
MAJOR PESTS, DISEASES AND WEEDS OF CEREAL CROPS

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INTRODUCTION

The control of pests, diseases and weeds is one of the fundamental requirements for profitable cereal production. However, the large number of organisms that can threaten a crop makes management challenging. In addition legislative requirements in relation to chemical control measures are complex and ever changing.

In practice, there is no substitute for knowledge and experience in identifying problems and choosing the most appropriate management technique for addressing them. The advice of a BASIS qualified agronomist can be invaluable in identifying threats to the crops and the most appropriate strategy for their control. In addition, a range of tools are available on the internet (or as hard copy books) to help identify weeds, pests and diseases and then to select the best plant protection product for the particular problem.

The level of intervention a grower uses will very much depend on the particular circumstances of the farm and crop. At one end of the spectrum, certified organic growers will seek to avoid all chemical inputs; at the other end, some growers will routinely treat crops without paying much attention to the actual economic need for intervention. Most farmers lie somewhere between these two extremes.

This factsheet has been written to accompany the CALU Farming Connect Land Management Programme event at Henfaes Research Centre, July 2009. It is only intended to provide a very broad overview of this vast and complex topic and to point the reader in the direction of further sources of information.

WEEDS

Weeds compromise production in a range of ways: they compete with the crop for nutrients, light and water; they occupy physical space that could be occupied by the crop; they can downgrade the value of the harvest by contaminating it; and they can harbour pests and diseases which transfer to the crop. Conversely, weeds are also beneficial: they can encourage beneficial wildlife; they can help conserve soil nutrients; and they are an important genetic resource for biodiversity.

Weed management needs to balance the economic costs of control measures with the likely reduction in crop yields or downgrades in quality (and hence price) that weed contamination could bring. In addition consideration needs to be given to the wider environmental consequences of management practices. To maximise profitability, producers need to minimise downgrades and wastage, and harvest as much crop as possible per unit area.

Weeds of cereals are broadly split into two groups: broadleaved weeds and grass weeds. Grass weeds are a particular challenge as they are biologically similar to commercial cereal crops. This means that the choice of chemical controls is more restricted than is the case with broadleaved weeds. Grass weeds also pose more of a risk in terms of contaminating grain harvest with unwanted seeds; harbouring pests and diseases that can affect and infect the crop; and generally competing more effectively with the crop than many broadleaved weeds.



Cronfa Amaethyddol Ewrop ar gyfer Datblygu
Gwledig; Ewrop yn Buddsoddi
mewn Ardaloedd Gwledig
The European Agricultural Fund for
Rural Development: Europe Investing in
Rural Areas



Centre for Alternative Land Use
Canolfan Ddiwydd Tir Amgen



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

DISEASES

Diseases of cereals can be caused by viruses and fungi, or combinations of these. Infections can be carried in the air, water, soil, or by insect vectors – particularly aphids.

The most economically important diseases of cereals in the UK are probably Take All (*Gaeumannomyces graminis*) and Septoria leaf blotch (*Mycosphaerella graminicola*).

However, part of the reason for the high economic significance is that these diseases are particular problems in the most widely grown crops. Other diseases can be equally, or even more, devastating in other crops.

The HGCA website (www.hgca.com) hosts a very useful encyclopaedia of cereal diseases. Currently, the site has 36 diseases listed. Of these 34 are fungal diseases and two are viral. Although some of these are either uncommon, or unknown in the UK at present, they are being closely monitored as changes in climate may lead to changes in disease populations.

Controlling diseases in cereals is not only important to minimise crop losses in the field: some of the diseases render the crop toxic (e.g. ergot infection produces toxic alkaloids). Crops with mycotoxin contamination will be rejected by processors and should never be fed to livestock.

Crop walking is an essential part of any grower's management system. Only by careful and continual monitoring of the levels of weeds, pests and diseases in the crop, can an economically useful decision be made on the appropriate control strategies. It is virtually inevitable that all crops will have some levels of weed, pest and disease activity. It would not be economically or environmentally justifiable to try and totally control these natural processes. Instead, the grower needs to monitor activity and take action if and when it makes economic sense to do so.

Rotations are also an important tool in the fight against weeds, pests and diseases. Through growing a totally different type of crop, for one or two years, in many cases host specific diseases in particular will become exhausted.

PESTS

A wide range of animals are pests of cereal crops. Conversely, a wide range of animals bring benefits to cereal crops and the wider environment. As with weeds and diseases, regular crop walking to identify and monitor levels of pest activity is crucial to ensure timely and cost effective control of the problem. Animal pests can cause direct damage to crops (e.g. crows and pigeons uprooting seeds and seedlings) or rabbits grazing, or they can be vectors of disease (e.g. aphids transmitting virus diseases). The risk from pests does not stop once the crop is harvested, and active control measures are needed to ensure that the crop is not contaminated (e.g. by bird, rat or mice droppings).

This factsheet is merely an introduction to the main pest, weeds and diseases of cereal crops, for more in-depth information please see the sources below.

SOURCES OF FURTHER INFORMATION

www.hgca.com

<http://www.pesticides.gov.uk/>

<http://www.organic.aber.ac.uk/>

<http://www.efrc.com/>

<http://www.aicc.org.uk/>

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www.calu.bangor.ac.uk

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