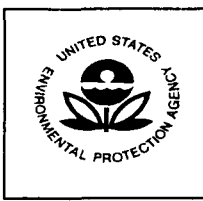


68467-7

7/20/2009

1/14

 <p style="text-align: center;">U S ENVIRONMENTAL PROTECTION AGENCY Office of Pesticide Programs Biopesticides and Pollution Prevention Division (7511P) Ariel Rios Building 1200 Pennsylvania Ave , NW Washington, D C 20460</p> <p style="text-align: center;">NOTICE OF PESTICIDE <input checked="" type="checkbox"/> Registration <input type="checkbox"/> Reregistration <small>(under FIFRA as amended)</small></p>	EPA Reg Number 68467-7	Date of Issuance JUL 20 2009
	Term of Issuance Conditional	
	Name of Pesticide Product MON 89034 x TC1507 x MON 88017 x DAS-59122-7 Insect Protected, Herbicide-Tolerant Corn	
Name and Address of Registrant (include ZIP Code) Mycogen Seeds c/o Dow AgroSciences LLC 9330 Zionsville Road Indianapolis, Indiana 46268-1054		
<p>Note Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce In any correspondence on this product always refer to the above EPA registration number</p> <p>On the basis of information furnished by the registrant the above named pesticide is hereby registered/reregistered under the Federal Insecticide Fungicide and Rodenticide Act Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency In order to protect health and the environment the Administrator on his motion may at any time suspend or cancel the registration of a pesticide in accordance with the Act The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others</p> <p>This product is conditionally registered in accordance with FIFRA Sec 3(c)(7)(A) provided you do the following terms and conditions</p> <ol style="list-style-type: none"> 1) Submit and/or cite all data required for registration/ registration review of your product under FIFRA section 3(c)(5) when the Agency requires all registrants of similar products to submit such data 2) The subject registration will automatically expire on midnight November 30, 2011 3) The subject registration will be limited to MON 89034 x TC1507 x MON 88017 x DAS-59122-7 in field corn 4) Submit the following data in the time frames listed 		
Signature of Approving Official W ~ ~	Date 7-20-09	

OPPTS Guideline/ Study Type	Required Data	Due Date
Insect Resistance Management	To address the uncertainty regarding CRW dose and buttress the dose assumptions used in the models, provide additional dose data (using the methods of Storer et al 2006) with Cry3Bb1 and Cry34/35 Further dose studies could also be conducted with varying egg infestation levels (above and below egg levels expected to trigger density-dependent mortality) to tease out any egg density effects New techniques to assess CRW dose may need to be pursued as well, if Monsanto/Dow or academic researchers can develop such approaches	Report Due 11/30/2010
Insect Resistance Management	Monsanto/Dow conducted modeling simulations to investigate the effect of initial resistance allele frequency (RAF) The results from these simulations with a pyramid showed that the initial RAF was insensitive in the model -- the final RAF did not increase significantly from the initial frequency after 10 generations of selection (regardless of the starting value) Nevertheless, BPPD is still concerned that resistance alleles for CRW-targeted Bt traits may be relatively common in the field based on published CRW selection studies (Lefko et al 2008, Meihls et al 2008) Monsanto/Dow's modeling has assumed an initial RAF of 0.001 This may be suitable for other pests (e.g. lepidoptera), but BPPD must consider the possibility that actual RAF for CRW is higher (perhaps close to 0.01) To further investigate this issue, resistance selection experiments must be conducted to further characterize the potential for resistance alleles and frequency of occurrence in CRW populations	Annually First Report Due 11/30/2010
Insect Resistance Management	New model simulations must be conducted to incorporate new data (i.e. from studies conducted under items above) or using possible "worst case" parameters Although Monsanto/Dow's new model simulations have been more conservative than previous runs, BPPD remains concerned that "worst case" scenarios for SmartStax have not yet been fully investigated CRW-protected corn is highly adopted in some areas with heavy infestations so that intense selection pressure for resistance can be expected In light of this, and the large proposed reduction in refuge (from 20% to 5%, a 75% total reduction), BPPD believes that worst case analyses are warranted to help determine the potential for resistance In particular, model parameters for dose and initial resistance allele frequency could be adjusted to include more conservative estimates (e.g. dose ranges < 94% and RAF > 0.001)	Annually First Report Due 11/30/2010

