

Resistance management recommendations and proposals for Fungicides not included in current working groups as requested by manufacturers

Compound	Cyazofamid, Amisulbrom
GROUP NAME	Qil fungicides (Quinone inside Inhibitors)
FRAC MoA Code	21
TARGET SITE AND CODE	C4 - Quinone 'inside' (Qi) binding site of the cytochrome bc1 (ubiquinone reductase)
Uses	Oomycete diseases control in potatoes, grapevines, fruiting vegetables, leafy vegetables etc.
Resistance Status	<ul style="list-style-type: none"> • Specific resistance to these molecules detected in <i>Plasmopara viticola</i> which harbors the mutation of two amino acid residues, DE after the position of 203th E residue in cycb subunit in France. • Specific resistance to Qil fungicides unidentified in <i>Phytophthora infestans</i>. • Medium to high risk. • Resistance management required. • Active resistance monitoring program for <i>Plasmopara viticola</i> and <i>Phytophthora infestans</i>.
Resistance Mechanism	<ul style="list-style-type: none"> • Unknown
Recommendations	<p>Recommendations for grapevines</p> <ul style="list-style-type: none"> • Always apply Qil fungicides in mixture with effective partners such as multi-site or other non-cross resistant fungicides in high risk countries. • Apply Qil fungicides preferably in a preventive manner. • Apply a maximum of 50 % of the total number of intended applications for disease control not exceeding a total of 4 Qil fungicides sprays during one crop cycle. In areas of high resistance the total number should not exceed a maximum of 3 applications during one crop cycle. • Alternation with fungicides having other modes of action is recommended in spray programs. • Apply Qil fungicides according to manufacturers' instructions

	<p>Recommendations for potatoes</p> <ul style="list-style-type: none"> • Apply Qil fungicides preferably in a preventive manner. • Apply a maximum of 50 % of the total number of intended applications for late blight control during one crop cycle. • Alternation with fungicides having other modes of action is recommended in spray programs. • Apply Qil fungicides according to manufacturers' instructions.
Requested by / date	Ishihara Sangyo Kaisha LDT and Nissan Chemical Corporation, 10th of January 2019
FRAC SC approval / date	2 nd of May 2019