

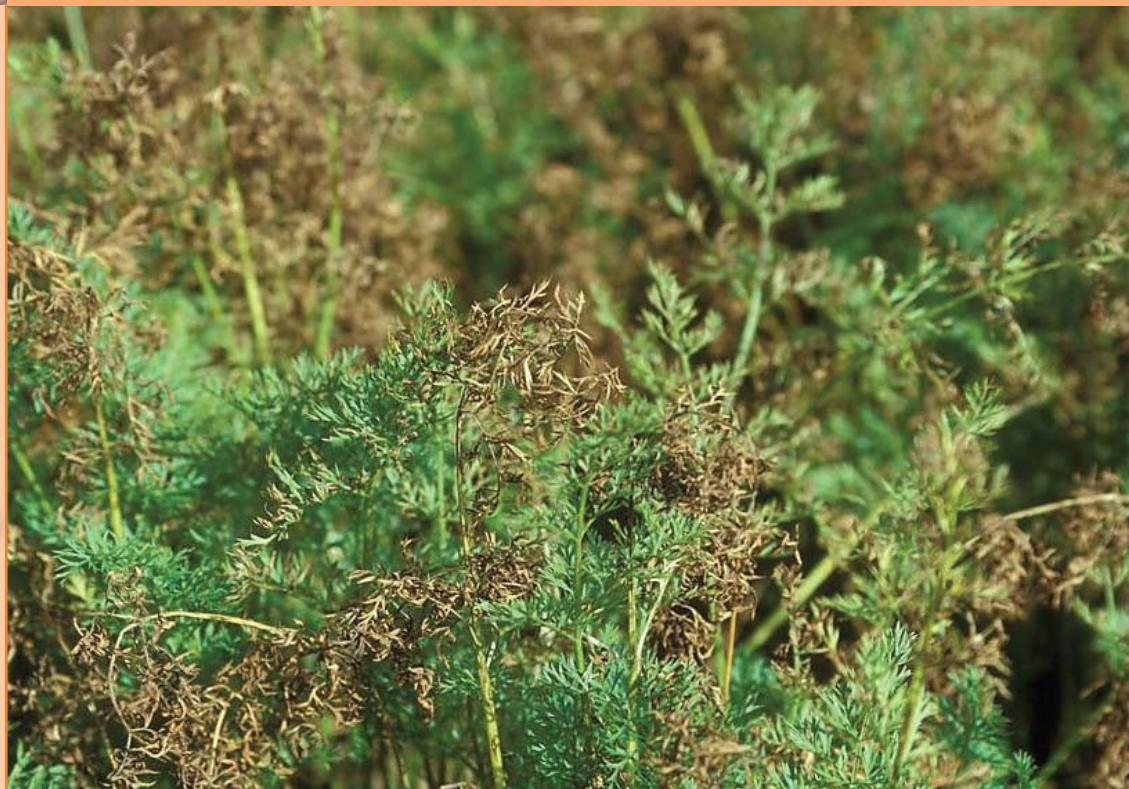
New chemistry for disease control in carrots

TECHNICAL UPDATE

October 2007

In Brief

- AMISTAR TOP has a mixed dual mode of action of strobilurin + triazole
- AMISTAR TOP gives excellent control of *Alternaria* and Powdery Mildew
- Start fungicide programmes with AMISTAR TOP at the onset of canopy development.
- **New for 2007**
The Syngenta vegetable nozzle for application to full canopy crops



Disease control in carrots

AMISTAR TOP is a new co-formulation of azoxystrobin and difenoconazole fungicides bringing a new triazole to the carrot crop. AMISTAR TOP delivers improved levels of control of the carrot foliar diseases *Alternaria* and Powdery Mildew. In addition, useful levels of activity on *Sclerotinia* and Leaf blight (*Cercospora carotae*) have been seen in trials.

- 1.0 l/ha of AMISTAR TOP delivers 200 g/ha azoxystrobin + 125 g/ha of difenoconazole.
- Powerful broad spectrum protectant and curative disease control.
- Label recommendation for *Alternaria* and Powdery Mildew.

Diseases of carrots



Alternaria (*Alternaria dauci*): *Alternaria* is an important foliar pathogen of carrots. It tends to develop on the older leaves, however earlier attacks have become more frequent and these are potentially more damaging. In NIAB fungicide trials treatments increased the marketable crop by an average of 10% over two years.



Sclerotinia (*Sclerotinia sclerotiorum*): This pathogen appears to be well established in Scotland, however attacks are increasingly common in England. Wet conditions favour spore release and development. For fungicides to be effective timing is critical, applications should aim to prevent the germination of the fungal ascospores.



Powdery Mildew (*Erysiphe polygoni*): Powdery Mildew attacks occur in hot dry conditions from July onwards. Severe infections cause yellowing and early senescence.



Leaf blight (*Cercospora carotae*): Although first identified in the UK in 2005, experts believe it could have been present for years, but misdiagnosed as *Alternaria* since symptoms are similar. Hot, moist conditions favour disease development. Leaf blight is the most significant carrot disease in the US and a major pathogen across Europe.

