

## CHICKPEA/GARBANZO BEAN AND LENTIL

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
<b>Refer to page 6 for Fall or Spring Early Preplant Herbicides.</b>				
<b>Soil-Applied Herbicides</b>				
<b>Far-Go</b> (trialeate <sup>8</sup> )	<b>1.25 qt EC</b> (1.25 lb)	Wild oat.	PPI.	PPI immediately after application. A two pass incorporation improves weed control. A1-2 B1 C8 H1-2
<b>Prowl</b> <b>Prowl H2O</b> (pendimethalin <sup>3</sup> )	<b>1.75 to 3.6pt 3.3EC</b> <b>1.5 to 3 pt 3.8ASC</b> (0.72 to 1.5 lb)	Grass and some broadleaf weeds.	PPI. Fall or Spring.	Adjust rate for soil type. Apply in fall when soil temperature is less than 45 F to reduce fall herbicide degradation. A1-2 B1 B7 E11 H1-2
Treflan / generic trifluralin <sup>3</sup>	<b>1 to 1.5 pt EC</b> (0.5 to 0.75 lb)	Poor wild oat and no wild mustard control.	PPI. Fall or Spring. See Remarks for use in Lentil.	Lentil: Tolerance is marginal and injury may occur under stress conditions. Refer to label for additional information. A1-2 B1 B7 E11 H1-3
<b>Sonalan</b> (ethalfluralin <sup>3</sup> )	<b>1.5 to 2 pt EC</b> <b>5.5 to 7.5 lb 10G</b> (0.55 to 0.75 lb)			Lentil: Fall-apply Sonalan 10G just prior to snow cover into stubble on fields that have been direct-seeded with 30% or less soil disturbance for 2 to 3 years. Incorporate once using minimum soil disturbance with a rotary hoe or heavy harrow. Refer to label. A1-2 B1 B7 E11 H1-3
<b>Dual/II/Magnum</b> (S/metolachlor <sup>15</sup> )	<b>1 to 2 pt EC</b> (0.95 to 1.9 lb)		Shallow PPI or PRE.	Shallow PPI improves consistency of weed control. PRE requires precipitation to activate herbicide. Adjust rate for soil type, OM, and pH. Refer to label for tank-mix options. Do not apply products containing sulfentrazone to lentil. A1-2 B1 B4 E12 H1-2
<b>Outlook / generic dimethenamid<sup>15</sup></b>	<b>16 to 21 fl oz EC</b> (0.75 to 1 lb)			
<b>BroadAxe XC</b> <b>Spartan Elite</b> (s-metolachlor <sup>15</sup> & sulfentrazone <sup>14</sup> ) <b>Chickpea Only</b>	<b>20 to 32 fl oz EC</b> (0.98 to 1.58 lb & 1.75 to 2.8 oz)	Annual grass and small-seeded broadleaf weeds.		
<b>Spartan Charge</b> (carfentrazone <sup>14</sup> & sulfentrazone <sup>14</sup> ) <b>Chickpea Only</b>	<b>3.75 to 7.75 floz SE</b> (0.16 to 0.34 oz & 1.48 to 3.05 oz)	Small-seeded broadleaf weeds.		
<b>Authority Supreme</b> (sulfentrazone <sup>14</sup> & pyroxasulfone <sup>15</sup> ) <b>Chickpea only</b>	<b>4.3 to 10 fl oz SC</b> (1.12 to 2.6 oz & 1.12 to 2.6 oz)	Annual grass and small-seeded broadleaf weeds.		
<b>Pursuit</b> (imazethapyr <sup>2</sup> )	<b>2 fl oz SL</b> (0.5 oz)	Small broadleaf weeds. No control of ALS-resistant weeds.		E10 H1-2
<b>Sharpen</b> (saflufenacil <sup>14</sup> )	<b>Chickpea = 1 to 2 fl oz SC</b> (0.36 to 0.72 oz) <b>Lentil = 0.75 fl oz</b> (0.27 oz)	Small broadleaf weeds including winter-annual species.	Fall, EPP, shallow PPI, and PRE.	PRE requires precipitation to activate herbicide. Provides burndown control of small emerged broadleaf weeds. Refer to label for tank-mix options. A1-2 B1-2 B12
Metribuzin <sup>5</sup> <b>Lentil Only</b>	<b>0.25 to 0.5 lb DF</b> <b>0.38 to 0.75 pt 4F</b> (0.19 to 0.38 lb) <b>0.167 to 0.33 lb DF</b> <b>0.25 to 0.5 pt 4F</b> (0.125 to 0.25 lb)	Suppression of lambsquarters, henbit, chickweed and mustard.	PRE.  POST. Weeds: Small.	Adjust rates for soil type. Refer to label for application and environment information and special precautions that may affect weed control and crop safety. Allow a 75 day PHI. A1-2 E7 H1-2

