

**TECHNOLOGY TO MAINTAIN THE APPLE ORCHARDS IN BEARING TO
INCREASE THE QUANTITY AND QUALITY OF FRUIT**

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Abstract

Increasing the quantity and quality of fruit is only achieved with maximum efficiency using natural conditions, economic and optimal application of modern technologies relevant to each area of culture. Modern technologies of culture ensures high yields of fruit of superior quality at lower costs when used judiciously tree species and varieties, crop systems adapted to the new economic social conditions, mechanization, irrigation, chemical processing and other agro-technical measures.

Keywords: apple, flower, buds, fruit, harvesting

1. INTRODUCTION

Romanian growers must make serious efforts to align Romanian fruit growing to U.E fruit growing development line.

As a perspective it must have traditional areas combined with modernization of technologies, assortments and marketing of how to successfully participate in competition on domestic and foreign markets.

However it should not be overlooked the application of appropriate technologies in existing orchards to obtain quality products, competitive on the internal market.

The range of existing plantations can still be requested on export. Regarding the apple crop technology it must first be harnessed the experience gained so far, given the specific pedoclimatic existing micro zones established species where biological potential of variety is expressed at the highest level.

To achieve competitive performance and rapid vigor rootstocks it is necessary to use reduced (M9) and trees to anticipate the nursery. Also after planting it should be chosen a form of leading trees as free as time-bush, bush ameliorated slender spindle, solax etc., besides it by allowing a density of 2,500-3,000 trees / ha and well-lit wreaths increases moderate and harvesting on foot or aerial platform. Through appropriate feeding interventions conducted through fertilization and irrigation and green shoots growing creating a balance between differentiation and fruiting leading to constant quality productions.

These technical measures should be completed by linking standardization fruit load of fruit and 1 fruit in the inflorescence or 70-150 fruits / tree since 4-5 until the year 15, when the operation of large commercial orchards yield is concluded.

Harvesting should be conducted at the optimal time and conditions for each variety which eliminates depreciation peel and commercialization. Picking fruit must have one direction, namely container worn on the platform conveyors, sorting by size is performed concurrently.

Pesticide treatments during sleep, especially during the growing season the trees are effective only if applied at optimal times warning and with high yield and equipment efficiency.

Such orchards require a substantial financial effort by productions that are made from 4-5 year after planting, ie 40-60 t / ha, manufacturer quickly recovers its costs and orchards become efficient and competitive.

For it is necessary to develop a national strategy that includes a number of components crucial to the success of components including financial support based on performance criteria, technical documentation, planting material with high biological value, organizing fruit growers enabling application of modern technology in terms of greater economic efficiency, zoning and zoning species and varieties, the methodology for authorizing plantations, etc.

Organizing fruit growers (farms) which have a minimum area of 5 hectares or super intensive, intensive culture, in terms of being the first step strategy. Although there are no systematic studies in the field, it seems that the optimal area for a mass planting apple is 15-20 ha. In these circumstances the farmer can exploit a cost of 45 hp or 65 HP tractor in the system of machines needed to perform the work in technology. Certainly the holding may be higher, but how high this is is up to the farmer who knows how financial and human resources allow, as the market for expansion. Therefore the subsidy will be granted only to such holdings that are based on performance criteria, state money given in other circumstances could be considered just a social support for subsistence agriculture.

One of the conditions that ensure the success of an investment is the biological material for tree plantations. Grafted trees should be grown in nurseries that can provide authorized authenticity of the material. The assortment endorsed for propagation, rootstocks recommended, must have a development of dimensions according to the official standard established by the

combination of variety / rootstock. Tree health and all these qualities must be certified by official documents. Also for the success of a business in horticulture the respect for life span and economic exploitation of an orchard is required.

In case of exceeding the age of 20-25 years of intensive plantations, fruit quality parameters required by market is no longer achieved and technological effort is offset by additional revenues.

2. MATERIAL AND METHOD

The problem with culture technology and its components primarily involves culture system that can be classic, intensive and super-intensive culture system encountered in our country. It should be considered assortment, rootstock, environmental conditions parameters of vegetation factors and many other aspects. Regardless of culture system, essentially aim is to ensure conditions for growing trees at a level as close to optimal, with reduced negative impact on the environment and low production costs.

