Evaluation of Spring Wheat Seeding Rates

Results

Ideal seeding rates can vary significantly, and are dependant on many factors including management, variety, and environment. Research has demonstrated that seeding rate can have an impact on grain yield and quality. The goal of this protocol is to fine tune generalized seeding rate recommendations, under your environment and typical management practices, to maximize yield and economic return.

Objective: Analyze the agronomic and economic impact of seeding rate in spring wheat.

Treatments:

Treatment 1: 20 plants/ft^2

Treatment 2: 25 plants/ft^2

Treatment 3: 30 plants/ft^2

Additional (extra high): 35 plants/ft^2

Table 1: General trial information for all sites in 2022.

Trial	Seeding Date	Variety	Previous Crop	Depth	Row Spacing	Harvest Date
Davidson	May 1	AAC Viewfield	Lentil	1.25″	12″	Aug 26
Cut Knife	May 9	CDC Landmark	Canola	1.5″	12″	Aug 31
Tisdale	May 16	AAC Alida VB	Canola	1″	10″	Sept 6
Indian Head	May 29	AAC Elie	Canola	¾″	12″	Sept 13

Plant Density: Plant counts were conducted around 21 days after planting. The results showed that plant densities increased with increased seeding rate. All sites were significant (p-value ≤0.05) (Figure 1).

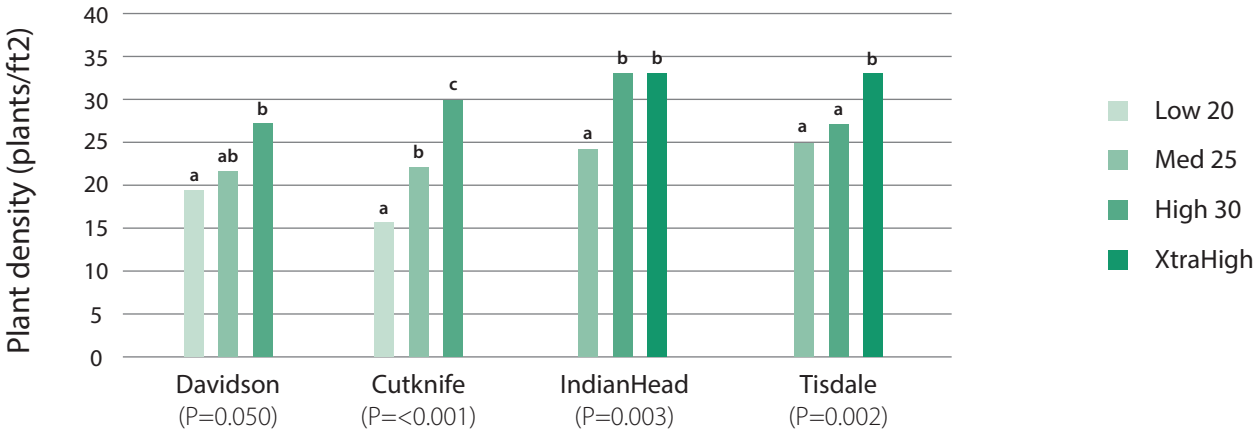

Figure 1: Achieved plant density (plants/ft^2) by site by treatment (plants/ft^2).

*Values with the same letter are not significantly different.

Evaluation of Spring Wheat Seeding Rates (cont.)

Yield: Yield data was collected with a weigh wagon or grain cart scale (weighed) but also through yield maps (estimated). Analysis was completed to reflect both yield data collection methods. Overall, there was one statistically significant result at Davidson using the weighed data (Figure 2). It showed that the lower seeding rate of 20 plants/ ft^2 out yielded the higher seeding rates at that site.

There were no significant differences in yield at the other sites. However, when the yield data was combined across all sites there was a significant treatment effect with both the weighed and estimated data showing the general trend that yield decreased as seeding rate increased (Figure 3).

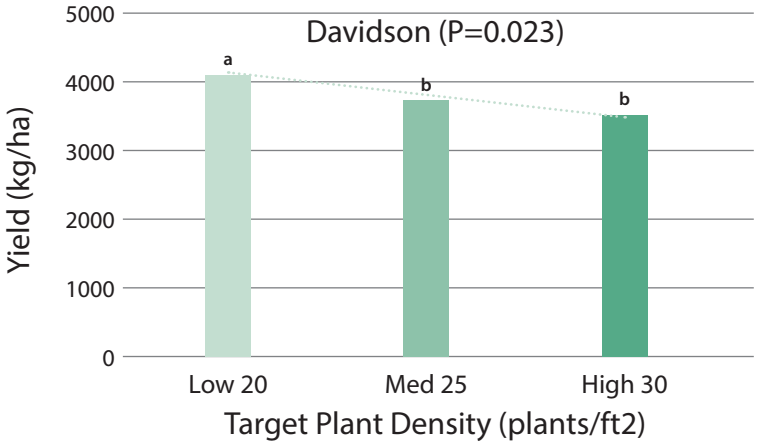

Figure 2: Weighed yield in kg/ha by plant density treatment (plants/ft^2) for Davidson.
*Significant difference if p≤0.05.

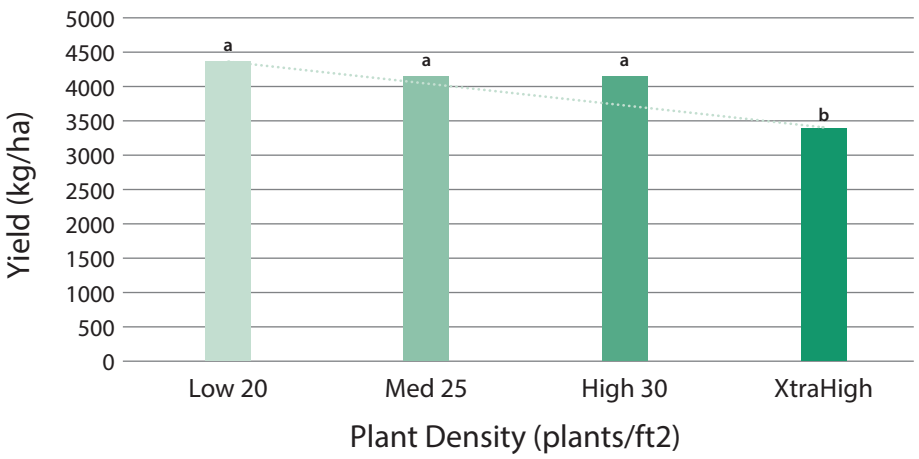

Figure 3: General trend of yield (kg/ha) by plant density treatment (plants/ft^2) for all sites combined.

Grain Quality Results: No significant differences in grain protein, test weight or fusarium were observed.

Summary: The general trend showed that yield declined as seeding rate increased but was only statistically significant in Davidson using weighed data. Quality was not affected. Many sites had previous drought and received average to below average moisture conditions this year with timing of moisture events varying through the season.