

THE EVOLUTION OF THE TREE FRUIT SECTOR IN THE CONTEXT OF NATIONAL RURAL DEVELOPMENT PROGRAMME 2014-2020 SUPPORT AT THE LEVEL OF THE NORTH WEST REGION

Aurelia Ioana CHEREJI¹, Cristina Maria MAERESCU¹, Andra Nicoleta LAZĂR¹, Olimpia Smaranda MINTAŞ¹, Emanuel Alexandru GÎTEA¹

¹University of Oradea, Faculty of Environmental Protection, 26 Gen. Magheru St., 410048, Oradea, Bihor county, Romania

RESEARCH ARTICLE

Abstract

The fruit-growing sector in Romania has been deeply affected by the transition period and suffered a constant decline, while also the technological equipment related to it has been affected by the passage of time and the lack of investments. After the EU accession a series of investments started to be done. One of the latest one is the sub-measure 4.1 dedicated to the fruit growing sector. The paper analyses the 2014 – 2020 investments done through this sub-measure in the North-West region in order to see how the situation has improved and what are the expected changes in the future.

Keywords: (max. 5) fruit trees; sub-measure 4.1; NRDP; North-West Region

#Corresponding author: Aurelia.chereji@uoradea.ro

INTRODUCTION

In the last 32 years, the fruit-growing sector has suffered a constant decline, which has led to negative results in the development of rural areas in traditional fruit-growing areas. This, of course, had negative consequences for the environment. At the level of fruit farms, the technological equipment is physically and morally worn out, an aspect that reflects negatively on the productivity, profitability, competitiveness of these farms and on the environment and climate (NRDP (PNDR) 2014 – 2020, 2022a, p. 278).

In order to ensure the need for planting material, adapted to the pedo-climatic conditions in Romania, it is necessary to increase the area occupied by the fruit nurseries (Vladu et al, 2019). The Fruit-Growing Trees Subprogram of the NRDP (PNDR) 2014-2020 made available to fruit growers non-reimbursable funds for the reconversion and establishment of new fruit plantations (Dana et al, 2021 & Ciobanu, 2021)).

Under the National Rural Development Project 2014-2020, regarding the revitalization of fruit plantations in Romania, the Ministry of Agriculture and Rural Development launched sub-measure 4.1.a. (Mihai et al, 2018).

In Romania, in this rather long period of transition, there are still many fruit tree orchards with old (classical) varieties which do

not fully meet today's market and consumer's criteria (Miter et al, 2009).

According to NRDP (PNDR) 2014-2020, the territory that is the object of the thematic sub-programme for the fruit-growing sector, related to sub-measure 4.1.a Investments in fruit-growing holdings, covers a number of 1,341 localities that have a total fruit-growing area of 158,632.57 ha, representing approximately 1.2 % of Romania's total SAU.

In the period 1990-2020, the area occupied by fruit plantations in Romania decreased by approximately 59% (from 124,249,207 ha in 1990 to 73,586,476 thousand ha in 2020) mainly due to excessive land fragmentation as well as the low level of investment.

The fruit-growing sector crisis, deeper than in the other agricultural branches, affected the vital structural elements, such as: relations of ownership and dimensions of fruit tree exploitation; the economic and social structure of fruit tree exploitation owners; applied technologies; production, marketing relations, management and efficiency. (Ungureanu G., Pop Cecilia , 2009)

The sub-thematic program "Increasing the competitiveness of the fruit-growing sector" supports the achievement of the objectives of the European Agricultural Fund for Rural Development (EAFRD) described in the Regulation on supporting rural development

through EAFRD, in art. 4 (NRDP (PNDR) 2014 – 2020b):

1. the competitiveness of agriculture,
2. sustainable management of natural resources and combating climate change,
3. balanced territorial development of rural areas.

According to the Sub-Thematic Fruit Tree Program, its general objective is represented precisely by increasing the competitiveness of the fruit tree sector by rehabilitating and diversifying the fruit tree heritage, making investments in human capital, in the modernization of farms and in the efficient management of natural resources.

