



Agronomic evaluation
Water retention effectiveness

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1. Trial A Summary: Higher doses of MMBSA

In order to evaluate the water retention effectiveness from the MMBSA polymer, a trial was carried out on baby lettuce plants growing in pots with poor exhausted peat (not fertilized).

In this trial ten treatments were compared: 1) untreated control, 2-4) three different doses of MMBSA (4, 10, 20 g/l) 5-6) two doses of a commercial organo-mineral fertilizer (Venus Biotop), a micropellet with N-P-K 6-7-7 and 50% organic matter chosen because its composition is similar to MMBSA, 7) a biostimulant product (Inicium), with NPK 5.5-5.5-0 and 40% organic matter, and 8-10) three commercial Super Absorbent Polymers (Aqua Biopron, Stocksorb and Compo Sana Hidro Control).

Irrigation was performed by flooding according transpiration (200 ml/pot every four days approximately) during five weeks. After that, a period without irrigation was done in order to evaluate the advantages of the different treatments under soil water stress.

Four visual evaluations according to plant development were done, giving values between 1 (worse) and 5 (optimal). At the end of the trial plants were collected and the fresh foliar biomass was weight.

Very poor growth results were obtained for treatments 1 and 9 (both without fertilizer added to the substrate).

In all the evaluations the best treatment was number 10 (Compo Sana Hidro Control), following by MMBSA at medium dose although at the beginning of the trial MMBSA at low dose performs better. MMBSA gives better results than the standard fertilizer except in the beginning of the trial.

For the higher MMBSA dose treatment, phytotoxicity problems were observed in two replicates.

Regarding water retention effectiveness, any of the Super Absorbent Polymers tested works.

Wilted plants are those with a greater leaf area independently of the kind of SAP tested.

As final conclusion, MMBSA as well as any of the other commercial SAP products tested have any good effect on plants to avoid water stress problems.

MMBSA seems to have a slightly fertilizer effect at least like the commercial fertilizer used.

Objective: MMBSA effectiveness test like biostimulant/fertilizer and superabsorbent polymer to regulate the water in soil or substrate.

Location: Archena (Murcia)

Crop: Lettuce

Variety: Baby Nunhems

Transplanted: 24/02/2012

Irrigation: Flooding

Plots: 1 PLANT (pot 14 mm Ø)

Replications: 5

Conditions: Growing in pots with poor peat substrate and controlled irrigation.

Application: Incorporated in the substrate 48 hours before transplantation.

Assessment: Plants growth and vigour.

Treatments:

Treat.	Product
1	UTC (Poor standard substrate)
2	MMBSA 4 g/L (Standard substrate)
3	MMBSA 10 g/L (Standard substrate)
4	MMBSA 20 g/L (Standard Substrate)
5	STANDARD SUBSTRATE WITH FERTIL. ACCORDING Treatment 2
6	STANDARD SUBSTRATE WITH FERTIL. ACCORDING Treatment 3
7	STANDARD SUBSTRATE + INICIUM 6 mL/L (twice)
8	A. BIOPRON 4 g/L STANDARD SUBS. WITH FERTIL. ACCOR. Treat. 2
9	STOCKSORB 4 g/L (STANDARD SUBSTRATE)
10	COMPO SANA [®] HIDRO CONTROL (SUBSTRATE WITH SAP INCORPORATED)

First irrigation: 350 mL/pot (22/02/2012)

Transplantation: 24/02/2012 with 250 ml/pot irrigation

Biostimulant application dates: 22/02/2012 and 04/03/12

Every four days irrigation by flooding with 200 ml/pot was done (approximately, according to weather)

BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.002

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

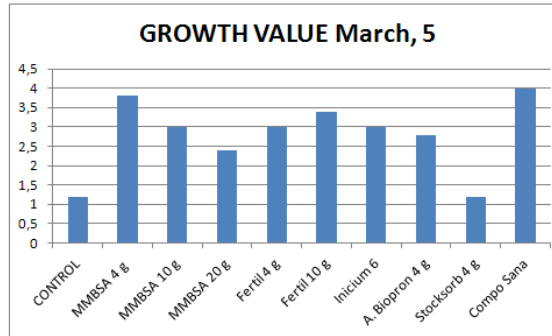
DATE: 29/03/12

	05-mar
CONTROL	1,2
MMBSA 4 g	3,8
MMBSA 10 g	3
MMBSA 20 g	2,4
Fertil 4 g	3
Fertil 10 g	3,4
Inicium 6	3
A. Biopron 4 g	2,8
Stocksorb 4 g	1,2
Compo Sana	4

