RLF TECHNICAL NOTE

TECHNICAL NOTE 2

COMBAT DISEASE WITH THE USE OF FOLIAR SPRAY

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HOW FOLIAR FERTILISER HELPS

Foliar sprays are known to fight disease by two distinct methods:

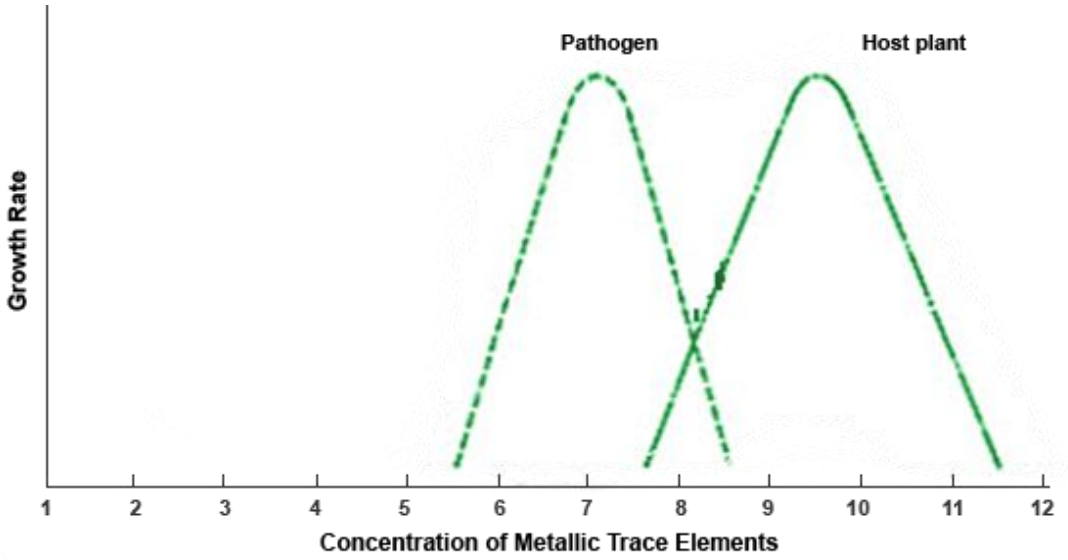
1. **Increasing the host resistance** : this is brought about by:

    a. Making a stronger barrier to pathogen entry. Changes in cell wall and cell membrane structure is brought about by essential elements like Boron, Calcium, Silicon and copper in making stronger and lignified plant tissues with reduced cell membrane permeability (less leakage to encourage pathogen attack).
    b. Increasing plant photosynthesis and plant growth by adequate supply of zinc, manganese, iron, copper and phosphorus to utilize light energy and maintain plant turgidity (with the aid of potassium), turgid plants are less susceptible to pathogen attack.

2. **Suppressing the pathogen activity** :

Suppression of pathogen activity results from use of high levels of trace elements such as zinc, copper and manganese as foliar sprays to hit the pathogen directly. Pathogens due to their simple body structure (e.g. unicellular and filamentous)absorb these trace elements readily such that while host enjoys the optimum levels of such trace elements, the pathogens become toxic and unable to grow. Thus, by increasing the trace element concentrations in a foliar fertiliser, one could selectively and directly suppress fungal and bacterial activity (reduce disease pressure) whilst improving plant resistance by having adequate levels of these trace elements to support the required structural and physiological means to fight the disease as described earlier.

The following graph demonstrates contrasting effect of trace element concentration on growth of pathogen and host plants such that at certain concentrations (e.g. at trace element arbitrary values between 7 and 10) the pathogen growth declines while growth of the host plant increases. This range could be achieved with foliar sprays of RLF products with high phosphorus and trace elements. Repeated foliar sprays are often work better in sustaining toxic level of trace elements in pathogen.



In wet and cold season such as the 2016 winter, the spread of fungal disease is rapid and the yield damage is likely to be severe even though fungicide use is repeated. The grower should keep in mind that both plant tolerance to disease and suppression of pathogen can be managed with foliar spray regardless of fungicide use.

When spraying fungicide, one could tank-mix foliar fertilisers with high level of trace elements to check the pathogen activity whilst at the same time increase the plant resistance to disease.

CONCLUSION

Applying RLF Crop Specific Foliar fertilisers with high level of trace elements and phosphorus are highly beneficial in preventing the spread of the disease whether applied on its own or tank mixed with pesticides. The dual role of foliar fertiliser in disease control should not be missed in any opportunity that compatible fungicide sprays are applied (e.g. Mancozeb). If potassium is expected to be suboptimal, addition of potassium sources to Plasma Power or Plasma Fusion tank mix is highly beneficial.

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