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Evaluation of Promising Cultivars and Banana Genotypes for Commercial Production in Brazil

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Abstract: The vegetative and productive behavior of banana genotypes was evaluated in Lavras - MG, in order to select the ones with the best characteristics such as cluster and fruit size, production cycle, size, resistance to diseases and tolerance to drought and cold in conditions. The following genotypes were evaluated: Silver - 'Maravilha', 'Vitória', PA94-01 and PV94-01; type Apple-YB42-03 and type Nanicão - FHIA 17, being the cultivars Prata Anã *et al.*, used as witness. The experiment was conducted in randomized blocks with three replications and plots with 16 plants in the 3.0 m x 3.0 m spacing. All the genotypes of the Silver type presented bigger mass of the bunch and of fruits and cycle of production and size similar to those of the Silver one. The fruits of PA 94-01 were very similar to those of Prata Anã in size and general appearance. The genotype FHIA 17, in spite of the greater size than the Grande Naine cultivar, produced larger bunches in mass and number of fruits, with a similar production cycle and fruit size. The genotype YB42-03 produced slightly larger curls than the cultivar Maçã, with size and similar production cycle. However, the aspect of the fruit is quite different from this cultivar with the advantage of being resistant to yellow Sigatoka and tolerant to the Evil of Panama. Considering the productivity, size, appearance of the fruit and greater tolerance to yellow Sigatoka, genotype PA94-01 can be recommended for commercial scale planting.
Keywords: Musa spp; Banana; Production cycle; Productivity; Plant height; Size of fruit

INTRODUCTION

The productivity of bananiculture in Minas Gerais increased from 14,597 t.ha-1 in 2004 to 17,686 t.ha-1 in 2017 (Secretaria De Estado De Agricultura, Pecuária E Abastecimento De Minas Gerais, 2017). This increase in productivity is mainly due to the adoption of new technologies such as fertirrigation, adequate crop management and the introduction of new, more productive cultivars.

Several banana cultivars have been evaluated and recommended in all regions of Brazil. Among these are the Silver type: Pioneira, Prata Graúda, BRS Pacovan Ken, BRS Maravilha, BRS Platina, BRS Conquista, BRS Vitória; Apple type: Thap Maeo, Mysore and Caipira; Gold type: Silver Baby or Nam and type Nanicão: Grande Naine (Silva; Pereira; Rodrigues, 2008).

The cultivar BRS Maravilha in dry conditions was more productive than Prata Anã, its mother in the first two cycles in Jataí - GO (Santos & Carneiro, 2012), in Goiania - GO (Mendonça *et al*., 2013), in Aquidauana - (Fig. 1). In the present study, the results obtained in the present study are presented in Fig.

Borges *et al*. (2011) report that genotype FHIA 17 was highlighted in rainy conditions in production among the 14 genotypes evaluated in northern Paraná and that cultivars BRS Maravilha, PV 94-01 and YB 42-03 presented similar behavior to cultivars same type Silver Dwarf, Pacovan and Apple, respectively.

However, the production of new banana cultivars that are more productive, resistant to pests and diseases, and tolerant to cold and drought, is not enough to determine success in terms of adoption by producers (Silva & Alves, 1999). In addition to the agronomic aspects, the new cultivars must present fruits with good market characteristics (Silva *et al*., 2013). An improved cultivar should increase productivity, reduce production

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costs due to the decrease in the use of pesticides, thus increasing producer income (Amorim *et al*., 2011).

The banana tree requires constant heat, well distributed precipitation and high humidity for its development and production (Alves, 1999). Other factors such as wind, luminosity, altitude, cultivar, management, irrigation, diseases and pests also influence the banana production cycle (Ramos *et al*., 2009).

