

MORPHOLOGICAL, BIOLOGICAL AND PRODUCTIONAL CHARACTERISTICS OF SOME NEWLY CREATED PERSPECTIVE LINES OF TOBACCO TYPE YAKA

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Abstract

Comparative trials were made in the field of Tobacco Institute-Prilep during 2000.

The aim of these investigations was to study the morphological and productional features of six newly created tobacco genotypes of the type Yaka, in comparison to the standard YV 125/3, in order to obtain a high-quality tobacco raw which will satisfy the requirements of the foreign market.

Results of investigation reveal the following:

- According to their morphological characteristics, the new genotypes are typical for the type Yaka, with a higher leaf number.

- The yield of dry tobacco per hectare is up to 42.26% higher compared to the standard. The presence of upper grades (I, II) is also higher, with exception of one line.

All investigated lines had a higher purchase price and better economic effect, with statistical differences.

Introduction

There are many factors that have an influence on the quality of oriental types of tobacco. The most important of all, however, is the tobacco variety, which gives potential possibilities for improvement of the yield, quality and rentability of the total production. For this reason, an imperative in selection of tobacco is the need for permanent creation of new tobacco varieties which will provide a high-quality raw suitable for exports.

The aim of our investigations was to study and determine the productional and qualitative properties of 6 newly created lines and varieties of tobacco type Yaka, as compared to the standard Yk 125/3.

Materials and method

Investigations were carried out during 2000, on the Experimental field of Tobacco Institute-Prilep. The following varieties and lines were used in the trial: Yaka (Yv 125/3) as a standard, Yk. 1. 93-3/1, Yk.1. 156-3/1, Yk.1. 156/68, Yk. 1. 93-5/1, Yk.1. 132/3, Yk.1. 142-10/1.

The new lines were phenotypically and genetically equal and uniform.

Transplanting of tobacco was carried out in a space of 40 X 12 cm, on the field of Tobacco Institute. The trial was set up in a randomized block system with four replications.

In the course of the growing period, the necessary cultural practices were applied and adequate morphological measurements and phenological observations were made.

Results and discussion

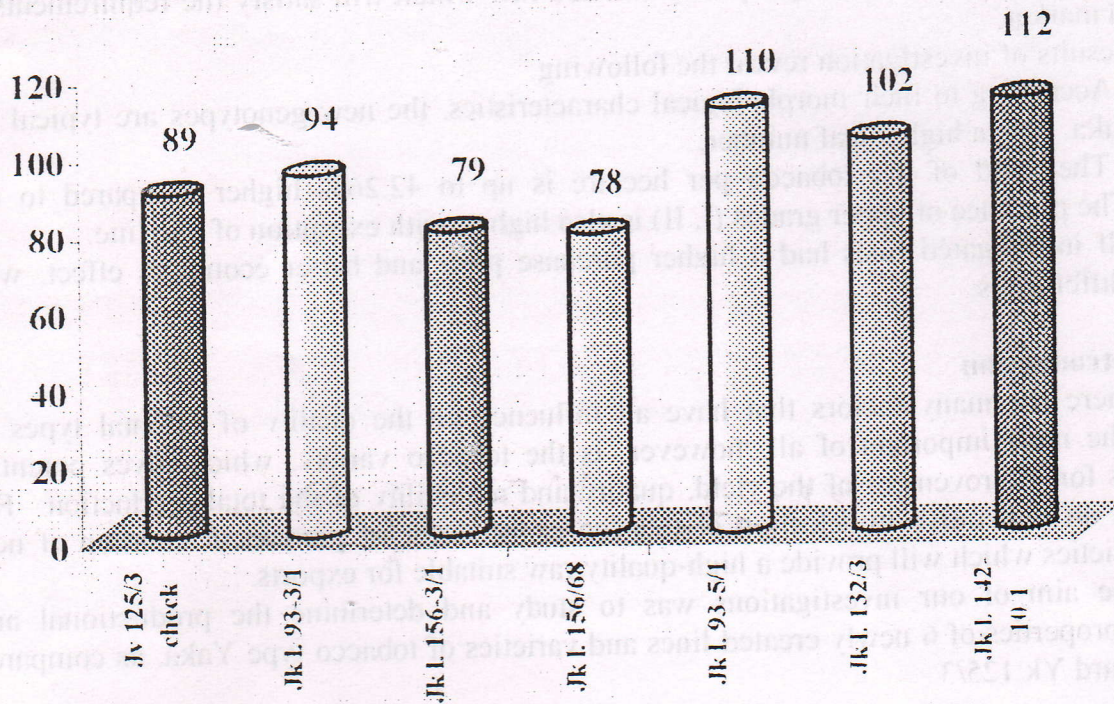
a) Morphological characteristics

All varieties investigated had a height typical for the type Yaka, ranging 78 cm (Yk.l. 156/68) to 112 cm (Yk.l.142-10/1) (Figure1.2.3).

