# TELONE™ C-35 DEMONSTRATION TRIAL IN EGGPLANT

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A demonstration trial comparing TELONE™ C-35 (62% 1,3-dichloropropene:35% chloropicrin) to methyl bromide:chloropicrin (67:33) was conducted in Saint Lucie County, FL on a commercial eggplant production farm. Methyl bromide:chloropicrin was shank injected into pre-beds at 426 kg/ha using three 25 cm deep shanks spaced 30 cm apart. Beds were immediately covered with black, low density polyethylene plastic mulch. Telone C-35 was shank injected at 281 l/ha using the same application equipment but immediately covered by a white over black virtually impermeable plastic mulch (Hytibar Flex, Klerks Plastic Co.) Fumigants were applied on 21 January, 2006 and eggplants (cultivar 'Nadia') were transplanted on 25 February. Twenty-four rows 271 m in length (1.2 ha total) were treated with Telone C-35. Methyl bromide:chloropicrin was applied in the adjacent ninety-six rows.

The concentration of 1,3-dichloropropene and chloropicrin in the soil atmosphere was measured by removing a 2.5 x 12.5 cm core of soil from the center of the bed and sampling the subsequent airspace using a GasTec Model GV-100 Gas Sampling Pump (Sensidyne Inc., Clearwater, FL) with Gastec 139 trichloroethylene detector tubes (GasTec Corp, Ayase-City, Japan). Four samples were collected in each planting bed. One planting bed in each block was sampled (Table 1). Concentrations of Telone C-35 declined to 50 ppm or less by 18 days after fumigation.

The incidence of soilborne disease in methyl bromide:chloropicrin or Telone C-35 treated areas at harvest was negligible (below 1%) in both treatments (data not shown). Twelve contiguous plants were harvested in four separate sections of the Telone C-35 treated area and the adjacent methyl bromide:chloropicrin treated area with the highest total yields in Telone C-35 (Table 2). Soil and root samples were collected from plants in the harvested plots on 26 May and nematodes were extracted (Table 3). No plant parasitic nematodes were detected in soil or roots in either treatment. Weeds emerging through the plastic and plant holes were counted on eight rows in each block. The numbers presented are the average of eight rows and represent the number of weeds per meter of row (Table 4). The predominant weeds were nutsedge and barnyard grass. Nutsedge control was improved in the Telone C-35 treatment when compared to adjacent methyl bromide:chloropicrin treated plots.

Table 1. Detection of Telone C-35 in planting beds following 21 January, 2006 application

| Block | Planting bed | 5 days | 10 days | 13 days | 18 days |
|---|---|---|---|---|---|
| 1 | 5 | 200 PPM | 67.5 PPM | 80.5 PPM | 50 PPM |
| 2 | 5 | 400 PPM | 82.5 PPM | 57.5 PPM | 25 PPM |

Results represent the mean of four samples.

Table 2. Marketable yield of eggplant (g or kg per plant)

| Treatment | 1st harvest | 2nd harvest | 3rd harvest | Total yield | |
|---|---|---|---|---|---|
| Telone C-35 | 908 g | 817 g | 726 g | 2.45 kg | 10% increase |
| MeBr:Pic | 953 g | 636 g | 636 g | 2.22 kg | |

Harvest dates were 12, 22, and 26 May.

Table 3. Density of soil nematodes

| Treatment | Sample location | Plant parasitic | Non parasitic |
|---|---|---|---|
| Telone C-35 | Soil | 0 | 289.0 |
| MeBr:Pic | Soil | 0 | 59.0 |
| | | | |
| Telone C-35 | Roots | 0 | 2.8 |
| MeBr:Pic | Roots | 0 | 3.1 |

Nematode data expressed as number per 100 CC of soil or number per root. Samples were collected from the soil and from the root systems on 26 May.

Table 4. Nutsedge per meter of row Barnyard grass per meter of row

| Treatment | 10 Feb | 17 May | 10 Feb | 17 May |
|---|---|---|---|---|
| Telone C-35 | <0.1 | <0.1 | 0 | <0.1 |
| MeBr:Pic | 1.0 | 4.21 | 0 | <0.1 |