

Highlights:

- Recognizes Cry1Ac, Cry2A, and Roundup Ready traits
- Positive results in 10 minutes or less

Contents of Kit:

- 100 QuickStix Combo Strips packed in two moisture-resistant canisters
- 100 Extraction Tubes
- EB2 Extraction Buffer

Items Not Provided:

- Repeating pipetter or other means of dispensing 0.5 mL

Contact EnviroLogix to order bulk-packaged kits. Bulk kits include EB2 Extraction Buffer Concentrate. To prepare, mix 50 mL 20x Concentrate with 950 mL of distilled or deionized water per liter required. Store refrigerated when not in use; allow to come to room temperature before using.



Crush single seed



Catalog Number AS 046 ST

Intended Use

The EnviroLogix QuickStix Combo Kit for Bollgard II / Roundup Ready is designed to detect the presence of these traits at the levels typically expressed in genetically modified cotton seed. The combo strips will react when Cry1Ac, Cry2A or CP4 EPSPS is present in extracts.

How the Test Works

Genetically modified cotton plants express transgenic proteins in their seed. To detect these proteins with the EnviroLogix QuickStix Combo Strip, the sample must be extracted and the proteins solubilized in the Extraction Buffer provided.

Each Combo Strip has an absorbent pad at each end. The protective tape with the arrow indicates which end of the strip to insert into the sample. The sample travels up the membrane strip and is absorbed into the larger pad at the top of the strip. The portion of the strip between the protective tape and the absorbent pad at the top of the strip is used to view the reactions as described under “Interpreting the Results”.

Sample Preparation

Note: If Extraction Buffer has been refrigerated, allow it to warm up to room temperature before preparing samples.

To extract cotton seed:

1. Crush a single cotton seed (*Suggestion: use pliers with seed in microcentrifuge tube or resealable plastic bag*). Transfer to an extraction tube marked with sample identification. Note: Complete crushing of seed improves extraction efficiency and test performance.
2. Add 0.5 mL Extraction Buffer.
3. Close the tube cap securely. Shake the tube vigorously for 20 to 30 seconds, using an **up-and-down motion**, ensuring that the crushed seed and buffer are **well** mixed. Allow the solid material to settle to the bottom of the tube. The extract takes on a yellow to brown opaque color when the samples are prepared properly.
4. Use caution to prevent sample-to-sample cross-contamination with plant tissue, fluids, crushing equipment (*pliers*) or disposables. Be sure to use a new tube for each sample tested.

How to Run the QuickStix Strip Test

1. Allow refrigerated canisters to come to room temperature before opening. Remove the QuickStix Strips to be used. Avoid bending the strips. Reseal the canister immediately.
2. Place the strip into the cotton seed extract. The sample will travel up the strip. Use a rack to support multiple tubes if needed.

3. Allow the strip to develop for 10 minutes before making final assay interpretations. Positive sample results may become obvious much more quickly.
4. To retain the strip, cut off and discard the bottom section of the strip covered by the arrow tape.

Interpreting the Results

Development of the Control Line within 10 minutes indicates that the strip has functioned properly. Any strip that does not develop a Control Line should be discarded and the sample re-tested using another strip.



One Line – If the extract is from a negative sample, containing neither Cry1Ac, Cry2A, nor CP4 EPSPS protein, the strip will only show the Control Line, about 4 mm below the top pad.

Two to Four Lines – If the extract is from a sample containing Cry1Ac proteins, Cry2A proteins, and/or CP4 EPSPS (Roundup Ready) proteins, the appropriate test line(s) will appear. A Test Line for extracts containing Cry1Ac protein will appear about 4 mm below the Control Line. A Test Line for extracts containing Cry2A protein will appear about 8 mm below the Control Line. A Test Line for extracts containing CP4 EPSPS protein will appear about 12 mm below the Control Line. See interpretation guide below.

	Interpretation Guide							
	+RR, +Cry2A, +Cry1Ac	-RR, +Cry2A, +Cry1Ac	+RR, -Cry2A, +Cry1Ac	+RR, +Cry2A, -Cry1Ac	-RR, -Cry2A, +Cry1Ac	+RR, -Cry2A, -Cry1Ac	-RR, +Cry2A, -Cry1Ac	-RR, -Cry2A, -Cry1Ac
Control Line	-	-	-	-	-	-	-	-
Cry1Ac Test Line	-	-	-		-			
Cry2A Test Line	-	-		-			-	
RR Test Line	-		-	-		-		

- indicates where a line will appear on the Strip

Please note that for ease of interpretation, the labels on each strip list the proteins in the order that their Test Lines appear, bottom (arrow end) to top (lot number end).

