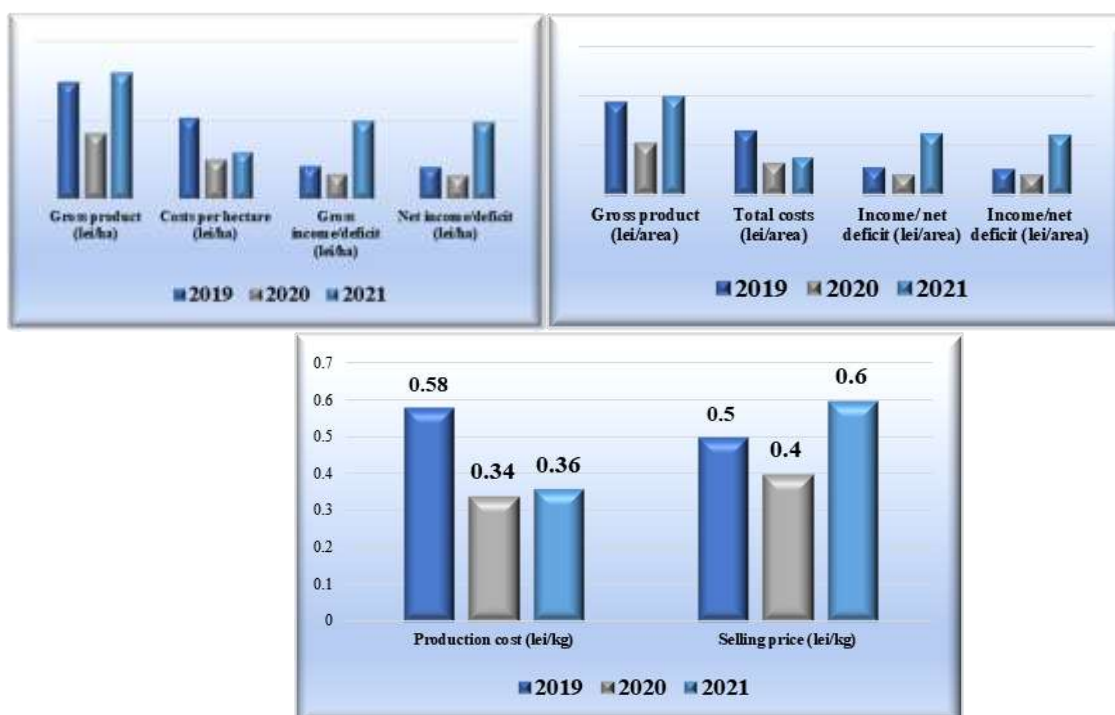


Fig. 9. Economic indicators per ha, per total area and production cost and recovery cost evolution for alfalfa 2019-2021

Source: Results obtained from data processing from Interview Guide addressed to small scale vegetable farming.

Production expenses per hectare registered an oscillating trend during the analysis period, with a decrease of 51.16% in 2020 compared to 2019 and an increase of 18.27% in 2021 compared to 2020. Total expenses on culture of alfalfa also had an oscillating evolution, taking into account that the area cultivated with alfalfa was constant. Considering the small productions in 2020, the small-scale vegetable farm recorded a deficit in the alfalfa crop that could not be compensated even by the subsidies received. The best year for the alfalfa crop in terms of income was 2021, with a net income that exceeded by 199.39% the net income achieved in 2019. The production cost of alfalfa had the highest

value in 2019, i.e. 0.58 lei compared to 0.34 lei in 2020 and 0.36 lei in 2022, good agricultural years in which the small-scale vegetable farm obtained quantitatively significant productions. Regarding the alfalfa recovery price, it is noted that, in 2020 and 2021, the lucerne recovery price exceeded the production cost by 0.06 lei/kg and 0.24 lei/kg, respectively. In 2019, the agricultural company capitalized on alfalfa production at a lower price than the expenses incurred, i.e. 0.08 lei/kg less (Fig. 9).

Regarding the gross product made on each hectare cultivated with bell peppers, it is noted that in 2020 an unfavorable economic situation is recorded with a gross product

located at a level of 127.78% compared to that recorded in 2021. Production expenses per hectare registered an upward trend during the analysis period, experiencing an increase of 0.57% in 2021 compared to 2020. The total expenditure on donut culture followed the same trend, with an increase of 50.85% in 2021 compared to 2020.

Considering the fact that the production was small in 2020, the small vegetable farm recorded a deficit in the culture of bell peppers, a deficit that could not be compensated by the subsidies received. The

production cost of the bell pepper crop decreased in 2021 compared to 2020, against the background of quantitatively large productions, and was 1.8 lei compared to 4.79 lei in 2020. Regarding the capitalization price at bell paper, it was mainly influenced by the market and was lower than the production cost by 2 lei/kg, in 2020 and 1.7 lei/kg in 2021, which shows that the agricultural society did not cover the expenses incurred on the donut culture from the revenues achieved through capitalization (Fig. 10).

