

# Field Camera Monitoring of White-tailed Deer Utilization of Corn Fields Grazed by Cattle

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*Abstract:* To ascertain potential ecological and landowner benefits of non-conventional agricultural systems, this project was designed to monitor cattle production and wildlife utilization of land areas that allow grazing cattle to harvest corn planted with no-till methods. In 2005–2008, study sites were located in four Mississippi counties, including four steer/heifer-grazed and harvested corn fields (SHS) and four conventionally-managed and combine-harvested corn fields (CHS). Forest wildlife species, such as white-tailed deer (*Odocoileus virginianus*), utilize agricultural areas as foraging habitat consuming residual grain left behind by non-conventional and mechanical harvesters (Graham 2000). When conducted properly, camera survey estimates provide adequate results in all habitat types (Jacobson 2002). Three Stealthcam brand field cameras with digital, flash, and motion-censored properties were located on natural wildlife trails placed  $\leq 50$  m into the interior of each field set at a height of approximately 1.3 m specifically for deer monitoring. Cameras were checked bi-monthly from September to February of each year. Annually, the number of deer images captured by cameras was greater on SHS when compared to CHS ( $P < 0.001$ ) with a mean of 47.67 ( $\pm 0.063$ ) on SHS and 8.33 ( $\pm 0.054$ ) on CHS. Bucks with  $>6$  antler points comprised 16% of all deer photographed from 2005 to 2008 on SHS; whereas, on CHS, no bucks with  $>6$  antler points were detected during the study period. We submit that the number of deer images captured on cameras can provide an index to deer utilization in our study sites. Greater numbers of images of white-tailed deer occurring on SHS versus CHS may be due primarily to increased biomass of residual corn kernels on the soil surface of SHS in the late fall ( $P < 0.025$ ) and increased percent coverage of grasses and forbs,  $>10\%$  in SHS and  $<5\%$  in CHS, providing additional feeding opportunities with standing corn available for cover, and open areas created by cattle allowing for easier movement through these patches. Average daily gains of corn-grazed cattle were greater than bermudagrass-grazed ( $P < 0.02$ ), and a significant decrease in feedlot days ( $P < 0.0178$ ) with no difference in quality grades ( $P < 1.00$ ) was detected among comparable groups. After offsetting costs of field preparation, fencing, cattle maintenance, and labor, landowners using this production system can increase land values by incorporating fee/lease hunting with the production of quality beef cattle.

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