Title Effects of Crop Residue on the Biosecurity and Purity of Harvested Grain

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Citation 2005 ASAE Annual International Meeting, Tampa Convention Center, Tampa, Florida, 17-20 July 2005, Paper Number 056032, 2 p.

Keywords: grain commingling; grain segregation; identity preservation; combine cleanout

Abstract

Increased focus on the end-use traits of commodity crops is creating increasing interest in segregation of grains and oilseeds. Harvesting equipment can have substantial impacts on the biosecurity, food safety and genetic purity of the grain lot. End uses dictate the desired purity level of the grain; achieving purity levels greater than those specified is not economically advantageous for the producer. Therefore, it is beneficial to have an estimate of the required cleanout times and methods needed to achieve a desired purity level for harvesting equipment. This study evaluated a range of cleanout techniques for grain combines of diverse ages and types, and compared those techniques with the resulting purity of the clean grain exiting each machine. Combines were "cleaned" prior to harvesting a different crop in a way that was consistent with the normal operating procedures for the given producer. Grain samples were then collected from the unload auger as the combine hopper was emptied. The first sample was collected as soon as grain started to exit the unload tube. Subsequent samples were taken approximately every 30 seconds in an attempt to achieve a representative sample from each load. The first 3 hopper loads of the new crop were sampled in this manner. Samples were then sorted and a percentage of the previous crop contaminating the currently harvested crop was determined. Additionally, a Case 2388 combine was cleaned following the harvest of corn and soybeans and he total about of material collected from the machine was quantified.