Available online at www.elixirpublishers.com (Elixir International Journal)

Agriculture

Elixir Agriculture 179 (2023) 56939 - 56945

ISSN: 2229-712X

Production Parameters of Plantain (musa spp.) Under Kindu Conditions

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ARTICLE INFO

Article history:

Received: 22 May 2023;

Received in revised form: 20 June 2023;

Accepted: 30 June 2023;

Keywords

Parameters of Plantain, Rice Husks.

ABSTRACT

To contribute to the resolution of the problem relating to the production parameters of plantain (Musa spp.), the production parameter of plantain was evaluated under the conditions of Kindu using the Fertilizers (Witness, sawdust and rice husks) as a substrate. The experiment was conducted according to the experimental device in the concession of the University of Kindu, department of phytotechnics comprising 6 treatments, corresponding to 10 repetitions for each treatment. The observations made during this investigation focused mainly on the vegetative cycle, bunch length, finger length, number of hands per bunch, number of fingers per hand, finger circumference and bunch weight. The results obtained showed that: The production parameters varied according to the fertilizers and the cultivars; - sawdust was the best fertilizer for all the production parameters studied compared to rice husks and controls; - the average weight of the bunch was greater in cultivar C4 (Mbonjilo) compared to the others. The set of results indicated that production varies from cultivar to cultivar, but all cultivars respond positively to sawdust-based organic fertilization and this response is cultivar-to-cultivar dependent. Keywords: plantain, number of hands, yield.

1. Introduction

1.1. Problem

Plantains, consumed in several forms, are central products in the diet of populations in intertropical regions. Depending on the country, in rural areas, plantain occupies between first and fourth place in terms of dietary importance.

Unlike the dessert banana, which is the subject of a well-organized world trade, the plantain is not very present on the international markets.

Worldwide, bananas (dessert-type bananas and plantains) are the main fresh fruit traded extensively internationally.

Its socio-economic and nutritional importance is considerable (Dhed'a et al., 2010).

In DR Congo, the plantain banana is one of the main crops for self-consumption of the population, mainly in the Province of Maniema, where it contributes to the improvement of food security like cassava, rice or corn and olive oil. palm trees, they are also an important source of income for households (Mobambo et al., 2011). Cultivated bananas (plantains) are a food source for millions of people around the world.

Its culture having been in more or less 40 countries of the tropical and subtropical regions across the five continents (Jenny et al., 2002) and constitutes not only a staple food for more than 400 million people in the developing countries of South America, Southeast Asia and Africa, but also a real source of income (Teycheney et al., 2007).

It is the fourth agricultural product in terms of world production after rice, wheat and corn. It ranks first in fruit production, with just over 145 million tonnes produced in 2011 worldwide (Ganry et al., 2012). In a study based on the morphological diversity of plantains in the province of Maniema (Kasongo, Kailo, Kibombo and Pangi Territories), Tambwe (2019) listed 19 banana cultivars distributed as follows: 4 plantains of the French type, 3 false horns, 2 real horns, 6 banana trees of the dessert type and 4 cooking plantains. Among plantains, there are six that are most popular and cultivated, these include: cultivars Kambelekete (Amakake), Mbudi I (Red Ikpolo), Bonjilo "Bosakarakaka 1"; Kyankola (Magoma I); Mbudi II (Red Ikpolo); Otangala; (Egbe-O-Mabese I).

From this situation, it is necessary to deepen the knowledge on these six cultivars by making an agronomic and nutritional evaluation. This evaluation would allow, among other things, to know them agronomically and nutritionally and even classify them.

2. Materials and Methods

2.1. Study environment

The experiments were conducted within the confines of the University of Kindu, more precisely in the experimental site of the phytotechnics department located at camp Lwama I with geographical coordinates (S 02°56.525°; E 025°53.118); Altitude 469 m) in the town of Kindu, province of Maniema in the Democratic Republic of Congo.