Given that some apple varieties with genetic resistance to disease, including Generos and Florina is increasingly expanding in culture were studied some technological sequences to increase the quality of fruit, it will be operating the integrated technology.

Technological sequences that have a substantial contribution to increasing the quality of the fruit, is the use of foliar fertilizer, chemical and manual thinning fruit, which unfortunately applies sporadically or not at all, in apple orchards.

Thinning fruit

Standardization of fruit load is an operation necessary to obtain quality fruit.

The differentiation of fruit buds with over 30% of apple trees of some varieties such as Golden Delicious, link abundant fruit even if normalization was done beforehand by cuts.

These fruit varieties by cutting standardization is not sufficient, requiring flowers or fruit thinning so as to remain sufficient to ensure a large majority of extra quality.

In research at Voinești on apple species, chemical fruit thinning worked with the following varieties: Prima, Pionier, Generos. For thinning flower / fruit were tested chemical substances from the group of growth stimulators (auxins) based on the naphthyl acetic acid (NAA) Rhodofix. Anti-drop; Naphthylacetamide (NAD); Amid Thin W; Amid 80 (Rarex) generators from the group of ethylene, based on 2-Chloroetilofosforic acid (ethephon); Etrek and insecticide Sevin (Carbaryl) 1-naphthyl-N-methylcarbamate. All the products were administered by spraying when plants blossom fruit diameter were 10-14 mm.

Manual fruit thinning was conducted on varieties Generos and Florina, between June 15 to 20 when the fruits have reached 16 to 18 mm in diameter. The manual

thinning was envisaged that each inflorescence remain a single fruit, the smallest being removed, deformed, usually leaving the fruit in the center of the inflorescence.

Foliar fertilization

It represents a complementary measure, the advantage that fertilising products fall much faster metabolic circuit of the plant, root fertilization compared with that but cannot replace it. Typically is used foliar fertilizer complex macro and micronutrients essential for normal development of the trees. It may apply concurrently with thinning chemical or pesticide treatments, periods of moderate temperatures with cloud morning or in the days when the leaf is maximum absorption. Avoid mixing with foliar fertilizer products based on copper, fertilization can be applied in stages 4-6 during the growing season, ensuring that those containing nitrogen to give the first 2-3 treatments but no later than half June.

Foliar fertilizers in experimental plots and demonstration plots, obviously influenced the quantity and quality of production made on each variant and subvariant compared with the control, without special intervention.

Amid the application of 4 and 5 treatments with foliar fertilizer production increase was 40-75% higher in Generos variety and Florina 19-50%. Fruit weight exceeding witness was far superior to the variety Generos with 9-34g and with 15-30g on variety Florina.

3. RESULTS AND DISCUSSIONS

The investigations undertaken have established the ability to effectively intervene with chemical thinning fruit bud differentiation years with over 40%.

Rarex treatment product (80 Amid Cluj) at a dose of 500-1000 ppm, the apple varieties Prima, Pionier și Generos in the period when fruit inflorescence center had a diameter of between 10 and 14mm, secured from the witness, fewer fruits up to 67% resulting in an increase in fruit size increase 17-45g which were higher than the existing version control fruit (table 3.5).

Table 3.5. Thinning influence of chemicals on fruit production

Cultivar / treatment	Production		Medium size of fruit -g-	Fruit harvested	
	t/ah	%		Nr./tree	%
PRIMA Martor netratat	50,0	100	118	424	328
Rarex 500 ppm	44,3	89	135	278	657
Rarex 1000 ppm	40,0	80	145	372	335
PIONIER Martor netratat	52,5	100	80	454	267

Rarex 500 ppm	44,8	85	120	100	67
Rarex 1000 ppm	41,8	80	125	65	100
GENERO S Martor netratat	59,9	100	132	56	51
Rarex 500 ppm	43,2	72	162	100	59
Rarex 1000 ppm	43,7	73	168	260	57

After applying thinning products diminishes the amount of production per tree, but fruit quality increase.

