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## QUADRIS CLEARED FOR USE BY NORTH CAROLINA STRAWBERRY GROWERS FOR ANTHRACNOSE CONTROL

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During the last week we have visited numerous fields and obtained additional samples through the Plant Disease and Insect Clinic that had anthracnose fruit rot. Earlier in April, it appeared that the incidence of anthracnose would be low and we worked directly with affected farms to determine the best course of action using available management strategies and registered products. Integrated management strategies were outlined last week in a note [[http://ipmwww.ncsu.edu/current\\_ipm/01PestNews/01News2/fruitveg.html](http://ipmwww.ncsu.edu/current_ipm/01PestNews/01News2/fruitveg.html)]. However, with the sudden occurrence of numerous farms reporting problems, there was considerable concern of widespread incidence. We have isolated *Colletotrichum acutatum* from infected plants, an aggressive pathogen not controlled satisfactorily with current options available to strawberry producers. Please see last week's note ([http://ipmwww.ncsu.edu/current\\_ipm/01PestNews/01News2/fruitveg.html](http://ipmwww.ncsu.edu/current_ipm/01PestNews/01News2/fruitveg.html)) that also differentiates anthracnose from *Alternaria* fruit rot. We have encountered substantial crown rot due to the *C. acutatum* strain, an unusual event. This phase is difficult to differentiate from *Phytophthora* crown rot (see pictures in last week's note). Send samples to the clinic for a sure diagnosis since it would be unproductive to use fungicides in situations where it is not warranted.

Due to the incidence of anthracnose in the state, North Carolina Department of Agriculture (through the Pesticide Section's Registration, Licensing and Information Unit) issued a crisis exemption for the use of Quadris Flowable, based on the recommendation of the North Carolina State University strawberry plant pathology specialist. We thank Meg Scott Phipps for her support in this matter and for the capable assistance of Lee Davis in the NCDA - Pesticide Section. The package submitted by the Department of Plant Pathology was acted upon within 7 hours.

I requested that a general press release not be prepared since our growers are currently in full production. Therefore, we request that Cooperative Extension Agents, NCDA field personnel, and other farm advisors ensure all interested farm clientele become aware of this action.

Quadris is a protectant fungicide and should be applied prior to or in the early stages of disease development. Applications may be made by ground only. Use sufficient water volume for adequate coverage (a minimum of 20 gallons of water is recommended). Apply QUADRIS at 7 to 14 day intervals at 6.2 to 12.4 fl. oz./A. Applications can be made up to day of harvest. Use the higher rate when conditions for disease epidemics are severe. No more than 3 sequential applications of Quadris should be made before alternating with fungicides that have a different mode of action. Do not alternate or tank mix with fungicides to which resistance has developed in the pathogen population. (Quadris is extremely phytotoxic to certain apple varieties; extreme care must be used to prevent injury to apple trees.). Do not apply more than 4.6 pints of product per acre per crop (1.2 lbs ai/A).

Based on research conducted by North Carolina State University personnel, Quadris tank-mixed with Captan has provided the best control of the anthracnose fruit rot stage. A full report (Pest Control Technology For the Control of Anthracnose and Botrytis in Strawberry) of research trials has been posted at the following address through the Southern Region Small Fruit Center (<http://www.smallfruits.org/Pestinfo/pestinf.htm>). This site will be good to review to learn about Quadris efficacy against anthracnose.

Quadris does not cure infected plants nor is it completely effective at preventing fruit rot. In fungicide trials Quadris has been found to reduce anthracnose fruit rot by about 60% once an epidemic starts. It should

function as a helpful tool for growers who adopt an IPM program. Therefore, growers need to implement complementary disease management strategies. If anthracnose fruit rot occurs in a hot spot, the infected plants should be pulled immediately, placed in a bag or container, and removed from the field. Growers should also consider removing plants from rows immediately adjacent to the infected area. In cases where growers desire reduced fungicide usage, Quadris could be applied to plants surrounding such hotspots (e.g. 3-4 beds beyond the infected area). We have had good success to contain the problem using this strategy. However, the anthracnose pathogen can infect plants without showing symptoms until warm and wet weather occurs resulting in widespread fruit rot. A reduced risk recommendation, which requires more fungicide use, is to use Quadris or Quadris tank-mixed with Captan, applied as a general field application. Remove infected fruit from the field when practical to limit the build-up of spores. NEVER move from an infected area to a non-infected area without washing and changing cloths, especially if plants are wet. Such movement will lead to spread of the disease. I would also suggest that growers with know anthracnose problems apply Quadris before predicted rain events if it has not been applied in the last 7 days.

Quadris should not be used indiscriminately. Most growers in North Carolina have no or low risk of anthracnose and Quadris is not needed in such cases. Quadris has a specific mode of action and improper use will make the fungicide ineffective for the control of anthracnose if the problem pathogens acquire resistance. Resistance management is an essential component of using Quadris.

For rates and use patterns see the detailed specifications outlined above.

This information can also be accessed at: [http://ipmwww.ncsu.edu/current\\_ipm/pest\\_news.html](http://ipmwww.ncsu.edu/current_ipm/pest_news.html)

For more information, contact your local North Carolina Cooperative Extension Service office or Dr. Frank Louws at 919-515-6689.

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