

Rotation of grape fungicides for effective resistance management

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Infosheet

APRIL 2013

Planning your fungicide program is becoming more challenging with many products containing the same fungicide families and others containing more than one. The following tables provide guidance on which products should not be used in back-to-back applications in order to reduce the probability of resistance developing.

How to use these tables:

Within cells for each product, **bold underlined** diseases are labelled and *non-bold italic* diseases will have collateral control.

Beside each disease the relative activity of the product is listed:
+ = suppression; ++ = moderate control; +++ excellent control

Avoid using products in shaded cells in back-to-back sprays if at all possible. Rotate to a different chemical family for at least one spray. Do not exceed the maximum number of sprays for **that fungicide family**, regardless of the target organism. The most conservative and effective approach to resistance management is to apply no more than 2 from any fungicide family per year.

Be especially careful with products in which active ingredients from different families are coformulated.

A Pristine (Groups 7 & 11) spray for powdery mildew should not be followed by Flint or Sovran (Group 11) or Cantus or LunaTranquility (Group 7).

LunaTranquility (Groups 7 & 9) spray should not be followed by Cantus or Pristine (Group 7) for powdery mildew or Scala, Vanguard or Switch (Group 9) for botrytis bunch rot.

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Recommended powdery mildew fungicides:

	Flint (11)	Inspire (3)	Cantus (7)	Luna Tranquility (7+9)	Nova (3)	Milistop	Pristine (7+11)	Pure Spray Green (U)	Quintec (13)	Sovran (11)	Sulphurs (M)	Vivando (U8)
Flint (11)	<u>PM</u> +++ <i>DM</i> + <i>Bot</i> + <u>BR</u> +++ <i>Pho</i> +											
Inspire (3)		<u>PM</u> +++ <i>BR</i> +++ <i>Anth</i> +++										
Cantus (7)			<u>PM</u> +++ <i>Bot</i> +									
Luna Tranquility (7 + 9)				<u>PM</u> +++ <i>Bot</i> +++								
Nova (3)					<u>PM</u> +++ <i>BR</i> +++ <i>Anth</i> +++							
Milistop						<u>PM</u> ++ <i>Bot</i> +						
Pristine (7+11)							<u>PM</u> +++ <u>DM</u> +++ <i>BR</i> +++ <i>Bot</i> + <i>Phom</i> + <i>Anth</i> +++					
Pure Spray Green (U)								<u>PM</u> +++				
Quintec (13)									<u>PM</u> +++			
Sovran (11)										<u>PM</u> +++ <u>DM</u> ++ <i>BR</i> +++ <i>Bot</i> + <i>Pho</i> +		
Sulphurs (M) Lime Sulphur Kumulus Microscopic S Microthiol Dispers											<u>PM</u> +++ <i>Anth</i> +/++	
Vivando (U8)												<u>PM</u> +++

Do not use in consecutive sprays

Recommended downy mildew fungicides:

	Acrobat* (40)	Captan/ Maestro (M)	coppers (M)	Ferbam (M)	Folpan (M)	Gavel (M+22)	Manzate 200WP/ Penncozeb (M)	Phostrol (33)	Polyram (M)	Presidio* (43)	Pristine (7+11)	Revus (40)	Ridomil MZ (4+M)	Sovran (11)	Zapro (40+45)
Acrobat* (40)	DM +++	DM +++ BR + Pho ++ Anth ++	DM ++ PM + BR + Pho +	DM ++ BR +++ Pho +++ Anth ++	DM +++ BR + Pho +++ Anth ++	DM +++	DM +++ BR +++ Pho +++ Anth ++	DM +++	DM +++ BR +++ Pho +++ Anth ++	DM +++	DM +++ PM +++ BR +++ Pho + Anth +++	DM +++	DM +++	DM ++ PM +++ BR +++ Pho +	DM +++
Captan/ Maestro (M)															
coppers (M)															
Copper spray Guardsman Kocide															
Ferbam (M)															
Folpan (M)															
Gavel (M+22)															
Manzate 200WP/ Penncozeb (M)															
Phostrol (33)															
Polyram (M)															
Presidio* (43)															
Pristine (7+11)															
Revus (40)															
Ridomil MZ (4+M)															
Sovran (11)															
Zapro (40+45)															

Recommended botrytis fungicides:

	Elevate (17)	Luna Tranquility (7+9)	Rovral (2)	Scala (9)	Serenade (44)	Switch (9+12)	Vanguard (9)
Elevate (17)	<u>Bot</u> +++						
Luna Tranquility (7+9)		<u>Bot</u> +++ <u>PM</u> +++					
Rovral (2)			<u>Bot</u> +++				
Scala (9)				<u>Bot</u> +++			
Serenade (44)					<u>Bot</u> ++		
Switch (9+12)						<u>Bot</u> +++	
Vanguard (9)							<u>Bot</u> +++

Recommended black rot fungicides:

	Flint (11)	Inspire (3)	Manzate 200WP/ Penncozeb (M)	Nova (3)	Polyram (M)	Pristine (7+11)	Sovran (11)
Flint (11)	<u>BR</u> +++ <u>PM</u> +++ <i>DM</i> + <i>Bot</i> + <i>Pho</i> +						
Inspire (3)		<u>BR</u> +++ <u>PM</u> +++ <u>Anth</u> +++					
Manzate 200WP/ Penncozeb (M)			<i>BR</i> +++ <i>DM</i> +++ <i>Pho</i> +++ <i>Anth</i> ++				
Nova (3)				<u>BR</u> +++ <u>PM</u> +++ <u>Anth</u> +++			
Polyram (M)					<u>BR</u> +++ <u>DM</u> +++ <i>Pho</i> +++ <i>Anth</i> ++		
Pristine (7+11)						<u>BR</u> +++ <u>DM</u> +++ <u>PM</u> +++ <i>Bot</i> + <u>Anth</u> +++	
Sovran (11)							<u>BR</u> +++ <u>DM</u> ++ <u>PM</u> +++ <i>Bot</i> + <i>Pho</i> +