The concession of the University of Kindu presents a relief characteristic of the Congolese central basin, very uneven with a soil of the clay-sandy and sandy-clayey type which allow the practice of all kinds of crops, both market gardening and food or industrial.

The DR Congo comprises several different climatic zones. Contrary to what happens in regions far from the equator where variations in average temperature distinguish

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the seasons, it is above all rainfall that creates seasonal differentiation in most of the national territory (Ngongo et al., 2009; Solia, 2016).

Located in the equatorial zone, the study environment benefits from an equatorial climate: the monthly average temperature varies between 22.5 and 29.3°C, with an annual average close to 25°C. As is the case throughout the central forest basin area, annual rainfall varies between 1500–2000 mm, with an average of 1750 mm (Vanden put, 1981). The study sites are located in the same Aw type climatic zone. It is of the corresponding humid tropical type according to the Köppen classification (1936 in Solia, 2016). This province has two to three major seasons, namely: - the rainy season which begins from August to December constitutes season B, while season A begins from January to mid-May ; - the dry season, which extends from mid-May to mid-August accompanied by fog during the thinnest morning. This season has a short duration in the middle (FAO, 2010). The study sites are located in the middle of the dense humid plain and savannah forest which extends on the left and right banks of the Congo River. The vegetation of Africa established by White (1983), indicates that the study sites are located in the Guineo-Congolese region. The massif of the study area is located in the northeastern part of the dense rainforest of Central Africa. The vegetation of the concession of the University of Kindu having undergone anthropic pressures for a long time, it includes the trees a neoformed physiognomy rich in full species not very exotic but, shrubs and shrubs. Among the plant species, we mention: Elaeis guineensis, Puaaria javanica, etc. it should also be noted in passing that the presence of surrounding savannah and bush dominates the whole city.

2.2. Plant Material

The plant material used in this study consists of suckers from the six most popular plantain cultivars grown and collected in the Kindu region, the characteristics of which are presented below. These are the Kyankola cutivars (magoma1); Mbudi 1 “Red Ikpolo”; Mbudi II “Red Ikpolo” Otangala “Egbemabese”; Kambelekete “Amakake”; Bonjilo “Bosakarakaka 1”. The characteristics and photographic illustrations are as follows

3. Methods

3.1. Introduction

This study concerned the agronomic and nutritional evaluation. It was conducted in two stages, namely: socio-economic surveys in four territories of the province of Maniema and field evaluation of the most interesting cultivars in the city of Kindu.

3.1.1 Socio-Economic Surveys

The breakdown was as follows Kailo Territory: Ambwe, Beia, Wasongola and Bangengele; - Territory of Kibombo: Matapa, Aluba, Bakongola and Ankutchu; - Territory of Kasongo: Wazimba, Maringa, Wakabongo and Mamba-Kasenga and finally; Pangi territory: Sanga, Djuwa, Mokandilwa and Lukundji. Figure 2 represents the province of Maniema with its different territories where the study was conducted, as well as the socio-economic survey sites followed by the collection of the most popular cultivars.

These different villages were selected, along an axis (for territories with a single main axis) and this according to a village after every 20 km, or along different directions (for territories with several main axes). The methodology used in this work is based on the Bioversity-CIALCA survey questionnaire, which consists of reasoned sampling, given the extent of the province. At first, it is a question of choosing the villages; in each selected village, a group of 30 men and another of 30 women were selected for a participatory focus group survey. The purpose of this survey was not only to assess the general knowledge of farmers on agriculture and livestock, but also to determine their knowledge of the varietal diversity of bananas and plantains present in their village. At the end of the participatory surveys, a list containing all the banana and plantain cultivars known by the farmers is drawn up. On the basis of this list, the cultivars of banana trees and plantain trees found in the villages were the subject of direct observation. The suspected new cultivars are identified and sampled for cultivation in the characterization field of the Faculty of Agronomic Sciences of the University of Kindu for a complete characterization according to the descriptor of Bioversity International (INIBAP, 2001). They include the main descriptors for the variety passport data. A digital photo package is taken of a mature plant including, among other things, a photo of the whole plant with inflorescence taken obliquely to the bunch stem and a zoom on the fingers.

