KAFFKA, STEPHEN R.* and GARY A. PETERSON, Department of Agronomy and Range Science, University of California, Davis CA 95616. The performance of rhizomania susceptible and resistant sugarbeet cultivars in fall and spring plantings in California's Sacramento Valley.

Rhizomania is an increasingly widespread problem for sugarbeet producers in California's central valley. Mild winter temperatures allow crops to be overwintered. To evaluate whether fall-planting under lower soil temperatures would reduce losses to rhizomania compared to spring planting, trials were carried out at two sites in the Sacramento Valley under conditions of moderate to severe rhizomania infection pressure. Root and sugar yields and plant populations were compared from beets established at three planting dates in autumn (10-1-93, 10-19-93, and 11-1-93) and one in early spring (1-19-94). Three cultivars, one susceptible (SSNB3) and two resistant (SS595R and Rhizosen Plus), were established at each planting date. Plots were harvested four times beginning in late May and ending in late August. By early summer, most plants exhibited symptoms of rhizomania. Under severe rhizomania conditions, the combination of fall planting and resistant cultivar improved yields significantly compared to spring planting, but the highest yields were 30 % lower than from uninfected nearby fields. Highest root and sucrose yields were achieved with the November planting date (52.6 Mg ha^{-1} and 6.3 Mg ha^{-1})and the lowest average yields resulted from the early spring planting date (36.1 Mg ha^{-1} and 3.8 Mg ha^{-1}) . When planted in autumn, the susceptible cultivar had root yields comparable to the resistant cultivars, but lower sucrose concentrations. When planted in spring, the susceptible cultivar was severely infected and had reduced yields. Plant populations declined with each harvest date. By August plant losses were greater than 50% of May populations in some treatments.