Assessment date, - 05/03/12

values between 1to 5 according plant growth. 1= worst ; 5= best

	VALUE (05/03)
CONTROL 1	1
CONTROL 2	1
CONTROL 3	1
CONTROL 4	2
CONTROL 5	1
CONTROL AV.	1,2
MMBSA 4 g 1	3,5
MMBSA 4 g 2	4
MMBSA 4 g 3	3,5
MMBSA 4 g 4	4
MMBSA 4 g 5	4
MMBSA 4 g AV.	3,8
MMBSA 10 g 1	4
MMBSA 10 g 2	2
MMBSA 10 g 3	2
MMBSA 10 g 4	4
MMBSA 10 g 5	3
MMBSA 10 g AV.	3
MMBSA 20 g 1	3
MMBSA 20 g 2	2
MMBSA 20 g 3	1
MMBSA 20 g 4	3
MMBSA 20 g 5	3
MMBSA 20 g AV.	2,4
FERTIL 4 g 1	3
FERTIL 4 g 2	3
FERTIL 4 g 3	3
FERTIL 4 g 4	3
FERTIL 4 g 5	3
FERTIL 4 g AV.	3
FERTIL 10 g 1	4
FERTIL 10 g 2	2
FERTIL 10 g 3	4
FERTIL 10 g 4	4
FERTIL 10 g 5	3
FERTIL 10 g AV.	3,4
INICIUM 6 mL 1	3
INICIUM 6 mL 2	2
INICIUM 6 mL 3	3
INICIUM 6 mL 4	3
INICIUM 6 mL 5	4
INICIUM 6 mL AV.	3
a. biopron 4 g 1	3
a. biopron 4 g 2	3
a. biopron 4 g 3	4
a. biopron 4 g 4	2
a. biopron 4 g 5	2
a. biopron 4 g AV.	2,8
stocksorb 4 g 1	1
stocksorb 4 g 2	1
stocksorb 4 g 3	2
stocksorb 4 g 4	1
stocksorb 4 g 5	1
stocksorb 4 g AV.	1,2
compo sana 1	4
compo sana 2	4
compo sana 3	4
compo sana 4	4
compo sana 5	4
compo sana AV.	4



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BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.002

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

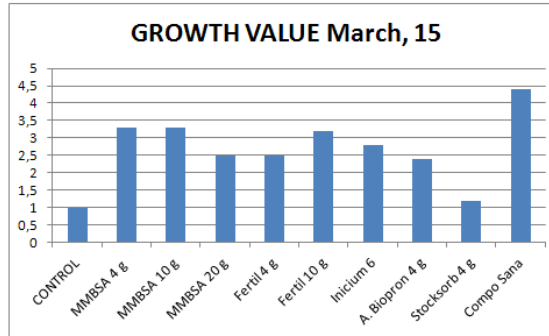
DATE: 29/03/12

	15-mar
CONTROL	1
MMBSA 4 g	3,3
MMBSA 10 g	3,3
MMBSA 20 g	2,5
Fertil 4 g	2,5
Fertil 10 g	3,2
Inicium 6	2,8
A. Biopron 4 g	2,4
Stocksorb 4 g	1,2
Compo Sana	4,4

Assessment date, - 15/03/12

values between 1to 5 according plant growth. 1= worst ; 5= best

	VALUE (15/03)
CONTROL 1	1
CONTROL 2	1
CONTROL 3	1
CONTROL 4	1
CONTROL 5	1
CONTROL AV.	1
MMBSA 4 g 1	3
MMBSA 4 g 2	3,5
MMBSA 4 g 3	3
MMBSA 4 g 4	3,5
MMBSA 4 g 5	3,5
MMBSA 4 g AV.	3,3
MMBSA 10 g 1	4
MMBSA 10 g 2	2,5
MMBSA 10 g 3	3
MMBSA 10 g 4	3
MMBSA 10 g 5	4
MMBSA 10 g AV.	3,3
MMBSA 20 g 1	3
MMBSA 20 g 2	2
MMBSA 20 g 3	1
MMBSA 20 g 4	3,5
MMBSA 20 g 5	3
MMBSA 20 g AV.	2,5
FERTIL 4 g 1	2,5
FERTIL 4 g 2	2,5
FERTIL 4 g 3	2,5
FERTIL 4 g 4	2,5
FERTIL 4 g 5	2,5
FERTIL 4 g AV.	2,5
FERTIL 10 g 1	3
FERTIL 10 g 2	2,5
FERTIL 10 g 3	3,5
FERTIL 10 g 4	3,5
FERTIL 10 g 5	3,5
FERTIL 10 g AV.	3,2
INICIUM 6 mL 1	2,5
INICIUM 6 mL 2	2,5
INICIUM 6 mL 3	2
INICIUM 6 mL 4	3
INICIUM 6 mL 5	4
INICIUM 6 mL AV.	2,8
a. biopron 4 g 1	2
a. biopron 4 g 2	2,5
a. biopron 4 g 3	2,5
a. biopron 4 g 4	2,5
a. biopron 4 g 5	2,5
a. biopron 4 g AV.	2,4
stocksorb 4 g 1	1,5
stocksorb 4 g 2	1
stocksorb 4 g 3	1
stocksorb 4 g 4	1
stocksorb 4 g 5	1,5
stocksorb 4 g AV.	1,2
compo sana 1	4
compo sana 2	4
compo sana 3	5
compo sana 4	4
compo sana 5	5
compo sana AV.	4,4