Cross-reactivity

The following materials have been tested with this kit and have been found to cause no false positive results:

- GMO Materials as listed in Table 1 below.

Table 1

	Seed Tissue										Proteins				
	Bollgard®	Bollgard / Roundup Ready	Bollgard II	Bollgard II / Roundup Ready	Bollgard II / Roundup Ready Flex	Cry2A	Roundup Ready	LibertyLink® PAT/bar	WideStrike™	WideStrike / Roundup Ready	Cry1Ab	Cry1Ac	CP4 EPSPS	PAT from <i>pat</i> gene	PAT from <i>bar</i> gene
Cry1Ac Test Line	✓	✓	✓	✓	✓				✓	✓	✓	✓			
Cry2A Test Line			✓	✓	✓	✓									
RR Test Line		✓		✓	✓		✓			✓			✓		
<i>from other GMO cotton events</i>											<i>tested at concentrations at least four times higher than reported in commercial crops</i>				

✓ Indicates a valid positive result on specified test line

□ Indicates a negative result on specified test line

Kit Storage

This Kit can be stored at room temperature, or refrigerated for a longer shelf life. Please note the shelf life on the kit label for each storage temperature. The kit may be used in field applications; however, prolonged exposure to high temperatures may adversely affect the test results. Do not open the desiccated canister until ready to use the test strips.

Precautions and Notes

- This kit is designed for screening for presence or absence only and is not meant to be quantitative.
- This product is currently not applicable for use in any other crop than cotton.
- As with all tests, it is recommended that results be confirmed by an alternate method when necessary.
- The assay has been optimized to be used with the protocol and with the buffer provided in the kit. Deviation from this protocol may invalidate the results of the test.
- A negative result with this kit does not mean that the sampled tissue has not been otherwise genetically modified.
- A strong positive result may safely be interpreted in as little as 2 minutes after sample addition. It is not safe, however, to conclude that a sample is negative before a full 10 minutes has elapsed.
- Protect all components from hot or cold extremes of temperature when not in use. Do not leave in direct sunlight or in vehicle.



**For Technical Support
Contact Us At:**

EnviroLogix
500 Riverside Industrial
Parkway
Portland, ME 04103-1486
USA

Tel: (207) 797-0300
Toll Free: 866-408-4597
Fax: (207) 797-7533

e-mail:
info@envirologix.com

website:
www.envirologix.com



LIMITED WARRANTY

EnviroLogix Inc. (“EnviroLogix”) warrants the products sold hereunder (“the Products”) against defects in materials and workmanship when used in accordance with the applicable instructions for a period of one year from the date of shipment of the products or if shorter, for a period not to extend beyond a product’s printed expiration date. If the Products do not conform to this Limited Warranty and the customer notifies EnviroLogix in writing of such defects during the warranty period, including an offer by the customer to return the Products to EnviroLogix for evaluation, EnviroLogix will repair or replace, at its option, any product or part thereof that proves defective in materials or workmanship within the warranty period.

NEITHER ENVIROLOGIX NOR MONSANTO MAKES ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty provided herein and the data, specifications and descriptions of EnviroLogix products appearing in EnviroLogix published catalogues and product literature are EnviroLogix’ sole representations concerning the Products and warranty. No other statements or representations, written or oral, by EnviroLogix’ employees, agents or representatives, except written statements signed by a duly authorized officer of EnviroLogix Inc., are authorized; they should not be relied upon by the customer and are not a part of the contract of sale or of this warranty.

EnviroLogix does not warrant against damages or defects arising in shipping or handling, or out of accident or improper or abnormal use of the Products; against defects in products or components not manufactured by EnviroLogix, or against damages resulting from such non-EnviroLogix made products or components. EnviroLogix passes on to customer the warranty it received (if any) from the maker thereof of such non-EnviroLogix made products or components. This warranty also does not apply to Products to which changes or modifications have been made or attempted by persons other than pursuant to written authorization by EnviroLogix.

THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of EnviroLogix shall be to repair or replace the defective Products in the manner and for the period provided above. EnviroLogix shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, shall EnviroLogix be liable for incidental, special, or consequential damages.

This Limited Warranty states the entire obligation of EnviroLogix with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

EnviroLogix has developed this kit using proprietary reagents as well as reagents licensed from Monsanto Company.

Bollgard, Bollgard II, Roundup Ready, and Roundup Ready Flex, are registered trademarks of Monsanto Technology, LLC

LibertyLink is a trademark of Bayer

WideStrike is a trademark of Dow AgroSciences LLC

EnviroLogix, the EnviroLogix logo, and QuickStix are trademarks of EnviroLogix Inc.

© EnviroLogix 2007