It could be seen from the table that number of leaves per stalk ranges from 38 (standard variety Yv 125/3) to 45 (Yk.l.132/3 and Yk.l. 142-10/1).

The largest leaf size ranges from 19.6 cm x 8.1cm l/w in the standard variety Yv 125/3 to 23.1 cm x 12.7 cm l/w in Yk.l.142-10/1.

Figure 1- Plant height with inflorescence, cm.



■ Jv 125/3 check ■ Jk.l. 93-3/1 ■ Jk.l. 156-3/1 ■ Jk.l. 156/68 ■ Jk.l. 93-5/1 ■ Jk.l. 132/3 ■ Jk.l. 142-10/1

Figure 2 - Number of leaves per plant

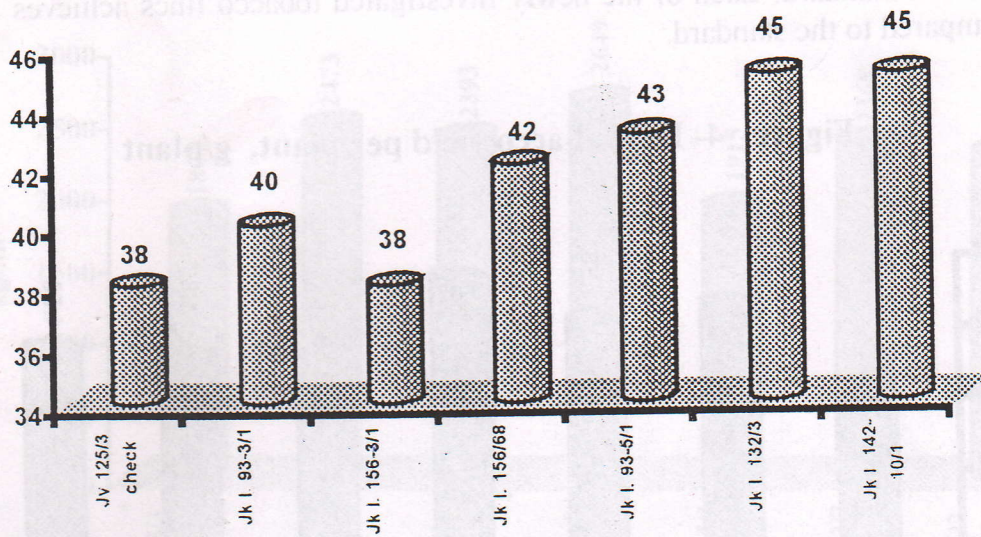
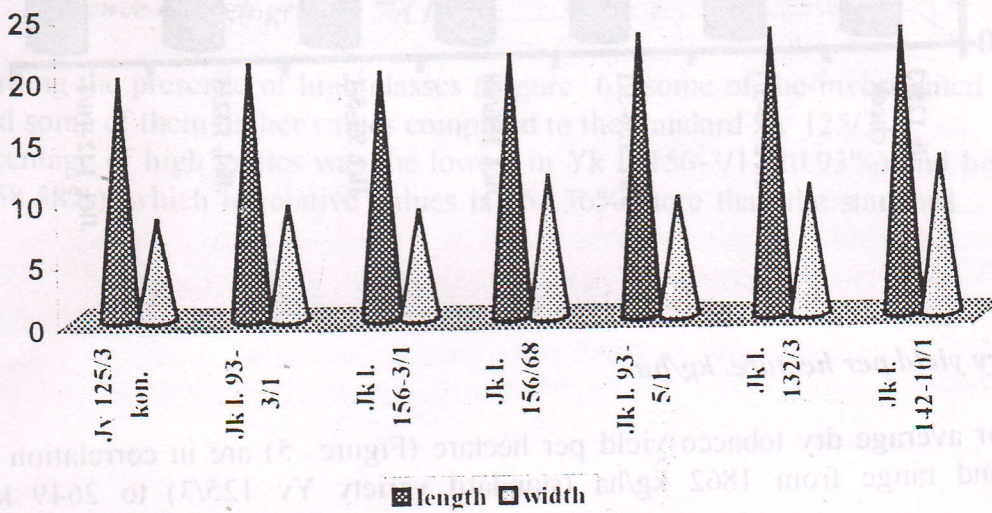


