

Profitability of cultivation table grapes at INCDBH Ștefănești-Argeș

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Abstract Growing table grapes offer manufacturers a number of priorities compared to growing grapes for wine. It should be noted that by making table grapes, obtaining income is recorded immediately. If several varieties are grown cocere staggered, these revenues are obtained over a longer period of time. Table grape varieties are more productive (12-18 t / ha), so the profit will be higher. For table grape varieties all depends on quality. If that technology cultivation of these grapes, then it will get a good harvest and a good price. This paper presents the results obtained Ștefănești-Argeș vineyard productivity, quality and quantity production of grape varieties: Argessis, Canner, Muscat d'Adda and Augusta. In the period 2010-2013 these varieties were recorded at commercial maturity amounts of sugars from 130.9 to 155.2 g / l; was staggered harvesting period from 18.08. to 23.10. Argessis Variety noted by most commodity production 17,5t / ha and most pleasing aspect of grapes.

Key words

table grapes, profit, mature consumer goods production

Romanian viticulture includes very few varieties destined to the production of raisins; thus, it is desired that new varieties of this group should be extended in culture and new clones should be selected. Paradoxically, the multiple achievements in the creation of new varieties situate our country on top level in the world [4,5]. Since Romanian viticulture has very few varieties destined to the production of raisins, it is highly recommended that new varieties of this group should be extended to culture and more clones should be selected. In Romania, the table grapes varieties are less and less cultivated; the year 2008 recorded a production of grapes for fresh consumption of 87,2 thousand tones, far below the mark of the demand for grapes on the Romanian market [7], and this production is on the decrease.

The parent stock on which seedless varieties are grafted, gives them vigour in culture, thus the variety Crimson Seedless grafted on 1103 Paulsen has great vigour in culture but also high productivity [2,8].

Under the conditions of the Ștefănești vineyard, the parent stock used at grafting gave the vines great culture vigour and also productivity. The studied varieties are grafted on the parent stock Kober 5 BB and planted at the distance 2,5 m between rows and 1,2 m on the row. The applied cutting is the Guyot type on high semistocks.

Material and Method

In the experimental group located in the viticultural area representative of Wallachia (Ștefănești Argeș), were made observations and determinations quality table grapes in Argeș climatic conditions of the area. Experimental fields were established since 1995, continuing until 2008 on a field representative for the vineyard Ștefănești (Figure 1). The collection includes 150 varieties of meals, white wine, tomatoes and spices used as a source of germplasm in breeding activity.



Fig. 1. Appearance of plantation table grape varieties

Putting experience two-way type 4x3 (ies) for each experimental year (2011-2013) was identical, taking into study two factors, namely:

- Factor A - variety, which included graduations: Argessis, Canner, Muscat d'Adda and Augusta;

- Factor B - applying cutting fruit load bearing differentiated vineyards, which included graduations: b₁ fruit load of 15 eyes per vine, with drill-cutting; b₂ fruit load of 20 eyes per vine, cutting into the heart; b₃ fruit load of 25 eyes per vine, cutting the string;

Table grapes were harvested when their maturity provides superior and efficient recovery. It was established by variety in general, when the grapes have reached full maturity. Time to full maturity varieties of table grapes has been established, with good approximation, by completing the following determinations: grain weight, sugar content and

titratable acidity wort. These measurements were performed regularly at intervals of 3-5 days from the entry grapes ripen [6].

Results and Discussions

Brief description of varieties: **Argessis** (Figure 2) - approved in 2002 to SCDVV variety Ștefănești. The first vine variety for table grape vineyard obtained in specific climatic conditions Ștefănești-Argeș. Commercial Appearance pleasant, large grain (7.5-8.0 g), ovoid, dark bluish-black. Grape large (450-480 g), uniaxial. Good tolerance at fungal diseases (blight, mildew, rot). Hub of great force, suitable for growing in the sky. Media production reached 18 t / ha [3].



Fig. 2 - Argessis



Fig. 3 - Canner



Fig. 4 Muscat d'Adda



Fig. 5 – Augusta

Canner (Figure 3) Olmo is a variety obtained in 1969 by crossing varieties Hunisa x sultanas. It is a white grape variety with large, ellipsoidal, seedless, which can be used in particular to obtain raisins, jam and compote. The grapes are large, branches, lax. Medium grain size is elliptical, and yellow-green, rust on the sunny side. The core is meaty, crunchy and rudiments of seeds. Variety falls in the growing variety with great force. Shows the average tolerance at low temperatures during winter, mildew and powdery mildew attack. It matures in age IV [3].