At the same time, the collaboration between farmers, the business environment and researchers for research initiatives through operational groups is especially important for the fruit-growing sector, as the restructuring and modernization of this sector requires both new varieties and new management techniques (NRDP (PNDR) 2014 – 2020, 2022a, p. 117).

Starting from the previously mentioned aspects, the purpose of the paper is to emphasize the importance of accessing non-reimbursable funds in the fruit-growing sector with an emphasis on the North-West region of Romania, and highlighting the changes that appeared in the structure of fruit trees in the region during 2016-2020, as a result of accessing sub-measure 4.1 of Investments in fruit farms.

MATERIAL AND METHOD

In order to answer to the purpose of this work, the specialized literature was analyzed to highlight the interest for the fruit-growing sector at the level of Romania in the context of its financing through Pillar II of the Common Agricultural Policy, respectively within the fruit-growing thematic subprogram.

At the same time, a quantitative analysis was carried out regarding the evolution of the fruit growing sector in the North West region during the period 2016-2021 by analyzing the following indicators: number of fruit trees by

categories of trees and forms of ownership at the level of the region; the number of fruit trees by categories of trees at the level of each county of the region; the number of walnuts at the level of the country, respectively of the North-West region; the production in tons by category of fruit trees. The information was extracted from the website of the National Institute of Statistics and quantitatively processed.

For the second part of the study, sub-measure 4.1a was analyzed at the national level based on indicators such as: the public value allocated to NRDP/PNDR 2014-2020; the value of submitted funding applications; the value of contracted funding applications; the value of completed funding applications; but also indicators such as the number of projects selected at the level of the country, respectively at the level of the North-West region.

Thus, a number of 27 selection reports were analyzed for the 4 project submission sessions from 2016-2019, reports available online on the afi.info website, and they were centralized to highlight the number of projects submitted to the level of the North-West region.

RESULTS AND DISCUSSIONS

At the national level, with the beginning of the fruit tree thematic subprogram in 2016 through the first project submission session, it became a priority to analyze the fruit tree sector at the national and regional level, in order to follow the effects of non-reimbursable European funds for this vital sector for the country's economy.

As seen in **Table 1**, in the North-West region, the region analyzed in this paper, the total number of trees in 2021 decreased compared to the reference year 2016. A significant increase is observed in the walnut category with 77,011 trees in 2021 compared to 2016. This is due to the investments made during the analyzed period by accessing sub-measure 4.1a. The walnut was one of the species most requested for funding, along with the hazelnut, which was highlighted in the project selection reports.

Table 1

The evolution of the number of fruit trees in the North West Region in the period 2016-2021

Categories of fruit trees	Years						
	2016	2017	2018	2019	2020	2021	2021-2016
	UM: Number						
	Number	Number	Number	Number	Number	Number	
Total	14.700.598	15.166.632	14.647.243	14.639.327	14.402.898	14.448.394	-252.204
Plum	5.337.630	5.313.667	5.376.567	5.352.453	5.286.996	5.383.289	45.659
Apples	6.979.035	7.514.582	6.926.485	6.878.431	6.703.494	6.601.408	-377.627
Bristle	587.344	582.153	581.038	584.796	581.224	608.678	21.334
Peaches	300.258	282.520	275.750	298.422	290.260	287.250	-13.008
Nectarines	11.990	15.956	11.758	12.182	12.095	19.081	7.091
Cherries and Burgundy	794.876	776.837	791.824	821.711	840.973	755.757	-39.119
Apricots and wax cherry	212.357	208.340	209.702	206.926	205.293	204.929	-7.428
Nuts	402.037	400.461	401.830	408.721	406.329	479.048	77.011

Source Own calculation based on NIS, Tempo On-line Database, 2022

North-West Region area represents 14.3% of the entire national territory. The region includes the districts Bihor, Bistrița-Năsăud, Cluj, Maramureș, Satu-Mare and Sălaj (Manole et al, 2014).

