Garbanzo Bean Producers Guide for No-till in the High Plains Region

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Garbanzo bean production in the High Plains has been steadily growing over the past 10 years in the regions of South Dakota, Nebraska, Wyoming, and Colorado. The Kabuli chickpea varieties are the premium market in garbanzo bean production. Hinrichs Trading agronomists, in partnership with researchers from the Universities of Nebraska, Wyoming, South Dakota State, and Dakota Lakes have developed a good knowledge of garbanzo bean production for this region. The following guide is to be used as a reference for garbanzo bean production. We would also ask that producers stay informed with all these resources available to them as production practices are constantly changing as more knowledge is gained in the production of garbanzo beans. Please view our website at www.hinrichstrading.com for further updates on garbanzo bean production.

Garbanzo beans are considered a fruit and vegetable under current FSA policies. Please consult with your local FSA to determine acres on your farm, which are eligible for garbanzo bean production. Crop insurance is available for the production of garbanzo beans, generally under a written agreement. Contact your crop insurance agent about insuring your garbanzo bean crop.

This growers guide is written in chronological order from the very start of the garbanzo bean-growing season. Hinrichs Trading agronomists also recommend you consult with your crop advisors before using any of the herbicides we recommend to make sure these herbicides fit your operation and cropping rotations.

FIELD SELECTION:

The first consideration when growing garbanzo beans is field selection. Garbanzo beans are not good competitors with heavy weed populations. Start by selecting fields with a good history of weed control. Proper management of weeds in previous years of production will go a long way in reducing weed competition in your garbanzo bean field.

Garbanzo beans have been grown successfully following many different types of crops such as corn, wheat, millet, and milo. We do not recommend planting garbanzo beans behind any broadleaf crop. This practice does not make any agronomic sense as there are to many common weed and disease problems shared by these crops.

FALL AND EARLY SPRING APPLICATIONS:

A fall burn down with glyphosphate to kill any volunteer wheat or problem weeds may be very beneficial in a field where garbanzo beans will be planted the next spring. The fall burn down will help to conserve moisture along with killing troublesome weeds. Moisture is often a limiting factor in our region and anything we can do to conserve moisture is money well spent.

Spartan is the herbicide of choice for garbanzo beans. Spartan does an excellent job of controlling Kochia and Russian thistle in garbanzo beans. Spartan is also useful on other broadleaf weeds too. Consult the label for a full list of weeds. Rates of 4.5 - 6 ounces per acre of liquid Spartan may be applied to garbanzo beans. The timing of the herbicide is anywhere from a fall application using split rates, to an early spring application. The important consideration is that the Spartan be applied early enough so there is adequate moisture to incorporate the herbicide into the soil to activate the Spartan. Fall applications have been used with good success in our area, generally with 2/3 of the rate applied in the fall, and the remaining 1/3 of the rate applied the following spring.

PLANTING:

The golden rule with garbanzo bean production is to start with good clean seed. All of the seed sold by Hinrichs Trading has been tested for germination and ascochyta blight. The seed is treated with Apron, Maxim, and LSP.

Garbanzo beans are typically seeded early in the spring season. Planting dates for our region are between April 10th to May 10th. Soil temperatures should be 42 degrees or higher before planting the crop. Garbanzo beans are very tolerant of cold temperatures after emergence, so freezing temperatures are not of great concern. A crop planted after May 10th may see a decrease in yield due to high temperatures during flowering and a later harvesting date.

We recommend you plant garbanzo beans at a rate of 3.5-seeds/square foot. Garbanzo beans are large seeds, with around 1000 seeds/pound. Depending on seed size, this requires 120-140 lbs./acre to achieve a seeding rate of 3.5-seeds/square foot. Air seeders do the best job of handling such large seed. Mechanical drills can be used if they are equipped to handle large seed. Plastic seed flutes and cups do not work, as the garbanzo beans will wear out the plastic. Seed tubes must be large enough to handle the seed with no excessive bends in the tubes where the seed can plug up the seed tube. Be sure to equip your air seeder with the largest roller available for dispensing the seed. Row spacing should be between 7 1/2 inches up to 20 inches. The narrower the row spacing will allow for a quicker canopy to help with weed control but with a wider spacing it allows for more air to flow through the crop to help with diseases.

