Pulse Advisor
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Seeding Tips for Chickpeas

For growers in the Brown and Dark Brown soil zones in Saskatchewan, chickpeas are a good pulse crop option. The current Kabuli and Desi chickpea cultivars have comparable maturity, and both can be extended into the moist Dark Brown soil zones if grown on stubble or lighter textured soils. Here are some tips for seeding chickpeas.

Field Choice and Rotations

Avoid planting chickpeas on fields that have had chickpeas in the last three years. A four year rotation is needed for the residue to breakdown and minimize disease risks. Research by Dr. Gan, Agriculture and Agri-Food Canada (AAFC) in Swift Current demonstrated that having three non-host crops between chickpea crops (ex. four-year rotation) can reduce disease severity by 76 per cent.

Chickpeas grow best on well drained soils. Avoid heavy clay or saline soils. Look for fields that have low weed pressure as there are limited herbicide options for weed control in chickpeas.

Seeding Date

Chickpeas require warmer soil temperatures than peas or lentils for optimum germination and vigor. The recommended minimum average soil temperature at depth of seeding is:

Desi chickpeas = 7°C, Kabuli chickpeas = 10°C

Seeding should take place as soon as the soil reaches these temperatures, in order to provide enough time for the crop to mature before the first fall frost. In Saskatchewan, chickpeas should be seeded prior to May 25, due to the crop's long growing season requirement. Late seeding reduces yield potential so it is important to seed as soon as the soils reach the desired temperatures.

Seed Quality

Good seed is important for successful chickpea production. Ascochyta blight caused by *Ascochyta rabiei* (specific to chickpeas) can be carried on seed (seed-borne), and has high seed to seedling transmission rates. Use seed with as close to zero per cent seed-borne Ascochyta as possible. The Saskatchewan Crop Insurance Corporation has set maximum seed-borne Ascochyta infection levels in chickpea seed at 0.3 per cent. To qualify for a crop insurance claim where the cause of loss was Ascochyta blight, the seed used must have been below 0.3 per cent. Newer varieties have shown some improvement in resistance to the disease, however, Ascochyta blight remains a concern for growers in chickpea production.

Seeding Rate

Target plant population to be 33 to 44 plants per square metre (3 to 4 plants per square foot.

Calculating Seeding Rates:

- (Target plant population/m^2 x thousand kernel weight)/ emergence rate = kilograms per hectare (kg/ha)
- Kg/ha x 0.89 = pounds per acre (lb/ac)
- (Target Plant Population/m2) x 0.09 = Target Plant Population/ ft^2

Seeding Depth

Optimum seeding depth is 1.5 to 2.5 inches (3.5 to 6 centimetres). Seed into moist soil to maximize germination and inoculant survival.

Seed Treatment

Seed treatments are recommended for Kabuli chickpeas as they have thinner seed coats and are more susceptible to seed- and soil-borne diseases. Kabuli chickpeas are particularly sensitive to Pythium root rot, which can lead to seed and seedling rots (Figure 1).

Desi chickpeas have thicker seed coats and are more tolerant to soil-borne diseases, due to compounds in seed coats.

Seed with up to 0.3 per cent Ascochyta can be safely planted with use of appropriate seed treatment. For seed-borne Botrytis and Fusarium it is recommended the threshold is a total of 10 per cent. Above this threshold seed treatment is recommended. Additional information on seed treatment recommendations for chickpeas can be read below.

See Related Resources for Chickpea Seed Treatment Options.

Inoculants

Use an inoculant specific for chickpeas that contains *Rhizobia cicero.* Some inoculants will be labelled for garbanzo beans and are appropriate for use in chickpeas. Inoculants are live cultures and should be protected from heat, direct sunlight, and drying conditions in order to maintain effectiveness.

If using seed treatments, follow inoculant compatibility guidelines. The safest methods for using seed applied inoculant is to treat the seed with the seed treatment, allow the seed to dry, then apply the inoculant.

