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104. *Phytophthora ramorum*: what is the risk for eastern Canada? Rioux, D., Callan, B., McKenney, D., Simard, M., Briere, S. C., and Watson, A. K. Phytopathology 97(7)Suppl:S179. 2007.

disease in storages. A study was undertaken during the 2005 storage season to evaluate the effectiveness of Phostrol, Agclor 310, Oxidate, and ProPhyt in reducing the tuber-to-tuber spread of these two pathogens. 'Shepody' potato tubers were individually abraded and inoculated with either *P. infestans* or *P. erythroseptica*. Treatments were applied 1 hour and 3 hours after inoculation, typical of periods between commercial harvesting and treatment at bin filling. All materials were applied at standard rates in a solution of 64 ounces per ton of potatoes. Tubers were placed into a 55 degree Fahrenheit storage in a randomized complete block design, individually peeled and evaluated for disease after three weeks. Oxidate and Agclor 310 were ineffective in controlling either pathogen. The phosphorous acid materials Phostrol and ProPhyt provided excellent control. Under some conditions, the use of phosphorous materials may be warranted.

Development of scab on peach and nectarine fruit: Effect of fruit age and inoculum concentration. N. LALANCETTE and K. A. McFarland. Rutgers University, AREC, Bridgeton, NJ. Phytopathology 97:S179.

The susceptibility of 'Redhaven' peach and 'Redgold' nectarine fruit of different ages to scab caused by *Fusicladosporium carpophilum* was examined during 2006. Fruit on container-grown trees were inoculated with conidia and incubated for 24 h in a growth chamber at 25C and >95% RH. The experimental design was a 2 × 3 × 3 factorial with two cultivars, three inoculation times (22, 36, and 50 d after shuck-split), and three inoculum concentrations (10^3, 10^4, and 10^5 conidia/ml). At each inoculation, fruit length, width, and thickness were recorded. The number of lesions per fruit was assessed during the 35–77 day period following inoculation. Statistical comparison of mean lesion densities across both cultivars and all inoculum concentrations indicated that middle-aged and older fruit were more susceptible than young fruit. In addition, 'Redgold' fruit were more susceptible than 'Redhaven' fruit and inoculum concentration was directly proportional to disease severity. Results suggest that fruit growth and development may play an important role in the progression of scab epidemics on stone fruit crops.

Characteristics of *Meloidogyne spartinae* infection of the salt marsh grass *Spartina alterniflora*. J. A. LAMONDIA and W. H. Elmer. The Connecticut Agricultural Experiment Station, Windsor, CT 06095. Phytopathology 97:S179.

Spartina alterniflora plants from declining saltwater marshes were sampled in 2006 at the Cape Cod National Seashore in Wellfleet, Massachusetts and Hammonassett State Park in Madison, Connecticut. We observed that declining plants and adjacent apparently healthy plants were infected by the root-knot nematode *Meloidogyne spartinae*. Females, males, juveniles and eggs of *M. spartinae* were visible inside roots stained with acid fuschin. They were also dissected from swollen terminal galls at the root apex and from pockets present in the root cortex without swelling. The circular to ovoid terminal galls typically stopped root elongation, thereby limiting root growth. Several characteristics of *M. spartinae* root infection differ from root infection of plants by other common root-knot species. For example, females were oriented with heads toward the root tip in terminal galls, while females in the root cortex were randomly oriented. No egg masses were observed and eggs were free inside the gall or root cortex. The role of *M. spartinae* in the sudden wetland dieback phenomenon is currently under investigation.

SSCP in Ramorum blight survey diagnostics. R. E. MARRA, S. M. Douglas, and J. Corwin. Department of Plant Pathology & Ecology, Connecticut Agricultural Experiment Station, New Haven, CT 06511. Phytopathology 97:S179.

A single-strand conformation polymorphism (SSCP) procedure, based on the *Phytophthora* ITS, has been reported to reliably distinguish among *Phytophthora* species, including *P. ramorum*. Although this procedure is currently not part of USDA-APHIS-PPQ protocols for detecting *P. ramorum*, it has potential as a robust complement to the nested PCR and real-time PCR procedures that are part of the official protocols. Among these three procedures, only SSCP unambiguously distinguishes *P. ramorum* from sister species *P. hibernalis* and *P. lateralis*, both of which can produce false positives in nested and real-time PCR. We show here the utility of the SSCP-ITS procedure for identifying *P. ramorum* in mixed cultures of multiple *Phytophthora* species. Because mixed *Phytophthora* cultures are commonly encountered following soil and water sampling protocols for delimitation surveys of *P. ramorum*-positive nurseries, our SSCP procedure has the potential to streamline the process of identifying *P. ramorum* in these mixed cultures. This would expedite the time required to release a nursery from mandated quarantine restrictions.

Assessing ambient ozone impact on plant productivity in NY with snap bean genotypes differing in sensitivity. M. T. MCGRATH and J. F. Davey. Dept. Plant Pathology, Cornell University, Riverhead, NY 11901. Phytopathology 97:S179.