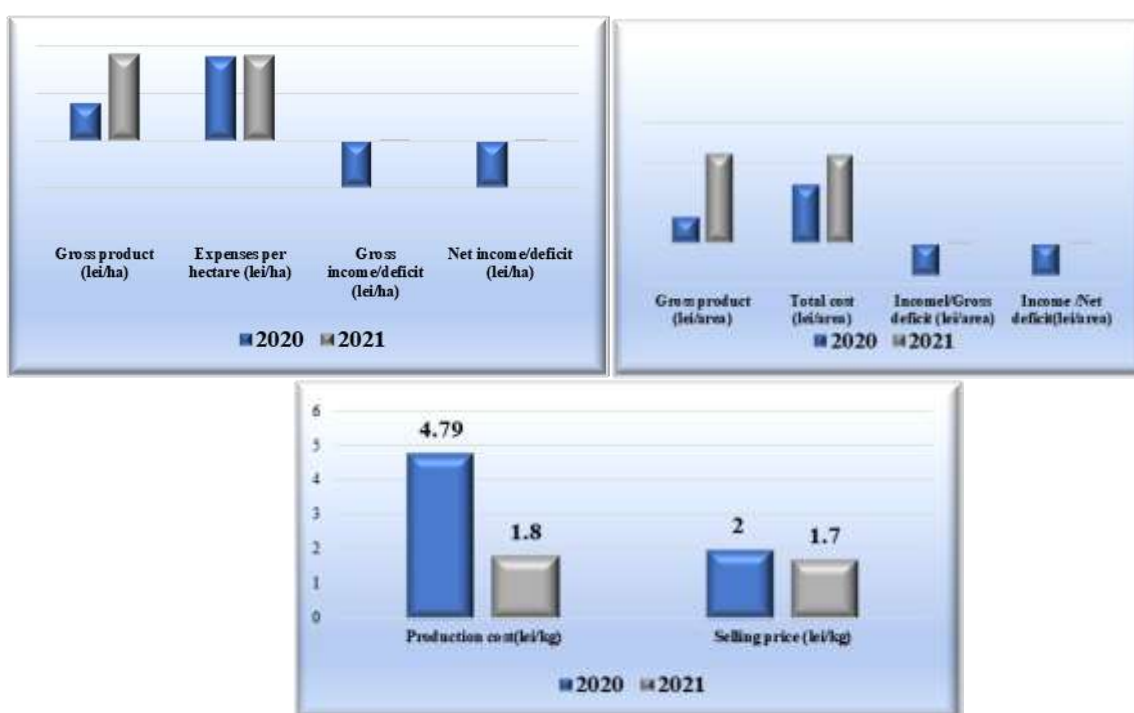


Fig. 10. Economic indicators per ha, per total area and production cost and recovery cost evolution for bell pepper 2020-2021

Source: Results obtained from data processing from Interview Guide addressed to small scale vegetable farming.

Regarding the gross product made on each hectare cultivated with watermelon, it is noted that in 2021 there is an unfavorable economic situation for this crop with a gross product located at a level of 8.61% compared to the one recorded in 2020.

Production expenses registered an upward trend during the analysis period, registering an increase of 2.88% in the year 2021 compared to the year 2020.

Considering the small productions in 2020 and 2021, the small-scale vegetable farm recorded a deficit in the melon crop, a deficit that it could not compensate from the

subsidies received. The production cost of the watermelon crop decreased in 2021 compared to 2020, against the background of quantitatively small productions, i.e. 1.47 lei compared to 2.4 lei in 2020. As for the recovery price of watermelons, notes the fact that it was significantly lower than the cost of production by 0.5 lei/kg in 2020 and 0.2 lei/kg in 2021.

The agricultural company capitalized on watermelon production at prices lower than the expenses incurred, thanks to to an existing surplus at the county, regional and national level, the phenomenon of oversaturation of

the market intervened, and demand and prices decreased (Fig. 11).