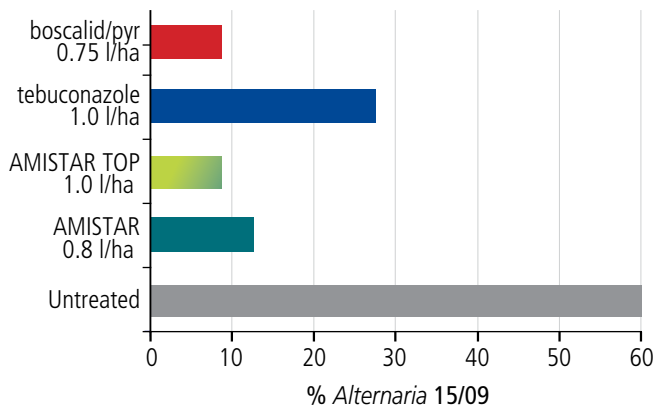
AMISTAR TOP – best use guidelines

- Start the fungicide programme with AMISTAR TOP at the onset of canopy development.
- Target the second application towards the end of the fungicide programme; this provides late disease protection together with extending the green leaf canopy.
- Alternate AMISTAR TOP with non-strobilurin fungicides.
- AMISTAR TOP and AMISTAR should not account for more than 50% of the total number of treatments in the programme.
- This strategy provides excellent disease protection together with a sound anti-resistance strategy.

Benefits of AMISTAR TOP

Syngenta trials have shown AMISTAR TOP consistently sets new standards for *Alternaria* control.

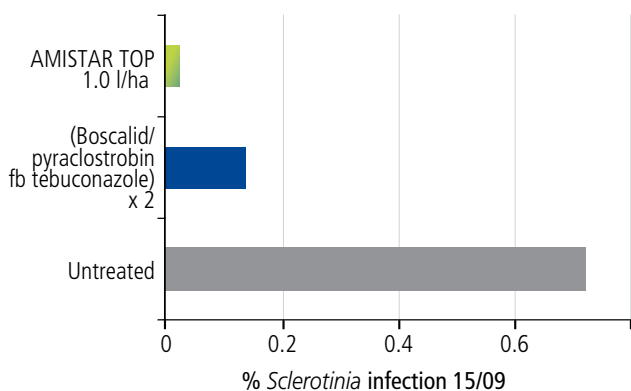
Alternaria Control Syngenta, Belgium 2005



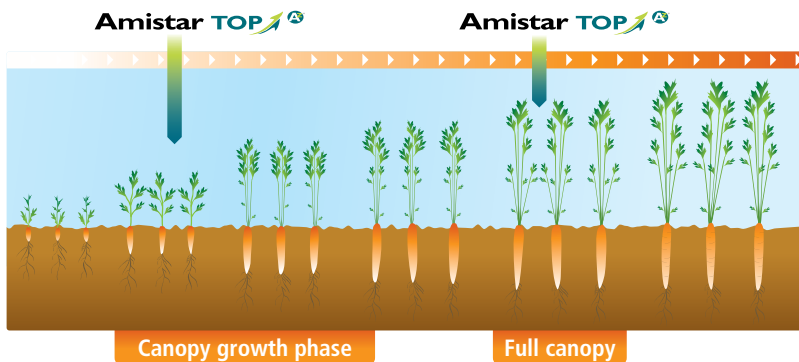
cv Tyne. Applic: 22/07, 10/08, 24/08, 14/09. LSD = 7.9

- 2006 Syngenta trial targeting *Alternaria* on the variety Tyne
- AMISTAR TOP reduced infection levels from over 60% of leaf area affected to just 8%
- AMISTAR TOP was the best treatment in the trial

Control of *Sclerotinia* HDC, Perthshire 2006



cv Nairobi. Applic: 14/07, 28/07, 11/08, 25/08. LSD = 0.28



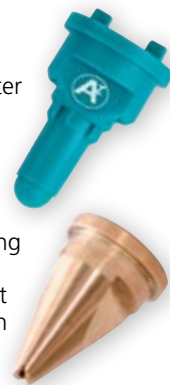
APPLICATION – best use advice

Early Season

Use flat fan or the AMISTAR air induction nozzle at a water volume of 100-200 l/ha. Increasing spray volumes above 200 l/ha reduces spray retention on the leaf. Angling the nozzles (e.g. through twin-caps) will give best results.

Full Canopy

For later fungicide applications, particularly when targeting *Sclerotinia* in the root crown, use the NEW Syngenta vegetable nozzle - with a vertical spray angle of 65°. Start with water volume of 200 l/ha and increase to 400 l/ha in denser crops. Avoid bubble jet and hollow cone nozzles for later application timing.



Agronomic tips

Sclerotinia: Recent HDC funded research indicates that initial applications of *Sclerotinia* active fungicides, like AMISTAR and AMISTAR TOP, are required prior to canopy closure for best control.

Product	Disease	Rate (l/ha)	Comments
AMISTAR TOP	<i>Alternaria</i> and Powdery Mildew	1.0	Max no. of treatments: 2 per crop Latest time of application: 14 days before harvest No LERAP
AMISTAR	<i>Alternaria</i> and Powdery Mildew	0.8-1.0	Max no. of treatments: 4 per crop Use in mixture, the partner fungicide having an alternate mode of action e.g. 0.5 l/ha tebuconazole Latest time of application: 10 days before harvest No LERAP

- *Sclerotinia* and leaf blight are not on the AMISTAR TOP label, however trials indicate useful activity