FUMIGATION—BASAMID

RALPH SHUGERT

Zelenka Evergreen Nursery
16127 Winans Avenue
Grand Haven, Michigan 49417

In an effort to reduce production costs and to ease weeding hours in seed beds, our nursery initiated tests in 1985 using a chemical soil sterilant, (active ingredient: dazomet). A rather intensive review of all the IPPS Proceedings does not show reference to this product.

Over the years our nursery has used methyl bromide as the fumigant for seedbed areas, with varying degrees of weed control. We had this product applied by private applicators, and the price per acre has steadily increased for the past six years. Our quotation for spring, 1987 was $1,100 per acre! In addition to the product cost there still remained a labor cost incurred in the removal and disposal of the polythene sheeting. This is very distasteful and time-consuming. Weed control has been less than perfect. Weeds started appearing in late June on October-treated areas.

Margaret Scott, IPPS G.B.&I. Region, and Wayne Lovelace, Eastern Region, shared information on an Orbit-Air Gandy Spreader to apply Basamid. Based on their information and our own evaluation, we have made Basamid-Granular the soil fumigant in our standard production practice. This is a product from BASF. When incorporated into the soil, it has nematicidal, fungicidal, and herbicidal effects. Therefore, it is classed as a chemical soil sterilant.

The product is a white micro-granular formulation. The granular form is easy to apply with the Orbit-Air Gandy Spreader. We use it at our nursery in the seedbed and in greenhouse fumigation. According to the literature, Basamid-Granular has been used around the world in ornamentals, vegetables, tobacco, orchards, vineyards, and hopfields. Residue analyses carried out on a wide range of vegetables showed no dazomet residue. The product has moderate oral toxicity, with LD50 value of 640 mg/kg.

Basamid-Granular was first tested at John Zelenka Evergreen Nursery October 2, 1985; 0.4 acre next to the test plot was treated with methyl bromide. The soil temperature was 54°F.

The June 21, 1986 evaluation showed weed seed germination in the methyl bromide plot but absolutely no weed germination in the Basamid treatment. In both areas, as one would suspect, woody plant seed germination was not inhibited. Additional treatments were conducted on November 6, 1986, (45°F soil temperature) May 5, 1987, (54°F soil temperature) and on September 29, 1987, (50°F soil temperature). Some important points that we have learned from

the label and from experience at our nursery are summarized below:

PRIOR TO TREATMENT

Soil temperature. Minimum of 45°F (7.5°C), maximum of (20°C). The label reads 10°C. This temperature range is very important.

Soil preparation. Work soil to a seedbed condition, with all soil clods pulverized completely.

Soil moisture. Soil should be at 60 to 70% of its water-holding capacity for seven days (label reads 5 to 14 days).

Prevention of damage. Before greenhouse treatment all crops must be removed and all doors closed and locked. If a portion of a greenhouse range is to be treated, poly curtains must be firmly in place. In the field do not allow Basamid-Granular to come within 18 in. of plant roots.

TREATMENT

Depth of treatment. We rototill to a depth of 8 to 12 in. prior to application.

Application. We use an Orbit-Air Gandy Spreader, (Model 6224), which gives us excellent even distribution. Our product rate per acre is 300 lbs. The label rate is 20 to 40 g/m for herbicidal control. Current price is $3 per pound, equating to $900 per acre.

Incorporation. This is done immediately after application. We use a Howard rotovator, going no deeper than the depth of soil preparation.

Sealing surface. After incorporation, we irrigate with ¼ in. of water daily for seven days. Label advises to compress soil by rolling and then watering. We do not do this. Label also suggests to cover soil with polythene sheeting after watering. We do not do this.

AFTER TREATMENT

Aeration. Seven to 10 days after application, temperatures are about 50°F, (10°C), and we loosen the soil by rototilling. Depth should not exceed the original tilling. In another 10 days we till again and prepare our seed beds.

Germination test. After aeration soil samples are taken at various areas in the treated plot. We sow either lettuce or rye seed into this soil and observe germination. The label suggests sowing cress seed (*Lepidium sativum*).

Planting/seeding. If lettuce/rye seed germination is satisfactory, we then prepare the area with a bedformer, and we are ready to seed, plant liners, or move plants back into greenhouse beds.

Our seed germination was excellent following treatment and weed control was far superior to previous years of methyl bromide application. Product cost saving was $200 to $300 per acre, plus a

sizeable labor cost saving since we did not have to dispose of the poly tarp. I also have data on the hand weeding dollar savings in the Basamid versus methyl bromide plots in 1986. Once again, we have a product from agriculture that is applicable to the nursery community.

If anyone is interested in testing Basamid-Granular and applying with an Orbit-Air Gandy Spreader, please contact me for spreader setting, tractor speed, and other data that will save you time in calibration.

MECHANIZATION OF LOADING PLANT MATERIAL: MOBILE LOADING DOCK AND TELESCOPING CONVEYER

GREGORY JOHN LANGELER

Chesapeake Nurseries Inc.
Pemberton Drive
Salisbury, Maryland 21801

Loading trucks from stationary docks using conveyers has been standard procedure for a long time. Both cost a great deal of money and are permanent fixtures of a loading operation. As our research into the applications of this technique at Chesapeake Nurseries began, we saw many problems with it.

The nursery was rapidly expanding and the demands of our loading system were changing. After many discussions, the idea of a mobile loading dock on a truck that could be moved from trailer to trailer as loading required was considered. A 50-ft. conveyer was considered necessary to load 40-to-45-ft. trailers used in shipping efficiently. We felt a moveable dock 50-ft. long would be at best very awkward and inefficient, but a 25-ft. truck would be very easy to move. We began to look into a way to build a 50-ft. conveyer that would slide together into 25 feet.

Our conveyer consists of three main components. The first is two conveyer sections, the top one 25 feet in length and the second 28 feet in length. The second component is the transition plate that allows plants to slide from the top belt to the bottom belt. The third key part is the dock itself. (See Figure 1).

The two conveyers were hand-built, and the bottom conveyer rolls under the top belt on 6 in. v-groove wheels. The conveyer is fully operational at any length from 28 ft. (fully closed) to 50 ft. (fully extended). Both conveyers are 18 in. wide and can carry up to 75 lbs. per square foot.

The transition plate is made of a high-density polymer with a low friction coefficient. As the plants come off the top belt, their