In addition, the clumps of each cultivar were counted in the fields of the 5 surveyed households, in the different villages to determine the most common cultivars in the study sites. In addition, other questions were asked to the head of the household on the name in local dialect of each cultivar, the meaning of this name, the origin of the cultivar, its positive and negative characteristics as well as its use. Other questions relating to the criterion for choosing cultivars in each household, the farmers' appreciations for the different cultivars, as well as some agronomic practices such as the practice in fallow land and agroforestry systems, were also put to the head of each household (CIALCA-Bioversity diagnostic survey questionnaire, Annex 2).

3.2. Agronomic Evaluation of Six Plantain Cultivars Collected in Collections in the Experimental Station of **the University of Kindu**

The agronomic evaluation consisted in determining the productive and pathological potentialities and the natural multiplication rate of the six cultivars. The trial included two factors including: the type of organic fertilizer with three levels (control, decomposed sawdust and decomposed rice husks) and the cultivars with six levels corresponding to the six cultivars collected.

3.2.1 Experimental device and treatments

The experimental device adopted is that of plots subdivided into two (the split plot) with repetitions arranged in elongated plots. Each cultivar in each fertilizer was repeated ten times (Figure 1).

3.2.2. Conduct of the Trial

A collection field of 40 x 60 m was installed within the experimental land of the Phytotechnics Department of the University of Kindu, located in the Lwama 1 district. Overall, six cultivars most appreciated by farmers and consumers have been collected. Each cultivar was repeated ten times under each type of fertilizer to make an agronomic and nutritional evaluation. The spacings adopted were 3 x 3 m. Maintenance care consisted of weeding, stripping, mulching and staking.

3.2.2.1. Production parameters

Harvesting took place before the fruits began to ripen, when they were full. The production parameters concerned in particular: the vegetative cycle, bunch length, finger length, number of hands per bunch, number of fingers per hand, finger circumference and bunch weight.

The vegetative cycle was evaluated in number of days elapsed from planting to harvest. The numbers of hands per bunch and fingers per hand were determined by counting. Finger length and finger circumference were assessed using a tape measure. Bunch weight was obtained by weighing the bunch immediately after harvest.

3.2.3. Production parameters

The results relating to the production parameters on the different cultivars tested at the experimental site are given in the points below.

3.2.3.1. Finger length (cm)

The average finger length values under different cultivars and under different fertilizers are presented in Table 6, while the results relating to the multifactorial statistical analyzes are recorded in Tables 1 and 2.

This table (1) shows that the length of the finger per diet varied from one type of fertilizer to another. Sawdust gave the longest fingers of all cultivars. By considering the general averages of finger length per diet (cm) under various fertilizers, we note that the latter evolve in an increasing way, respectively 9.20 cm ± 2.94 cm for the controls, followed by 9.07 cm ± 3 .02 cm under rice husk and 11.03 cm ± 2.94 cm under sawdust. As for the general averages compared to the cultivars, for all the fertilizers, we note respectively 15.07 cm ± 0.60 cm for C4, followed by 9.73 cm ± 1.30 cm for C6, 9 .30 cm ± 3.90 cm for C1; 8.60 cm ± 1.20 cm for C2, 8.00 cm ± 1.40 cm for C3 and 7.90 cm ±0.80 cm for C5. By comparing the different cultivars, we notice that it is the C4 cultivar (Mbongilo) which has the longest fingers, followed respectively by: C6 (Otangala); C1 (Kyankola); C3 (Mbudi 2) C2 (Mbudi 1) and finally, C5 (Kambelekete). By considering the CV as a whole (within fertilizers and cultivars), we note that the data are heterogeneous for fertilizers with regard to controls and rice husks on the one hand and on the other hand, for the C1 cultivar, because the coefficients of variation are all greater than 30%, while the data are homogeneous for sawdust fertilizer on the one hand and on the other hand, for the cultivars (C2, C3, C4, C5 and C6), because the coefficients of variation are all below 30%.

