



University of Venda

Assessment of the effect of fungicides on powdery mildew development on  
butternut squash

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## ABSTRACT

Most of the butternut crop at the agricultural experimental farm at the University of Venda during the summer 2010 had powdery mildew. Powdery mildew on butternut squash is caused by two plant pathogenic fungi: *Sphaerotheca fuliginea* and *Erysiphe cichoracearum*. The aims of this study were to assess powdery mildew epidemiology and to determine the effect of different fungicides from different fungicide groups on powdery mildew epidemiology on Waltham butternut squash (*Cucurbita moschata*) under field conditions. Molecular studies were used to confirm the identity of the pathogen that was causing powdery mildew. The molecular marker used was KAPA universal ladder. Disease epidemiology in the field was assessed by measuring disease incidence and disease severity using published methods. The experimental design used was Randomized Complete Block Design (RCBD) with four treatments (replicated four times), consisting of a control and three fungicide treatments (benomyl, mancozeb and copper oxychloride). Disease severity and disease incidence were assessed every week after powdery mildew symptoms were noticed. For disease severity, the control had the highest severity scores (11) followed by mancozeb (9), while severity scores for benomyl and copper oxychloride did not differ significantly from each other with the score of 8. For disease incidence, the control, mancozeb and copper oxychloride showed the highest mean percentage of infected plants (100%, 95% and 72% respectively) while benomyl had the lowest mean percentage of infected plants (70%). Mean fruit weight for butternut from plots treated with benomyl was the highest (5 kg) while the control had the lowest weight (2 kg). There were no significant differences between mean fruit weight of benomyl, mancozeb and copper oxychloride. The pathogen causing powdery mildew at the University farm seems to be tolerant to benomyl, mancozeb and copper oxychloride. The molecular studies showed that powdery mildew at the University farm seemed to be caused by a mixture of fungal strains that were yet to be identified.

*Keywords:* Butternut squash, disease incidence, disease severity, epidemiology, *Erysiphe cichoracearum*, powdery mildew, *Sphaerotheca fuliginea*.