MANITOBA Pulse Soybean GROWERS

Field Pea Production Guidelines

FIELD SELECTION

Soil Moisture

Peas thrive in relatively dry soil conditions and are susceptible to seedling diseases and root rots in wet soils. Choose fields with well-drained or coarse-textured soils (not prone to waterlogging).

Soil Temperature

Unlike soybeans, peas are very tolerant to cool soil temperatures. Cooler soil caused by residue in no-till systems will not be detrimental, but trapped excess moisture could hinder pea growth.

Crop Rotation

Peas generally yield highest when grown after winter/spring wheat or barley (MASC). A one-in-four-year rotation is ideal for peas. Fields diagnosed with *Aphanomyces euteiches* root rot should be cropped to peas only once every seven to eight years.

Weeds

Ensure control over the expected weed spectrum. Avoid fields with known infestations of perennial, biennial and/or Group 2 resistant weeds (cleavers, kochia, wild mustard, pigweed, smartweed, etc.).

Re-cropping Restrictions

Residual herbicides that cause re-cropping restrictions the year following application are listed in Table 1.

TABLE 1. HERBICIDES WITH RE-CROPPING RESTRICTIONS FOR FIELD PEA*

ACTIVE INGREDIENT	TRADE NAME
Atrazine	Atrex Liquid, Primextra II Magnum
Clopyralid	Curtail M, Eclipse III, Lontrel 360, Momentum, Prestige XC, Salute, Tensile
Flucarbazone	Everest 2.0, Sierra 2.0, Inferno Duo
Imazamethabenz	Assert, Avert
Ethametsulfuron	Muster Toss-N-Go

*Consult the Manitoba Agriculture *Guide to Field Crop Protection 2017* and product label for details.

SEEDING

Seeding Date

Seed from late April to early May, as peas are more tolerant to early spring frosts than other crops. Pea cotyledons remain underground (unlike soybeans); therefore, if frost injury occurs, a new shoot will emerge from the growing point under the soil surface. Delaying seeding to the third week in May can reduce yields by 20% compared to the first week in May (MASC).

Seeding Rates and Target Plant Stands

Target 80–90 plants/m^2. Adjust seeding rate to 100 seeds/m^2 to account for 85% seedling survival. Pea seed weight varies considerably among varieties and seed lot. To convert seeding rate (seeds/m^2) to lbs seed/ac, multiply the seed weight (g/1000 seeds) by 1.05.

Seeding Depth

Seed peas at 1.5–2 inches deep, ensuring they are in moisture.

Inoculant

Use pea-specific inoculant even on fields with a history of peas to ensure adequate populations of effective bacterial strains. Consider double-inoculating fields with no history of peas, or using granular inoculant when spring/seeding conditions are unfavourable. Check nodulation three to four weeks after crop emergence. Rescue N application should be applied during the 9–12 node stage.

Pea nodules branch as they develop and are more oval-shaped compared to soybean nodules.

Fertilizer

Nitrogen (N) is generally not required, but starter N (~15 lbs N/ac) may improve early growth before nodules begin fixing N, particularly in cold soils with <20 lbs soil N/ac. Phosphorus (P) fertilizer can be applied in the seed row at a maximum safe rate of 20 lbs P_2O_5/ac with seedbed utilization (SBU) of >15%. P fertilizer should be placed away from the seed row with lower SBU. Potassium and sulphur fertilizers should be applied away from the seed row, as they can cause more seedling damage than P fertilizers.

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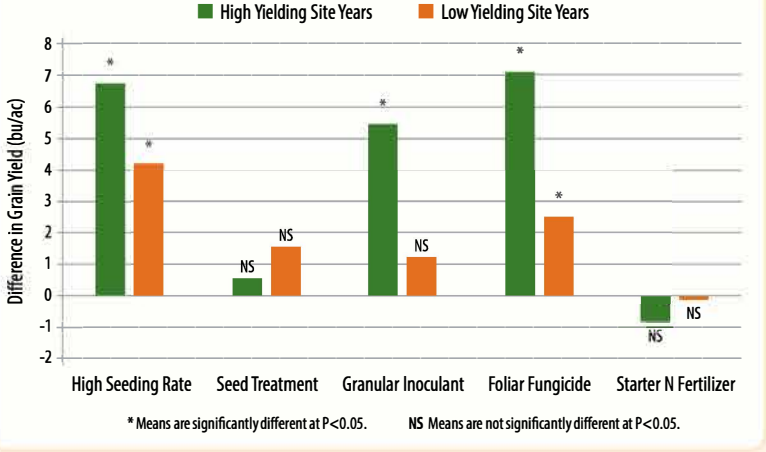


Figure 1. Overall yield response to additional inputs in field pea from six high-yielding site years (>45bu/ac) and six low-yielding site years (<45 bu/ac) in Saskatchewan and Manitoba.

High Seeding Rate = 120 vs. 60 seeds/m^2

Seed Treatment = with fungicide vs. without

Granular Inoculant = in-furrow granular vs. seed-applied liquid inoculant

Foliar Fungicide = with two applications vs. without

Starter N Fertilizer = 30 lbs N/ac side-banded vs. without

CROP PROTECTION

Seed Treatment

Consider a fungicide seed treatment when conditions are less than ideal at the time of seeding (wet/cool/compacted/heavy clay soils or shortened rotations) for protection against seedling diseases, root rots and blights for up to three weeks after seeding. Neither seed treatment, nor foliar fungicide will control *Aphanomyces euteiches* damage mid-season. Consult the *Root Rot in Peas and Lentils* guide for more information. Consider an insecticide seed treatment in fields with a history of wireworms.