The influence of the environment, mainly temperature, on the banana production cycle, can be observed in experiments conducted in Lavras, Maria da Fé and Jaíba. In Lavras, with average annual minimum temperatures of 15.4ºC and altitude of 900 m, the Prata-Anã cycle was 510 days (Pereira *et al*., 2002). In this study, the average annual production of the Prata-Anã was 620 days (Pereira *et al*., 2002), with a mean annual temperature of 10.7ºC and altitude of 1270 meters. On the other hand, in Jaíba with an average annual minimum temperature of 18.5ºC and altitude of 500 m, the production cycle of this cultivar was 320 days (Rodrigues et al., 2006).

Since the environment exerts a strong influence on the banana production cycle, this work was conducted with the objective of evaluating new cultivars and genotypes of the Prata, Nanicão and Maçã types in the region of Lavras-MG regarding the production, development and level of incidence of yellow Sigatoka.

METHODOLOGY

The experiment was conducted at the AGROTESTE Experimental Farm in Lavras – MG - Brazil, from January 2015 to December 2017, and the first two cycles were evaluated. The altitude of the place is 918 m.

According to the climatic classification of Koppen (Dantas *et al*., 2007), the climate of Lavras - MG is cwa, that is, temperate rainy season (mesothermic) with dry winter and subtropical rainy summer. The average temperature of the coldest month is less than 18ºC and the hottest month is over 22ºC, with the average annual temperature of 19.4ºC and relative humidity of 76.2%. The average annual precipitation is 1,529 mm, with the driest months being from June to September.

Soil of the experimental area was classified as type 3, Red Latossolo Ferric 62, 15 and 23 dag / kg of clay, silt and sand, respectively.

The experiment was installed in randomized blocks with three replications and plots with 16 plants per cultivar or genotype planted at 3.0 x 3.0 m spacing.

The following genotypes and cultivars were evaluated: BRS Maravilha and PA 94-01 (Prata Anã genotype), BRS Vitória and PV 94-01 (Pacovan genome) all of the Prata type; FHIA 17 (Hybrid of Gros Michel), Grande Naine (Cavendish type) and YB 42-03 (Apple type, genitor Yangambi km 2), Apple, Silver Dwarf and Great Naine. These last three were used as witnesses because they were traditionally the most cultivated in Brazil.

The production cycle of the mother and daughter plants and the accumulated one (from the planting of the mother plant to the harvest of the daughter plant) were evaluated, the periods being expressed in months. The production characteristics were as follows: fresh mass of the bunch (kg), number of fruits per bunch, length and diameter of the fruit (cm) and fresh fruit mass (g) of the medium bunch. The bunches were harvested when the fruits presented without pistils or floral remains, sharp corners, that is, ideal cutting point for the local market.

Plant development data were taken by measuring the diameter of the pseudocaule (cm) at 50 cm from the soil level and plant height (m) at the time of flowering.

It was also evaluated the level of incidence of yellow Sigatoka in the mother plant in flowering and harvest, through the number of leaves attacked, leaves without symptoms and leaves functional or alive. It was considered as functional leaf that presented in the flowering and harvest at least 2/3 of totally green leaf area.

Statistical analysis was performed using the Variance Analysis System software for the SISVAR balanced data (Ferreira, 2011) and the comparison of means of treatments was performed using the Scott-Knott test at 5% probability.

RESULTS AND DISCUSSION

The results concerning the fresh mass of the bunch and the fruit and the number of fruits per bunch in the two cycles of the evaluated cultivars and genotypes are shown in Table 1. The results of length and diameter of the fruit are found in Table 2.

In relation to the weight of the bunch, genotype FHIA 17 produced bunches with higher fresh mass in the two production cycles evaluated. In relation to fruit weight, it was verified that the genotype Maravilha presented the highest weight of the fruit in the first production cycle, not differing significantly from PV 94-01 in the second production cycle. Regarding the number of fruits per cluster, it is observed that the genotypes FHIA 17 and PA 94-01 presented the highest

values for this characteristic in both the first and the second production cycle evaluated.

Table 1 - Mean values of fresh mass of the bunch and fruit and number of fruits per bunch of the first and second cycles of banana cultivars and genotypes in the southern region of Minas Gerais.

