Together, these agronomic approaches should help us develope new agronomic practices and germplasm with better stand establishment and winter-kill tolerance. As a result, these studies may help farmers in the inland PNW plant more acres of winter canola.

Figure 3. Screening of Brassica napus accession in the field for yield and winter tolerance.

Plant Density and Pod Count Variation Within Large-Scale Variety Trials

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In addition to yield data, large-scale variety trials can be utilized to improve out understanding on a variety of other yield related variables. During the summers of 2019 or 2020 plant counts were collected at all the large-scale variety trial locations for a total of five site years. Additionally, pod counts were collected at two locations in 2019 and two locations in 2020 for a total of four site years of data. The importance of stand and pod count have been discussed previously and various research has sought to form connections between stand count and yield as well as the pod count and yield. In five site years stand count data was not correlated with yield at the field scale (figure 1). The average stand count within each strip ranged from 1-7 plants ft^{-2}. These results indicate that spring canola yield is stable over a wide range of stand densities. The branching architecture of canola allows it to develop a full canopy when plant density is low. A clear example of this is in the Cloverland 2020 data. Over the five stie years Cloverland was among the lowest plant densities and had the highest yield. Untimely frost, inappropriate nitrogen applications, low moisture, and insect pressure may all result in poor stands. However, no clear guidance for replant decisions can be found in the regional literature. Our future research will focus on developing decision support for replant. In light of the weak correlation between stand count and yield, some have hypothesized a correlation between pod count and yield. However, in our research no inter year correlations between pod count and yield have been achieved. Future research will focus on a more robust spatial analysis of plant density and pod count.

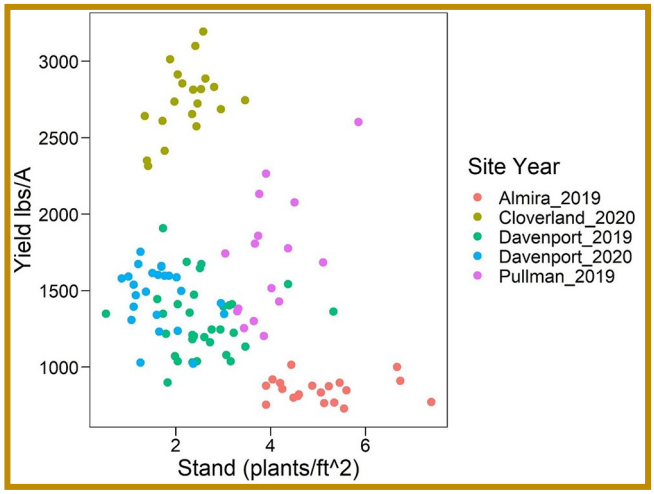

Figure 1. Stand count and yield from five site years of spring canola data. It appears that no relationship between stand count and yield exists even at low stand densities < 2 plants ft^{-2} high yields can be achieved as is seen in Cloverland 2020.