

## ANALYSIS OF THE CRITERIA FOR QUALITATIVE AND QUANTITATIVE EVALUATION OF RAW TOBACCO LEAF IN THE REPUBLIC OF MACEDONIA

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### ABSTRACT

Evaluation of tobacco quality in practice, during the purchase in the last few years, has not been in compliance with the criteria listed in the existing Rules. It is a result of the high quality obtained from tobacco types and varieties grown and application of contemporary agrotechnical practices during their production. There are insertions which, according to their usability value, must be listed in higher grades in industrial classification. In the Rules and criteria for qualitative and quantitative evaluation of raw tobacco leaf of the oriental tobacco types Prilep, Yaka, Dzebel and Basmak ("Official Gazette of R. Macedonia", 16/2007 and 144/2010), tobacco was divided into 6 grades for aromatic tobaccos (I, II, II-A, III-B, IV and V) and 5 grades for additional tobaccos (I, II, III, IV and V).

After the analysis, it was recommended to reduce the number of grades of oriental aromatic tobacco to four (I, II, III and IV) and those of additional tobaccos to two (I and II), which will enable a more real evaluation of tobacco quality of the labor of tobacco producers.

**Key words:** tobacco quality, tobacco types, prilep, yaka, basmak, dzebel

### АНАЛИЗА НА МЕРИЛАТА ЗА КВАЛИТАТИВНА И КВАНТИТАТИВНА ПРОЦЕНА НА СУРОВИОТ ТУТУН ВО ЛИСТ ВО Р. МАКЕДОНИЈА

Процената на тутунот при откупот во последниве години во практиката не соодветствуваше со мерилата пропишани во постојниот Правилник. Тоа е резултат на високиот квалитет на тутунот што го даваат одгледуваните типови и сорти и примената на современите агротехнички мерки во производството. Постојат инсерции кои според квалитетот на употребната вредност во индустриската класификација можат да се рангираат во повисоките класи. Во Правилникот за мерилата за квалитативна и квантитативна проценка на суровиот тутун во лист за ориенталските типови на тутун прилеп, јака, дџебел и басмак ("Службен весник на РМ" 16/2007 и 144/2010) се наведени 6 откупни класи за ароматичните тутуни (I, II, III-A, III-B, IV и V) и 5 класи за дополнителните тутуни (I, II, III, IV и V).

По извршената анализа, предложено е намалување на класите на ориенталскиот ароматичен тутун на 4 класи и тоа: I, II, III и IV класа, и за дополнителните тутуни на две

класи: I и II класа, со што ќе се овозможи пореална процена и вреднување на квалитетот на тутунот и трудот на тутунопроизводителите.

**Клучни зборови:** квалитет на тутун, типови на тутун, прилеп, јака, басмак, џебел

## INTRODUCTION

Due to the special importance of tobacco on the economy of the country, its production, purchase, processing and exports have been regulated by the Law on tobacco and tobacco products (Official gazette of R. Macedonia No 24/06 and 88/08), and the evaluation was based on the Rules and criteria for qualitative and quantitative assessment of raw tobacco leaf (Official gazette of R. Macedonia No 16/2007 and 144/2010).

According to this Rules, there were 6 grades were listed for purchase of the aromatic tobacco varieties Prilep, Yaka, Dzebel and Basmak (I, II, III-A, III-B, IV and V) and 5 grades for the additional tobaccos (I, II, III, IV and V).

Since in the last years the purchase of tobacco was not conducted in accordance with the above mentioned Rules, we have made analysis on tobacco purchase for a five-year period (2005 - 2009).

## ANALYSIS OF TOBACCO PURCHASE

In this paper, analysis will be made on the purchase of oriental tobacco, which will serve as a basis for the proposal for change and amendment of the Rules and criteria for qualitative and quantitative assessment of raw tobacco leaf.

The analysis was carried out in the period 2005 - 2009 and included the whole purchase of tobacco by grades and categories. According to the data on purchased tobacco by types ( Table 1), the highest participation in the structure of purchased tobacco has the type Prilep, with an average of 11.758.3 tons. It is followed by Yaka, and Basmak with 5.436,3 tons and 2121.9 tons, respectively, and the lowest participation was recorded for the type Djebel. In percentages, the

participation of tobacco types in the structure of purchased tobacco is as follows: Prilep - 60.11%, Yaka - 28.77% , Basmak 10.77% and Djebel - 0.35%.

