UF UNIVERSITY of FLORIDA | IFAS EXTENSION

Alternation and tank mix of acibenzolar-S-methyl with reduced rates of fungicides in controlling the downy mildew disease in field grown basil

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Brief summary

Basil downy mildew (BDM) was discovered in 1933 in Uganda and the disease in the U.S.A. is first reported from south Florida in 2007. It is spread to more than 20 states with in the past few years and also reported from the Hawaiian Island in 2011.

Previous studies at the center highlighted the potential of acibenzolar-S-methyl to successfully control downy mildew caused by the oomycete (*Peronospora belbahrii*) in greenhouse grown basil when applied at optimum rates, methods and timings. In addition, downy mildew was effectively controlled when basil plants in the greenhouse were treated with ASM and followed by post-inoculum fungicide spray of the azoxystrobin fungicides like Quadris.

In this study three rates of ASM (0, 50 and 100 mg/liter) were combined with four rates of Quadris (0, Quarter - , half – and full label rates) and disease severity was evaluated from the middle two holes of each plot. Two types of application trends were studied in separate experiments: alternation and tank mix. The final outcome of the study is expected to formulate a cost-effective and environment friendly disease management of basil downy mildew.
P.S.: None of the products tested in this study are currently registered for use in basil.

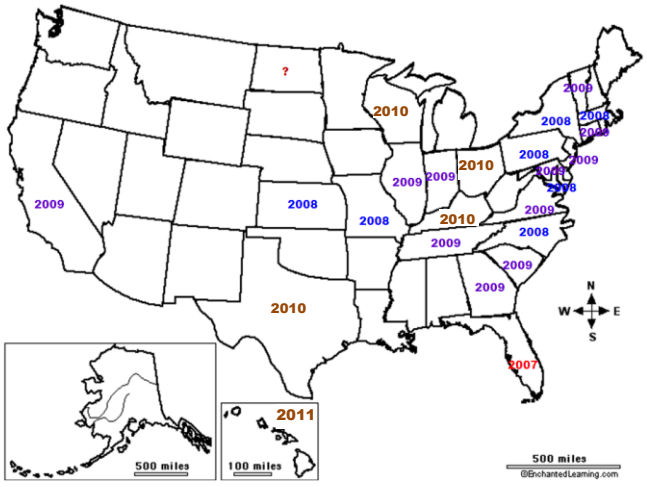

Fig. 1. Reports of basil downy mildew from the states

Fig. 2. Simplified life cycle of *P. belbahrii*

Planting date **October 24 – 25, 2011**
Partly transplanted Nov. 14/2011

Spray schedule: **Nov. 28, Dec. 5, Dec. 11, Dec. 16, Dec. 23, Jan. 03**
Volume of spray 50-80 gallon/acre

Disease evaluation: **Dec. 8, Dec. 14, Dec. 22, Jan. 03**

The basil plants experienced a slight chilling injuring the first week of January and hence those affected leaves are defoliated.

Cultivar – Genovese

Design – Split plot with randomization and four replications

Main Plot

ASM rates: ASM_0 = 0 mg/l; ASM_{50} = 50 mg/l; ASM_{100} = 100 mg/l

Sub-plot

Quadris rates: Q_0 = no Quadris; $Q_{¼}$ = ¼ label rate; $Q_{½}$; ½ label rate; $Q_{4/4}$ = full label rate

Preliminary result

Table 1. Severity of basil downy mildew on Dec. 22nd, 2011 from basil plants treated with three rates (0, 50 & 100 mg/L) of Actigard® alternated or tank mixed with four rates of Quadris® (0, quarter -, half - & full label rates) applied 6 times at intervals of 5 to 12 days

Treatment	Alternation		Tank mix	
	Dec. 22	AUDPC	Dec. 22	AUDPC
ASM_0 Q_0 – CK	66.9 a	730.0 a	71.5 a	1087.5 a
ASM_0 $Q_{¼}$	13.0 bc	165.3 bcd	5.2 bc	81.8 b
ASM_0 $Q_{½}$	5.1 c	93.0 bcd	2.1 c	48.3 b
ASM_0 $Q_{4/4}$	3.9 c	53.7 d	2.3 c	44.3 b
ASM_{50} Q_0	19.9 b	243.9 bc	16.9 b	216.7 b
ASM_{50} $Q_{¼}$	4.5 c	66.2 cd	3.5 c	50.3 b
ASM_{50} $Q_{½}$	2.6 c	48.9 d	1.6 c	25.9 b
ASM_{50} $Q_{4/4}$	2.6 c	38.9 d	1.5 c	26.8 b
ASM_{100} Q_0	24.9 b	254.4 b	16.4 b	194.1 b
ASM_{100} $Q_{¼}$	3.5 c	58.9 d	2.1 c	36.0 b
ASM_{100} $Q_{½}$	1.8 c	29.3 d	1.5 c	34.1 b
ASM_{100} $Q_{4/4}$	1.8 c	31.9 d	1.8 c	32.6 b

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