

# MANAGING FUNGICIDE RESISTANCE

**Fungicide resistance** is the loss of efficacy of a particular type of fungicide against a target pathogen. Fungicide resistance is often recognized when the expectations of disease control are not met when the labeled rate of a fungicide is applied.

**All fungicide products have a specific mode of action (MOA)**, which is the way in which the fungicide affects (kills) pathogens. All fungicides are classified by MOA, and **each MOA is assigned a group code called a FRAC number that will appear somewhere on the product label**. FRAC stands for the *Fungicide Resistance Action Committee*, which is a technical group of specialists that provides fungicide resistance management guidelines to prolong the effectiveness of “at risk” fungicides and to limit crop losses due to fungicide-resistant pathogens. See [www.frac.info](http://www.frac.info) for the most up-to-date information on fungicide resistance and FRAC codes.

The following are some basic guidelines that should be considered in developing a fungicide program to avoid inadvertently selecting fungicide-resistant pathogens.

## Fungicide Resistance Management Guidelines

1. Obtain an accurate disease diagnosis. This allows fungicide selection to be made correctly to minimize the chance of applying an ineffective fungicide.
2. DO NOT apply fungicides in the absence of disease.
3. Avoid the exclusive use of a fungicide product with a single MOA or FRAC Code.
4. Rotate different MOA or FRAC Code fungicide applications if more than one application is needed within a season.
5. Use the manufacturer’s recommended rates as indicated on the label.
6. Utilize integrated disease management strategies (including host plant resistance, crop rotation, crop residue management, removal of diseased tissue on perennial crops, etc.).