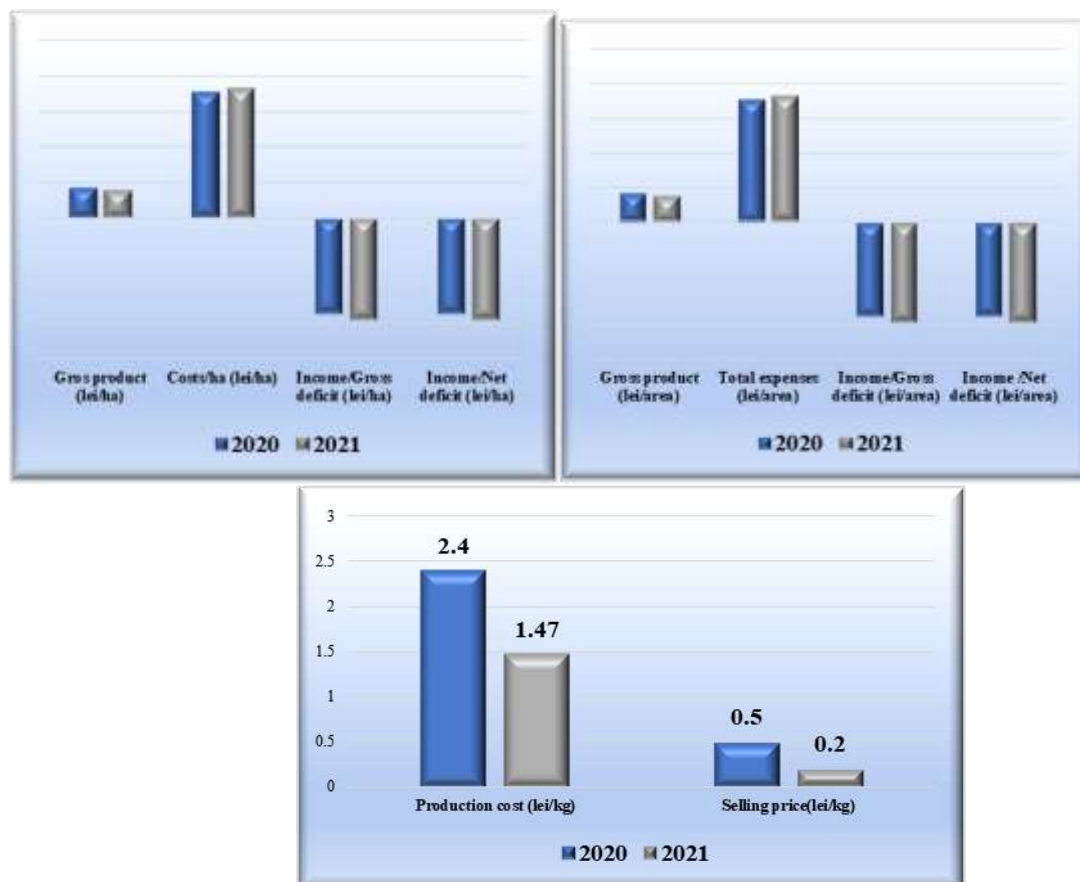


Fig. 11. Economic indicators per ha, per total area and production cost and recovery cost evolution for watermelon 2020-2021

Source: Results obtained from data processing from Interview Guide addressed to small scale vegetable farming.

The patrimony situation of the existing small-scale vegetable agricultural holding as a result of the economic carried out activity, was analyzed based on the accounting balance sheet, as the main monitoring and evaluation tool.

In the framework of the small-scale vegetable farming operation, we note that the *rate of fixed assets* had a large share in the total assets in 2018, the year of establishment, respectively 68.15%, the year in which the agricultural company laid the foundations of the technical equipment necessary for long-term development of the activity. A large share of these fixed assets (55.59%) is also noted in 2020, an agricultural year in which the value of current assets decreased compared to the previous year and in which financial losses were recorded. The years 2019 and 2021 registered an increase in the share of current assets in total assets, the rate

of current assets being 53.50% (year 2019) and 58.96% (year 2021) against the background of the increase in its constituent elements: stocks, receivables and availability money and an efficient economic activity.

Regarding current assets, their analytical ratios are operational for the decision process. The inventory ratio has oscillating values from one year to another. In 2019, we note the share of 34.56% of stocks in total current assets, and in 2021 of 34.70%, which means that an increase in the volume of activity generates a justified increase in stocks and vice versa (in the years 2018 and 2020 register weights of 16.52% and 27.31%, respectively, of stocks held in total current assets).

Also, **the interpretation of the inventory ratio** during the analysis period is correlated with the level of activity: the increase in turnover must be higher than the increase in

the value of the inventory, and the slowing down of inventory turnover or the formation of non-moving or slow-moving inventory has a negative connotation on the activity the small-scale vegetable farm, in view of the difficulties of transforming them into liquidities, with negative consequences on solvency [13].