3.2.3.2. Number of hands per bunch

The average values of the number of hands per bunch under different cultivars and under different fertilizers are illustrated in Table 7, while the results relating to the multifactorial statistical analyzes are recorded in Tables 1 and 1.

This table (2) shows that the number of hands per bunch varies from one type of fertilizer to another. Sawdust gave the highest number of hands per bunch for all cultivars. Considering the general averages of the number of hands per bunch (counting) under various fertilizers, we note that the latter evolve in an increasing manner, respectively 6.67 ± 5.16 for the controls, followed by 6.67 ± 4.84 under rice husk and 7.00 ± 4.86 under sawdust. As for the general averages compared to the cultivars for all the fertilizers, we note respectively 15.33 ± 0.58 for C4, followed by 7.67 ± 0.58 for C6, 700 ± 0.00 for C5; 6.63 ± 1.15 for C1, 3.00 ± 0.00 for C3 and 1.00 ± 0.00 for C2. By comparing the different cultivars, we notice that it is the C4 cultivar (Mbonjilo) which has the highest number of hands, followed respectively by C6 (Otangala); C5 (Kambelekete); C1 (Kyankola); C 3 (Mbudi 1) and finally C2 (Mbudi 2). Considering the CV as a whole (within fertilizers and cultivars), we notice that the data are heterogeneous for the fertilizers, because the coefficients of variation are all greater than 30%, while the for the given cultivars are homogeneous, because the coefficients of variation are all below 30%.

3.2.3.3 Number of fingers per hand

The average values of the number of fingers per hand under different cultivars and under different fertilizers are recorded in Table 3, while the results relating to the multifactorial statistical analyzes are recorded in Tables 1 and 2.

This table (3) shows that the number of fingers per hand varies from one type of fertilizer to another. Sawdust gave the highest number of fingers per hand for all cultivars. By considering the general averages of the number of fingers per hand (counting) under various fertilizers, we note that the latter evolve in sawtooth, respectively 9.17 ± 2.99 for the controls, followed by 9.00 ± 3.16 under rice husk and 11.00 ± 2.83 under sawdust. As for the general averages compared to the cultivars, for all the fertilizers, we note respectively 15.00 ± 0.00 for C4, followed by 9.67 ± 0.58 for C6, 9.33 ± 4 .04 for C1; 8.33 ± 1.15 for C2, 8.00 ± 1.17 for C3 and 8.00 ± 0.00 for C5. By comparing the different cultivars, we notice that it is the cultivar C4 (Mbonjilo) which has the highest number of fingers, followed respectively in decreasing order by C6 (Otangala); C1 (Kyankola); C 3 (Mbudi1) and finally C2 (Mbudi 2). Considering the CV as a whole (within fertilizers and cultivars), we note that the data are heterogeneous for two fertilizers and one cultivar (control and rice husks; and cultivar C1), because the coefficients of variation are all greater than 30%, while the data are consistent for sawdust and the remaining five cultivars, as the coefficients of variation are all less than 30%.

3.2.3.4. Finger Circumference

The average finger circumference values under different cultivars and under different fertilizers are presented in Table 4, while the results relating to the multifactorial statistical analyzes are recorded in Tables 1 and 2.

