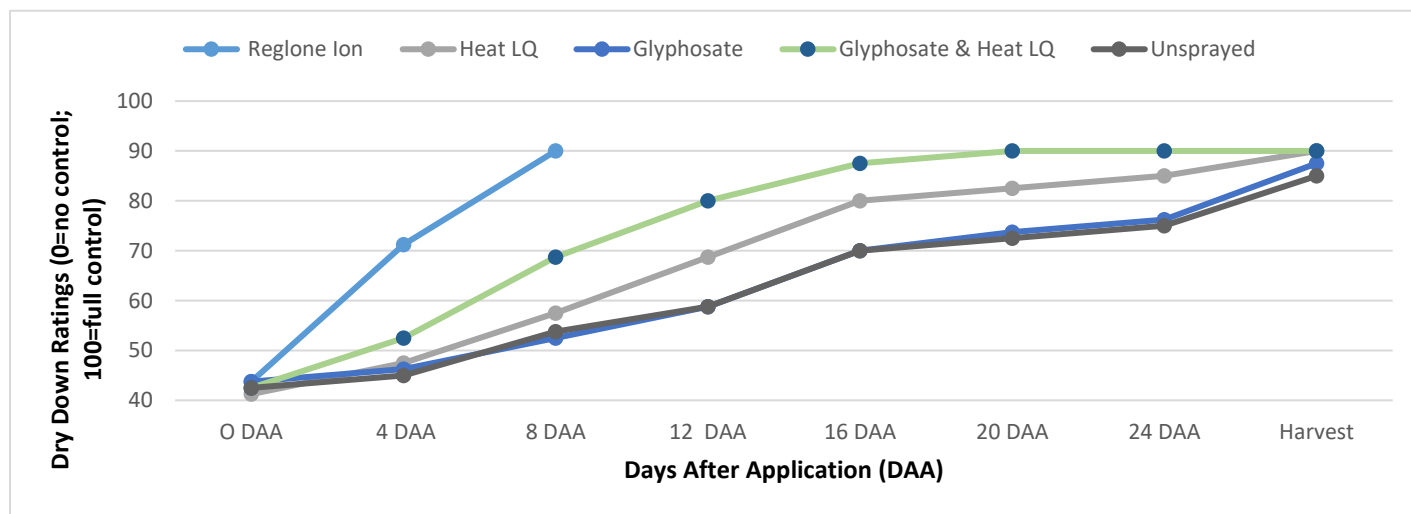


# Desiccation Demonstration in Small Red Lentils

Chemical desiccation can be a very effective harvest tool to improve lentil harvest ability. The timing of application is critical to ensure yields and seed quality are not compromised. The effects of a desiccant can occur immediately after application and therefore the timing cannot be compromised. An early application may reduce seed size and yield of lentil and increase the risk of wrinkling. This demonstration was developed to provide a visual representation of the effects of application timing and to highlight the desiccant options available to producers. The demonstration consisted of a RCBD with two application timings (early and optimal) and four desiccants (Reglone Ion, Heat LQ, Heat LQ and glyphosate, and glyphosate alone) and one unsprayed check to result in a total of nine treatments. The study was established on small red lentils at Scott, Saskatchewan 2019.

Two application timings were conducted in this experiment, along with a check that received no desiccation application. An early application was applied when 50% of plant was yellow to brown in colour and containing 35-50% seed moisture. Later, an optimized application was applied when the pods on the bottom third of the plant were brown with hard seeds detached from pod that rattled when shaken, or when 80% of plant is yellow to brown in colour. Ten plants were pulled, with seeds extracted from the pods, weighed, dried for 24 hours then weighed again to determine seed moisture percentage. Once the appropriate moisture content was attained the suitable plots were sprayed based on application timings.

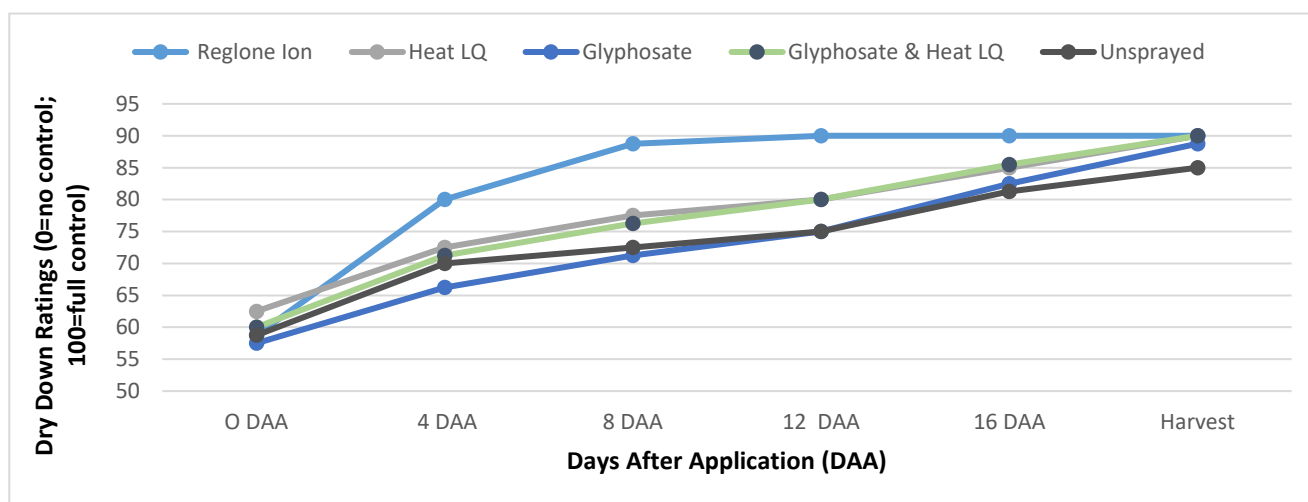
Herbicides applied early had an extended dry down period compared to the optimal timing, in which 24 DAA was required for most herbicides to provide adequate dry down (Figure 1). Reglone Ion was an exception, in which the majority of plants were turned a dark brown (90% control) 8 DAA. Heat LQ and glyphosate applied early resulted in the second fastest dry down in which 80%, 87.5% and 90% control was reached 12, 16 and 20 DAA. Heat LQ applied alone was much slower as control was < 80% 16 DAA and only reached 90% control 30 DAA (just prior to harvest) (Figure 1). Glyphosate applied alone resulted in the slowest dry down when applied early as 90% control was not achieved prior to harvest (30 DAA) and ratings were similar to the unsprayed check.



