

# PERSPECTIVES IN THE EFFICIENT UTILIZATION OF THE INVESTMENTS FOR THE APPLES PRODUCTION

## PERSPECTIVE ÎN UTILIZAREA EFICIENTĂ A INVESTIȚIILOR LA PRODUCEREA MERELOR

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**Abstract.** *In the apple plantation of Idared and Delbar Estival variety grafted on the father/ mother plant M9 there was calculated the recovery term of the capital investments for the apple plantation foundation and the economical efficiency of the fruit production depending on the trees plantation density on the one unity of surface and their emplacement way.*

*It was established that the investments recovery term in diverse plantation structures had constituted 4,5-7,8 years, but the economical efficiency of the apples production depends on the mode of trees emplacement and the plantation distance between the plants on the range.*

**Rezumat.** *Într-o plantație de măr de soiul Idared și Delbar Estival altoite pe portaltoiul M 9 s-a calculat termenul recuperării investițiilor capitale la fondarea plantațiilor de măr și eficiența economică de producere a fructelor în funcție de densitatea de plantare a pomilor la o unitate de suprafață și modul de amplasare a lor.*

*S-a stabilit că termenul recuperării investițiilor în diverse structuri de plantații a constituit 4,5-7,8 ani, iar eficiența economică de producere a merelor depinde de modul de amplasare a pomilor și distanța dintre de plantare între plante pe rând.*

The increased alimentary value of the fruits and their necessity in daily consumption of the man makes up the principal subject of the trees cultivation. The majority of the fruits production can be obtained not only by the extension of the reserved surface for fruit trees cultures, but also by the branch intensification, the replacement of the plantation having a fructification reduced level with other ones more productive (1,2,3).

The fruit growing intensification allows obtaining stable yields on the one surface unit and being competitive on the external market by the utilization of perspective varieties and the plantation foundation with more increased denseness (3).

These plantations fructify from the 2<sup>nd</sup>-3<sup>rd</sup>-years after plantation but the stable crops are recorded from 4<sup>th</sup>-5<sup>th</sup> years (5,6,7).

The thickened plantation of the fruits trees accelerates the recovery of the capital investments for the orchards foundation, the assortment renewal and quicker adaptation of the obtained production to the market requirements (8,9).

## MATERIAL AND METHODS

The investigation was accomplished in the apple plantation founded in 1996 having fruit trees aged by one year of Idared and Delbar Estival varieties grafted on the mother / father plant M9 the fruit trees were placed in solitary ranges and in bands formed from 2 and 3 ranges. The distance between the solitary lines and in bands constitutes 3,5 m between the lines in bond – 1 m, but between the fruit trees on the range 1,2; 1,5 and 1,8 m. as a witness served the plantation distance of 3,5 x 1,8 m in the solitary ranges. The fruit trees are conducted under the system of ameliorated thin spindle crown. The recovery of the capital investments and the production economical efficiency of the fruits were determined by establishing of the real expenses of the first six years after plantation, the price of the planting material and the value of the obtained production after the fruits commercialization according to the prices on the Moldova market.

## RESULTS AND DISCUSSIONS

The intensive culture of fruits trees varieties including the apple one requires significant capital investments for the plantation foundation and its care till the economical fructification (4,8,9).

The effectuated investigations shows that the volume of the capital investments for the apple plantation foundation depends first of all on the way and the emplacement distance of fruits trees.

The capital investments during six years on the studied variants made up at the Idared species 60,62 -94,74 thousand leis/ha, and at the Delbard Estival variety was of 60,00 – 93,97 thousand leis/ha.

The highest value of the total production in the given period was obtained by emplacing the fruit trees in bands formed from 3 ranges with the plantation distance  $(3,5+1+1) \times 1,2$  m. at the Idared sort the given indicator constituted 125,97 thousand leis/ha, but at the Delbard Estival one- 123,64 thousand leis/ha.

The investments recovery is the principal indicator of the entire activity of the orchards. At the Idared variety in 2001 the capital investments recovery did not occur only at the witness variant. On the other variants the capital investments recovery was definitively effectuated, but on certain distances of the fruit trees emplacement-  $(3,5+1) \times 1,5$  m;  $(3,5+1) \times 1,2$ m;  $(3,5 + 1) \times 1,5$  m and  $(3,5+1+1) \times 1,2$  m the investments recovery has already occurred in 2000.

It allows us to render evident that, if in 1999 the harvest was not compromised by the spring frosts, the capital investments on the mentioned variants were recovering the 4<sup>th</sup>-year after plantation. The other variants were recovering the 5<sup>th</sup>-year after plantation.

At Delbard Estival variety the total production is more reduced in comparison with the Idared one and respectively the term of recovery of the capital investment of the fruit trees in bands except that one having the plantation distance  $(3,5+1) \times 1,8$  m. in the normal pedoclimatic conditions the recovery of the capital investments for the foundation of the apple plantation with the emplacement in bands occurs the 4<sup>th</sup>-5<sup>th</sup>-years after plantation.

