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**BUREAU OF SUGAR EXPERIMENT STATIONS
QUEENSLAND, AUSTRALIA**

**INSPECTION OF TORRES STRAIT ISLANDS
FOR PESTS AND DISEASES OF SUGARCANE**

1-4 July 1996

by

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SUMMARY

This visit between 1-4 July 1996 proved most useful in assessing the pest and disease status of the Torres Strait islands. Significantly there were first records of chlorotic streak, Ramu streak, *Sesamia* borer, and hybrid *Saccharum* material in the region. It is imperative that effective sugarcane quarantine occurs in the region to limit the spread of these pests and diseases, and the *Saccharum* material. Ramu streak and *Sesamia* borer could significantly affect crop production in Australia. On the other hand, the disease status of the hybrid material is uncertain. The presence of continental Australian diseases in hybrid material poses a significant threat to PNG. In future visits, the disease status of this material should be further investigated.

The visit continued to build on the co-operation between BSES and AQIS. Contact with the new AQIS inspectors was most useful and should be expanded. Knowledge of sugarcane issues was previously very limited. Regular visits to the Torres Strait, and contact with these people, should be encouraged. BSES involvement in other AQIS surveys of the region should be pursued.

1.0 INTRODUCTION

The Torres Strait region is located in a strategic position in relation to the ingress of pests and diseases into Australia. To the north lies Papua New Guinea (PNG), a centre of diversity of *Saccharum officinarum*, and of pests and diseases which attack sugarcane. To the south is mainland Australia which supports a sugarcane industry of major importance to the Australian economy and which is free of a number of important PNG pests and diseases.

The last visit to the Torres Strait by a sugarcane entomologist and pathologist was seven and eleven years ago respectively. This most recent visit was made to the region to investigate the pest and disease status of *Saccharum* spp on selected islands. Training of newly appointed AQIS inspectors in recognition of *Saccharum* spp and in sugarcane pests and disease was also undertaken.

2.0 QUARANTINE IN THE TORRES STRAIT

Islands in the Torres Strait include those in the south (Thursday, Hammond, Horn, Prince of Wales), Central (Moa, Badu, Mabuiag, Yam), East (Darnley, Murray, Sue), and the North (Boigu, Dauan, Saibai). Movement of plant material between some of these regions is prohibited (eg. Boigu, Dauan, Saibai to the southern islands). Movement of material from any Torres Strait Islands to Cape York is also prohibited except in the case of pre-packed fruit from the Australian mainland which may pass through Thursday Island en route to Bamaga. Up until a couple of years ago, only a few AQIS inspectors were located in the Torres Strait, residing on Thursday and one or two other islands. With the papaya fruit fly outbreak, AQIS numbers have increased resulting in the location of part or full time inspectors on all inhabited islands. AQIS headquarters in the Torres Strait is on Thursday Island; the officer in charge is Pedro Stevens.

3.0 PEST AND DISEASE INSPECTIONS

Between 1-4 July 1996 I visited Thursday, Prince of Wales, Badu, Mabuiag, Saibai, Boigu and Davan Islands inspecting garden canes for pests and diseases. Residents on islands are generally located in communities; a large proportion of most islands is uninhabited. Sugarcane is grown as individual stools in small gardens for chewing purposes. *Saccharum officinarum* was located on all islands visited. Other crops include bananas, pineapple, taro, sweet potato, and some leafy vegetables.

Travel between the islands was by the Customs helicopter. Other members of the survey team were AQIS Botanist, Barbara Waterhouse, AQIS Entomologist, Judy Grimshaw, and a DPI Plant Pathologist, Kathy Grice.

3.1 Significant Findings

3.1.1 *Saccharum* Hybrid Material

What appeared to be commercial hybrid varieties were seen on Boigu, and Thursday Islands. Stools of these canes were characterised by their thinner stalks and leaves, and their exceptional vigour compared to the chewing canes (Photo 1). Enquiries on Boigu Island confirmed that stalk material had been brought from the Cairns region 2-4 years previously. At least one stool looked like Q124. The movement of this material is significant since the Torres Strait and PNG do not have some important diseases present in Australia. The vigour of these canes is likely to attract the attention of PNG mainland residents.

