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Title

Balanced nutrition for preventive management of disease in banana in limited resource situation

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Introduction

Due to unbalanced nutrition, the disease incidence and economic loss due to them is increasing in India. Hence the profitability of some horticultural crops is decreasing. Preventive management by balanced nutrition is least understood and curative management using costly fungicides is becoming a problem. Exclusive fungicide oriented disease control has resulted in residues accumulation harmful to consuming public affecting export trade. This has also resulted in new resistant land races of pathogens . It has been established by Graham (1997) in Australia micronutrients like manganese provide resistance to take all “disease in cereals. It is well known that manganese, Boron and Copper are involved in phenol metabolism which results in lignin biosynthesis essential for disease resistance in crop plants. Micronutrient disorders of Zn, Mn, B, Cu and Fe are widespread in India (Anonymous 1995) and correction of these disorders has resulted in resistance to diseases. Panama wilt in Banana, Blossom blight in Mango and die back in citrus are important diseases reducing the yield by 15-25 percent and death of plants if not controlled. Hence study was initiated to identify the important micronutrient disorders and to study the effect of correction in panama wilt management a serious disease of the crop.

Method

A field experiment was conducted in Banana with Cv Ney poovan susceptible to panama wilt (AB) as a test crop with a spacing of 2m²2m in the month of June 2003. The suckers were planted, and NPK were supplied. The plants were drip irrigated and at 120 days after planting foliar sprays of Zn as ZnSO₄ at 0.3%, Boron as boric acid 0.1% Copper at 0.1% with 1% SOP and 1% Urea were sprayed thrice at monthly intervals with a no spray control in an alfisol pH 6.3 with organic matter of 0.55% hot water soluble B of 0.40 mg/kg available Zn of 0.55 mg/kg, and Copper of 0.35 mg/kg which are classified as deficient with respect to these nutrients). The incidence of the disease was monitored by examining the rhizome by a cross section which was established by necrotic ring, and confirmed by root health (boron necrotic ring split pseudostem and broken petiole with a leaf margin necrotic with 2-3 cm band all around, in both control and sprayed plants. The results are discussed below.

Results and discussion

The results of the study are prevented in table-1
Effect of micronutrient correction on Panama wilt incidence in Banana.

Treatments	Number of affective plants in %		Leaf nutrient status in		
	6 th month	12 th month	Zn	B	Cu
No spray control	32	44	14	9	3
Spray of Zn,B and Cu 2 times monthly interval	24	28	18	14	9
Spray of micronutrients 3 times monthly interval	1.2	14	28	20	12
Spray for 4 times monthly interval of micronutrients	5	6	32	23	14

This indicated foliar spray resulted in improved resistance since it has decreased from 32% in control to 5% in plants sprayed with micronutrient 4 times at 6th month of planting. In the 12th month also similar significant decrease in disease was noticed. The leaf nutrient status also indicated as the micronutrient level increased. The study on mechanism of tolerance indicated new root growth, higher pH in the rhizosphere soil discussing the *Fusarium Oxysporum* sp. cubense

Reference

RD. RJ Hannam and NC Uren (1988) Role of Manganese in diseases resistance in manganese.