The data in Table 3.6 shows that the apple varieties Prima, Pionier și Generos after applying chemicals, thinning is recorded to the untreated control, a percentage exceeding 67% extra quality fruit + I a Through chemical thinning fruit variety Generos, the entire quantity of fruit produced is recorded at extra quality + I a

Table 3.6. 3 output quality apple varieties, from the application of products for thinning fruit

Cultivar / Treatment	Categories of size of fruits (%)		
	55 – 60 mm	65 – 70 mm	75 – 80 mm
PRIMA Martor netratat	42	58	0
Rarex 500 ppm	21	52	27
Rarex 1000 ppm	11	65	24
PIONIER Martor netratat	49	51	0
Rarex 500 ppm	33	60	6
Rarex 1000 ppm	30	65	5
GENEROS Martor netratat	10	30	60
Rarex 500 ppm	0	25	75
Rarex 1000 ppm	0	20	80

In the years 2014 and 2015 varieties of apple Generos and Florina, amid the application of two variants with foliar fertilizer was applied chemical and manual thinning fruit, as follows:

V1 - Witness (without treatment with foliar fertilizers)

V_{1.1} - chemical thinning; V_{1.2} - chemical thinning + manual thinning; V_{1.3} - manual thinning;

V2 - 4 treatments with foliar fertilizer (one treatment before blooming, one treatment after blossoming, two treatments before harvesting the fruit)

V_{2.1} - Chemical thinning; V_{2.2} - chemical thinning + manual thinning; V_{2.3} - manual thinning.

V3 - 5 foliar treatments (one treatment before blooming, 2 treatments after blossoming, 2 treatments before harvesting the fruit)

V_{3.1} - Chemical thinning; V_{3.2} - chemical thinning + manual thinning; V_{3.3} - manual thinning.

The productive potential of varieties and production level, carried out for the current year is closely related to

the degree of differentiation with fruit buds, which is decisive for the application of chemical products for thinning the newly formed flowers or fruit.

The differentiation fruit buds on varieties Generos and Florina are presented in Table 3.7.

Both on the trees referred to chemical treatments for thinning fruit, as well as for the manual thinning had a potentially with fruit buds represented as an average for the years 2014 and 2015, between 40.7 and 51.3% on Generos variety and 45.7% and 38.0 on Florina variety. The differentiation of fruit buds corresponded to a good degree of flowering trees.

The optimum time for applying chemical thinning treatment was established for 2014 on May 23rd, when the fruits of central inflorescence reached a diameter of 12.5mm, on Generos variety and of 12.8mm on variety Florina.

In 2015, the optimum time for applying chemical thinning treatment was set for May 26th, when the fruits have reached the center of the inflorescence diameter of 11.6 mm on Generos and 12 mm on Florina.

Changing climate conditions during flowering caused a weak binding of the fruit, so that by the date of application of chemical thinning treatment has been a sharp fall flowers and fruits apparently related. To date the application of the treatment of thinning, namely 26.05.2015, the degree of binding of fruits ranged between 20.3 and 26.4% for the variety Generos and between 23.2 and 28.9% for the variety Florina.

Table 3.7. The differentiation fruit bud (Voinești 2014-2015)

Cultivar and variant	Nr. of buds - total -	Flower buds	
		Nb.	%
Generos V ₀ (Mt)	949	487	51,3
V1 V1.1	968	474	48,9
V1.2	998	490	49,1
V1.3	1087	511	47,0
V2 V2.1	929	433	46,6
V2.2	783	389	49,7
V2.3	647	308	47,6
V3 V3.1	1093	504	46,1
V3.2	1151	507	44,0
V3.3	1000	407	40,7
Florina V ₀ (Mt)	800	280	35,0
V1 V1.1	811	298	36,7
V1.2	759	270	35,6
V1.3	850	299	35,2
V2 V2.1	707	280	39,7
V2.2	594	255	42,9
V2.3	615	281	45,7
V3 V3.1	786	296	37,6
V3.2	708	269	38,0
V3.3	662	293	44,2

The following are data obtained in 2014.

The climatic conditions in 2014, during flowering caused a sharp fall flowers and fruits apparently linked, so that

the date of application thinning treatment, 23.05.2014 respectively, the degree of binding of the fruit was between 24.5 and 48.4% Generos variety and between 27.3 and 42.9% for the variety Florina.

Analyzing influence product Rarex dose of 0.1% on fruit thinning is that the products have acted differently depending on variety (Table 3.8).

Generos variety, compared to the Witness on which there was a binding percentage of 18.6% on 21 June at variants with chemical thinning and manual thinning, fruit number decreased by 4-8 percent, but it was enough to ensure normal production with high quality fruit.