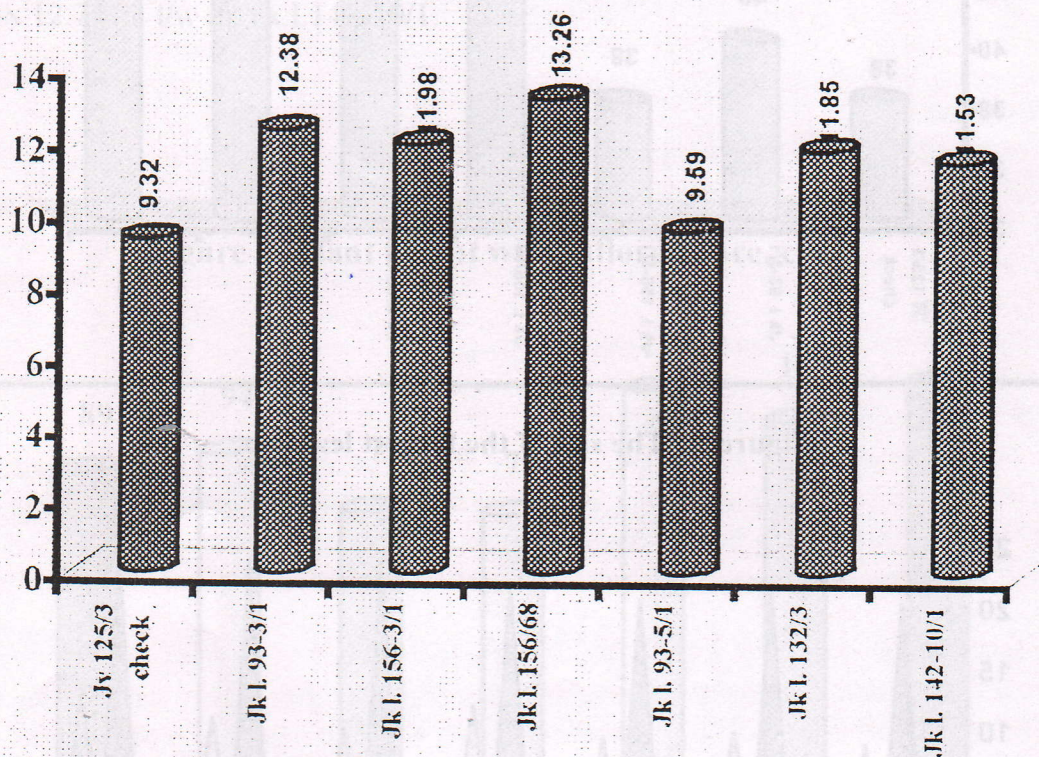
Figure 3 - The size of the largest leaf, cm.



a) Dry yield per plant, g

According to the results presented in Figure 4, the lowest yield per plant was obtained in the standard variety Yv.125/3 (9.32 g), and the highest in the line Yk.l. 156/68 (13.26 g), which is 44.93% more than the standard. Each of the newly investigated tobacco lines achieves higher yield per plant compared to the standard.