This table(4) shows that the number of finger circumferences varies from one type of fertilizer to another. Sawdust gave the highest finger circumference per hand for all cultivars. By considering the general averages of the circumference of fingers per hand (counting) under various fertilizers, we note that the latter evolve in an increasing way, respectively 15.08 cm ± 2.14 cm for the controls, followed by 15.50 cm ± 1.97 cm under rice husk and 16.03 cm ± 2.76 cm under sawdust. As for the general averages compared to the cultivars for all the fertilizers, we note respectively: 17.60 cm ± 1.06 cm for C3, followed by 17.23 cm ± 0.84 cm for C2, 16 .77 cm ± 0.45 cm for C1; 16.30cm ± 0.44cm for C4; 12.93 cm ± 0.71 cm for C6 and 12.40 cm ± 0.00 cm for C5. By comparing the different cultivars, we notice that it is the cultivar C3 (Mbudi 2) which has the highest finger circumference, followed respectively by: C2 (Mbudi 1); C1 (Kyankola); C4 (Mbonjilo); C6 (Otangala) and finally, C5 (Kambelekete). Considering the overall CV (within fertilizers and cultivars). We note that the data are homogeneous, because the coefficients of variation are all greater than 30%.

3.3. Bunch weight

The average values of bunch weight under different cultivars and under different fertilizers are shown in Table 5, while the results relating to the multifactorial statistical analyzes are recorded in Tables 1 and 2.

This table (5) shows that bunch weight varied from one type of fertilizer to another. Rice husks gave the highest bunch weight than controls and sawdust for all cultivars. By considering the general averages of bunch weight (weighing) under various fertilizers, we note that the latter evolve in

sawtooth, respectively 16.05 ± 13.14 for the controls, followed by 17.40 ± 13.14 under bale of rice and 17.05 ± 13.20 under sawdust. As for the general averages compared to the cultivars, for all the fertilizers, we note respectively 42.00 ± 0.10 for C4; followed by 17.53 ± 3.07 for C6; 15.27 ± 2.48 for C1; 12.13 ± 0.06 for C5; 8.69 ± 1.43 for C3 and 5.37 ± 0.51 for C2. By comparing the different cultivars, we note that it is the C4 cultivar (Mbonjilo) which has the highest weights, followed respectively by C6 (Otangala); C1 (Kyankola); C5 (Kambelekete); C3 (Mbudi 2) and finally, C2 (Mbudi 1). Considering the CV as a whole (within fertilizers and cultivars), we notice that the data are heterogeneous for the fertilizers, because the coefficients of variation are all greater than 30%, while the data are homogeneous for the cultivars, because the coefficients of variation are all below 30%. The comparison within the factors (primary and secondary) for the production parameters.

3.3.1. Statistical summaries

The comparison within the factors (primary and secondary) for the vegetative parameters is recorded in tables 1 and 2.

Table 6. Comparison of the mean values of number of hands per bunch, number of fingers per hand, circumference of fingers, length of fingers per hand and bunch weight within main factor (fertilizer

The analysis of variance table reveals that there are no significant differences between the fertilizers with regard to finger length, number of hands per bunch, finger circumference and bunch weight, while for the number of fingers per hand, the analysis of variance, there is a very highly significant difference.

It appears from this table of the analysis of variance, that there are very highly significant differences between the cultivars, with regard to the length of fingers, the number of hands per bunch, the number of fingers per hand, the finger circumference and diet weight. DISCUSSION The results relating to the production of plantain, show that all the suckers planted resumed regardless of the cultivars tested (Table 1). Similar results were obtained by (INERA, 2009 and SENASEM, 2012 and 2019) from Tambwe et al., (2022). Indeed, the production of plantain (Musa spp) resumes normally without many problems, except in the case of prior attacks as pointed out by Van Den Put (1981) and Janssens (2001).

Conclusion

In this phase of experimentation, we evaluated the productivity of the six cultivars in three fertilization formulas, including an unfertilized plot and two plots respectively fertilized with rice husks and sawdust. The trial was conducted using an experimental device of subdivided plots (split plot): In this article, we have limited ourselves to the presentation of partial results relating to production; They relate in particular to: production parameters. These parameters are as follows: length of fingers (cm), number of hands per diet, number of fingers per hand, circumference of fingers and weight of diet. The results obtained on the production of six cultivars are as follows: Production parameter: The production parameters varied according to the fertilizers and the cultivars; - sawdust was the best fertilizer for all the production parameters studied, compared to rice husks and controls; - the average weight of the bunch was greater in cultivar C4 (Mbonjilo) compared to the others. The set of results indicated that productivity varies from cultivar to cultivar, but all cultivars respond positively to sawdust-based organic fertilization and this response is cultivar-to-cultivar dependent.

