

SHELF LIFE STUDY OF BELL PEPPER USING VARIOUS METHYL BROMIDE ALTERNATIVE WEED CONTROL TACTICS 2005 AND 2006

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Introduction

Alternative weed control measures for methyl bromide fumigation have been evaluated for weed control, yield and plant growth. These alternatives are Vapam or K-Pam (Metam Sodium), Telone C35 (1, 3-dichloropropene(63.4%) + Chloropicrin(34.6%)), Telone II (1, 3-dichloropropene), MIDAS (methyl iodide) and Chloropicrin.

Objective

The objective for this study was to evaluate shelf life of pepper with respect to various alternative weed control measures for two years.

Methods and Materials

Pepper was grown at the Tifton Vegetable Park in the Spring 2005 and 2006. Tifton sandy loam is the soil type. The seven fumigant treatments are listed below.

1. Methyl bromide (67:33 at 400 lb/A broadcast) plus chloropicrin (150 lb/A broadcast) injected 6-8" in the bed with a super bedder plastic layer.
2. Methyl iodide(50:50 at 400 lb/A broadcast) plus chloropicrin (150 lb/A broadcast) injected 6-8" in the bed with super-bedder plastic layer.
3. Telone II (12 gal/A broadcast) injected 10-12 inches deep with a Yetter rig followed with Chloropicrin (150 lb/A broadcast) injected 6-8 inches in the bed with a super bedder plastic layer (Years 1 and 3). Methyl bromide (67:33 at 400 lb/A broadcast) injected 6-8" in the bed with a super-bedder plastic layer Years 2 and 4).
4. Telone II (12 gal/A broadcast) injected 10-12 inches deep with a Yetter rig followed with Chloropicrin (150 lb/A broadcast) injected 6-8 inches in the bed with a super bedder plastic layer.
5. Telone C35 (35 gal/A broadcast) injected 10-12 inches deep with a Yetter rig followed with a super-bedder plastic layer.
6. Telone II (12 gal/A broadcast) injected 10-12 inches deep with a Yetter rig followed with K-Pam (Metam Sodium) (60 gal/A broadcast into a 32 inch bed top equaling 135 gal. rate in the bed) to a depth of 4 inches and followed with a super bedder plastic layer.
7. K-Pam (60 gal/A broadcast into a 32 inch bed top equaling 135 gal. rate in the bed) 4 inches deep and followed with a super bedder plastic layer.
8. No fumigant control.

Plots were harvested and stored in cardboard boxes. Each 30 foot plot sample was weighed and fruit were counted. Boxes were stored in a refrigerated storage room. The cold room temperature was 48°F and relative humidity of 70 percent (figure 1).

Results and Discussion

Pepper was harvested on June 27, 2005 and placed in refrigerated storage. Pepper boxes were evaluated 14 and 28 days after place in the refrigerated storage. The following year pepper was harvested on May 24, 2006 and placed in refrigerated storage. Pepper boxes were evaluated 21 and 35 days after place in the refrigerated storage. Figure 2 shows a percent usable pepper verses the type of fumigant used for weed, disease and nematode control for both years study.

