



## CULTIVAR RELEASE

### ‘Conilon Vitória - Incaper 8142’: improved *Coffea canephora* var. *kouillou* clone cultivar for the state of Espírito Santo

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**ABSTRACT** - *Conilon Vitória - Incaper 8142* is a *Coffea canephora* var. *kouillou* clone type cultivar developed by Incaper, composed by clustering 13 superior clones. It presents a mean productivity of 70.4 bags of 60 kg ha<sup>-1</sup>, broad environmental adaptation and production stability, drought tolerance, uniformity of fruit maturation, and moderate rust resistance.

**Key words:** coffee crop, cutting, genetic improvement.

## INTRODUCTION

A genetic improvement program for robusta coffee (*Coffea canephora* var. *kouillou*) has been conducted since 1985 at the Instituto Capixaba de Pesquisa, Assistência Técnica e Extensão Rural - Incaper (Institute of Espírito Santo for Research, Technical Assistance and Rural Extension). The established cultivars now used by the coffee farmers have been considered to be the base for the development leap of the sector in the state of Espírito Santo. After releasing the first Incaper cultivars in 1993 the mean productivity increased by about 150%, from 9 to 22.5 bags of 60 kg ha<sup>-1</sup> in 2003.

Between 1993 and 2000 this program obtained and recommended five cultivars for the state (Fonseca 2001a, b), four of which were polyclones (EMCAPA 8111, EMCAPA 8121, EMCAPA 8131 and EMCAPA 8141 - Robustão Capixaba) (Bragança et al. 1993, Ferrão et al. 2000a), and one a cultivar of the sexual propagation population type (EMCAPER 8151 Robusta Tropical) (Ferrão et al. 2000b). It is estimated that 30 to 40% of the plantations of the State consist of this plant material (De Muner 2003). Cultivar Conilon Vitória - Incaper 8142 is the sixth robusta coffee cultivar released by Incaper, the fifth clonal one, recommended for cultivation under the soil and climate conditions in Espírito Santo state (Ferrão et al. 2004).

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## ORIGIN AND IMPROVEMENT METHODS

Cultivar Conilon Vitória - Incaper 8142 was developed by means of selection, evaluation, characterization and clustering of clones throughout the first 18 years of research in the area of genetic improvement with the species in Espírito Santo. It is formed by a set of clones, identified through successive phenotypic selections of individual plants in commercial plantations installed in different regions of the state. The selected mother plants with favorable agronomical traits were cloned and participated in comparative trials for evaluation and characterization. These trials were conducted under controlled conditions and without irrigation, in the most representative cultivation environments of robusta coffee in the State. After eight harvests, besides identifying superior mother plants, those with common characteristics and with genetic compatibility were also clustered, aiming at the homogeneity of the future cultivar (Fonseca et al. 2004).

## PERFORMANCE

Thirteen superior clones are united in this cultivar, identified at the beginning of the program in question. The chosen ones combined traits of interest simultaneously. Considered jointly, they would be distinguished among the most adequate, considering the yield potential and other not less important aspects for the sustainability of the activity such as: adaptation to the different environments and yield stability throughout the

years, longevity, disease-resistance, uniformity of fruit maturation, yield of processing (conversion of the dry fruit mass into processed grain mass), grain size, index of the grain type “mocha”, vegetative vigor, among others.

‘Conilon Vitória - Incaper 8142’ stood out in comparison to the other clones used as controls in the experimental studies, especially for its performance in relation to the high mean productivity. The result the cultivar ‘Conilon Vitória - Incaper 8142’ achieved - 70.4 bags of 60 kg ha<sup>-1</sup>- outstrips the mean of the other cultivars released and recommended earlier by Incaper by 21.05%. The mean productivity of the less productive clones was in the range of 62 bags of 60 kg ha<sup>-1</sup> while the most productive exceeded 83 bags of 60 kg ha<sup>-1</sup> in the mean of the different environments (Figure 1).

## OTHER CHARACTERISTICS

Table 1 presents the performance of 13 cultivar ‘Conilon Vitória-Incaper 8142’ clones for ten other considered traits. Good uniformity of clones was observed for practically all traits, except for grain size and percentage of the “mocha grain type”. The good performance of all clones in relation to rust resistance and the high percentage of grains retained in sieves with mesh 13 and larger was also outstanding. The mean percentage of “mocha grains” in the range of 21.40% is well below that of the other cultivated clones, even those of the other cultivars, where it is close to 33.0%. There was no expressive gain in relation to the

**Table 1.** Mean values of the main traits of the 13 clones of cultivar Conilon Vitória - Incaper 8142 in eight successive harvests, in diverse environments in the State of Espírito Santo

