



Horticultural  
Development  
Company

# Grower summary

**HNS 171**

Cordylines and phormiums:  
pests, diseases and disorders

Final Report 2009

## **Disclaimer**

Whilst reports issued under the auspices of the HDC are prepared from the best available information, neither the authors nor the HDC can accept any responsibility for inaccuracy or liability for loss, damage or injury from the application of any concept or procedure discussed.

The results and conclusions in this report may be based on an investigation conducted over one year. Therefore, care must be taken with the interpretation of the results.

## **Use of pesticides**

Only officially approved pesticides may be used in the UK. Approvals are normally granted only in relation to individual products and for specified uses. It is an offence to use non-approved products or to use approved products in a manner that does not comply with the statutory conditions of use, except where the crop or situation is the subject of an off-label extension of use.

Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

## **Further information**

If you would like a copy of the full report, please email the HDC office ([hdc@hdc.org.uk](mailto:hdc@hdc.org.uk)), quoting your HDC number, alternatively contact the HDC at the address below.

AHDB – Horticulture  
Stoneleigh Park  
Kenilworth  
Warwickshire  
CV8 2TL

The contents of this publication are strictly private to HDC members. No part of this publication may be copied or reproduced in any form or by any means without prior written permission of the Horticultural Development Company.

## Headline

The most problematic pests, diseases and disorders to affect *Cordyline* and *Phormium* cultivars have been identified:

*Cordyline*: two-spotted spider mite and the undiagnosed disorders: yellow leaf spot syndrome, tip burn and 'wobble'.

*Phormium*: *Phormium* mealybug and two-spotted spider mite.

## Background

Recent mild winters and dry summers have created a resurgence of interest in tropical-looking plants, including a range of *Cordyline* and *Phormium* cultivars, resulting in increased sales which are of great value to the hardy ornamental nursery stock industry. However, UK growers have reported major problems affecting their production. This study was designed to provide information on the scale of current problems, identify further investigations needed into the causes and the development of production strategies to eliminate them.

The expected deliverables were:

- To provide an overview of the major challenges encountered by *Cordyline* and *Phormium* growers.
- To carry out limited sample analysis of *Cordyline* plants affected with yellow leaf spot syndrome (at the Food and Environmental Research Agency, FERA) to identify any causal agents present.
- To gain an understanding of the husbandry and crop protection techniques currently in use to address these challenges.
- To suggest production strategies and future targeted investigations to enable these problems to be resolved.

## Summary

This study involved a review of information from literature, growers and consultants relating to pests, diseases and disorders affecting *Cordyline* and *Phormium* production. An initial grower survey, in which 44 *Cordyline* and *Phormium* growers participated, provided an overview of the difficulties faced. Case studies targeting eight growers from across the country then provided in-depth information concerning current practice in producing these crops and combating the problems experienced.

### Survey results

Problems highlighted as affecting production of quality *Cordyline* and *Phormium* were:

### Pests

Phormium mealybug (*Balanococcus diminutus*) and Cordyline mealybug (*Balanococcus cordylinidis*).

Two-spotted spider mite

Slugs and snails

Aphids, thrips, tortrix caterpillars, vine weevil and sciarid fly larvae (reported not a serious risk to the crops)

### Diseases and disorders

Yellow leaf spot syndrome / oedema

Other leaf spots

Tip burn

'Wobble' or 'rock'

Crown, stem and root rots

## **Financial benefits**

Financial benefits to growers obtained from resolving the issues raised in this report include reduced wastage and increased profit margins for growers, and a premium product for the customer. The results of this survey suggest that by controlling the major issues reported (tip burn, yellow leaf spot syndrome, two-spotted mite and *Phormium* mealybug) there could be a financial benefit of around £1.8 million each year to the UK horticulture industry.

## **Action points for growers**

A number of the conditions reported require further investigation. However, there are some general action points and respondent comments that may help to improve crop quality.

- Yellow leaf spot syndrome / oedema control: do not over water, provide adequate ventilation and spacing between plants, and where possible increase light intensity during the late winter / early spring when these symptoms tend to develop.
- Leaf spot control: pay attention to water management in terms of application timing and / or method. Avoid wetting leaves during irrigation where possible and apply water early enough to enable leaves to dry off before temperatures drop. Ensure the cause is correctly diagnosed by laboratory analysis so that the appropriate control measures may be applied.
- *Phormium* mealybug control: Key to controlling *Phormium* mealybug is to quarantine new stock on arrival and inspect each plant for infestations, taking particular care to look in leaf folds and at the base of the leaves. Infested stock should not be allowed onto the nursery.

- Two-spotted spider mite control: A number of predators are available for control of two-spotted mite including *Phytoseiulus persimilis*, *Amblyseius andersoni*, *A. californicus*, and *Feltiella acarisuga*, although some growers have reported difficulty in adequately establishing predators in these crops. There are also several acaricides that are approved for use on ornamental plants under protection, including Apollo 50 SC (clofentezine), Masai (tebunepyrad) and Dynamec (abamectin). Before using any of these acaricides in an IPM programme, their compatibility with any biological control agents being used should be checked with the biological control supplier. The pyrethroids including Gyro (bifenthrin) and Talstar 80 Flo (bifenthrin) are effective but are not IPM-compatible. Experience has shown that the waxy leaves of *Phormium* make good spray coverage difficult, and the addition of an adjuvant such as Codacide may improve chemical control of two-spotted spider mite.
- Tip burn control: grower experience suggests that careful water management, calcium supplements, foliar feeding, site selection (avoiding a high fluoride level in the water) and temperature control may help to reduce tip burn.
- Wobble or 'rock' control: plant *Cordyline* deeper to encourage lateral root development nearer the base of the trunk to stabilise plants. Planting depth would vary depending on the maturity of the plant, but the critical point would be to avoid burying the growing tip.