USE OF RESISTANT BELL PEPPERS TO MANAGE ROOT-KNOT NEMATODES IN A SUB-TROPICAL ENVIRONMENT

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Two root-knot nematode resistant bell pepper cultivars 'Charleston Belle' and 'Carolina Wonder' (*Capsicum annuum*) and their susceptible near-isogenic parents, 'Keystone Resistant Giant' and 'Yolo Wonder B', were compared for managing southern root-knot nematode (*Meloidogyne incognita*) in fall and spring trials at Gainesville, FL. In the fall trial, 'Charleston Belle' and 'Carolina Wonder' exhibited minimal root galling and nematode reproduction, and 'Keystone Resistant Giant' and 'Yolo Wonder B' exhibited severe root galling and high nematode reproduction. 'Charleston Belle' produced 49% greater fruit yields than the two susceptible cultivars ($P \leq 0.006$). In the spring trial, one-half of the plots were treated with methyl bromide before planting the same four bell pepper cultivars. 'Keystone Resistant Giant' and 'Yolo Wonder B' grown in untreated control plots exhibited severe root galling and high nematode reproduction and no galling in methyl bromide treated plots. The resistant Charleston Belle and Carolina Wonder had minimal root galling and nematode reproduction in both the methyl bromide treated plots and in the untreated plots. These results demonstrate that root-knot nematode resistant cultivars such as 'Charleston Belle' and 'Carolina Wonder' are a viable alternative to methyl bromide for managing southern root-knot nematode in bell pepper in sub-tropical environments.

- The root-knot nematode resistant bell peppers 'Charleston Belle' and 'Carolina Wonder' have performed well in fields highly infested with southern root-knot nematodes.

- The primary advantage of planting root-knot nematode resistant pepper cultivars is the reduction in use of methyl bromide and other fumigant and non-fumigant nematicides. Reduced nematicide use saves time and money for growers, reduces risks of pesticide exposure to handlers and agricultural workers, provides a safer food supply to the consumer, and is safer for the environment.

- Several seed companies are using 'Charleston Belle' and 'Carolina Wonder' as a source of resistance to develop root-knot nematode resistant pepper hybrids.