5) Submit or cite all data required to support the Herculex Xtra and the MON 89034 x MON 88017 stacked plant-incorporated protectant products within the timeframes required by the terms and conditions of EPA Registration Numbers 68467-6 and 524-576

6) You must commit to do the following Insect Resistance Management Program for MON 89034 x TC1507 x MON 88017 x DAS-59122-7

The required IRM program for MON 89034 x TC1507 x MON 88017 x DAS-59122-7 corn must have the following elements

- Requirements relating to creation of a non-*Bt* corn refuge in conjunction with the planting of any acreage of MON 89034 x TC1507 x MON 88017 x DAS-59122-7 corn,
- Requirements for Dow to prepare and require MON 89034 x TC1507 x MON 88017 x DAS-59122-7 corn users to sign “grower agreements,” which impose binding contractual obligations on the grower to comply with the refuge requirements,
- Requirements regarding programs to educate growers about IRM requirements,
- Requirements regarding programs to evaluate and promote growers’ compliance with IRM requirements,
- Requirements regarding programs to evaluate whether there are statistically significant and biologically relevant changes in target insect susceptibility to Cry1A 105, Cry2Ab2, Cry3Bb1, Cry1F and Cry34Ab1/Cry35Ab1 proteins in the target insects,
- Requirements regarding a “remedial action plan,” which contains measures Dow would take in the event that any field-relevant insect resistance was detected as well as to report on activity under the plan to EPA,

Annual reports on units sold by state (units sold by county level will be made available to the Agency upon request), IRM grower agreements results, and the compliance assurance program including the educational program on or before January 31st each year, beginning in 2011

a) Refuge Requirements for MON 89034 x TC1507 x MON 88017 x DAS-59122-7

These refuge requirements do not apply to seed propagation of inbred and hybrid corn seed up to a total of 20,000 acres per county and up to a combined U S total of 250,000 acres per PIP active ingredient per registrant per year Grower agreements (also known as stewardship agreements) will specify that growers must adhere to the following refuge requirements as described in the grower guide/product use guide and/or in supplements to the grower guide/product use guide

A common refuge must be planted for both corn borers and corn rootworms The refuge must be planted with corn hybrids that do not contain Bt technologies for the control of corn rootworms or corn borers The refuge and MON 89034 x TC1507 x MON 88017 x DAS-59122-7 corn should be sown on the same day, or with the shortest window possible between planting dates to ensure that corn root development is similar among varieties If the refuge is planted on rotated ground, then the MON 89034 x TC1507 x MON88017 x DAS-59122-7 corn must also be planted on rotated ground If the combined refuge is planted on continuous corn, the MON 89034 x TC1507 x MON88017 x DAS-59122-7 field may be planted on either continuous or rotated land (option encouraged where WCRW rotation resistant biotype may be present) Refuge options are based on the planting of MON 89034 x TC1507 x MON 88017 x DAS-59122-7 in cotton or non-cotton growing regions and the insect pressure present in those locations The

refuge sizes for these regions are either 20% in cotton growing regions (i.e. 20 acres of non-Bt corn for every 80 acres MON 89034 x TC1507 x MON 88017 x DAS-59122-7 planted) or 5% in non-cotton growing regions (5 acres of non-Bt corn for every 95 acres of MON 89034 x TC1507 x MON 88017 x DAS-59122-7 planted) If corn rootworms are significant within a region, the structured refuge must be planted as an in-field or adjacent refuge using corn hybrids that do not contain Bt technologies for the control of corn borers or corn rootworms. It can be planted as a block within or adjacent (e.g., across the road) to the MON 89034 x TC1507 x MON 88017 x DAS-59122-7, perimeter strips (i.e., strips around the field), or in-field strips. If perimeter or in-field strips are implemented, the strips must be at least 4 consecutive rows wide. The refuge can be protected from lepidopteran damage by use of non-Bt insecticides if the population of one or more target lepidopteran pests of MON 89034 x TC1507 x MON 88017 x DAS-59122-7 in the refuge exceeds economic thresholds. In addition, the refuge can be protected from CRW damage by an appropriate seed treatment or soil insecticide, however, insecticides labeled for adult CRW control must be avoided in the refuge during the period of CRW adult emergence. If insecticides are applied to the refuge for control of CRW adults, the same treatment must also be applied in the same timeframe to MON 89034 x TC1507 x MON 88017 x DAS-59122-7. Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants). If corn rootworms are not significant within a region, the structured refuge may be planted as an in-field or adjacent refuge or as a separate block that is within 1/2 mile of the MON 89034 x TC1507 x MON 88017 x DAS-59122-7 field. The structured refuge must be planted with corn hybrids that do not contain Bt technologies for the control of corn borers or corn rootworms. Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants).