In the North-West Development Region, of which the analyzed county is part of, agriculture is on the third place in the top of the economic sectors that participate in the regional GDP. Also, the labor employments in agriculture rank third in the North-West Region (Chiurciu et al, 2018 & Chiurciu et al, 2020).

Regarding the weight held by the main categories of fruit trees in the North-West region, it is observed that apple trees occupy the first place with 46% of the total number of trees in 2021, followed by plums with 37%. At the same time, it is observed that walnuts have a higher percentage (3.32%) compared to apricots, nectarines or peaches (*see Figure 1*).

After analyzing the evolution of the total number of fruit trees in each county of the North West region, an increase in the number of trees was observed in the counties of Bihor and Satu-Mare, for the other counties the total number of fruit trees suffered negative changes, Bistrița-Năsăud county was the county with the largest decrease in the number of fruit trees in the period 2016-2021, the decrease recorded was 12% (*see Table 2*). At the Cluj county level, in 2021 the total number of fruit trees decreased by 126,609 compared to 2020, a very

large decrease compared to the decrease related to 2021 compared to 2016 which was 31,705 (number of trees).

The county with the largest share of fruit trees in the North-West region is Maramureș County, followed by Sălaj. The counties of Satu Mare, Bistrița-Năsăud and Bihor are the counties that have similar weights in terms of the number of fruit trees, and Cluj county is the county with the lowest weight of fruit trees in the NW region, respectively 7% (*see Figure 2*).

Fruit production also suffered changes during the analyzed period, as a result of the situation of the number of trees per type of fruit trees at the level of each county of the analyzed region, but also depending on the climate changes of recent years that have brought changes regarding the quantity of fruit on the tree.

The second part of the study analyzes the situation of the funds allocated to sub-measure 4.1 of Investments in orchard holdings in the period 2014-2020, in order to emphasize their importance in favor of the improvement of orchard areas at the level of the country.

The purpose of the investments supported under this sub-measure is to increase the competitiveness of fruit farms by equipping them with machinery and equipment, establishing, modernizing and/or expanding processing units, establishing fruit plantations, converting existing plantations and increasing

the areas occupied by fruit nurseries (AFIR, 2022).

Sub-measure 4.1 of Investments in fruit farms, represented a new element in the 2014-2020 PNDR and was also of interest to potential beneficiaries. As seen in **Table 3**, the amount of funding applications submitted was 274,008,757 euros higher than the amount allocated during the entire financial year.

It is also noted that on 20 October 2022, the value of payments actually made for the signed financing contracts represented 72% of the total value of contracted financing applications.

Regarding the interest of applicants for investments in fruit farms, it is noted that 1,202 funding applications were submitted in the analyzed project submission sessions, and 564 of these were selected, which represents 47% of the total funding applications submitted. In of the total number of financing applications selected, financing contracts have been signed for 90% of them, and 47% have already been completed. The terminated projects represented 5% of the total financing contracts signed, this was due either to non-compliance with the contractual conditions, or to the situation caused by the SARS COV 2 pandemic and the impossibility of completing the contracts (*see Table 4*).

In order to highlight the impact of investments in fruit farms in the North West region, a number of 27 selection reports were analyzed, reports available online on the afir.info website. The selection reports were related to the 6 project submission sessions from the years 2015, 2016, 2017, 2019, as shown in **Table 5**.

The North-West region was active in requesting funds allocated to investments in fruit farms. In 2014, according to the information available on the website of the National Institute of Statistics, the area of fruit orchards and nurseries was 36,180 hectares, which represented 18.37% of the total area of fruit orchards and nurseries (196,491 hectares) at national level (TEMPO Online, 2022)

From the total of 564 projects selected at the national level, a number of 176 projects were selected at the level of the North-West region, which represents 31.21% of the total of the projects selected at the national level. So, we can conclude that the interest was increased, and the fruit-growing area at the level of the region improved considerably. At the level of the session 01/19 - 12.02.2019, following the analysis of the 6 related selection reports, it was revealed that 40.51% of the total projects selected at the national level were at the level of the North-West region. At the same time, there was a special interest in investments in walnut orchards in Bihor and Satu Mare counties, this being a topic that will be addressed in a subsequent study (*see Table 6*).