Planting depth should be 1 1/2 to 2 1/2 inches deep. Garbanzo beans need good moisture to germinate. Ideally the crop should have a 1/2 to 1 inch level of moist soil above the seed to ensure proper germination. We don't want the seed to dry out prior to emergence.

FERTILIZER REQUIREMENTS:

Garbanzo beans are classified as a legume crop. Garbanzos fix their own nitrogen if they are inoculated properly. Hinrichs Trading supplies peat inoculants specifically designed for garbanzo beans with the seed you purchase. Since garbanzo’s produce nitrogen an additional application of nitrogen is not required. With today’s high nitrogen fertilizer costs this is a real benefit. Garbanzo beans will leave behind nitrogen in the soil for the following crop too.

Legume crops do respond well to phosphorous. Soils low in phosphorous will

need additional phosphorous at planting time to ensure good crop performance. 20 pounds of phosphorous placed with the seed at planting time will increase yields of garbanzo beans. Additional phosphorous may be necessary if soils are very low in phosphorous.

PRE-EMERGENCE HERBICIDES:

3-5 days after planting, or prior to emergence, we recommend a burn down of glyphosphate to kill any weeds, which may be present in the field. This burn down will eliminate any weed competition early in the growing season. An application of additional herbicide may be applied at this time depending upon the weed history of the field. Spartan does not control sunflower weeds. If you suspect a sunflower problem in your field Pursuit II may be an option. 1.4 ounces of Pursuit applied with your burn down will give you adequate sunflower control. Pursuit does cause some chemical damage to the garbanzo beans by stunting the early growth, but does not affect overall yields dramatically. The amount of damage depends largely on the temperature and moisture received after the application. Cold, wet conditions result in more damage to the crop. Sencor is another herbicide, which may be used on garbanzo beans. Please contact your local crop consultant to check for application rates and labels in your area.

POST EMERGENCE HERBICIDES:

May and June are the times to scout the fields for any grass weed problems that may be developing in your field. Select herbicide is labeled for grass weed control in garbanzo beans. Assure and Poast are also available. These grass herbicides should be applied prior to flowering. An 8-oz. /acre application of Select should control grass weed problems. Consult your local crop advisor for additional information.

Garbanzo beans are very limited on any post emergence broadleaf herbicide. The only one available is Tough and this herbicide has been out of production for several years with very limited to almost non-existent availability. It is very important that the use of pre-emergent herbicides be carefully thought out. Garbanzo bean production relies on these pre-emergent herbicides to carry the crop through till harvest.

DISEASES:

As with all broadleaf crops there are numerous diseases problems in garbanzo beans. The majority of these diseases do not pose a great threat to the production. Growers will see some root rot in isolated plants within their fields. This is generally a yellowing of the plant. While this is detrimental to the isolated plant, this disease does not cause great concern in the overall health of the crop.

Ascochyta Blight is the main concern for disease in garbanzo beans. Ascochyta blight is present as a soil bourne or airborne spore that can have very detrimental affects on the garbanzo bean crop. The disease is present on the leaves of the plants initially as a brown circle with black pepper like dots in the middle. The disease will progress onto the stems of the plant as brown lesions, and eventually onto the pods as brown circular lesions. Ascochyta blight will cause the pod to abort the seed inside, or cause a staining of the bean.

Hinrichs Trading offers two varieties of seed that are resistant to the disease. Dwelley and Sierra varieties both offer good resistance to Ascochyta blight. The plants are resistant from emergence until flowering. Once flowering begins, the plants open up and lose some of their resistance. It is very important for growers to monitor their fields daily from this point on to scout for this disease. Favorable weather conditions for the development of this disease are wet, humid, damp, foggy mornings where the plant is wet for several hours at a time. Hot dry weather is detrimental to the development of the disease.