Florina variety using Rarex product had less effect on thinning fruit remaining on the tree at a rate of over 20% both variants chemically thinned and manual thinned. The fact that Florina variety recorded a lower percentage of fruit buds, to ensure normal production of fruit was appropriate to leave the overhaul and manual thinning to obtain an adequate number of normal quality fruit production.

Comparing to the flowers analyzed at harvest recorded a rate of 16.3% fruit binding generous variety and Florina 18.3% in the Control variant (V0) without any intervention.

At subvariants chemically thinned, chemically thinned + manual, or thinned only manually percent binding fruit at harvest ranged between 8.0 and 13.5% and 12.7 Generos variety and Florina 16.3%. The percentage of fruits at harvest was greatly diminished in subvariants chemically thinned and thinned chemically + manual maintenance.

Subvariants thinned only manually, which was allowed by a decrease in inflorescence fruit was softer, with only 2-3 percent less than the Control, without specific interventions.

The data presented is determined that the application of foliar fertilizer fund did not develop any negative influence on the degree of thinning fruit thinning chemical product application situation Rarex dose of 1%. Foliar fertilizers obviously influenced the quantity and quality of fruit made on each variant and subvariant compared with the Control, without special intervention. The data in Table 3.9 shows that compared to the Control without any special intervention, the variants that applied chemical thinning ,thinning cleaning + manual maintenance, or only a slow manual production growth ranged between 14 and 28% on Generos variety and on Florina 14-25%. Equally it rose and fruit quality, recorded increases in fruit weight of 165-170 - Generous variety 190g and 142g from 159 -160g variety Florina.

Amid the application of 4 and 5 treatments with foliar fertilizer production increase was 40-57% higher in Generos variety and Florina 19-50%. Fruit weight exceeding the Witness was far superior to the variety Generos with 9-34g and with 15-30g on variety Florina.

The increase in fruit size in 2014 was favorably influenced by the climatic conditions during the growing season of trees, primarily by rainfall, sometimes above normal in the months from July to August.

In all sub variants and varieties from Florina and Generos and almost the entire quantity of fruit per hectare was recorded falling fruit over 65mm diameter. A percentage of 6-8% was recorded in the category 55-60mm Witness version, without special intervention.

Technological sequences on fruit thinning and foliar fertilization, which have significant role in increasing fruit quality were extended in farm development unit on the surface of 1 ha each variety.

Table 3.8. The number of flowers and fruits by remaining dynamic variation and variety (Voinești 2014)

Cultivar and variant		Nb of analysed flowers	Fruits											
			at 23.V.2010		at 30.V.2010		at 15.VI.2010		at 21.VI.2010		at 04.VII.2010		at 20.IX.2010	
			Nr.	%	Nr.	%	Nr.	%	Nr.	%	Nr.	%	Nr.	%
Generos V ₀ (Mt)		1.632	666	40,8	623	38,2	416	25,5	303	18,6	286	17,5	266	16,3
V ₁	V _{1.1}	1.406	681	48,4	624	44,4	304	21,6	286	20,3	250	17,8	142	11,0
	V _{1.2}	1.552	512	33,0	471	30,3	264	17,0	222	14,3	191	12,3	150	9,7
	V _{1.3}	1.570	485	30,9	441	28,1	361	23,0	212	13,5	210	13,4	204	13,0
V ₂	V _{2.1}	1.833	449	24,5	430	23,5	210	11,5	188	10,3	166	9,0	147	8,0
	V _{2.2}	1.623	475	29,3	464	28,6	263	16,2	192	11,8	182	11,2	133	8,2
	V _{2.3}	1.034	360	34,8	322	31,1	205	19,8	149	14,4	146	14,1	137	13,2
V ₃	V _{3.1}	1.862	597	32,1	573	30,8	226	12,1	188	10,1	154	8,3	149	8,0
	V _{3.2}	1.804	357	19,8	340	18,8	254	14,1	243	13,5	211	11,7	150	8,3
	V _{3.3}	1.397	352	25,2	333	23,8	254	18,2	235	16,8	228	16,3	188	13,5
Florina V ₀ (Mt)		684	282	41,3	262	38,3	207	30,3	176	25,8	142	20,8	125	18,3
V ₁	V _{1.1}	446	190	42,6	184	41,3	144	32,3	121	27,2	87	19,6	66	14,8
	V _{1.2}	716	288	40,2	270	37,7	224	31,3	180	25,2	142	19,8	91	12,7
	V _{1.3}	566	240	42,9	229	40,5	187	33,0	160	28,2	125	22,1	86	15,2
	V _{2.1}	523	207	39,6	198	37,9	146	28,0	120	22,9	96	18,4	69	13,2