Clones	Plant height m	Plant diameter m	VEI <sup>1</sup>	Maturation uniformity <sup>2</sup>	Reaction to rust <sup>3</sup>	Ratio berry/ green	Ratio Coco/ green	Grain size <sup>4</sup>	PS13 <sup>5</sup>	Mocha grain %
1V	2.36	2.46	6.5	1.23	2.40	3.64	1.82	LL	99.6	28.98
2V	2.24	2.87	8.3	1.13	1.40	4.21	1.83	L	99.0	26.20
3V	2.31	2.79	10.0	1.55	1.30	3.73	2.13	M	90.6	21.39
4V	2.36	2.47	6.6	1.27	2.30	3.91	1.87	LL	95.9	28.86
5V	2.36	2.60	7.1	1.13	1.20	3.50	1.78	ML	85.0	17.34
6V	2.26	2.73	7.3	1.08	2.00	4.23	1.83	L	84.0	18.85
7V	2.32	2.79	6.9	1.17	1.70	3.92	1.86	L	98.1	21.39
8V	2.39	2.74	7.3	1.00	2.00	4.26	1.73	M	90.5	17.54
9V	2.19	2.74	7.7	1.17	1.20	3.73	1.63	M	91.1	16.80
10V	2.19	2.93	7.3	1.17	1.70	3.91	1.78	M	85.0	18.97
11V	2.77	3.09	7.8	1.17	1.20	3.85	1.68	M	82.5	13.95
12V	2.22	3.34	7.0	1.12	1.20	3.95	1.76	ML	81.7	33.87
13V	2.19	2.68	7.0	1.42	2.00	4.06	1.74	M	94.7	14.02
Mean	2.32	2.79	7.45	1.12	1.66	3.92	1.80	-	90.59	21.40

<sup>1</sup>VEI (Visual evaluation index): Scale from 1 to 9 (1 = poor and 9 = very good)

<sup>2</sup>Uniformity of Maturation: Scale from 1 to 3, where 1 = uniform and 3 = irregular

<sup>3</sup>Rust: Scale of grades from 1 to 9 (1 = resistant and 9 = high susceptibility)

<sup>4</sup>Grain size: S (small), M (medium), ML (medium to large), L (large), and LL (very large)

<sup>5</sup>PS13: Percentage of grains detained in sieves >13

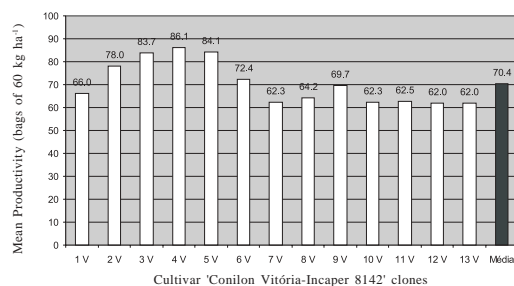
post-harvest yield, which was considered close to that obtained by the other Incaper cultivars.

## MAINTENANCE AND DISTRIBUTION OF PROPAGATION MATERIAL

The strategy adopted by Incaper to maintain the clones and have it available for coffee producers is the establishment of partnerships with institutions such as cooperatives, agricultural schools, municipal producer's associations, and nurseries aiming at the installation of Clone orchards in the principal producing regions of Espírito Santo.

## REFERENCES

- Bragança SM, Carvalho CHS and Fonseca AFA (1993) **EMCAPA 8111, EMCAPA 8121, EMCAPA 8131: primeiras variedades de café Conilon lançadas para o Espírito Santo**. EMCAPA, Vitória, 2p. (Comunicado Técnico 68).
- De Muner LH, Teixeira MM Fornazier MJ, Favoreto OS and Salgado JS (2003) **Cafeicultura Sustentável**. In: Costa EB (ed.) Planejamento Estratégico da Agricultura Capixaba - PEDEAG. <http://www.incaper.es.gov.br/pedeag/cafeicultura>
- Ferrão RG, Fonseca AFA, Ferrão MAG and Bragança SM (2000a) **Emcaper 8151 – Robusta Tropical: primeira variedade de café conilon propagada por semente no Espírito Santo**. Emcaper, Vitória, 4p. (Documento 103).
- Ferrão RG, Fonseca AFA, Silveira JSM, Ferrão MAG and Bragança SM (2000b) Emcapa 8141 - Robustão Capixaba, variedade clonal de café conilon tolerante a seca, desenvolvida para o estado do Espírito Santo. *Ceres* **273**: 555 - 560.
- Ferrão RG, Fonseca AFA, Ferrão MAG, Ferrão LMV, De Muner LH, Verdin Filho AC, Volpi PS, Marques EMG and Zucattelli F (2004) **Café Conilon: técnicas de produção com variedades melhoradas**. Incaper, Vitória, 60p. (Circular Técnica 03-1).



**Figure 1.** Annual mean productivity of cultivar Conilon Vitória - Incaper 8142 clones in eight successive harvests in the different studied environments in the state of Espírito Santo

- Fonseca AFA, Ferrão RG, Ferrão MAG, Bragança SM and Silveira JSM (2001a) Variedades derivadas de café conilon (*Coffea canephora*) desenvolvidas pelo Incaper para o Espírito Santo. In: Encarnação RO, Afonso Júnior PC and Rufino JLS (eds.) **Anais do II Simpósio de Pesquisa dos Cafés do Brasil**. Embrapa Café, Vitória, p. 1405-1411.

- Fonseca AFA, Ferrão RG, Ferrão MAG, Santos LP, Bragança SM and Marques EMG (2001b) Melhoramento genético de *Coffea canephora* no Estado do Espírito Santo. In: Encarnação RO, Afonso Júnior PC and Rufino JLS (eds.) **Anais do II Simpósio de Pesquisa dos Cafés do Brasil**. Embrapa Café, Vitória, p. 1379-1384.

- Fonseca AFA, Ferrão MAG, Ferrão RG, Verdin Filho AC, Volpi OS and Zucattelli F (2004) **Conilon Vitória - Incaper 8142: Variedade clonal de café conilon**. Incaper, Vitória, 23p. (Documentos 127).