

Figure 2. Aggregated plant counts varied from 0.7-7.5 plants per square foot at Davenport, WA.

four counts per plot and mapped to the plots using R statistical software (Fig. 1-3). The maps of plant counts demonstrate the large range of variability across a single field. However, when compared to yield on a plot by plot basis the plant counts did not predict yield within a single location or between any of the locations (Fig. 4). The lack of correlation between plant density and yield demonstrates, high plant densities are not necessarily

required for good yields. However, benefits such as competition against weeds may be gained through higher plant density. Future work will focus on linking the yield monitor data from these locations to the plant count data in order to look at relations between plant count and yield at a higher spatial resolution.

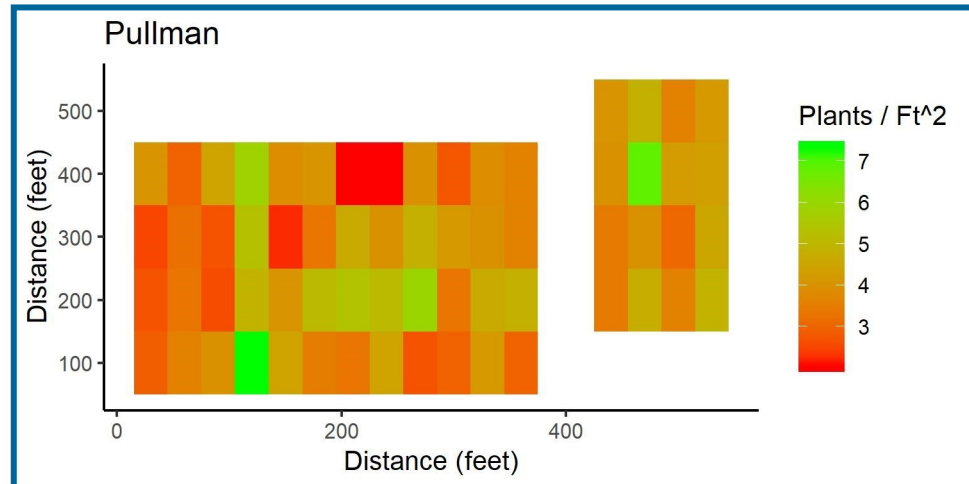


Figure 3. Aggregated plant counts varied from 2.0-7.3 plants per square foot at Davenport, WA.

Pod Count Variation Across Large-Scale Variety Strip Trials

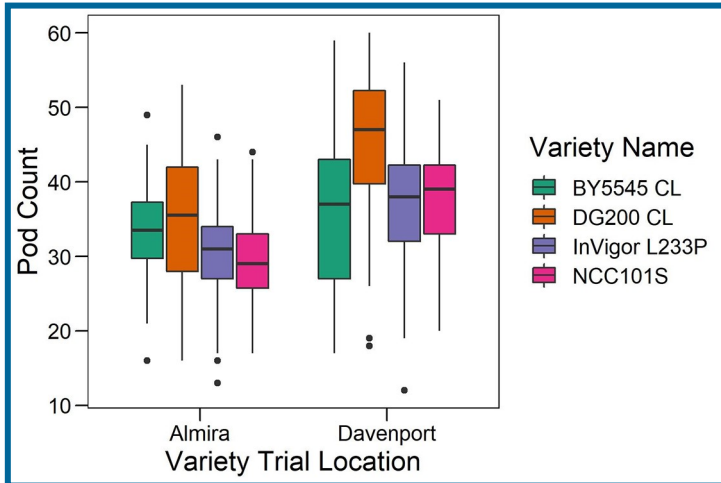


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In addition to collecting yield data, large-scale variety trials can be utilized to collect a variety of other data including pod counts. The pod count on the leading stem of a canola plant has been anecdotally correlated with yield. In this project we set out to assess the possible correlations between pod count and yield data. When the plants were at physiological maturity pod counts were taken at 16 points within each plot (Fig. 1). Of the 8 varieties grown at Davenport and the 5 varieties planted at Almira, there were four shared varieties. A comparison of the shared varieties across both locations showed that Davenport averaged a higher pod count (39) than Almira (32). In Almira, the pod counts varied from 13-53 pods and at Davenport the pod count ranged from 12-60. The average yield in Almira was 851 lbs/A and the average yield in Davenport was 1301 lbs/A. Although a strong correlation between pod count and yield was not achieved when conducting linear regression ($R^2=0.43$), a positive trend between pod count and yield was observed. At neither location did the highest yielding variety (NCC101s at Davenport and InVigor L233P at Almira) have the highest number of pods. The total number of pod counts collected at



Figure 1. Example of pod count data being collected at Almira in 2019.