The fruit tree thematic subprogram was a necessity for our country's fruit culture, and the financing of this within the PNDR 2014-2020, brought the possibility of the beginning of a revival of the Romanian fruit culture. Investments in agricultural holdings were also supported during the transition period to the new Rural Development Policy within the NextGeneration EU and will be supported in the National Strategic Plan 2023-2027

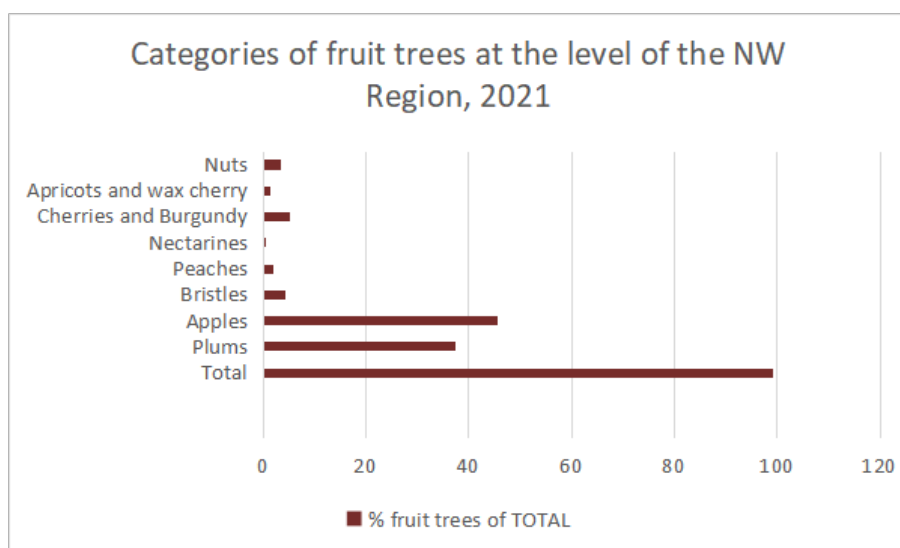


Figure 1: **Categories of fruit trees at the level of the North West Region, 2021**
Source: Own calculation based on NIS, Tempo On-line Database, 2022

The evolution of the total number of fruit trees in the North West Region and each county in the period 2016-2021

Counties North-West Region	Years						2021-2016	2021-2020
	2016	2017	2018	2019	2020	2021		
	Number	Number	Number	Number	Number	Number	Number	Number
Bihor	2.036.239	2.017.903	2.015.494	2.058.932	2.042.776	2.073.247	37.008	30.471
Bistrița-Năsăud	2.416.283	2.314.222	2.495.699	2.367.000	2.140.293	2.118.563	-297.720	-21.730
Cluj	1.096.461	1.085.765	1.105.538	1.215.930	1.191.365	1.064.756	-31.705	-126.609
Maramureș	3.994.886	3.994.495	3.990.998	3.977.865	3.992.440	3.990.625	-4.261	-1.815
Satu Mare	2.173.995	2.799.137	2.182.551	2.173.883	2.177.678	2.240.724	66.729	63.046
Sălaj	2.982.734	2.955.110	2.856.963	2.845.717	2.858.346	2.960.479	-22.255	102.133

