SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

8800/4 ETHREL APPLICATION TO STANDING SEEDCANE

TERMINAL REPORT

CAT: 1635

Object: To observe the effects of spraying Ethrel to standing seedcane at different times before planting, and germination and tillering of four varieties planted in April.

This crop: Plant **Age:** 14,2 months (30.4.87 to 5.7.88)

Location: ZSA Experiment Station, Field B7-8.

Soil type: PE.1 sandy clay loam derived from gneiss.

Design: Unreplicated observational plots.

Spacing: 1,5m between rows.

Fertiliser:

	N	P_2O_5	K_2O
(kg/ha)	120	100	60

Irrigation: 1727,0 mm **Rainfall:** 727,6 mm

Treatments:

a) Varieties
1. NCo376
2. N14
3. 78-1910
4. 78-912

b) Ethrel
1. Control
2. 0,48 kg/ha a.i. (1,0 l/ha product)
3. 0,96 kg/ha a.i. (2,0 l/ha product)

c) Time of Application
1. 6 weeks before planting
2. 3 weeks before planting

Conduct:

1. Seedcane from 8800/3PP was sprayed on 19th March, 1987, and 9th April, 1987, for the 6 and 3 weeks before harvest-treatments respectively.
2. Ethrel was applied using a carbon dioxide pressurised knapsack sprayer with three TK1,5 nozzles on a T-boom to give a uniform coverage over the leaf canopy.
3. Purity for the four varieties before spraying Ethrel at 6 and 3 weeks before planting is shown below:

Variety	Purity % before spraying	
	6 weeks	3 weeks
NCo376	76	80
N14	81	85
78-1910	70	80
78-912	81	87

4. Tillers were counted over the full length of the 2-row plots (30 m of cane row) at fortnightly intervals starting from 20 days after planting. Counting was stopped in mid-October when the tiller numbers had stabilised.

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RESULTS

Relevant yield and stalk data are presented in the attached table and data from tiller counts is presented in graphs (see Figure 1 to 3).

a) Tiller data: Figures 1, 2, and 3 show the tillering pattern with time as influenced by variety, Ethrel concentration, and time of application respectively. During the initial stages of counting, 78-912 produced the highest number of tillers, and 78-1910 the lowest (see Figure 1). At peak tillering, six months after planting, the mean number of tillers/ha for each variety was: NCo376 (246 000); N14 (255 000); 781910 (228 000); 78-912 (237 000). In January when counts were stopped, the tiller number/ha had stabilised and the mean of the four varieties was 118 000 tillers/ha. At harvest tillers/ha had dropped to 111 630.

   Differences between times of application (see Figure 2) and between concentrations of Ethrel (see Figure 3) were small. The low concentration (0,48 kg/ha a.i.) produced more tillers initially but the effect disappeared before harvest.

b) Harvest data: (See Table 1). Cane yield differences between varieties were as expected and Ethrel treatments gave marginal yield and quality responses. Applying Ethrel at 3 weeks depressed the yield more than at 6 weeks before planting. Ethrel treatments depressed millable stalk populations, but had little effect on stalk lengths and diameters.

DISCUSSION

Results obtained show that Ethrel applied to standing seedcane had no appreciable effect on tillering. Yield differences between the four varieties tested were due to varietal differences rather than to treatments effects. In a related trial (8800/3) similar results were obtained. The lack of response to Ethrel treatments was however not due to lodging in the present trial because only 78-912 had lodged at the time of spraying.

CONCLUSIONS

Ethrel treatments applied to standing seedcane prior to planting did not improve tillering in any of the four varieties tested.

The trial was terminated after the plant crop results.

