fertilization, and within- and across-fields spatial variability in yield response on P. Farmers who would like to participate this research, please contact Dr. Haiying Tao at haiying.tao@wsu.edu. The more farmers participate in the research, the better recommendations will be developed for variety, soil, and weather.

Companion Crops as a Method for Improving Winter Canola Stand Establishment and Winter Survival

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Companion cropping is the practice of planting crops in proximity to one another with the objective of the plant species benefiting each other. Companion crops may be may exist of a single cash crop and one or more 'companion' crops. In general, the companion crop is grown with a specific benefit to the cash crop in mind. Modern mechanized agriculture has not used companion cropping to a large extent. However, certain companion cropping system have the potential to benefit mechanized agriculture. One system that is gaining interest is using spring oats as a nurse crop for winter canola in order to improve stand establishment and winter survival. In the fall of 2019 near Davenport, WA a trial was established comparing winter canola grown with a companion crop of oats to winter canola planted in a conventional monoculture. Fall (9/19/19) and spring (4/2/20) plant counts were taken to assess the effect of the companion oat crop on winter canola stand establishment and winter survival. The fall plant counts revealed no significant difference in the number of canola plants which successfully established. However, the companion cropping system showed a more uniform distribution (Fig. 1). The monoculture winter canola did show a significantly higher percentage of winter survival than the companion cropped winter canola (Fig. 2). The average winter survival in the monoculture canola was 51% while the average winter canola in the companion cropped canola was 34%. While the monoculture canola appeared to have a clear advantage over the companion cropped treatment in this system, we do not consider this brief study to have conclusively answered the question of whether or not companion cropping may have a role in the future of canola production. Anecdotal evidence has shown this practice to be effective in other regions, and we plan to pursue the roll of companion cropping in canola further. Future research will examine the effects planting date, and the density of the companion crop on stand establishment and winter survival.

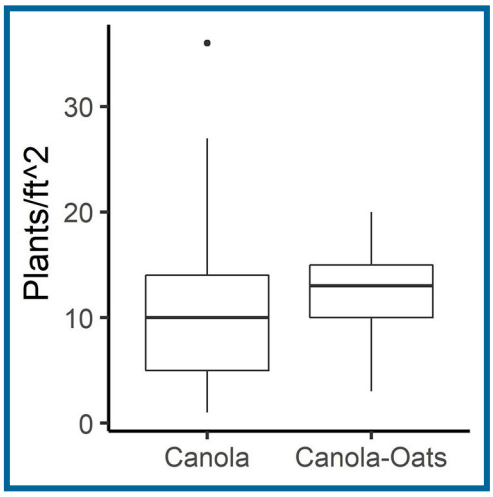

Figure 1. Box plot showing the variability and median stand counts in canola in a monocrop and canola in a production crop production method. The monocrop canola shows a wider range of values than the companion crop method and a slightly lower average plant count.

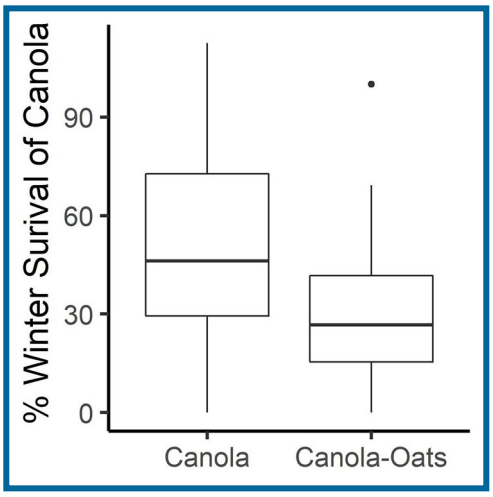

Figure 2. Box plot demonstrating the differences in winter survival between the monocrop winter canola and the companion cropped winter canola. While there was substantial variation in both groups, the monocrop winter canola had a significantly higher winter survival at 51% compared to the companion cropped winter canola at 34%.