The rate of trade receivables is dependent on the nature of the relationships of the small-scale vegetable farm with the external downstream partners as well as the payment terms they grant to them. We note that in 2018, this rate had the highest weight of 82.46% in total current assets, decreasing in 2019 to 55.99%, a decrease that is based on better relations with its customers, and the establishment a balance in commercial relations with third parties. The year 2020 brought an increase in this rate against the background of the significant decrease in the stocks held but also in the existing cash availability. It is noted that, in 2021, the reduction of the receivables rate is possible on the basis of their collection at maturity as well as on the basis of the increase in the weight of the stocks held.

The rate of cash availability reflects their share in the total current assets owned by the small-scale vegetable farm. The high value of cash availability in 2021 reflects a favorable situation in terms of financial balance. But cash availability can have wide variations in very short intervals: receipts can increase greatly due to large subsidy receipts or trade receivables, or they can decrease as a result of very concentrated payments, especially during periods of crop establishment and during the application of the technology.

To analyze **the efficiency of the use of the current assets** owned by the small-scale vegetable farm, it is determined how they rotate every year to achieve the turnover. Thus, regarding the way in which current assets contribute to the turnover, we find that in 2018 they rotate slowly, respectively 0.13 times or every 2804.12 days and in 2020 by 1.01 times, respectively at 356.80 days. Analyzing the number of rotations of the components of the current assets in the

turnover, the highest number of rotations has the cash availability, respectively 12.70 circuits in 2020, respectively 28.35 days and in 2018, 12.58 circuits, respectively 28.61 days. In 2020, stocks recorded the highest number of rotations in turnover, respectively 3.69 circuits, representing 97.45 days, and in 2021, receivables recorded a maximum number of 4.59 circuits, respectively 78, 49 days.

The equity or financial resources attracted from the owners (the sole partner for the small-scale vegetable farming operation) as well as those constituted by the profits obtained from a profitable activity, represent the residual right or interest of the owner of the patrimony over the assets of the company, after deducting all debts this one.

The equity formed at the beginning of the agricultural company's activity can change, by increasing or decreasing, an aspect that we will analyze further. In the case of the sources of financing of the small-scale vegetable agricultural exploitation, the structural ratios of the balance sheet liability are of particular importance, importance given by the evolution over time of own financing, both of the nominal ones (share capital) and of the non-nominal ones (accumulated capital as a result of profitable economic activity as well as foreign financing).

The financial stability rate reflects the link between the permanent financial resources available to the vegetable farm and the total resources. The percentage of 60% is considered optimal for this indicator. In the case of the small vegetable farm, we note that, in the first year of operation, i.e. 2018, it has poor financial stability, due to negative equity, against the background of the recorded loss, this indicator being far below the level considered optimal. But, starting from 2019, the value of this indicator starts to increase, the year with the best quote being 2021, the year with a share of permanent capital in total liabilities of 41.92%. In order to maintain an optimal level of financial stability, it is necessary to increase the volume of permanent capital, especially by increasing the own capital held, by the small-scale vegetable farm.

The financial autonomy rate expresses the degree of financing of the asset elements based on own resources, or in other words, the indicator indicates what percentage of the financing sources belong to the owner. It is appreciated that a large share of the own sources held in the total funding sources highlights a high financial autonomy. We will assess the financial autonomy of the small vegetable farm based on the following indicators: overall financial autonomy and term financial autonomy.

The global financial autonomy reflects the weight of own sources of financing in the total sources of financing, being useful in the situation where the small-scale vegetable farm will request a bank loan, the information provided being related to its financial independence. We find that, during the analysis period, the indicator has values below 30%, which suggests that the small-scale vegetable farm does not present sufficient guarantees to obtain financing through bank

lending. The loss from the financial years 2018 and 2020 significantly reduced the equity capital and its coverage from the profit of the following years, led to the recording of non-compliant values for this indicator, which convey to the management information for an immediate increase in the equity capital.

Thus, the increase in the share of equity capital in the balance sheet liability would have beneficial effects on total financial autonomy, namely higher equity capital, leading to better overall financial autonomy.

The global indebtedness rate

Term financial autonomy reflects the extent to which long-term debts participate in the formation of permanent resources. Its evolution within the small-scale vegetable farm is oscillating and justified by the decrease in equity against the background of the losses recorded in the 2018 and 2020 financial years, but also by the increase in medium and long-term debts.

