YIELDS OF SHALLOTS AFFECTED BY SOIL PESTICIDE TREATMENTS

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Shallots are multiplying onions known by their scientific name *Allium ascalonicum* Linn. There are many named horticultural varieties. Unfamiliar as the name is to many, shallots have been grown for many years in southern Louisiana, North Carolina now grows considerable acreage in the southeastern part of the state. Truck growers and backyard gardeners have grown a few in Florida for years. There is every reason to believe that this is a crop that has been overlooked mainly because of certain diseases such as downy mildew, purple blotch and yellow dwarf virus, and nematode problems. Disease-free shallot bulbs should be purchased from a reliable source. A single shallot bulb planted the first of November will have a cluster of green onions large enough to bunch and sell by the first to middle of January. A bunch of onions is called a clone and there are usually 10 to 15 plants joined together at the base (1). The clones are ready for market when individual shallots in a clone reach a size of % inch in diameter and larger. A large shallot is over % inch in diameter. Specifications for U. S. standards specify that bunched shallots must weigh 4 pounds per dozen bunches.

Harvesting and preparation for market is simpler than ordinary bulb onions producing a single stem per bulb. Shallots of good market quality result only from fast growing plants which produce a straight stalk with little of the objectionable curved and flat features found in a slow growing and unthrifty clone. For commercial purposes a rubber chicken plucker cleans a clone rapidly and then the shallots may be separated into single bulbs and washed and brushed. Stripping of the dead leaves is reduced to the minimum, thus differing from an onion which must be stripped by hand.

Needless to say shallots belong to the greater class of vegetables that need protection from insects, diseases and nematodes. It is the latter that will be discussed since it is very important if a marketable product is to be grown.

The effect of nematodes was first brought to our attention several years ago by the discovery that stunted onions failed to produce a marketable clone (Fig. 1). Examination of the roots and laboratory diagnosis have confirmed the presence of stubby root and sting nematodes. Affected plants have only a few short roots (Fig. 2). Root knot nematodes by the nature of their galls are visible to the examiner, however, stubby root and sting nematodes are not visible. Onions are quite sensitive to chemicals such as the bromine compounds placed in the soil for the purpose of fumigation or sterilization.

Since few growers care to wait two weeks between treatment of soil and planting, anything that can shorten this time interval is desired. Although some materials such as Vapam and parathion granules can allow

<table>
<thead>
<tr>
<th>Material</th>
<th>Rate per acre</th>
<th>Weight</th>
<th>Individual No. of Shallots</th>
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</thead>
<tbody>
<tr>
<td>1. Vapam</td>
<td>10 gal.</td>
<td>239</td>
<td>1775</td>
</tr>
<tr>
<td>2. Naphene</td>
<td>25 lbs.</td>
<td>127</td>
<td>1560</td>
</tr>
<tr>
<td>3. Telone</td>
<td>10 gal.</td>
<td>190</td>
<td>1315</td>
</tr>
<tr>
<td>4. VC 13</td>
<td>10 gal.</td>
<td>176</td>
<td>1682</td>
</tr>
<tr>
<td>5. Parathion granules</td>
<td>5 lbs. active</td>
<td>187</td>
<td>1620</td>
</tr>
<tr>
<td>6. Check</td>
<td>166</td>
<td>1632</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 1. A normal clone at left. A single infested shallot at right.
plating two days after treatment, a week is more desirable because of the variability in soils and their moisture content. A general rule applicable to all compounds is to have your soil in good tillable condition at time of treating. A number of soil fumigants listed in Table 1 were used in these tests.

A material that has shown great promise is Vapam. Vapam is sodium N-methyl dithiocarbamate. This material is soluble in water and is relatively safe to handle. The material was mixed with water and applied in a thin stream down the middle of the bed and immediately smoothed down with a tractor driven device. The soil was in good planting condition.

Vapam treated shallot plots not only produced an outstanding marketable crop, but in addition did not suffer from mole cricket and earwig damage at the ground level. It has been proven in previous field work at the Gulf Coast Experiment Station that Vapam applied in the field at the rate of 10 gallons per acre in the row kills mole crickets and earwigs. Although the shallots were purposely grown on a field thought to be heavily infested with a small wireworm, Conoderus falli Lane no conclusions could be obtained as the check plots were as free as the treated plots. The same was true of the nematodes when samples were taken. The plants were stunted and the roots were atrophied in such a manner as to indicate the presence of nematodes but this could not be proved by Mrs. Overman in her laboratory tests.

Homeowners and truck growers who use the same land over and over can find shallots an economical and fair paying crop when they treat their areas with a soil fumigant.

In Table 1 are given the weight in pounds of the clones and number of plants. There were no significant differences in categories other than the weight of clones. Vapam was the outstanding material in this test.

In addition to producing the greatest yield by weight, this treatment also gave the least tip-burn, (2) an environmental disorder. Tip-burn begins as a yellowish discoloration at the very tip of the older leaves and it may progress down the leaf and may cause a reduction in yield. Tip-burn adds to the cost of production because each discolored tip must be removed by hand before the shallot is salable.

**Summary**

Shallots, a multiplying onion, could very well become an important vegetable crop for Florida. They grow well in the state during the cool months. Selections of shallot bulbs from disease free areas plus the proper soil fumigation for nematodes and mole-crickets should make this crop a money-maker for the small truck farmer. Homeowners and truck growers who use the same land over and over can find shallots an economical and fair paying crop when they treat their areas with a soil fumigant. Vapam was the outstanding material when treatments were compared for weight of clones. The least amount of tip-burn was present on the Vapam treated plots. Tip-burn adds to the cost of production because each discolored tip must be removed by hand before the shallot is salable.

**REFERENCES**