

Title Onion seed treatment and coating technologies
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Abstract

Seed treatments have many applications in agriculture and this trend is growing, as seeds are the carrier or delivery system for materials required to protect them at time of sowing. Coating technologies are needed for uniform application, and film coating is one technology that results in a uniform deposition of a thin film on the seed surface and reduces worker exposure to seed treatments. Our lab specializes in film-coating seed treatments for horticultural crop seeds. Case studies are presented on onion seed treatment efficacy in controlling a soil-borne disease, onion smut, caused by the pathogen *Urocystis colchici*, formerly known as *Urocystis cepulae*, and a soil insect, onion maggot, *Delia antiqua*. The seed treatment fungicide, tebuconazole, reduced the incidence of onion smut by 90 to 98%. This level of control was comparable to the industry standard, which is a combination of two seed treatment fungicides [thiram + carboxin] + an in-furrow application of maneb. The insecticide seed treatments, fipronil, spinosad and clothianidin reduced onion maggot damage by 76 to 97%. These new products provided similar or better control of onion maggot compared with the industry standards, cyromazine seed treatment or an in-furrow drench of chlorpyrifos. These insecticides were not injurious to seed germination.