**Figure 1.** Early application timing comparisons between desiccation products using dry down ratings (0=no control; 100 = full control) from 0 – 24 days after application (DAA) and at harvest in lentils at Scott, SK in 2019.

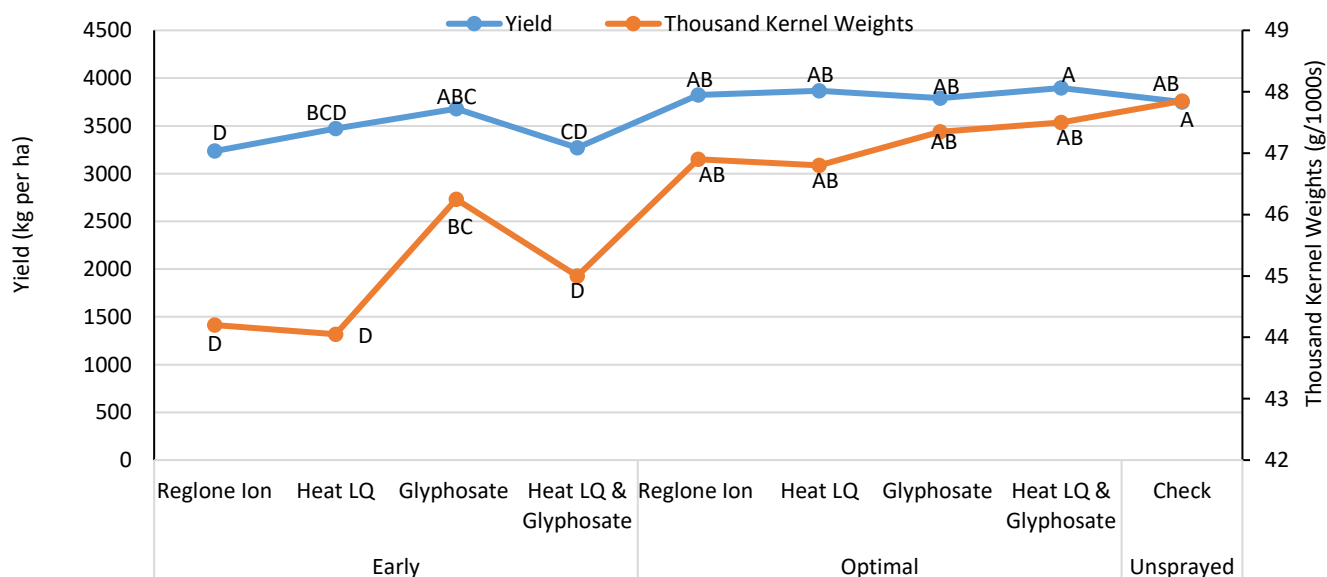
Desiccants applied at the optimal time required a shorter period of time to reach 90% control (16 DAA vs. 24 DAA) compared to the early application timings (Figure 1; 2). Reglone Ion had a similar dry down period to the early application timing with 90% control reached between 8 to 12 DAA. Heat LQ and glyphosate and Heat LQ alone had very similar ratings with 85.5% and 85% control at 16 DAA and 90% control at harvest (19 DAA). Glyphosate applied at optimal timing resulted in a slightly lower ratings than Heat LQ, but was marginally better than the unsprayed check (Figure 2).

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**Figure 2.** Optimal application timing comparisons between desiccation products using dry down ratings (0=no control; 100 = full control) from 0 – 16 days after application (DAA) and at harvest in lentils at Scott, SK in 2019.

The effect of application timing and desiccation products had a significant effect on yield ( $P=0.0116$ ) and seed weight ( $P=<0.0001$ ). Desiccants applied at the optimal timing resulted in an 11% yield gain and a 4.8% increase in seed weight compared to the early application timings. Heat LQ and glyphosate at the optimal application timing resulted in the highest yield of 3896 kg/ha (58 bu/ac) and the second highest seed weight (Figure 3). Heat LQ applied alone and Reglone Ion resulted in second highest yields of 3866 kg/ha (57.6 bu/ac) and 3825 kg/ha (57 bu/ac) but had a 1.5% lower seed weight compared to Heat LQ and glyphosate. The unsprayed check had the median yield with 3748.94 kg/ha (55.8 bu/ac) and highest seed weight of 47.9 g/1000s. The early application timing of glyphosate  $\geq$  Heat LQ  $\geq$  Heat LQ and glyphosate  $>$  Reglone Ion had the lowest yields (3679 kg/ha, 3470 kg/ha, 3270 kg/ha, and 3235 kg/ha, respectively) (Figure 3).



**Figure 3.** The effect of four desiccation products applied at two different application timings (early and late) compared to the unsprayed control on yield (kg/ha) and thousand kernel weight (g/1000s) at Scott SK, 2019. (Different letters indicate significant differences between treatments).

The full report will be available at: [www.warc.ca](http://www.warc.ca). This project was supported by the Saskatchewan Pulse Growers.