CN/July'88
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Table 1 . Harvest Data

TREATMENTS	CANE YIELD t/ha	ERC % CANE	ERC YIELD t/ha	ERF % CANE	ERF YIELD t/ha	STALKS /ha x10⁻³	LENGTH (m)	DIAMETER (cm)
Varieties								
1 NCo376	163 52.	13 08	21 33	13 96	22 82	133,17	3,25	2,15
2 N14	222 52	12 79	28 46	13 97	31 07	180 86	3,36	2,50
3. 78-1910	166 56	13 15	21 94	14 10	23 52	93 48	3,46	2,48
4. 78-912	150 38	11 94	19 13	13 36	21 48	88 92	2,94	3,00
Ethrel								
1. Control	180 40	12 10	21 83	13 32	24 03	122 61	3,16	2,56
2. 0,48 kg/ha a.i	184 01	13 21	24 20	14 17	26,07	104 06	3,32	2,52
3. 0,96 kg/ha a.i.	179 89	12 91	23 22	14 04	25 26	108,16	3,28	2,51
Times of Application								
1. 6 weeks before planting	187 28	12,72	22 84	13 94	24,66	107,44	3,26	2,50
2. 3 weeks before planting	171 47	13,43	25 81	14 27	22,48	109,60	3,35	2,54
MEAN	178 25	12,76	22 72	13 85	24,72	111,61	3,25	2,53