Herbicides

Pre-emergent herbicide (PEH) is recommended, as peas are relatively poor competitors, especially early in the growing season. PEH options can also provide excellent control of Group 2 resistant broadleaf weeds, which have limited control options in-crop (Table 2). Most broadleaf in-crop products perform best at the 2nd to 5th above-ground node stage (see Figure 2). Late applications can result in crop injury.

Fungicide

Mycosphaerella blight (*Ascochyta pinodes*) is the most important foliar disease in Manitoba field peas. Begin scouting for lesions during vegetative stages. Before spraying, evaluate three factors: 1) level of infection already present; 2) forecasted weather conditions; and 3) crop value. Apply the first foliar fungicide application at early flower. Invest in a second application 10–14 days later if infection continues to spread up the canopy and moist weather conditions persist. Peas are relatively tolerant to white mould compared to other pulse crops.

TABLE 2. HERBICIDE OPTIONS FOR FIELD PEA*

HERBICIDE GROUP	ACTIVE INGREDIENT	TRADE NAME
Pre-emergent herbicide options		
2	Tribenuron	Express SG, Spike, Nuance, Mpower X, Inferno WDG
3	Ethalfluralin	Edge
	Trifluralin	Treflan Liquid EC, Rival, Bonanza
4	MCPA Ester	GoldWing
8	Triallate	Avadex Liquid EC
9	Glyphosate	–
11	Amitrole	Amitrol 240
14	Carfentrazone	Aim, Authority Charge, CleanStart
	Flumioxazin	Valtera
	Pyraflufen-ethyl	GoldWing
	Saflufenacil	Heat WG, Heat LQ
	Sulfentrazone	Authority, Authority Charge
In-crop herbicide options		
1	Clethodim	Select, Centurion, Arrow, Shadow RTM, Patron 240 EC
	Quizalofop	Assure II, Yuma GL, Contender
	Sethoxydim	Poast Ultra
2	Imazemox	Odyssey, Odyssey Ultra, Odyssey NXT, Viper ADV
	Imazethapyr	Pursuit 240, Mpower Kamikaze, Phantom, Gladiator, MultiStar, Odyssey, Odyssey NXT, Odyssey Ultra
4	MCPA	–
	MCPB/MCPA	Clovitox Plus, Tropotox Plus, Topside
5	Metribuzin	Sencor Solupak 75 DF, Sencor 75 DF, Squadron, TriCor 75 DF
6	Bentazon	Basagran, Basagran Forté, Viper ADV

*Consult the Manitoba Agriculture *Guide to Field Crop Protection 2017* and product label for details.

Insecticide

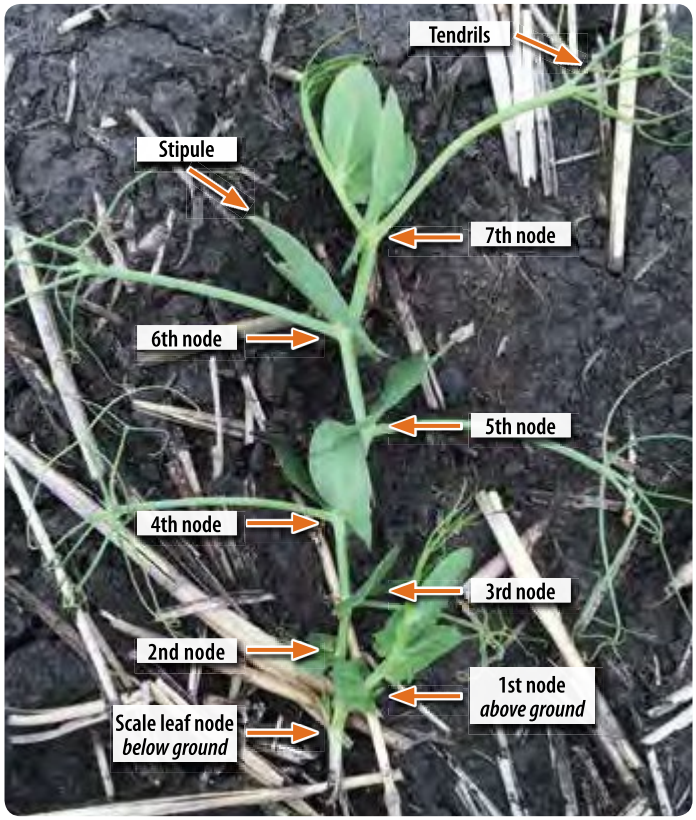
Pea aphids can be a sporadic pest in Manitoba. Scout for aphids at early-flower. At four locations per field, check five plant tips (top 8 inches), or conduct 10 sweeps with a sweep net. If an economic threshold is reached (2–3 aphids/plant tip or 90–120 aphids/sweep), apply foliar insecticide at the time of first pod to protect plants during pod formation and elongation. Pea leaf weevil has not been identified in Manitoba.

Pea aphids tend to feed on the youngest leaf tissue. Unfold the clam leaf (newest stipule) to check for aphids.

HARVEST

Harvest peas when the lower third of pods rattle and the top third of pods have yellow seeds. Use a flex header to straight-cut if the field is even or rolled. If the crop is weedy, swath or desiccate to improve harvestability when the lower third of pods are dry and seeds are yellow, the middle third of seeds are yellow and upper third of seeds are turning yellow.

Figure 2. Field pea staging. This semi-leafless pea cultivar (tendrils largely replace leaves compared to leafy varieties) is at the 7th (above ground) node stage. In-crop herbicide application at this advanced stage would likely cause crop injury. Stipules are modified leaves at the base of each node along the main stem.



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