



Conducting On-Farm Corn Foliar Fungicide Strip Trials

Local growing conditions, disease pressures and cropping practices can all impact the effectiveness and economic worth of foliar fungicides of corn. For this reason, it can be very useful for growers to conduct fungicide strip trials to determine the added value of foliar fungicides on their own fields. The following document outlines how to conduct a fungicide strip trial at flowering stages including data collection and disease assessment information.

Setting Up the Strip Trial

Your corn foliar fungicide strip trial should consist of at least three replicated paired strips of fungicide sprayed vs. non-sprayed (figure 1).

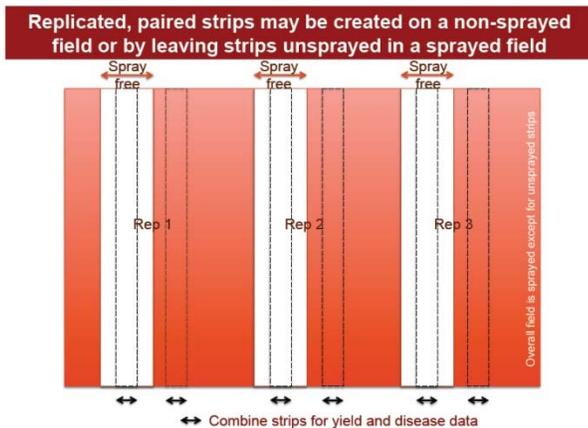


Figure 1. Recommended layout for fungicide strip trial. Note the three replicated paired strips.

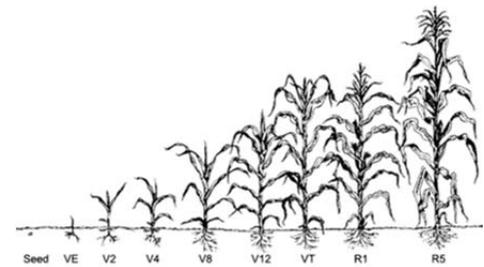
Having treated and non-treated strips paired helps ensure that differences in crop performance are due to treatment differences and not natural spatial variation.

It is important that at least three replicate paired strips be performed. Splitting a field (i.e. half treated and half non-treated) results in spatial variation that will mask real treatment differences

Target spray should be conducted at 50% tassel (VT, figure 2), but it could be sprayed earlier than this or as late as brown silk (R2). Fungicide applications should be made with either a high clearance sprayer or aerial applicator. Use spray volume minimums of 2-5 for aerial and 15 gal./acre for ground applications or as specified on the fungicide label.

Growing Season Monitoring

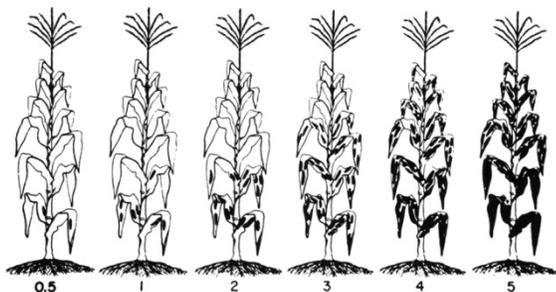
- Information about disease in both the treated and non-treated strips should be collected at spray time (VT-R2) and again at R5 stage.



Vegetative		Reproductive	
Stage	Description	Stage	Description
VE	Emergence	R1	Silking- silks visible outside of the husk
V1	One leaf with collar visible	R2	Blister- kernels are white and resemble a blister in shape
V2	Two leaves with collars visible	R3	Milk – kernels are yellow on the outside with a milky inner fluid
V(n)	(n) leaves with collars visible	R4	Dough – milky inner fluid thickens to a pasty consistency
VT	Last branch of tassel is completely visible	R5	Dent- nearly all kernels are denting

Figure 2. Corn growth stages. (Source <http://extension.entm.purdue.edu/fieldcropsipm/corn-stages.php>)

- Collect information on which diseases are present and the disease intensity.
- Disease intensity should be recorded for the canopy (rating scale 0-5) as illustrated in figure 3 as well as on the leaf corresponding to the lowest corn ear (rating scale 0-100%, figure 4).
- Inspect plants at three locations along each strip and record data. Average ratings for each strip and compute means for each spray treatment.
- Record field history, corn hybrid (and its disease ratings), planting dates and other relevant information on the data collection sheet.
- **Need help with disease identification?**
Visit <http://fieldcrops.org/Corn/Pages/ManagingDiseases.aspx> for more information on the most common foliar diseases of corn found in New York State.



Rating Scale for Foliar Leaf Blight in Canopy (Source Phytopathology 36:66 1945)
 0.5, very slight infection, 1 or 2 restricted lesions on lower leaves;
 1, slight infection, a few scattered lesions on lower leaves;
 2, light infection, moderate number of lesions on lower leaves;
 3, moderate infection, abundant lesions on lower leaves and few on middle leaves;
 4, heavy infection, lesions abundant on lower and middle leaves and extending to upper leaves;
 5, very heavy infection, lesions abundant on all leaves, plants may be prematurely killed.

Figure 3. Rating scale for foliar leaf blight in canopy (Source Phytopathology 36:66 1945)

Harvesting the Strip Trial

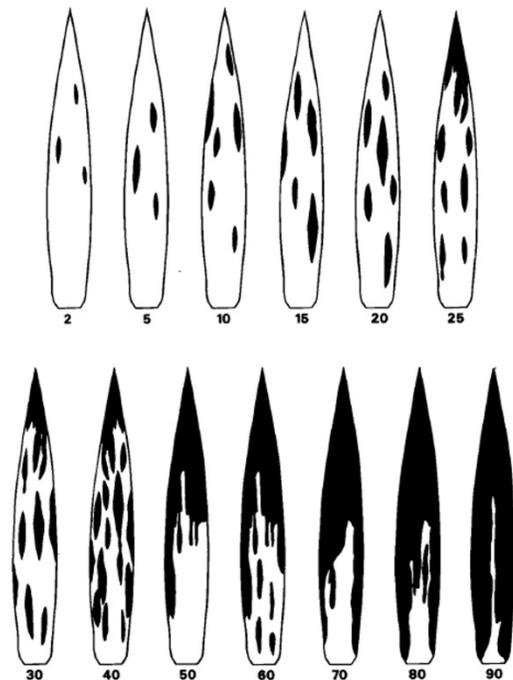
- Yield determination should be conducted using a yield monitor or trooper scales.
- Measure moisture % of grain at harvest.
- Correct yield to standard 15% moisture content.

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Key for estimating leaf blight intensity on individual leaves of corn. Numbers are percentages of leaf area occupied by lesions. (Source R. A. Fullerton (1982): Assessment of leaf damage caused by northern leaf blight in maize, New Zealand Journal of Experimental Agriculture, 10:3, 313-316)

Figure 4. Key for estimating leaf blight intensity on individual leaves of corn. (Source R. A. Fullerton (1982): Assessment of leaf damage caused by northern leaf blight in maize, New Zealand Journal of Experimental Agriculture, 10:3, 313-316)