Figure 1. Most popular planted bananas

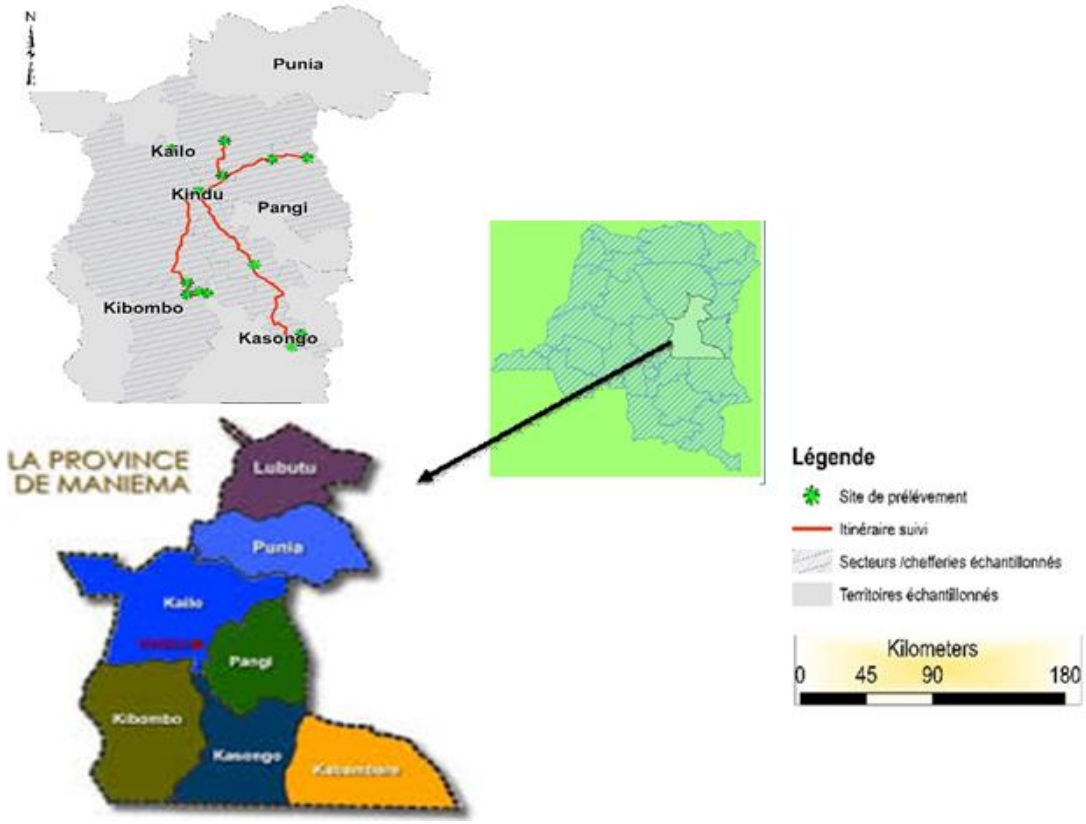

Figure 2. Province of Maniema

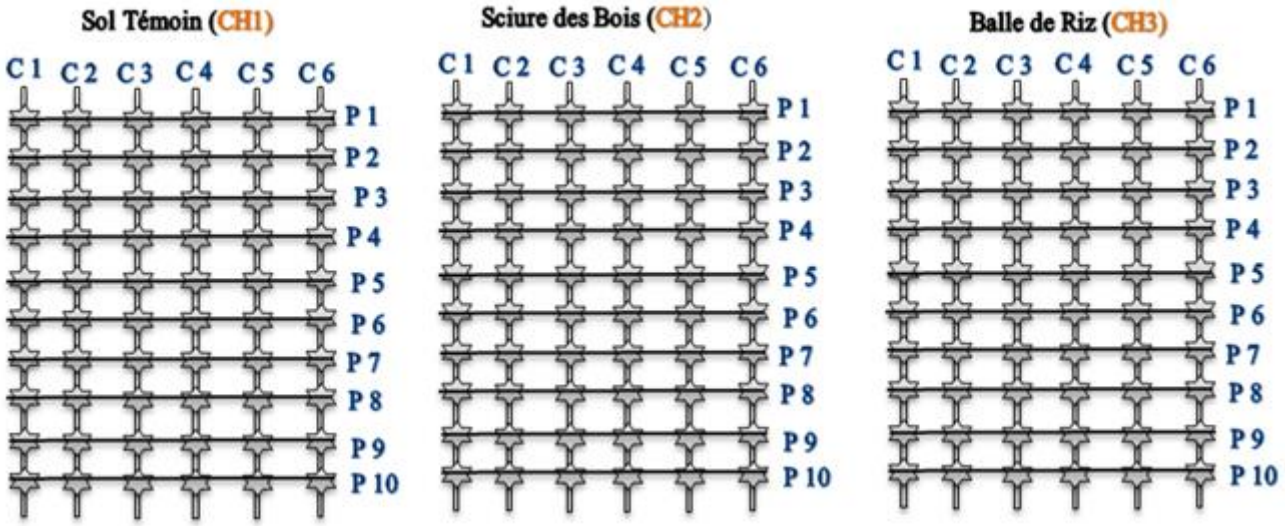

Figure 3. Experimental setup of our trial. Legend: from C 1 to C 6: Cultivar 1 to Cultivar 6; from P1 to P10: Feet 1 to Feet 10 and from CH 1 to CH 3: Fields 1 to Fields 3. A total of eighteen treatments were tested for each cultivar: without fertilizer, under sawdust and under decomposed rice husks .

Table 1. Finger length per bunch (cm) of different cultivars and under different fertilizers

Cultivars	Témoin	Balles de riz	Sciures de bois	Sommes	Moyennes	Ecartypes	CV (%)
C1	6,80	6,80	14,30	27,90	9,30	3,90	41,99
C2	9,10	7,30	9,40	25,80	8,60	1,20	14,52
C3	7,30	7,20	9,50	24,00	8,00	1,40	17,06
C4	15,10	15,00	15,10	45,20	15,07	0,60	3,87
C5	7,70	8,00	8,00	23,70	7,90	0,80	10,69
C6	9,20	10,10	9,90	29,20	9,73	1,30	12,92
Sommes	55,20	54,40	66,20				
Moyennes	9,20	9,07	11,03				
Ecart-types	2,94	3,02	2,94				
CV (%)	32,01	33,36	26,65				

Table 2. Number of hands per bunch of different cultivars and under different fertilizers

Cultivars	Témoin	Balles de riz	Sciure de bois	Sommes	Moyennes	Ecartypes	CV (%)
C1	6,00	6,00	8,00	20,00	6,67	1,15	17,24
C2	1,00	1,00	1,00	3,00	1,00	0,00	0,00
C3	3,00	3,00	3,00	9,00	3,00	0,00	0,00
C4	16,00	15,00	15,00	46,00	15,33	0,58	3,78
C5	7,00	7,00	7,00	21,00	7,00	0,00	0,00
C6	7,00	8,00	8,00	23,00	7,67	0,58	7,56
Sommes	40,00	40,00	42,00				
Moyennes	6,67	6,67	7,00				
Ecartypes	5,16	4,84	4,86				
CV (%)	77,36	72,56	69,42				

Table 3. Number of fingers per hand of different cultivars and under different fertilizers.

