Methyl bromide alternatives research for strawberry production in North Carolina

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Strawberry production constitutes an important component of the farm gate income for sma growers of the southeastern United States. Collectively, states in the southeastern U.S. (excludin in use of methyl bromide (MB) due in part to increasing use of MB in strawberry production. Growe region utilize MB as a preplant soil fumigant as part of their plasticulture system. However the ma and importation of MB is scheduled to be banned in the United States in 2001. Researchers have examining alternatives to MB for strawberry production in other regions, including California and F However, very little work on alternatives for strawberry production has been initiated in this region impending ban on MB necessitates the immediate investigation of alternatives for strawberry grow southeastern U.S.

Three trials were established in 1997 to evaluate chemical fumigants in the plasticulture str production system used in North Carolina. We were not only interested in looking at alternative ch fumigants, but also timing of punching holes before planting, and non-chemical alternatives soil tre trials were established in the piedmont (Clayton) and coastal plain (Plymouth). Treatments from th included some of the following treatments: methyl bromide (MB), Telone Chloropicrin C-35 (TC), V Basamid, soil solarization for 8 weeks with and without cabbage added prior to solarization (sol ar respectively) and incorporation of compost. In Clayton, holes were punched in the plastic 0, 1 or 2 to planting in plots fumigated with Basamid and Vapam. The piedmont sitehad strawberries grown plots for the previous 2-4 years. The coastal plain site had not been in strawberries for over 20 yea variety Chandler was used at both sites.

Yields varied depending on location and fumigation treatment. Although there were differen they were not significant due to any treatment in Plymouth. This could be due to the fact that thes have strawberries grown in them for over 20 years. Cull yields (small, deformed and diseased berr greatest in plots that were chemically fumigated. Berry size was generally greatest in treatments v yields.

In the piedmont site (Clayton), Vapam 1 week, Basamid 1 and 2 week had highest total yiel berry weight. Planting immediately after punching holes negatively impacted yield when Vapam o was used as a fumigant. Yields from plots of MB and TC were statistically equivalent.

This is the first year of a 3 year study. We will be evaluating these same systems at these s for the next two years. At the end of this period we hope to have better knowledge of how these al fumigants perform in our strawberry plasticulture system.

Table 1. Yield data, Plymouth NC, 1998.

Treatment	Total yield (lbs/acre)	Marketable yield (lbs/acre)	Cull yield (lbs/ acre)	Avg. berry weight (g)
Compost (MB 97-98)	28592	22260	6294	15.6
Control	21185	17731	3416	15.5
MB	27172	22029	5104	15.4
Sol/cab	25673	22336	3301	16.9

Sol	25215	22336	2878	17.1
TC	29590	23373	6179	17.0
Vapam	29705	24524	5143	17.0
LSD	NS	NS	2686	1.3

Table 2. Yield data Clayton NC, 1998.

Treatment	Total yield (lbs/acre)	Market. yield (lbs/acre)	Cull yield (lbs/acre)	Avg. berry weight (g)
Vapam 1 week	32278	27852	4426	16.6
Basamid 1 week	32073	27412	4661	16.3
Basamid 2 week	31455	27001	4454	16.3
Basamid 0 week	30619	26852	3767	16.0
Vapam 0 week	30562	26386	4175	16.3
Vapam 2 week	30438	25623	4815	15.8
MB	30183	26057	4125	15.8
TC	29601	24692	4908	15.5
Control	26497	23051	3445	15.2
LSD	1382	1221	333	0.6