CONVENTIONAL AND ORGANIC ALTERNATIVES TO METHYL BROMIDE ON CALIFORNIA STRAWBERRIES.

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Current research in California's coastal valleys focuses on widespread use of enhanced planting material with greenhouse grown plug plants. This technology is in the seventh year of use in our program with expanded acreage statewide. While still small in size relative to conventional bare root transplant usage, the annual plug plant plantings have roughly doubled annually since the inception of our program in 1996. The current 2002-2003 plantings are exclusively in the southern districts with the Camarosa and Ventana cultivars, since previous efforts to use plugs in California's Northern districts have been unsuccessful. This is due to the fact that yields from plugs are predominately early, when sales prices of Northern California early fruit are low.

In all cases of using this technology in non-fumigated soil compared to bare root plants in fumigated soil, yields were equal or greater with plugs through March. However, weeding requirements are significant without soil fumigation to the extent that the economics of plugs and clear plastic mulch is prohibitive. In the case of plug plant technology with opaque plastic mulch for weed suppression, yields are somewhat reduced and initiate later in the season than clear. This technique is useful in our organic plantings, where good yields were obtained from plugs planted with selective wavelength green plastic mulch and wheat straw mulch in furrows.

With regard to disease incidence in the plug plant culture system employed by our group, in the 2001-2002 production season, no pathogens were isolated from this material even with the earliest planting dates of September 15, 2001.

A significant limitation of Camarosa grown in plug culture is the incidence of fruit deformation in March in the southern districts. This occurs roughly three weeks sooner than it does in bare root plantings, and is more severe in some fields. Moreover, it is sporadic and can vary from a low of 12% to a high of over 50%. This characteristic requires that fruit be sold for processing instead of fresh, which lowers the return to the grower. Experiments are in place to determine the cause of this disorder and why it is so developed in plug culture of Camarosa.

In summary, the strawberry plug plant program initiated in California by our group is developing throughout the Southern coastal valleys of the state. Despite challenges described above, it offers growers an excellent non-chemical alternative to commercial strawberry culture for both conventional and organic producers.