

## BELL PEPPER ROOT ROT BIOCONTROL 2. AGRICOLA DEL CAMPO Y ASOCIADOS

Trial setting: Field trial Product: EcoBac

Bell Pepper La Cruz de Elota, Sinaloa, Mexico Crop: Location:

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## **OBJECTIVES**

To demonstrate the effect of the use of antagonistic microbiological formulation BP01\* (EcoBac) to control the incidence of root diseases in Bell Pepper.

## MATERIALS AND METHODS

A trial was established on a Bell Pepper farm belonging to Agrícola del Campo y Asociados, located in table 5 of the "La Isla" lot in the municipality of La Cruz de Elota, Sinaloa, Mexico.

The characteristics of the applied product is as follows:

EcoBac (PB01): formula based on Bacillus strains at a concentration of 1 X 108 CFU / mL, plus a nutrient for the bacteria applied at a ratio of 1 g of nutrient to 4 mL of bacteria suspension.

Plants were transplanted in double rows per bed on December 13, 2000. The hybrid was Macabi to be harvested in red color.

The following treatments were established:

- 1. Control
- 2. EcoBac 2 L / Ha, per application
- 3. EcoBac 4 L / Ha, per application
- \* The trade name of the formula BP01 is EcoBac, a product manufactured and sold by EcoMicrobials Inc, in Miami, FL.

www.ecomicrobials.com - info@ecomicrobials.com

The application of EcoBac was done as follows:

- a. An application by immersion of the trays prior to transplant, in a 2% suspension of the formulation. This is equivalent to  $2\ L$  / Ha.
- b. 8 weekly applications, starting one week after transplant.
- c. Each season,  $18\ L$  / Ha were applied under the treatments whose dose of EcoBac was  $2\ L$  / Ha per application and  $34\ L$  / Ha in the treatments whose dose of EcoBac was  $4\ L$  / Ha.

Each treatment was applied to 6 rows 100 m. long, arranged in three separate pairs. Each pair of furrows was considered a replicate.

For the application of the treatments, valves and "T" connections were placed in the irrigation lines selected for the test. A 2 HP pump was connected to a manifold with 6 outlets (one for each irrigation line). The corresponding dose of each product per treatment, on each occasion, was applied with a volume of 400 L for the 6 furrows, in a 15 minutes period.

When it was necessary to apply a pesticide to the soil, the treatment valves were closed to make the effect of the treatments with antagonistic agents independent and to avoid any damage to the applied microorganisms. The rest of the crop management was exactly the same as that carried out for the rest of the commercial plantation.

The following parameters were evaluated:

- a. Incidence of root rots.- The total number of existing plants in each furrow was quantified before the symptoms of the disease began to manifest. When the first diseased plants were observed, the presence of rot was verified at the base of the stem or root and weekly counts were started until the end of harvest. The percent incidence was calculated by the proportion of diseased plants with respect to the total number of plants in each pair of rows (experimental unit).
- b. Total yield and size.- Sampling sites were delimited in each experimental unit of 10 m in length, in each pair of rows. In each cut the total number of harvested fruits was quantified and they were classified by size according to the packaging criteria. At the end, all the cuts were added and it was extrapolated in terms of boxes per hectare.

## RESULTS

Table 1 shows that there were highly significant differences in the incidence of root rot in Bell Pepper. It is evident that any treatment that used EcoBac presented a lower incidence than the control. Likewise, it is observed that there were no differences between the tested doses of EcoBac.

Table 1. Incidence of root rot in Bell Pepper due to the effect of EcoBac. Agrícola del Campo and Asoc. Lot "La Isla". La Cruz of Elota, Sinaloa. June 2001.

Treatment	Incidence (%)		
1. Control	7.5 a		
2. EcoBac 2 L / Ha	2.9 b		
3. EcoBac 4 L / Ha	2.3 b		

Table 2 shows the yield results in Bell Pepper, where it can be observed that the treatments with EcoBac surpassed the control, especially in the large size (XLG).

Table 2. Yield of Bell Pepper according to the effect of EcoBac. Agrícola del Campo and Asoc. Lot "La Isla". La Cruz de Elota, Sinaloa. June 2001.

Treatment	Yield (boxes / Ha)					
	XLG	LG	MED	SML	TOTAL	
1. Control	136 b	706 b	1083 a	640 a	2565 b	
2. EcoBac 2 L / Ha	151 b	1014 a	1229 a	618 a	3012 a	
3. EcoBac 4 L / Ha	210 a	721 b	995 a	644 a	2570 b	