Fertility

Fertility requirements for chickpeas are not well-defined. Based on limited data, the requirement for phosphorous, potassium, and sulphur are similar to peas or lentils. Chickpeas are sensitive to seed-placed fertilizer and the maximum amount of phosphorus that can be safely applied with the seed is 20 pounds per acre of phosphorus, similar to the safe rate with lentils. This is based on good soil moisture and 15 per cent seedbed utilization.

Seedbed utilization = Width of fertilizer and seed spread behind opener divided by row spacing x 100.

Ex.) 1 inch spread / 12 inch row spacing x 100 = 8 per cent seedbed utiliation

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Rolling

Chickpeas do not usually require rolling. Where rolling is planned, chickpeas should only be rolled prior to crop emergence. Rolling after emergence increases the risk of spreading disease, such as Ascochyta blight, and reduces the potential for mechanical injury to chickpea seedlings.

Weed Control

Managing Group 2 herbicide resistant weeds such as kochia and wild mustard are a challenge. Metribuzin is the only in-crop herbicide option. Consider fall or spring applied pre-seed or pre-emergent tank mix options with glyphosate such as Aim®, CleanStart®, or Heat® and/or soil residual products such as Authority®, Authority Supreme®, or Valtera™.

Growth Stages

In chickpeas, the cotyledon remains below-ground. Scale leaves develop below the first true leaves at the first and second node positions. At least one scale leaf remains below ground during early growth, providing protection from spring frosts. The first true leaf begins at the third node stage (Figures 2, 3, and 4). Understanding staging of the chickpeas will be important to ensure herbicide and fungicide applications are made at the proper timing.

Figure 1. Kabuli chickpeas with seed and seedling rots.

Figure 3. Chickpea seedling at emergence (left) and four node stage (second leaf stage) (right).

Figure 4. Desi (left) and Kabuli (right) at four node stage (second leaf stage) (right). Two scale leaves above-ground.
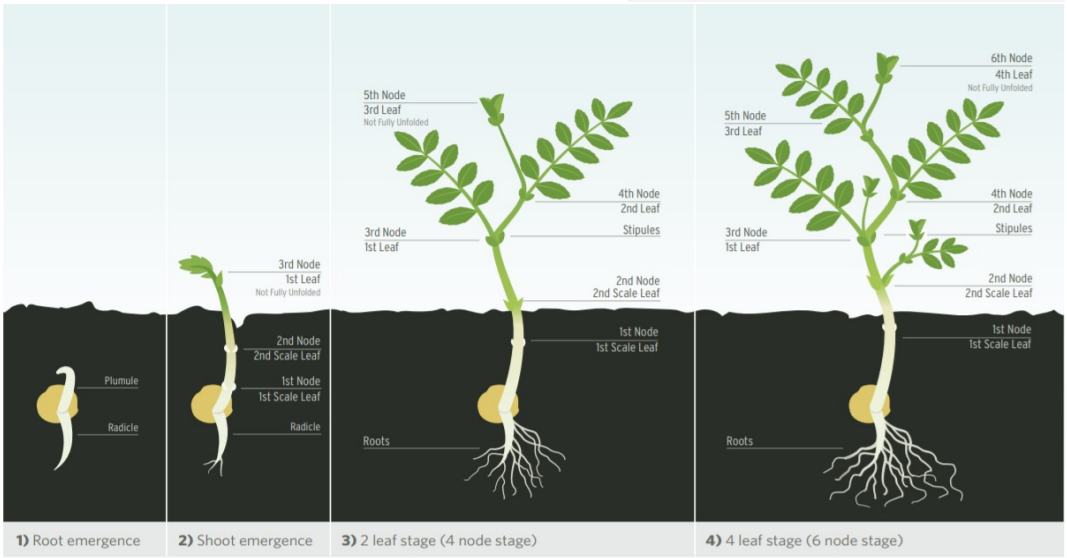
Figure 2. Chickpea seeding staging guide