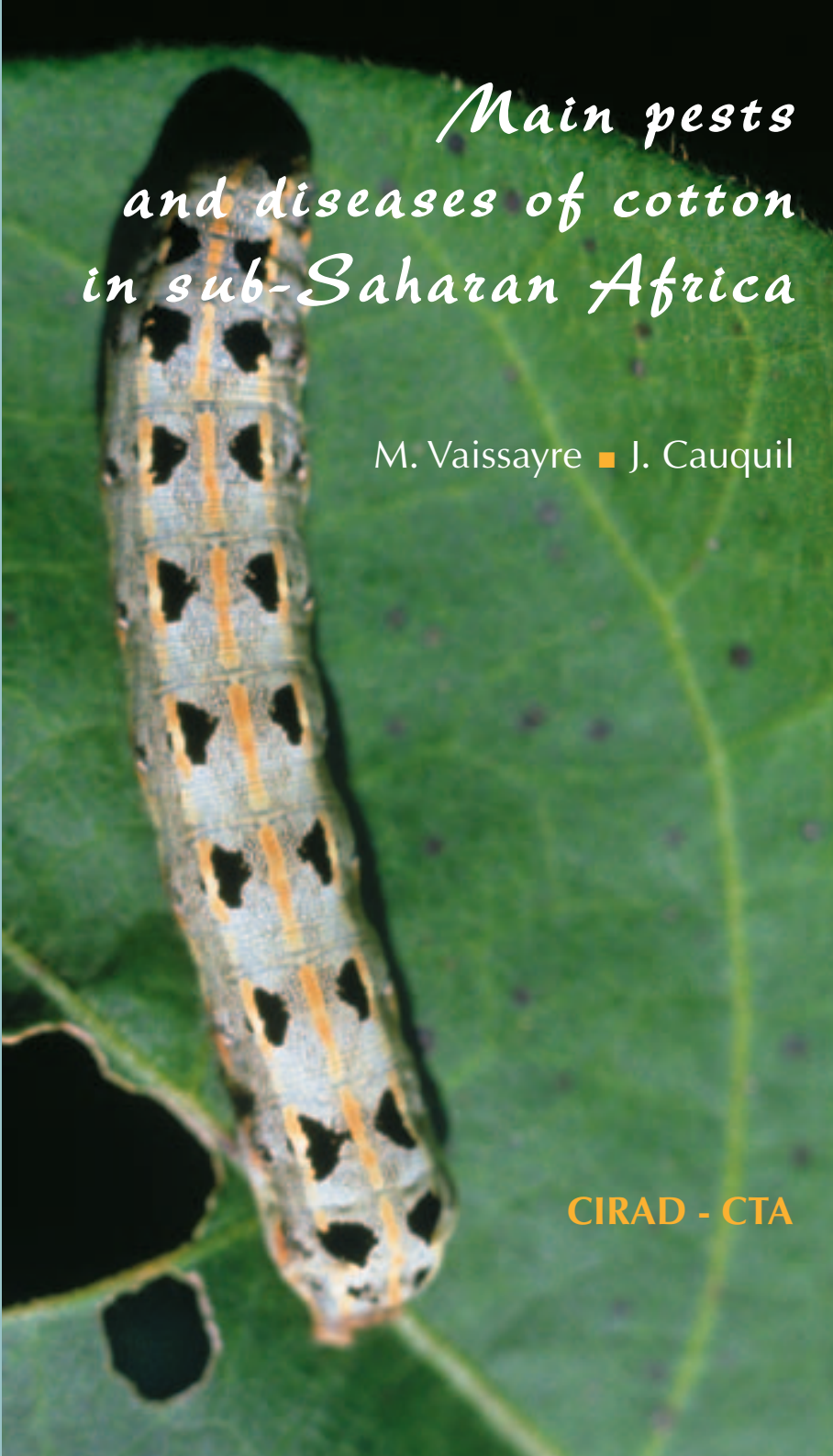

Main pests and diseases of cotton in sub-Saharan Africa

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CIRAD - CTA

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Centre de coopération internationale
en recherche agronomique pour le développement (CIRAD)

Technical Centre for Agricultural
and Rural Cooperation ACP-EU

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The Technical Centre for Agricultural and Rural Cooperation (CTA) was established in 1983 under the Lomé Convention between the ACP (African, Caribbean and Pacific) Group of States and the European Union Member States.

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Original concept, photographs and text
CIRAD Cotton Programme, Montpellier, France

Editing and layout
Service des éditions, CIRAD
Montpellier, France

Printing
Impact, 34135 Fréjorgues, France

ISBN : 978-2-7592-0661-2

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Foreword

Pests and diseases cause significant cotton crop losses in tropical Africa every year. The CIRAD Cotton Programme, which took over from the Institut de recherches du coton et des textiles exotiques (IRCT), devotes a large part of its time to defining concepts and methods that could help potential cotton growers to sustainably control local pests and diseases in an environment-friendly way.

This handbook is intended for cotton-growing stakeholders who need to be able to identify the most common pests and diseases rapidly in the field.

It does not cover weeds. Nor does it provide any chemical control recommendations apart from broad strategic guidelines, since the constant changes in this field rule out the possibility of long-term solutions.

However, a few pages are given over to beneficials, which contribute to the natural equilibria that need to be preserved, and to possible natural or human-induced mishaps, which should not be confused with entomological or pathological disorders.

The handbook makes no claim to be exhaustive. It covers only the main pests and some of the diseases found in cotton-growing regions of sub-Saharan Africa. To this end, it draws upon information given in other publications, particularly by Robert Delattre (1973) and Jean Cauquil (1993) concerning French-speaking Africa, and reference works such as those by Pearson (1958) or Matthews and Tunstall (1994).

Introduction

Pest population management does not merely mean introducing curative practices such as mass release of entomophagous insects or conducting biological or chemical insecticide treatments. The choice of crop associations and sequences on a farm will determine the extent of arthropod population movements between crops, depending on their physiological status. The choice of sowing dates and the length of the cotton growing cycle are also critical factors that can be adjusted to dodge outbreak periods of some pests. Furthermore, some cultivars have disease or pest resistance characters that can be put to positive use.

The first prerequisite for growing a healthy crop is good quality seed. Depending on whether the seed is planted in wet or dry soil, a protective coating may have to be applied to hamper faunal and fungal attacks. The treatment can be applied in the factory before packing or by farmers immediately before sowing. Once planted, the seed and the resulting seedlings can be attacked by a range of pathogens and pests which primarily reduce plant density, thus limiting crop yields. The seed may therefore need suitable protection against such hazards.

Farmers must subsequently remain vigilant and inspect their cotton plots regularly to estimate population densities, not only of pests but also of beneficials, whose impact has to be assessed. The rainy season in tropical Africa favours the development of epizootics that control certain pests. No steps need be taken until danger thresholds are overstepped, and even then, the impact of such measures on non-targeted species has to be considered carefully.

Close assessment of cotton plants should make it possible to monitor boll formation, estimate the end of the useful fruiting period and halt interventions so that beneficials can resume their activities, particularly on honeydew-producing Homoptera.

Crop residue should be carefully managed after harvests to hinder oligophagous or monophagous insect development between cropping seasons. Depending on the machinery available, crop residue can be buried or burnt, and cotton plant stems can be put to various uses.

Cotton growing cycle and pest sequences