

THE KING OF SEED PROTECTION FOR CHICKPEAS AND LENTILS

The best product to protect your chickpeas and lentils from seed-borne ascochyta blight is still CROWN liquid seed protectant. Don't be confused by bundling programs, CROWN is your made in Canada solution. Growers who add Allegiance™ FL (metalaxyl) for pythium control will get excellent control of both Pythium and Ascochyta seed and seedling diseases.

Research trials show that CROWN offers excellent protection against seed-borne ascochyta in chickpeas and lentils, and it is registered for ascochyta control on both crops. For lentils, CROWN is also labelled for control of seedling blights and seed rots. Seed Labs in Western Canada have used CROWN as a standard in germination tests for years.

Ascochyta infects chickpeas in the seed-borne phase and at later stages, from spores infecting aerially. CROWN research shows effective control of the seed-borne phase of the disease. Very low infection levels can spread quickly in a field. A 0.3% ascochyta seed test translates to 580 infected seeds per acre. Seed-to-seedling transmission of ascochyta can be extremely high in chickpeas. Even a 0% seed sample does not mean the entire lot is completely disease-free.

On chickpeas, CROWN and Allegiance FL (metalaxyl) provide excellent control of seed-borne ascochyta, improved emergence and stand, and increased yields over untreated seed.



PRODUCT SPECIFICATIONS

Active Carbathiin (Vitavax®)

Ingredients: Thiabendazole

Diseases Controlled

Chickpeas: Seed borne ascochyta caused by *Ascochyta rabiei*

Lentils: Seed borne ascochyta caused by *Ascochyta lentis*

Post-emergence Damping Off

Seed rots (including *Botrytis cinerea*, *Fusarium*)

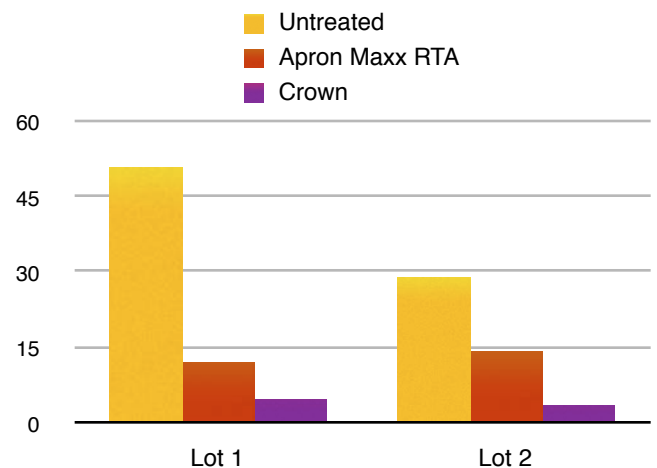
Other: Can perform as a sticker for dry inoculants, safe to inoculants. Check with your Rhizobia manufacturer for use recommendations and restrictions.

NOTE: Monitor the crop regularly for infection from foliar sources and use a foliar sprays as necessary.

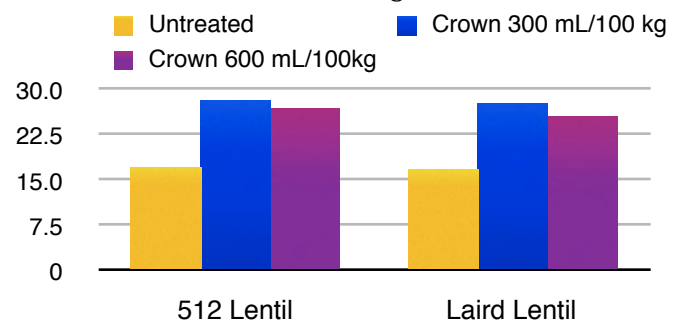
Formulation: Non-staining, water-based, ready-to-use, flowable, non-dusty, quick dry-down.

Application Rate: Chickpeas and Lentils 300 - 600 ml / 100 kg seed. Note that the 600 ml rate is needed for control of ascochyta blight in Lentils.

