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## Quick Links:

[2018 Scouting Network](#)

[Field Pea Production Guidelines](#)

[Dry Bean Growth Staging Guide](#)



Field peas at the 2<sup>nd</sup> to 3<sup>rd</sup> node stage on May 22, 2018 in south-central Manitoba.

## Soybeans

Soybean seeding is nearing completion in most areas of Manitoba, with germination and emergence of soybean crops well underway. Many farmers opted to plant soybeans deeper than usual this year to achieve better seed to soil moisture contact under dry conditions. The recommended seed depth range for soybeans is typically 0.75" to 1.5". Emergence issues can result from seeds planted >1.5" deep. Uneven seed depth causing uneven emergence may be one issue in narrow-row seeding systems, if furrows are filled in due to harrow packing and levelling or rolling, or if the seeder is dragged through knolls with mellow soil. Other issues may include delayed emergence and increased susceptibility to early-season insect and disease pressure, the longer seeds sit in the soil. However, planting slightly deeper into moisture wherever necessary was likely a good practice this year—especially for areas that did not receive adequate rains late last week. Soybean plants exhibit epigeal emergence, which requires a great deal of energy to push the cotyledons above ground. Scout for early-season pests and timing/evenness of emergence throughout the rest of May. If you are a farmer still contemplating whether you should continue to seed or park the seeder and wait for rain, consider crop insurance deadlines ([Area 1: June 6](#), [Areas 2-4: May 30](#)) and remember that yield potential is lost with June planting of soybeans.

## Dry Beans

Dry bean planting is underway in Manitoba, at approximately 20-30% completion. Farmers should be getting ready for early-season weed control, as edible beans are poor competitors against weeds. Pre-emergent weed control is especially important due to relatively limited in-crop herbicide options. Refer to page 4 for pre- and post-emergent herbicide options in dry beans. Weed pressure has been low to-date, but recent rains in some areas of Manitoba may bring new weed flushes. Note that pre-emergent products need moisture to be effective.

## Field Peas

Field pea seeding should now be wrapped up in Manitoba, with plants ranging from emergence to the 3<sup>rd</sup> node stage. Keep an eye on field pea staging according to node number, rather than plant height, for early season weed control. According to research, herbicide application delayed until the fourth week after emergence can reduce pea yields by 25%. Therefore, refer to product labels and avoid herbicide application past the 6<sup>th</sup> node stage. See page 4 for in-crop herbicide options. When assessing node number, do not include scale leaves as nodes.



## Faba Beans

Faba bean seeding is also wrapped up in Manitoba, with seedlings ranging from emergence to the 2<sup>nd</sup> leaf/3<sup>rd</sup> node stage. Like other pulse crops, faba beans are also poor competitors against weeds and early season weed control is important. Some in-crop herbicides do not list a leaf stage restriction for faba beans. Therefore, aim for the early end of the recommended herbicide application window when in doubt.



Faba bean seedlings at emergence (left) and at the 2<sup>nd</sup> leaf/3<sup>rd</sup> node stage (right).

## Dry Bean Planting Tips

### Planting Date

Have you ever heard the saying, “plant your dry beans when the oak leaves are the size of a mouse’s ear”? This may not be a scientific recommendation, but it surely has some validity. Dry (edible) beans are typically planted from mid- to late-May in Manitoba. This is to ensure they do not experience frost after emergence, as frost damage can cause significant injury to this high-value crop. According to MASC data from 1989-2008, the second, third and fourth weeks in May typically yield the best for navy beans in Manitoba.

### Seeding Depth

Much like other large-seeded crops (i.e., field peas, soybeans), dry beans can withstand greater seed depth than small-seeded crops (i.e., canola, cereals) to ensure they have adequate seed to soil moisture contact. The recommended range is 0.75” to 1.5” deep. Plant dry beans at a slower speed to minimize dry soil in the furrow and ensure adequate down pressure to achieve the desired depth.

### Plant Population

Another rule of thumb for dry beans is “don’t grow any more than you can afford to lose.” But remember that this crop is a poor competitor against weeds. Calculate seeding rates to establish the target plant stands (live plants/ac) listed in Table 2 for each dry bean market class. Factor seed weight and expected seed survival into seeding rate calculations. Also ensure that economic assumptions are considered, such as seed cost, expected grain price and yield.

Recent research in Dr. Rob Gulden’s lab at the University of Manitoba examining both plant density and row spacing has shown that dry bean yield is relatively insensitive to changes in plant population. However, this research is ongoing to explain the lack of dry bean yield response and to identify optimal target plant stands of dry beans in Manitoba.

