



### Example of an Impatiens Downy Mildew Fungicide Rotation

Appl No.	FRAC Code	Fungicide	Method	Rate /100 gal
1	43+M3	Adorn + Protect DF + Capsil	Spray	2 fl oz +2 lb +6 fl oz
		<b>or</b>		
Plugs (or as soon as rooted)	43+4	Adorn + Subdue MAXX (or Subdue MAXX alone if Adorn applied to cuttings)	Drench	1 fl oz + 1 fl oz
2	40	Stature SC	Spray	12.25 fl oz
3	M3	Protect DF + Capsil	Spray	2 lb + 6 fl oz
4	4+43	Subdue MAXX + Adorn	Drench	1 fl oz + 1 fl oz
(final application)				
	11	<b>or</b> FenStop (not in NY)	Spray	9 fl oz
(rotation application)	11+7	<b>or</b> Pageant	Spray	12 oz

Rotate among fungicides with a different mode of action (FRAC code)

#### Cultural Control

- ✓ Minimize greenhouse humidity and leaf wetness (< 4-5 hr)
- ✓ Frequently scout crop, with particular attention to early leaf symptoms
- ✓ Remove symptomatic plants and any fallen leaves immediately
- ✓ Bag plant(s) and seal before carrying out of greenhouse; do not compost
- ✓ If sporulation is visible, remove adjacent plants within 3 feet

- ❖ Segregate impatiens from different sources
- ❖ Grow seed raised and vegetative propagated impatiens in separate greenhouses to minimize risk of contamination

#### Chemical Control

Preventive application is critical. Control is nearly impossible once sporulation has occurred in a growing facility.

- ✓ **Make first fungicide application at transplant (plugs)**  
\*Adorn + Subdue MAXX drench recommended
- ✓ **Make first fungicide application within 7 days of receipt (unrooted cuttings)**  
\* Protect DF + Adorn foliar tank mix recommended
- **Under low disease pressure or low risk:** Reapply foliar applications at 7 day intervals with different FRAC code product
- **Under high disease pressure or high risk:** 7-day intervals with foliar applications may not be sufficient due to limited residual activity
- ✓ **Apply a final drench application within 1 week prior to ship**

**Drenches of Adorn and/or Subdue MAXX exhibited the longest residual efficacy (21-28 days)** of all fungicides tested in a limited number of research trials. Tank mix to reduce the risk of fungicide resistance.

#### Additional Information

<http://www.ballpublishing.com/GrowerTalks/ViewArticle.aspx?articleid=18921>

<http://www.ballpublishing.com/GrowerTalks/ViewArticle.aspx?articleid=18917>

Dr. Colleen Warfield: cwarfield@ballhort.com  
Corporate Plant Pathologist, Ball Horticultural Co.

These products are labeled for greenhouse use. Double check labels before using in the landscape, as not all products are labeled for landscape use.

FRAC Code (MOA)	Fungicide	Active ingredient(s)	Activity	Rate/100 gal	Application	REI (re-entry interval)	Preventive efficacy
M3	Protect DF	mancozeb	Contact	2 lb	Spray	24 hr	++++
4	Subdue MAXX	mefenoxam	Systemic	1 fl oz	Spray Drench	48 hr 0 hr (drench)	++++ <sup>RT</sup> ++++ <sup>RT</sup>
11	Heritage <sup>C</sup>	azoxystrobin	Translaminar	2 oz	Spray	4 hr	++++
11	Disarm O <sup>C</sup>	fluoxastrobin	Systemic	4 fl oz	Spray	12 hr	++++
11	FenStop <sup>C</sup> (not registered in NY)	fenamidone	Systemic	7-14 fl oz <sup>A</sup>	Spray	12 hr	++++
11+7	Pageant	pyraclostrobin+boscalid	Translaminar/Systemic	12 oz	Spray	12 hr	++++
21	Segway <sup>C</sup>	cyazofamid	Contact; limited systemic	3.5 fl oz	Spray	12 hr	++++
33	Aliette	fosetyl-AL	Systemic	12.8 oz	Spray	12 hr	++
33	Vital 4.2L <sup>V</sup> (Alude/Resyst) <sup>S</sup>	potassium phosphite (K salts of phosphorous acid)	Systemic (Systemic)	4 pt (1.25-2.5 qt) <sup>S</sup>	Spray (Vital) Drench (Vital)	4 hr 4 hr	++++ ++++
40	Stature SC	dimethomorph	Translaminar	12.15 fl oz	Spray	12 hr	++++
40	Micora (not registered in NY, CA)	mandipropamid	Translaminar	8 fl oz	Spray	4 hr	++++
40+45	Orvego (not registered in NY, CA)	dimethomorph+ametoctradin	Translaminar	11 fl oz	Spray	12 hr	++++
43	Adorn <sup>C</sup>	fluopicolide	Local systemic Translaminar/Systemic	2-4 fl oz 1 fl oz	Spray Drench	12 hr 12 hr	++++ <sup>T</sup> ++++ <sup>T</sup>

Efficacy ratings based on research trials conducted at Ball: + = poor (not recommended), ++ = fair, +++ = good, ++++ = very good, +++++ = excellent

<sup>C</sup> Trials were conducted with the addition of Capsil 6 fl oz/100 gal

<sup>T</sup> Fungicide must be tank mixed with another product effective against downy mildew

<sup>S</sup> Apply Alude or Resyst as foliar sprays, no trial data available.

(Not all commercially available products may be listed. The use of brand names or commercial products listed does not imply endorsement by Ball Horticultural Co. or discrimination against similar products not mentioned. This table is not intended as a substitute for the product label. Obtain current information about usage regulations before purchasing or applying any chemical.)

<sup>A</sup> CAUTION: higher rate may cause phytotoxicity on young plants

<sup>R</sup> CAUTION: Populations resistant to mefenoxam have been observed in Europe

<sup>V</sup> Vital no longer on market

LISTED PRODUCTS MAY NOT BE REGISTERED IN ALL STATES.

Jan 2013(v9)