Cultivars / Genotypes	Bunch weight (kg)		Weight of the fruit (g)		Fruits by bunch	
	Mother plant	Daughter plant	Mother plant	Daughter plant	Mother plant	Daughter plant
FHIA 17	19,1 a	20,2 a	142,3 b	147,0 b	135,6 a	137,4 a
Grande Naine	17, 2 b	17,8 b	146,3 b	144,0 b	118,2 b	125,0 b
PA 94-01	16,1 bc	17,8 b	120,3 c	126,1 c	134,3 a	141,5 a
Maravilha	15,3 c	17,8 b	171,1 a	187,6 a	89,3 d	95,1 d
Vitória	14,6 cd	16,1 b	155,0 b	158,6 b	95,0 c	101,5 c
PV 94-01	13,5 d	17,6 b	153,8 b	187,1 a	87,3 d	94,2 d
Prata Anã	10,5 e	12,2 c	103,0 de	111,5 ed	104,0 b	110,2 c
YB – 42-03	8,8 f	9,5 d	98,8 ef	102,8 de	89,7 d	90,2 de
Maçã	7 ,0 e	7,9 e	91,8 f	95,7 e	76,0 d	82,6 e
CV (%)	4,29	3,96	2,40	2,72	3,30	3,58

In the column, the averages followed by the same letter do not differ from each other to 5% by the Scott & Knott test.

The values of the fresh mass of the bunch and fruit, number of fruits per bunch, length and diameter of the fruits observed in this study were significantly lower than those reported by Borges *et al*. (2011). These differences can be attributed to the management, soil fertility and annual distribution and amount of rainfall (Alves, 1999), since the trials were conducted in fairly distinct edaphoclimatic regions, which denotes the importance of studying the behavior of the genotypes in different environments.

The increase of the fresh bunch mass of FHIA 17 from the first to the second cycle was only 1.1 kg and the fresh fruit mass was only 4.7 g. On the other hand, the number of fruits per bunch, length and diameter of the fruit of the second cycle did not increase significantly.

The cultivar Grande Naine, unique of the Cavendish type, produced curls with fresh mass superior to the genotypes of the Silver type, only in the first cycle and number of fruits by bunch inferior to the one of PA 94-01 (type Silver), in the two cycles. The fresh fruit mass was also lower than that of PV 94-01 and cultivars BRS Maravilha and BRS Vitória. The values of the fresh mass of the bunch and the fruit and number of fruits per bunch of the Great Naine obtained in this work are inferior to those obtained by Donato *et al*. (2006) in Guanambi - BA, under irrigation and reported by Silva, Pereira and Rodrigues (2008) in Cruz das Almas BA and by Borges *et al*. (2011) in Andirá - PR in dry conditions. It is worth mentioning that in Lavras - MG and in much of the state of Minas Gerais, rainfall has been very low, even in the rainy season (from October to March). This causes water deficit in the soil and, consequently, less use of fertilizers by plants.

Table 2 - Mean values of length and diameter of the fruit of the 1st and 2nd cycle of banana cultivars and genotypes in the southern region of Minas Gerais, Brazil.

Cultivars / Genotypes	Length of fruit (cm)		Diameter of the fruit (cm)	
	Mother plant	Daughter plant	Mother plant	Daughter plant
FHIA 17	21,3 a	21,4a	4,0 a	4,0 a
Grande Naine	20,2 b	20,2 b	3,9 b	3,9 b
PA 94-01	19,5 b	19,8 d	3,9 b	3,9 a
Maravilha	21,6 a	21,6 a	4,0 a	4,1 a
Vitória	20,3 b	20,5 b	3,8 b	3,9 b
PV 94-01	21,1 a	21,8 a	4,0 a	4,1 a
Prata Anã	15,2 c	15,6 c	3,5 c	3,5 c
YB – 42-03	13,2 d	13,5 d	3,3 c	3,3 d
Maçã	13,1 d	13,4 d	2,8 d	2,8 e
CV (%)	2,82	2,35	3,10	2,85

In the column, the averages followed by the same letter do not differ from each other to 5% by the Scott & Knott test.