### Row Spacing

Row spacing is another management tool that can assist with crop competition against weeds. Dry beans have traditionally been planted in wide rows to promote airflow in the crop canopy to prevent disease development (e.g., white mould). However, recent research conducted in MB and SK has pointed to yield benefits associated with narrow rows. This is due to faster crop canopy closure to outcompete later flushes of weeds and better sunlight capture. [Preliminary results](#) from Dr. Gulden’s lab (U of M) have shown that combined average yield of pinto and navy beans declined with wider row spacing, such that 7.5” rows yielded 1.8 times greater than 30” rows—the more commonly used row spacing. Similar results were reported by Jeff Ewen, Saskatchewan Ministry of Agriculture, who also conducted research comparing narrow vs. wide-row beans. Under dry conditions such as those experienced thus far in 2018, narrower rows may also provide the added benefit of moisture conservation. However, growers must also be aware of the potential increase in seed damage that can occur from air seeders and seed handling, and account for this in seeding rate calculations.



**Figure 1.** Crop canopy closure of dry beans at the V4 stage planted in row spacings of 7.5” (19 cm), 15” (38 cm), 22.5” (57 cm) and 30” (76 cm) at Carman, MB in 2016 at 30 plants/m<sup>2</sup> (Laura Schmidt, University of Manitoba).

**Table 1.** Average seed weights and optimum target plant stands of different dry bean market classes for 30” row spacing, unless otherwise specified.

Market Class	Average seeds/lb	Live plants/acre	Live plants/m <sup>2</sup>
Pinto (row)	1,200 – 1,500	60-70,000	15-17
Pinto (solid)		90-100,000	22-25
Navy (row)	2,200 – 2,800	90-100,000	22-25
Navy (solid)		130-140,000	32-35
Black (row)	2,300 – 2,800	90-100,000	22-25
Black (solid)		130-140,000	32-35
Kidney	800 – 1,000	70,000	17
Great Northern	1,200 – 1,600	70-80,000	17-20
Pink	1,600 – 2,000	90,000	22
Small Red	1,400 – 2,000	95,000	23

Adapted from [North Dakota State University](#)

### LAND ROLLING IN A DRY YEAR

Blowing soil was a common sight this spring in Manitoba and land rolling may only make it worse. Rolling is only appropriate on stony land to facilitate harvest of low-podded crops, such as soybeans, dry beans and field peas. Pulverized soil from rolling at the time of seeding is especially at risk under dry conditions, with no standing plants to slow wind erosion. Each of these crops can be rolled post-emergence at the appropriate time—soybeans and dry beans at the V1 stage and peas until the 5<sup>th</sup> node stage ([UMN Extension](#); [Alberta Agriculture](#)). Aim to roll in the heat of the day, when plants can bend most easily. If soybeans and dry beans are already emerging, wait until the V1 stage to avoid breakage of the sensitive hypocotyl arch.

A brand new MPSG-funded study was launched in 2018 by Dr. David Lobb at the University of Manitoba, in collaboration with partners at AAFC, Manitoba Agriculture and MPSG, to measure rolled vs. unrolled soybeans and the impact of this blowing soil on young soybean plants. Stay tuned for the results of this project.



## Weed Seedling ID

### Biennial Wormwood

Making its first appearance in the top 20 most abundant weeds list, according to Manitoba's 2016 survey, biennial wormwood is up from 49<sup>th</sup> place in 2002. In 2016, it was ranked as the 9<sup>th</sup> most abundant weed in soybeans. The threshold for biennial wormwood is 10 plants/m<sup>2</sup>, which can cause 44% yield loss in soybeans ([NDSU](#)). Despite its name, wormwood actually behaves as an annual plant in Manitoba—it emerges very late in June and often escapes in-crop herbicides. A combination of pre-emergent residual and in-crop herbicides (e.g., Valtera followed by bentazon) can offer effective control (see pg. 4). Wormwood is often confused with common ragweed; however, wormwood leaves are more finely divided (Figure 2A).

### Kochia

Although ranked lower in abundance than other weeds, kochia (Figure 2B) is poised to be problematic in 2018. It thrives in conditions considered poor for most crops, such as drought and salinity. Kochia emerges very early, often prior to crop seeding, meaning seedlings are often too large to effectively control with in-crop herbicides. Therefore, pre-emergent herbicides are often required to control kochia in pulses and soybeans. In addition, glyphosate resistance has been confirmed in the rural municipalities of MacDonald, Dufferin, Grey, Brenda-Waskada, Emerson-Franklin and Grassland. If you suspect glyphosate-resistant (GR) kochia, contact an MPSG Production Specialist and take samples to the [Pest Surveillance Initiative lab](#) to confirm resistance via qPCR tissue testing.