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Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
<b>POST-Applied Grass Herbicides</b>				
<b>Assure II</b> <b>Targa</b> (quizalofop <sup>1</sup> )	<b>7 to 12 fl oz EC</b> (0.77 to 1.32 oz)	Annual grasses and quackgrass.	POST. Crop: Refer to PHI. PHI:	Add oil adjuvant at 1 gal/100 gal water but not less than 1.25 pt/A. Refer to label for tank-mix options. Refer to Remarks in the POST grass herbicide section under Soybean for methods to avoid antagonism and reduced grass control from broadleaf herbicides. A5-6 E2
<b>Poast</b> (sethoxydim <sup>1</sup> )	<b>0.5 to 1.5 pt EC</b> (0.1 to 0.3 lb)	Annual grasses.	Assure = 60 days. Poast = 50 days. Clethodim = 30 days.	
<b>Select Max 1EC</b> <b>Select 2EC</b> <b>Shadow 3EC</b> (clethodim <sup>1</sup> )	<b>9 to 16 fl oz EC</b> <b>4 to 8 fl oz EC</b> <b>2.7 to 5.3 fl oz EC</b> (1 to 2 oz)	Annual grasses and quackgrass.	Grass: Refer to soybean section on page 27.	
<b>Preharvest Herbicides</b>				
Glyphosate <sup>9</sup>	Up to 2.25 lb ae	Emerged grass and broadleaf weeds.	Harvest aid and desiccant. PHI: 7 days	Use only registered formulations. Apply with AMS at 8.5 lb/100 gal. <b>Do not apply to crop grown for seed because reduced germination/vigor may occur.</b> For spot treatment use a 2% solution for perennial broadleaf weeds at or beyond the bud stage. Crop will be killed in treated areas. A4-6 B8
		Perennial weeds.	Spot treatment. PHI: 14 days.	
Paraquat <sup>22</sup> + NIS	<b>1.2 to 2 pt 2SL</b> <b>0.8 to 1.3 pt 3SL</b> (0.3 to 0.5 lb)	Weed desiccant.	Prior to harvest. >80% yellow/brown pods and <40% green chickpea leaves or <30% green lentil leaves.	Contact herbicides require >15 gpa and full sunlight. Apply at >10 gpa for ground and >5 gpa for aerial application. Apply Sharpen with AMS at 8.5 to 17 lb/100 gal water or UAN at 2.5 gal/100 gal water and with glyphosate or paraquat for weed desiccation. Glyphosate improves weed control from Sharpen and Valor but antagonism may occur on biennial and perennial weeds.  <b>Do not apply Sharpen to crop grown for seed because reduced germination/vigor may occur.</b> B11-12 E13
<b>Sharpen +</b> MSO adjuvant (saflufenacil <sup>14</sup> )	<b>1 to 2 fl oz SC +</b> <b>1 to 1.5 pt/A</b> (0.36 to 0.72 oz)	Sharpen - not for green lentil varieties.	PHI: paraquat = 7 days. Sharpen = 2 days Valor = 5 days.	
<b>Valor SX</b> <b>Valor EZ +</b> (flumioxazin <sup>14</sup> ) + MSO adjuvant	<b>2 to 3 oz WDG</b> <b>2 to 3 fl oz SC</b> <b>2 pt</b> (1.02 to 1.53 oz)	Valor - lentil only		

## Clearfield Lentil

Herbicide	Product/A (ai/A)	Weeds	When to Apply	Remarks and Paragraphs
<b>Beyond</b> (imazamox <sup>2</sup> )	<b>4 to 6 fl oz SL</b> (0.5 to 0.75 oz)	Annual grass and broadleaf weeds including wild oat, foxtail, Japanese and downy brome and Persian darnel.	POST. Lentil: 2 to 6 leaf stage.  Weeds: Small and actively growing.	<b>Apply only to Clearfield lentil varieties.</b> Add NIS at 1 qt/100 gal water + 28% UAN at 2.5 gal/100 gal water or AMS at 8.5 lbs/100 gal. Do not use PO or MSO adjuvants. Refer to label for weed size and application information. A5-8 E10

## DRY EDIBLE BEAN

**F1. Navy bean** generally is less tolerance to herbicides than other dry beans types or soybean. Rotary hoe before crook stage or after emergence up to 1 to 2 trifoliates.

**F2. Eptam** (EPTC) plus Prowl, Sonalan, or Treflan\* controls many grass and broadleaf weeds. Incorporate 4 to 6 inches deep immediately after application. Do not use Eptam on soybean.

