QUALITY ASSESSMENT OF TOBACCO TYPE VIRGINIA F.I. USING INTERNATIONAL RATING SYSTEM

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ABSTRACT

The objective of this study is to determine the quality of tobacco Virginia F.I. type leaves an assortment of lots received, from the culture of 2013, using the international system of grading into a manufacturing and processing enterprises.

The study reveals particularities of raw materials used in processing the tobacco industry and its suitability in accordance with the standards used in the field. Thus, by classifying tobacco using the international rating system provides a separation of leaf tobacco on leaf floors, helping a lot in training batches for processing, and by processing tobacco to obtain a finished product with better features of smoking and a longer period of expendability.

INTRODUCTION

Tobacco (*Nicotianatabacum*) is a plant with great economic importance. In our country, tobacco is known since the end of the sixteenth century and for the first time he was processed in Moldavia region, in 1821.

Romania has favorable climatic conditions for the production of the main types of tobacco: Virginia, Burley, Oriental, Semi-Oriental and for high consumption, and some varieties economically exploit productive potentially of some poor soils as those eroded, sandy soils or other soils less productive.

In the last 10 years, due to economically changes that have taken place on both national and European level, tobacco and his processing process it has undergone a continuous transformation, especially through the privatization of National Network of Tobacco and the entry on the Romanian market of some large corporations as JTA, PHIL MORRIS and others.

Those new Corporation brings with them new methods and standards related the quality assessment of tobacco leaves and other fractions used into making process of cigarettes. Related to these standards, in table 1 we present the rating system for Virginia tobacco leaves.

Table 1

Virginia Tobacco Leaves Rating System

X	C	B	T
XL3	CL3	BL3	TLO2
XL4	CL4	BL4	TLO3
XLO2	CLO2	BLO2	TLO4
XLO3	CLO3	BLO3	TLO3V
XLO4	CLO4	BLO4	TLO3G
XLO3F	CLO3F	BLO3V	TLO4G
XLO4F	CLO4F	BLO3G	
XLO5F	CLO5F	BLO4G	
XLO3V	CLO3V		
XLO3G	CLO3G		
XO2	CO2	BO2	TO2
XO3	CO3	BO3	TO3
XO4	CO4	BO4	TO4
XO3F	CO3F	BO3F	TO3V
XO4F	CO4F	BO4F	TO4V
XO5F	CO5F	BO5F	TO3G
		BO6F	TO4G
XO6F	COW	BOW	
XO3V	COU	BOU	
XO4V	CO3V	BO3V	
XO3G	CO4V	BO4V	
	CO5V	BO5V	
XO4G	CO3G	BO3G	
	CO4G	BO4G	
XR3	CO5G	BO5G	
		BM2	TM2
		BM3	TM3
		BM4	TM4
		BM3G	TM3G
			TM4G
		BR3	
		BR4	

MATERIAL AND METHODS

On studied lots of tobacco leaves were made different observation and notation related the international rating system, as follow:

- for foliar floor:
  - **X** – for base leaves
  - **C** – for under middle leaves
  - **B** – for middle leaves
  - **T** – for top leaves
- for leaves color:
  - **O** – for orange color
  - **LO** – for low orange color
  - **L** – for lemon color
  - **M** – dark red color
- for leaves defects:
  - **2** – very good quality
  - **3** – average quality
  - **4** – under average quality
  - **5** – poor quality

    - **6** – very poor quality
- for drying defects:
    - **R** – red
    - **V** – green
    - **G** – grey
    - **W** – high humidity
    - **U** – mold

Taking in account those notations, the ancient method of fermentation of tobacco leaves for industrial use was replaced by new one – artificial drying and forming mixtures of tobacco with similar qualities (same foliar floor, same color and same consistency) – table 2.

