

Project Title: 2021 Kernza Planting Date Study

Objective: To evaluate the performance of Kernza varieties with different planting dates

Personnel: J.A. Torrion, Eeusha Nafi, Daniel Porter, Jacob Junger

Summary:

Kernza is perennial intermediate wheatgrass known for its extensive root system that uses nutrients more efficiently than wheat. This is the second year of the first Kernza trial conducted at the research center. Four Kernza entries (C3, C4, Clearwater, and Rush) were planted in the fall of 2019 on three planting dates (20-Sept., 27-Sept., and 04-Oct.) through the spring of 2020 on two planting dates (17-Apr. and 01-May).

Kernza was planted at a seeding rate of 4 live seeds/ft² at 0.5-inch depth with 3.28-ft row spacing. During the second year of establishment (2021), we found no differences in biomass for all planting dates (Figure 1a). This is because, kernza planted during the spring of 2020 had already met its cold exposure requirement to produce heads (vernalized the following winter). During the first year (2020) biomass data, the earliest planted (Sept 20, 2019) kernza had the highest yield whereas the spring-planted had the least. For the two-year total biomass, the earliest-planted kernza generated the highest biomass whereas the rest of the planting dates had similar biomass (Figure 1b). As with the varieties, they performed similarly (Figure 2).

The 2021 kernza grain yield data will soon follow and this report will be updated.

Table 1. Management Information

Seeding date:	varied	Field Location:	X5
Julian date:	varied	Harvest date:	8/24 - 8/30
Seeding rate:	45 seeds/3.27 ft row.	Julian date:	236 - 242
Previous crop:	Canola	Soil type:	Silty loam
	5/5/2020 Beyond 6 oz/A 5/6/2021	Tillage:	Conventional
Herbicide:	CleansweepM 1pt/A 6/17/2021 E-shredder 1 pt/A	Soil residual nutrient (NO₃⁻, P, K lb/A):	59-16-260
Insecticide:	None	Nutrient fertilizer applied (N, P₂O₅, K₂O lb/A):	45-80-0 (10 S) (Fall, 2019)
Fungicide:	None		75-0-0 (Spring 2021)

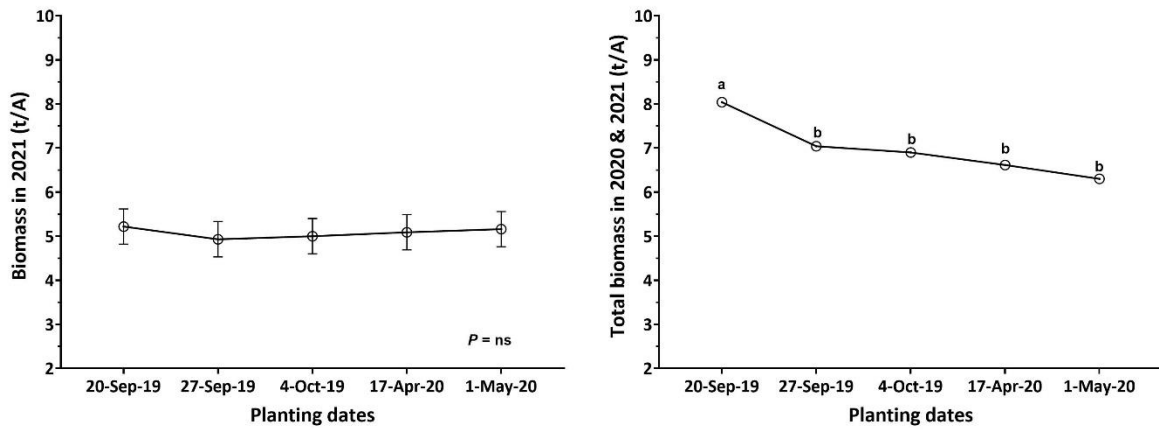


Figure 1. Biomass a) 2021 yield with planting dates and b) the total two-year (2020 & 2021) biomass.

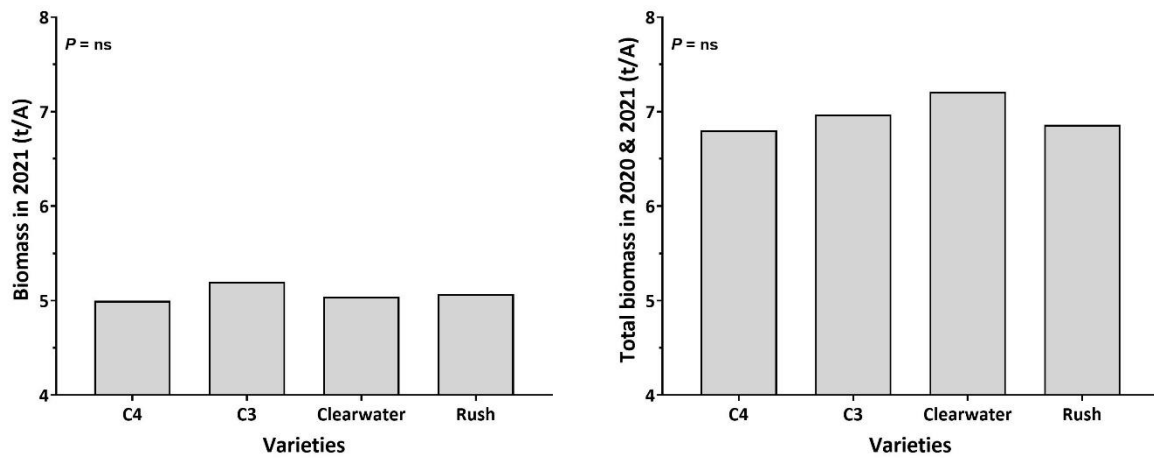


Figure 2. Kernza variety biomass performance in a) 2021 and b) total two-year (2020 & 2021) biomass. P value ns (not significant)