**F3. Dual\*** (S/metolachlor), and **Outlook\*** (dimethenamid) soil residual may provide 3 to 4 weeks weed control. Shallow PPI may provide more consistent weed control because PRE require rainfall for activation. Applied in sequential PRE fb POST treatments for improved weed control and to reduce late weed emergence.

**F4. Pursuit** (imazethapyr) can be applied ONLY PPI within 1 week of planting or PRE up to 3 days following planting to chickpea/garbanzo bean and lentil. DO NOT apply POST to chickpea/ garbanzo bean or lentil, or Domino variety black turtle bean. Do not apply after crop begins to flower or cold and/or wet weather are present or predicted to occur within one week of application. Do not use oil additives or liquid fertilizer. Apply with NIS at 1 qt/100 gal water to dry beans with at least one trifoliolate leaf. Refer to the Raptor paragraph in the soybean section for additional information on application use and restrictions. Refer to label or Y15 for crop rotation restrictions. **User assume all risk of liability for injury.**

**F5. Reflex** (fomesafen) applied POST with NIS at 1 to 2 qt/100 gal water or oil adjuvant at 1 to 2 pt/A controls many broadleaf weeds. Oil adjuvant may increase weed control but also increases risk of dry bean injury. Refer to the Flexstar paragraph in the soybean section for information on application and adjuvant use.

**F6. NDSU Dry Bean Tank-Mix** concept substitutes additional weed management for reduced herbicide rates. Application to small weeds is essential for success. The micro-rate can be applied more than once in dry beans to control emerging weed flushes but applying a foundation herbicide treatment (DNA or acetanilide) may require only one POST application. MSO adjuvant is required for optimum weed control. Apply at greater than 15 gpa. Addition of AMS at 1 lb/A also increases weed control. Weed control from the micro-rate is best when temperature plus humidity is greater than 140. Increasing spray volume and using AMS may help improve weed control when the value is below 140. Refer to paragraph E3 in the soybean section for additional information. In addition to weeds listed in E3, data from soybean/ dry bean micro-rate research has shown excellent control of wild mustard, nightshade, buckwheat, ragweed, and cocklebur.

\*Or generic equivalent.

## FIELD PEA

**G1. Field pea** is a poor competitor with weeds in the early seedling stage. Small weeds can be controlled by harrowing before crop emergence and when pea is 3 to 7 inches tall. Apply broadleaf herbicides to small weeds and small pea to reduce risk of pea injury. Do not apply POST herbicides when temperatures are above 85 F or when pea are under heat/drought stress.

**G2. Basagran** (bentazon) applied sequentially in 15 to 20 gpa with MSO oil controls many weeds less than 2 inches tall and suppresses Canada thistle. Allow a 30 day PHI. See paragraphs E3 and F6 for additional information.

**G3. Thistrol** (MCPB) applied to 4- to 6-inch pea vines controls some broadleaf weeds including lambsquarters and redroot pigweed and suppresses Canada thistle. Slight pea injury may occur but pea will usually recover. Injury potential increases when pea is taller than 6 inches and when temperatures exceed 90 F or when the pea is under heat/drought stress. Apply prior to flowering.

**G4.** Glyphosate applied preharvest for annual weed control or as a spot treatment controls many troublesome, perennial weeds including Canada thistle, perennial sowthistle, common milkweed, and quackgrass. The crop in treated areas will be killed. Allow a 7 day PHI for preharvest and 14 day PHI for spot treatment. No more than 10% of the total field area may be spot treated at rates greater than 0.75 lb ae/A. Do not apply to crop grown for seed.

## CHICKPEA/GARBANZO BEAN

**H1. Chickpea/Garbanzo beans** is a poor competitor with weeds in the early seedling stage. Small weeds can be controlled by harrowing after seeding up to 3 to 5 days after chickpea germination and again when chickpea is 2 to 4 inches tall. Apply broadleaf herbicides to small weeds and small chickpea to reduce risk of pea injury. Do not apply POST herbicides above 85 F or when chickpea is under heat or drought stress.

## LENTIL

**H2. Lentil** is a poor competitor with weeds in the early seedling stage. Small weeds can be controlled by harrowing before crop emergence and when lentil is 3 to 7 inches tall.

**H3. Treflan\*** (trifluralin) applied fall or spring controls grass and some broadleaf weeds. Rates should be adjusted based on soil texture and organic matter. Lentil tolerance to Treflan\* is marginal, so injury can occur. Cool soil conditions over an extended period of time will delay germination and emergence and increase risk of injury. Treflan\* spring-applied is more likely to cause stand reduction than when fall-applied. If seeding into cool, dry soil after a spring application, the seeding rate should be increased by 15% to compensate for injury that may occur. Seed no deeper than 1.5 inches to reduce the potential for lentil injury.

\*Or generic equivalent.