

GLC Consulting LLC

BIO MAS - CUCUMBER - FIELD - 2017

Trial ID: BIOMAS-CUC-17 Location: QUITMAN, GA Trial Year: 2017

Protocol ID: BIOMAS-CUC-17 Investigator: Gary L. Cloud

Project ID: Study Director:

Sponsor Contact:

Reps: 4

Plots: 6 by 30 feet

Spray vol: 40 GAL/AC

Mix Size: 2.52 liters (3.2536 liters calculated mix size)

Trt	Treatment	Rate	Rate	Appl	Amt Product	Rep	
No.	Name	Rate	Unit	Code	to Measure	1	2
1	CHECK - GSP					101	202
2	BIO MAS		12 oz wt/a	ABCD		102	201

Sort Order: Replicate 1

Product quantities required for listed treatments and applications of trials included in this table:

Amount*	Unit	Treatment Name	Form Conc	Form Unit	Form Type	Lot Code
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* 'Per area' calculations based on spray volume= 40 GAL/AC, mix size= 2.52 liters (mix size basis).

* Product amount calculations increased 25 % for overage adjustment.

* Adjusted for multiple applications in treatment list.

3 4

301 402

302 401

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Protocol ID: BIOMAS-CUC-17	Investigator: Gary L. Cloud	
Project ID:	Study Director:	
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General Trial Information

Investigator: Gary Cloud

Discipline: P/H	Plant health	
Trial Status: S	setup	Trial Reliability:

Trial Location

City: QUITMAN	Country: USA
State/Prov: GEORGIA	

Conductec No

Conductec No

Investigator: Gary Cloud

Crop Description

Crop 1: CUMSA	Cucumis sativus
Variety: JACKSON	

Planting Rate, Unit:	18
Depth, Unit:	1 IN
Row Spacing, Unit:	72 IN

Site and Design

Treated Plots	6 FT	
Treated Plots	30 FT	
Treated Plots	180 FT ²	Treatments:
Replication	4	

Soil Description

% Sand: 88	% OM: 0.8	Texture:
% Silt: 10	pH: 7	
% Clay: 2	CEC: 3.81	Fert. Level:
		Soil Drainage:

Application Description

A	B	C	D
Application: 5/10/2017	6/7/2017	7/3/2017	
Application: SPRAY	SPRAY	SPRAY	
Application: BROFOL	BROFOL	BROFOL	

Crop Stage At Each Application

A	B	C	D
Crop 1 Coc CUMSA BVVT	CUMSA BVVT	CUMSA BVVT	CUMSA BVVT

Application Equipment

A	B	C	D	
Equipment BACCAI	BACCAI	BACCAI	BACCAI	
Operation 42 PSI	42 PSI	42 PSI	42 PSI	
Nozzle Type FLAT FAN	FLAT FAN	FLAT FAN	FLAT FAN	
Nozzle Size XR8002	XR8002	XR8002	XR8002	
Nozzle Spacing 18 IN	18 IN	18 IN	18 IN	
Nozzles/Row	2	2	2	2
% Coverage	100	100	100	100
Boom Length 6 FT	6 FT	6 FT	6 FT	
Boom Height 36 IN	36 IN	36 IN	36 IN	
Ground Speed 3 MPH	3 MPH	3 MPH	3 MPH	
Carrier: WATER	WATER	WATER	WATER	
Spray Volume 20 GAL/AC	20 GAL/AC	20 GAL/AC	20 GAL/AC	
Mix Size, L 1262 mL	1262 mL	1262 mL	1262 mL	
Spray pH:	7	7	7	7
Propellant CO2	CO2	CO2	CO2	

2017

HIGH

United States

P/PLOT

BBCH Scale: Cucumber
BVVT
Planting Date:
Planting Method:

2 Site Type: FIELD
Experimental Unit: 1 PLOT
Tillage Type: CONTIL
Study Design: RACOB

FSL fine sandy loam

E excellent
E excellent

4/12/2017
TRAHAN

transplanted - hand

field

plot

conventional-till
Randomized Complete Block (RCB)

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Project ID: Study Director:
Sponsor Contact:

Crop Code CUMSA
 BBCH Scale BVVT
 Crop Scientific Name Cucumis sativus
 Crop Name Cucumber
 Crop Variety JACKSON
 Part Rated PLANT C
 Rating Date 5/31/2017
 Rating Type PHYGEN
 Rating Unit %
 Sample Size, Unit 1 PLOT
 Number of Subsamples 1
 Days After First/Last Applic. 21 21
 Trt-Eval Interval -14 DA-A
 Plant-Eval Interval 49 DP-1

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	
1	CHECK - GSP				101	0
					202	0
					301	0
					402	0
	Mean =					0
2	BIO MAS	12 oz wt/a		ABCD	102	0
					201	0
					302	0
					401	0
	Mean =					0

Crop Code CUMSA, BVVT, Cucumis sativus, Cucumber = US
 Part Rated
 PLANT = plant
 FLOWER = flower
 FRUIT = fruit
 C = Crop is Part Rated
 Rating Type
 PHYGEN = phytotoxicity - general / injury
 VIGOR = vigor
 WIDTH = width
 GREENU = greenup
 COUNT = count

WEIGHT = weight

Rating Unit

% = percent

1-5 = 1-5 index/scale

NUMBER = number

LB = pound

PLOT = total plot

Plant-Eval Interval

49 DP-1 = 1 CUMSA Apr-12-2017

63 DP-1 = 1 CUMSA Apr-12-2017

70 DP-1 = 1 CUMSA Apr-12-2017

77 DP-1 = 1 CUMSA Apr-12-2017

80 DP-1 = 1 CUMSA Apr-12-2017

84 DP-1 = 1 CUMSA Apr-12-2017

CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 5/31/2017 VIGOR 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 5/31/2017 WIDTH 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 5/31/2017 GREENU 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/14/2017 PHYGEN % 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/14/2017 VIGOR 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/14/2017 WIDTH 1-5 1 PLOT
21 21 -14 DA-A 49 DP-1	21 21 -14 DA-A 49 DP-1	21 21 -14 DA-A 49 DP-1	35 7 0 DA-A 63 DP-1	35 7 0 DA-A 63 DP-1	35 7 0 DA-A 63 DP-1
2	3	4	5	6	7
2	2	3	0	3	3
3	1	3	0	3	3
3	3	3	0	3	2
2	2	3	0	3	3
2.5	2	3	0	3	2.8
4	3	3	0	4	4
4	3	4	0	4	3
3	4	4	0	5	4
4	3	3	0	3	5
3.8	3.3	3.5	0	4	4

CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/14/2017 GREENU 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FLOWER C 6/14/2017 COUNT 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FLOWER C 6/21/2017 COUNT 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/28/2017 PHYGEN % 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/28/2017 VIGOR 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/28/2017 WIDTH 1-5 1 PLOT
35 7 0 DA-A 63 DP-1	35 7 0 DA-A 63 DP-1	42 14 7 DA-A 70 DP-1	49 21 14 DA-A 77 DP-1	49 21 14 DA-A 77 DP-1	49 21 14 DA-A 77 DP-1
8	9	10	11	12	13
3	1	2	0	3	3
3	1	2	0	3	4
2	1	2	0	3	3
3	2	3	0	3	3
2.8	1.3	2.3	0	3	3.3
4	2	3	0	4	4
3	3	4	0	5	3
4	2	4	0	4	4
5	3	4	0	4	5
4	2.5	3.8	0	4.3	4

CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/28/2017 GREENU 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FLOWER C 6/28/2017 COUNT 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FRUIT C 6/28/2017 COUNT NUMBER 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FRUIT C 6/28/2017 WEIGHT LB 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FRUIT C 7/1/2017 COUNT NUMBER 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FRUIT C 7/1/2017 WEIGHT LB 1 PLOT
49 21 14 DA-A 77 DP-1	49 21 14 DA-A 77 DP-1	49 21 14 DA-A 77 DP-1	49 21 14 DA-A 77 DP-1	52 24 17 DA-A 80 DP-1	52 24 17 DA-A 80 DP-1
14	15	16	17	18	19
3	3	21	15.3	35	18.9
3	4	15	10.6	42	20.5
4	3	28	16.6	26	14.6
3	3	16	11.4	39	17.5
3.3	3.3	20	13.48	35.5	17.88
4	4	28	16.5	51	25.6
4	5	25	16.2	44	21.6
5	5	20	14.4	36	16.6
4	4	22	13.8	42	16.9
4.3	4.5	23.8	15.23	43.3	20.18

