Results

Performance of Barley varieties in response to PGR application.

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Figure: Comparative Lodging Response of Barley Varieties Across Locations, Growth Stages, and Years in Alberta (2022–2024)

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Figure: Lodging Response of Barley to Plant Growth Regulator Treatments Across Locations, Growth Stages, and Years (2022–2024)

Lodging severity varied by growth stage and location. However, when focusing on the **average lodging across growth stages**, clear treatment effects emerged. The **control (T1, no PGR)** consistently had among the **highest lodging**, particularly at **Falher**, indicating the benefit of plant growth regulator (PGR) application. Treatments such as **T4, T6, and T8** effectively reduced lodging across multiple environments. At **Lethbridge**, lodging was moderate and variable by year, but T1 and T3 still tended to rank higher in lodging severity. **Vermilion** showed minimal lodging across all treatments, suggesting low lodging pressure at that site. These findings highlight the importance of selecting effective PGR strategies, especially in high-risk environments, to improve crop standability and reduce lodging-related yield loss.

Yield

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Plant height

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