Página 3

BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.002

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

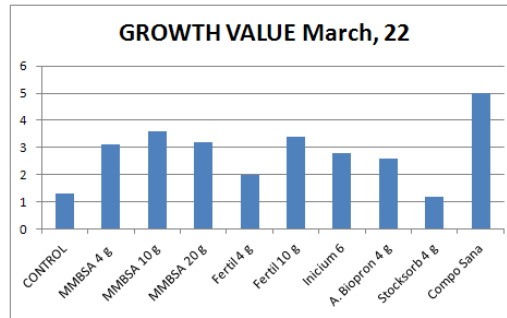
DATE: 29/03/12

Assessment date, - 22/03/12

values between 1to 5 according plant growth. 1= worst ; 5= best

	VALUE (22/03)
CONTROL 1	1,5
CONTROL 2	1,5
CONTROL 3	1,5
CONTROL 4	1
CONTROL 5	1
CONTROL AV.	1,3
MMBSA 4 g 1	3
MMBSA 4 g 2	3
MMBSA 4 g 3	3,5
MMBSA 4 g 4	3
MMBSA 4 g 5	3
MMBSA 4 g AV.	3,1
MMBSA 10 g 1	4
MMBSA 10 g 2	3
MMBSA 10 g 3	3,5
MMBSA 10 g 4	3,5
MMBSA 10 g 5	4
MMBSA 10 g AV.	3,6
MMBSA 20 g 1	4
MMBSA 20 g 2	4
MMBSA 20 g 3	3,5
MMBSA 20 g 4	2,5
MMBSA 20 g 5	2
MMBSA 20 g AV.	3,2
FERTIL 4 g 1	2
FERTIL 4 g 2	2
FERTIL 4 g 3	2
FERTIL 4 g 4	2
FERTIL 4 g 5	2
FERTIL 4 g AV.	2
FERTIL 10 g 1	3,5
FERTIL 10 g 2	3,5
FERTIL 10 g 3	3,5
FERTIL 10 g 4	3,5
FERTIL 10 g 5	3
FERTIL 10 g AV.	3,4
INICIUM 6 mL 1	3
INICIUM 6 mL 2	3
INICIUM 6 mL 3	3
INICIUM 6 mL 4	2,5
INICIUM 6 mL 5	2,5
INICIUM 6 mL AV.	2,8
a. biopron 4 g 1	2,5
a. biopron 4 g 2	2,5
a. biopron 4 g 3	2,5
a. biopron 4 g 4	2,5
a. biopron 4 g 5	3
a. biopron 4 g AV.	2,6
stocksorb 4 g 1	1,5
stocksorb 4 g 2	1,5
stocksorb 4 g 3	1
stocksorb 4 g 4	1
stocksorb 4 g 5	1
stocksorb 4 g AV.	1,2
compo sana 1	5
compo sana 2	5
compo sana 3	5
compo sana 4	5
compo sana 5	5
compo sana AV.	5

	22-mar
CONTROL	1,3
MMBSA 4 g	3,1
MMBSA 10 g	3,6
MMBSA 20 g	3,2
Fertil 4 g	2
Fertil 10 g	3,4
Inicium 6	2,8
A. Biopron 4 g	2,6
Stocksorb 4 g	1,2
Compo Sana	5



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BIOIBERICA S.A. Development Department **Assessment sheet**
TRIAL Nr. MMBSA.A.12.002

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

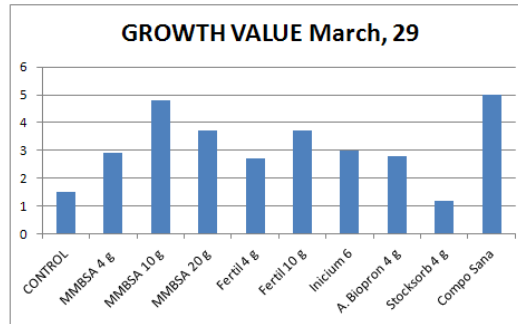
DATE: 29/03/12

	29-mar
CONTROL	1,5
MMBSA 4 g	2,9
MMBSA 10 g	4,8
MMBSA 20 g	3,7
Fertil 4 g	2,7
Fertil 10 g	3,7
Inicium 6	3
A. Biopron 4 g	2,8
Stocksorb 4 g	1,2
Compo Sana	5

Assessment date, - 29/03/12

values between 1to 5 according plant growth. 1= worst ; 5= best

	VALUE (29/03)
CONTROL 1	1,5
CONTROL 2	1,5
CONTROL 3	1,5
CONTROL 4	1,5
CONTROL 5	1,5
CONTROL AV.	1,5
MMBSA 4 g 1	3
MMBSA 4 g 2	3
MMBSA 4 g 3	3
MMBSA 4 g 4	3
MMBSA 4 g 5	2,5
MMBSA 4 g AV.	2,9
MMBSA 10 g 1	4,5
MMBSA 10 g 2	5
MMBSA 10 g 3	5
MMBSA 10 g 4	4,5
MMBSA 10 g 5	5
MMBSA 10 g AV.	4,8
MMBSA 20 g 1	4
MMBSA 20 g 2	4,5
MMBSA 20 g 3	4
MMBSA 20 g 4	3
MMBSA 20 g 5	3
MMBSA 20 g AV.	3,7
FERTIL 4 g 1	2,5
FERTIL 4 g 2	2,5
FERTIL 4 g 3	2,5
FERTIL 4 g 4	3
FERTIL 4 g 5	3
FERTIL 4 g AV.	2,7
FERTIL 10 g 1	4
FERTIL 10 g 2	3,5
FERTIL 10 g 3	3,5
FERTIL 10 g 4	3,5
FERTIL 10 g 5	4
FERTIL 10 g AV.	3,7
INICIUM 6 mL 1	3
INICIUM 6 mL 2	3
INICIUM 6 mL 3	3
INICIUM 6 mL 4	3
INICIUM 6 mL 5	3
INICIUM 6 mL AV.	3
a. biopron 4 g 1	3
a. biopron 4 g 2	3
a. biopron 4 g 3	2,5
a. biopron 4 g 4	2,5
a. biopron 4 g 5	3
a. biopron 4 g AV.	2,8
stocksorb 4 g 1	1,5
stocksorb 4 g 2	1,5
stocksorb 4 g 3	1
stocksorb 4 g 4	1
stocksorb 4 g 5	1
stocksorb 4 g AV.	1,2
compo sana 1	5
compo sana 2	5
compo sana 3	5
compo sana 4	5
compo sana 5	5
compo sana AV.	5