Conclusion

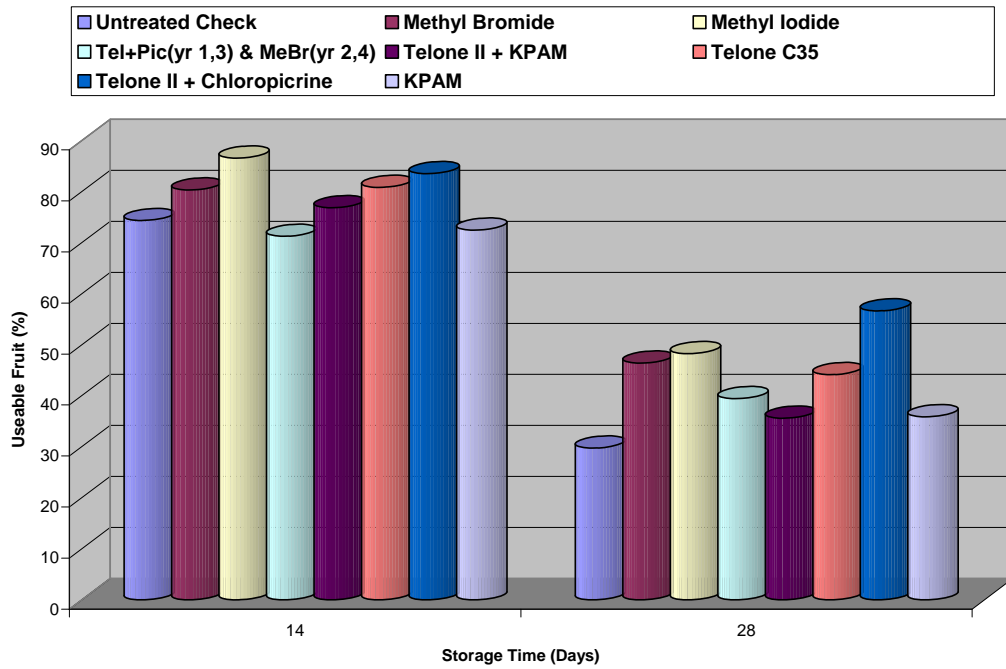
In this test, MIDAS (Methyl Iodide) and Telone II (1, 3-dichloropropene) plus Chloropicrin had most usable fruit after 14 - 21

days in storage for pepper. These combinations and methyl bromide had better shelf life than the untreated check plots.



Figure 1. Pepper boxes stored in cold storage.

Effects of Various Fumigants Shelf Life of Pepper, 2005



Effects of Various Fumigants on Shelf Life of Peppers, 2006

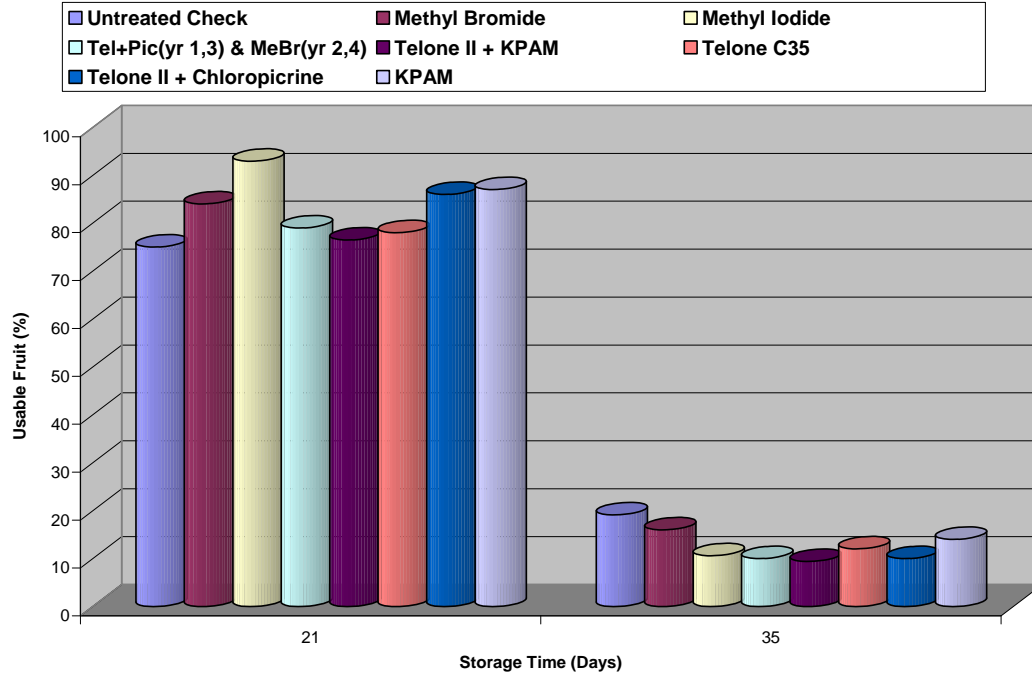


Figure 2. Percent usable fruit for pepper using various fumigants for weed control, 2005 and 2006. 48°F and 70% RH.