Traditionally swathing is recommended for *napus* canola over straight-combining because of the risks of yield loss due to shattering. Researchers at Indian Head, Saskatchewan conducted a two-year study in 2010 and 2011 to evaluate the effects of harvest method, pre-harvest glyphosate and commercial pod sealant applications on pod shattering and grain yields under commercial field conditions. Overall, the results did not show a significant benefit to using a pod sealant. The results for pre-harvest glyphosate were inconsistent, but showed it may have a fit when straight-combining non-resistant cultivars as it accelerates maturity and evens out variable fields.

Harvesting canola at the optimal time is important for maximizing yield and quality. The generally accepted recommendations for harvesting canola are to swath at 40-60% seed color change and combine when the seed has matured and dried to 10% moisture content. The alternative to swathing is to straight-combine, which has not normally been recommended for *napus* canola in western Canada because the risks of yield loss due to shattering can frequently outweigh the potential benefits. Although there are potential benefits to straight-combining *napus* canola and many Prairie growers regularly do so with success, this practice is not without risk.

A technology available to growers who are considering straight-combining canola are pod sealants such as Pod Ceal DC and Pod-Stik. While the modes of action for pod sealants can vary, they are designed to cover the pods in a protective coating intended to reduce the risk of pod shattering as the seeds mature. Researchers with the Indian Head Agricultural Research Foundation and Agriculture and Agri-Food Canada at the Indian Head Research Farm conducted a two-year study in 2010 and 2011. The objectives of this study were to evaluate the effects of harvest method, pre-harvest glyphosate and commercial pod sealant applications on pod shattering and grain yields of canola under commercial field conditions.

Field trials were conducted in 2010 and 2011 near Indian Head, Saskatchewan on large field plots, each approximately two acres in size. Commercial equipment was used for all field operations. A canola cultivar that was relatively prone to shattering was purposely chosen for this study to assist researchers in detecting any potential benefits of the pod sealant or other foliar treatments. The treatments included two harvest methods (swathed or straight-combined) and four pre-harvest treatments (untreated, pod sealant, glyphosate or pod sealant plus glyphosate).

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**Evaluating the Effects of Glyphosate and Pod Sealants on the Yield of Straight-Combined Canola on a Large Field-Scale**

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Project Code: CARP-SCDC 2010-16

Final Report: December 2011
Research results showed that swathed canola yielded 21% higher than straight-combined canola. Consistent with previous findings, pod sealants did not provide a yield benefit over untreated canola regardless of harvest treatment, but a slight benefit was observed in the visual shattering ratings of the straight-combined canola. Although wheel tracks were not a factor in this study, driving over the crop at this late stage will cause irreversible damage and could reduce yields by 2-5%, depending on boom width, tire width and whether or not crop dividers are equipped.

The research also showed that the effect of glyphosate was not consistent from one year to the next, with lower yields observed in 2010 and a tendency for higher yields with glyphosate in 2011. These differences were most evident in the straight-combined treatments as all swathed treatments tended to have similar yields regardless of the foliar treatment. Glyphosate combined with a pod sealant produced similar results as glyphosate applied on its own. Even though researchers did not necessarily expect a yield benefit with pre-harvest glyphosate for straight-combined canola, it can accelerate and even out maturity while also providing weed control benefits for the following crop. Preharvest glyphosate will not be effective on Roundup Ready® canola and a desiccant such as diquat is managed differently and would not be expected to produce the same results as glyphosate.

Figure 1. Yield data. Source: Chris Holzapfel, AAFC.
Overall, the research showed there is a risk of increased seed loss with straight-combining relative to swathing, especially when harvest is postponed past the optimal crop stage and a variety that is relatively susceptible to shattering is used. The results did not show a significant benefit to using a pod sealant either for seed yield or marginal profits. Pre-harvest glyphosate may have a fit when straight-combining non-resistant cultivars as it accelerates maturity and evens out variable fields.

For growers interesting in straight combining, some of the most important factors producers have suggested to consider are a header extensions or modifications that move the cutting bar farther into the crop, choosing a variety with relatively good resistance to shattering, seeding at sufficiently high rates to accelerate maturity and reduce in-field variability and keeping weeds and disease under control.

Figure 2. Source: Chris Holzapfel, AAFC.