Ascochyta Blight can be controlled with several fungicides. Bravo and Headline have been used successfully to control the disease. Bravo is a fungicide that is a preventative fungicide. The application of Bravo is applied prior to any disease being present in the field. This is a preventative fungicide and will not stop the disease once it is present on the plant. Bravo will protect the field for 7-10 days depending upon weather conditions. Headline is a curative fungicide that will stop the growth of the disease once it is present in the field. Headline will kill any disease present on the plants, as well as protect the plants from further disease development. Headline will protect the plants from 2-3 weeks after application depending on weather conditions and amount of infestation present in the field.

Preventative spraying of these fungicides works the best. Our experience at Hinrichs Trading has found spraying the fungicides before the disease is present in the field has provided better results. Ascochyta blight is easier to control before it is present in the field than trying to stop the spread once the disease has been detected. If weather conditions at flowering are favorable for the development of the disease, such as humid,
foggy, wet mornings, preventing the disease may be a better strategy than trying to cure the disease. Combinations of treatments will be the most effective in controlling ascochyta blight. Applying different chemistries of fungicides will also help prevent resistance development. A spraying of Bravo followed by a spraying of Headline at a later date would be an example of this strategy.

Dupont has two new fungicides for Garbanzo Beans, Manex and Kocide, which show very promising results in the control of Ascochyta blight. Both of these fungicides are preventative fungicides that would replace Bravo in preventing ascochyta blight. The cost of these fungicides is less than Bravo. A 3-pint/acre application of Manex will cost approximately $6.50/acre; Kocide at 2 pints/acre will cost $7.00/acre. Please check our website at www.hinrichstrading.com for further updates on these fungicides.

PRE-HARVEST DESSICANTS:

There may be a need to desiccate a crop of garbanzo beans to ensure even ripening of the crop or to dry down any weeds that may be present in the crop prior to harvest. Do not desiccate the crop if there are any green beans still in the pods. These green beans will not ripen after they have been desiccated and will result in poor quality of the beans.
Some glyphosphates are labeled for use as a desiccant in garbanzo beans if there is a need to desiccate. Rates are 32 oz./acre for 4 lb. glyphosphate and 22 oz./acre for 6 lb. glyphosphate. Use recommended rates of 17 lbs. of Ammonium Sulfate/100 gallons of water along with 1 quart per 100 gallons of water of nonionic surfactant. Gramoxone Max is also labeled for garbanzo

beans. Gramaxone Max is labeled for up to 1.5 pints/acre with 20 gallons of water per acre. Also use 1 pint of a nonionic surfactant/100 gallons of water with the Gramoxone Max.

HARVEST:

When harvesting garbanzo beans, the number one priority is to remember that they are used for human consumption, so the quality of the bean is very important. Combine settings should be set for as good a quality crop as can be achieved. Split beans or beans with cracked seed coats are unacceptable and will result in dockage at the elevator. Immature green beans are also unacceptable to the processor. Green beans require electric eye screening to be taken out of the crop. This electric eyeing is expensive and the costs will be passed on to the grower. Green weeds in the field during harvest can also stain the beans green, which result in poor quality. A pre-harvest burn down with Glyphosphate or Gramaxone Max is necessary if weed pressure in the field is moderate to heavy.

Harvest moisture must be 13% or less. Bin drying will work if the crop is harvested wet, but this step will add additional costs to the harvest operation.

Garbanzo beans are upright plants which are combined directly with a grain head. A straight platform will work, but better results are achieved with a MacDon header or a flex head equipped with an air reel. Finger reels are also highly recommended as they handle the crop better than a slat reel.

Combine settings are similar to dry edible beans. Cylinder speed is 300rpm, concaves are open to mid-range, and chaffers and sieves are open wide enough to handle the large seeds. The air fan speed is set relatively high to help clean the beans. The beans in the tank should be relatively free of any foreign material with very little seed damage if the settings of the combine are correct.

Hinrichs Trading will provide trucking at harvest to move your crop directly to the processing plant located in Minatare, Nebraska. The freight rates will be taken out of the grower's final settlement report. The use of local semi trucking or your own trucking is perfectly acceptable. Hinrichs Trading goal is to get the beans from your field to the processing plant with as much convenience as we can provide.

