

CHAFF MOISTURE EFFECTS ON THE EFFICACY OF A HWSC MILL DURING HARVEST

DOES THE EFFICACY PERFORMANCE OF HWSC MILLS CHANGE WHEN THE CHAFF MOISTURE CONTENT CHANGES IN DIFFERENT CROP PRODUCTION SYSTEMS ?

TESTING PROCESS

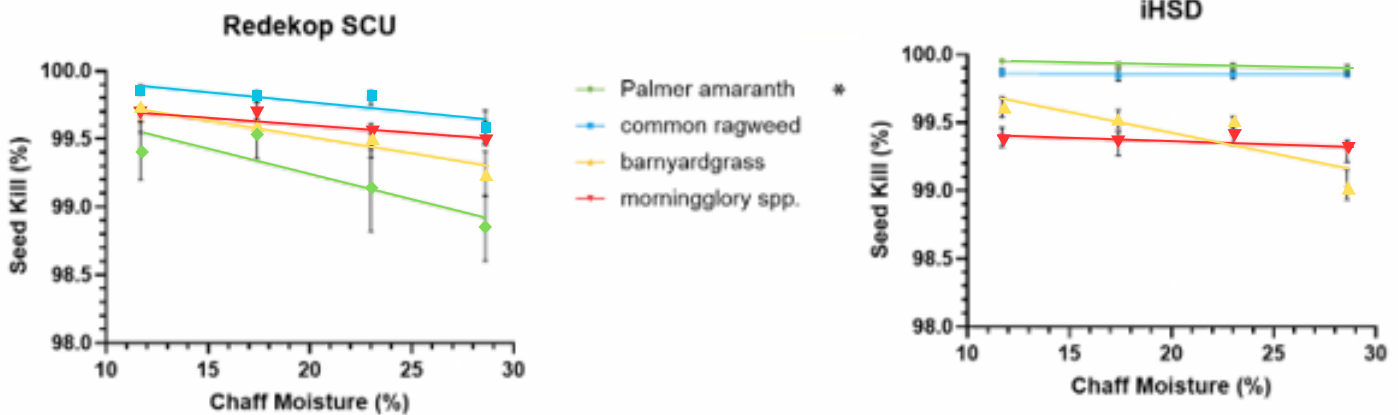
The Redekop SCU was put to the test in Virginia Techs laboratories.

Chaff was spread out evenly on a belt conveyor and weed seeds were added to the middle 80% of the chaff row. The mills were brought up to the manufacturers recommended speed, and once stable the conveyor delivered the wheat or soybean chaff into the mills at a typical harvest rate of 1.5 kg/s. The chaff was caught as it exited the mill using a 500-micro mesh bag. The chaff and weed seeds collected were mixed 1:1 with potting mix and remained in the green house for 12 weeks. A minimum of 40% of each test was grown out to ensure an accurate seed count. Trials with 4 different chaff moisture levels for both soybean and wheat chaff were utilized in the tests. All tests were triple replicated.

RESULTS

Chaff Moisture content does not significantly change the efficacy of the weed seeds found in the large grain production system, however there is a significant effect on the devitalization rate of light weight weed seeds such as ryegrass in the small grain production system for all HWSC mills. This data supports Schwartz-Lazaro et al, 2017 in which it was found that the seed kill of palmer amaranth and morningglory spp. did not change when the moisture content of soybean chaff was altered. The data for ryegrass efficacy also aligns with previous testing by Walsh et al, 2018 in which it was discovered that the iHSD mill kill rate changed from 92% to 88% when the wheat chaff moisture was changed from 10 to 16%.

a. for weeds in a Large Grains production system (soybean chaff)



b. for weeds in Small Grains fields (wheat chaff)

