RESPONSE OF COMMERCIALLY PRODUCED STRAWBERRY, TOMATO AND PEPPER TO ALLANTE™ SOIL FUMIGANT

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Characteristics of Dazomet

Dazomet soil fumigant has broadspectrum activity towards weeds, and soil borne insects and diseases. Dazomet is formulated as a micro-granule that must be uniformly incorporated into soil. In moist soil dazomet reacts with soil moisture to liberate MITC. MITC is the primary biocide responsible for pesticidal activity. However, other less prominent biocides are liberated (formaldehyde, carbon disulfide, hydrogen sulfide and methylamine). Dazomet has been used for greater than 20 years for pre-plant soil fumigation in non-food crops. The efficacy of dazomet in food crops has been known for years. However, in the past , methyl bromide has been the dominant fumigant in food crops. With the proposed phase out and loss of methyl bromide from all uses, dazomet is now being developed for pre-plant soil fumigation in food crops.

Commitments By BASF

- BASF Corp. has committed to the development of the expanded use of dazomet to include strawberry, tomato, and pepper.
- BASF Corp. has committed to two years of technical development research for the use of dazomet in U. S. production of these crops. This research effort was initiated in the fall of 1995 in the southeastern U. S., and is now being expanded into California for the fall of 1996.
- BASF, commercial and university cooperators are presently evaluating the pesticidal efficacy and use technology for dazomet in these crops compared to methyl bromide.
- BASF is committed to the pursuit of registration of dazomet for use in food crops. In May 1996, the U. S. EPA issued an experimental use permit with a temporary tolerance for strawberry, bell pepper and tomato. This permit authorizes BASF and their cooperators to conduct commercial experimentation with ALLANTE on grower sites. Under this permit, the ALLANTE treated crop can be sold into the normal channels of trade.

Results of Technical Research

Tomatoes commercially produced in Immokalee, Bradenton, and Quincy, FL responded equally well to dazomet (@ 350 or 450 lb. prod./A) pre-plant fumigated soil compared to methyl bromide/ chloropicrin (67/33%, respectively) treatment. In Immokalee, dazomet at 350 and 450 lb./A was incorporated into Myakka sandy soil with soil moisture at 30% field capacity (FC). Beds were then prepared and covered with black plastic mulch. The prepared beds were then sub-irrigated for 48 hours. This brought the soil moisture at 0-6 inches bed depth to 40% field capacity and 6 to 10 in. bed depth to 100% FC. This

resulted in complete activation of dazomet. Beds were free of MITC gas 14 days after dazomet activation (soil temp.> 75°F). Pesticidal activity including control of yellow nutsedge was equal to that provided by the methyl bromide/ chloropicrin (67/33) combination. Yields of tomato grown in dazomet treated soil was equal to that of methyl bromide treated soil (Table 1.).

Results of studies conducted in NC on strawberry, pepper and tomato will be presented, and are available upon request (studies currently in progress).

Future Direction

- BASF will continue with the technical development of dazomet (ALLANTE™) use in strawberry, tomato and pepper in the U. S.
- BASF anticipates the timely registration of ALLANTE for use in these crops.
- BASF is committed to providing strawberry, tomato and pepper producers with ALLANTE for pre-plant soil fumigation.
- BASF welcomes the opportunity to cooperate with individuals interested in this effort.

Table 1. Yield (lb/ 100 ft of row) of 'Agriset ' tomato grown in soil pre-plant fumigated with dazomet or methyl bromide/ chloropicrin in Florida.

Treatment	Extra Large	Medium	Small	Total Yield
M. B. (67/33) combination	263	656	159	1078
Dazomet @ 350 lb./A	315	606	159	1080
Dazomet @ 450 lb./A	335	634	171	1140
LSD (0.05)[a]				

[a] Test for difference between treatment means with ANOVA was no significant at p=0.05.