

MANAGEMENT OF WHIP SMUT IN HSF 240

Hafiz Muhammad Walayat Ali Khan*, Abdul Shakoor, Abdul Ghaffar, Muhammad AkhlaqMudassir, NaeemFiaz, and Zulfiqar Ali

Sugarcane Research Institute (SRI), Ayub Agricultural Research Institute (AARI), 38950, Faisalabad

Abstract

HSF 240 is a renowned commercial sugarcane variety that occupies major area in the Province. During last 2-3 years, the variety is being infected by whip smut disease in certain areas in ratoon crop. Whip smut is a seed borne disease of sugarcane and flourishes in high temperature, dry & humid conditions. Due to high inoculum load, long summer season & unscheduled rainy weather, the disease has become the burning issue of sugarcane crop. For the management of whip smut, certain strategies were evaluated and concluded that the selection of healthy seed, treatment of setts with fungi-toxicants, regular rouging & burning of infected canes & fungicidal spray during the month of Mar-May has proved its effectiveness against the disease.

Introduction

- ▶ Whip Smut Fungal & seed born disease
- ▶ Causal Organism *Ustilagoscitaminea*
- ▶ World wide infection level
- ▶ Economic repercussion
- ▶

<u>Juice</u>	<u>Weight</u>	<u>Sugar Recovery</u>
10 %	9-75 %	3-7%

Symptomatology

- ▶ Production of black whip like, un-branched structure from the terminal portion
- ▶ Stunted growth
 - ▶ General reduction in plant size
 - ▶ Thin, stiff leaves remaining at acute angles
 - ▶ Reduction in size and girth of internodes
- ▶ Bud and root eyes of six to seven top most internodes become suppressed

- More number of tillers





Favorable conditions

- ▶ Temperature: 25-30 °C
- ▶ Dry and humid /rainy season
- ▶ Peak period: June to August

Background of whip smut infection in HSF 240

- ▶ Parentage of HSF 240 is CP 43-33 having tendency to whip smut infection
- ▶ Climatic change
 - ▶ Short winter and long summer
 - ▶ Unscheduled rains
- ▶ Heavy inoculum load of the pathogen
- ▶ Viability of teliospores for long time
- ▶ Poor management at farmer level

Management

Chemical and cultural control measures of the disease

A) Fresh crop

Sr.#	Treatments	Control %	
		Healthy Seed	Infected seed
1	Bayleton 250 EC @ 1 ml/ L H ₂ O	98	90
2	Topsin M @ 2.5 g/L H ₂ O	96	89
3	Vitavax @2.5 g/L H ₂ O	90	45
4	Dithane M-45@ 2.5 g/L H ₂ O	90	50
5	Ridomil @2.5 g/L H ₂ O	90	40

6	Healthy Seed	90	-
7	Check (infected seed)	0 (60% infection)	-

B) Ratoon crop

Sr.#	Treatments	Control %
1	Roguing of diseased plant	90
2	Roguing +Bayleton 250 EC@ 1ml/L H ₂ O	93
3	Roguing +Topsin M @ 2.5 g/L H ₂ O	92
4	Spray of Bayleton 250 EC@ 1ml/L H ₂ O	0
5	Spray of Topsin M @ 2.5 g/L H ₂ O	0
6	Check	0 (75 % infection)

2. Recommendations

A) Fresh crop

- Source of seed should be true to type and healthy plant crop
- Selection of healthy seed for cultivation
- Seed treatment with fungicide like Bayleton 250 EC@ 1 ml / L of water or Topsin M @ 2.5g/ L of water for 15-20 minutes

B) Ratoon crop

- Healthy plant crop should be kept as ratoon
- Rogue out the infected sprouts followed by spray of fungicides like Bayleton 250 EC/ Topsin M @ 1ml or 2.5g/L of water, respectively
- If the infection is more than 15 %, Regular spray on monthly basis from March-May after roguing
- Regular roguing of the diseased plants during the peak period of the disease