Table 2

Virginia Tobacco Blends

No	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
BLENDS	**XCO3/S**	**BO3/S**	**XCO3F/S**	**DO3F/S**	**XCO3K/S**	**BO3K/S**	**CBO5F/S**	**CBO5K/S**	**CB6/S**
	XO2	BLO2	XLO3F	BO3F	XO4V	BO4V	XLO5F	CO5G	XO6F
	XLO2	BO2	XO3F	BO4F	XO4G	BO4G	XO5F	CO5V	COU
	CO2	TO2	CLO3F	TLO4F	CO4V	TO4G	CLO5F	COW	BO6F
	XLO3	BLO3	CO3F		CO4G	TO4V	CO5F	BO5V	BOU
	XO3	BO3	XLO4F				BO5F	BO5G	
	CLO3	TLO2	XO4F					BOW	
	CO3	TO3	CLO4F						
	XLO3V	BLO3V	CO4F						
	XO3V	BO3V							
	XLO3G	BLO3G							
	XO3G	BO3G							
	XLO4	BLO4							
	XO4	BO4							
	CLO3V	TO4							
	CO3V	TLO3							
	CLO3G	TLO3V							
	CO3G	TO3V							
	CLO4	TLO3G							
	CO4	TO3G							
		TLO4							

In 2013 due a small quantity received were established only 5 blends, with particular features generated by quality of mixture and request of the buyers (tobacco processors on the free market). The blends were:

1. **XCO3/S** – a good mixed tobacco formed from base (X) and under middle (C) leaves, with orange color (O), with few defects (C3) as strips (S);
2. **BO3/S** - means good tobacco formed from middle floor leaves consists of (B) and top (T), orange color (O), with few defects (3) the form of strips (S);
3. **XCO4/S** – lowmixed tobacco formed from under middle leaves (C), base leaves (X) with, orange color in most of them (O) and defects (4/S);
4. **BO4/S**– low mixed tobacco formed from middle leaves + top leaves (most of them from middle B) with defects, of under average quality;
5. **CBO6/S –** poor quality tobacco mixture, with leaves from middle part and top of the plant and lots of defects**.**

RESULTS AND DISCUSSION

A. Results regarding the rating quality

Using the international rating system we observe that in the received lots the most important fraction were leaves from under middle and middle part of the plant of 39% and respectively 37.9%, followed by the leaves from base level of 22,3% and a very small part of leaves from the top, only 0.8% (table 3).

Table 3

Results related the rated lots of Virginia tobacco

NO.	GRAD	QUANTITY (kg)	FRACTION (%)
1.	XO3G	17952	2.3
2.	XO3,5G	25930	3.3
3.	XO4G	88705	11.3
4.	XO5G	28699	3.7
5.	XO6F	13455	1.7
TOTAL		**174741**	**22.3**
6.	CO3G	95744	12.2
7.	CO3,5G	59841	7.6
8.	CO4G	99141	12.6
9.	CO5G	44353	5.7
10.	COU	6850	0.9
TOTAL		**305929**	**39.0**
11.	BO3G	81326	10.4
12.	BO3V	42290	5.4
13.	BO4	32530	4.1
14.	TO3G	6506	0.8
15.	BO4G	62930	8.0
16.	BO5G	13110	1.7
17.	BM4G	55064	7.0
18.	BO6F	10120	1.3
TOTAL		**297370**	**37.9**
TOTAL TOP LEAVES		**6276**	**0.8**
TOTAL GENERAL		***784546***	***100***

B. Results regarding the quality of processed tobacco of formed blends

Under the processing of tobacco, at **XCO3/S** blend were used the follow fractions (figure 1):

- Strips = 127.000 kg (635 boxes) – 75%;
- Long nervure - N.L. = 27.800 kg (139 boxes) – 16%;
- Short nervure - N.S. = 8.400 kg (42 boxes) – 5%;
- Short strips - S.S. = 5.850 kg (39 boxes) – 4%
- ***TOTAL = 169.050 KG***

Looking at these percentages it is observed that 57% of tobacco respectively 113.696 kg is good (XO3G, CO3G), thus allowing the introduction in the blend of a quantity of 85.771 kg (43%) of tobacco with lower quality denoted by XO3,5G and CO3,5G grads.

