Diligent crop protection is crucial

Several methods are available to help farmers protect their crops from weeds, diseases and pests, says **Dr Benard Ngwene**, the agricultural advisory manager for AGCO Africa.

Crop protection keeps a farmer busy for most of the season; it begins during land preparation and ends only when the harvest leaves the land. During this time, the farmer can be confronted with unexpected challenges, and must react immediately to prevent weeds, diseases or pests from reducing crop yield. Failure to do so may even lead to complete crop loss.

Technology can be of great help, but to ensure that a crop receives optimal protection, the farmer should walk the lands and visually check the plants.

The following is a brief overview of how to combat plant diseases, weeds and pests.

WEEDS

A weed is any plant growing where it is not wanted, and it is always best to start with a clean land. To achieve this, use a burndown herbicide application or tillage, or even physically remove the weeds.

Weeds are usually well adapted and can be host to pests and diseases, causing further yield losses. It is therefore imperative to prevent weeds from growing on the land in the first place, or remove them if their population is a threat to the crop.

ABOVE: An outbreak of fall armyworm occurred on South African maize lands in 2017. Early detection and identification of such a pest is vital for effective management and control.
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DR BENARD NGWENE

DISEASES

Plant diseases impair the normal functioning of a plant, interrupting or modifying its vital functions. They reduce photosynthesis and interfere with plant functions such as translocation.

Fungi are the most important type of plant pathogen, but viruses and bacterial infections can also be a major threat. Diseases can attack all parts of the plant and can be highly infectious over long distances. They are transmitted through air, soil and seed, as well as animal and insect vectors.

PESTS

Pests are organisms that cause damage to farmers by feeding on crops and parasitising livestock. They include insects, animals and birds that reduce crop yield and quality by feeding directly on the crop and/or transmitting diseases.

THERE IS NO SUBSTITUTE FOR SCOUTING THE CROPS YOURSELF

The control of weed, disease or pest infestation is easier and more effective when an intervention is implemented early. The first step is to identify the weed, disease or pest in order to evaluate whether or not it can cause meaningful damage. Thereafter, the ideal crop protection method can be applied. This can be mechanical (weed control), trapping (pest control), or chemical (use of pesticides).

Generally, pesticides are more effective during the growing season. Packaging for synthetic pesticides is usually clearly marked: F for fungicide, H for herbicide, and I for insecticide.

Pesticides can be divided into two groups:

- Non-selective pesticides, such as glyphosate, for weed control. This destroys every plant on the land;
- Selective pesticides, such as herbicides, for select broadleaf weeds in grass crops, and grass weeds in broadleaf crops.

A pesticide does not have to be a synthetic chemical; it can be a natural biological agent, such as the extract from the nym plant. Ask your local distributor for advice if your crop is infested. Note that you are legally obligated to use chemical pesticides correctly and store them safely.

There is also the option to use cultural practices to enhance crop protection. This may include rotating crops to break disease cycles, adjusting sowing dates, ensuring crop hygiene, applying a management programme, planting resistant varieties, using certified seeds, or applying the correct crop density.

Even after taking all these precautions, your crop may still suffer from some infestation. If there is a regional or national outbreak of a pest or disease, all farmers in the affected areas have to be part of the management strategy.

Diligent farmers scout their lands regularly to detect any potential problems. Take crop protection seriously and employ all necessary steps to minimise any infestation, and you will be well on your way to a healthy yield.

- *Email Dr Benard Ngwene at benard.ngwene@agcocorp.com.*

ABOVE: A Challenger GoRator Sprayer being used to apply pesticide to a field. Pesticide is just one method at a farmer's disposal to control insect pests.

RIGHT: Stem rust (*Puccinia graminis*) on wheat. According to the Agricultural Research Council, the use of fungicides is important in the control and management of stem rust.
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