



R-4 (Full Pod) - pods are 3/4" long on one of top 4 nodes

- Heat units—where are we and how far are we from maturity?
- Dry beans—important desiccation info
- Soybeans—rapid nutrient and water uptake
- Leaf spots and herbicide injury symptoms
- Volunteer canola—when is it a problem?
- Thank you for supporting MPGA Field Tours

Soybeans

Soybeans are between R-3 (early pod) and R-5 (early seed). Once soybeans reach R-4 (full pod) they are *past* the halfway point of growth and will require 40-45 more frost-free days to reach R-7. From R-5, soybeans require 35-40 frost-free days. Between R-4 and R-5 is also the **critical yield determining stage**. Growing conditions during the next two weeks will be critical for soybeans. In some areas of south-central Manitoba, rain is needed.

Did you know? Between **R-4** and **R-5** (70-75 days after planting), nitrogen fixation and nutrient uptake will peak. Stress during this time (lack of nutrients, water deficit) may reduce pod number and number of seeds per pod. The soybean plant will reach its maximum height, node number and leaf area (McWilliams et al., NDSU).

Dry beans

Dry beans are near the end of flowering and starting to develop seeds on oldest pods, between R-6 and R-7, although fields affected by excess moisture early in the season are significantly behind. Early maturity due to water stress is reported in some areas. Bacterial blight is prevalent in many fields. As we near maturity, MPGA along with Saskatchewan and Alberta pulse crop organizations remind growers to review information on desiccants, Maximum Residue Limits (MRLs) and potential marketing issues. An updated fact sheet for 2014 can be [found here](#).

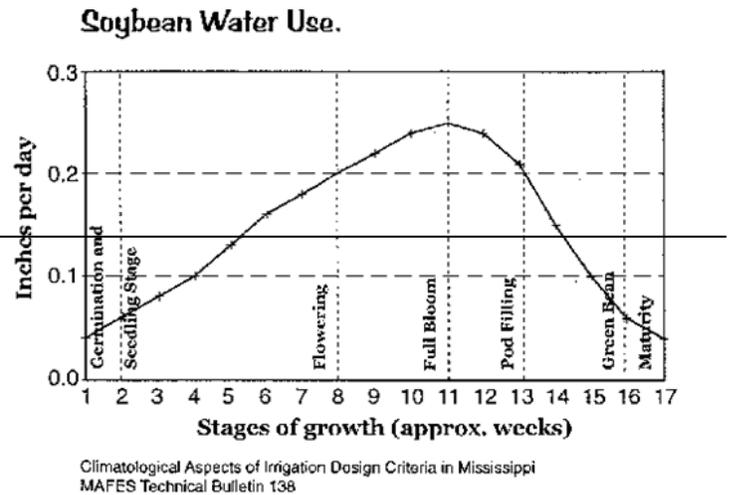
	MAY 25- AUG 6	Crop Heat Units	% normal	Rainfall (mm)	% normal
Dugald		1483	94	186	98
Carman		1475	95	176	98
Morden		1575	94	157	88
Portage		1548	98	171	95
Boissevain		1506	97	204	124
Brandon		1452	98	315	194
Hamiota		1436	100	211	125
Dauphin		1446	98	270	152

New moisture conversion tables for soybeans, peas, small red beans and canola

The Canadian Grain Commission has updated moisture conversion tables for these crops and can be found on their [website here](#).

Soybean Water Use

Soybeans require significantly more water than wheat, canola and sunflowers (Bauder and Ennen, 1978). Water uptake by soybeans will peak 10-12 weeks after planting. In August, soybeans will take up approx. $\frac{1}{4}$ " of water per day. It is important for pod formation and seed fill that soybeans receive adequate moisture in August. Although we may not want rain to interfere with harvest of wheat and canola, it will be beneficial for the beans. As of late, soybeans in south-central Manitoba have been exhibiting signs of heat stress by flipping their leaves over. This mechanism reflects solar energy and reduces water loss.



