



Evaluation Report for Category C, Subcategory C.3.1 and C.3.11 Application

Application Number: 2007-3730
Application: New or Changes to Product Labels- Application for Rate Decrease and New Pests
Product: Serenade MAX
Registration Number: 28549
Active ingredients (a.i.): *Bacillus subtilis* QST 713
PMRA Document Number: 1515021

Background

Serenade MAX was first conditionally registered in April 23, 2007. It is currently registered to suppress diseases on asparagus, bushberries and caneberries, cole crops, legume vegetables (except soybean), bulb vegetables, cucurbit crops, fruiting vegetables, grapes, lettuce, celery, pome fruits and strawberry. For specific details of uses, application rates and methods, precautions, restrictions, and personal protective equipment requirements, refer to the respective product label.

Purpose of Application

The purpose of this application is to amend the current Serenade MAX label to reduce the rate for the suppression of fire blight on pome fruits from 3.0-6.0 kg/ha to 2.0-4.0 kg/ha and to add the suppression of mummy berry on lowbush and highbush blueberries at 3.5-6.0 kg/ha.

Chemistry, Health and Environmental Assessments

A chemistry assessment was not required since there was no change to product chemistry. A health and environmental assessment was not required since the use pattern remain unchanged.

Value Assessment

Five apple trials conducted in the US from 2002-2005 were submitted by the applicant to support the claim on rate reduction for the suppression of fire blight on pome fruits from 3.0-6.0 kg/ha to 2.0-4.0 kg/ha. An additional seven apple trials from the United States obtained from F&N Tests as well as data provided in a previous submission were also considered. Considering that there was inconsistency in disease suppression at 2.2 kg/ha but not at 2.4 kg/ha, a rate of 2.5 kg/ha is supported for fire blight suppression when applied under conditions of low disease pressure. The proposed higher rate of 4 kg/ha is not supported since previously submitted data suggests that using 6 kg/ha results in a higher level of suppression which will be useful under high disease pressure. Therefore, a rate of 2.5-6 kg/ha is supported for fire blight suppression for pome fruits.

Four trials conducted in the United States from 2002-2005 were submitted to support the addition of mummy berry on blueberries to the Serenade MAX label. Only the trials on highbush blueberries (3) were considered since rabbit eye blueberry (1 trial) is native to the southern US and is not commercially grown in Canada. An additional trial from F&N Tests was considered. The results show that mummy berry was suppressed when 6.2 kg/ha Serenade MAX was applied 4-8 times. Data from a single trial which tested 3.4 kg/ha Serenade MAX was not statistically valid. No phytotoxic effects on blueberry were observed. Therefore, the claim of suppression of mummy berry on highbush and lowbush blueberries is supported at 6.0 kg/ha Serenade MAX. Label amendments are required.

Conclusion

The PMRA has completed an evaluation of the subject application and has found the information sufficient to amend the registration of Serenade MAX to include the use on blueberry to suppress mummy berry and reduce the rate for suppression of fire blight on pome fruits from 3.0-6.0 kg/ha to 2.5-6.0 kg/ha.

References

Information Provided by the Applicant

Published Reports

- PMRA Document No. 1417845. Yoder, K.S, Cochran II, A.E., Royston Jr., W.S., Kilmer, S.W. 2002. Fire Blight Blossom Treatments on Golden Delicious and Rome Beauty Apples, Trial No. 20526, DACO 10.2.2, Virginia Tech Ag. Research & Extension Center. F&N Tests Vol 58:PF025.
- PMRA Document No. 1417846. Travis, J.W., Hickey, K.D., Halbrendt, N.O. 2002. Fire Blight Blossom Blight Incidence on Rome Beauty Apple Treated with Bactericides, Trial No. 20540, DACO 10.2.2, PSU Fruit Research and Extension Center. F&N Tests Vol 58:PF018.
- PMRA Document No. 1417847. Aldwinckle, H.S., Penev, R.P. 2003. Field Evaluation of Materials for Control of Fire Blight Infection of Apple Blossoms, Trial No. 30526, DACO 10.2.2. Department of Plant Pathology, NYSAES, Cornell University
- PMRA Document No. 1417848. Yoder, K.S., Cochran II, A.E., Royston Jr., W.S., Kilmer, S.W. 2003. Evaluation of Fire Blight Blossom Treatments on golden Delicious and Rome Beauty Apples, Trial No. 30528, DACO 10.2.2. Virginia Tech Agricultural Research & Extension Center
- PMRA Document No. 1417850. Schilder, A.M.C., Gillett, J.M., Sysak, R.W. 2002. Evaluation of Fungicides for Control of Mummy Berry in Blueberries, Trial No. 20578, DACO 10.2.2. Department of Plant Pathology, Michigan State University
- PMRA Document No. 1417851. Schilder, A.M.C., Gillett, J.M., Sysak, R.W. 2003. Evaluation of Fungicides for Control of Mummy Berry in Blueberries, Trial No. 30578, DACO 10.2.2. Department of Plant Pathology, Michigan State University. F&N Tests Vol 59:SMF023.
- PMRA Document No. 1417852. Stanaland, R.D., Brannen, P.M., Scherm, H. 2004. Fungicidal Control of Mummy Berry Disease of Blueberry, Trial No. 40486, DACO 10.2.2. Bacon County Cooperative Extension Service. F&N Tests Vol 60:SMF031.
- PMRA Document No. 1417853. Schilder, A.M.C., Gillett, J.M., Sysak, R.W. 2005. Evaluation of Fungicides for Control of Mummy Berry in Rubel Blueberries, Trial No. 50558, DACO 10.2.2. Department of Plant Pathology Michigan State University. F&N Tests Vol 61:SMF023.

