

Introduction

Timely harvest of winter canola is important to achieve maximum yield and highest quality of seed and oil. Grower experience and university research has shown that forced lodging or “pushing” of winter canola followed by dry down and combining is the easiest and most economical method of harvest. The optimum plant stage to push winter canola is not well understood. Pushing too early may reduce yield and seed quality. Pushing too late could delay harvest, induce pod shatter, and interfere with winter wheat harvest. Canadian recommendations suggest pushing canola as early as the end of flower drop. If this is feasible, it could advance winter canola harvest as much two weeks. This project researched pushing canola or swathing at four-plant stages 1) push end of flower drop, 2) push 7-10 days after flower drop, 3) Push first brown seed, and 4) swathing at 15 percent brown seed. Seed yield and seed quality were measured. Improving the time of harvest of winter canola may increase canola acreage or allow double cropping after irrigated winter canola.



Figure 2. pushed winter canola with after flower drop

Procedures

Time of pushing winter canola was investigated in 2011, and 2012 growing seasons. Fields near Pendleton, Oregon. A uniform block of canola was used for the experiment. A randomized complete block experiment using four replications was superimposed over this area. Treatments were 1) pushing at the end of flower drop, 2), pushing at 7-10 day after flower drop (a point midway between end of flower drop and first brown seed, 3) pushing at first brown seed on the main raceme, and 4) swathing at 15 percent brown seed on the main raceme. Plot dimensions were determined by field conditions and available equipment. Minimum plot width was 5 ft. width of plot pusher and combine) and plot length varied between 50-100 ft. The remaining area will provide All combining was done with a plot combine with a 5-foot header and equipped with auger feed and canola sieves. Canola was pushed at respective treatments stages: using a plot pusher (Wysocki 2007) (Figure 1). Pushed canola is shown in Figure 2. Swath was done with a Swift plot swather (Figure 3). Dates of operations are shown in Figure 4. Grain yield (Figure 5), seed size (Figure 6), percent green seed, chlorophyll content, protein, and oil content (Figure 6) were determined from the various treatments and compared using appropriate statistical methods. Yields will be based on combine weights adjusted for seed water content. Seed size and percent green seed were determined from three random 1000 seed counts taken in each experimental unit. Chlorophyll content, oil content, protein content and seed unit density will be measured using NIR Spectrophotometry.



Figure 1 Experimental plot canola pusher (Wysocki et al. 2007)

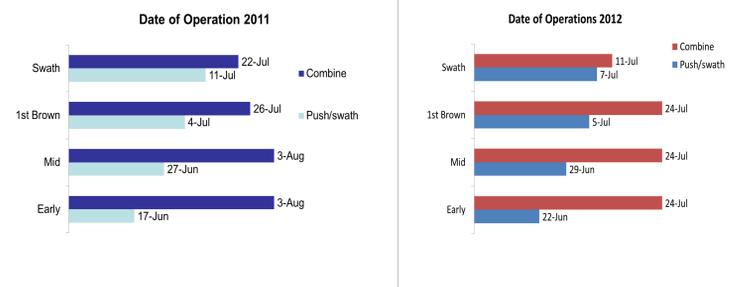


Figure 4. Timing of operation in 2011 and 2012

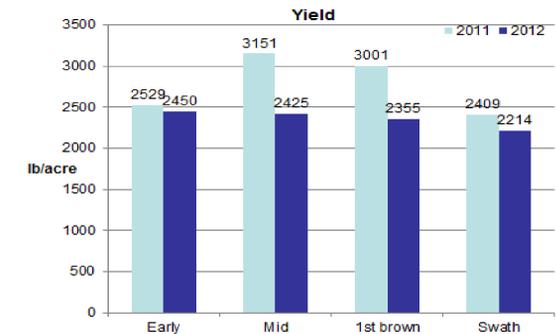


Figure 5 Yield of winter canola using various harvest methods

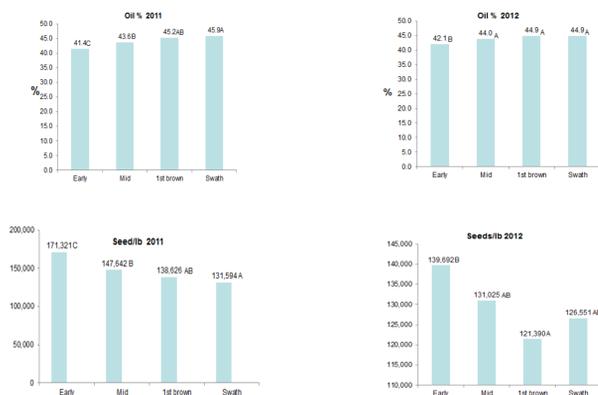


Figure 6 Seed size and oil content of winter canola using various harvest methods

Conclusions

Pushing early did not hasten harvest
delayed combining in 2011
Early pushing and swathing reduced yields
compared to pushing at Mid and 1st brown
Seed size increased with later “pushing” and
swathing
Oil content increased with later “pushing” and
swathing

Recommendations

Window for “pushing is 50-75% pods @ full
size to 1st brown 75 to 82
Pusher width = Header width
Push opposite of combine direction
lay out field carefully

Literature Cited

Wysocki, D.J., Sirovatka, N. D., and P. Thorgersen. 2007. Effect of Swathing, “Pushing,” or Direct Cutting on Yield and Oil Content of Dryland Winter Canola and Spring Canola. Pages 46-51 in Oregon State University in Oregon State University Agricultural Experiment Station, Special Report 1074.