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A Comparative Trial of Cucumber Varieties
and Hybrids in Guadeloupe

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In the French West Indies, cucumber is eaten boiled or in salad. We are presently interested only in this latter use. Production of salad cucumber is developing rather rapidly.

IRAT Agency in Martinique showed that varieties adapted to southern United States conditions were often satisfactory in the French West Indies. Therefore, variety Ashley was recommended for some years.

However, varietal choice was recently rapidly modified, new cultivars with original characters of disease resistance or sexual type were introduced.

We intend to study some of these new introductions with emphasis on disease reaction and fruit quality.

This trial was realized in our main station, Domaine Duclos, on a ferralitic soil. It followed a sweet potato crop on a limed soil.

Organic manure (60 metric tons/ha) was added, as well as mineral fertilizer (150 kg N/ha, 60 kg P₂O₅/ha, 120 kg K₂O/ha). Nitrogen applications were fractionated.

The trial was directly field sowed Dec. 2, 1970 and harvested for the last time February 11, 1971. Plants were trellised and pruned; density 17,000/ha.

Meteorological data

	Rain	Temperature °C	
		Daily Av. Max.	Daily Av. Min.
December	510 mm	26,9	20,7
January	185 mm	26,7	19,2

Some irrigation was given since middle of January. No phytosanitary treatment was made before the end of January in order to observe the development of diseases. However, we made a treatment of the seedlings against Pythium by using chloroneb.

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RESULTS

I. Sexual type

All pure line varieties tried are monoecious but 6 hybrids manifest some gynoecey with variable degrees of intensity: F₁ Ashley, F₁ Cherokee, F₁ Cherokee 7, F₁ Gemini, F₁ Gemini 7, F₁ Z₄A. F₁ Ashley was heterogeneous for gynoecey. Some samples of gynoeceious commercial hybrids were mixed by the breeders with small proportions of seed of monoecious varieties which were sometimes differently colored.

II. Disease resistance (See table 1)

We had first downy mildew (Pseudoperonospora cubensis) then powdery mildew (Erysiphe cichoraceanum) and Gummy stem blight (Mycosphaerella citrulina) on leaves.

We noted the abundance of spores of the mildews on older leaves (Jan. 25th) no spores observed on 0 noted plants. Plants noted 1-2 were considered tolerant, the other susceptible.

Conversely, we noted the proportion of leaves manifesting some necrosis to the total of expanded leaves.

We note that Cvs resistant to the 2 mildews (F₁ Cherokee, F₁ Cherokee 7, Poinsett) manifest abundant necrosis on leaves.

On the contrary, some tolerant Cvs: F₁ Gemini, F₁ Gemini 7, Hawaii 70 C 78 had a more persistent vegetation.

III. Yield (See table 2)

Fruits were harvested from January 18th till February 11th. They were picked at time of easy spine removing.

The end of the crop was characterized by intense defoliation, possibly due to diseases and excessive pruning.

Yields were low with a maximum of 2 kg/plant (34 metric tons/ha).

IV. Fruit characters

Weight (table 3)

Color (table 3). Only F₁ Cherokee, F₁ Cherokee 7, F₁ Gemini, F₁ Gemini 7 and Poinsett were well colored (Note 5). Note 0 corresponds to yellowish fruits.

Length to diameter ratio (table 4). This is important for a possible export market to Europe where consumers presently prefer large and elongated fruits with tapered ends and dark green color. American Cvs are unadapted for this market. On the contrary europena Cvs as Vert Long Maraicher, Vert long de Chine, Rollisons Telegraph and F₁ Z₄A produce elongated fruits with tapered ends, unhappily very often distorted, with irregular fecundation.

CONCLUSION

Some of the best yielding selections cannot be recommended for various reasons.

Hawaii 70 C 78, an experimental breeding line, is heterogeneous for powdery mildew tolerance and fruit characters (shape, color, size).

F₁ Z₄A, an experimental hybrid between an american selection and a gynocious european line, is susceptible to the mildews and bears many distorted fruits.

F₁ Ashley is heterogeneous for sexual type.

Therefore, the best commercial CVS in this trial appear to be F₁ Gemini 7, F₁ Saticoy, F₁ Lehua 1, F₁ Gemini.