Region	Refuge size	In-field or adjacent refuge is allowed	Refuge separated by up to 1/2 mile is allowed
Cotton growing where CEW is a significant pest and WCRW, NCRW and MCRW are not significant AR, NC, SC, GA, FL, TN (only the counties of Carroll, Chester, Crockett, Dyer, Fayette, Franklin, Gibson, Hardeman, Hardin, Haywood, Lake, Lauderdale, Lincoln, Madison, Obion, Rutherford, Shelby, and Tipton) AL, MS, LA, VA (only the counties of Dinwiddie, Franklin City, Greenville, Isle of Wight, Northampton, Southampton, Suffolk City, Surrey, and Sussex)	20% non-Bt corn	Yes	Yes
Cotton growing where CEW is a significant pest and WCRW, NCRW, and/or MCRW are significant TX (except the counties of Carson, Dallam, Hansford, Hartley, Hutchinson, Lipscomb, Moore, Ochiltree, Roberts, and Sherman), OK (only the counties of	20% non-Bt corn	Yes	No

Region	Refuge size	In-field or adjacent refuge is allowed	Refuge separated by up to 1/2 mile is allowed
Beckham, Caddo, Comanche, Custer, Greer, Harmon, Jackson, Kay, Kiowa, Tillman, and Washita), MO (only the counties of Dunkin, New Madrid, Pemiscot, Scott, and Stoddard)			
Cotton growing where CEW is not a significant pest and WCRW, NCRW and MCRW are not significant NM, AZ, CA, NV	5% non-Bt corn	Yes	Yes
Non-cotton growing where WCRW, NCRW and MCRW are not significant OR, WA, ID, MT, WY, UT, VA (except the counties of Dinwiddie, Franklin City, Greenville, Isle of Wight, Northampton, Southampton, Suffolk City, Surrey, and Sussex), WV, PA, MD, DE, CT, RI, NJ, NY, ME, MA, NH, VT, HI, AK, TN(except the counties of Carroll, Chester, Crockett, Dyer, Fayette, Franklin, Gibson, Hardeman, Hardin, Haywood, Lake, Lauderdale, Lincoln, Madison, Obion, Rutherford, Shelby, and Tipton)	5% non-Bt corn	Yes	Yes
Non-cotton growing where WCRW, NCRW and/or MCRW are significant KS, NE, SD, ND, MN, IA, MO (except the counties of Dunkin, New Madrid, Pemiscot, Scott, and Stoddard), IL, WI, MI, IN, OH, KY, CO, OK (except the counties of Beckham, Caddo, Comanche, Custer, Greer, Harmon, Jackson, Kay, Kiowa, Tillman, and Washita), TX (only the counties of Carson, Dallam, Hansford, Hartley, Hutchinson, Lipscomb, Moore, Ochiltree, Roberts, and Sherman)	5% non-Bt corn	Yes	No

b) Grower Agreement for MON 89034 x TC1507 x MON 88017 x DAS-59122-7 Corn

1) Persons purchasing MON 89034 x TC1507 x MON 88017 x DAS-59122-7 corn must sign a grower agreement The term “grower agreement” refers to any grower purchase contract, license agreement, or similar legal document

2) The grower agreement and/or specific stewardship documents referenced in the grower agreement must clearly set forth the terms of the current IRM program By signing the grower agreement, a grower must be contractually bound to comply with the requirements of the IRM

