Table 4. Main effects and interaction of N source, placement and mulch with N rate on available soil N, 1973.

Treatments	Total available soil N (ppm) April 22	May 18 N rate (lb/acre) 50	125	200
Urea broadcast (U BC)	17cd	6	7c	8d
Urea banded (B)	67a	8	9c	57b
U BC 3 applications	7d	7	27ab	34bcd
NH_4NO_3 BC, 3 applications	10cd	12	34ab	45bc
U BC 20%, 80% B strip mulch	50ab	26	40ab	114a
U BC paper mulch	21bc	18	31ab	64b
U BC polyethylene mulch	20c	20	50a	124a
SCU-32[y] BC	19c	7	10c	18cd
SCU-41 BC	18cd	12	13c	20cd
SCU-60 BC	19c	7	9c	11d
Urea formaldehyde BC	13cd	5	8c	8d
IBDU BC	19c	7	10c	13d
F value	**	N.S.	**	**

[z]Mean separation, within columns, by Duncan's multiple range test, 5% level.
[y]*SCU-32*, 41, and 60 refers to sulfur-coated urea and % dissolution in 7 days.
[x]Rate effects were significant at the 5% (*) and 1% (**) levels and linear (L) and quadrantic (Q), or not significant (N.S.).

IBDU may provide some insurance of adequate N, otherwise gained by the additional expense of sidedressing or use of mulch.

Results from this study agree with *previous studies* (2) where maximum yields with urea were obtained at 200 lb N/acre and that broadcast applications were superior to band placement. With band placement, soluble salt injury was a factor as the N rate was increased.

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RESIDUE OF ENDOSULFAN ON SWEET POTATO[1,2]

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Additional Keywords. Thiodan.

Abstract. **Foliar application of Endosulfan 3EC (Thiodan) was applied at rates of 0, 0.5, 1.0 and 1.5 lbs ai/acre in 100 gal/acre for control of the sweet potato weevil to support registration for this use. Performance of the pesticide was excellent. Samples were extracted with 65% acetonitrile/water and analysed by electron capture gas liquid chromatography. Residues found ranged from <0.01 - 0.02 ppm.**

The sweet potato weevil is a pest responsible for loss and reduction in quality of sweet potato. Endosulfan shows promise of controlling the weevil and this research was carried out in an effort to provide performance and residue data which would support a petition for registration of its use on sweet potato.

Materials and Methods

Sweet potato (*Ipomoea batatas*) plants were planted 1 foot apart in a 30 foot row at the AREC Homestead. Endosulfan 3EC was applied at levels of 0, 0.5, 1.0 and 1.5 lbs/acre in 100 gal water per acre. Plants were treated six times at three week intervals with the final treatment nine days prior to harvest. Plants were fertilized and cultivated at 3 and 10 weeks after planting with 400 lbs/acre 8-8-8 added each time. Each treatment was replicated 4 times. Rainfall amounted to about 40 inches during the growing season. Plants were harvested and frozen prior to analysis for Endosulfan.

A 25 g sample of the edible portion of the crop was blended with 250 ml of 65% aqueous acetonitrile in a polytron ultra-sonic blender, allowed to steep for ca 10 minutes and filtered. The residue was washed twice with 75 ml of 65% aqueous acetonitrile. The filtrate and the washings were pooled together and extracted with 100 ml pentane. The pentane layer was separated. The aqueous acetonitrile layer was mixed with 600 ml of 2% sodium chloride solution and again extracted with 100 ml pentane. The two pentane extracts were combined, washed twice with 100 ml of 2% sodium chloride solution, dried over anhydrous sodium sulfate and concentrated to 50 ml in a Kuderna-Danish evaporator. This method follows that reported by Chopra and Mahfouz (1977). Aliquots of 1 μl were analyzed by Gas Liquid Chromatography on a Hewlett Packard 5840A gas Chromatograph equipped with a nickel[63] electron capture detector and using a 1.83 meter x 4 mm I.D. glass column packed with 4% SE-30 + 6% OV-210 on 80/100 mesh Gas Chrom Q operated at 215°C with