Muscat d'Adda (figure 4) bake along with Muscat of Hamburg. The grapes are medium-sized, conical, sometimes winged, dispersed, with average weight of 300-400 g. The berries are medium-sized or large, spherical, black and covered with a layer of bloom (wax). The core is meaty, crunchy, lightly scented; thin skin, dark blue color with a delicate aroma of Muscat,

has 2-3 seeds. The vine has a vigorous growth, capable of giving a high yield at cutting short the twigs [9].

Augusta (Figure 5) was obtained by hybridization Sexual controlled x Queen Vine varieties Italy, at Agricultural Institute of Bucharest. Approval variety was made in 1984. It requires the earliness (II era), size and look to the grapes. Augusta has a medium vigor, good fertility (61% of fertile shoots) and high productivity, due to the size of grapes [9].

The group of varieties are found higher accumulation of sugars in varieties with medium production potential. Late maturing varieties, those with high yield potential and high growth force accumulate smaller amounts of sugars. In 2013, a year rich in resources heliothermic, studied cultivars accumulated higher amounts of sugars, the quantity of grapes registered. In 2011 and 2012, normal in terms of climate, accumulation of sugars were lower, thanks in large grape yields obtained (Table 1).

Table 1

Values of sugars in the grape varieties grown mass the INCDBH Ștefănești-Argeș

VARIETY	SUGAR g/l		
	2011	2012	2013
Argessis	140,3	138,5	155,2
Canner	140,2	140,9	146,3
Muscat d'Adda	138,6	140,2	145,5
Augusta	135,6	130,9	138,8

For all varieties studied, the highest amounts of sugars accumulated in 2013, and the lowest in 2011. This variation in the content of sugars in the wort is determined mainly by the production of grape, leaf area of each block. Such sugars in the grapes they have accumulated over the three years of study ranged from 135.6 to 140.3 in 2011, 130.9 to 140.9 in 2012 and 138.8 to 155,2 in 2013.

Titrateable acidity of the must expressed in g / l H₂SO₄ was determined at full maturity of the grapes

[1]. Although specific climatic conditions Ștefănești-Argeș vineyard, grape acidity varieties of grape-vines usually remains sharp, high temperatures in recent years this influence clearly indicate quality. Thus, in 2013, due to high temperatures, acidity showed lower values, especially in the early and middle-ripening varieties such as Argessis and Canner, and in 2011 and 2012, when the temperature and insolation values were closest to the multiannual , titrateable acidity was the characteristic varieties tested (table 2).

Table 2

Values of acidity in table grape varieties grown in INCDBH Ștefănești-Argeș

VARIETY	ACIDITY g/l H ₂ SO ₄		
	2011	2012	2013
Argessis	5,14	5,11	4,81
Canner	3,50	3,56	3,80
Muscat d'Adda	5,20	5,30	4,80
Augusta	5,00	5,05	4,20

Changes in acidity of the varieties studied, there were different due to the volume of foliage developed on the block, it generates shading and equally grape production levels. Muscat d'Adda, by extending grain growth and delayed maturation them achieved a higher level of titrateable acidity of must. Thus, this kind average titrateable acidity was 5.10 g / l H₂SO₄.

The varieties studied showed values of acidity between 3.50 to 5.20 in 2011; between 3.56 to 5.30 and from 3.80 to 4.81 in 2012 in acidity varieties device 2013. Values less dense foliage were located within specific varieties of table grapes (3,50- 5.51).

Glucoacidimetric index used at determine when the consumer maturity, so at set the date harvest. Value of the index table grapes usually ranges between 2.5-4.5, since table grapes contain 135-200 g / l sugars and 3.5 to 6.0 g / l H₂SO₄ acidity.

Following glucoacidimetric index values (Table 3) shows large differences from one variety to another, between the years of experimentation.

The varieties studied showed balanced values of the ratio of accumulated sugars and titrateable acidity must: Argessis (2.71 to 3.22) Canner (3.85-4.00), Muscat d'Adda (2.66 to 3, 03), Augusta (2.59 to 3.30).

