



BELL PEPPER ROOT ROT BIOCONTROL
1. AGRICOLA TARRIBA

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|-----------------|--------------------|-----------------------|-----------------------------------|
| Product: | EcoBac | Trial setting: | Field trial |
| Crop: | Bell Pepper | Location: | La Cruz de Elota, Sinaloa, Mexico |

Trial ran by Leo Fernandez from Productos Químicos de Chihuahua (PROQUISA) SA de CV. Translation from report located in the Spanish section of the website.

This work was carried out at the Ebano lot, owned by Agrícola Tarriba, in the municipality of La Cruz de Elota, Sinaloa. Plants were transplanted with double rows of plants per bed on November 15, 2000. The hybrid used was "Comandante" harvested in while in green color.

The objective of the work was to demonstrate the effect of use of antagonistic microbial agent BP01, commercially sold as Ecobac*, to control the root diseases in Bell Pepper and its effect on growth performance.

The treatments were:

1. Control (Normal handling by growerr)
2. EcoBac 4 L / Ha per application
3. EcoBac 4 L / Ha + Nutrisorb 2.5 L / Ha, per application

The applications began 25 days after transplantation and the sequence of applications was as follows:

EcoBac.- 8 applications were made at weekly intervals, so that the total dose per season of this product was 32 L / Ha.

Nutrisorb.- Carboxylic acid. Nutrisorb was given 4 applications weekly, so that the total dose per season was 10 L / Ha.

* The trade name of the formula BP01 is EcoBac, product manufactured and sold by Ecomicrobials Inc, in Miami, FL.

Each treatment was applied in 6 rows of 100 m. long, arranged in three separate pairs on the ground. Each pair of furrows was considered a repetition.

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, for a period of 15 minutes.

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 the one carried out for the rest of the commercial plantation.

a) Incidence of root rot.- For this, 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). For the analysis of variance, the data were square root transformed ($\sqrt{VX + 0.5}$).

b) Total yield and size category.- 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.

Table 1 shows that there were significant differences between treatments in relation to plants with root rot. It is appreciated that any treatment with application of EcoBac decreased the incidence of root rot.

Table 1. Effect of soil application of EcoBac and Nutrisorb on the incidence of root rot in bell pepper. Ebony lot. Agrícola Tarriba. The Cross of Elota, Sin. June 2001.

| Treatment | Incidence (%) |
|-----------------------|---------------|
| 1. Control | 8.3 a |
| 2. EcoBac | 2.4 c |
| 3. EcoBac + Nutrisorb | 3.2 bc |

In order to determine the effect of the applications of EcoBac in a condition of higher pressure of the pathogen, an evaluation of the incidence of root rot was carried out in the last 25 m of furrow (in all treatments). This is due to the fact that humidity accumulated in that place and the higher incidence was evident.

Table 2 shows the results obtained and the data obtained previously are confirmed.

Table 2. Effect of soil application of EcoBac and Nutrisorb on the incidence of root rot in bell pepper. Evaluated where moisture accumulated. Ebony lot. Agrícola Tarriba. The Cross of Elota, Sin. June 2001.

| Treatment | Incidence (%) |
|-----------------------|---------------|
| 1. Control | 22.16 a |
| 2. EcoBac | 7.8 b |
| 3. EcoBac + Nutrisorb | 6.5 b |

The total yield and the classification by sizes are shown in Table 3, where it can be seen that total production was statistically superior with the addition of EcoBac as well as EcoBac + Nutrisorb to the control. This was mainly due to large fruits (XLG + LG), where the best treatment was the combination of EcoBac + Nutrisorb.

Table 3. Effect of soil application of EcoBac and Nutrisorb on bell pepper production. Ebony lot. Agrícola Tarriba. The Cross of Elota, Sin. June 2001.

| Treatment | Production (boxes/ Ha) | | | | | |
|-----------------------|------------------------|--------------|--------|-------|-------|--------|
| | Large | Super Select | Select | Small | Plain | Total |
| 1. Control | 550 a | 860 b | 538 a | 493 a | 758 a | 3199 a |
| 2. EcoBac | 594 a | 1115 a | 526 a | 487 a | 746 a | 3468 a |
| 3. EcoBac + Nutrisorb | 482 a | 1084 a | 476 a | 496 a | 768 a | 3306 a |