- 3) Dow must implement a system (equivalent to what is already approved for previously registered Dow *Bt* corn products), which is reasonably likely to assure that persons purchasing *MON 89034 x TC1507 x MON 88017 x DAS-59122-7* corn will affirm annually that they are contractually bound to comply with the requirements of the IRM program. A description of the system must be submitted to EPA within 90 days from the date of registration.
- 4) Dow must use a grower agreement and must submit to EPA, within 90 days from the date of registration, a copy of that agreement and any specific stewardship documents referenced in the grower agreement. If Dow wishes to change any part of the grower agreement or any specific stewardship documents referenced in the grower agreement that would affect either the content of the IRM program or the legal enforceability of the provisions of the agreement relating to the IRM program, 30 days prior to implementing a proposed change, Dow must submit to EPA the text of such changes to ensure that it is consistent with the terms and conditions of this registration.
- 5) Dow must implement a system (equivalent to what is already approved for previously registered Dow *Bt* corn products), which is reasonably likely to assure that persons purchasing *MON 89034 x TC1507 x MON 88017 x DAS-59122-7* corn sign grower agreement(s). A description of the system must be submitted to EPA within 90 days from the date of registration.
- 6) Dow shall maintain records of all *MON 89034 x TC1507 x MON 88017 x DAS-59122-7* corn grower agreements for a period of three years from December 31st of the year in which the agreement was signed.
- 7) Beginning on January 31, 2011 and annually thereafter, Dow shall provide EPA with a report on the number of units of *MON 89034 x TC1507 x MON 88017 x DAS-59122-7* corn seed shipped and not returned, and the number of such units that were sold to persons who have signed grower agreements. The report shall cover the time frame of a twelve-month period. Note: The first report shall contain the specified information from the time frame starting with the date of registration and extending through the 2010 growing season.
- 8) Dow must allow a review of the grower agreements and grower agreement records by EPA or by a State pesticide regulatory agency if the State agency can demonstrate that confidential business information, including names, personal information, and grower license number, will be protected.

c) IRM Education and IRM Compliance Monitoring Program for *MON 89034 x TC1507 x MON 88017 x DAS-59122-7* Corn

- 1) Dow must design and implement a comprehensive, ongoing IRM education program designed to convey to *MON 89034 x TC1507 x MON 88017 x DAS-59122-7* corn users the importance of complying with the IRM program. The education program shall involve the use of multiple media, e.g. face-to-face meetings, mailing written materials, EPA-reviewed language on IRM requirements on the bag or bag tag, and electronic communications such as by internet, radio, or television commercials. Copies of the materials will be provided to EPA for their records. The program shall involve at least one written communication annually to each

MON 89034 x TC1507 x MON 88017 x DAS-59122-7 corn user separate from the grower technical guide The communication shall inform the user of the current IRM requirements Dow shall coordinate its education program with the educational efforts of other registrants and other organizations, such as the National Corn Growers Association and state extension programs

2) Annually, Dow shall revise, and expand as necessary, its education program to take into account the information collected through the compliance survey and from other sources The changes shall address aspects of grower compliance that are not sufficiently high

3) Beginning January 31, 2011, Dow must provide a report to EPA summarizing the activities it carried out under its education program for the prior year Annually thereafter, Dow must provide EPA any substantive changes to its grower education activities as part of the overall IRM compliance assurance program report Dow must either submit a separate report or contribute to the report from the industry working group, Agricultural Biotechnology Stewardship Technical Committee (ABSTC)

4) Given that MON 89034 x TC1507 x MON 88017 x DAS-59122-7 will likely have different refuge strategies for lepidoptera and CRW than other registered Bt corn products, you must submit a revised compliance assurance program (CAP) within 90 days of the date of registration This revised CAP must be found acceptable by BPPD by April 1, 2010 This strategy should be specific for MON 89034 x TC1507 x MON 88017 x DAS-59122-7 and the new refuge requirements Availability of non-Bt corn refuge seeds in desirable varieties must be addressed Compliance is an area of ongoing concern -- recent data have shown that refuge compliance for Bt corn has fallen in recent years

d) Insect Resistance Monitoring and Remedial Action Plans for MON 89034 x TC1507 x MON 88017 x DAS-59122-7 Corn

Existing programs for resistance monitoring and remedial action that were established for MON 89034 (Cry1A 105 and Cry2Ab2), MON 88017 (Cry3Bb1), and Herculex Xtra (Cry1F and Cry34/35) should be applicable to MON 89034 x TC1507 x MON 88017 x DAS-59122-7 corn In light of potentially lower overall structured Bt corn structured refuge, the CRW resistance monitoring program must be expanded (i e with additional sampling and collection sites or improved monitoring techniques) Also, a revised definition of "resistance" may be needed for the CRW monitoring and remedial action plans based on recent research and selection experiments (Lefko et al 2008, Meihls et al 2008) You must submit a revised resistance monitoring and remedial action plan within 90 days of the date of registration that must be found acceptable to BPPD by April 1, 2010