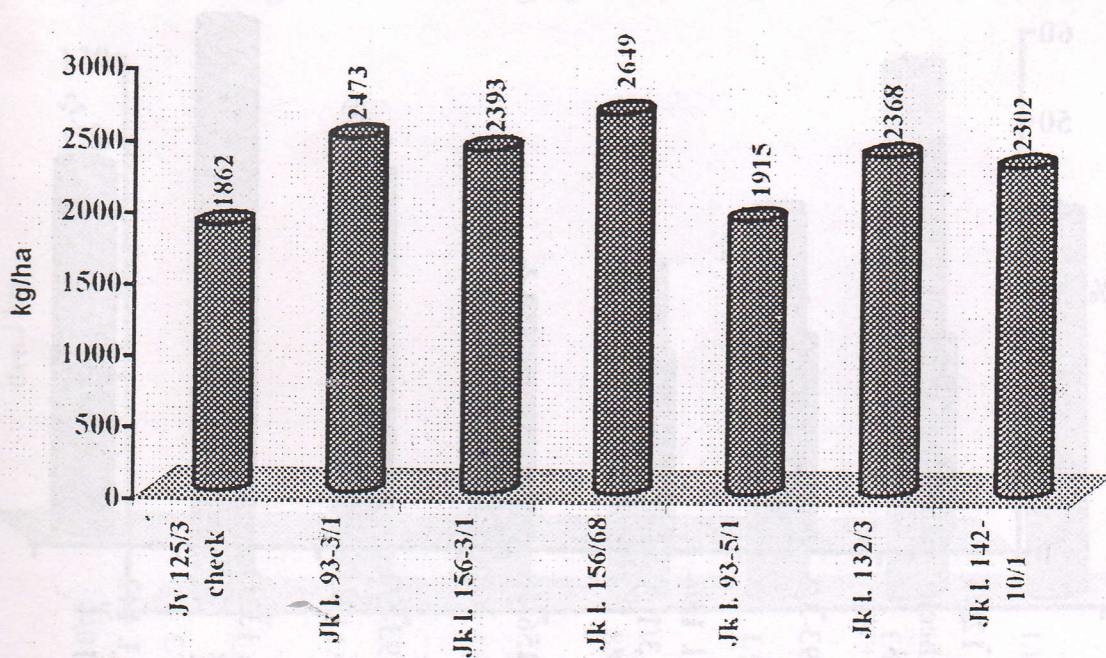
Figure 4- Dry tobacco yield per plant, g/plant



c) *Dry yield per hectare, kg/ha*

Values for average dry tobacco yield per hectare (Figure 5) are in correlation with yield per plant and range from 1862 kg/ha (standard variety Yv 125/3) to 2649 kg/ha (Yk.l.156/68).

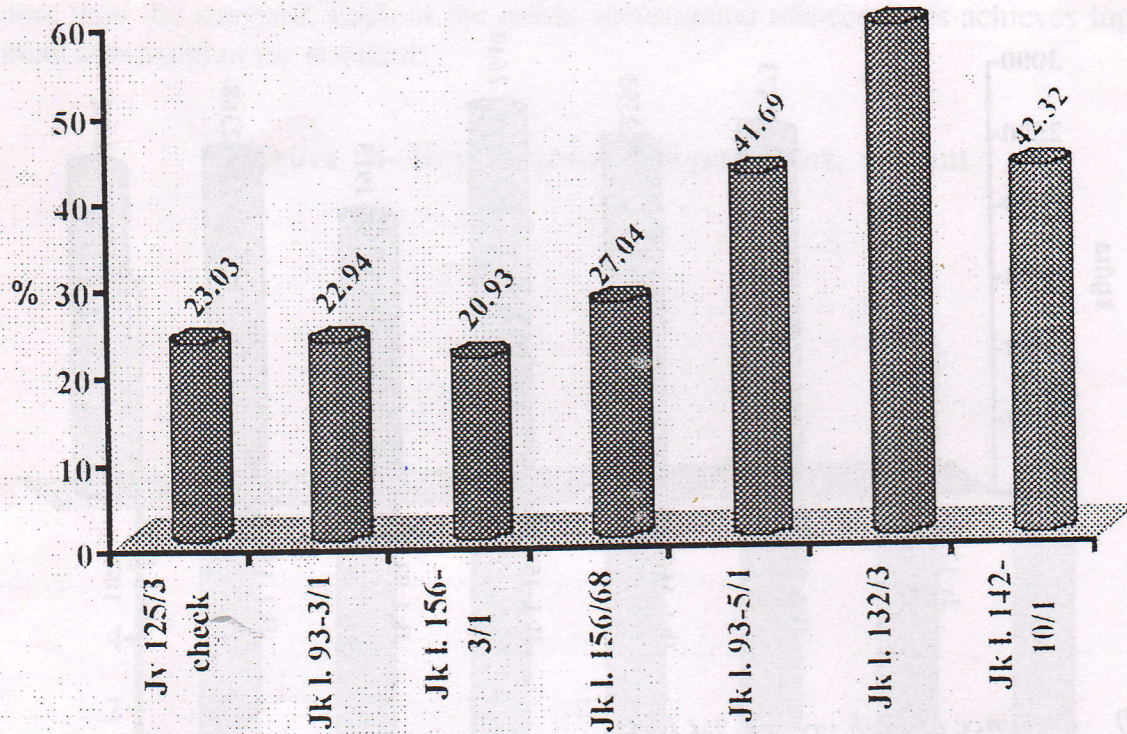
Figure 5 - Dry tobacco leaf per hectare, kg/ha