CUMSA	CUMSA
BVVT	BVVT
Cucumis sativus	Cucumis sativus
Cucumber	Cucumber
JACKSON	JACKSON
FRUIT C	FRUIT C
7/5/2017	7/5/2017
COUNT	WEIGHT
NUMBER	LB
1 PLOT	1 PLOT
	1 1
56 2	56 2
21 DA-A	21 DA-A
84 DP-1	84 DP-1
	20 21
	45 18.9
	38 15.6
	51 24.3
	56 23.9
	47.5 20.68
	68 28.2
	57 22.3
	62 24.7
	51 21.6
	59.5 24.2

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Crop Code	CUMSA	
BBCH Scale	BVVT	
Crop Scientific Name	Cucumis sativus	
Crop Name	Cucumber	
Crop Variety	JACKSON	
Part Rated	PLANT C	
Rating Date	5/31/2017	
Rating Type	PHYGEN	
Rating Unit	%	
Sample Size, Unit	1 PLOT	
Number of Subsamples		1
Days After First/Last Applic.	21 21	
Trt-Eval Interval	-14 DA-A	
Plant-Eval Interval	49 DP-1	
Trt Treatment	Rate	Appl
No. Name	Unit	Code
1 CHECK - GSP		1*
2 BIO MAS	12 oz wt/a	ABCD
LSD P=.05	.	0 -
Standard Deviation		0 -
CV		0
Bartlett's X2		0
P(Bartlett's X2)	.	
Skewness	.	
Kurtosis	.	
Replicate F		0
Replicate Prob(F)		1
Treatment F		0
Treatment Prob(F)		1

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

* Adjusted means

Could not calculate LSD (% mean diff) for columns 1,5,11,14 because error mean square = 0.

Crop Code

CUMSA, BVVT, Cucumis sativus, Cucumber = US

Part Rated

PLANT = plant

FLOWER = flower

FRUIT = fruit

C = Crop is Part Rated

Rating Type

PHYGEN = phytotoxicity - general / injury

VIGOR = vigor

WIDTH = width

GREENU = greenup

COUNT = count

WEIGHT = weight

Rating Unit

% = percent

1-5 = 1-5 index/scale

NUMBER = number

LB = pound

PLOT = total plot

Plant-Eval Interval

49 DP-1 = 1 CUMSA Apr-12-2017

63 DP-1 = 1 CUMSA Apr-12-2017

70 DP-1 = 1 CUMSA Apr-12-2017

77 DP-1 = 1 CUMSA Apr-12-2017

80 DP-1 = 1 CUMSA Apr-12-2017

84 DP-1 = 1 CUMSA Apr-12-2017

CUMSA	CUMSA	CUMSA	CUMSA	CUMSA
BVVT	BVVT	BVVT	BVVT	BVVT
Cucumis sativus	Cucumis sativus	Cucumis sativus	Cucumis sativus	Cucumis sativus
Cucumber	Cucumber	Cucumber	Cucumber	Cucumber
JACKSON	JACKSON	JACKSON	JACKSON	JACKSON
PLANT C	PLANT C	PLANT C	PLANT C	PLANT C
5/31/2017	5/31/2017	5/31/2017	6/14/2017	6/14/2017
VIGOR	WIDTH	GREENU	PHYGEN	VIGOR
1-5	1-5	1-5	%	1-5
1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
1	1	1	1	1
21 21	21 21	21 21	35 7	35 7
-14 DA-A	-14 DA-A	-14 DA-A	0 DA-A	0 DA-A
49 DP-1	49 DP-1	49 DP-1	63 DP-1	63 DP-1
2*	3*	4*	5*	6*
2.5 -	2 b	3 -	0 -	3 -
3.8 -	3.3 a	3.5 -	0 -	4 -
1.52	0.8	0.92 .		1.3
0.68	0.35	0.41	0	0.58
21.66	13.47	12.56	0	16.5
0.057	0.641	0	0	0
0.811	0.423 .	.	.	
-0.2765	-0.4877	1.4402 .		1.3229
-1.3917	0.4208	0 .		0.875
0.273	6.333	1	0	1
0.8429	0.0819	0.5	1	0.5
6.818	25	3	0	6
0.0796	0.0154	0.1817	1	0.0917

CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/14/2017 WIDTH 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/14/2017 GREENU 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FLOWER C 6/14/2017 COUNT 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FLOWER C 6/21/2017 COUNT 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/28/2017 PHYGEN % 1 PLOT	
	1	1	1	1	1
35 7	35 7	35 7	42 14	49 21	
0 DA-A	0 DA-A	0 DA-A	7 DA-A	14 DA-A	
63 DP-1	63 DP-1	63 DP-1	70 DP-1	77 DP-1	
7*	8*	9*	10*	11*	
	2.8 -	2.8 -	1.3 b	2.3 b	0 -
	4 -	4 -	2.5 a	3.8 a	0 -
	1.52	1.52	0.8	0.92 .	
	0.68	0.68	0.35	0.41	0
	20.06	20.06	18.86	13.61	0
	0.641	0.641	0.057	0	0
	0.423	0.423	0.811 .	.	
	0.4877	0.4877	0.2765	0 .	
	0.4208	0.4208	-1.3917	-2.1 .	
	1	1	3.667	2	0
	0.5	0.5	0.1571	0.2918	1
	6.818	6.818	25	27	0
	0.0796	0.0796	0.0154	0.0138	1

CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/28/2017 VIGOR 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/28/2017 WIDTH 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON PLANT C 6/28/2017 GREENU 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FLOWER C 6/28/2017 COUNT 1-5 1 PLOT	CUMSA BVVT Cucumis sativus Cucumber JACKSON FRUIT C 6/28/2017 COUNT NUMBER 1 PLOT	
	1	1	1	1	1
49 21	49 21	49 21	49 21	49 21	
14 DA-A	14 DA-A	14 DA-A	14 DA-A	14 DA-A	
77 DP-1	77 DP-1	77 DP-1	77 DP-1	77 DP-1	
12*	13*	14*	15*	16*	
	3 b	3.3 -	3.3 -	3.3 b	20 -
	4.3 a	4 -	4.3 -	4.5 a	23.8 -
	0.8	2 .		0.8	12.75
	0.35	0.89	0	0.35	5.67
	9.75	24.55	0	9.12	25.91
	0	0.641	0	0.057	0.743
		0.423 .		0.811	0.389
	0.8238	0.8238	0.4041	0.2765	-0.0709
	-0.1515	-0.1515	-0.2286	-1.3917	-1.2472
	1	0.158	0	3.667	0.481
	0.5	0.9181	1	0.1571	0.7183
	25	1.421	0	25	0.875
	0.0154	0.3189	1	0.0154	0.4185

CUMSA	CUMSA	CUMSA	CUMSA	CUMSA
BVVT	BVVT	BVVT	BVVT	BVVT
Cucumis sativus	Cucumis sativus	Cucumis sativus	Cucumis sativus	Cucumis sativus
Cucumber	Cucumber	Cucumber	Cucumber	Cucumber
JACKSON	JACKSON	JACKSON	JACKSON	JACKSON
FRUIT C	FRUIT C	FRUIT C	FRUIT C	FRUIT C
6/28/2017	7/1/2017	7/1/2017	7/5/2017	7/5/2017
WEIGHT	COUNT	WEIGHT	COUNT	WEIGHT
LB	NUMBER	LB	NUMBER	LB
1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
	1	1	1	1
49 21	52 24	52 24	56 2	56 2
14 DA-A	17 DA-A	17 DA-A	21 DA-A	21 DA-A
77 DP-1	80 DP-1	80 DP-1	84 DP-1	84 DP-1
17*	18*	19*	20*	21*
13.48 -	35.5 -	17.88 -	47.5 -	20.68 -
15.23 -	43.3 -	20.18 -	59.5 -	24.2 -
5.127	10.42	4.973	19.7	8.575
2.279	4.63	2.21	8.76	3.811
15.88	11.76	11.62	16.37	16.98
1.573	0.038	0.761	0.014	0.312
0.21	0.846	0.383	0.906	0.576
-0.782	-0.3854	0.8673	-0.1459	-0.5062
-0.8299	1.0739	0.6751	-0.0714	0.5266
0.987	3.035	4.036	0.47	0.815
0.504	0.1931	0.1409	0.7247	0.5648
1.18	5.598	2.167	3.757	1.711
0.3569	0.0989	0.2374	0.148	0.282

12.86 % inc

17.02 % inc