Ascochyta levels on Lentils Plated on PDA



Lentil Emergence



Field plots inoculated with *Fusarium* control (Hwang and Chang; Brooks, AB; 1997)

Effect of Botrytis on lentils for stand establishment with Crown

% Botrytis in Seed Sown	% Increase Saskatoon	% Increase Melfort
0	18	12
12	54	35
22	112	74
29	110	87
20	120	111
42	211	153

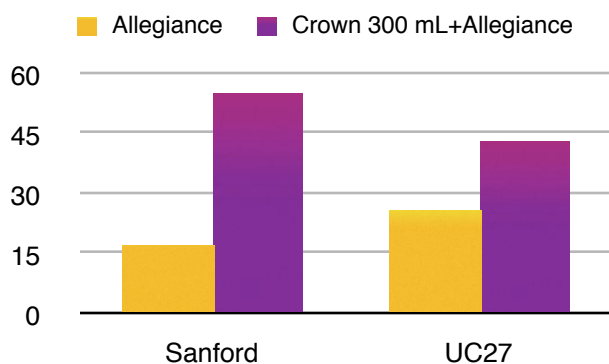
Botrytis spreads plant to plant after seeding (Morrall, University of Saskatchewan; 2000)

Chickpea Emergence and Yield

Treatment	Rate per 100 kg	Emergence Counts	Yield kg/hectare
Untreated	~	0.1 e	560
Allegiance	16 mL	0.7 e	380
Crown + Allegiance	300 + 16 mL	14.4 c	3460
Apron Maxx RTA	325 mL	5.9 d	2250

Field plots inoculated with *Rhizoctonia*; (Hwang and Chang; Brooks, AB; 2003)

% Emergence of Sanford and UC27 Kabuli Chickpeas



Sanford (Hwang and Chang; 1997)



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Allegiance™ is a Registered Trademark of Bayer CropScience

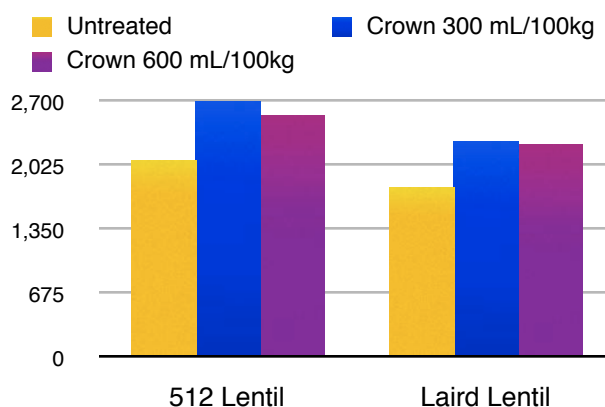
Data showing a different letter are significantly different P=0.05

Lentil Emergence and Yield

Treatment	Rate per 100 kg	Emergence Counts	Yield kg/hectare
Untreated	~	22.8 d	640 c
Crown	300 mL	49.7 abc	1010 a
Crown	600 mL	58.5 a	1240 a
Apron Maxx RTA	325 mL	35.5 cd	1070 a

Field plots inoculated with *Rhizoctonia* (Hwang and Chang; Vegreville, AB; 2002)

Lentil Yield (kg/hectare)



Field plots inoculated with *Fusarium* control; (Hwang and Chang; Brooks, AB; 1997)
Both rates average increase over untreated exceeded 400 kg/ha

Desi Chickpea Emergence and Yield

Treatment	Rate per 100kg	Emergence Counts	Yield kg/hectare
Untreated	~	23.9 b	1341 b
Allegiance	23 mL	22.8 b	1453 ab
Crown + Allegiance	300 + 32 mL	34.4 a	1686 a
Crown + Allegiance	600 + 32 mL	33.8 a	1630 a

Field plots inoculated with *Fusarium*; (Hwang and Chang; Brooks, AB; 1997)

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CROWN