With respect to the production data of the Silver-type materials, genotypes PV 94-01 and PA 94-01 and cultivars BRS Maravilha and BRS Vitória produced larger bunches and fruits in terms of fresh mass than the cultivar Prata-Anã in the two cycles evaluated. The PV 94-01 along with the cultivar BRS

Maravilha had the largest increases in the fresh mass of the bunch and fruit size from the first to the second cycle.

Among the materials of the Silver type, the PA 94-01 was the one that produced bunches with greater number of fruits being these similar in aspect and flavor to the cultivar Prata-Anã.

Analyzing the production data, plant height and production cycle of PA 94-01 of this work, it is observed that this genotype showed to be much superior to the cultivar Prata-Anã. Although the plant height, pseudocaule diameter and number of live leaves in flowering PA 94-01 and FHIA 17, Nomura *et al*. (2013) report that the production cycle of these genotypes was later, resulting in lower productivity. However, the authors did not evaluate the production characteristics that are most important. The cultivar BRS Maravilha in terms of fresh cluster mass, along with PA 94-01, were superior to BRS Vitória and PV 94-01 in the first production cycle. However, in the second cycle there was no difference between these genotypes for these characteristics.

The length and diameter of the fruits of the genotypes FHIA 17, PV 94-01 and cultivar BRS Maravilha were significantly higher than the other evaluated materials. Regarding fruit size and diameter, the cultivar BRS Maravilha presented the highest fresh weight in both cycles, and in the second cycle the fruits of PV 94-01 were similar in fresh weight, length and fruit diameter. The highest fresh mass of the bunch and size of the fruits of the BRS Maravilha cultivar in relation to the Prata-Anã obtained in this work in dry conditions are confirmed by the reports of Silva *et al*. (2003) in Lavras - MG, by Ramos *et al*. (2009) in Botucatu - SP, by Vieira (2011) in Aquidauana - MS, by Santos and Carneiro (2012) in Jataí - GO and by Mendonça *et al*. (2013) in Goiânia - GO. Also in irrigated conditions BRS Maravilha surpassed the Prata-Anã in the region of Jaíba - MG (Rodrigues *et al.*, 2006) and in the southwest of Bahia (Donato *et al*., 2009).

The genotype PV 94-01 followed by the cultivar BRS Maravilha had the largest increases in the fresh mass of the bunch and fruit and in the number of fruits per bunch. This increase is also reported by Rodrigues, Souto e Silva (2006) for BRS Maravilha, SH 36-40 (Prata Graúda MG).

The genotype YB 42-03 and the cultivar Maçã produced the smallest curls and fruits as their fresh masses, number of fruits per cluster. The length and diameter of the fruits were also significantly lower in relation to the other evaluated materials. The YB 42-03 was slightly higher in these characteristics in relation to the cultivar Maçã, its similar. These results corroborate with those reported by Silva, Pereira and Rodrigues (2008).

The cultivar BRS Vitoria and genotype PV 94-01, also surpassed the Prata-Anã in fresh mass of the bunch and size of the fruits, however with plant height and larger production cycle. These genotypes may constitute a good cultivation option for producers because they are resistant to yellow Sigatoka and Black Sigatoka according to Pereira *et al*. (2005) and Silva, Pereira and Rodrigues (2008).

The mean values for plant height, pseudocaule diameter and cultivar and genotype production cycle are shown in Table 3.

Regarding the size of the plant, the cultivars Grande Naine and Prata Anã presented the lowest heights, inferior to 2.3 m in the mother plant and 2.7 m in the daughter plant, results also reported by Nomura *et al*. (2013). The highest size was observed in the BRS Vitória cultivar with 3.5 m and 4.1 m followed by the PV 94-01 genotype with 3.1 m and 3.8 m in the 1st and 2nd cycle, respectively. The highest loads of the cultivars Vitória and PV 94-01 were also reported by Nomura *et al*. (2013). This characteristic of these cultivars was already expected since it is inherited from its mother-tongue Pacovan.

