MANITOBA Pulse Soybean GROWERS

Dry Bean Desiccation and Harvest Guide

DESICCATION VS. PREHARVEST WEED CONTROL

Desiccation is the application of a contact herbicide, or true desiccant (e.g., diquat, saflufenacil, carfentrazone or flumioxazin), that will dry down plant material and advance harvest. Preharvest weed control most often involves the application of a systemic herbicide (e.g., glyphosate) to control excessive weed pressure (particularly perennials) before harvest. As most bean dealers no longer accept pre-harvest glyphosate on dry beans, effective, early-season weed control is critical to prevent seed staining and downgrading from weeds going through the combine.

An MRL is the maximum residue level of a specific active ingredient expected to remain on a food product when the pesticide is used according to label directions. To avoid market risks associated with MRLs: 1) only use registered products, 2) apply the product at the labelled rate and timing, 3) regularly consult with your buyer about potential product limitations and 4) avoid desiccation if you are not faced with wide variability in crop maturity.

DESICCATION TIMING

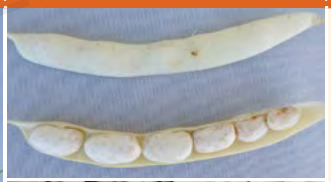
Desiccation timing ranges from late August to early September. For most market classes, this can coincide with undercut and swath timing. Applying a desiccant too early increases the risk of high residue concentration on the seed and can result in yield and quality loss. At the late end of the application window, products must be applied within the preharvest interval. Note that weather conditions can influence product efficacy (e.g., diquat works best when it is cloudy or in the evening, followed by hot, sunny conditions).

Figure 1. A black bean field at desiccation timing showing green areas that need further inspection.

Identify the greenest areas of the field and inspect pods and seeds within these areas (Figure 1). A dry bean crop is ready for desiccation when at least 80% of the field is at R9 (full maturity) and seeds have dried down to less than 30% moisture in the least mature parts of the field. At 30% seed moisture, seeds rattle in the lowest pods, upper pods are turning yellow and seeds within the upper pods have lost most of their internal green colour when split.

HARVEST METHOD AND TIMING

Undercutting is typical for row-cropped beans and vine-type varieties that pod low to the ground. Direct harvest (straight cutting) or swathing is common for solid-seeded beans and bush-type varieties with higher pods. Direct harvest also requires flat soil that has not been inter-row cultivated. Beans are ready for harvest in 1–7 days after undercutting, within a week of swathing and 7–10 days after desiccation in the case of direct harvest.

Field View	Plant	Pods and Seeds	Crop Stage
 Pinto Beans		  Lower pod and aggregate seed sample from least mature areas.	**Not Ready** **R8** *Beginning maturity* • 10–20% pod colour change • 20–30% leaf drop • >50% seed moisture
 Pinto Beans		  Lower pod and aggregate seed sample from least mature areas.	**Not Ready** **R8.5** *Mid-maturity* • 50–60% pod colour change • 40–50% leaf drop • 50% seed moisture Most leaves are turning yellow. Seeds begin to separate from the membrane in the lowest pods. Stems are still green.

continued ➤

Field View	Plant	Pods and Seeds	Crop Stage


Pinto Beans

Upper pinto bean pod and seeds, and aggregate seed sample from least mature areas.

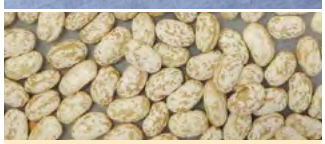

Navy Beans

Split navy bean seeds:
- Left – *too green*
- Middle and right – *enough colour change*


Black Beans

Upper black bean pod and seed from least mature areas.


Pinto Beans



Fully mature pod and aggregate seed sample.

Ready for Desiccation

R9 ***Full maturity***

- 80% pod colour change
- 80–90% leaf drop
- < 30% seed moisture

Seeds rattle in the lowest pods. Upper pods are yellow. Seeds in the upper pods have lost their green colour when split.

Ready for Harvest

- 100% pod colour change
- 100% leaf drop
- 16–18% seed moisture

Seed moisture <16% increases the risk of split seed coats and cracked or shrivelled beans. The maximum safe storage moisture for dry bean seed is 16%. Seed moisture >18% increases the risk of heating and spoilage.

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