A report on results of resistance monitoring and investigations of damage reports must be submitted to the Agency annually by August 31st each year, beginning in 2011, for the duration of the conditional registration

e) Annual Reporting Requirements for MON 89034 x TC1507 x MON 88017 x DAS-59122-7 Corn

- 1) Annual Sales reported and summed by state (county level data available by request) January 31st each year, beginning in 2011,
- 2) Grower Agreements number of units of MON 89034 x TC1507 x MON 88017 x DAS-59122-7 corn seed shipped or sold and not returned, and the number of such units that were sold to persons who have signed grower agreements, January 31st each year, beginning in 2011,
- 3) Grower Education substantive changes to education program completed previous year, January 31st each year, beginning in 2011,
- 4) Compliance Assurance Program compliance assurance program activities and results for the prior year and plans for the compliance assurance program for the current year, January 31st each year, beginning in 2011,
- 5) Compliance Survey Results results of annual surveys for the prior year and survey plans for the current year, full report January 31st each year, beginning in 2011,
- 6) Insect Resistance Monitoring Results results of monitoring and investigations of damage reports, August 31st each year, beginning in 2011

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA Section 6(e) Your release for shipment of the product constitutes acceptance of these conditions

A copy of the stamped label is enclosed for your records

Sincerely



W Michael McDavit, Acting Director
Biopesticides and Pollution
Prevention Division (7511P)

Enclosure

Plant-Incorporated Protectant Label

MON 89034 × TC1507 × MON 88017 × DAS-59122-7

**Insect-Protected, Herbicide-Tolerant Corn
(Alternate brand name SmartStax™)**

Dow AgroSciences *Bacillus thuringiensis* (Bt) CRY1A 105 CRY2Ab2 CRY1F CRY3Bb1 CRY34/35Ab1
PROTEINS AND THE GENETIC MATERIAL NECESSARY FOR THEIR PRODUCTION IN MON 89034 ×
TC1507 × MON 88017 × DAS 59122 7 (SMARTSTAX™) CORN

(OECD Unique Identifier MON-89034-3 × DAS- 01507-1 × MON-88017-3 × DAS-59122-7)

Active Ingredients

Active Ingredients

Bacillus thuringiensis Cry1A 105 protein and the genetic material necessary (vector PV ZMIR245) for its
production in corn event MON 89034 ≤ 0.0026%*

Bacillus thuringiensis Cry2Ab2 protein and the genetic material necessary (vector PV-ZMIR245) for its
production in corn event MON 89034 ≤ 0.0053%*

Bacillus thuringiensis Cry1F protein and the genetic material necessary (vector PHP8999) for its
production in corn event TC1507 ≤ 0.0012%*

Bacillus thuringiensis Cry3Bb1 protein and the genetic material necessary (vector PV ZMIR39) for its
production in corn event MON 88017 ≤ 0.0079%*

Bacillus thuringiensis Cry34Ab1 protein and the genetic material necessary (vector PHP17662) for its
production in corn event DAS 59122-7 ≤ 0.0194%*

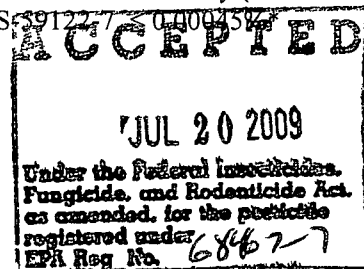
Bacillus thuringiensis Cry35Ab1 protein and the genetic material necessary (vector PHP17662) for its
production in corn event DAS-59122-7 ≤ 0.0042%*

Inert Ingredients

CP4 EPSPS protein (5-enolpyruvylshikimate-3 phosphate synthase) and the genetic material necessary
(vector PV-ZMIR39) for its production in corn event MON 88017 ≤ 0.0052%*

PAT protein (phosphinothricin acetyl transferase) and the genetic material necessary (vectors PHP17622
and PHP8999) for its production in corn event TC1507 and DAS-59122-7 ≤ 0.00035%*

*Maximum percent (wt/wt) of dry forage



10/14

CAUTION

KEEP OUT OF REACH OF CHILDREN

NET CONTENTS _____

EPA Registration No. 68467-7

EPA Establishment No. 524-MO-002

EPA Establishment No. 029964-IA-001

Mycogen Seeds c/o Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

DIRECTIONS FOR USE

It is a violation of Federal law to use this ^{product} ~~seed~~ in any manner inconsistent with ^{its} ~~this~~ labeling. Information regarding commercial production must be included in the Technology Use Guide.

reflected here and in the terms + conditions of this registration

MON 89034 × TC1507 × DAS-59122-7 × MON 88017 protects corn crops from leaf, stalk, and ear damage caused by corn borers and root damage caused by corn rootworm larvae. In order to minimize the risk of these pests developing resistance to MON 89034 × TC1507 × DAS-59122-7 × MON 88017 corn, an insect resistance management plan must be implemented which includes planting of a structured refuge. Growers who fail to comply with the IRM requirements risk losing access to Monsanto's corn PIP products.