3.1.2 Chlorotic Streak Disease

Chlorotic streak was found for the first time in the Torres Strait on Dauan Island during this visit. Abandoned cane growing in a low lying, poorly drained, swampy area at the south-east end of the community, showed characteristic symptoms (Photos 2&3). Symptoms were also seen in chewing canes in two other gardens close by. The disease was observed for the first time on mainland PNG in 1993; this report is a new record for the Torres Strait. Chlorotic streak was not observed on any other island.

3.1.3 Ramu Streak Disease

Ramu streak is a disease with unknown etiology. First found in the mid 1980s at Ramu Sugar, Gusap, the disease has occurred in large areas on the estate in some Q canes. Symptoms identical with Ramu streak were observed in hybrid material on Boigu Island (Photo 4), which is only 4-5km from mainland PNG. This is a first record of any of the Ramu diseases in the Torres Strait, or outside PNG.

3.1.4 *Sesamia* Borer

A borer producing symptoms similar to *Sesamia* spp damage was observed in chewing cane on Dauan Island (Photo 5). Though not identical with *S. griescens*, the major pest at Ramu Sugar, this *Sesamia* sp is likely to be of significance to sugarcane production.

Identification of preserved larvae and pupae is being undertaken by Judy Grimshaw. *Sesamia* spp have never been observed in the Torres Strait region before.

3.1.5 Yellow Leaf Syndrome (YLS)

Symptoms very similar to YLS were seen in hybrid material on Boigu Island. It was impossible to confirm YLS since no assay is currently available. If the symptoms are of YLS, this would also be a first record for the Torres Strait. No symptoms were seen in chewing canes.

3.1.6 Leaf Mottling

Leaf symptoms resembling a viral-type infection of unknown etiology, were observed on Saibai Island (Photo 6). The symptoms were not uncommon and were stool related that is adjacent stools did not always show the symptoms. The finding of the symptoms warrants further investigation.

4.0 TRAINING OF AQIS PERSONNEL

On Thursday, 4 July 1996, a training session on quarantine issues was conducted for new AQIS inspectors. Input was by all members of the visiting inspection team. I emphasised the importance of quarantine boundaries in the region, the threat posed by pests and diseases in PNG, and the key role of the inspectors. Symptoms of some major pests and diseases, particularly from PNG, were discussed and illustrated using photographs. There was a good response from the inspectors. The need for more printed matter, and photographs, on sugarcane was evident. The importance of *Saccharum* spp recognition, particularly hybrid material, was emphasised.

5.0 ROUTINE AQIS SURVEYS

Closer co-operation with AQIS has been a result of recent submissions to AQIS enquiries. During this visit, discussions highlighted that regular AQIS surveys in the Torres Strait, southern PNG coastline, and in the Irian Jaya/PNG border areas occur. The involvement of BSES staff in these surveys was raised with AQIS personnel (both the inspection team and Administration in Canberra), and enthusiasm for the idea was expressed. By joining these survey teams, the valuable experience AQIS has in undertaking these visits could be utilised. Such surveys are most important for assessing the likely threats to the Australian industry and for putting in place strategies for minimising the risk of pest and disease entry.

6.0 ACKNOWLEDGMENT

I would like to thank AQIS administration and personnel for making this visit possible, and the SES Board and BSES Director for allowing me to go.



Photo 1: Comparison of the vigour of *Saccharum* hybrid material (right) with the poor growth of a chewing cane (*S. officinarum*, left) on Boigu Island.

