SUITABILITY OF ORGANIC COMPOST AND BROCCOLI MULCH SOIL TREATMENTS FOR COMMERCIAL STRAWBERRY PRODUCTION ON THE CALIFORNIA CENTRAL COAST

F.V. Sances[1] and E.L. Ingham[2]

A replicated field plot experiment was established in the fall of 1994 within a major California strawberry production district, to evaluate the effectiveness of incorporation of high levels of compost and brassica residues on non fumigated soil. The Santa Maria, California site had been in continuous fumigated strawberry production for at least 5 years prior to 1994-95 season. Both conventional and alternative soil treatments were made September 10, 1994 to individual strawberry beds 40' in length by 5.3' wide. Incorporation of chemicals and organic soil amendments were accomplished through a rotary tiller using 'J' shaped tines approximately 14" in depth. The conventional chemical treatments included Methyl Bromide/Chloropicrin 75/25 at 300 lbs/acre; Metham Sodium at 254 lb ai/ac; Basimid at 240, 300 and 360 lbs ai/ac,; and Telon/Choropicrin 70L at 45 gallons/ac. Organic soil amendment treatments included incorporation of high quality mushroom/forest humus compost at 25 tons/ac, shredded broccoli plants that had been harvested the day prior to the study, at 25 tons/ac, and a third treatment consisting of a combination of compost and broccoli together each at 25 tons/ac. These chemical and organic treatments were further compared with an untreated control which received neither chemical nor organic soil amendments prior to rotary tilling. Plots were fertilized, drip irrigated, covered with clear plastic mulch and planted with conventionally produced bare root *Chandler* variety plants on October 19, 1994. Each treatment was replicated 4 times with 10 successive experimental treatments occuring once on each of 4 replicate adjacent planting beds. Pest control, irrigation and fertilization were performed as per standard conventional California grower practice. Due to weediness in the organic treatments, on March 1, 1995 the clear plastic mulch was replaced with black plastic following collection of weed species composition and man hours weeding data by replicate plot. Plants were then grown to maturity and harvest parameters quantified for the entire production season.

The major pathogenic species of fungi isolated from non fumigated and organic plots were similar in composition, although varied in severity. *Fusiarn, Cylindrocarpon, Rhizoctonia* and *Pythium* were all isolated from these non fumigated plots by April 1, 1995. Soil biomass determinations were also made at Oregon State University and were not well correlated with individual organic treatments although generally fungal biomass was lower than expected in these organic soil amendment treatments. Trends inield parameters were much more evident and are presented below in total flats of harvested fruit per acre:

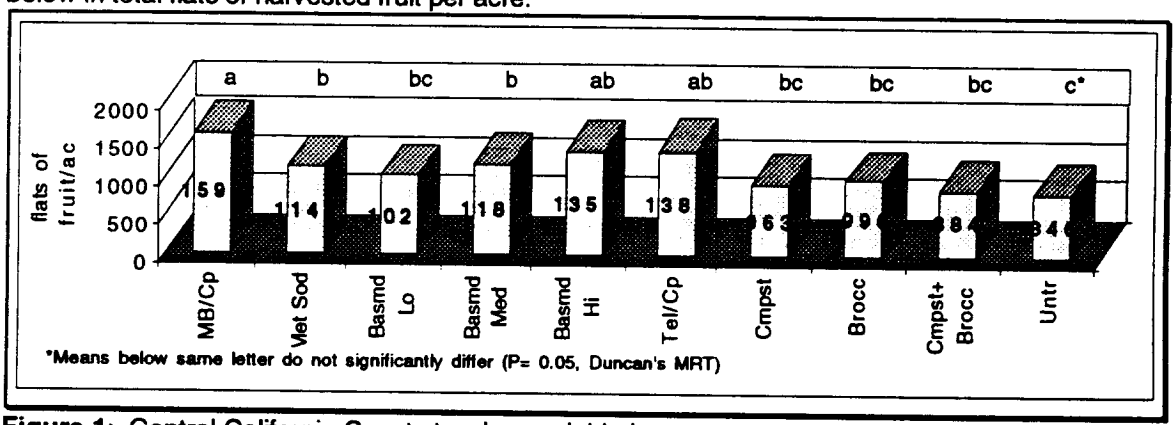

Figure 1: Central California Coast strawberry yields in response to area preplant soil treatments with *Chandler cv.* during 1994-95 production season.

[1] Pacific Ag Research, Arroyo Grande, CA
[2] Oregon State University, Corvallis