### Volunteer Canola

Ranked as the number one weed in soybeans, volunteer canola (Figure 2C) is also a concern in most crops. It was ranked as the 5<sup>th</sup> most abundant weed in Manitoba overall. Research by Dr. Rob Gulden's lab at the U of M has found that 2.5 and 3.2 canola plants/m<sup>2</sup> will reduce soybean yield by 5% in wide (30") and narrow (7.5") rows, respectively. Increasing seeding rate, managing residual N and using inter-row tillage on wide rows will also increase the competitive ability of soybeans against volunteer canola. Tank-mix options are available to effectively control volunteer canola in soybeans and pulses (pg. 4) and independent evaluation of tank mix efficacy can be found in the latest issue of the [Pulse Beat Science Edition](#). If growing Xtend soybeans, be aware that glyphosate-resistant (GR) volunteer canola is not on the dicamba label. [Click here](#) for tips on spraying dicamba safely. Enlist soybeans are tolerant to 2,4-D, which is registered for control of GR volunteer canola.

### Yellow Foxtail

Another weed that recently increased in relative abundance is yellow foxtail, currently ranked 6<sup>th</sup>, up from 30<sup>th</sup> place in 2002. Yellow foxtail is morphologically similar to green foxtail. However, yellow foxtail can be distinguished by examining the ligule, which has long conspicuous hairs (Figure 2D). High populations of yellow foxtail (48 plants/ft<sup>2</sup>) typically cause only minimal yield loss (5%) in soybeans, unless soil moisture is adequate until July then limiting from late July to maturity, which can result in 15% soybean yield loss. The 2016 herbicide resistance weed survey found 42% of yellow foxtail populations to be resistant to group 1 and/or 2 herbicides.

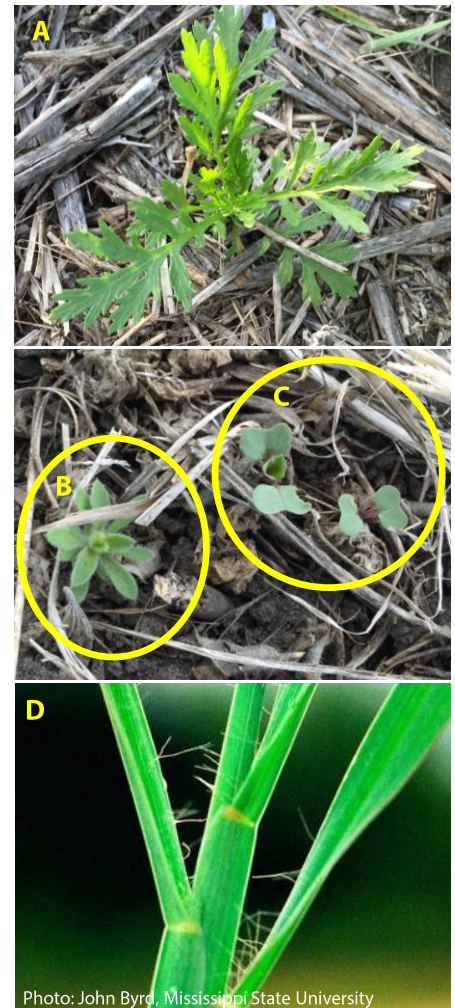


Photo: John Byrd, Mississippi State University  
**Figure 2. (A) Biennial wormwood, (B) kochia, (C) volunteer canola and (D) yellow foxtail seedlings.**

[NDSU Identifying Weeds and Their Seeds](#)

## Pea Leaf Weevil – A New Potential Pest in Manitoba



Photo: P. Beauzay, NDSU

**Figure 3. Notches on field pea leaf edges caused by pea leaf weevil.**

A serious pest of field peas and faba beans in Saskatchewan and Alberta, pea leaf weevil is moving eastward. In 2017, weevil damage was identified in north-west and north-central North Dakota and along the Manitoba-Saskatchewan border (see [map](#)). Vigilant scouting in the western part of our province is necessary to identify and manage the pest.

In spring, adults fly in from overwintering sites (perennial legume crops) and lay eggs close to host plants. Larvae cause economic damage by feeding on root nodules, resulting in poor plant growth. Adult weevils feed on leaves, but rarely cause economic damage. The characteristic leaf notching on leaf margins can be used to monitor pest presence (Figure 3).

For more information regarding pea leaf weevil scouting methods, thresholds and management, see NDSU's [Integrated Pest Management of Pea Leaf Weevil](#) factsheet.

