10.5 Evaluation of fungal isolates for their potential as biological control agents for cogongrass [*Imperata cylindrica* (L.) Beauv.]. Camilla B Yandoc*, S. Chandramohan, R. Charudattan and D.G. Shilling. University of Florida, Gainesville

Eleven fungal isolates from various grassy weeds species were tested in the greenhouse for their pathogenicity to cogongrass. Fungal spores or mycelial fragments were applied inundatively on 3- to 5-wk-old cogongrass plants in pots. Spores were suspended in 1% gelatin solution or in a 0.5 % Metamucil® suspension and applied at the rate of 10^4 to 10^6 spores/ml with a hand sprayer. Mycelial fragments of nonsporulating cultures, prepared by blending liquid-culture-grown mycelia, were suspended in 0.5 % Metamucil (1 g mycelia/ml) and applied onto leaves with a sterile paintbrush. Inoculated plants and appropriate controls were incubated in a dark dew chamber for 24 h at 28 ± 1 C. The test plants were then kept in a greenhouse and disease severity was assessed 7 days after inoculation. A pictorial disease assessment key with 50% as the maximum value was used. The pathogenicity tests were done at least twice and diseased tissues were routinely collected and plated on PDA medium to reisolate the causal organism and fulfill the Koch's postulates. The various isolates caused infections resulting in mere speckling of the leaves to leaf blights. Two fungal isolates, *Exserohilum longirostratum* (Subramanian) Sivanesan from crowfootgrass [*Dactyloctenium aegyptium* (L.) Willd.] and *Exserohilum rostratum* (Drechs.) K.J. Leonard & E.G. Suggs from johnsongrass [*Sorghum halapense* (L.) Pers.], caused leaf spots and leaf lesions. Disease severity on cogongrass treated with 10^5 spores/ml of *E. longirostratum* was 10%. Plants treated with 10^4 spores/ml of *E. rostratum* had 5% disease severity. Disease severity in plants treated with a *Drechslera* sp. from cogongrass and *Drechslera gigantea* (Heald & F.A. Wolf) Ito from crabgrass [*Digitaria sanguinalis* (L.) Scop.] ranged from 30-40% and the symptoms consisted of discrete and coalescent leaf lesions and leaf blights. These isolates are currently being tested for their efficacy in greenhouse and miniplot trials.

10.6 Susceptibility of purple nutsedge (*Cyperus rotundus*) accessions to *Dactylaria higginsii* (Lutrell) M.B. Ellis. Welington Pereira*, EMBRAPA – CNPH, Brasília, DF, Brazil, F.O.C. Machado, Universidade de Brasília, Brasília, DF, Brazil, R. Charudattan and J. Kadir, University of Florida, Gainesville.

The ability to distinguish biotypes of purple nutsedge may be important for developing strategies for successful biological control of this weed. The objective of this study was to evaluate nutsedge accessions for variability in susceptibility to *D. higginsii*. A collection of nutsedge was done in Brazil on a countrywide basis. Studies on morphological and physiological characteristics indicated the presence of distinctive intraspecific biotypes in the Brazilian weed population. Tubers of 63 biotypes were introduced into and maintained in a quarantine greenhouse in Gainesville during these studies. Also, nutsedge accessions from Florida and Hawaii were used. An isolate of *D. higginsii*, isolated from diseased purple nutsedge plants found in Florida, was cultured on PDA medium. A suspension of 10^6 conidia/ml was used to inoculate 21-days old plants. The conidial suspension was amended with 0.5% Metamucil®. This amendment, without the fungus, was used as a control. Plants were evaluated 15 days after inoculation for pathogenicity based on a visual disease assessment scale (0=immune, 1 and 2=resistant, 3 and 4=susceptible). The experiment was done twice and populations that rated 0-2 were tested again to confirm their response to the pathogen. Also, attempts were made to re-isolate the fungus from inoculated leaves. Results indicated that among the nutsedge accessions tested, 90.5% were susceptible, 7.9% resistant and 1.6% immune. Molecular variability among accessions is being characterized by RAPD analysis to determine the genetic make up of purple nutsedge populations and to identify possible genetic markers of susceptibility to *D. higginsii*.

10.7 Development of grain-based wettable powder formulations of bioherbicides for dandelion (*Taraxacum officinale* Weber in Wiggers). Sarah Green*, M. Glen Sampson, Nova Scotia Agricultural College, Truro, Nova Scotia.

Wettable powder formulations of fungi have been developed, which utilize grain as both growth substrate and carrier, for biocontrol of dandelion. Two fungi pathogenic on dandelion, *Myrothecium roridum* and *Plectosphaerella cucumerina*, were grown for 21 d on cracked wheat and oat groats, respectively. The colonized grain was air dried for 24 h and ground to a fine grain/spore powder which suspended well in water. In a series of growthroom experiments, the wettable grain/spore powders of both isolates were tested for infectivity to six-week-old dandelion plants using a multifactorial experimental design to identify optimum conditions of various treatment combinations. The different treatments were; rehydration of the powder inoculum at 4 °C before application (for 0, 1, 2 h), spore concentration (10^5, 10^6, 10^7 spores/mL), dew period (either 12, 24, 36 h or 18, 24, 30 h), addition of sucrose during rehydration (0, 5, 10 %), addition of the nonionic organosilicone surfactant Silwet L-77 (0, 0.05, 0.1 %), and addition of SeaSpen® (0, 0.25, 0.5 %) together with unrefined corn oil (0, 5, 10 %). Both isolates required 10^7 spores/mL and 36 h dew for the highest disease scores but neither showed any consistent response to the sucrose and rehydration treatments. Silwet L-77 at 0.1 % increased infection by *M. roridum*, and the combination of SeaSpen® (0.5 %) and oil (10 %) enhanced infection by *P. cucumerina*; both treatments also appeared to reduce each isolate's dew requirements for infection. SeaSpen®, a gel-forming polysaccharide extracted from red seaweed, enhanced dispersal of the grain/spore powder and showed good film-forming properties on the dandelion foliage. Consistently high levels of infection were obtained when four fungal pathogens; *M. roridum, P. cucumerina, Curvularia* sp., and *Phoma* sp. were applied as these formulations to dandelion in field and growth room trials, indicating promise for further development of the formulations.

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