

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, but will not dry down the crop in a timely fashion.

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) if there is excessively wide variation in crop maturity, consider harvesting in stages instead.

APPLICATION TIMING

Field pea desiccation timing is in late July to early August when conditions are hot and dry. Peas are ready for desiccation, preharvest weed control or swathing when at least 80% of the field is at R7 (full maturity), which is when most pods (80%) are golden-brown and seed moisture is less than 30% in the least mature parts of the field. Carefully timed preharvest application or swathing will limit the number of shrivelled seeds and, in the case of preharvest glyphosate, limit the risk of chemical residue accumulation in the seed.

At 30% seed moisture, the lowest pods are ripe, and seeds within have detached from the pod and rattle when shaken. In the middle pods, seeds have changed to their mature colour. In the upper pods, seeds are firm and split rather than squash when pressure is applied (Figure 1). Upper pods also appear wrinkled with an orange peel-like texture and have begun to change colour.

Swathing is an option for peas and acts much like a desiccant. However, billowy pea swaths are highly susceptible to harvest losses from wind damage. If possible, direct harvesting (straight cutting) is best for peas.

Keep an eye on forecasted conditions. Different products have different weather requirements for maximum efficacy. For example, apply diquat during the evening or cloudy weather followed by warm, sunny conditions for rapid dry-down. Alternatively, saflufenacil needs sunlight for activity and should be applied during daylight hours, under clear skies. Cool, rainy conditions following desiccation can result in regrowth from the base of the plant after application of any desiccant.

HARVEST

Harvest peas once the overall seed moisture is less than 20%. Harvesting over 20% moisture can increase the amount of earth tag. Harvesting below 16% moisture will increase the risk of seed damage. To avoid bleaching in green peas, harvest before seed moisture drops below 18%.

Harvest may begin 3–10 days post-desiccation, depending on the product, temperature and moisture conditions. If straight cutting, flex headers are typically used to run as close to the ground as possible. Rigid



Figure 1. Upper pods, seeds and split seeds from the least mature areas of a yellow pea field. Top photo is too early for desiccation – seeds squash under pressure indicating moisture is > 30%. Bottom photo is ready for desiccation – seeds split evenly, colour change has begun and pods have an orange peel-like texture.

headers can also be successful if the crop is standing upright. Rolling is recommended to reduce earth tag. Vine lifters and pick up reels aid in harvesting lodged crops by lifting the canopy up over the cutting bar. Vine lifters reduce harvest losses, plugging and allow for faster harvest speeds.¹ For best results, space lifters at 9- to 12-inch intervals.

Peas thresh easier and quicker when plants are dry in the afternoon. Combining in the humid parts of the day (early morning or late evening) when plant material is tougher may result in higher cracks and splits. Match the pick-up header or reel speed to the ground speed to reduce shatter.

Cracked seed coats and splits occur when seed is too dry and/or when cylinder or rotor speeds are too high. Harvesting at 18–20% seed moisture and reducing cylinder speeds can reduce seed damage. Run the combine and augers at low speeds and at full capacity.

If soybeans were the last crop harvested in the previous season and peas are the first crop being harvested this year, take the time for proper combine clean-out. As peas are often destined for human consumption, soybeans are considered an allergen and seed is difficult to separate.

STORAGE

According to the Canadian Grain Commission, field peas are considered dry at < 16% moisture, tough at 16–18% and damp at > 18% moisture. Monitor stored peas regularly for hot spots and other changes in moisture and temperature. Peas often respire or sweat after being placed in storage, so be sure to check inside the bin for moisture build-up or spoilage.

TABLE 1. NUMBER OF WEEKS OF SAFE PEA STORAGE AT DIFFERENT MOISTURE CONTENTS AND STORAGE TEMPERATURES.²

Temperature (°C)	Moisture Content of Seed (%)				
	12	14	16	18	21
	Maximum Safe Storage (weeks)				
26	31	16	7	4	2
20	55	28	13	7	4
16	100	50	20	12	6
10	200	95	38	20	21
6	370	175	70	39	20

continued ►

References

¹ Prairie Agricultural Machinery Institute and the Alberta Farm Machinery Research Centre. 1990. Pulse Crop Cutting Equipment, Research Report 633.

² Barker, B. 2018. Post-harvest storage of pulses. Saskatchewan Pulse Growers Fact Sheet. saskpulse.com/growing-pulses/peas/harvest/

SCOUTING FOR DESICCATION TIMING

Targeting < 30% seed moisture in the least mature part of the field
 Begin monitoring the crop for pod colour and developmental changes approximately 20 days after flowering. Walk the field to inspect plants from different areas. Peas flower and ripen from the bottom up, so there will often still be green material at the top of the plant when the rest of the plant is ripening. This means that assessing the field from the road could be misleading.

At desiccation timing, at least 80% of the field should be at R7. Using a drone, standing on the tailgate or doing a drive-by assessment are good

ways to check the evenness of maturity across the field, especially if you know there are depressions or sandy ridges with contrasting moisture levels that can affect maturity.

To determine if the crop is ready for desiccation, scout the least mature parts of the field and check pods. At the correct desiccation timing, seeds in the bottom pods will rattle, seeds in the middle pods will have changed colour and seeds in the upper pods will have some colour change and split evenly under pressure. If seeds in the upper pods squash rather than split, it is too early to desiccate.

Field View	Plant	Pods and Seeds	Crop Stage
		 Upper pod	<p>Not Ready – R5 Beginning maturity</p> <ul style="list-style-type: none"> • 10–20% pod colour change • 20–30% leaf dry-down • >50% seed moisture <p>Leaves and lower pods start to turn yellow.</p>
		 Upper pod	<p>Not Ready – R6 Mid-maturity</p> <ul style="list-style-type: none"> • 50–60% pod colour change • 40–50% leaf dry-down • 30–50% seed moisture <p>Most leaves are turning yellow. Seeds begin to separate from the membrane in the lowest pods. Stems are still green.</p>
		 Upper pod  Middle pod  Lower pod	<p>Ready for Desiccation – R7 Full maturity</p> <ul style="list-style-type: none"> • 80% pod colour change • 80–90% leaf dry-down • <30% seed moisture <p>Seeds rattle in the lowest pods. Middle pods are yellow and seeds have changed colour. Upper pods are wrinkled. Seeds in the upper pods split evenly under pressure and show some internal colour change.</p>
		 All pods	<p>Ready for Harvest</p> <ul style="list-style-type: none"> • 100% pod colour change • 100% leaf dry-down • 18–20% seed moisture <p>The maximum safe storage moisture for field peas is 16%.</p>