**THE ANNALS OF “VALAHIA” UNIVERSITY OF TARGOVISTE
2016**

V ₂	V _{2.2}	459	189	41,1	166	36,2	133	28,9	109	23,8	83	18,1	59	12,8
	V _{2.3}	748	204	27,3	196	26,2	170	22,7	165	22,1	144	19,3	118	15,8
V ₃	V _{3.1}	522	158	30,3	152	29,1	136	26,1	136	26,1	110	21,0	85	16,3
	V _{3.2}	654	258	39,4	948	37,9	201	30,7	159	24,3	121	18,5	93	14,3
	V _{3.3}	748	261	34,9	243	30,5	186	24,9	151	20,2	122	16,3	144	15,3

On hand thinning, the deformed and least developed fruit were removed.

By remaining fruit was provided a quality fruit production with a percentage of over 90% are able to cope with competitive pressures on the Romanian market.

In the two demonstration plots with trees 6 years after planting, varieties Generos and Florina, grafted on rootstock MM 106, planted at a distance of 4 x 3m (833 trees / ha) were achieved 8.5 t / ha Generos variety and 16.2 t / ha variety Florina.

Average fruit weight was 171g on variety Generos and 156g on variety Florina, falling in the category of 65-70 mm with a percentage of 22% on Generos and 35% on variety Florina. On 75-80mm category recorded a 76% on Generos variety to and 58% on variety Florina.

In the 7th year after planting in the two demonstration plots were achieved 12.5 t / ha on variety Generos and 18.2 t / ha on variety Florina.

Average fruit weight was 170g on variety Generos and 154g on variety Florina, falling in the category of 65-70 mm with a percentage of 20% on Generos variety and 35% to variety Florina. 75-80mm category recorded a 76% on Generos variety and 55% on variety Florina.

The vigor of the tree, depending on choices and variety, was within normal limits. Trunk circumference was 32.9 to 39.5 cm on variety Generos / MM 106 and 35.1 to 38.6 cm on variety Florina / MM 106, with an increase of 2.8 to 4 trunk circumference growth, 5cm for both species (table 3.10).

Orchard fence dimensions in both varieties have reached values close to 300-330 cm height and 150 -170 cm thick.

Based on the values of trees growing volume determined which tree crown oscillated between 10 000 and 11 550 normal cubic meters / ha higher values recorded variety Florina / MM 106.

Table 3.9. Fruit production and quality apple varieties Generos and Florina, depending on the variant and variety

Cultivar and variant		Production		Medium size of fruit	Fruit size categories (%)		
		t/ha	%		55-60 mm	65-70 mm	75-80 mm
Generos V ₀ (Mt)		33,8	100	165	6	25	69
V ₁	V _{1.1}	39,9	118	180	0	5	95
	V _{1.2}	38,4	114	190	0	6	94
	V _{1.3}	43,3	128	170	1	21	78
V ₂	V _{2.1}	50,6	150	195	0	5	95
	V _{2.2}	52,7	156	189	0	11	89
	V _{2.3}	48,6	144	176	0	3	97
V ₃	V _{3.1}	50,7	150	198	0	5	95
	V _{3.2}	47,4	140	199	0	5	95
	V _{3.3}	53,1	157	174	2	18	80
Florina V ₀ (Mt)		30,7	100	142	8	48	44
V ₁	V _{1.1}	35,6	116	159	1	31	68
	V _{1.2}	38,4	125	160	0	31	69
	V _{1.3}	34,9	114	156	3	44	53
V ₂	V _{2.1}	41,3	134	162	0	22	78
	V _{2.2}	43,8	143	172	0	38	62
	V _{2.3}	36,5	119	168	0	27	73
V ₃	V _{3.1}	42,5	138	167	1	29	70
	V _{3.2}	45,6	148	161	0	28	72
	V _{3.3}	46,0	150	157	2	44	54

Table 3.10. Apple tree varieties vigor Generos and Florina, depending on the variant and variety