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BIOIBERICA S.A. Development Department **Assessment sheet**

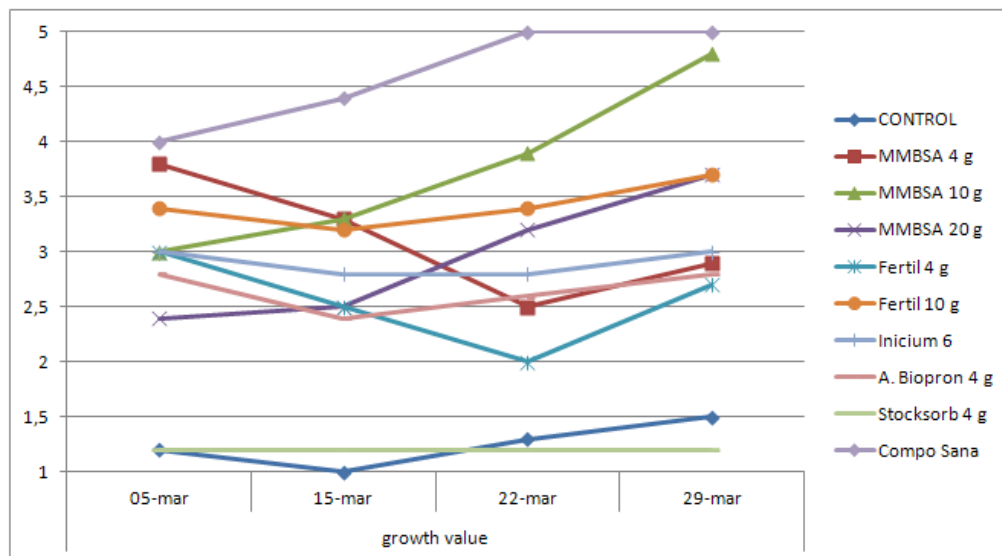
TRIAL Nr. MMBSA.A.12.002

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

	growth value			
	05-mar	15-mar	22-mar	29-mar
CONTROL	1,2	1	1,3	1,5
MMBSA 4 g	3,8	3,3	2,5	2,9
MMBSA 10 g	3	3,3	3,9	4,8
MMBSA 20 g	2,4	2,5	3,2	3,7
Fertil 4 g	3	2,5	2	2,7
Fertil 10 g	3,4	3,2	3,4	3,7
Inicium 6	3	2,8	2,8	3
A. Biopron 4 g	2,8	2,4	2,6	2,8
Stocksorb 4 g	1,2	1,2	1,2	1,2
Compo Sana	4	4,4	5	5



BIOIBERICA S.A. Development Department **Assessment sheet**
TRIAL Nr. MMBSA.A.12.002

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

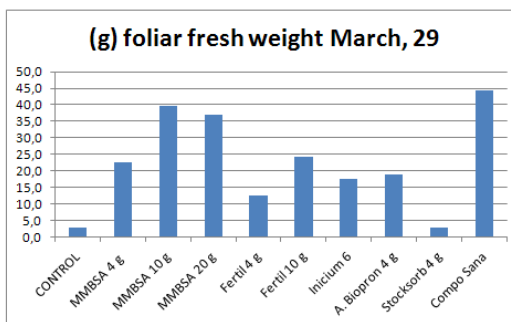
DATE: 29/03/12

Assessment date, - 29/03/12

foliar fresh weight

	f.f.w. (g) (29/03)
CONTROL 1	3
CONTROL 2	2,8
CONTROL 3	2,9
CONTROL 4	3
CONTROL 5	2,8
CONTROL AV.	2,9
MMBSA 4 g 1	24,2
MMBSA 4 g 2	21,2
MMBSA 4 g 3	22,7
MMBSA 4 g 4	23,5
MMBSA 4 g 5	20,9
MMBSA 4 g AV.	22,5
MMBSA 10 g 1	40,3
MMBSA 10 g 2	39,6
MMBSA 10 g 3	38,1
MMBSA 10 g 4	41,2
MMBSA 10 g 5	38,8
MMBSA 10 g AV.	39,6
MMBSA 20 g 1	42,1
MMBSA 20 g 2	43,3
MMBSA 20 g 3	40,4
MMBSA 20 g 4	31,4
MMBSA 20 g 5	27,5
MMBSA 20 g AV.	36,94
FERTIL 4 g 1	12,9
FERTIL 4 g 2	13,4
FERTIL 4 g 3	12,2
FERTIL 4 g 4	13,3
FERTIL 4 g 5	11,6
FERTIL 4 g AV.	12,68
FERTIL 10 g 1	25,6
FERTIL 10 g 2	24,4
FERTIL 10 g 3	23,9
FERTIL 10 g 4	22,5
FERTIL 10 g 5	25,3
FERTIL 10 g AV.	24,34
INICIUM 6 mL 1	18,4
INICIUM 6 mL 2	17,4
INICIUM 6 mL 3	16,4
INICIUM 6 mL 4	19,1
INICIUM 6 mL 5	16,6
INICIUM 6 mL AV.	17,58
a. biopron 4 g 1	20,5
a. biopron 4 g 2	19,6
a. biopron 4 g 3	17,8
a. biopron 4 g 4	17,5
a. biopron 4 g 5	18,3
a. biopron 4 g AV.	18,74
stocksorb 4 g 1	2,6
stocksorb 4 g 2	2,8
stocksorb 4 g 3	2,5
stocksorb 4 g 4	2,9
stocksorb 4 g 5	3,1
stocksorb 4 g AV.	2,78
compo sana 1	45,5
compo sana 2	43,4
compo sana 3	46,3
compo sana 4	44,3
compo sana 5	42,9
compo sana AV.	44,48

