EFFECT OF FERTILIZER ON FLOWERING IN MAIZE*

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INTRODUCTION

Lack of sufficient plant nutrients in the soil has been found to affect different characters of the maize plant. Khan (1970) found more frequent occurrence of *barrenness*, lodging and breakage, lesser growth and yield under low fertility conditions. Flowering is a trait vulnerable to environmental variations. Since production of grains is highly influenced by normal flowering and functioning of the male and female parts, an experiment was made to ascertain flowering behaviour of maize under fertilized and unfertilized conditions.

MATERIALS AND METHODS

Maize variety Guatemala (*Zea mays*) was planted on February 17, 1970 under humid, tropic conditions of Thailand. The soil was reddish brown laterite in nature with low inherent fertility and a pH ranging from 5.2 to 5.6. The experiment was laid out in a randomized complete block design with four replications. The fertilized plots received NPK at the rate of 200:200:100 lbs./acre, respectively.

The seed was drilled with a tractor planter on ridgs 2½ ft. apart at a seed rate higher than required for a normal final, stand. Two weeks later, the plants were thinned to an average of 1 ft. plant-to-plant distance, giving 88 plants per four-row plot, 22 ft. long.

Data were recorded from the individual plants in the central two rows. Daily counts were made from the day the first plant silked/anthesized until the day the last plant in these rows completed silking/anthesis. After completion of silking/anthesis, the data for each treatment were grouped under respective heads.....

*The study was conducted in Thailand.

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RESULTS AND DISCUSSION

TABLE 1. Flower appearance pattern in maize under different fertility conditions

Month	Date	Number of Plants			
		No Fertilizer		Fertilizer	
		Silking	Anthesis	Silking	Anthesis
April	4-6	—	—	—	1
	6-8	—	—	—	—
	8-10	—	—	—	8
	10-12	1	3	9	13
	12-14	1	6	11	20
	14-16	5	4	11	19
	16-18	7	11	19	6
	18-20	6	18	15	7
	20-22	11	17	9	4
	22-24	15	12	2	—
	24-26	9	6	—	—
	26-28	6	5	—	—
	28-30	5	2	—	—
May	30-2	3	—	—	—
	2-4	5	—	—	—
	4-6	3	—	—	—
	6	1	—	—	—
		78	89	76	78

A perusal of Table 8 showed a slower rate of flowering under fertilized condition which was completed in 18 days whereas it took 26 days under unfertilized condition. The silking period was still shorter, taking only 13 days compared to 26 days under unfertilized condition. Anthesis required 18 days each both under fertilized and unfertilized conditions; however, it started earlier under fertilized condition. Thus, the fertility level of the soil appears to have major effect on silking rather than on anthesis. The fertilization or the lack of it had no effect on the occurrence of silking which

started on the 10th and 11th of April, respectively. Anthesis in maize normally starts earlier than silking but from the present studies it appeared that nutritional stress can affect this process and anthesis may be delayed to concur with silking.

Another interesting fact may be noted. Anthesis well overlapped silking in fertilized plots while it was comparatively lesser in unfertilized plots. The phenomenon of a comparatively less overlapping under low fertility resulted in poor seedset and unfilled ears which is reflected in per ear grain weight in this study.

The findings of this study confirm those of Khan (1970) about slow growth of maize plant, higher rate of barrenness, under-developed and unfilled ear under nutritionally stressed conditions.

LITERATURE CITED

Dahanayake, S. 1970. Effect of fertilizer on corn production. Annual report, Deptt. of Agriculture, Thailand.

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