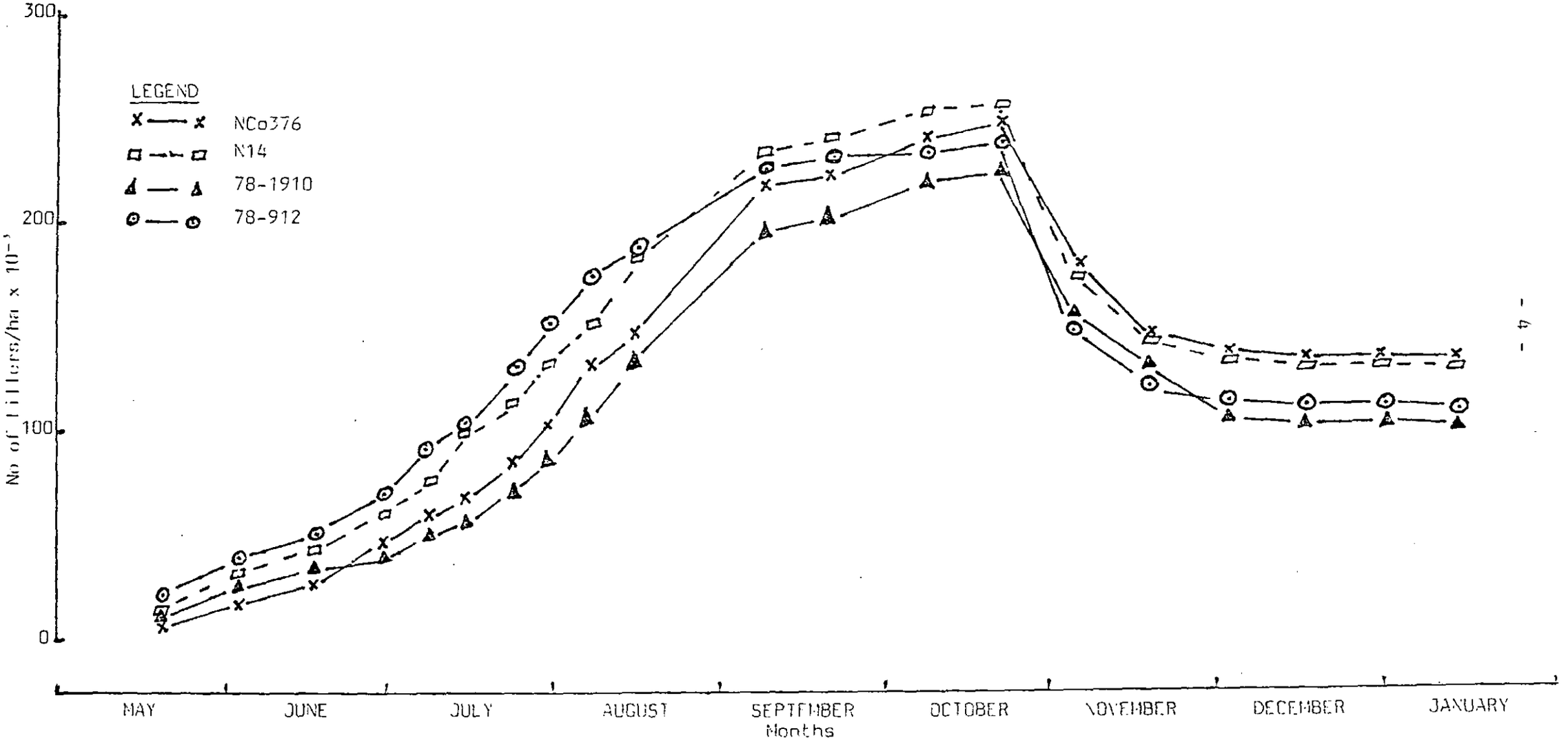

Figure 1 : Varietal differences in tillering of the April planted cane

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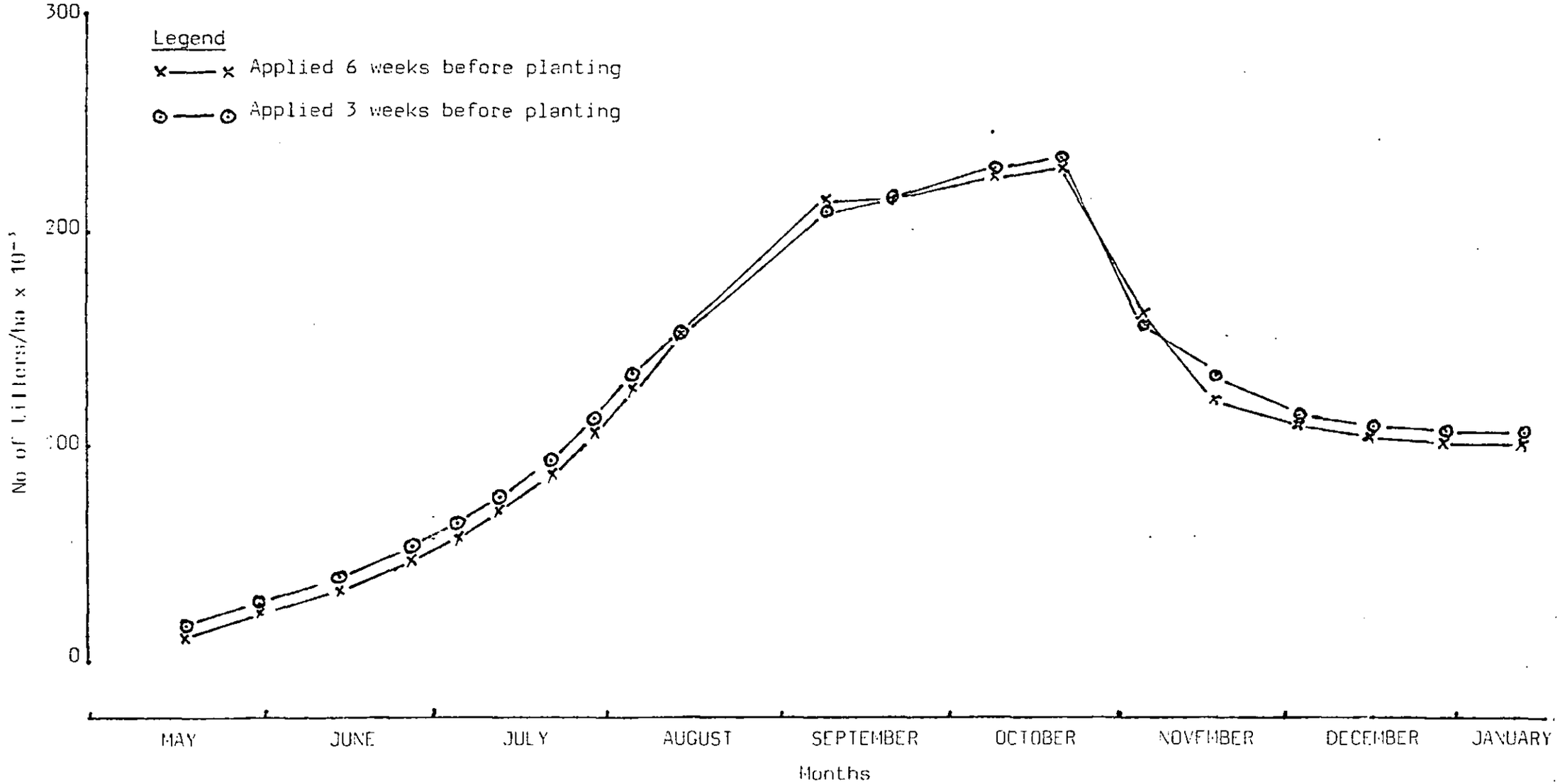

