

Nematodes and Drought Impact in Clover in Florida

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Recent drought conditions have accentuated the effect of nematodes on clover establishment, production and persistence in Florida. Over the past two decades, research emphasis with red and white clover has been focused on resistance to Root Knot Nematodes (RKN) (*Meloidogyne* spp). In red clover, ‘Cherokee’, the first non dormant red clover cultivar with moderate levels of RKN resistance, was developed by five cycles of field recurrent selection for reduced root galling. Five additional cycles of controlled greenhouse recurrent selection developed ‘Southern Belle’ with high levels of RKN resistance. Table 1 shows the response of several red clover cultivars to various *Meloidogyne* spp and documents the reduction in gall and egg mass production by the improved cultivar Southern Belle. In white clover, a program of five cycles of greenhouse recurrent selection for reduced gall and egg mass production has resulted in the development of ‘UFWC5’ that has resistance to multiple RKN species. Data shows that this population has lower gall scores, egg mass scores and egg count in response to four races of *M. incognita*, *M. javanica* and *M. arenaria* than ‘Osceola’ from which it was selected. In the 2007-08 growing season, a red and crimson clover cultivar evaluation experiment at the Agronomy forage Research Unit near Gainesville showed dramatic stunting across part of the experimental area. Soil levels of sting nematode (*Belonolaimus longicaudatus*.) were highly correlated with clover vigor ratings. Clover in plots with sting nematode counts above 15 per 100 cm³ soil was severely stunted and died during a dry period, leaving no harvestable yield compared to yields of over 2000 kg ha⁻¹ in plots with counts less than 2 per 100 cm³ soil. We conclude that the interaction of nematode feeding and drought stress is critical for clover performance under our conditions. Although we have made excellent progress in selecting for resistance to endoparasitic nematodes (*Meloidogyne* spp.), there remains a problem with the ectoparasitic sting nematodes.

Table 1. Galling and Egg Mass Response of Red and White Clover Cultivars to Various Root-Knot Nematode Species and Races.

Cultivar	<i>M. arenaria</i>		<i>M. incognita</i>		<i>M. javanica</i>	
	Egg mass	Gall	Egg mass	Gall	Egg mass	Gall
Cycle 0	3.4	4.5	3.9	4.7	3.7	4.3
Cherokee	1.5	2.7	1.6	3.1	1.4	2.8
S. Belle	0.2	1.6	0.1	2.0	0.3	2.0
Osceola	3.9	3.5	3.7	3.7	4.0	4.2
UFWC5	2.6	2.4	0.6	1.0	3.0	2.6