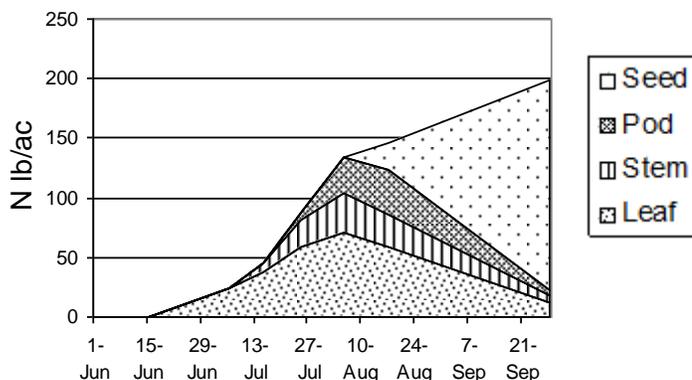
Soybean Nutrient Uptake

Nutrient uptake is also peaking at this time. In a Manitoba field experiment, tissue analyses from a commercial crop of soybeans were taken throughout the growing season to measure nutrient uptake and partitioning in soybeans (Heard, 2005). The following graphs represent typical nutrient accumulation of soybean throughout the growing season.

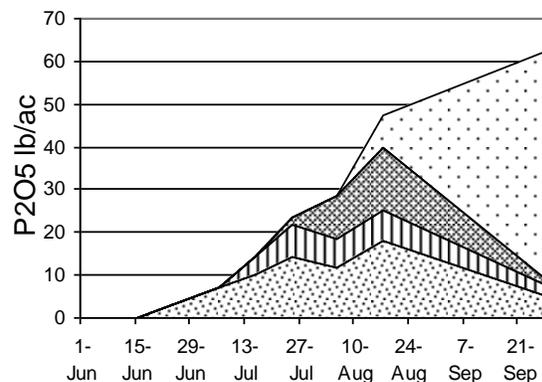
Between R-1 and R-4, **nitrogen** uptake exceeds 4 lbs N/day. Total accumulation of N in the plant biomass (including seed, pods, stems and leaves) is nearly 200 lbs/ac, with 88% being removed in the grain.

Between V-4 and R-6, **phosphorus** uptake averages approx. 0.9 lbs/day and results in a total accumulation of approx. 60 lbs/ac. At harvest, total P removal with the grain is approx. 1.15 lbs P/bu.

Soybean Nitrogen Uptake



Soybean Phosphorus Uptake



Soybean leaf spots, herbicide injury and sunburn

Lesions appear on soybean leaves for many reasons, here's what has been showing up lately:



Bacterial blight—brown spotting with yellow halos and shredding of leaf tissue.

Leaf burn —brown necrosis, may occur at contact point or kill entire leaf—from some group 6 herbicides as well as burn from foliar N application.



Sunburn—brown spotting on upper or lower leaf surface exposed to sun, will appear on one side only and often on outer edges



Herbicide injury—group 2 herbicides can cause veins to turn reddish/brown when applied to plants under stress



Septoria brown spot —small or large brown spots on upper and lower leaf surface. Often in lower canopy but can progress upward.



Volunteer Canola—how much is too much?

This is the time of year that we often see a sea of yellow among green soybean fields. At what point is volunteer canola causing damage? A University of Manitoba study is expected to produce final results on economic thresholds in time for our next growing season. Preliminary results show that the threshold tends to be higher and more variable in wide row beans compared to narrow row beans (Paul Gregoire, personal communication). But in both production systems, the threshold for 5% yield loss can reflect the cost a grower would expect to pay to manage the volunteer canola with a herbicide.

In narrow row soybeans, **5% yield loss is expected to occur at canola densities of 2.4 plants/m². The threshold is higher in wide row spacing at canola densities of 4.2 plants/m².**

Now, that's a lot of canola - the majority of fields are well below this threshold.

Typical field where volunteer glyphosate tolerant canola is an aesthetic problem

Density = <math><1 \text{ plant/m}^2</math> of canola



MPGA Field Tours—Thank you!

Our MPGA Field Research Tours were a huge success—with over 150 growers and industry in attendance at Morden and Brandon. This is an important opportunity to showcase the value of grower levy dollars and tour the research plots where varieties are tested and optimum production practices are identified. Thank you!