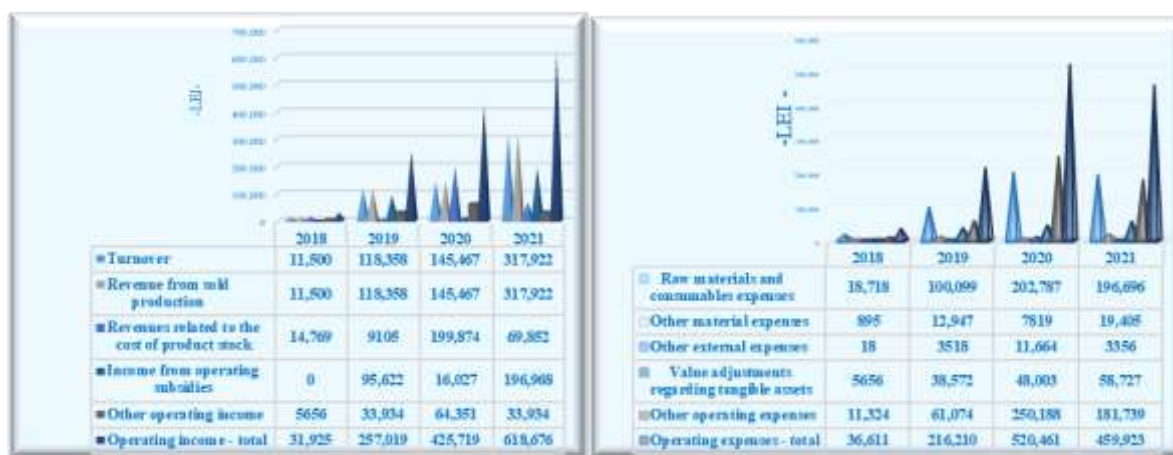


Fig. 12. Income and expenses structure 2019-2021

Source:

Balance sheet and profit and loss account of the small scale vegetable farming.

Referring to the general principle of the indicator, i.e. the one in which the situation is favorable, for small-scale vegetable farming this indicator must show a permanent growth trend, a situation that the agricultural company can achieve by increasing its own capital and reducing debts in the long term, situation highlighted in 2021 within the analysis period. The global indebtedness rate expresses the level of debts of the vegetable farm in relation to the total sources of

financing. The maximum allowed value of this indicator is 66%, and a value of 50% has safety connotations. The global indebtedness rate recorded rising values during the analysis period, due to the faster increase in the volume of total debts compared to that of total liabilities. In 2020, the indicator is approaching the maximum allowed level so that, in 2021, it will be close to the 50% threshold, a threshold considered safe. We believe that measures are required to reduce

the long-term debts that will be incurred, by renegotiating with suppliers for lighter payment terms, without affecting their management.

In the structure of the revenues achieved by the small-scale vegetable agricultural exploitation, we note the composition of the turnover, formed, in its entirety, from the revenues from the sold production, representing 34.16% of the total revenues in 2020 and 51.38% in 2021. Along with the turnover, we note the existence of revenues related to the costs of product stocks with a weight of 46.94% in 2020 and 3.54% in 2019 in the total revenues achieved.

We note the contribution of income from subsidies to the formation of total income, with weights of 37.59% in 2019 and 31.83% in 2021.

As for expenses, the preponderance of expenses with consumable materials, which refer to seed and planting material, is noteworthy, fertilizers and plant protection products, fuels, as follows: 51.12% in 2018, 46.30% in 2019, 38.96% in 2020 and 42.76% in 2021 from the total annual operating expenses. An important contribution to the formation of operating expenses is also made by value adjustments regarding tangible assets, with weights of 15.44% (2018), 17.84% (2019), 9.22% (2020) and 12.76% (2021).

In order to validate the quality of managing the activity within the small agricultural holding, **the rate of commercial profitability** was determined, which highlighted that in 2018 (-48.92%) and 2020 (-52.68%), the commercial activity was unprofitable, an imposed situation of recording losses. The years 2019 and 2021 the positive values of the rate of commercial return mean a commercial return and an increase in the market image of small-scale vegetable farming (in 2019, 43.78% and 52.34% in 2021).

The rate of economic profitability reflects the ratio between the surplus or the gross deficit from exploitation and the economic means employed to obtain it, bringing advantages in the analysis, because it is independent of the financial structure of the small-scale vegetable agricultural exploitation, the fiscal policy of the state through which the income is taxed

such as and the policy regarding the depreciation of fixed assets. At the level of small-scale agricultural exploitation, this rate has negative values, in 2018 (-1.67%), with connotations of unprofitability of the use of the total assets held, and in the following period, namely the financial years 2019-2021, **the profitability of the use of economic assets** held in order to obtain the gross surplus from exploitation increases: 16.30% (in 2019), 28.46% (in 2020) and 65.36% (in 2021).

The financial profitability rate expresses the efficiency of the sole partner's capital investments and how to maintain them, taking into account the net result of the financial exercise and the owned equity. Through this rate, we assess the position of the small-scale vegetable farm on the market, as follows: the activity in the years 2018 and 2020 is unprofitable from a financial point of view, with recorded losses and negative equity (in 2018), but we note a recovery in the years 2019 and 2021, period in which the value of the financial return was 111.70% (year 2019) and 118.83% (year 2021) against the background of the increase of both the net profit and the owned equity.