Unpublished Report

- PMRA Document No. 1417849. Demonstrate the Effect of Serenade (*Bacillus subtilis*, strain 0713) on Control of Fire Blight (*Erwinia amylovora*) and its Utilization within an IPM Program in the State of Washington. 2005. Trial No. 50103, DACO 10.2.2. WSU Extension, North Central Washington, Wenatchee, WA.6 pp.
- PMRA Document No. 1417844. AgraQuest Inc. 2007. Serenade MAX:Suppression of Mummy Berry on Blueberry and Decreased Application Rate for Suppression of Fire Blight on Apples, DACO 10.1, 10.2, 10.3, 10.4

PMRA Document No. 1512183. Evaluation of Serenade WP for Control of Fire Blight in Apple and Pear. 2005. Trial reports 10.2.2 (14)- 10.2.2 (21). DACO 10.2.2. AgraQuest Inc. Pp. 131-232.

Additional Information

Published Report

PMRA Document No. 1495311. Schilder, A.M.C., Gillett, J.M., Sysak, R.W. 2000. Evaluation of Fungicides for Control of Mummy Berry in Blueberries, Trial No. SMF6, DACO 10.2.2. Department of Plant Pathology Michigan State University. F&N Tests 56:SMF6.

PMRA Document No. 1514214. Penev, R.P. and H.S. Aldwinckle. 2002. Field Evaluation of Materials for Control of Fire Blight Infection of Apple Blossoms, Trial No. 58:PF004, DACO 10.2.2. Department of Plant Pathology, Cornell University. F&N Tests 58:PF004.

PMRA Document No. 1514221. Sundin, G.W., G.R Ehret, and G.C. McGhee. 2005. Biological Control of Fire Blight on Jonathan and Golden Delicious Apple, Trial No. 61:PF0009, DACO 10.2.2. Department of Plant Pathology, Michigan State University. F&N Tests 61:PF0009.

PMRA Document No. 1514217. Sundin, G.W., G.R Ehret, and G.C. McGhee. 2005. Fire Blight Control on Gala Apple, Trial No. 61:PF0008, DACO 10.2.2. Department of Plant Pathology, Michigan State University. F&N Tests 61:PF0008.

PMRA Document No. 1514213. H.S. Aldwinckle, H.L. Gustafson, G.Heidenreich, R.P Penev, and LoGiudice,N. 2001. Field Evaluation of Materials for Control of Fire Blight Infection of Apple Blossoms, Trial No. 57:PF01, DACO 10.2.2. Department of Plant Pathology, Cornell University. F&N Tests 57:PF01.

PMRA Document No. 1514202. Bhaskara Reddy, M.V., Norelli, J.L., and H.S. Aldwinckle. 2000. Biologicals, SAR Inducers, copper compounds and other chemicals for blossom blight control on apple. Trial No. 56:PF34, DACO 10.2.2. NYSAES, Cornell University. F&N Tests 56:PF34.

PMRA Document No. 1514208. Yoder, K.S., R.E.Byers, A.E. Cochran II, A. DeMarsay, W.S. Royston, Jr., and S.W. Kilmer. 2000. Evaluation of bloom treatments on Golden Delicious and Rome Beauty apples. Trial No. 56:PF36, DACO 10.2.2. Virginia Technology and Agricultural Research and Extension Center, Winchester, VA, F&N Tests 56:PF36.

PMRA Document No. 1514226. Werner, N.A., G.E. Heidenreich, and H.S. Aldwinckle. 2005. Field evaluation of biological and chemical control of fire blight of apple. Trial No. 61:PF020, DACO 10.2.2. NYSAES, Cornell University. F&N Tests 61:PF020.

ISSN: 1911-8082

© Her Majesty the Queen in Right of Canada, represented by the Minister of Public Works and Government Services
Canada 2006

All rights reserved. No part of this information (publication or product) may be reproduced or transmitted in any form or by any means, electronic, mechanical photocopying, recording or otherwise, or stored in a retrieval system, without prior written permission of the Minister of Public Works and Government Services Canada, Ottawa, Ontario K1A 0S5.