With regard to the fact that oriental tobaccos are purchased in two categories: I - oriental aromatic and II - oriental additional, we have made analysis, the data of which are presented in Tables 2 and 3. It can be seen from the tables that the share of the IInd category (oriental additional tobacco) in total tobacco quantities is very low, ranging from 0.02% in 2008 to 6.11% in 2006. Accordingly, the participation of these tobaccos in the purchase are only symbolic.

Table 1 Dynamics of tobacco purchase by types (in tons)

Type	Year					$\bar{x}$	%
	2005	2006	2007	2008	2009		
Prilep	14.784,5	11.638,5	10.105,3	9.063,4	13.355,3	11.789,40	60,77
Yaka	7.085,6	5.139,3	4.156,4	4.463,3	6.257,1	5.420,34	27,94
Basmak	1.166,8	1.651,5	1.920,5	2.549,4	3.321,5	2.121,94	10,94
Djebel	0	0	86,2	46,6	212,3	69,02	0,35
Total	23.036,9	18.429,3	16.268,4	16.122,7	23.146,2	19.400,70	100,00

Table 2 Dynamics of tobacco purchase by years and categories

Year	Ist category (oriental aromatic) kg	IInd category (oriental additional) kg	Total prod. of I+II category kg
2005	23.036.952,0	111.390,9	23.148.342,0
2006	18.429.294,0	1.198.806,2	19.628.100,2
2007	16.268.450,0	17.991,9	16.286.441,9
2008	16.122.737,6	2.804,9	16.125.542,5
2009	23.146.258,6	12.721,1	23.158.979,7
$\bar{x}$	19.400.738,4	268.743,0	19.669.481,3

Table 3 Participation of the IInd category tobacco in total tobacco purchase

Year	I+II category kg	IInd category	
		kg	%
2005	23.148.342,0	111.390,9	0,48
2006	19.628.100,2	1.198.806,2	6,11
2007	16.286.441,9	17.991,9	0,11
2008	16.125.542,5	2.804,9	0,02
2009	23.158.979,7	12.721,1	0,05
$\bar{x}$	19.669.481,3	268.743,0	1,35

According to our analysis by years and grades, it can be stated that the highest share in tobacco purchase in the investigated period was that of the IInd grade, averaging 7.962.925,9 kg or 41.04%. It can be also noticed that this grade has the lowest oscillation in purchased quantities. The highest variability in purchased tobacco appears in the Ist grade, ranging between 6.25% and 74.06%. while the average purchase

of I grade tobacco is 4.702.027,16 kg or 24.24%. Purchase of the IIIrd to the lowest Vth grade tobacco suddenly falls down, especially from III-b to V. The quantities of purchased tobacco from the IVth and Vth grade are very low. This is particularly valid for the Vth grade, which participation in the total purchase in all investigated years is insignificant (below 1%).

Table 4 Participation of purchased tobacco by grades and kgs

Year	Purchase I and II grade tobacco					
	Grade	kg	%	Grade	kg	%
2005	I	1.580.849,70	8,15	II	9.660.616,70	49,79
2006	I	1.389.879,30	7,16	II	6.557.598,60	33,80
2007	I	1.212.989,70	6,25	II	9.296.777,60	47,91
2008	I	4.959.271,30	25,57	II	8.200.540,90	42,26
2009	I	14.367.145,80	74,06	II	6.099.095,70	31,43
$\bar{x}$	I	4.702.027,16	24,24	II	7.962.925,90	41,04

Year	Purchase of III-A and III-B grade tobacco					
	Grade	kg	%	Grade	kg	%
2005	III-A	8.792.727,30	45,32	III-B	2.424.782,80	12,49
2006	III-A	6.684.346,40	34,45	III-B	2.562.495,60	13,20
2007	III-A	5.141.868,50	26,50	III-B	570.501,90	2,94
2008	III-A	2.743.292,00	14,14	III-B	201.443,60	1,04
2009	III-A	2.287.140,70	11,79	III-B	362.971,00	1,87
$\bar{x}$	III-A	5.129.874,98	26,44	III-B	1.224.438,98	6,31