Almira and Davenport were 320 and 512 respectively allowing for a high spatial resolution of pod count variation across the study areas. The high spatial density at which the samples were taken demonstrates dramatic variation across relatively small intervals of space (Fig. 3 and 4). A further dissection of the data, by looking at variation within the yield map will serve to assist in better understanding whether the variation of yield within individual plots can be associated with the variation in pod counts.

Figure 2. The boxplot shown here demonstrates the variation in pod counts at both Almira and Davenport. The boxplots presented here demonstrate that for each location there was a large amount of variation within and between varieties.

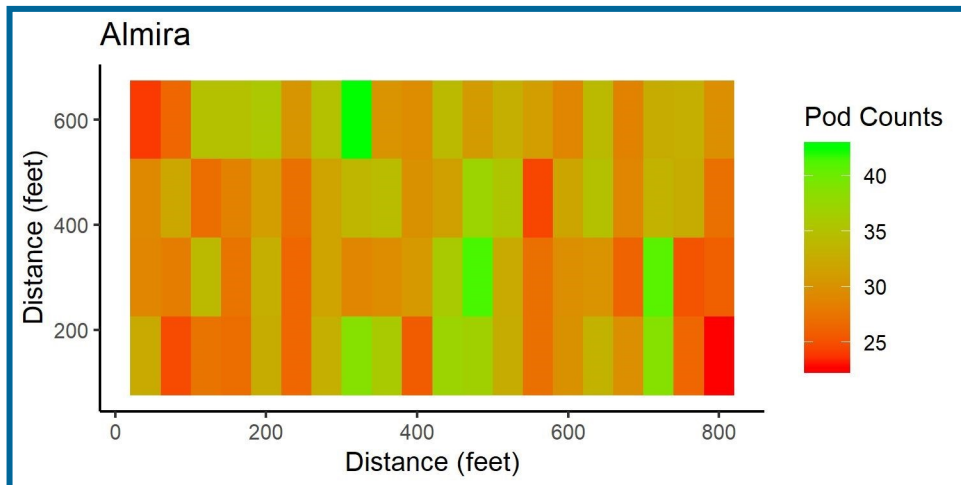


Figure 3. Variation in pod counts across the Almira strip trial. Pod counts at this location ranged from 13-53 pods. Each rectangle on the map represents the average of four pod counts made in the rectangle. In total, 320 plant counts were made at this location.

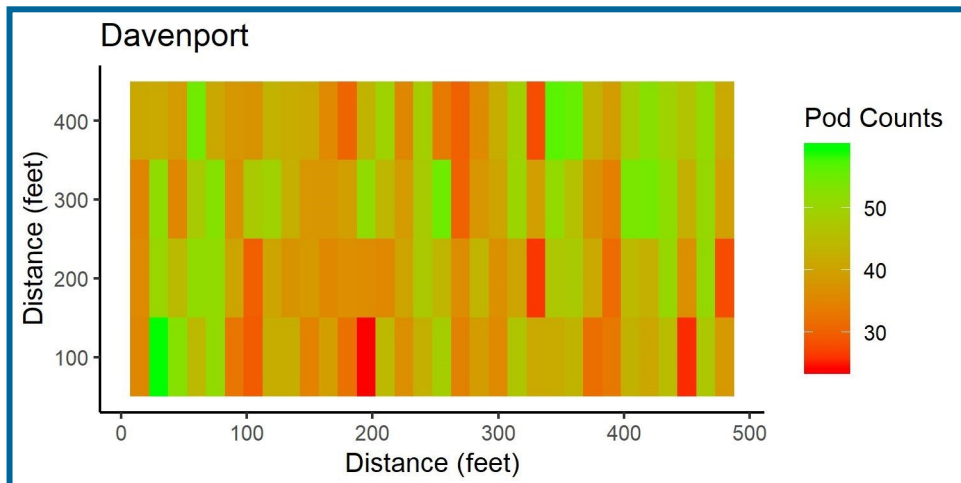


Figure 4. Variation in pod counts across the Davenport strip trial. Pod counts at this location ranged from 12-60 pods. Each rectangle on the map represents the average of four pod counts made in the rectangle. In total, 512 plant counts were made at this location.