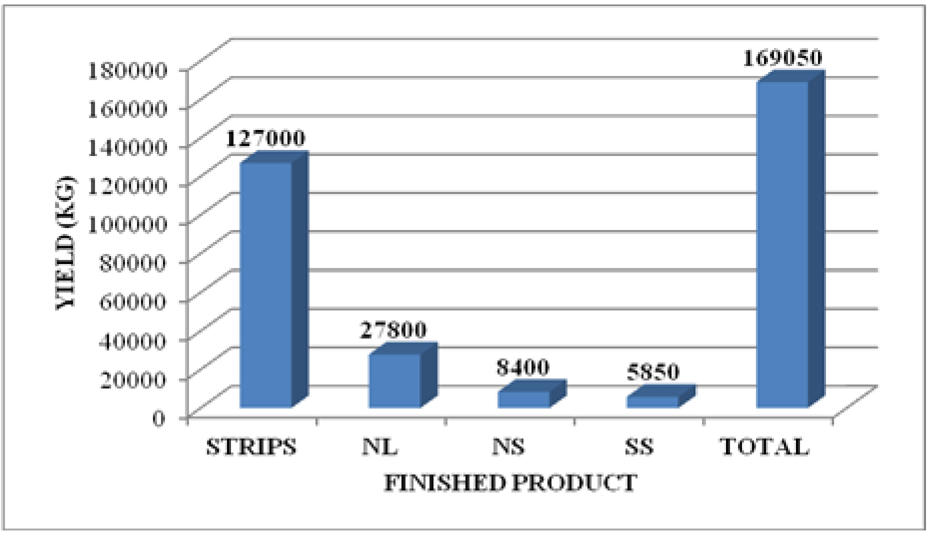

Figure 1 – Finished product of XCO3/S

The second tobacco blend, **BO3/S**contains the follow fractions (figure 2):

- Strips = 103.200 kg (516 boxes) – 74%;
- Long nervure - N.L. = 24.400 kg (122boxes) – 17.5%;
- Short nervure - N.S. = 7.400 kg (37boxes) – 5.5%;
- Short strips - S.S. = 4.350 kg (29 boxes) – 3%
- ***TOTAL = 139.350 KG***

Analyzing the material brought to trial, this blend is observed that 20% of the volumes is BO4 degree, and compared with XCO3/S blend proportion of small strips decreased by one percent. This is because tobacco leavesfrom middle floor and top has a higher peak consistency.

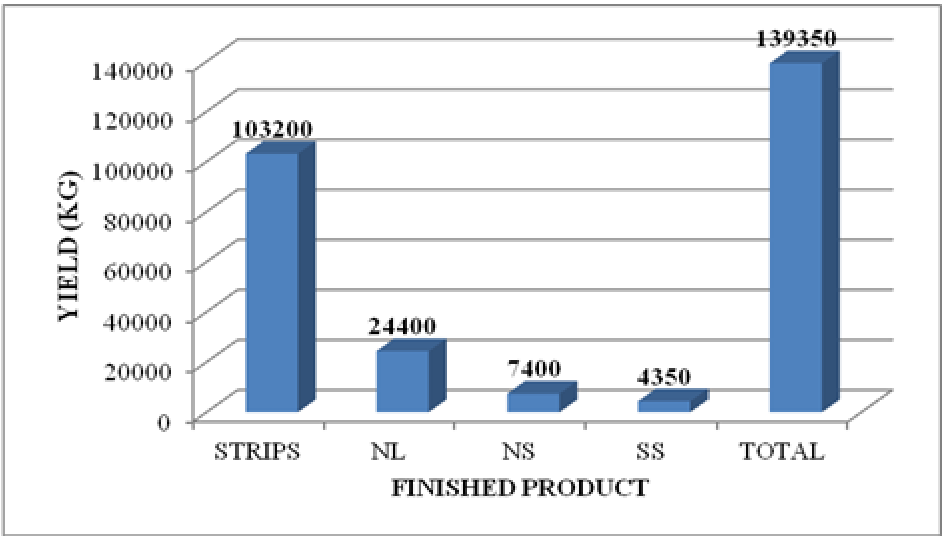

Figure 2 – Finished product of BO3/S

The third tobacco blend, **XCO4/S**contains the follow fractions (figure 3):

- Strips = 151.000 kg (755 boxes) – 74%;
- Long nervure - N.L. = 31.000 kg (155boxes) – 15%;
- Short nervure - N.S. = 9.000 kg (45boxes) – 4%;
- Short strips - S.S. = 12.150 kg (81boxes) – 7%
- ***TOTAL = 203.150 KG***

In this blend is observed that the percentage of small strips increased to 7%, which shows that introduced tobacco,has low quality. A consequence of poor quality and yield is low performance, leading to loss of 16%, compared with only 10.9% in blenders XCO3/S, respectively BO3/S. Also picking is very high, about 7%, compared to 4-5% as in XCO3/S and BO3/S.