## Dry Bean and Field Pea Herbicide Options

**Table 3.** Pre- and post-emergent weed control options in dry beans for grassy, broadleaf and perennial weeds in Manitoba (Source: Manitoba Agriculture).

HERBICIDE	Page in Guide to Field Crop Protection	Bean, Dry	Herbicide Group	Barnyard Grass						Foxtail, Green		Foxtail, Yellow		Volunteer Barley		Volunteer Wheat		Wild Oats		Biennial wormwood	Canola, volunteer	Buckwheat, Wild		Chickweed	Cleavers	Cocklebur	Hemp-nettle	Kochia	Lamb's-quarters	Mustard, Wild	Nightshades	Pigweed, Redroot	Ragweeds	Russian Thistle	Shepherd's Purse	Smartweed, Annual Species	Stinkweed	Waterhemp	Canada Thistle	Dandelion	Perennial Sow-thistle	Plantain	Quackgrass																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

• - Control. S - Suppression. TG - Top growth control. ✓ - Control/suppression based on field trials.

<sup>1</sup> Navy, kidney and pinto beans only <sup>2</sup> Navy, and kidney beans only <sup>3</sup> Pinto, pink and red beans only <sup>4</sup> For use on navy beans in the Red River Valley of Manitoba. Does not include weeds controlled by Basagran Forté <sup>5</sup> Not tested for tolerance on all types of dry beans <sup>6</sup> For control of the marked weeds when emerging from seed (not controlled if emerged at time of application) <sup>7</sup> Not including CLEARFIELD varieties

**Table 4.** Post-emergent weed control options in field peas for grassy, broadleaf and perennial weeds in Manitoba (Source: Manitoba Agriculture).

HERBICIDE	Page in Guide to Field Crop Protection	Herbicide Group	Weeds controlled by herbicide (grassy, broadleaf and perennial weeds in winter or early spring)																												
			Barnyard Grass	Foxtail, Green	Foxtail, Yellow	Volunteer Barley	Volunteer Wheat	Wild Oats	Biennial wormwood	Canola, volunteer	Buckwheat, Wild	Chickweed	Cleavers	Cocklebur	Flixweed	Hemp-nettle	Kochia	Lamb's-quarters	Mustard, Wild	Nightshades	Pigweed, Redroot	Ragweed, common	Russian Thistle	Shepherd's Purse	Smartweed, Annual Species	Stinkweed	Waterhemp	Canada Thistle	Dandelion	Perennial Sowthistle	Quackgrass
Post-emergent																															
Bentazon	112	6						✓	•		•	•	•				•	•	•	S	•	S	•	•	•		•				
Clethodim	136	1	•	•	•	•	•	•																						•	
Imazamox/Imazethapyr	244	2	•	•		•	• <sup>1</sup>	•	• <sup>1</sup>	S	•	•		•	S		S	•		•			•	•	•	•					
Imazethapyr	247	2		•				S	• <sup>1</sup>	S	•	•			•			•		•			•	•	•						
MCPA Sodium Salt/Amine	269	4												•			•	•					•		•						
MCPB/MCPA	272	4							•						S		•	•		•	•		•		•			•	TG		
Metribuzin	276	5							•		•				•		•	•						•	•						
Odyssey Ultra	288	1/2	•	•	•	•	•	•	• <sup>1</sup>	S	•	•		•	S		S	•		•		•	•	•	•						S
Poast Ultra	305	1	•	•	•	•	•	•																						•	
Quizalofop	319	1	•	•	•	•	•	•																						•	
Trifluralin (broadleaf & grassy weeds)	369	3	• <sup>3</sup>	• <sup>3</sup>	• <sup>3</sup>		• <sup>3</sup>			• <sup>3</sup>	• <sup>3</sup>						• <sup>3</sup>		• <sup>3</sup>		• <sup>3</sup>										
Valtera	384	14		S <sup>3</sup>					S <sup>3</sup>		• <sup>3</sup>					• <sup>3</sup>	• <sup>3</sup>		• <sup>3</sup>	• <sup>3</sup>	• <sup>3</sup>							• <sup>3</sup>			
Viper ADV	393	2/6	•	•	•	•	•	•	•	S		S				S	•	•		•		•	•	•	•						

• - Control. S - Suppression. TG - Top growth control. ✓ - Control/suppression based on field trials.

<sup>1</sup> Will not control CLEARFIELD varieties. <sup>2</sup> For in season activity only. For initial burn down of other weeds see Table 14b. <sup>3</sup> For control of the marked weeds when emerging from seed (not controlled if emerged at application).