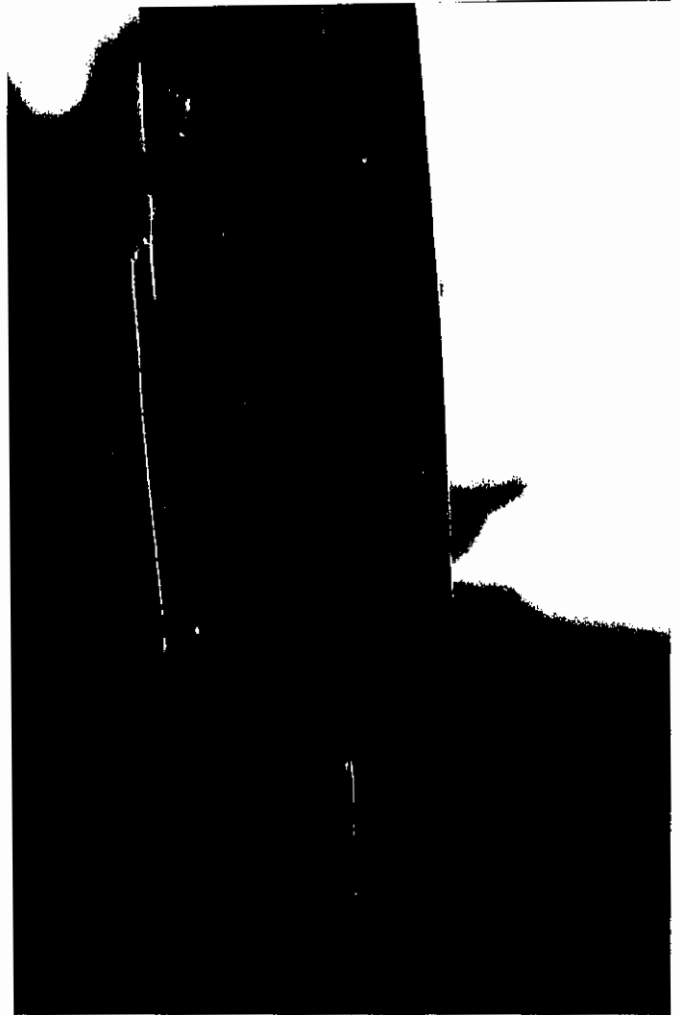


Photo 3: Typical leaf symptoms of chlorotic streak in abandoned chewing cane on Dauan Island.





Photo 4: Leaf symptoms resembling Ramu streak in *Saccharum* hybrid material on Boigu Island.

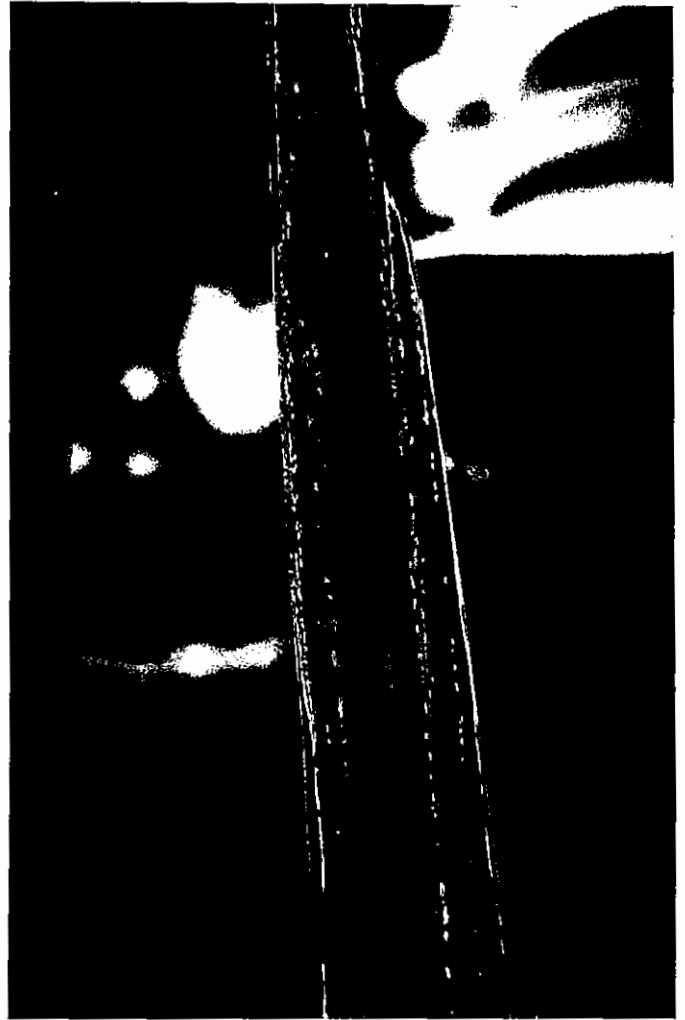


Photo 6: Not uncommon on Saibai Island was a mottling-type symptom in chewing cane. Symptoms were seen in individual stools adjacent to others which weren't showing any; appearances suggested the possibility of an unknown viral disease.

