

Dec 2nd, 12:00 AM

Renewed Interest in Foliar Fungicide Use on Field Crops

Laura E. Sweets
University of Missouri

Follow this and additional works at: <https://lib.dr.iastate.edu/icm>



Part of the [Agriculture Commons](#), and the [Plant Pathology Commons](#)

Sweets, Laura E., "Renewed Interest in Foliar Fungicide Use on Field Crops" (2004). *Proceedings of the Integrated Crop Management Conference*. 18.

<https://lib.dr.iastate.edu/icm/2004/proceedings/18>

This Event is brought to you for free and open access by the Conferences and Symposia at Iowa State University Digital Repository. It has been accepted for inclusion in Proceedings of the Integrated Crop Management Conference by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

RENEWED INTEREST IN FOLIAR FUNGICIDE USE ON FIELD CROPS

Laura E. Sweets
Extension Plant Pathologist, Commercial Agriculture Program
University of Missouri

Although the use of chemicals or fungicides to control plant diseases can be traced back as far as 1000 B.C., it was not until the 1930's- 1960's that substantial efforts were devoted to the development of non-corrosive and non-phytotoxic fungicides. Among the first of the "modern" fungicides were the dithiocarbamate fungicides such as thiram, maneb, and zineb. These materials have broad-spectrum activity but are contact, protectant fungicides. Dithiocarbamate fungicides were used for control of field crop diseases and there still are several formulations labeled for use on field crops. Their use has declined because they are protectants that need to be applied prior to disease development or at the first sign of disease development and because as contact materials they are subject to weathering and may need to be reapplied if weather conditions remain favorable for disease development.

The introduction of systemic or semi-systemic fungicides in the mid-1960s again increased interest in the use of fungicides to protect row crops from foliage diseases and late-season diseases. The oxathiins, carboxin and oxycarboxin, both introduced in 1966 were the first of the systemic fungicides to succeed in field use. Carboxin is still used in seed treatment of small grains for smut and bunt diseases. The benzimidazoles, especially benomyl and thiabendazole (TBZ), were introduced in 1968 and have been used on numerous crops to control a wide range of diseases. The triazoles were introduced in the early 1990's and generated interest in their use to manage foliage diseases of wheat and corn.

In spite of the various chemistries of fungicides that have been introduced and used on field crops over the years, the widespread use of foliar fungicides on corn, soybean and wheat has never become an established crop production practice. Some of these materials have been successfully used in specialty markets or limited use markets such as seed corn production or soybean seed production or in seasons when environmental conditions have favored the development of specific disease problems on a given crop. But for strict grain crop production the use of foliar fungicides has remained relatively low.

The introduction of the strobilurin fungicides in the late-1990's to early 2000's and the combination of strobilurins with triazoles has led to a renewed interest in the use of foliar fungicides on corn, soybean and wheat. This renewed interest is based on several factors including control of recognized diseases which can contribute to yield loss in field crops, control of diseases considered to be "insignificant" but that may actually be contributing to yield losses in field crops, yield increases occurring even in the absence of significant disease or insect pressure and concern about management of new or reemerging plant diseases such as soybean rust, stripe rust of wheat, scab of small grains and gray leaf spot of corn.

There are several triazole, strobilurin or combination fungicides with current federal registrations for use on corn, soybean or cereals. These fungicides are as listed in Table 1 below.

Table 1: Strobilurin and Triazole Foliar Fungicides Labeled for Use on Corn, Soybean or Cereals

Trade Name (Company)	Active Ingredient(s)	Labeled on Field Corn	Labeled on Soybean	Labeled on Wheat
Headline (BASF)	pyraclostrobin	pending	pending	yes
PropiMax EC (Dow AgroSciences)	propiconazole	yes		yes
Quadris (Syngenta)	azoxystrobin	yes	yes	yes
Quilt (Syngenta)	azoxystrobin + propiconazole			yes
Stratego (Bayer)	propiconazole +trifloxystrobin	yes		yes
Tilt (Syngenta)	propiconazole	yes		yes

Results of both large-scale field trials and smaller, replicated research trials are showing various levels of yield increases with the use of these foliar fungicides. Weather permitting harvest of this year's trials, results from the 2004 season and summaries of multiple year results will be shown during presentation. (additional handout)