



Manuele Ricci

Courtesy of M. Loison

## Serenade®:

# A biological fungicide and bactericide for organic or zero residue crops

“Microbial product Serenade is successfully used against diseases alone or in tank mix or in program with conventional fungicides” said Manuele Ricci, from the USA based company AGRAQUEST, in his Barcelona lecture. The action of this biofungicide is based on damaging pathogen’s organs and stimulating natural plant defence, with many targets.

Serenade® is a new bio-fungicide and bio-bactericide that has been recently listed in annex 1 in Europe. It is based on *Bacillus Subtilis* strain QST713 naturally occurring bacteria, with a broad spectrum foliar fungi/bactericide effect and a unique novel mode of action. The product is now registered and sold in more than 30 countries by Agraquest or its appointed Distributors. It is exempted from residues and its favorable toxicological and ecotoxicological profile makes it a new tool in the hands of the farmers that intend to grow their crops with lower chemical inputs.

Its mode of action against the plant diseases is based on damaging the pathogen’s organs and stimulating the natural plant defenses. It shows its best potential when applied before the pathogen has built up its population. This happens early in the season or at the end of the cropping period, soon after a shrewd chemical program has been applied. Serenade, according to Ricci, shows its best features in a rotational program with chemicals: control the pathogen, reduce the risk of resistance and avoid the presence of the chemical residues on the harvested crops. It can be used in tank mix or rotation with lower rates of chemicals, and can synergize

with some classes of chemicals fungicides (e.g. Strobilurins, Triazols).

Serenade can contribute to residue management strategies: it leaves no residues in the crop and it is MRL exempt. Another advantage is a 0-D pre-harvest interval. The product allows a late or pre-harvest application.

### DISEASE CONTROL IN GRAPES AND VEGETABLES

Serenade performs for a broad spectrum disease control: Botrytis control in grapes and many diseases in vegetable crops. There is a large data base on vine & table grape botrytis control, after 4 commercial seasons from 2005 to 2008 in France and Italy. The aim was to compare conventional program to programs with substitution of Serenade in the last application or in the last two applications. In different French vineyards, this experiment was replicated for botrytis control. Results were very close for different programs. Other trials on vegetables show that Serenade can be used in “less-chem” programs. For cucurbit powdery mildew, integration of Serenade in programs was successful in reducing by chemical fungicide application by 50%.

In the UK, Serenade has been used in combination with new products and conventional chemistries on strawberries.

These programmes gave Serenade acceptable mildew and botrytis control. Residue screens, which had significant levels on conventionally treated crops (all within current EC MRL regulations), revealed no chemical residue on any of the non chemically treated sites.

### EQUAL PERFORMANCE ON MANY DISEASES

Compared to chemicals, Serenade gives equal performance on many diseases, as for instance botrytis and mildew. It appears to be an effective non-chemical option for disease control, with a broad spectrum against pathogens and a tool for resistance management. Serenade flexibility is also excellent, allowing tank mix and rotation with protectants/ systemics in programs. It is not toxic to non-target organisms, safe to beneficials, safe to workers and environment. The product has been in the American market and some other markets for quite some time. It must now prove itself in a number of new promising European markets! ■