Among the genotypes and cultivars of the Prata type, PA 94-01 and BRS Maravilha showed plant height and pseudocaule diameter superior to those of their Prata-Anã genitora. Rodrigues, Souto e Silva (2006) also report higher height of BRS Maravilha in relation to Prata-Anã. On the other hand, these authors found no difference in plant height between the cultivars Prata-Anã, BRS maria, BRS Platina and genotype FHIA 18.

The genotypes FHIA 17, PA 94-01 and PV 94-01 and the cultivar Maravilha presented the highest diameters of the pseudocaule in the two cycles, varying between 22.0 cm and 27.0 cm, results similar to those reported by Nomura *et al*. (2013). The largest diameter increase from the first to the second cycle was observed in genotype PV 94-01, going from 22.30 cm to 26.96 cm.

The height of the plant and, mainly, the circumference of the pseudocaule are inherent characteristics of each cultivar that are also influenced by the climate, planting density and crop management (Alves, 1999).

The higher height of the plant, in spite of being an expression of plant vigor, is not such a desired characteristic, since in addition to hindering cultural

treatments and crops, it also makes the plant more susceptible to tipping (Silva & Alves, 1999). Another disadvantage of tall bearing is the need to increase spacing and therefore decrease planting density, resulting in lower yield of the crop.

The highest production cycles were observed in the Grande Naine and FHIA 17 cultivars, varying between 19.1 and 19.5 months in the first cycle and 18.3 and 18.6 months in the second cycle. The production cycle of the Grande Naine cultivar in this work was significantly higher than that observed in the Ribeira Valley - SP (Nomura *et al*., 2013) and lower than in Viçosa - MG, Cruz das Almas - BA and Guanambi - BA (2003) and in Jaíba - MG (Rodrigues *et al.*, 2006). On the other hand, the cultivar Maçã and genotype YB 42-03 presented the smallest cycles, between 16.3 and 16.7 months in the first cycle and 15.2 to 15.7 months in the second, month of the mother plant.

Table 3 - Mean values of plant height, pseudocaule diameter and cycle of production of mother and daughter plants of banana cultivars and genotypes in southern Minas Gerais. Brazil, 2014.

Cultivars / Genotypes	Height (m) Pseudocaule		Pseudocaule diameter (cm)		Duty cycle (months)		
	Mother plant	Daughter plant	Mother plant	Daughter plant	Mother plant	Daughter plant*	Accumulated **
Grande naine	2,0 a	2,2 a	18,0 b	19,2 b	19,4 c	18,5 c	25,6 c
Prata-anã	2,2 b	2,6 b	17,2 a	17,5 a	18,4 b	17,3 b	24,0 b
Maravilha	2,5 c	2,7 b	22,0 d	22,7 d	18,2 b	17,2 b	24,3 b
Maçã	2,6 c	2,9 c	16,9 a	17,6 a	16,6 a	15,7 a	21,7 a
FHIA 17	2,6 c	2,9 c	23,0 e	23,1 d	19,1 c	18,3 c	25,5 c
PA94-01	2,6 c	2,8 c	22,1 d	22,9 d	18,1 b	17,1 b	23,8 b
YB42-03	2,7 c	3,1 d	17,6 b	17,7 a	16,3 a	15,2 a	22,0 a
PV94-01	3,1 d	3,8 e	22,3 d	26,9 e	18,7 b	17,8 b	24,7 b
Vitória	3,5 e	4,1 f	19,8 c	21,0 c	18,4 b	17,5 b	24,7 b
CV (%)	3,22	3,16	2,27	2,79	1,24	1,41	2,44

In the column, the averages followed by the same letter do not differ from each other to 5% by the Scott & Knott test.
* Elapsed period of the appearance of the daughter plant until the harvest of the bunch
** Elapsed time from planting of the mother plant to the harvest of the daughter plant

The largest production cycle of the mother plant in relation to the daughter plant is due to the period of readaptation and emission of new roots, since the seedlings, especially those of spontaneous shoots, undergo the descortication or elimination of the adherent roots (Alves., 1999).