d) Presence of high grades, % (I i II)

Regarding the presence of high classes (Figure 6), some of the investigated varieties gave lower and some of them higher values compared to the standard Yv 125/3. Thus, the percentage of high grades was the lowest in Yk L 156-3/1 (20.93%) and highest in Yk L 132/3 (58.58%), which in relative values is 154.36% more than the standard Yv 125/3.

Figure 6 - Participation of higher grades, (I i II) , %

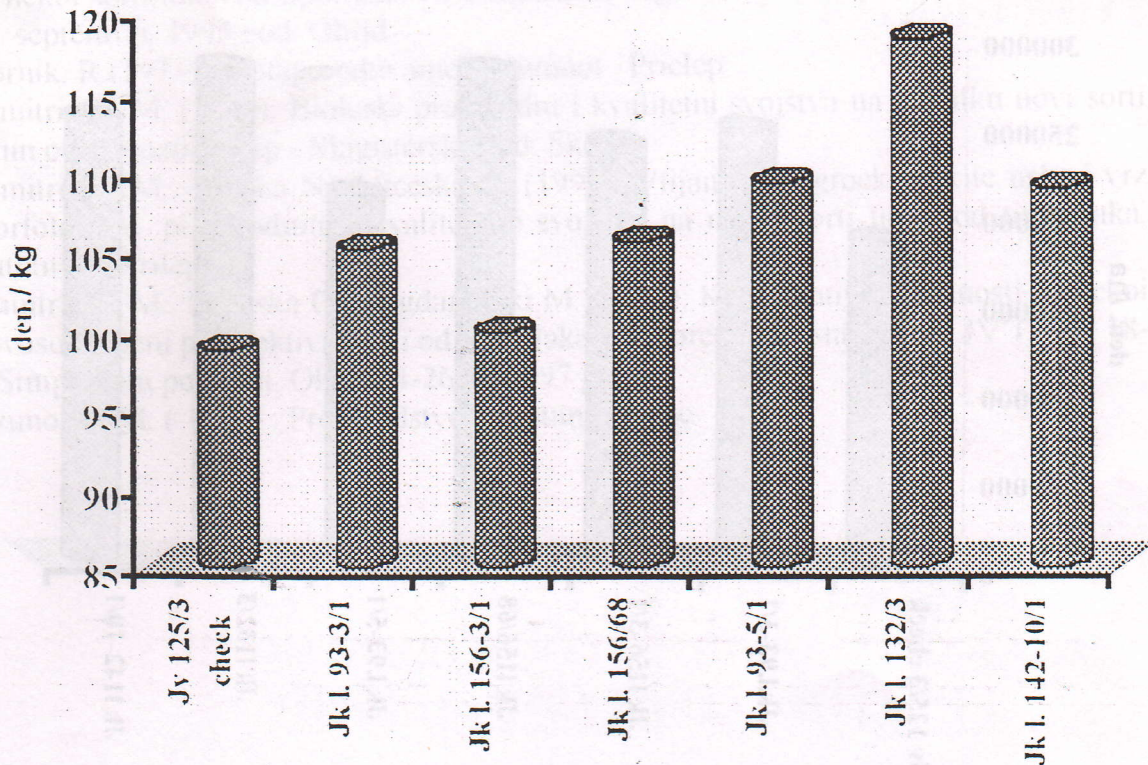


e) Average purchase price, den/kg

All of the investigated tobacco lines reached higher average price compared to the standard (Table 5).

The highest purchase price of 118.23 den/kg was obtained in Yk l. 132/3, which is 19.82% more than the standard Yv 125/3 (98.67 den/kg).