Source: Own calculation based on NIS, Tempo On-line Database, 2022

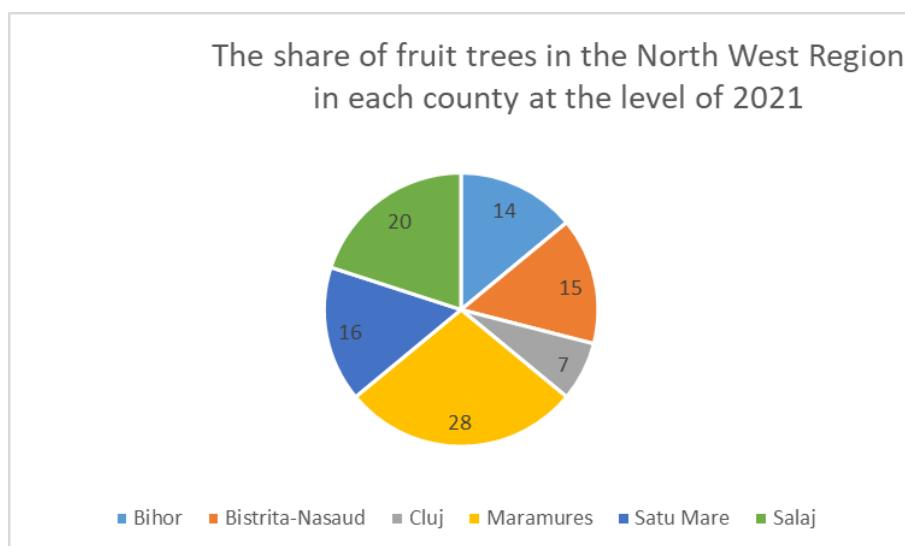


Figure 2. **The share of fruit trees in the North West Region in each county at the level of 2021**
Source: Own calculation based on NIS, Tempo On-line Database, 2022

Table 3

Sub-measure 4.1a - Analyzed indicators

No. criteria	Indicator	Value Euros
1	Public allocation PNDR 2014-2020 v.15.0 (following the approval of EU Reg. no. 2220/2020 establishing certain transitional provisions regarding the support granted to the EAFRD in the years 2021 and 2022)	419.384.301
2	The amount of funding applications submitted	693.393.058
3	Amount of funding Requests - Allocated amount	274.008.757
4	The value of the selected funding applications	310.817.806
5	Value of funded projects (completed and ongoing)	280.813.211
6	Amount of payments made	202.275.039
7	The value of the financed projects - the value of the payments made	78.538.172

Source: Own processing after PNDR 2014-2020 implementation stage on 20.10.2022 (NRDP (PNDR) 2014 – 2020, 2022c)

Table 4

Sub-measure 4.1 a - Analysis of submitted and contracted financing applications

No. criteria	Indicator	Number	%
1	Funding applications submitted - No	1.202	100
2	Selected funding applications (no)	564	47
3	Submitted funding applications - Selected funding applications	638	53
4	Contracted projects (no)	509	90
5	Completed projects	240	47
6	Terminated projects	25	5
7	Contracted projects - completed projects	269	53

Source: Own processing after NRDP / PNDR 2014-2020 implementation stage on 20.10.2022 (NRDP (PNDR) 2014 – 2020)

Table 5

Project submission sessions 2015-2019

No. session	Allocated value	No reports analysed
M4.1.a - 01/15 - 08.07.2015	70.586.064	5
M4.1.a - 01/16 - 20.05.2016	65.586.064	6
M4.1.a - 01/17 - 03.05.2017	95.000.000	10
M4.1A - 02/17 - 18.12.2017	3.335.025	
M4.1A - 02/17 - 18.12.2017	85.000.000	
M4.1A - 01/19 - 12.02.2019	61.913.105	6

Source: Own processing based on the Selection Reports available online on the afir.info website

Table 6

Status of projects selected for financing at the level of the North-West region

No. session	No. selected projects	No. selected projects N-V Region	% NW of total
M4.1.a - 01/15 - 08.07.2015	16	6	37,50
M4.1.a - 01/16 - 20.05.2016	117	32	27,35
M4.1.a - 01/17 - 03.05.2017	352	106	30,11
M4.1A - 02/17 - 18.12.2017			
M4.1A - 02/17 - 18.12.2017			
M4.1A - 01/19 - 12.02.2019	79	32	40,51
Total selected projects	564	176	31,21

Source: Own processing based on the Selection Reports available online on the afir.info website

CONCLUSIONS

The financing for orchards fruits at the level of the North-West Region is important is we use it in the larger national context.