The production cycle of PA 94-01 and BRS Maravilha in the first two cycles did not differ from their 'Prata-Anã' genitor, corroborating the results reported by Donato *et al*. (2009).

Comparing the production cycle of cultivars and genotypes produced in different regions, a great variation can be observed in the period between planting and harvesting. In this way, the production cycle of the cultivars Prata Anã, Vitória, Grande Naine and the genotypes FHIA 01, PA 94-01, PV 94-01 in Lavras was about 0.5 to 3.0 months higher than (Nomura *et al*., 2013) in the state of Goiânia - GO (Mendes *et al*., 2007) and in the Ribeira Valley (Nomura *et al*., 2013) . However, it should be considered that in Jaiba and Botucatu, the crop was irrigated, a fact that favors the development of the plants and, consequently, anticipating the harvest, in addition to the inherent edaphoclimatic conditions of each place.

The FHIA 17 production cycle in Lavras was only one month longer than in the Ribeira Valley as reported by Nomura *et al*. (2013). On the other hand, the production cycle of the cultivar Maçã and genotype YB 42-03 was only one month higher than in Goiânia and two months higher than in the Ribeira Valley. The highest cycle of these cultivars in Lavras can be attributed to lower temperatures and higher altitude, in addition to other factors such as management, planting season, and the emission of bunches and relative humidity.

It is also observed in this work that the period elapsed between the emission of the bunches of the daughter plant and the mother plant varied around six months for all the cultivars and genotypes. On the other hand, according to Nomura *et al*. (2013), there is a large discrepancy in the period between harvesting from 1st to 2nd cycle. In the case of FHIA 17, there was a longer period, about thirteen months and for genotypes PA 94-01, PV 94-01, the period was slightly less than 10 months.

It is important to point out that the precocity of shoots and the time of selection of the follower together with their vigor are factors that influence the time of the bunch issue of the following generations. In the banana

cultivars that have good tillering, such as the types Prata, Nanicão and Maçã, the lateral shoots (daughters) begin to appear at 30 to 45 days after planting. In cultivars of the Plantain subgroup (Terra, Terrinha and D'angola) the shoots usually occur at the time of the bunch emission (Alves, 1999).

The production cycle of the cultivar Prata Anã in Botucatu-SP was 15.5 months (Ramos *et al*., 2009), in Lavras-MG, 17.0 months (Pereira *et al*., 2002; Pereira *et al*., 2003) and Maria da Fé-MG, 22.6 months (Pereira *et al*., 2002). It can be observed that in Lavras, the cycle was 1.5 months longer than in Botucatu, a difference that can be attributed to irrigation, management and planting season and the bunch emission and climate. However, in Maria da Fé, this cycle was about 5.5 months longer than in Lavras and 7.0 months higher than in Botucatu. This longest cycle in Maria da Fé can be attributed to the coldest climate with average minimum temperatures of 10.7º C and altitude above 1,250 meters (Pereira *et al*., 2002).

The incidence level of yellow Sigatoka evaluated by the number of attacked leaves (AF), leaves without symptoms (FSS) and live leaves (VF) showed significant differences between genotypes and cultivars (Table 4).

It is observed that the cultivar Vitória and the genotypes PV 94-01 and YB 42-03 presented, in the flowering as well as the harvest, the largest number of leaves without symptoms and live leaves, besides no leaf attacked. On the other hand, the cultivars Grande Naine, Prata Anã and Maçã presented a higher incidence of the disease, that is, a greater number of leaves attacked and fewer leaves without symptoms and leaves alive.