Figure 2 : Effect of two times of Ethrel application on tillering

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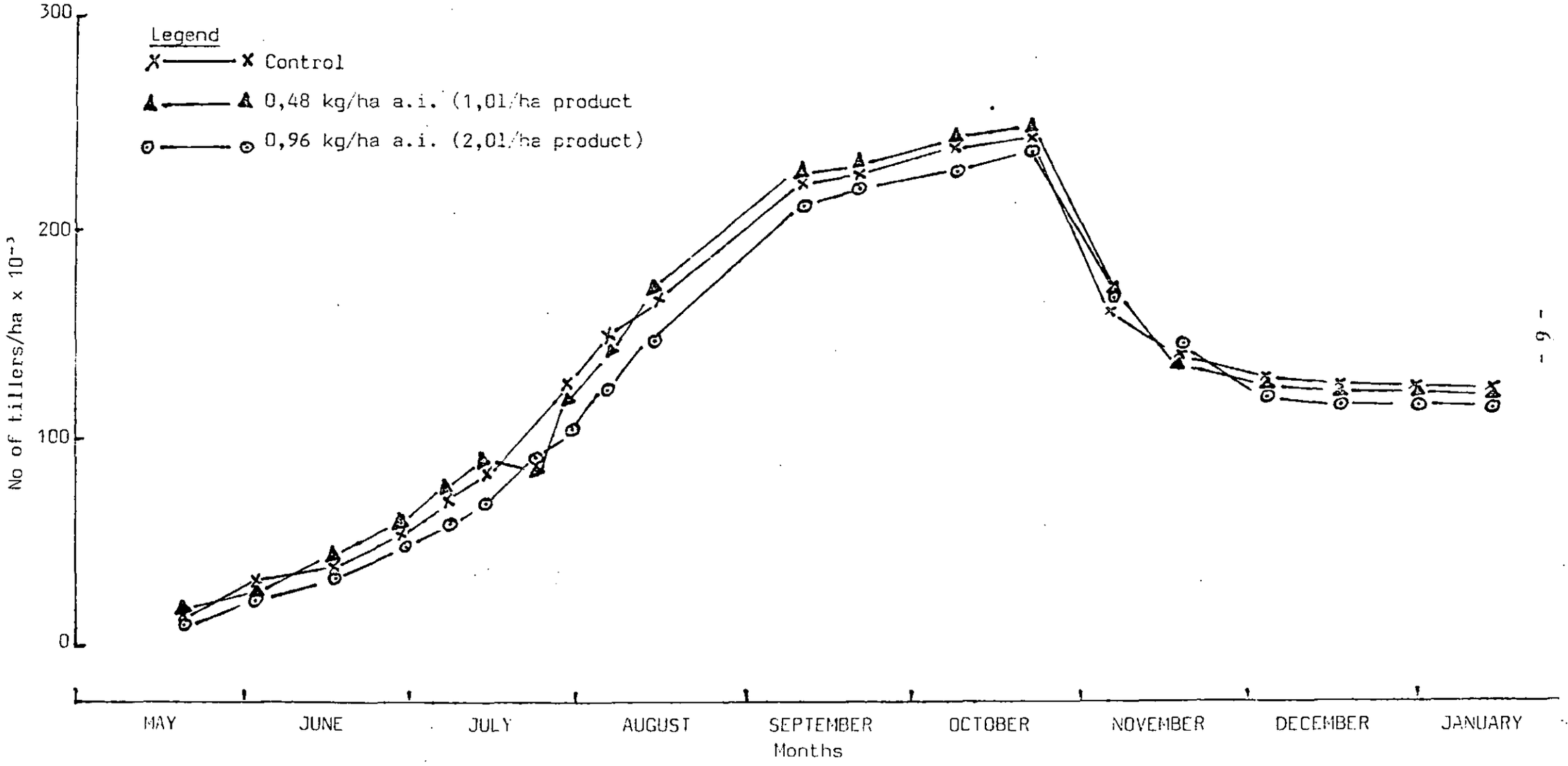

Figure 3 : Effect of different concentrations of Ethrel on tillering