Year	Purchase of IV and V grade tobacco					
	Grade	kg	%	Grade	kg	%
2005	IV	507.330,80	2,61	V	70.644,70	0,37
2006	IV	1.067.886,20	5,50	V	167.087,90	0,87
2007	IV	41.790,00	0,22	V	4.522,30	0,02
2008	IV	16.056,70	0,08	V	2.133,10	0,01
2009	IV	26.311,00	0,13	V	3.594,40	0,02
$\bar{x}$	IV	331.874,94	1,71	V	49.596,48	0,26

Data on Table 5 present the average purchase of tobacco by grades and kilos. It can be recorded that I and II grade are predominant in the average purchase with 65.28% , and together with grade III-A these quantities increase to 91.72%. The share of III-B in total purchase is

6.31%, and the share of the IVth and Vth grade is only 1.97%. From these data it becomes clear that the last two grades from the current Rules for tobacco purchase are actually not in function of the purchase.

Table 5 Average purchase of tobacco by grades and % (2005-2009)

Grade	Tobacco purchase			
	kg	%	%	%
I	4.702.027,0	24,23	65,28	91,72
II	7.962.926,0	41,04		
III-A	5.129.875,0	26,44	26,44	
III-B	1.224.439,0	6,31	6,31	6,31
IV	331.875,0	1,71	1,97	1,97
V	49.596,0	0,27		
Total	19.400.738,0	100,00	100,00	100,00

Table 6 Summary table of dynamics of tobacco purchase by grades and kgs

Grade	Year				
	2005	2006	2007	2008	2009
I	1.580.849,70	1.389.879,30	1.212.989,70	4.959.271,30	14.367.145,80
II	9.660.616,70	6.557.598,60	9.296.777,60	8.200.540,90	6.099.095,70
III-A	8.792.727,30	6.684.346,40	5.141.868,50	2.743.292,00	2.287.140,70
III-B	2.424.782,80	2.562.495,60	570.501,90	201.443,60	362.971,00
IV	507.330,80	1.067.886,20	41.790,00	16.056,70	26.311,00
V	70.644,70	167.087,90	4.522,30	2.133,10	3.594,40
$\Sigma$	23.036.952,00	18.429.294,00	16.268.450,00	16.122.737,60	23.146.258,60

The same statement can be made from the analysis in Table 6 and Figure 1, which clearly presents tobacco purchase by years and grades and dynamics of purchase expressed in percentages.

Table 7 Dynamics of tobacco purchase by grades, in %

Grade	Year					$\bar{x}$	
	2005	2006	2007	2008	2009		
I	6,86	7,54	7,46	30,76	62,07	22,94	
II	41,94	35,58	57,14	50,86	26,35	42,37	91,90
III-A	38,17	36,27	31,60	17,02	9,88	26,59	
III-B	10,52	13,91	3,51	1,25	1,57	6,15	6,15
IV	2,20	5,79	0,26	0,10	0,11	1,69	1,95
V	0,31	0,91	0,03	0,01	0,02	0,26	
$\Sigma$	100,00	100,00	100,00	100,00	100,00	100,00	100,00