We appreciate that by increasing the remuneration of invested capital, accessibility to new financial resources is facilitated, thanks to the confidence of the sole associate to reinvest, but also through the existence of the possibility of attracting other potential investors to the business, with implications for the future development of the agricultural society.

Highlighting **the consumption of resources** is done by recording them in the expense accounts, and to assess their efficiency, the balances of these accounts are reported to the results obtained.

In the framework of small-scale vegetable farming, **the rate of return on consumed resources or costs** - an indicator directly influenced by the financial result of the exploitation activity, with oscillating evolution during the analysis period - has negative values in 2018 (-14.96%) and 2020 (-14.72%), which denotes an unprofitable operation that could not compensate for the operating expenses, but also positive values in

the years 2019 (23.96%) and 2021 (36.18%), which denotes the profitability of the

operating expenses exploitation carried out (Fig. 13).



Fig. 13. Returns rate 2019-2021

Source: Own results based on the financial data of the small scale vegetable farming

In order to establish the financial position of the small vegetable farm, we analyzed the resources available to it, the activity carried out, the investments made as well as its patrimonial structure, and the following indicators will be presented below.

The net balance is the accountant's estimate of the value of the rights that the owner of the small-scale vegetable farm holds and reflects how the business has been managed. This indicator expresses in terms of value, the realizable asset at a given time, or in other words, the value of the assets owned by the company, as well as the amounts due to the sole shareholder in case of liquidation.

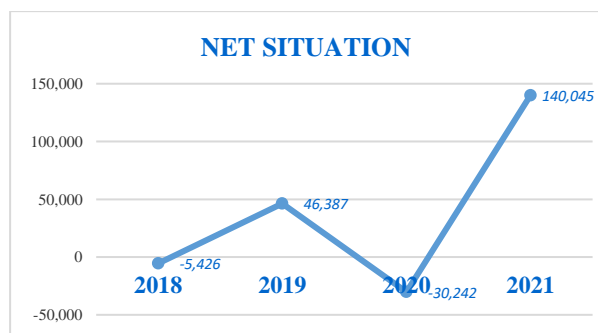


Fig. 14. Net situation

Source: Own results based on the financial data of the small scale vegetable farming.

In the case of this small vegetable farm, we note that, between the years 2018 and 2021, the net situation has the following evolution: it is positive in the years 2019 and 2021 and negative in the years 2018 and 2020, which

highlights an oscillation in the way how the business was managed, from an economic point of view. The year 2018, the year of the establishment of the agricultural enterprise and the year 2020, the financial year with negative financial results, highlight a faulty management, completed with the decrease of the wealth of the sole associate. The recovery of the net situation took place in 2021, the year in which the deviation becomes positive and significantly increases compared to the previous year, thus fulfilling the main objective of the management: increasing the wealth owned by the small-scale vegetable farm.

Working capital is an indicator of long-term financial balance that checks the financing of assets with a duration of more than one year from resources with a maturity of more than one year, or in other words the confrontation of permanent resources (equity and long-term liabilities) with permanent allocations (fixed assets).

Within the small-scale vegetable farm, the working capital, i.e. the part of the permanent capital remaining at the disposal of the agricultural company after the financing of fixed assets, is negative in the period 2018-2020, which indicates that the company failed to ensure an optimal financial balance (Fig. 15).

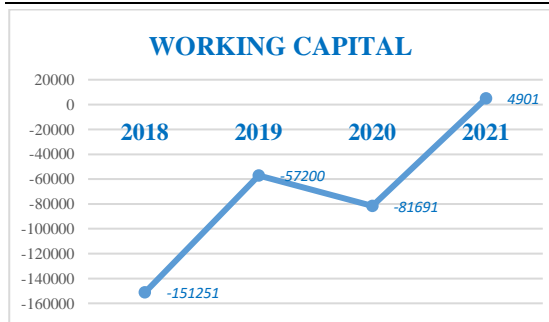


Fig. 15. Working capital

Source: Own results based on the financial data of the small scale vegetable farming.

In 2021, the working capital has a positive value, which denotes the fact that the financial sources attracted in the long term cover the investment needs of the company, releasing a surplus of resources that can be used to finance its other activities.

The working capital requirement characterizes the short-term financial balance and presents the situation of the short-term financial needs (allocations) of the small-scale vegetable farm compared to the short-term attracted resources.

