Conventional and organic alternatives to methyl bromide on California strawberries.

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These data present the sixth year of field tests of alternative chemical fumigation, greenhouse grown strawberry plug plants, and an organically acceptable production program for California.

1. Soil fumigation experimentation was conducted with several fumigants on strawberry, tomatoes, and floricultural crops. These results are presented in summary with this presentation, however, overall performance of Iodomethane alone and in combination with chloropicrin, and Telone/chloropicrin were acceptable as alternatives to methyl bromide. These compounds gave acceptable levels of control of soil pathogens, as well as producing yields equal to or better than methyl bromide/chloropicrin. Weed control was good to excellent with Iodomethane.
2. Alternative strawberry plug plant research this season was established at the Pacific Ag Research coastal farm in San Luis Obispo, and in several grower cooperator fields in Oxnard and Irvine California. Trials were monitored by individual growers through harvest. At all sites, plug plants were compared to bare root plants for production and overall plant performance. Two sites were in organic production fields. In all cases, plugs outperformed bare root transplants by significant margins until the first of March, at which time at one site the bare root plants caught up with the plugs and surpassed them in total fruit picked per week. In the other cases, plugs out yielded bare root plants seasonally by margins from 14% to 41%, although the differences were greatest early season. Depending on the individual site, the plug plant system yielded two to three weeks earlier than bare root plantings. This period corresponded to higher market price conditions for growers. Late season conditions yielded some fruit deformation compared to later yielding bare root plants in certain Oxnard locations. The utility of this system for southern California districts is discussed.
3. The organically acceptable system was implemented at the San Luis Obispo site and harvested normally through the fall of 2001. While not visibly infected with soil pathogens, plantings were slow to produce and yielded significantly lower than conventionally fumigated plantings. Weed growth, while reduced by black plastic mulch, was still extensive and contributed to very high hand weeding costs for this system. Also, the management limitations of organic fertilizers in cool weather reduced fruit size early season until June, when fruit size improved to normal levels. Late season fruit was also small, due in large part to the presence and long-term effects of root pathogens and premature plant senescence caused by low-level root parasitism.

These data will be discussed in light of commercial management requirements of California strawberries without the availability of Methyl Bromide.