The essential indicator for the evaluation of a culture system in production is constituted by the economical efficiency of the fruits production. The effectuated calculations prove that during 2000-2001 years by the intensification of the cultural level increased the fruit harvest, the value of the total production and the expenses one (table 1).

Table 1

**The economical efficiency of the apple production depending on the way and the distances of fruit trees plantation, 2000-2004 years**

Way and distances of plantation, m	Average yield, t/ha	Value of production, thousand lei/ha	Expenses of production, thousand lei/ha	Profit, thousand lei/ha	Profitableness of the production, %
Idared variety					
3,5x1,8	13,5	29,7	12,15	17,55	144,5
3,5x1,5	15,6	34,32	12,77	21,55	168,8
3,5x1,2	17,6	38,72	13,10	25,62	195,6
(3,5+1)x1,8	18,7	41,14	13,87	27,27	196,7
(3,5+1)x1,5	21,8	43,60	14,15	29,45	208,2
(3,5+1)x1,2	23,4	44,46	14,92	29,54	198,0
(3,5+1+1)x1,8	19,6	41,16	14,47	26,69	184,5
(3,5+1+1)x1,5	22,0	41,80	15,29	26,51	173,4
(3,5+1+1)x1,2	23,8	42,84	16,11	26,73	166,0
Delbard Estival variety					
3,5x1,8	12,2	26,84	11,43	15,41	134,9
3,5x1,5	13,9	30,58	11,79	18,79	159,4
3,5x1,2	16,8	36,96	12,24	24,72	202,0
(3,5+1)x1,8	17,7	38,94	12,69	26,25	206,9
(3,5+1)x1,5	20,2	42,42	13,50	28,92	214,3
(3,5+1)x1,2	24,1	46,99	14,35	32,64	227,5
(3,5+1+1)x1,8	20,7	43,47	14,00	29,47	210,5
(3,5+1+1)x1,5	23,1	46,29	14,51	31,78	219,1
(3,5+1+1)x1,2	26,5	49,02	15,01	34,01	226,6

The highest fruit yield at the both varieties on an average for four year was recovered in the variants with the fruit trees emplacement in bands of 2 and 3 ranges. Dar, the quality of the fruits influenced negatively on the value of the obtained production in favour of the variants with lower plantation density. The greater production expenses reduced the profit that led to the diminishing of the apples production profitableness.

At the Idared variety in the variant with the fruit trees emplacement in solitary ranges the production expenses constituted 12,15 – 13,10 thousand leis/ha, the profit- 17,55 – 25,62 thousand leis/ha, but the profitableness- 144,5 – 195,6 percent.

In the variant with fruit trees emplacement in bands of 2 ranges, the indicators in study were increased making up respectively 13,87 - 14,96; 27,27 - 29,54 thousand leis/ha and 196,7-208,2 percent, but in bands from 3 ranges 14,47 – 16,14; 26,51 – 26,73 thousand leis/ha and 173,4 – 174,5 percent.

For the Delbard Estival species is maintained the principle exposed for the Idared sort and the greatest indicators were recorded in the variants with the emplacement of the fruit trees in bands of two and tree ranges where the profitableness had constituted respectively 206,9 – 227,5 and 210,5 – 226,6 percent.

It was established that due to the increase of the fruits price quicker that the expenses determined by the multiplication of the fruit trees thickness on the surface unit of the orchard, the capital investments in the variants with the fruit trees emplacement in solitary ranges were recovered an year later than in the case of the emplacement of the fruit trees in bands of 2 and 3 ranges but after the full fructification of the fruit trees, the production profitableness increased of 1,2 -1,3 times.

## CONCLUSIONS

1. The foundation of the intensive apple orchards requires significant capital investments that increase with the multiplication of the thickness of the fruit trees from 1585 pieces/ha -60 thousand lei till 4542 pieces/ha – 94 thousand lei.

2. The most reduced period of the recovery of the capital investments at the Idared variety were recorded with the emplacement of the fruit trees in solitary ranges at the distances of 3,5 x 1,2 m- 4,8 years and in bands of 2 ranges at the distances of (3,5+1)x1,5 m- 4,5 years and the level of the profitableness constituted respectively – 195,6 and 208,2 percent.

3. The profitableness in the fruit trees plantations emplaced in bands of 3 ranges was reduced due to the more intensive multiplication of the production expenses and to the cashing reduction from the realization of 1 tone of fruits caused by the decrease of the quality.

4. At the Delbard Estival variety the principal indicators of the economical efficiency are more superior than the Idared one and reach the highest values at the emplacement of the fruit trees in bands of 2 and 3 ranges with the distance of plantation between the trees by range 1,2 m.

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