RATTOON STUNTING DISEASE
HISTORY, DISTRIBUTION AND CONTROL

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ABSTRACT

The history and distribution of ratoon stunting disease have been well-covered by publications sponsored by the ISSCT which are available to all sugarcane pathologists, so no further elaboration on these subjects is made. Similarly, details of control measures are virtually unchanged since they were published in Sugar-Cane Diseases of the World, Vol. 1. The current application of these measures is discussed, emphasis being placed on farm hygiene and the education of growers and farm machinery operators to prevent the continual spread of the disease.

The possible role of immune or tolerant varieties, is briefly discussed.

INTRODUCTION

The history and distribution of ratoon stunting disease have been well documented in publications produced under the auspices of the International Society of Sugar-Cane Technologists. The early history and distribution have been dealt with by Steindl² while all subsequent records of the occurrence of the disease are included in the list of Sugar-Cane Diseases and their World Distribution, Egan, et al.¹ There does not, therefore, appear to be any reason for elaborating further on this subject.

Control measures for the disease have also been dealt with in detail in the first-mentioned publication. Virtually no changes have been made in the recommendations for the hot-air or hot-water treatments described therein. Whole stalks are usually treated in the hot-air ovens, while either whole stalks or previously cut sets are treated in the hot-water tanks.

Hot-air treatment is used extensively in Louisiana and to a lesser extent in some other countries. It gives excellent results when properly controlled, but the accurate control of temperatures in a hot-air oven is more difficult than in a water tank, and the procedure is more time-consuming. However, better germinations are obtained with succulent, immature cane than with the hot-water treatment.

The hot-water treatment is used in the majority of countries where a very cold winter does not necessitate the use of immature cane for treatment. In Australia the standard practice is to treat whole stalks in hot water at 50°C for 3 hours for the production of disease-free seed plots on a farm scale. In recent years the amount treated annually has been between 3000 and 4000 tons of cane: approximately 90% of this is planted by farmers for their own use, and the remaining 10% is planted in plots controlled by Cane Pest and Disease Control Boards for subsequent sale to farmers. Fungicides are not added
to the treatment tanks, but the cane is either dipped or sprayed with a mer-
curial solution as it goes through the cutter-planter. Under favourable field
conditions satisfactory germinations are usually obtained.

Various combinations of time and temperature, usually within the range
of 2 to 3 hours at 50 to 51°C have been used in other countries, usually with
a high degree of control. Whether whole stalks, or setts are treated depends
on the methods of planting.

When cane with a high percentage of infection is treated a few escapes
usually occur, and consequently it is recommended that treatments should be
done on cane that is relatively free from disease, and that they should be done
on a regular basis in order to keep the disease at a minimum.

Sugar industry organisations in several countries have devised and main-
tained schemes for the production of disease-free seed cane for distribution to
growers. In some cases treated cane is distributed directly to farmers, who in
turn propagate it for their own commercial plantings. In other cases the
organisations concerned propagate the treated cane firstly in “mother” plots,
then in secondary increase plantings so that larger quantities of healthy cane
can be sold to growers. In countries where cane is grown on large plantations
privately owned heat-treatment ovens or hot-water tanks may be operated.

The production of healthy seed cane is only the first step in a successful
disease control programme. The prevention of re-infection of the healthy crops
is of paramount importance, and to attain this end farmers must be educated
in all aspects of farm hygiene. Increasing mechanization of planting and har-
esting operations has increased the hazards of disease transmission by imple-
mments; particularly the harvesters which move rapidly and frequently from
field to field and from farm to farm. The reluctance on the part of operators,
particularly contractors, to sterilise the cutting blades of their machines, is a
real hazard.

Control programmes in Australia in recent years have concentrated on
the education of farmers and machinery operators concerning the losses caused
by the disease, the symptoms, the methods of spread and the procedures to
be adopted in sterilising all types of equipment so that re-infection will be
reduced to a minimum. Farmers are encouraged to have all planting material
inspected by inspectors of the Cane Pest and Disease Control Boards. Legis-
lation is in force to enable these inspectors to compel harvester operators to
sterilise their machines when moving from one farm to another.

If farmers are prepared to co-operate with inspectors along the lines men-
tioned above losses caused by the disease will be negligible.

The control of ratoon stunting by resistant varieties is not yet practicable.
Wismer, has reported the production of immune clones, but these are not
suitable for commercial use, and the author is not aware of the existence of any
immune commercial variety. There is considerable variation in the tolerance of
commercial clones, some of which suffer only small losses with the production of
obscure symptoms. Such varieties may have some merits, but on the other
hand, they can be a dangerous source of infection for more susceptible varieties,
since growers do not realize they are diseased and control measures are not
taken. It is, therefore, considered that the control of the disease by tolerant
varieties should not be encouraged unless one is prepared to live with the
disease and depend entirely on such varieties.
REFERENCES

ENFERMEDAD DEL ENANISMO DEL RETOÑO HISTORIA, DISTRIBUCIÓN Y CONTROL

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RESUMEN
La historia y la distribución de la enfermedad del enanismo del retoño ha sido bien cubierta por las publicaciones patrocinadas por el Congreso ISSCT y están disponible a todos los patólogos de la caña de azúcar, por eso no se han dado más detalles sobre este asunto.

Similares, los detalles de los métodos de control están virtualmente inalterados desde que fueron publicados en el Volumen 1 de Las Enfermedades de la Caña de Azúcar del Mundo.

Se discuten las medidas y los métodos corrientes de aplicación con énfasis en higiene de la finca y en la educación de los agricultores y operadores de la maquinaria agrícola de la finca para prevenir la continua diseminación de esta enfermedad.

Se discute brevemente la importancia de las variedades inmunes o tolerantes.