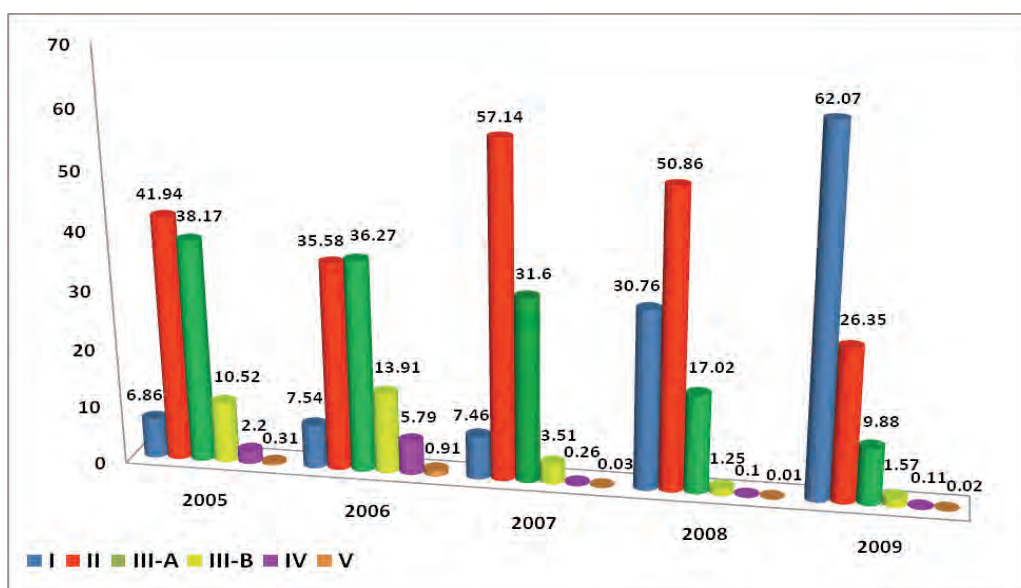


Figure 1 Dynamics of tobacco purchase by grades and years, in %

From the data presented (Table 8) it can be seen that 86.30% of the purchased IIInd category tobacco is of a first grade and 12.13% is of a second grade, i.e. the total percentage of the first and second-grade tobacco is 98.43%. The average purchase of the third-grade tobacco is 1.09%, and together with the fourth and

fifth-grade tobacco it is 1.57%. Such a low participation of the last three grades in total amounts of purchased additional tobacco (or IIInd category tobacco) gives us the right to conclude that they are insignificant factor in the purchase and therefore they should be deleted from the Rules for tobacco purchase.

Table 8 Purchase of additional tobacco by grades in 2005 - 2009 ( in %)

Grade	Tobacco type			Average % of purchased tobacco	
	Prilep	Yaka	Basmak		
I	82,96	83,71	92,22	86,30	98,43
II	15,16	13,80	7,43	12,13	
III	1,65	1,54	0,10	1,09	1,57
IV	0,12	0,27	0,12	0,17	
V	0,11	0,68	0,13	0,31	
Σ	100,00	100,00	100,00	100,00	100,00

For better understanding of the problem and with the aim to make correct conclusions and suggestions which will improve the present situation in tobacco purchase, we've also made analyses on the percentual tobacco share by insertions (belts), (Boceski 2003), since they

certainly are one of the most essential indicators in evaluations of tobacco quality (Table 9). It was revealed that the share of the highest quality insertions was 32%, that of the middle belts was 32% and of the lower belts only 8 %.

Table 9 Participation of insertions (belts) in oriental aromatic tobaccos in %

Tobacco belt	Insertion	Participation in %	
	top	7	32
Upper belt	undertop	10	
	kovalama	15	
	upper middle leaves	20	
Middle belt	middle leaves	25	<b>60</b>
	lower middle leaves	15	
Lower belt	primings	5	8
	lugs	3	
Total		100	100

## CONCLUSIONS

According to the presented data and their analysis, the following conclusions can be drawn:

1. Tobacco produced in the Republic of Macedonia yields a high quality raw for treatment and processing of final tobacco products with a high demand on world markets.

2. Evaluation of tobacco quality in practice, during the purchase in the last few years, has not been in conjunction with the criteria listed in the existing Rules. It is a result of the high quality obtained from tobacco types and varieties grown and application of contemporary agrotechnical practices during their production. There are insertions which, according to their usability value, must be listed in higher grades in industrial classification.

3. In the existing criteria for evaluation of tobacco quality, tobacco is divided in too

many grades, which is impractical and makes tobacco treatment more difficult. On the other hand, some of the classes are not functional and the others are out of use ( III-B and V grade in oriental aromatic tobaccos and III, IV and V grade in additional oriental tobaccos). Therefore, these grades should be deleted from the Rules for evaluation of oriental aromatic and oriental additional tobaccos.

4. By reducing the number of grades in purchase of oriental tobacco to four (I, II, III and IV), and for additional tobaccos to two (I and II), a more real evaluation of tobacco quality and of tobacco producers labor will be obtained.

5. In practice, tobacco purchase will be more simple, purchasers will be more effective and possibilities for improved industrial manipulation will be made.

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