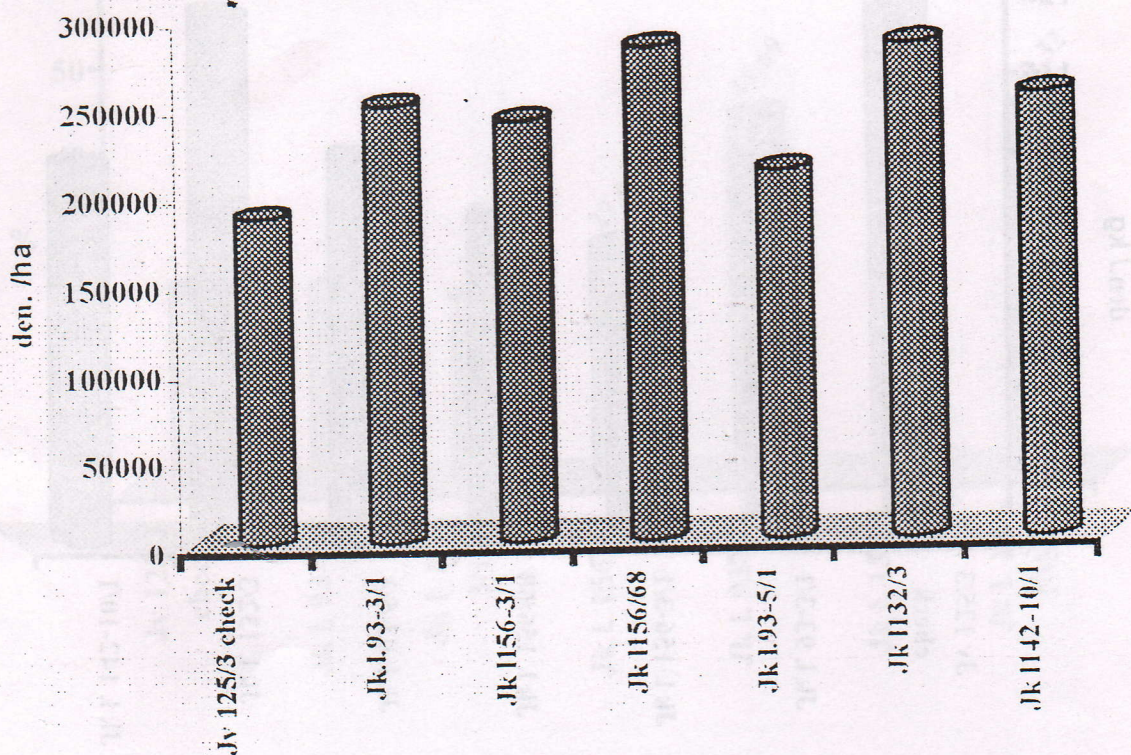
Figure 7 - Average price per kg, den./ kg



f) Economic effect

According to the economic effect, all newly created varieties of the type Yaka have achieved higher values compared to the standard Yv 125/3 (Figure 8) there are big differences present among all of them. The lowest economic effect (184.912.0 den/ha) was recorded in the standard variety Yv 125/3, while the highest (280.374.4 den/ha and 279.575.5 den/ha) in varieties Yk I. 132/3 and Yk I.156/68, respectively. This is 51.61% and 51.19% more than the standard.

Figure 8 - The economic effect, den. /ha



Conclusions

From the investigations made in 2000 and the results obtained on morphological, biological and productional characteristics of the new lines and varieties of tobacco type Yaka, the following statements can be drawn:

- The morphological characteristics of the newly created varieties are typical for the type Yaka, but the number of leaves is higher compared to the standard.
- All varieties investigated have a higher dry tobacco yield per hectare compared to the standard (up to 42.26% in Yk.l. 156/68).
- All new varieties, with one exception, have a higher participation of high grades (I and II) compared to the standard.
- All of the newly created varieties achieved a higher economic effect.

The most perspective among the investigated tobacco lines were Yk 156/68 and Yk 132/3, which achieved higher economic effect in a relative value of 51.61% and 51.19%, respectively. The line Yk.l. 156/68 is suitable for growing in dry conditions and poorer soils, while Yk l. 132/3 in conditions of irrigation and on medium rich soils.

Reference

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