Table 3

Glucoacidimetric index values during the period studied (average 2011-2013)

VARIETY	GLUCOACIDIMETRIC INDEX		
	2011	2012	2013
Argessis	2,73	2,71	3,22
Canner	4,00	3,95	3,85
Muscat d'Adda	2,66	2,64	3,03
Augusta	2,71	2,59	3,30

Given the characteristics of the varieties studied, it is found that the highest values for this indicator were obtained at variety Canner in 2011

(4.00) and lowest in variety Augusta (2.59) in 2012. All varieties must report sugar / acidity satisfactory.

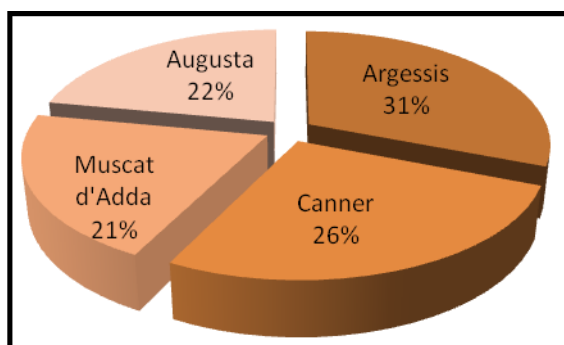


Fig. 6 - Profit reported surface %

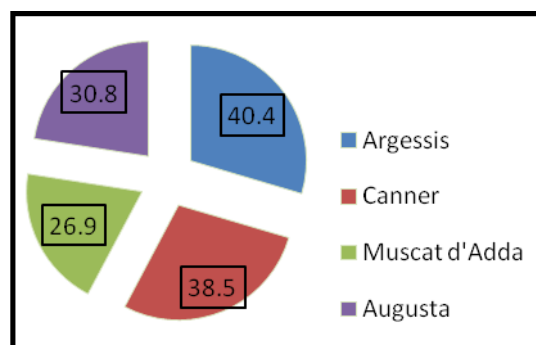


Fig. 7 - Return on varieties studied %

The highest rate of return was achieved Argessis variety (40.4%), followed by variety Canner (38.5%). The last place in terms of rate of return is Muscat d'Adda (26.9%). Variety Augusta recorded a rate of return of 30.8% (Figures 6, 7).

The profit for technological variants applied to varieties studied, with a maximum load of 15 fruit buds / vine and fruit cutting spigot fruit 2-3 eyes. Standardization of fruit load on table grape varieties is

required.

The profit Argessis variety, variety of high quality, had the highest value (3050 lei / ha) to load the rod version 20 buds / vine with fruit cut into rings 4-6 string eyes. The profit from Augusta variety of high quality variety, recorded the highest value (2030 lei / ha) to load the rod version 25 eyes / hub, with cutting string of 8-12 eyes (Table 4).

Table 4

Economic efficiency of new varieties for table grapes from INCDBH Ștefănești-Argeș					
Specification	U.M.	Variety			
		Argessis	Canner	Muscat d'Adda	Augusta
Total production of grapes	t/ha	17,7	16,6	14,5	15,5
Production expenses	mii lei/ha	7,5	7,5	7,6	7,7
Costs of production	mii lei/t	0,5	0,5	0,5	0,5
Total income	mii lei/ha	8,85	7,47	5,80	6,25
Profit reported at the surface	mii lei/ha	3,05	2,61	2,03	2,17
Profit per unit of product	mii lei/t	0,2	0,17	0,14	0,14
Labor consumption	ore/ha	750	750	750	750
Labour productivity expressed in value	lei/oră	3750	3750	3750	3750
Labour productivity expressed physically	kg/oră	23,60	22,13	19,33	20,00
Labour productivity expressed in terms of labor use	ore/t	42,37	45,18	51,72	48,38
Consumption of diesel	l/t	7,8	7,8	7,8	7,8
Rate of return	%	40,60	38,60	26,70	28,18

The production value is higher harvested at new varieties of grapes for table grapes due both good looks and because of their ripening period, when the selling price is much higher and the appearance on the market of table grapes is in high demand.

Conclusions

1. The manufacturer seeks to maximize besides grapes and satisfying both consumer and the merchant.

2. The varieties studied showed values accumulated balance of the relationship between sugars and titratable acidity of must

3. The profit for technological variants applied to varieties studied, with a maximum load of 15 fruit buds / vine and fruit cutting cepi 2-3 eyes. Standardization of fruit load at table grape varieties is required.

4. The highest rate of return was achieved Argessis variety (40.4%), followed by variety Canner (38.5%). The last place in terms of rate of return is Muscat d'Adda (26.9%). Variety Augusta recorded a rate of return of 30.8%.

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