

## **AN INTEGRATED CROP-LIVESTOCK SYSTEM FOR EASTERN NEBRASKA**

**E. Widder<sup>1</sup>, R. Mitchell<sup>2</sup>, D. Redfearn<sup>1</sup>, V. Jin<sup>3</sup>, M. Schmer<sup>3</sup>**

In eastern Nebraska, producers could integrate livestock and perennial pasture into grain cropping systems to potentially increase revenue. Our objective was to develop an integrated crop-livestock production system for eastern Nebraska on marginally productive land. In 2014, a 50-acre field-scale demonstration site was established, including 10-acre pastures of ‘Newell’ smooth brome grass, ‘Shawnee’ switchgrass, and ‘Liberty’ switchgrass and 20 acres of corn near Mead, NE. Forage was harvested in 2016, 2017, and 2018. Forage yield for Newell in 2016 was 2.2 tons/acre; forage yield for Liberty switchgrass was 3.0 and 3.6 tons/acre in 2016 and 2017; Shawnee switchgrass forage yield was 2.4 and 0.9 tons/acre in 2016 and 2017; corn stover yield was 0.7 and 1.0 tons/acre in 2016 and 2017. Pastures were grazed by 18 yearling steers. In 2017, the grazing rotation was Newell (May 18-June 8) with an average daily gain/head/day (ADG) of 2.4 lb/day, Liberty (June 13-20), Shawnee (June 20-Sept. 1) with an ADG of 0.9 lb/day, and Newell (Sept. 7-Oct. 6). Triticale cover crop was planted after corn residue harvest in 2016 and 2017, but grazable forage was not produced. In 2018, the grazing rotation began with Newell (May 2-June 1) with an ADG of 1.2 lb/day. The herd was split to graze Shawnee (9 steers) and Liberty (9 steers) (June 11-August 29), with an ADG of 0.9 and 1.3 lb/day, respectively. The herd was combined and returned to Newell (Sept.5-18) with an ADG of 0.4 lb/day. Corn yields in 2016, 2017, and 2018 were 120, 155, and 131 bu/acre respectively. The study is continuing and demonstrates a climate resilient crop-livestock production system for eastern Nebraska.

<sup>1</sup>Department of Agronomy and Horticulture, University of Nebraska-Lincoln (UNL), Lincoln, NE <sup>2</sup>USDA-ARS Wheat, Sorghum, and Forage Research Unit, UNL, Lincoln, NE <sup>3</sup>USDA-ARS Agroecosystem Management Research Unit, UNL, Lincoln, NE.