Cultivar and variant		Vigoarea pomilor				Volume (mc/ha)
		Diameter - cm -	Trees high (cm)			
			Gain	height	Weight	
Generos V ₀ (Mt)		34,3	3,0	315	155	10270
V ₁	V _{1.1}	35,5	3,6	320	150	10125
	V _{1.2}	34,4	2,9	315	155	10270

	V _{1.3}	35,4	3,1	310	155	10075
V ₂	V _{2.1}	39,5	3,4	315	160	10600
	V _{2.2}	38,8	3,6	305	160	10200
	V _{2.3}	36,8	4,5	310	160	10400
V ₃	V _{3.1}	34,1	2,9	310	160	10400
	V _{3.2}	32,9	2,9	300	160	10000
	V _{3.3}	34,0	3,2	300	160	10000
FlorinaV0 (Mt)		34,8	2,8	315	160	10600
V ₁	V _{1.1}	36,7	3,0	315	160	10600
	V _{1.2}	34,9	3,3	320	155	10460
	V _{1.3}	36,1	3,8	310	160	10400
V ₂	V _{2.1}	36,8	3,6	330	160	11200
	V _{2.2}	38,6	3,9	320	170	11475
	V _{2.3}	36,8	3,2	315	170	11260
V ₃	V _{3.1}	35,4	3,1	330	160	11200
	V _{3.2}	34,9	3,0	330	165	11550
	V _{3.3}	35,1	3,4	320	160	10800

Foliar fertilizers in experimental plots and demonstration plots, obviously influenced the quantity and quality of production made on each variant and sub variant compared with the control, without special intervention.

Amid the application of 4 and 5 treatments with foliar fertilizer production increase was 40-75% higher in Generos variety and on Florina was 19-50%. Fruit weight exceeding the Witness was far superior by the variety Generos with 9-34g and 15-30g on variety Florina.

Data on Delta's influence foliar fertilizer (5:45:30 + ME) and Haileaf (19; 19; 19 + ME) on vegetative growth and fruit production recorded in Generos and Pionier varieties are presented in tables 3.11 and 3.12.

The data presented in Table 3.11 on the influence of foliar fertilizers on the growth of shoots, it appears that the final increase growth has values close to Witness variant.

Foliar fertilizer treatments were applied quite late to phenophase intensive shoots and fruit so there is no significant influence on the growth of shoots.

It notes, however, a positive influence on weight gain to fruit variety both on Generos and on variety Pionier.

Also, compared to the control, both Delta E fertilizers type and the type Haileaf, there is a color enhancement fruit at higher dose of 1%.

Delta E and Haileaf foliar fertilizers can have positive influences on vegetative growth, the quantity and quality of production, applied since the period of intensive growth of shoots and fruit. On the foliage no phytotoxic effects have been observed at the doses used as foliar fertilizer.

Table 3.11. Foliar fertilizers influence on the growth of shoots

Variant	Initial height (cm)	Final height	
		-cm-	Weight size (cm)
GENEROS/ MM 106			
V ₁ -Martor	73,4	85,0	11,6

V ₂ -Delta E	0,5%	77,3	87,9	10,6
V ₃ -Delta E	1,0%	84,4	95,3	10,9
V ₄ -Haileaf	0,5%	75,2	85,1	9,9
V ₅ -Haileaf	1,0%	62,3	72,8	10,5
PIONIER / MM 106				
V ₁ -Martor		62,6	74,4	11,8
V ₂ -Delta E	0,5%	64,0	75,1	11,1
V ₃ -Delta E	1,0%	63,5	74,3	10,8
V ₄ -Haileaf	0,5%	74,9	86,7	11,8
V ₅ -Haileaf	1,0%	68,3	79,9	11,6

Table 3.12. Production and average fruit weight in the application of foliar fertilizers

Variant	Production (kg/tree)	Medium size of fruit
GENEROS/ MM 106		
V ₁ -Martor	44,6	179
V ₂ -Delta E 0,5%	39,5	180
V ₃ -Delta E 1,0%	53,6	182
V ₄ -Haileaf 0,5%	43,2	176
V ₅ -Haileaf 1,0%	33,8	181
PIONIER / MM 106		
V ₁ -Martor	22,5	139
V ₂ -Delta E 0,5%	25,3	139
V ₃ -Delta E 1,0%	37,4	138
V ₄ -Haileaf 0,5%	26,4	140
V ₅ -Haileaf 1,0%	41,8	141

4. CONCLUSIONS

Entering the U.E of our country involved, among others, economic integration. This primarily involves aligning Romanian product quality to the level of U.E countries. In horticulture, as it was mentioned before, we have recovered in short, a serious gap. The main problems that require a solution primarily relates to brand, technology, rejuvenation of plantations, conditioning, and storage of the fruit.

