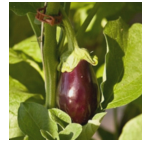




BioWorks®
How You Grow Matters™



CEASE® for Disease Management in Greenhouse Grown Vegetables

By Paul J. Walgenbach, Ph.D - AgraQuest, Inc.

CEASE® is a biofungicide that is effective for the management of foliar and soil borne pathogens. CEASE contains resting spores of *Bacillus subtilis* (strain QST 713) and secondary metabolites with fungicidal and bactericidal activity. CEASE is not a curative but is used in a preventive disease management program. CEASE has both foliar and soil activity, providing a broad array of uses.

Foliar Applications

For maximum effectiveness apply soon after emergence or transplant and when conditions are conducive for disease development before the onset of symptoms. CEASE application rates are 1- 2 gallons/100 gallons of spray solution. In most instances 1 gal/100 gallons will provide adequate control on a 7-10 day schedule with thorough spray coverage. Under conditions of severe disease use the shorter interval and tank-mix or rotate with other registered fungicides.

CEASE can be used to manage many common fungal diseases as Anthracnose (*Colletotrichum* spp.), Gray mold (*Botrytis cinerea*) and Powdery mildew (various spp.). It is effective on bacterial diseases caused by *Xanthomonas* and *Pseudomonas*. It is best employed in an integrated program alternating with other registered biological or synthetic based fungicides. In particular, bacterial diseases are controlled best when used in a program with copper-based products or potassium bicarbonate such as MilStop®. CEASE can be tank-mixed with a wide range of other pesticides or fertilizers. It has a high level of safety to plants.

Soil Applications

CEASE has its origins as a soil borne bacteria. Thus its origins provide additional properties when employed as soil drench to greenhouse vegetables. Unlike foliar applications, Cease will colonize the roots of plants as they grow and produce the same fungicidal and bactericidal products present in a jug of CEASE. This colonization referred to as a biofilm, provides a zone of protection, reducing the incidence of common soil diseases caused by species of *Pythium*, *Phytophthora*, *Rhizoctonia* and *Fusarium*.

CEASE should be applied as soil drench at or right after seeding or transplanting vegetables. To maintain optimal performance repeat the drench every 21 – 28 days. Use 1 – 2 gallons of CEASE per 100 gallons of drench mix (or 1% - 2% solutions). In most instances 1 gallon per/100 gallons will provide adequate control. If severe conditions are anticipated use the 2% rate. CEASE is compatible with a wide range of nutrients. It is not known to interfere with mycorrhizal organisms. It has a high level of safety to plants.

To find out more about the BioWorks family of products, please contact us at 800-877-9443 or visit www.bioworksinc.com. © 2010 BioWorks, Inc.

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