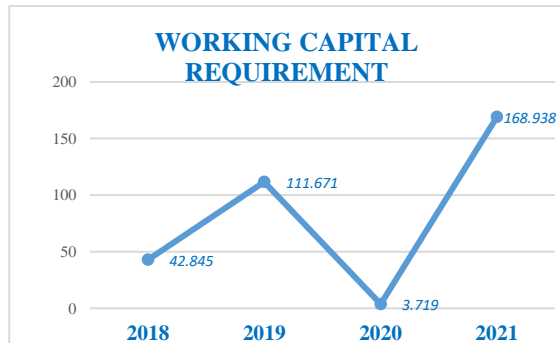


Fig. 16. Working capital requirement

Source: Own results based on the financial data of the small scale vegetable farming.

During the analysis period, namely the financial years 2018-2021, the working capital requirement of the small-scale vegetable farm shows positive values, higher in 2019 and 2021 and lower in 2020 and 2018, which means that the company has short-term additional allocations compared to resources drawn on the same term. Practically, the financing of short-term needs is carried out either on account of the working capital or on account of short-term credits. The deviation of the working capital requirement is negative in 2020 compared to 2019, a situation justified

by the unfavorable results of 2020, a year in which operating debts approach the level of operating needs (allocations) (Fig. 16).

Net treasury is the indicator that ensures the balance between the balance resources and uses, through which it is highlighted at the level of the small-scale vegetable farm whether the activity was balanced and efficient or not.

In the case of small-scale vegetable farming, the net treasury registered negative values throughout the analyzed period and highlights an unfavorable situation, which signifies a financial imbalance and brings indications of a dependence of the agricultural society on external financial resources (Fig. 17).

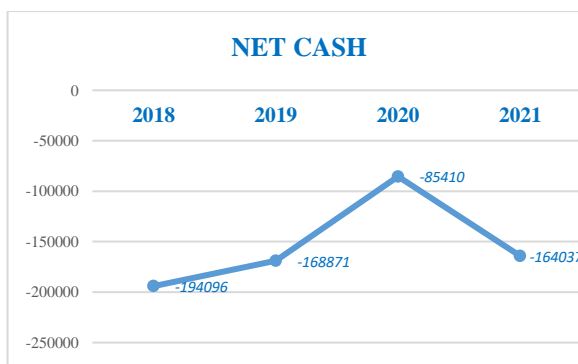


Fig. 17. Net cash

Source: Own results based on the financial data of the small scale vegetable farming.

Cash-flow or treasury flow ensures the health of the small-scale vegetable farm business and must be managed correctly, because without cash availability, it can become insolvent and even bankrupt. The cash-flow, differentiated by category (operational cash-flow, investment cash-flow and financing cash-flow) is determined as the difference between the existing cash inflows and outflows within the small vegetable farm during each financial year, from the analyzed period, is a very important indicator and refers to the monetary surplus or deficit released by its annual activity [2].

We find that in the years 2019 and 2020, cash-flow is positive, which indicates that liquidity inflows are higher than outflows, (receipts > payments) the situation characterized as favorable. In the year 2021, cash-flow is negative (receipts < payments), which

suggests that cash outflows exceed inflows and there is a cash deficit (Fig. 18).

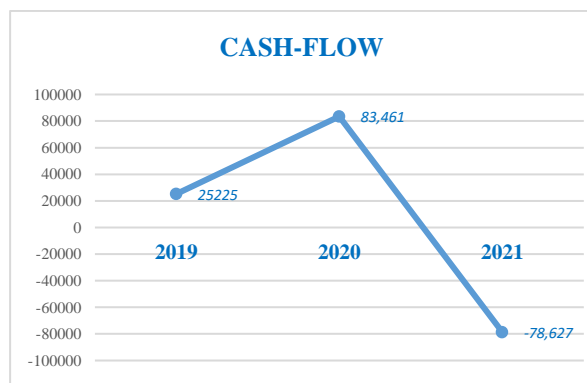


Fig. 18. Cash-flow

Source: Own results based on the financial data of the small scale vegetable farming.

The credit worthiness of the small-scale vegetable farm refers to its liquidity and solvency in the analyzed time frame, namely the financial years 2018-2021.

Liquidity refers to the ability of the small-scale vegetable farm to honor its short-term debts (current liabilities) on account of short-term assets (current assets). For details, the following indicators were determined: current or general liquidity, quick liquidity or the acid test and immediate or sight liquidity.

Current or general liquidity represented by the company's ability to honor its short-term obligations based on all short-term assets, respectively based on stocks, receivables and existing cash availability. We notice a downward evolution of the indicator during the period under analysis, the only year with optimal framing of the indicator being the year 2021 (optimal interval being considered between 1 and 2), but for the period 2018-2020, the value positioning above the upper limit of the optimal interval signifies a surplus of current assets of the nature of stocks, receivables and cash in relation to current liabilities. It is recommended to negotiate lighter payment intervals with suppliers, up to the limit of their acceptability and satisfaction, as they are beneficial for small-scale vegetable farming, taking into account that they are not interest-bearing. Quick liquidity, or the acid test, represents the ability of the company to honor its short-term obligations (current liabilities) based on short-term assets

(receivables and cash availability), excluding inventories.