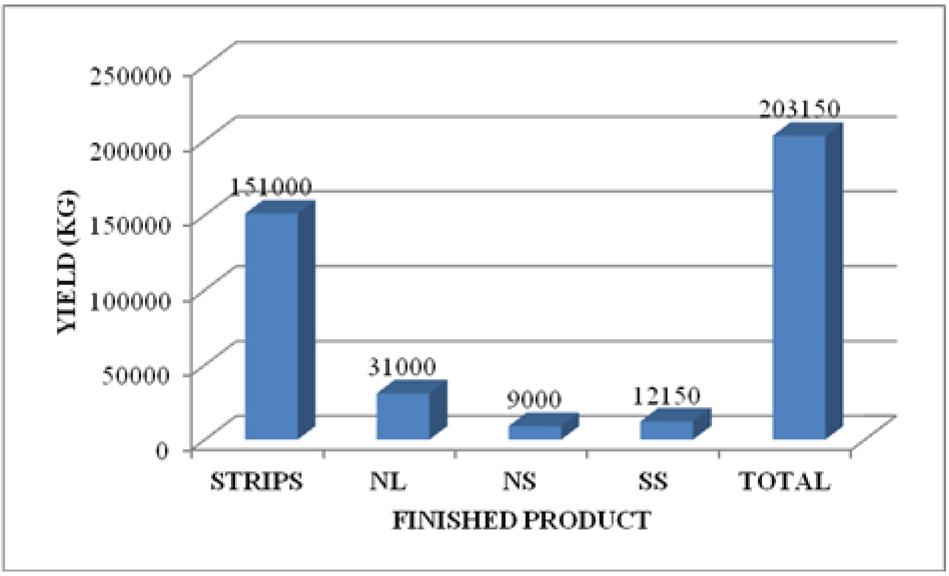

Figure 3 – Finished product of XCO4/S

The tobacco blend**BO4/S**contains the follow fractions (figure 4):

- Strips = 78.400 kg (392 boxes) – 72%;
- Long nervure - N.L. = 20.200 kg (101boxes) – 19%;
- Short nervure - N.S. = 4.200 kg (21boxes) – 4%;
- Short strips - S.S. = 4.800 kg (24boxes) – 5%
- ***TOTAL = 107.600 KG***

Analyzing the results obtained in this blend, we see a higher percentage of NL compared to the other blends, because grades BO4G, BO5G or middle BM4G have tobacco, which has well developed main stem.In terms of picking tobacco, the percentage is 4.8 to 5%, and technological loss is about 13%, too high.

