

Seeding Tips for Chickpeas

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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.

Seeding Date

Chickpeas require slightly higher soil temperatures than the minimum average soil temperature recommended for peas and lentils. For Desi chickpeas, the recommended minimum average soil temperature at depth of seeding is 7°C, while Kabuli chickpeas should be 10°C. Warmer soil is required for rapid germination and emergence of seedlings. Planting 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 not be planted much later than May 24, due to the crop's long growing season requirement.

Seed Quality

Superior seed quality is needed for successful chickpea production. Ascochyta blight is a seed-borne and residue-borne disease that can completely destroy a chickpea crop. It is much more aggressive than Ascochyta blight in lentils or peas, and is caused by a different species (*Ascochyta rabiei*). 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 in order to qualify for a crop insurance claim where the cause of loss was Ascochyta blight. Newer varieties have shown some improvement in resistance to the disease, however, it remains the biggest problem for growers in chickpea production.

Seed Handling

The large size and uneven shape of chickpea seed, especially Kabuli types, makes it susceptible to mechanical damage. Dry chickpea seed (13 per cent or less seed moisture) is brittle and difficult to handle without chipping and splitting the seed. Physical injury, either through handling or the seeding operation, can easily lead to 30 per cent seed damage. Kabuli chickpeas have a thinner seed coat than Desi which makes them more susceptible to mechanical damage.

Seeding Rate

Using recommended seeding rates and establishing an optimal plant stand is important for maximizing yields. The recommended seeding rate for chickpeas is a target plant stand of 33 to 44 plants per square metre or three to four plants per square foot. Crop stands of this density provide better competition against weeds and will result in more uniform maturity and higher yields. When determining [seeding rates](#) consider the thousand seed weight and target plant stand.

Seeding Depth

The optimal seeding depth for chickpeas is 3.5 to 6 centimetres (1.5 to 2.5 inches). Chickpeas should be seeded into moist soil to provide the necessary moisture for proper germination and inoculant survival.

Growers planning to use Sencor® as a post emergent application are advised to seed another inch deeper. If it rains shortly after a Sencor® application, the product can be taken up by plant roots and set back plant growth. Seeding a bit deeper helps reduce the potential for root uptake.

Seed Treatment

In chickpeas, seed-to-seedling transmission of Ascochyta blight is high so using a seed treatment is recommended. As well, a complex of pathogens including pythium, fusarium, rhizoctonia, and botrytis can cause seed rot, seedling blight, and root rot of chickpeas. Seed treatment is recommended if there is a history of disease, or if seeding under cool, moist conditions. Kabuli chickpeas, with their thinner seed coats, are more susceptible to pythium root rot than Desi chickpeas with their thicker, dark-coloured seed coat. The threshold for seed-borne diseases such as botrytis and fusarium is a total of 10 per cent. Above this threshold seed treatments are recommended.

Inoculation

Chickpeas require a specific rhizobium species for nitrogen-fixation so make sure to select an inoculant registered for chickpeas. Some inoculants will be labelled as garbanzo bean and are appropriate for use in chickpeas. Inoculants for peas and lentils are not suitable and will not produce nodules on chickpeas.

Chickpeas inoculated with the proper rhizobium (bacterial) strain have the potential to fix 60 to 80 per cent of its nitrogen requirement through nitrogen-fixation. Inoculants are available in different formulations, including liquid, powder, and granular. Using a good inoculant is important, so make sure to manage the inoculant carefully to keep it in good shape. Inoculants are a live culture and should not get too warm or too dried out to maintain effectiveness.

If using seed treatments, follow inoculant guidelines carefully. For example, if using seed treatments and liquid or peat base inoculants, allow the seed treatment to dry before applying the inoculant to the seed. Do not apply seed treatments and liquid/peat inoculants at the same time unless recommended by inoculant manufacturer.

Fertility

Fertility requirements for chickpeas are not well-defined. Based on limited data, the requirements for phosphorus, potassium, and sulphur are similar to peas or lentils. A soil test will provide a guideline for fertility needs. Chickpea seed, like other pulses, is very sensitive to seed-placed fertilizer. For more information on seed placed fertilizer, see [Guidelines for Safe Rates of Fertilizer Applied with the Seed](#) from the Saskatchewan Ministry of Agriculture.

A well-inoculated chickpea crop should not require nitrogen fertilizer, provided the appropriate rhizobium inoculants are used and nitrogen-fixation is optimized, however in some years chickpeas may benefit from low



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rates of starter nitrogen. Nitrogen fertilizer should not be placed with the seed. Excessive use of nitrogen fertilizer, or high levels of available soil nitrogen, reduces fixation and may delay crop maturity.

Chickpeas require sufficient soil phosphorus to support healthy growth and nitrogen-fixation, and to promote earlier and more uniform maturity. Under good moisture conditions, 15 pounds per acre actual phosphate can be safely seed-placed with a 2.5 centimetre (1 inch) spread and 15-18 centimetres (6-7 inch) row spacing. If additional phosphorus is required, side-banding, a wider distribution spread, or the use of Jumpstart® is recommended. If potassium or sulphur (sulphate form) fertilizer is required, it should be side-banded or mid-row-banded. Applications of ammonium sulphate can be broadcast.

Rolling

Chickpeas do not usually lodge and the standability is greater, so land rolling is less beneficial compared to peas and lentils. Chickpea fields should only be rolled prior to crop emergence to reduce the risk of spreading disease, such as Ascochyta blight, and to reduce the potential for mechanical injury to chickpea seedlings.