We notice a downward evolution of the indicator during the period under analysis, but the value positioning at the level of the entire period is substantially above the upper limit of the optimal range (0.6-1), which means a surplus of current assets of the nature of receivables and availabilities in relation to current liabilities. It is recommended to expedite the collection of some customers, of course, without pressure on them, in order to obtain the cash availability more quickly and place or invest it.

Immediate or spot liquidity represents the ability of the company to honor its short-term obligations (current liabilities) based on short-term assets, excluding stocks and receivables, respectively on account of available assets held at that time. We notice an oscillating evolution of the indicator during the period under analysis, in the years 2018 and 2020 the indicator is positioned below the level of the optimal range (0.2 - 0.6), which means a shortage of cash availability and in the years 2019 and 2021 it is positioned in the range optimal reference and even outside the upper limit for the year 2021, which means a surplus of current assets of the nature of liquidity in relation to current liabilities.

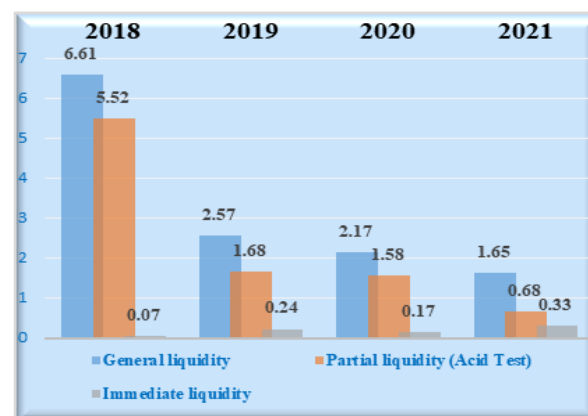


Fig. 19. Liquidity

Source: Own results based on the financial data of the small scale vegetable farming.

Solvency is the company's ability to meet its total liabilities against its total assets. We notice an oscillating evolution of the indicator during the period under analysis, but the value

positioning at the level of the entire interval is above the upper limit of the safety threshold of 1.66, which signifies a non-existent risk of insolvency/bankruptcy. A perpetuation of the company's debt management system is recommended, as it proves to be an effective one [6].

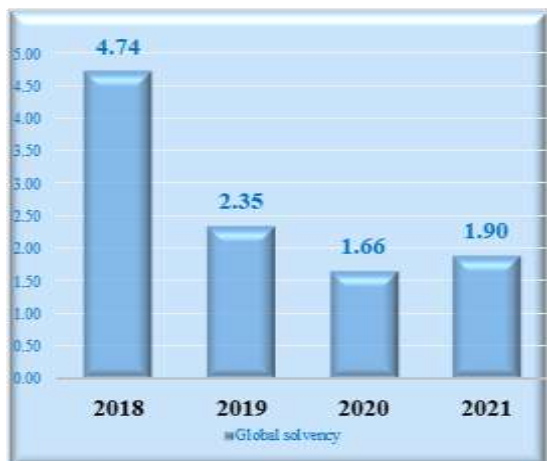


Fig. 20. Solvency

Source: Own results based on the financial data of the small scale vegetable farming.

CONCLUSIONS

It is becoming more and more evident that small-scale horticultural holdings are the most vulnerable to climate changes category of holdings. The support achieved through the macro-economic policy of subsidizing agriculture is essential for the survival of these activities. For the small-scale agricultural holding under study, it is recommended to improve the structure of the assets by increasing the percentage of directly productive assets, reducing stocks as well as restoring financial autonomy, financial stability and the level of indebtedness. Taking into account that the financial performance of the small-scale vegetable farming operation fluctuated during the period 2018-2021, not having the ability to generate constant profit during the period included in the study, it is recommended to include in the rotation of some crops resistant to the new agrometeorological conditions imposed by regional climate changes. The profitability of the exploitation activity is greatly influenced by the revenues from the exploitation subsidies received, the value of the revenues

from the agricultural production sold being small and insufficient, it is recommended to increase the value of these subsidies per hectare. Thus, 2018 and 2020, unprofitable years from an economic, financial point of view, with high committed expenses, had negative implications on commercial profitability and 2019 and 2021, were profitable years from an economic, financial and committed cost point of view, but we note the contribution of subsidies to profit generation. The small-scale vegetable farm has a fluctuating liquidity, but the solvency is generally downward, but it is positioned above the safety threshold limit, which places the small-scale vegetable farm at the shelter of insolvency.

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