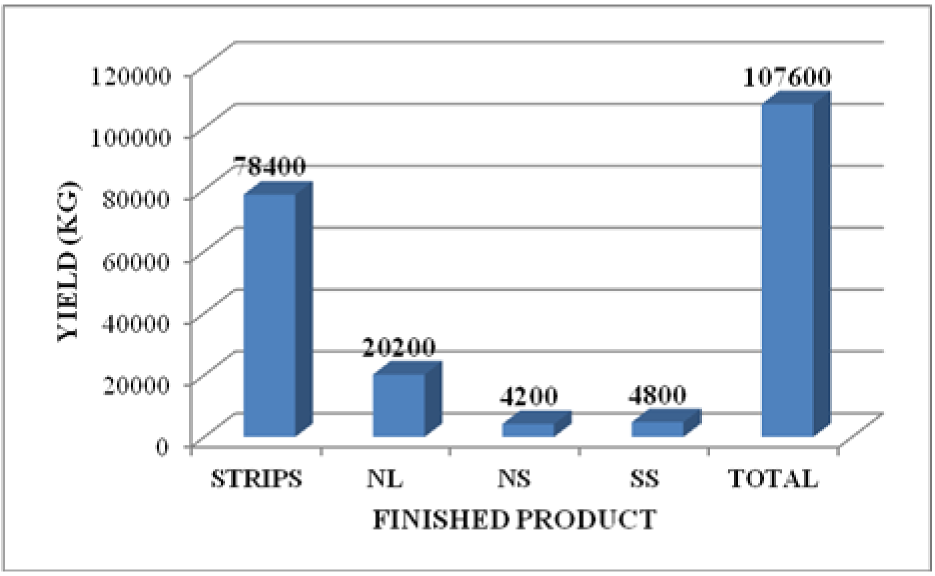

Figure 4 – Finished product of BO4/S

The last tobacco blend**CBO6/S**contains the follow fractions (figure 5):

- Strips = 39.400 kg (197 boxes) – 73%;
- Long nervure - N.L. = 6.600 kg (33boxes) – 12%;
- Short nervure - N.S. = 2.200 kg (11boxes) – 4%;
- Short strips - S.S. = 5.550 kg (37boxes) – 11%
- ***TOTAL = 53.750 KG***

Analyzing the results obtained in this blend, which is the lowest quality, with degrees and picking apart the latest results from the other blends, there is doubling the amount of small strips (11% versus 5% for the other blends) and the increase of technological losses above 25%.

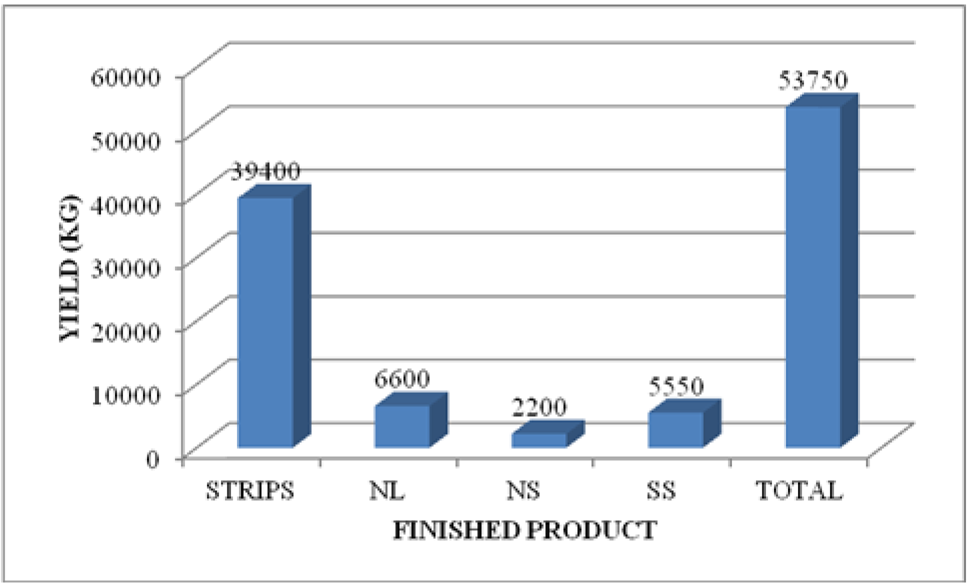

Figure 4 – Finished product of CBO6/S

CONCLUSIONS

On Virginia F.I. tobacco international rating systems results obtained from the blends of tobacco processing formats, leading to conclusions that may constitute recommendations for tobacco processors:

- ✓ Determination of tobacco without intermediate notation drying defect and between 3 and 4 to 3.5;
- ✓ Elimination of balls and boxes of tobacco major defects and do not correspond blend is on the line, thus avoiding the high percentage of picking (especially tobacco);
- ✓ The supply of tobacco to tables that contain tobacco blends middle and under top leaves due to the high proportion of foreign bodies, particularly child and grass;
- ✓ Processing and CO5G and XO5G separate degrees, given the poor quality of the tobacco that influenced results in Blend XCO4/S, resulting in a low yield, high technological losses (16%) and high percentage of small strips (about 7%);
- ✓ Avoid placing the blend BO4/S grade tobacco BM, where M means dark red tobacco, leading to changing quality blenders, especially since in this case the amount of BM4G is very high (55064 kg) , representing 42% of the total amount introduced.

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