	29-mar
CONTROL	2,9
MMBSA 4 g	22,5
MMBSA 10 g	39,6
MMBSA 20 g	36,9
Fertil 4 g	12,7
Fertil 10 g	24,3
Inicium 6	17,6
A. Biopron 4 g	18,7
Stocksorb 4 g	2,8
Compo Sana	44,5



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BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.002

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

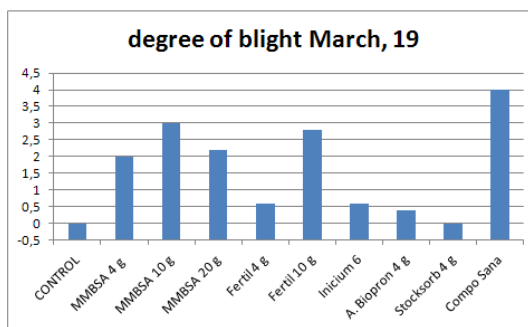
DATE: 29/03/12

	19-mar
CONTROL	0
MMBSA 4 g	2
MMBSA 10 g	3
MMBSA 20 g	2,2
Fertil 4 g	0,6
Fertil 10 g	2,8
Inicium 6	0,6
A. Biopron 4 g	0,4
Stocksorb 4 g	0
Compo Sana	4

Assessment date, - 19/03/12

values between 0 to 4 according wilted plant (0= healthy-looking ; 4= 7 affected leaves)

	VALUE (19/03)
CONTROL 1	0
CONTROL 2	0
CONTROL 3	0
CONTROL 4	0
CONTROL 5	0
CONTROL AV.	0
MMBSA 4 g 1	3
MMBSA 4 g 2	3
MMBSA 4 g 3	2
MMBSA 4 g 4	1
MMBSA 4 g 5	1
MMBSA 4 g AV.	2
MMBSA 10 g 1	3
MMBSA 10 g 2	3
MMBSA 10 g 3	4
MMBSA 10 g 4	2
MMBSA 10 g 5	3
MMBSA 10 g AV.	3
MMBSA 20 g 1	4
MMBSA 20 g 2	3
MMBSA 20 g 3	3
MMBSA 20 g 4	1
MMBSA 20 g 5	0
MMBSA 20 g AV.	2,2
FERTIL 4 g 1	1
FERTIL 4 g 2	1
FERTIL 4 g 3	0
FERTIL 4 g 4	0
FERTIL 4 g 5	1
FERTIL 4 g AV.	0,6
FERTIL 10 g 1	3
FERTIL 10 g 2	3
FERTIL 10 g 3	3
FERTIL 10 g 4	3
FERTIL 10 g 5	2
FERTIL 10 g AV.	2,8
INICIUM 6 mL 1	1
INICIUM 6 mL 2	1
INICIUM 6 mL 3	1
INICIUM 6 mL 4	0
INICIUM 6 mL 5	0
INICIUM 6 mL AV.	0,6
a. biopron 4 g 1	0
a. biopron 4 g 2	1
a. biopron 4 g 3	0
a. biopron 4 g 4	0
a. biopron 4 g 5	1
a. biopron 4 g AV.	0,4
stocksorb 4 g 1	0
stocksorb 4 g 2	0
stocksorb 4 g 3	0
stocksorb 4 g 4	0
stocksorb 4 g 5	0
stocksorb 4 g AV.	0
compo sana 1	4
compo sana 2	4
compo sana 3	4
compo sana 4	4
compo sana 5	4
compo sana AV.	4



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Photo 1. left MMBSA 4 g/pot ,right Untreated Control (08/03/12)



Photo 2. up left STOCKSORB, up right MMBSA 4 g/pot, bottom right COMPO SANA, bottom left AQUA BIOPRON (08/03/12)



Photo 3. from left to right treatments 10 to 1 (22/03/12)

The next ten photos show a replication for each treatment the last day of the trial (29/03/12).











2. Trial B Summary: Lower doses of MMBSA

In order to evaluate the water retention effectiveness from the MMBSA polymer in real agricultural conditions, a trial was carried out on baby lettuce plants growing in pots with a mixture of good loam soil.

Eight treatments were compared: 1) untreated control, 2-4) three different doses of MMBSA (2, 5, 10 g/l respectively), 5) a commercial organo-mineral fertilizer (Venus Bitop), a micropellet with N-P-K 6-7-7 and 50% organic matter chosen because its composition is similar to MMBSA, 6) a biostimulant product (Inicium), with NPK 5.5-5.5-0 and 40% organic matter, and 7-8) other two commercial Super Absorbent products (Stocksorb and Compo Sana Hidro Control).