Based on research from the years 2014 - 2015 and the results obtained in experimental plots and demonstration plots, that, to increase fruit quality standards the Romanian marketing, harmonized with EU requirements, it is necessary that in the harvesting technology of orchard apple tree with resistant varieties and not only to integrate a number of sequences specific technological additional classic technology.

Besides classical technological measures, namely, soil tillage, soil fertilization, pruning of fruiting, plant protection treatments, an important role in enhancing quality of apples they have some specific technological sequences consisting of:

- Foliar fertilization at least 5 treatments with foliar fertilizer (one before blossoming 2 after blooming and 2 before harvesting the fruit).

- Fruit thinning (chemical product Rarex dose of 0.1% in central inflorescence when fruits were between 10 and 14 mm, complete with manual thinning when fruits have reached the center of the inflorescence 16-18mm diameter).

Mentioned sequences should be part and parcel of any fruit production technology of the varieties of apples grown under technological sheet presented in Table 3.14. However, followed by meeting other requirements regarding the collection, storage, conditioning and recovery leading to increased competitive production.

Research undertaken under the project aimed to increase quality of apples in some apple varieties with genetic resistance to disease to overcome competitive pressures on both the Romanian market and export.

Apple production technology is required to obtain application of technological measures consist of soil tillage, fertilization, pruning, maintenance and fruiting, irrigation, pest and disease control.

An important role in enhancing the quality and quantity production of apples will have a number of components specific technology: chemical and manual fruit thinning, foliar fertilization, issues that have been experienced in the research addressed, which materialized by obtaining fruit of good caliber to the market and also uniformity inside the crown.

A special place is occupied by highlighting the importance of using apple varieties genetically resistant to certain diseases, in the context of promoting organic fruit growing, especially in areas with excessive rainfall. Thereby aiming to reduce the negative impact on the environment and reducing the cost of fruit production.

Also, it has been focused on aspects of capitalization apples, both by prospecting markets in Bucharest and

Targoviste, being found some apples recovery solutions to marketing standards imposed by market requirements. High productions and quality are achieved when optimally applied the full range of technological measures, regardless of the area each growers hold.

All this is done with great financial efforts, but that can be recovered and can achieve significant profits in conditions of orchards in full economic potential of varieties of high economic value.

No matter the job this requires a rigorous economic control by which to assess the profitability and financial effort of each. For orchardists it is important to know in detail the costs of applying technological links, both the classics and the apple crop specific products and revenues that can be obtained on the directions of recovery and need to register with vigor.

Data presented in Tables 4.1 and 4.2 can be used as reference by each producer depending on the volume of activities in which they engage.

Economic calculation was reported in the area of 1 hectare with orchard of apples in full economic potential of the varieties Generos and Florina, varieties with genetic resistance to disease, which presents some comparative data on production costs on technological links and revenues from capitalize on the qualities of apples.

If we look to harvesting the fruit, it appears that due to the larger size of the fruit, the amount of apples harvested each collected increases, so at equal or higher production costs in harvesting apples may be equal or even lower. Under the conventional technology, respectively, by cutting, tillage, fertilizing the soil treatment plant production was achieved by 28.7 to 38.3 t / ha.

Given the implementation of specific technological sequences (Manual chemical thinning fruit, Foliar fertilization) increases both the quantity and quality of apple production. Quantity are exceeded by 4-13% compared to conventional technology, with obvious bonuses on extra size and on the 1st- with favorable influences on the selling price of apples.

By applying specific technological sequences, operating costs increase, but they recovered and even recorded a higher profit than under classic technology application, reflecting the increased quality of apples and their capitalization at more advantageous prices.

In the current crop of fruit, especially apple becomes profitable only if production obtains at least 25 t / ha and 80% of the fruit fall to the extra quality and 1st.

The cost is calculated on technological links between 0.345 and 0.488 lei contents / kg higher being when sequences specific technological application. Even if the difference between the delivery and cost of the apple seems big enough, the profit to be achieved per hectare will be a reasonable one, since the cost price does not include costs for storage, recovery, administration etc.

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