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Rhizomania, a disease that significantly reduces sugar yield of sugarbeet, was first identified in fields in California's Imperial Valley in 1992. A soil-borne fungus, *Polymyxa betae*, vectors the causal agent, beet necrotic yellow vein virus (BNYVV). Resting spores remain viable in the soil for more than 20 years. Our primary objective was to evaluate different soil treatments with potential to control rhizomania. We evaluated the performance of four varieties of sugarbeet (both susceptible and partially resistant varieties) in four soil treatments applied to rhizomania-infested soil before planting: 1) solarization (plastic in place for 6 weeks during summer fallow period between crops), 2) fumigation with metam sodium applied at a rate of 60 gal/acre with a three-tiered spray shank, 3) tarped fumigation with methyl bromide/ chloropicrin at a rate of 350 lb/acre (chemical control), or 4) untreated control. Each treatment was replicated four times in a completely randomized split plot at the USDA Irrigated Desert Research Station, Brawley, CA. Individual plots were two rows wide by 30 feet long. Beds were on 30" centers and all irrigation was by sprinklers. Differences between soil treatments were highly significant (CI=95%). Yield expressed as pounds of sugar per acre was 10,386, 9636, 2676, and 2260 for methyl bromide, solarization, metam sodium and control plots, respectively. Beet tonnage per acre was 33.22, 29.52, 9.49 and 7.99, and percent sucrose was 15.75, 16.37, 13.66, and 13.52 for the respective treatments. Although the resistant varieties yielded more sugar, tonnage, and percent sucrose than the susceptible check, the differences were not significant. The performance of the resistant hybrids may have been reduced because the resistant lines were developed to show resistance specifically to BNYVV, and not to additional edaphic/biotic agents that would have accumulated during the repeated beet cropping done at the site to saturate the ground with viruliferous *Polymyxa betae*.