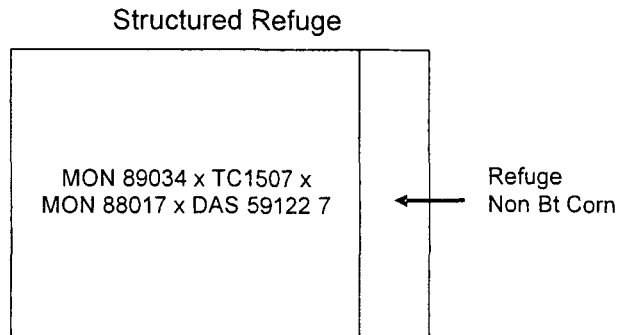
These refuge requirements do not apply to seed propagation of inbred and hybrid seed corn up to a total of 20,000 acres per county and up to a combined US total of 250,000 acres per PIP active ingredient per year.

Several options for deployment of the refuge for MON 89034 × TC1507 × DAS-59122-7 × MON 88017 are available to growers. These options are based on the planting of MON 89034 × TC1507 × DAS-59122-7 × MON 88017 in cotton or non-cotton growing regions and the insect pressure present in those locations. The refuge sizes for these regions are either 5% (i.e. 5 acres of non-Bt corn for every 95 acres MON 89034 × TC1507 × DAS-59122-7 × MON 88017 planted) or 20% (20 acres of non-Bt corn for every 80 acres of MON 89034 × TC1507 × DAS-59122-7 × MON 88017 planted), and are presented in the table below:

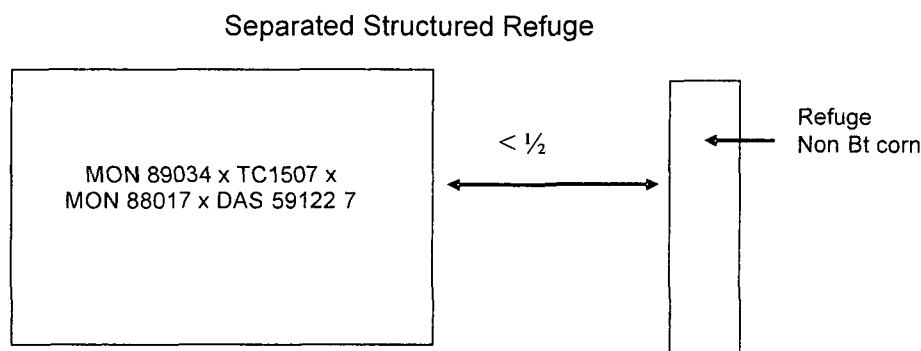
Region	Refuge size	In-field or adjacent refuge allowed	Refuge separated by up to ½ mile allowed
Cotton growing where CEW is a significant pest and WCRW, NCRW and MCRW are not significant NC, SC, GA, FL, TN (only the counties of Carroll, Chester, Crockett, Dyer, Fayette, Franklin, Gibson, Hardeman, Hardin, Haywood, Lake, Lauderdale, Lincoln, Madison, Obion, Rutherford, Shelby, and Tipton), AL, MS, LA, AR, VA (only the counties of Dinwiddie, Franklin City, Greenville, Isle of Wight, Northampton, Southampton, Suffolk City, Surrey, and Sussex)	20% non-Bt corn	Yes	Yes
Cotton growing where CEW is a significant pest and WCRW, NCRW, and/or MCRW are significant TX (except the counties of Carson, Dallam, Hansford, Hartley, Hutchinson, Lipscomb, Moore, Ochiltrie, Roberts, and Sherman), OK (only the counties of Beckham, Caddo, Comanche, Custer, Greer, Harmon, Jackson, Kay, Kiowa, Tillman, and Washita), MO (only the counties of Dunkin, New Madrid, Pemiscot, Scott, and Stoddard)	20% non-Bt corn	Yes	No
Cotton growing where CEW is not a significant pest and WCRW, NCRW and MCRW are not significant NM, AZ, CA, NV	5% non-Bt corn	Yes	Yes
Non-cotton growing where WCRW, NCRW and MCRW are not significant OR, WA, ID, MT, WY, UT, VA (except the counties of Dinwiddie, Franklin City, Greenville, Isle of Wight, Northampton, Southampton, Suffolk City, Surrey, and Sussex), WV, PA, MD, DE, CT, RI, NJ,	5% non-Bt corn	Yes	Yes