ESTIMATED COSTS OF PRODUCTION:

The following estimated cost of production is based on last year's prices and may vary year to year and from area to area. These estimates will assume all costs for planting, herbicides, and fungicides during the growing season. Your costs may vary depending upon the growing season and disease pressure present during the year. These estimates will be for a crop that requires all the treatments for all diseases and weeds. All costs are on a per acre basis.

Fall burn down:
10 gallons of water/acre
24 oz.4 lb. glyphosphate-$2.63/acre

17 lbs. Ammonium sulfate/100 gallons water-$.60
1 qt. nonionic surfactant/100 gallons water-$.53
Total cost-$3.76

Spartan:
4.5 oz./acre liquid Spartan-$14.06

Planting:
Seed: 130 lbs./acre @ $.52/lb=$67.60
Starter fertilizer-3 lbs N-20 lbs P=$7.79

Pre-emergence burn down:
24 oz. glyphosphate-$3.76
1.4 oz. liquid Pursuit-$5.80

Post Emergence grass herbicide:
8 oz. Select-$12.19

Fungicide-3 sprayings:
Bravo-$6.58
8 oz Headline-$12.88

Desiccant:
32 oz. glyphosphate 4 lb. with AMS and surfactant-$4.63
or Gramaxone Max 1.5 pints-$8.89

TOTAL COST OF PRODUCTION: $139.05
This total cost of production included the use of Pursuit II, the grass herbicide Select, and 2 sprayings of fungicides Bravo and Headline. Grower's costs may be less depending weed and disease activity in each field.

MARKETING OF GARBANZO BEANS

Garbanzo beans are graded by the USDA for quality. Samples are sent from the processing plant directly to the USDA in Moscow, Idaho to be graded. Growers are paid based on these grades. Each load of beans is sampled and graded separately.

Garbanzo beans are priced according to size assuming all other aspects of quality are good, such as staining of the beans, excessive splitting of the bean, or excessive mechanical damage to the seed coat.

Large beans are paid the premium price. A large bean, known as "A beans" is any bean, which stays over a 22/64 screen. Medium or "B beans" are all beans that stay over a 20/64 screen, and small or "C beans" stay over an 18/64 screen. A typical dryland crop will have 75-85% "A beans", 10-20% "B beans", and the remaining 5% of the beans being "C beans".

Today's market prices are $28.00/cwt for "A beans", $15.00/cwt. for "B beans", and $5.00/cwt. for "C beans". "C beans", or beans which stay over an 18/64 screen are eligible for LDP payments in the current farm bill. Check with your local FSA office for these payments.

EXPECTED RETURN FOR A GARBANZO BEAN CROP:

The following is an example of what a typical dryland crop of garbanzo beans can expect for a return based on estimates for yield and prices for the upcoming 2006-growing season. Average yields for garbanzo beans in this region over the past 10 years have been around 1200 lbs./acre. Yields would have been higher had it not been for the dry conditions experienced over the past 5 growing seasons. Hinrichs Trading will use price estimates for next year at $25.00/cwt for "A beans", $15.00/cwt. for "B beans", and
$5.00/cwt for "C beans" in this example.

800 lbs./acre yield- 70% A beans, 25% B beans, 5% C beans
70% A beans=560 lbs./acre x $.25/lb.=$140.00
25% B beans=200 lbs./acre x $.15/lb.=$30.00
5% C beans=40 lbs/acre x $.05/lb.=$2.00
Total Return/acre=$172.00

1200 lbs./acre yield-78% A beans, 18% B beans, 4% C beans
78% A beans=936 lbs./acre x $.25/lb.=$234.00
18% B beans=216lbs./acre x $.15/lb.=$32.40
4% C beans=48lbs./acre x $.05/lb.=$2.40
Total Return/acre=$268.80

1600 lbs./acre-85% A beans, 12% B beans, 3% C beans
85% A beans=1360 lbs./acre x $.25/lb.=$340.00
12% B beans=192 lbs./acre x $.15/lb.=$28.80
3% C beans=48 lbs./acre x $.05/lb.=$2.40
Total Return/acre=$371.20