# Beef Day 2021

## Effects of harvest maturity and/or kernel processing on corn silage processing score and particle size of corn silage

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### Objective

A single corn hybrid was used to evaluate harvest maturity (Mat) and/or kernel processing (KP) effects on corn silage processing score (CSPS) and particle size (PS).

### Study Description

Treatments were arranged in a 2 × 2 factorial of: 1) Mat (early and late) and 2) KP (no or yes). A single corn field was planted on April 27, 2020. There were 12 loads (experimental unit) per simple effect treatment mean. Data were analyzed as a completely randomized design. Early harvest (3/4 milk line) occurred on August 28, 2020 [yield (as is) = 17.40 tons/acre; DM = 43.1%; CP, NDF, and starch = 6.5, 46.0, and 32.9%, respectively (DM basis)]. Late harvest (black layer) occurred on September 9, 2020 [yield = 16.83 ton/acre (as is); DM = 49.2%; CP, NDF, and starch = 6.6, 49.8, and 37.5%, respectively (DM basis)]. The same equipment was used for both Mat with KP achieved by narrowing processing rollers. The CSPS was determined as the proportion of starch retained below a 0.19 in sieve. Grain content (DM basis) of the corn silage was calculated from: starch content/0.72. Particle size was assessed using the Penn State Particle Separator. A Mat × KP interaction ($P$ = 0.05) was detected for CSPS. Early/no and late/no had decreased ($P \leq 0.05$) CSPS compared to early/yes and late/yes had the greatest CSPS ($P \leq 0.05$) compared to others. Grain content was 13.9% greater in late compared to early (P = 0.01). A Mat × KP interaction ($P$ = 0.03) was detected for PS. Early/no had the greatest ($P \leq 0.05$) PS, early/yes and late/no were intermediate, and late/yes had decreased PS compared to others ($P \leq 0.05$).

### Take Home Points

These data indicate that Mat and KP influence CSPS synergistically. Producers should consider KP when corn silage is harvested at a later maturity to enhance CSPS.

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