Table 4 - Mean values of the number of leaves attacked (FA) by yellow Sigatoka, leaves without symptoms (FSS) and live leaves (VF) in flowering and harvest of the mother plant of banana cultivars and genotypes in southern Minas Gerais. Lavras- MG, Brazil, 2014

Cultivars /	Flowering			Harvest		
Genotypes	FA	FSS	VF	FA	FSS	VF
Vitória	0,0 a	15,6 a	15,6 a	0,0 a	5,4 b	5,4 b
PV 94-01	0,0 a	14,6 b	14,6 b	0,0 a	5,0 bc	5,0 bc
YB 42-03	0,0 a	14,3 b	14,9 b	0,0 a	6,3 a	6,3 a
Maravilha	2,6 b	13,4 c	13,9 c	3,4 b	4,6 c	4,9 c
PA 94-01	2,8 b	12,5 d	13,8 c	3,2 b	4,3 c	4,2 c
FHIA 17	2,9 b	12,5 e	13,8 c	3,2 b	4,2 c	4,5 c
Grande Naine	4,4 c	10,1 e	10,3 d	5,5 c	0,0 a	2,4 d
Maçã	4,8 c	8,4 f	10,2 e	4,9 c	0,0 a	2,2 d
Prata Anã	5,0 c	8,0 f	10,0 e	4,6 c	0,0 a	2,0 d
CV (%)	11,00	14,87	12,00	10,35	11,99	9,87

In the column, the averages followed by the same letter do not differ from each other to 5% by the Scott & Knott test.

Vitoria showed at the time of the bunch the highest number of leaves alive and without symptoms, whereas in the bunch harvest, the genotype YB 42-03 showed higher leaves without symptoms.

The reduction of the number of live leaves in relation to the sum of the number of leaves attacked and without symptoms was significantly lower in the emission and higher in the bunch harvest, especially for the cultivars Grande Naine, Maçã and Prata Anã, cultivars that are more susceptible to yellow Sigatoka , according to Silva, Pereira and Rodrigues (2008).

The absence of leaves attacked by yellow Sigatoka in the cultivar Vitória and genotypes PV 94-01 and YB 42-03, both in the emission and in the harvest of the cacho confirm the information of Silva, Pereira and Rodrigues (2008) on the resistance of these materials to this disease.

On the other hand, the cultivar Maravilha and the genotypes FHIA 17 and PA 94-01, with number of leaves attacked less than 3.0 in the emission of the bunch and 3.5 in the harvest and of leaves alive superior to 13 in the emission and to 4 in the harvest demonstrates its tolerance to yellow Sigatoka or medium resistance, also verified by Rodrigues, Souto e Silva (2006).

On the other hand, the cultivars Grande Naine *et al*., with less number of live leaves and larger leaves attacked, both in the emission and the harvest of the bunch; confirm their greater susceptibility to disease, according to Silva *et al* (2008).

The highest number of live leaves at the time of the emission and harvest of the bunch of Vitoria and genotype PV 94-01 reported by Nomura *et al*. (2006), was also verified in this work, thus confirming the resistance to yellow Sigatoka of these materials (Silva *et al*.,2008). However, the results of the genotype YB

42-03 that presented the highest number of live leaves in the bunch (more than six) were not corroborated by Nomura *et al*. (2013) which reported less than 1.5 live leaf in this same production phase. This fact can be explained by its greater susceptibility to black Sigatoka that occurs in the Ribeira Valley and not in Lavras (Silva *et al*., 2003).

CONCLUSIONS

1. The cultivar BRS Maravilha and genotype PA 94-01 can be recommended for planting in the southern region of Minas Gerais, due to its higher productivity and tolerance to yellow Sigatoka and similarity in the size, production cycle, taste and appearance of the fruit in relation to Prata Anã, traditionally grown in the region.
2. The PV 94-01 genotype and the Vitória cultivar, despite the larger size, can be recommended for planting in the South of Minas Gerais, due to its higher yield and resistance to yellow Sigatoka.
3. The FHIA 17 genotype can be recommended for cultivation in Minas Gerais, due to its high productivity, tolerance to yellow Sigatoka, and similarity in appearance and flavor of the fruits with the cultivar Grande Naine.
4. The genotype YB 42-03, despite its resistance to yellow Sigatoka and the disease of Panama, did not present great advantages in relation to the cultivar Maçã, its similar in productivity, size and production cycle.

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