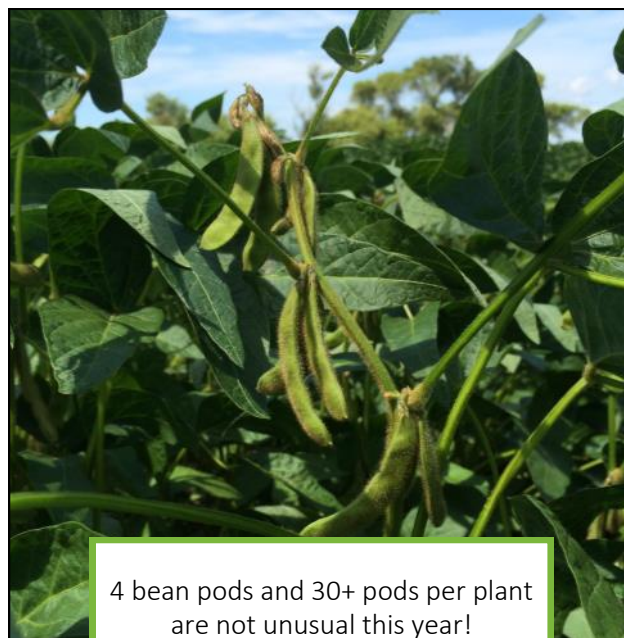


- **Crop update: effects of heat and moisture extremes**
- **Seeded acres in 2015**
- **Variety market share 2015**
- **Edible bean harvest**
- **Desiccation timing for edible beans**
- ***Phytophthora* root rot of soybean**
- **Soybean maturity guide—a NEW visual tool to predict soybean maturity**



4 bean pods and 30+ pods per plant are not unusual this year!

Soybean yield = [(150,000 plants/ac x 20 pods/plant x 2.2 beans/pod) ÷ 2800 seeds/lb] ÷ 60 lbs/bu = 39 bu/ac

Soybeans

The majority of soybeans are in the full seed stage, R-6 (full seed). Overall, soybean development is slightly ahead of 2014 with some fields starting to turn from green to yellow, and harvest may begin in early September. These early maturing fields correspond to very early planting, early varieties as well as some moisture stress. Extreme heat (Aug 10-15) and extreme moisture events recently have had mixed effects on soybeans.

Drought symptoms (wilting, pre-mature yellowing) were present in areas near Boissevain, Lowe Farm and Morden last week but has been somewhat alleviated from weekend rain. On the other hand, the extreme heat negatively affected areas that received high rainfall amounts in early August. High temperatures increase plant respiration, which makes excess moisture conditions significantly more detrimental.

Overall, the soybean crop continues to look very good. In many areas, soybeans are 4 feet tall, but does height translate to yield? There has been little correlation made between height and yield in soybeans. In fact, too tall soybeans can be more prone to lodging.

Soybean yield is a function of plant population, pods per plant, seeds per pod and seed size. The most obvious component is pods per plant. Average pod counts range

from 15 to 30. It is not surprising, however, to find some plants with over 40. To evaluate yield potential, use the Yield Estimator tool in the [MPSG Bean App](#).

Soybean aphids continue to be present with some insecticide applications being warranted. However, most fields have remained at or below threshold without increasing due to high populations of natural enemies and hot, wet weather which has not been favorable.

White mould late season *Phytophthora* are the primary disease concerns that could impact yield.

Dry Beans

Light red kidney bean harvest began near Winkler on August 18 and will continue to progress. Extreme heat in mid August hastened maturity but has taken some yield from edible beans due to flower and pod abortion. This has been evident particularly on the youngest pods at the top of the plant which can provide “bonus yield”. Rust is being reported in North Dakota; it occasionally shows up in Manitoba as well and should be monitored up until R-7 (plants green, blossom on tendril). Most beans are at R-8 (leaves yellowing over half the plant) with 10-12 days until R-9 (mature, 80% pods showing yellow). As fields yellow, timing is being monitored for cutting and desiccation.

Edible bean harvest

Did you know? Edible beans are harvested one of two ways:

- 1. Conventional undercut and windrow:** this method involves an undercutting operation which cuts the plants below the soil line. The cut plants are then windrowed and harvested, for a total of three field operations. On lighter land, bean plants can be pulled from the soil and windrowed in one operation. While more labour intensive, cutting/pulling is the traditional method that is used to minimize harvest losses and preserve quality. The majority of pinto and specialty beans are harvested this way, comprising approx. 60-70% of Manitoba beans.
- 2. Direct harvest:** this method generally involves desiccation to dry down green plant material and manage weeds, followed by direct combining 7-10 days later. This is an increasingly common method that requires less labor but can result in higher losses. Many navy and black beans are harvested this way and efficiency is increasing with more upright varieties being grown. Approximately 30-40% of Manitoba dry bean acres are direct harvested.

Desiccation: A review of product performance

From 2010-2012, a dry bean desiccation study¹ was conducted to evaluate the effect of tank-mixing different contact herbicides (Aim, Reglone, Valtera and Heat) with glyphosate on yield, weed control, seed quality and residue accumulation.

Heat (saflufenacil), Reglone (diquat) and Valtera (flumioxazin) had the highest dry down of pod, stem and leaf material at 4 and 8 days after application (DAA). All were superior compared to glyphosate applied alone. For example, tank-mix combinations provided 87% leaf desiccation compared to 67% with glyphosate alone 8 DAA.

Heat (saflufenacil), Reglone (diquat) and Valtera (flumioxazin) alone or in combination with glyphosate also provided adequate dry down of redroot pigweed, lambsquarters and green foxtail. Adding a tank-mix partner to glyphosate significantly increased weed desiccation at 4 and 8 days after application. For example, tank-mix combinations provided 68% weed desiccation of redroot pigweed compared to 44% with glyphosate alone at 8 DAA.

At the Manitoba site², Reglone (diquat) and Heat (saflufenacil) tank-mixed with glyphosate provided the most consistent results for preventing glyphosate residue accumulation in dry bean seed while facilitating desiccation and adequate late season weed control.

What about biennial wormwood and kochia?

There is significantly less literature available on the efficacy of desiccation to control these difficult-to-manage weeds. Glyphosate, with systemic movement may reduce seed viability in future years but satisfactory control should not be expected.



Desiccation Timing in Dry Beans

- 80% of pods yellow
- 80-90% leaf drop
- Seed moisture <30%

65% Pod Color Change - NOT Ready Picture Taken August 19



80% Pod Color Change - READY to desiccate Picture Taken August 21



¹Soltani, N., Blackshaw R. E., R. E. Gulden, R. H. Gillard, C. L., Shropshire, C. and Sikkema, P. H. 2013. Desiccation in dry edible beans. Cdn. J. Plant Sci. 93: 871-877.

²Waddell, K. 2013 The Evaluation of Harvest Aid Herbicides for Dry Bean (*Phaseolus vulgaris* L.) Production in Manitoba. Print. MSc. Thesis. University of Manitoba.