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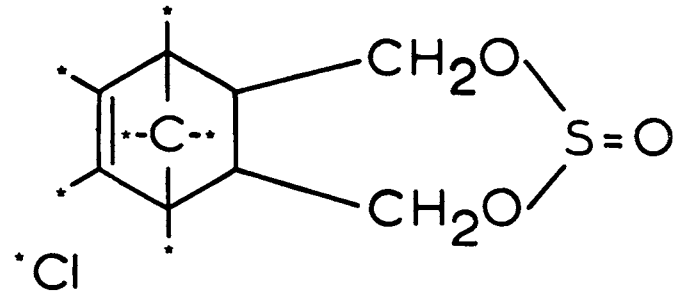
[2]The authors wish to acknowledge the technical assistance of Ms. Linda Cornwell.

a carrier flow of 60 ml/min. Injection port and detector temperatures were 215 and 300°C, respectively. Recoveries of endosulfan from fortified sweet potato averaged 80%.



ENDOSULFAN

Fig. 1. Technical Endosulfan.

Results and Discussion

Technical Endosulfan is a mixture of isomers having a structure shown in Fig. 1. Two of the isomers generally used in quantitation are known as Endosulfan I and II. The chromatographic conditions used in this analysis separate the isomers and each can be quantitated individually having retention times of eight and eleven minutes, respectively.

Residue of Endosulfan I and II averaged less than 0.01 ppm. With such low levels of residue present at harvest and performance data indicating a significant reduction of weevils, Endosulfan appears to have promise as an insecticide in sweet potato.

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THE EFFECT OF RATES OF CDEC ON THE EXTRACTABLE RESIDUE IN LETTUCE AND RADISHES[1]

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Additional keywords. Vegadex.

Abstract. **CDEC (2-chloroallyl diethyldithio-carbamate) was applied to lettuce at the rate of 5 lb/A ai at seeding for preemergence control of weeds. In addition, CDEC rates of 0, 2, 4 and 8 lb/A ai was sprayed overall on 8 day old lettuce plants on one set and on 22 day old plants on another set. In radishes CDEC rates of 0, 2, 4 and 8 lb/A ai were applied as preemergence only. Weed control was good and in direct relation to the rates of CDEC used. Residues were extracted in 65% acetonitrile/water and analyzed by electron capture gas liquid chromatography. CDEC residues averaged less than 0.01 ppm in both groups of lettuce plants. In radishes CDEC ranged from 0.01-0.04 ppm. This work was performed to support a registration for use of CDEC in these crops.**

CDEC (2-chloroallyl diethyldithio-carbamate) has been shown to control a number of weed species infesting commercial vegetable growing areas. There are no herbicides currently registered for use on radishes and an herbicide treatment several weeks after planting and immediately after thinning (blocking) to kill pre-emergent weeds is desirable in lettuce production. This research was performed in an effort to provide performance and residue data to support a petition for registration of CDEC on lettuce and radish.

Materials and Methods

Crisphead lettuce cv. Minetto was seeded March 27, 1978 in organic soil in Belle Glade. CDEC was applied at rates of 0, 2, 4 and 8 lb/acre as a 4 lb/gal EC with a low volume herbicide sprayer at 48 gal/acre at 30 psi for weed control. Experimental design was split plot, each 50′ x 12′, with 4 replications where each plot was sprayed at seeding and then again at either 8 or 22 days after seeding. There were nearly 4 inches of rainfall during the growing period. CDEC was applied once to radishes after seeding at rates of 0, 2, and 4 lbs/acre as a 4 lb/gal EC at 18 gal/acre at 20 psi for weed control. Plot size was 50′ x 17′ with 9″ row spacing and plant spacing of about an inch. Treatments were replicated 4 times and rainfall totaled 4 inches during the growing period of 29 days. Radishes were secured from marketable roots after washing and lettuce heads were cut along the stem axis and 1/8 of each of 10 heads were taken at random from marketable heads without washing. Both crops were frozen until residue analysis.

A 25 g portion of each chopped crop was extracted with 200 ml 65% acetonitrile in water using a Polytron ultrasonic blender for one minute. The extract was filtered and the residue washed twice with 75 ml of 65% acetonitrile solution. The extract and the washings were combined and shaken vigorously with a mixture of 150 ml hexane, 10 ml saturated sodium chloride and 600 ml water. The layers were allowed to separate and the aqueous layer was vigorously shaken two more times with 100 ml hexane. The hexane layers were combined, dried with anhydrous sodium sulfate, concentrated to 100 ml and 1 μl aliquots were analyzed for CDEC by GLC.

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