Irrigation was performed by flooding according transpiration (200 ml/pot every four days approximately) during four weeks. After that, a period without irrigation was done in order to evaluate the advantages of the different treatments under soil water stress.

Three initial assessments, evaluating plant development, were done. Values between 1 (worse) and 5 (optimal) were assigned according to plant development. At the end of the trial, plants were collected and the fresh foliar biomass was weight.

Growth results show the best values for treatments 4 and 8, MMBSA 10 g/pot and Compo Sana Hidro Control. The next was MMBSA at medium dose. According to the results, MMBSA gives better results than the standard organo-mineral fertilizer.

The results under water stress show that any of the SAP tested works. Independently of the kind of SAP used, the plants with the greater leaf area show the severest wilted symptoms.

As final conclusions, all the SAP products tested have any good effect on plants to avoid water stress problems. MMBSA seems to have a slightly fertilizer effect at least like the commercial fertilizer used.

Objective: Test the efficacy of MMBSA like stimulant/fertilizer and superabsorbent polymer to regulate the water in soil or substrate.

Location: Archena (Murcia)

Crop: Lettuce

Variety: Baby Nunhems

Transplanted: 27/02/2012

Irrigation: Flooding

Plots: 1 Plant (pot 14 mm Ø)

Replications: 3

Conditions: Growing in pots with good loam soil and controlled irrigation.

Application: Incorporated in the substrate 48h before planting.

Assessment: Plants growth and vigor

Treatments:

Tret.	Product
1	UTC (POOR STANDARD SUBSTRATE)
2	MMBSA 2 g/L (STANDARD SUBSTRATE)
3	MMBSA 5 g/L (STANDARD SUBSTRATE)
4	MMBSA 10 g/L (STANDARD SUBSTRATE)
5	STANDARD SUBSTRATE WITH FERTIL. ACCORDING Treatment 3
6	STANDARD SUBSTRATE + INICIUM 6 mL/L (twice)
7	STOCKSORB 2 g/L (STAN. SUBST.) WITH FERT. ACCORDING Treat. 3
8	COMPO SANA ® HIDRO CONTROL (SUBSTRATE WITH SAP INCORPORATED)

First Irrigation 350 ml/pot (27/02/2012)

Transplantation 27/02/2012 with 150 ml/pot irrigation

Biostimulant application dates 27/02/2012 and 06/03/12

Every four days irrigated by flooding with 200 ml/pot (approximately, according to weather)

BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.003

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

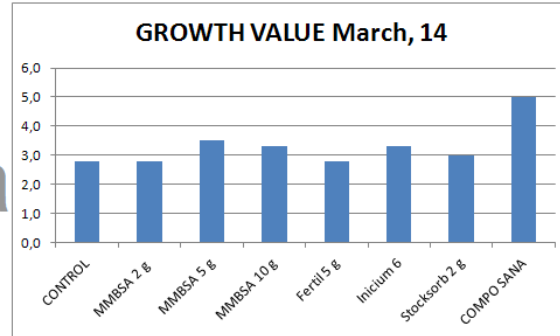
DATE: 29/03/12

Assessment date,- 14/03/12

values between 1to 5 according plant growth. 1= worst ; 5= best

GROWTH VALUE	
	14-mar
CONTROL	2,8
MMBSA 2 g	2,8
MMBSA 5 g	3,5
MMBSA 10 g	3,3
Fertil 5 g	2,8
Inicium 6	3,3
Stocksorb 2 g	3,0
COMPO SANA	5,0

	VALUE (14/03)
CONTROL 1	3
CONTROL 2	3
CONTROL 3	2,5
CONTROLAV.	2,8
MMBSA 2 g 1	4
MMBSA 2 g 2	2,5
MMBSA 2 g 3	2
MMBSA 2 g AV.	2,8
MMBSA 5 g 1	3,5
MMBSA 5 g 2	3,5
MMBSA 5 g 3	3,5
MMBSA 5 g AV.	3,5
MMBSA 10 g 1	3
MMBSA 10 g 2	3,5
MMBSA 10 g 3	3,5
MMBSA 10 g AV.	3,3
FERTIL 5 g 1	3
FERTIL 5 g 2	3
FERTIL 5 g 3	2,5
FERTIL 5 g AV.	2,8
INICIUM 6 mL 1	3
INICIUM 6 mL 2	3,5
INICIUM 6 mL 3	3,5
INICIUM 6 mL AV.	3,3
stocksorb 2 g 1	2,5
stocksorb 2 g 2	3,5
stocksorb 2 g 3	3
stocksorb 2 g AV.	3,0
compo sana 1	5
compo sana 2	5
compo sana 3	5
compo sana AV.	5,0



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BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.003