Ozone-sensitive (S156) and -tolerant (R331) bean genotypes were field-seeded thrice (May, June, and July) in 2004, 2005, and 2006. They yielded similarly when ozone concentration was low and little injury occurred. But during most of the 9 production periods ozone reached sufficiently high levels that leaves of S156 became severely injured, developed characteristic brown flecking, and then senesced prematurely. Yield was affected. Total weight of pods harvested for fresh-market consumption in 2005 was 17%, 49% and 56% lower for S156 than R331 for plants seeded on 17 May, 17 June, and 13 July, respectively. Total number of bean pods harvested was 14%, 39% and 46% lower. Another set of plants was harvested at pod maturity to assess biological yield. Dry weight of mature pods was 43%, 44%, and 64% lower. Average seed weight was 17%, 24%, and 22% lower [illegible] until final harvest for these 3 plantings [illegible] (accumulated exposure over the threshold of 40 ppb) during daytime (7 a.m. to 7 p.m.) was 9501, 10451, and 9563 ppb/h, respectively. Crops are negatively impacted when AOT40 values exceed 3000.

***Phytophthora ramorum*: What is the risk for Eastern Canada?** D. RIOUX (1), B. Callan (2), D. McKenney (3), M. Simard (1), S. C. Brière (4), and A. K. Watson (5). (1) NRCan, CFS, Laurentian Forestry Centre, Quebec, QC G1V 4C7; (2) NRCan, CFS, Pacific Forestry Centre, Victoria, BC V8Z 1M5; (3) NRCan, CFS, Great Lakes Forestry Centre, Sault Ste. Marie, ON, Canada P6A 2E5; (4) Canadian Food Inspection Agency, Ottawa, ON K2H 8P9; (5) Dept. Plant Science, McGill University, Ste-Anne-de-Bellevue QC H9X 3V9. Phytopathology 97:S179.

Phytophthora ramorum (Pr) is the causal agent of a disease known as sudden oak death. By request of the Canadian Food Inspection Agency, an updated version of the risk assessment for Pr was produced in May 2006. While the "likelihood of introduction" was estimated to be "high" across Canada, the risk associated with the "consequences of this introduction" was rated "high" for British Columbia and "medium" for Eastern Canada. The global risk would be "high" for British Columbia and "medium" for Eastern Canada. The level of uncertainty of this assessment was rated "medium" and to lower it, research needs were also identified, including determining the potential of Pr to infect different plant species common in Eastern Canada. Preliminary results related to the capacity of Pr to infect and sporulate on seedlings of six tree species are presented.

Relevance to the binary power law of probability distribution choice for estimating the theoretical variance of a random pattern. D. A. SHAH and H. R. Dillard. Dept. of Plant Pathology, NYSAES, Geneva, NY 14456. Phytopathology 97:S179.

Within a cluster sampling framework, the binary power law (BPL) is a convenient, empirical description of the relationship between observed and theoretical variances of the number of infecteds (X) per sampling unit of size n. Fitted parameter values convey information on the extent and variation in aggregation of infecteds at the sampling unit scale. Previous study of the BPL assumed a binomial distribution with constant n for estimating the theoretical variance of X (var$X$) when infecteds are randomly dispersed. When n is itself variable, the simple Binomial Model may lead to inaccurate estimates of var$X$. We demonstrate a 'truncated above' Poisson-Binomial mixture distribution (taPB) for estimating var$X$, applied to the number of rust-infected leaves per sweet corn plant (X), where the number of leaves per plant (n) followed some level of Poisson rescaling. var$X$ calculated from the Binomial distribution was lower than that estimated from the taPB distribution in 52 of 60 data sets. BPL goodness of fit, parameter values and their interpretation were all affected by choice of probability model for var$X$.

Effect of fungicide chemistry and cultivar on the development of cucurbit powdery mildew in pumpkin in New Jersey. A. WYENANDT and N. Maxwell. Rutgers University, ARDC, Bridgeton, NJ. Phytopathology 97:S179.

Strobilurin (azoxystrobin, FRAC group 11) and triazole (myclobutanil, FRAC group 3) fungicides were evaluated for fungicide resistance development in cucurbit powdery mildew in 2005. Five fungicide application programs were applied every 7 to 10 days season-long: i) mancozeb + sulfur alternated with maneb + copper hydroxide (protectant fungicides only), ii) chlorothalonil + myclobutanil alternated with azoxystrobin, iii) myclobutanil + maneb alternated with famoxadone + cymoxanil, iv) chlorothalonil + myclobutanil alternated with myclobutanil, and v) chlorothanolil + azoxystrobin alternated with azoxystrobin. The area under the disease progress curve (AUDPC) for treatments that included weekly applications of azoxystrobin was 1067.0 ('Howden') and 1245.0 ('Magic Lantern') compared to 625.6 ('Howden') and 489.2 ('Magic Lantern') for azoxystrobin treatments alternated weekly with myclobutanil. AUDPC values were lowest in both cultivars when treatments included weekly applications of myclobutanil.