

Incidence of Sugarcane Diseases at Sugarcane Research & Training Institute Farm

M. Iqbal, M.A. Malek and M.S. Rahman
Sugarcane Research & Training Institute,
Ishurdi, Pabna, Bangladesh.

Sugarcane is one of the major cash crops in Bangladesh, but the per hectare yield is far below being only around 40 to 50 tons. One of the principal causes responsible for this poor yield is diseases. So far 23 diseases have been identified and recorded in Bangladesh. Of them the major diseases are red rot, white leaf, ratoon stunting, wilt smut, mosaic and top rot. Amongst all the cane diseases, red rot is still the most destructive one (SRI Annual Report, 1979 & 1980). It seriously limits the cultivation and choice of available cane varieties. White leaf is now considered as the second major disease now and first recorded in the varieties Co. 1158, Isd. 2/54 and Isd. 16 in different Mills zones (Rahman *et.al.*, 1980). In an investigation at Kushtia Sugar Mill, 50% loss in sugar due to white leaf infection was reported in the variety Isd. 2/54 (Hutchinson, 1982). Wilt is considered as one of the major and the most damaging diseases particularly late in the season. There is hardly an area in Bangladesh free from wilt hazard (Malek *et.al.*, 1982). Smut was found in all areas and a high incidence was recorded in ratoon cane of variety Co. 1158 (SRI Annual Report, 1973-78). Chona (1956) reported a reduction in yield of 70% in some ratoon canes in India. The disease causes gradual decline in cane health and vigor and eventually knocks out the varieties (SRI Annual Report, 1979 & 1980). Mosaic in Bangladesh was first recorded in the year 1974. It was noticed in all cane growing areas of the country and most of the varieties were found to be affected by the disease (Ahmed *et.al.*, 1979). Top rot is another major disease widely distributed in most of the areas (Ahmed, 1974). Under favourable weather conditions coupled with high temperature and high humidity, the disease may be a great threat to the standing canes (Malek *et. al.*, 1983). Some minor diseases are also becoming severe day by day. It is known that the months of October, November and December are suitable period congenial for development of many serious diseases in the field. Therefore, a survey on sugarcane diseases in standing cane was carried out at SRTI Farm during the months of October, November and December, 1985.

Five commercial varieties, namely, Isd. 1/53, Isd. 2/54, Isd. 16, Isd. 17 and L. Jaba-C were selected for this survey. The disease incidence was assessed on the percentage of inspected stools for red rot, white leaf, smut and mosaic. In the case of top rot the percentage was determined on stalk basis. For leaf diseases like red leaf spot, sooty mould, ring spot etc. the infection was assessed on eye estimation as very low, low, medium, high and very high.

The diseases, like white leaf, wilt, smut, mosaic, red leaf spot, sooty mould, mid rib red rot and ring spot were observed in varying degrees during the survey period and are shown in Table 1. The major diseases like red rot and top rot were not observed during the period of investigation. Red rot was not found during the survey period probably due to the use of clean (disease free) seed at farm and the top rot was not found as its causal organism normally does not grow in cold dry weather during the survey period.

Table 1. Disease incidence in five commercial varieties at SRTI farm in the months of October, November and December, 1985.

Variety/ Strain	Time of survey	Wilt (%)	White leaf (%)	Mosaic (%)	Leaf diseases	
Isd.1/53	October	5.88	-	-	-	Ring spot-Low
	November	12.00	-	-	-	Red leaf spot-Low*
	December	18.20	-	-	-	Sooty mould-very low*
Isd.2/54	October	-	-	-	-	Red leaf spot-Medium*
	November	10.00	-	-	-	Sooty mould-very low*
	December	20.00	-	-	-	Ring spot-low
Isd.16	October	-	1.28	-	1.28	Red leaf-very high*
	November	22.22	1.28	-	1.28	Ring spot-very low
	December	43.65	1.28	-	1.28	
Isd.17	October	-	-	-	-	Red leaf spot-very low*
	November	-	11.11	-	-	Ring spot-very low
	December	-	11.11	-	-	
L.Jaba-C	October	-	-	-	-	Red leaf spot-low*
	November	33.33	-	-	-	Sooty mould-very low*
	December	43.33	-	-	-	Ring spot-low

Disease incidence was noticed in the months of October, November and December. The diseases without astric were recorded in the months of November and December only.

The white leaf infection was found in the varieties Isd. 16 (1.28%) and Isd. 17 (11.11%). The disease was not found in the commercial varieties Isd. 1/53, Isd. 2/54 and L. Jaba-C probably due to the use of clean seed and tolerance of them to the disease than other varieties. Rahman *et.al.* (1980) also reported white leaf incidence in the variety Co. 1158 (0.5—1%) and Isd. 2/54 (5—20%) at Mobarakganj Sugar Mills.

Table 1 shows that four varieties were found to be infected by wilt except Isd. 17. The infection (%) varied from month to month and increased in December and it also varied from variety to variety showing lowest infection in Isd. 1/53 (18.2%) and highest in Isd. 16 (43.65 %).

Mosaic was found only in Isd.16 (1.28%) while others were free from the disease as mosaic free seeds were used in plantation. It is evident from field observation that plants grown from mosaic free (healthy) seedcane seldom become infected, (Hutchinson, 1981).

The leaf diseases like red leaf spot, ring spot, sooty mould and mid rib red rot infection were observed from very low to low infection level in almost all the varieties during the survey period (Table 1). The variety Isd. 16 showed high incidence of red leaf spot than other varieties.

During survey period the major diseases viz. white leaf, smut, wilt and mosaic were observed in some or specific varieties in varying degrees of infection. The major diseases like stalk red rot & top rot were not observed. White leaf was more common in Isd. 16 (1.28%) and Isd. 17 (11.11%). Wilt infection (clump basis) was found in most severe form especially in the variety Isd. 16 (43.65%), followed by L. Jaba-C (43.33%), Isd. 2/54 (20%), Isd. 1/53 (18.2%). Mosaic was detected in Isd. 16 (1.28%). Of the minor diseases, red leaf spot, ring spot, mid rib red rot and sooty mould were found in varying infection level in all the varieties. But the red leaf spot infection was high in the variety Isd. 16.

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