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FIELD TRIALS WITH ZINC ON CORN

Zinc deficiency in corn has been found in isolated instances in Kentucky during the past few years. Usually the deficiency is found in fields having a high pH or in high-phosphate soils with somewhat lower pH values. At present zinc deficiency in Kentucky soils does not appear widespread enough to justify recommending its application except where known deficiencies exist.

In 1963, 13 field trials were conducted adding zinc sulfate to row fertilizer for corn. Zinc sulfate was applied at the rate of 10 pounds per acre (2.8 pounds of elemental zinc) on two rows adjacent to rows to which no zinc was added.

Yields were obtained from three plots in zinc-treated rows along with three plots having no zinc added to the fertilizer. Percentage of lodged stalks was determined in all but three of these trials.

The following table shows the average yield per acre along with the percentage of lodged stalks from the no zinc and zinc-treated plots.

County	Cooperator	Yield Bu/A		Lodged Stalks %	
		No Zinc	Zinc	No Zinc	Zinc
Christian	J. F. Petty	117	110	15	18
	Douglas McKinney	123	121	3	3
	E. C. Martin	125	119	4	4
	J. T. Dodson	105	109	12	20
	J. C. Askew*	117	121	9	28
	W. O. King	101	100	11	14
	R. C. Anderson Jr.	106***	101***	--	--
	T. B. Jackson	95**	97**	0	0
Union	Morton Henshaw*	124	128	1	0
	John Hancock	112	128	7	4
	John Hancock (Buckner Farm)	108	122	17	19
Hopkins	Porter*	156**	145**	--	--
	Chaney*	84***	89***		

* Tests in cooperation with TVA

** Yield from only one plot

*** Average yield from two plots

(To simplify information in this publication, trade names of some products are used. No endorsement is intended, nor is criticism implied of similar products not named.)

The only trials that indicated there might be a yield response to zinc were the two plots on the John Hancock farms in Union county. On all the other trials there was a much greater difference in plots having the same treatment than there was in the average yield from the plots treated with zinc and those having no zinc added.

In addition to these row applications, trials with broadcast applications of zinc sulfate and borax alone and together were made on four fields in Christian county. Zinc sulfate was broadcast at the rate of 30 pounds per acre (8.3 pounds of elemental zinc) and 10 pounds of borax per acre (1.1 pounds of elemental boron).

Corn yields in bushels per acre and percentage of lodged stalks in the following table are based on yields from only one harvested area in each plot.

	Roy Brame Farm		Petty Farm		Dodson Farm		Jackson Farm	
	Yield	% Lodging	Yield	% Lodging	Yield	% Lodging	Yield	% Lodging
No zinc or boron	129	9	123	4	153	12	121	2
Zinc	131	14	123	9	133	12	115	0
Zinc + boron	131	12	121	17	123	11	123	0
boron	121	10	130	13	139	16	124	0

We plan to continue these survey type field trials next year. Any county agent interested in having zinc trials on corn should contact one of us this winter.

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