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

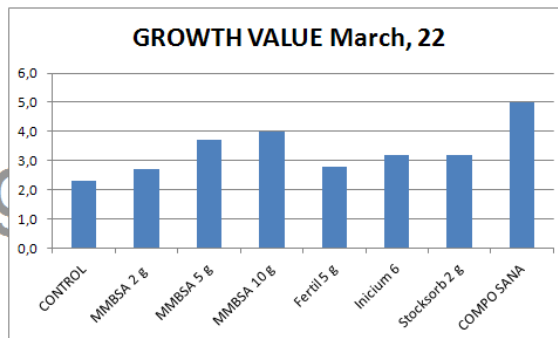
DATE: 29/03/12

Assessment date, - 22/03/12

values between 1to 5 according plant growth. 1= worst ; 5= best

	VALUE (22/03)
CONTROL 1	3
CONTROL 2	2
CONTROL 3	2
CONTROLAV.	2,3
MMBSA 2 g 1	3
MMBSA 2 g 2	2,5
MMBSA 2 g 3	2,5
MMBSA 2 g AV.	2,7
MMBSA 5 g 1	3,5
MMBSA 5 g 2	4
MMBSA 5 g 3	3,5
MMBSA 5 g AV.	3,7
MMBSA 10 g 1	4
MMBSA 10 g 2	4
MMBSA 10 g 3	4
MMBSA 10 g AV.	4,0
FERTIL 5 g 1	3
FERTIL 5 g 2	3
FERTIL 5 g 3	2,5
FERTIL 5 g AV.	2,8
INICIUM 6 mL 1	3,5
INICIUM 6 mL 2	3
INICIUM 6 mL 3	3
INICIUM 6 mL AV.	3,2
stocksorb 2 g 1	3,5
stocksorb 2 g 2	3
stocksorb 2 g 3	3
stocksorb 2 g AV.	3,2
compo sana 1	5
compo sana 2	5
compo sana 3	5
compo sana AV.	5,0

GROWTH VALUE	
	22-mar
CONTROL	2,3
MMBSA 2 g	2,7
MMBSA 5 g	3,7
MMBSA 10 g	4,0
Fertil 5 g	2,8
Inicium 6	3,2
Stocksorb 2 g	3,2
COMPO SANA	5,0



BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.003

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

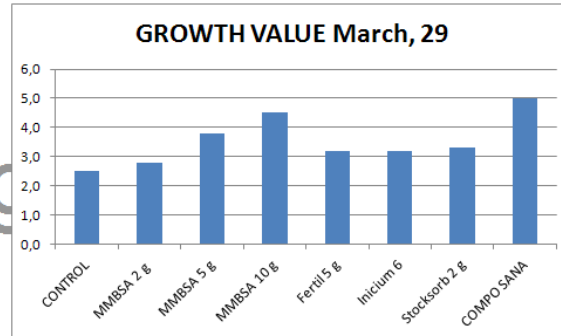
DATE: 29/03/12

Assessment date, - 29/03/12

values between 1to 5 according plant growth. 1= worst ; 5= best

	VALUE (29/03)
CONTROL 1	3
CONTROL 2	2,5
CONTROL 3	2
CONTROLAV.	2,5
MMBSA 2 g 1	3
MMBSA 2 g 2	3
MMBSA 2 g 3	2,5
MMBSA 2 g AV.	2,8
MMBSA 5 g 1	4
MMBSA 5 g 2	4
MMBSA 5 g 3	3,5
MMBSA 5 g AV.	3,8
MMBSA 10 g 1	4,5
MMBSA 10 g 2	4,5
MMBSA 10 g 3	4,5
MMBSA 10 g AV.	4,5
FERTIL 5 g 1	3,5
FERTIL 5 g 2	3
FERTIL 5 g 3	3
FERTIL 5 g AV.	3,2
INICIUM 6 mL 1	3,5
INICIUM 6 mL 2	3
INICIUM 6 mL 3	3
INICIUM 6 mL AV.	3,2
stocksorb 2 g 1	3,5
stocksorb 2 g 2	3,5
stocksorb 2 g 3	3
stocksorb 2 g AV.	3,3
compo sana 1	5
compo sana 2	5
compo sana 3	5
compo sana AV.	5,0

GROWTH VALUE	
	29-mar
CONTROL	2,5
MMBSA 2 g	2,8
MMBSA 5 g	3,8
MMBSA 10 g	4,5
Fertil 5 g	3,2
Inicium 6	3,2
Stocksorb 2 g	3,3
COMPO SANA	5,0



BIOIBERICA S.A. Development Department **Assessment sheet**

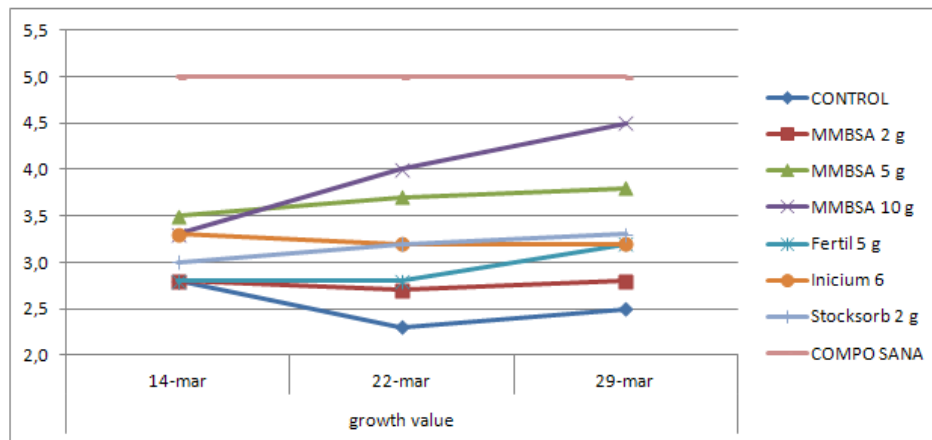
TRIAL Nr. MMBSA.A.12.003

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

	growth value		
	14-mar	22-mar	29-mar
CONTROL	2,8	2,3	2,5
MMBSA 2 g	2,8	2,7	2,8
MMBSA 5 g	3,5	3,7	3,8
MMBSA 10 g	3,3	4,0	4,5
Fertil 5 g	2,8	2,8	3,2
Inicium 6	3,3	3,2	3,2
Stocksorb 2 g	3,0	3,2	3,3
COMPO SANA	5,0	5,0	5,0



BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.003

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

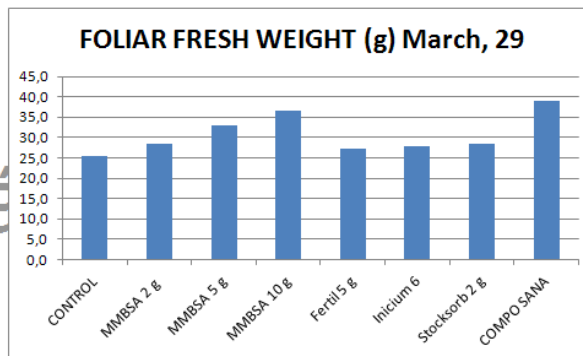
DATE: 29/03/12

Assessment date, - 29/03/12

foliar fresh weight

	f.f.w. (g) (29/03)
CONTROL 1	25,6
CONTROL 2	24,1
CONTROL 3	26,8
CONTROLAV.	25,5
MMBSA 2 g 1	28,0
MMBSA 2 g 2	30,1
MMBSA 2 g 3	27,3
MMBSA 2 g AV.	28,5
MMBSA 5 g 1	34,6
MMBSA 5 g 2	30,6
MMBSA 5 g 3	33,9
MMBSA 5 g AV.	33,0
MMBSA 10 g 1	36,1
MMBSA 10 g 2	37,5
MMBSA 10 g 3	35,9
MMBSA 10 g AV.	36,5
FERTIL 5 g 1	26,7
FERTIL 5 g 2	29,1
FERTIL 5 g 3	26,3
FERTIL 5 g AV.	27,4
INICIUM 6 mL 1	30,4
INICIUM 6 mL 2	27,3
INICIUM 6 mL 3	26,1
INICIUM 6 mL AV.	27,9
stockorb 2 g 1	30,7
stockorb 2 g 2	26,7
stockorb 2 g 3	28,0
stockorb 2 g AV.	28,5
compo sana 1	39,4
compo sana 2	37,7
compo sana 3	40,1
compo sana AV.	39,1

f.f.w. (g)	
	29-mar
CONTROL	25,5
MMBSA 2 g	28,5
MMBSA 5 g	33,0
MMBSA 10 g	36,5
Fertil 5 g	27,4
Inicium 6	27,9
Stockorb 2 g	28,5
COMPO SANA	39,1



BIOIBERICA S.A. Development Department **Assessment sheet**

TRIAL Nr. MMBSA.A.12.003

TECHNICIAN: CM

PLACE: Archena (Murcia)

CROP: Lechuga (var. Baby Nunhems)

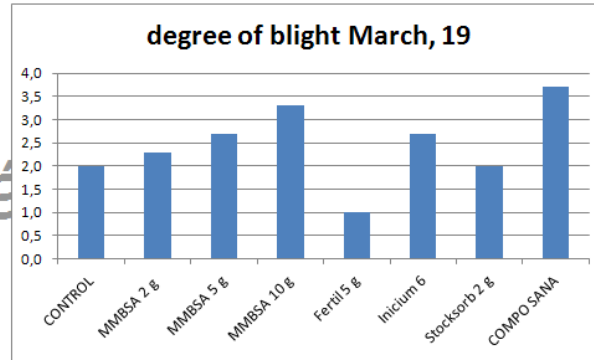
DATE: 29/03/12

Assessment date, - 19/03/12

values between 0 to 4 according wilted plant (0= healthy-looking ; 4= 7 affected leaves)

	VALUE (19/03)
CONTROL 1	2
CONTROL 2	2
CONTROL 3	2
CONTROLAV.	2,0
MMBSA 2 g 1	3
MMBSA 2 g 2	2
MMBSA 2 g 3	2
MMBSA 2 g AV.	2,3
MMBSA 5 g 1	2
MMBSA 5 g 2	3
MMBSA 5 g 3	3
MMBSA 5 g AV.	2,7
MMBSA 10 g 1	4
MMBSA 10 g 2	3
MMBSA 10 g 3	3
MMBSA 10 g AV.	3,3
FERTIL 5 g 1	0
FERTIL 5 g 2	2
FERTIL 5 g 3	1
FERTIL 5 g AV.	1,0
INICIUM 6 mL 1	3
INICIUM 6 mL 2	3
INICIUM 6 mL 3	2
INICIUM 6 mL AV.	2,7
stocksorb 2 g 1	2
stocksorb 2 g 2	2
stocksorb 2 g 3	2
stocksorb 2 g AV.	2,0
compo sana 1	4
compo sana 2	3
compo sana 3	4
compo sana AV.	3,7

degree of blight	
	19-mar
CONTROL	2,0
MMBSA 2 g	2,3
MMBSA 5 g	2,7
MMBSA 10 g	3,3
Fertil 5 g	1,0
Inicium 6	2,7
Stocksorb 2 g	2,0
COMPO SANA	3,7













From left (1) to right (8) the eight treatments (2/03/12) are shown. The best results were obtained for treatments 4 and 8 (MMBSA 10 g/pot and Compo Sana Hidro Control respectively).