Cultivars	Témoins	Balles de riz	Sciure de bois	Sommes	Moyennes	Ecartypes	CV (%)
C1	7,00	7,00	14,00	28,00	9,33	4,04	43,30
C2	9,00	7,00	9,00	25,00	8,33	1,15	13,80
C3	7,00	7,00	10,00	24,00	8,00	1,73	21,62
C4	15,00	15,00	15,00	45,00	15,00	0,00	0,00
C5	8,00	8,00	8,00	24,00	8,00	0,00	0,00
C6	9,00	10,00	10,00	29,00	9,67	0,58	5,99
Sommes	55,00	54,00	66,00				
Moyennes	9,17	9,00	11,00				
Ecartypes	2,99	3,16	2,83				
CV (%)	32,60	35,11	25,72				

Table 4. Finger circumference per hand (cm) of different cultivars and under different fertilizers.

Cultivars	Témoins	Balle de riz	Sciure de bois	Sommes	Moyennes	Ecartypes	CV (%)
C1	16,30	16,80	17,20	50,30	16,77	0,45	2,68
C2	16,70	16,80	18,20	51,70	17,23	0,84	4,87
C3	16,80	17,20	18,80	52,80	17,60	1,06	6,02
C4	16,00	16,10	16,80	48,90	16,30	0,44	2,69
C5	12,40	12,40	12,40	37,20	12,40	0,00	0,00
C6	12,30	13,70	12,80	38,80	12,93	0,71	5,49
Sommes	90,50	93,00	96,20				
Moyennes	15,08	15,50	16,03				
Ecartypes	2,14	1,97	2,76				
Cv (%)	14,19	12,70	17,21				

Table 5. Bunch weight (Kg) of different cultivars and under different fertilizers

Cultivars	Témoins	Balle de riz	Sciure de bois	Sommes	Moyennes	Ecartypes	CV (%)
C1	13,50	14,20	18,10	45,80	15,27	2,48	16,24
C2	4,90	5,30	5,91	16,11	5,37	0,51	9,49
C3	9,20	9,80	7,08	26,08	8,69	1,43	16,45
C4	41,90	42,10	42,00	126,00	42,00	0,10	0,24
C5	12,10	12,20	12,10	36,40	12,13	0,06	0,49
C6	14,70	20,80	17,10	52,60	17,53	3,07	17,51
Sommes	96,30	104,40	102,29				
Moyennes	16,05	17,40	17,05				
Ecartypes	13,14	13,14	13,20				
CV (%)	81,86	75,51	77,41				

Table 6. Comparison of the mean values of number of hands per bunch, number of fingers per hand, circumference of fingers, length of fingers per hand and bunch weight within main factor (fertilizer

Fertilisants	Longueur de doigts	Nombre de mains par régime	Nombre de doigts par mains	Circonférence de doigts	Poids de régime
Témoins (sans fertilisants)	$31,30^{a}$	$6,50^{a}$	$9,20^{a}$	$15,10^{a}$	$16,10^{a}$
Balles de riz	$31,70^{a}$	$6,50^{a}$	$9,07^{b}$	$15,50^{a}$	$17,40^{a}$
Sciure de bois	$33,20^{a}$	$6,80^{a}$	$11,03^{c}$	$16,00^{a}$	$17,05^{a}$
p-values	$0,7496^{NS}$	$0,9258^{NS}$	0,0003873***	$0,1016^{NS}$	$0,8221^{NS}$

Table 7. Comparison of mean values of number of hands per bunch, number of fingers per hand, finger circumference, length of fingers per hand and bunch weight within secondary factor (cultivars)t

Cultivars	Longueur de doigts	Nombre de mains par régime	Nombre de doigts par mains	Circonférence de doigts	Poids de régime
C_1	33,60[a]	6,67	9,33	16,77	15,27
C_2	44,20[b]	1,00	8,33	17,23	5,37
C_3	42,70[c]	3,00	8,00	17,60	8,69
C_4	46,80[d]	15,33	15,00	16,30	42,00
C_5	12,10[e]	7,00	8,00	12,40	12,13
C_6	12,90[f]	7,67	9,67	12,93	17,53
p-values	< 0,000***	< 0,000***	< 0,000***	< 0,000***	< 0,000***

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