

# ROOT KNOT NEMATODE MANAGEMENT WITH DIFFERENT RATES OF ALDICARB AT PLANTING

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## Abstract

Aldicarb (Temik®) at planting in eight different trials over three years increased cotton lint yields 121 pounds per acre in soils with southern root knot nematode (*Meloidogyne incognita*). All of these trials had only one rate of Temik® at planting, seven pounds per acre of 15 percent active ingredient. In 1994-95, over five locations, three different rates (3.5, 5.0, and 7.0 lb/ac) of Temik® at planting increased yields 106, 92, and 91 pounds lint per acre respectively.

## Introduction

Recently, California cotton growers have had very limited choices in nematicides for cotton root knot nematode with the suspension of Telone II® fumigant in 1990. In several trials, aldicarb (Temik 15G®) at planting, metham sodium, and Nematicur® were evaluated under low-to-moderate root knot populations. Aldicarb was consistently effective, so subsequent trials focused on aldicarb at planting.

## Materials and Methods

The at planting rate trials of aldicarb (Temik 15G®) were done in California in Kern and Tulare Counties during 1994 and 1995. All trials were large scale field trials with four replicates. Individual plot sizes in each trial were six 38 inch rows approximately one-quarter mile long. Aldicarb was applied with carefully calibrated, very well maintained applicators. At harvest four rows by a quarter mile long were weighed in a weigh-bar equipped cotton boll buggy. Soil samples were collected before planting and nematode numbers enumerated (Goodell et al 1995).

## Results and Discussion

A summary of the yield from eight root knot nematode suppression trials is shown in Table 1. There is a greater than 99.99 percent probability that at planting seven pounds per acre of Temik 15G® increased cotton lint yields 121 pounds per acre. While root knot nematode was present in all these fields, the yield enhancement due to other factors (insect management, specific plant growth responses) is impossible to separate.

Five trials measuring the yield effect of three different rates of aldicarb at planting are shown in Table 2. The 3.5, 5.0,

and 7.0 pounds of Temik 15G® at planting increased yields by 106, 92, and 91 pounds per acre respectively. The average yield increase over all years and locations of all three rates was 96 pounds of lint per acre.

There was a wide range of pre-plant root knot nematode populations in these trials over the four years, ranging from less than 10 to over 200 per kg/soil. The use of aldicarb appears to provide early season protection, but root knot nematode populations increase substantially during the production season. In fields where Fusarium wilt disease complex is present, other management options should be exercised as vascular infection does occur after the protection effect of Temik has diminished. In California where the chemical management options for nematodes are extremely limited, aldicarb can fill an important niche. However, it must be remembered that these trials were conducted without the benefit of a fumigant comparison.

## References

Goodell, P.B., J.W. Eckert, D.J. Munier, and S. Wright. 1995. Integrated management of *Meloidogyne incognita* on San Joaquin Valley cotton. Proceedings of the 1995 Beltwide Cotton Production Research Conferences. Vol. 1:214-216.

Table 1. Mean yields of Temik 15G® at planting for root knot nematode suppression, 1992 to 1994.

TRIAL	1992-94 RKN SUPPRESSION TRIALS	
	Yield (lbs lint/A)	
	TEMIK RATE (lbs/A)	
	0	7
'92 Wilson	1454	1631
'93 Wilson	1395	1465
'93 Variety	1163	1226
'94 Enns	1241	1372
'94 Romanini-West	1164	1263
'94 Romanini-East	1207	1332
'94 Shafter w/o Ripping	555	642
'94 Shafter w/Ripping	745	958
Average	1115	1236
Probability		<.0001
LSD <sub>05</sub>		39

Table 2. Mean cotton lint yields for different at planting rates of Temik 15G®, 1994 to 1995.

Trial	Variety	Yield (lbs lint/A)				LSD <sub>05</sub>
		Temik 15G® Rate (lbs/A)				
		0	3.5	5.0	7.0	
'95 Kern	GC717	783	867	839	867	61
'95 Kern	Nemx	513	678	710	646	NS
'94 Tulare	Maxxa	653	724	685	657	NS
'94 Kern	Maxxa	1258	1394	1385	1391	9
'94 Kern	Maxxa	1166	1240	1214	1265	NS
Mean		875	981	967	966	