As the fruit-growing sector has suffered a constant decline and the technological equipment is physically and morally worn out, we need to use all the available financing forms. For that purpose the sub-measure 4.1 is of outmost importance as it provides the necessary financial resources for the development of the sector.

The extensive analysis done has shown that the sub-measure is working as the payments done are substantial and are reflected in the increase of the number of fruit trees.

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REFERENCES

- AFIR (Agenția pentru Finanțarea Investițiilor Rurale / Agency for the Financing of the Rural Investments) (2022), <https://afir.info/>
- Chiurciu I.A., Chereji A.I., Soare E., Chereji I. Jr., 2018, Study on the evolution of agriculture in the North-West Development Region. Annals of the University of Oradea, Fascicle: Ecotoxicology, Animal Husbandry and Food Science and Technology, Vol. XVII/A, 9-16
- Chiurciu, I. A., Chereji, A., Soare, E., Chereji Jr, I., Daniela, D., & Daniela, R. (2020). The evolution of the fruit-growing sector in Bihor County. Analele Universității din Oradea, Fascicula Ecotoxicologie, Zootehnie și Tehnologii de Industrie Alimentară.
- Ciobanu Banța, A. (2021). National rural development programmes during the transition period. Financing the fruit-growing sector (2021-2022). JOURNAL of Horticulture, Forestry and Biotechnology, 25(3), 26-30.
- Dana D., Chiurciu I. A., Firatou A. R., Chereji A. I. (2021). Applying the expert system-crom for the management of peach tree lands and orchards peach. Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development 21(1): 155-161
- Manole, A., Diaconu, A., & Anghel, M. G. (2014). General aspects concerning the development of the North-West Region of Romania. Romanian Statistical Review Supplement, 62(10), 92-99.
- Mihai, C., Mădălina, B., & Mădălina, M., 2018. CERCETĂRI PRIVIND CALITATEA FRUCTELOR LA UNELE GENOTIPURI DE

VIȘIN DIN COLECȚIA NAȚIONALĂ RESEARCH
REGARDING FRUITS QUALITY OF SOME
SOUR CHERRY GENOTYPES FROM
NATIONAL COLLECTION.

Mitre, I., Mitre V., Ardelean, M., Sestras, R., Sestras, A.,
2009, Evaluation of Old Apple Cultivars Grown in
Central Transylvania, Romania, Not. Bot. Horti
Agrobot. Cluj-Na., 2009, Vol. 37(1): 235–237.

National Rural Development Programme (NRDP)
[Programul Național de Dezvoltare Rurală
(PNDR)] 2014-2020 (2022a), Program-National-
de-Dezvoltare-Rurala-2014-2020-v15.pdf
(madr.ro)

National Rural Development Programme (NRDP)
[Programul Național de Dezvoltare Rurală
(PNDR)] 2014-2020 (2022b) sub-theme
programme: „Creșterea competitivității sectorului
pomicol” [Increase the competitiveness of the
orchard sector) Sub program tematic pomicultura
(horticultura-bucuresti.ro),

National Rural Development Programme (NRDP)
[Programul Național de Dezvoltare Rurală

(PNDR)] 2014-2020 (2022c), Situation of the
submitted projects 2014 – 2020,
[https://www.pndr.ro/situatia-proiectelor-depuse-
2014-2020.html](https://www.pndr.ro/situatia-proiectelor-depuse-2014-2020.html)

TEMPO Online (2022), National Institute of Statistics,
[http://statistici.insse.ro:8077/tempo-
online/#/pages/tables/insse-table](http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table)

UNGUREANU G., POP Cecilia,(2009), Strategies
regarding the increase of fruit products in the NE
region of Romania, UAIASI, Revista
horticultură,nr.52

VLADU, M., BOTU, M., DINU, T. A., & TUDOR, V. C.
(2019). Studies on the situation of investments
supported in Romania by the" thematic sub-
program for the tree fruit sector", part of the
National Rural Development Program, in the
South West Oltenia Region, Romania. Scientific
Papers: Management, Economic Engineering in
Agriculture & Rural Development, 19(4).