Table 1.--Tolerance to diseases

Notation: 25-1

Cvs	Downy mildew	Powdery mildew	Necrosis
F ₁ Admirable 7	T	S	0,15
F ₁ Ashley	S	S	0,14
F ₁ Challenger	T	T	0,21
F ₁ Cherokee	R	R	0,14
F ₁ Cherokee 7	R	R	0,19
F ₁ Gemini	T	T	0,05
F ₁ Gemini 7	T	T	0,07
Hawaii 70 C 78	T	H	0,06
F ₁ Lehua 1	T	T	0,14
Marketer	S	S	0,19
Marketmore	S	S	0,20
F ₁ Palomar	T	T	0,14
Poinsett	R	R	0,20
PR 39	H	S	0,20
Rollisons Telegraph	S	T	0,26
F ₁ Saticoy	T	T	0,14
F ₁ Triumph	T	T	0,21
Vert long de Chine	S	S	0,29
Vert long Maraicher	S	S	0,15
F ₁ Z ₄ A	S	S	0,18

T: Tolerant
S: Susceptible
H: Heterogeneous

Table 2.--Yield

Cvs	Kg/pl	Duncan test 5%
Hawaii 70 C 78	1,95	a
F ₁ Gemini 7	1,60	a b
F ₁ Z ₄ A	1,50	a b c d
F ₁ Saticoy	1,35	a b c d
F ₁ Lehua 1	1,35	a b c d
F ₁ Ashley	1,35	a b c d
F ₁ Gemini	1,30	a b c d e
F ₁ Triumph	1,15	b c d e f
F ₁ Cherokee 7	1,10	b c d e f
F ₁ Challenger	1,05	b c d e f
F ₁ Palomar	1,00	b c d e f
Marketer	0,90	c d e f
F ₁ Admirable 7	0,85	c d e f
F ₁ Cherokee	0,85	c d e f
Poinsett	0,75	d e f g
Vert long Maraicher	0,75	
Legénéraux	0,75	*
Tablegreen	0,75	*
Marketmore	0,65	e f g
PR 39	0,65	e f g
Long Marketer	0,60	*
Vert long de Chine	0,50	f g
Vert tres long de Chine	0,50	*
Rollisons Telegraph	0,20	g

Cvs sharing the same letter are not significantly different
(Duncan test 5%)

* no statistical data available

Table 3.--Weight/fruit and coloration

Cvs	Weight/fruit (grams)	Duncan test 5%	Coloration
Hawaii 70 C. 78	380	a	1
F ₁ Gemini 7	320	a b	5
F ₁ Z ₄ A	320	a b	4
F ₁ Lehua 1	310	b c	3
Vert long Maraicher	310	b c	0
F ₁ Admirable 7	300	b c d	3
F ₁ Gemini	300	b c d	5
F ₁ Palomar	300	b c d	2
F ₁ Saticoy	300	b c d	4
Vert long de Chine	290	b c d	1
Vert tres long de Chine	280	*	-
F ₁ Triumph	270	b c d	4
Rollisons Telegraph	270	*	-
F ₁ Ashley	260	b c d	2
F ₁ Challenger	260	b c d	4
F ₁ Cherokee 7	260	b c d	5
Marketer	250	b c d	-
Legénéreux	250	*	4
Tablegreen 65	250	*	-
Long Marketer	240	*	4
F ₁ Cherokee	230	c d	5
Market more	230	c d	4
Poinsett	220	d	5
PR 39	140	e	2

Cvs sharing the same letter are not significantly different (Duncan test 5%)

* no statistical data available

Table 4.--Length/diameter ratio

Cvs	Length/diameter ratio	Duncan test 5%
Vert long de chine	4,9	a
F ₁ Z ₄ A	4,5	a b
Hawaii 70 C 78	4,3	b c
Vert long maraicher	4,3	*
Long Marketer	3,9	c d
F ₁ Ashley	3,8	c d e
Vert tres long de Chine	3,8	*
F ₁ Challenger	3,7	c d e
F ₁ Gemini	3,7	c d e
Marketmore	3,7	c d e
F ₁ Palomar	3,7	c d e
F ₁ Triumph	3,7	c d e
F ₁ Admirable 7	3,6	d e
F ₁ Lehua 1	3,6	d e
Legenereux	3,6	*
Poinsett	3,6	d e
F ₁ Gemini 7	3,5	d e
F ₁ Saticoy	3,5	d e
F ₁ Cherokee 7	3,4	d e
F ₁ tablegreen 65	3,3	*
Marketer	3,2	e f
F ₁ Cherokee	3,1	*
PR 39	2,7	f

Cvs sharing the same letter are not significantly different (Duncan test 5%)

* no statistical data available