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Barley



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Managing Late Tillers in Wheat and Barley

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Figure 1: A barley crop displaying varying tiller maturity

There are no straightforward answers when it comes to managing late tillers. Each farm has different needs, equipment, time, target markets, harvest window, and other factors that impact harvest management decisions. However, there are a few factors we can consider when developing a reasonable late tiller management plan.

The first step is to consider the target market the grain will be sold into. Will the market destination tolerate greens? If the target market is for malt barley or the high protein wheat export market, the tolerance for green kernels will be much lower than grain destined for the feed market.

The next step is to consider cleaning and storage risks. If the grain in question needs to be stored, greens with high moisture from late tillers will increase the risk of spoilage and quality issues. Most grain with late green seed will need



Figure 2: Two barley heads that were taken from the same plant. Note the large difference between maturity.

to be sold into the feed market unless the cost of cleaning the seed might be worthwhile for certain high-value markets or if the seed is intended to be used for planting next year's crop. More information on storage management of cereals can be [found here](#).

The third step is to assess the field percentage that contains late tillers. If only a small percentage of the field contains secondary tillers, waiting for those late tillers to finish will not add significant value to the total yield. This percentage may change field-by-field depending on many factors. Determining the value of those remaining tillers will come down to the market value of the grain and the amount of risk in waiting for those tillers to finish.

The number of late tillers compared to advanced tillers is also important to consider. If there is only one late tiller for every ten advanced tillers, the value of waiting for those late tillers is lower compared to one late tiller for every two advanced tillers. It is also important to consider the number and size of kernels found on late tillers compared to advanced tillers. Typically, the later

the tillers initiated, the less grain the heads will contain. If possible, combine a sample in the areas where late tillers are present to assess the ratio of green kernels to mature kernels. If combining samples are not possible, visually count the number of late tillers per foot in a row and then count the average number of kernels per tiller. Then do the same for the advanced tillers. This will give you an idea of the number of late tillers compared to advanced tillers and provide clarity to where the majority or distribution of yield can be found between and advanced tillers. However, this approach is not always practical.

Another aspect to consider is kernel maturity of the late tillers. Watery/early milk may warrant a different decision than kernels that are in the soft dough stage. This is especially important if pre-harvest glyphosate may be utilized. The label on glyphosate has no language around late tiller management and pre-harvest glyphosate application. The [Keep it Clean](#) guidelines for pre-harvest glyphosate on cereals indicate "glyphosate should only be applied for pre-harvest weed control once grain moisture is less than 30% in the least mature areas of the crop."

Growers should also consider the forecasted weather. A sunny 25°C day will provide good conditions for kernel dry down. Overcast and cool weather will see slower dry down. At early dough stage, kernel moisture is about 55%. At mid-dough stage, moisture would be closer to 45%. Typically, you can account for about 2% grain moisture decrease per day on warm, dry days and closer to 1% on cool, overcast days. This information can be used to estimate the number of days to 30% moisture on your late tillers.

In situations where the difference between the early tillers and late tillers is too large to wait or to utilize a pre-harvest glyphosate application, swathing will be a valuable tool. Especially for barley, waiting for those late tillers can lead to the early tillers becoming overripe and cracking off. Swathing these fields can avoid grain loss from mature tillers and help hasten the maturity of late tillers. From here, the grain can be allowed to dry to a safe moisture content. However, there is always a risk of leaving grain in the swath if rain is in the forecast.

If weeds are a significant concern, there is increased value in waiting for late tillers to mature to ensure ideal pre-harvest glyphosate timing. However, if waiting for the secondary tillers to mature, one must balance the risks of: (1) waiting based on the local weather forecast, (2) the additional yield that may come from the late tillers, and (3) the need for a pre-harvest weed control application. If the risk of waiting is too high, it may be worth harvesting the earlier maturing tillers, and hoping for an open fall to make a post-harvest weed control pass.

The final consideration worth mentioning is managing the field's harvest in different zones depending on where the tillers are present and how advanced they are. However, this may be only beneficial in fields that have clear and distinct differences in late tiller presence. If late tillers are sporadic across the field, this option is less viable.

To summarize, each farm must consider the risks and rewards mentioned above based on their specific farm and field. From here, you can assess your risk tolerance of yield loss, quality, and/or weed impacts.

Bottom line: there is no black and white answer to late tiller management.