NY, ME, MA, NH, VT, HI, TN (except the counties of Carroll, Chester, Crockett, Dyer, Fayette, Franklin, Gibson, Hardeman, Hardin, Haywood, Lake, Lauderdale, Lincoln, Madison, Obion, Rutherford, Shelby, and Tipton)			
Non-cotton-growing where WCRW, NCRW and/or MCRW are significant KS, NE, SD, ND, MN, IA, MO (except the counties of Dunkin, New Madrid, Pemiscot, Scott, and Stoddard), IL, WI, MI IN, OH, KY, CO, OK (except the counties of Beckham, Caddo, Comanche, Custer, Greer, Harmon, Jackson, Kay, Kiowa, Tillman, and Washita), TX (only the counties of Carson, Dallam, Hansford, Hartley, Hutchinson, Lipscomb, Moore, Ochiltree, Roberts, and Sherman)	5% non-Bt corn	Yes	No

If corn rootworms are significant within a region, the structured refuge must be planted as an in-field or adjacent refuge using corn hybrids that do not contain Bt technologies for the control of corn borers or corn rootworms. It can be planted as a block within or adjacent (e.g., across the road) to the MON 89034 × TC1507 × MON 88017 × DAS-59122-7, perimeter strips (i.e., strips around the field), or in-field strips. If perimeter or in-field strips are implemented, the strips must be at least 4 consecutive rows wide. The refuge can be protected from lepidopteran damage by use of non-Bt insecticides if the population of one or more target lepidopteran pests of MON 89034 × TC1507 × MON 88017 × DAS-59122-7 in the refuge exceeds economic thresholds. In addition, the refuge can be protected from CRW damage by an appropriate seed treatment or soil insecticide, however, insecticides labeled for adult CRW control must be avoided in the refuge during the period of CRW adult emergence. Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants). A schematic of one common refuge deployment option is shown below.



If corn rootworms are not significant within a region, the structured refuge may be planted as an in-field or adjacent refuge, or as a separate block that is within ½ mile of the MON 89034 × TC1507 × MON 88017 × DAS-59122-7 field. The structured refuge must be planted with corn hybrids that do not contain Bt technologies for the control of corn borers or corn rootworms. Economic thresholds will be determined using methods recommended by local or regional professionals (e.g., Extension Service agents, crop consultants). A schematic of one refuge option with the refuge planted within a ½ mile of the MON 89034 × TC1507 × MON 88017 × DAS-59122-7 field is shown below.



Corn Insects Controlled or Suppressed

European corn borer (ECB)	<i>Ostrinia nubilalis</i>
Southwestern corn borer (SWCB)	<i>Diatraea grandiosella</i>
Southern cornstalk borer (SCSB)	<i>Diatraea crambidoides</i>
Corn earworm (CEW)	<i>Helicoverpa zea</i>
Fall armyworm (FAW)	<i>Spodoptera frugiperda</i>
Stalk borer	<i>Papaipema nebris</i>
Lesser corn stalk borer	<i>Elasmopalpus lignosellus</i>
Sugarcane borer (SCB)	<i>Diatraea saccharalis</i>
Western bean cutworm (WBC)	<i>Richia albicosta</i>
Black cutworm	<i>Agrotis ipsilon</i>
Western corn rootworm (WCRW)	<i>Diabrotica virgifera virgifera</i>
Northern corn rootworm (NCRW)	<i>Diabrotica barberi</i>
Mexican corn rootworm (MCRW)	<i>Diabrotica virgifera zeae</i>

Sales of corn hybrids that contain Monsanto's Bt corn plant pesticide must be accompanied by a Grower Guide which includes information on planting, production and insect resistance management and notes that routine applications of insecticides to control these insects are usually unnecessary when corn containing the Bt proteins is planted.

MON 89034 × TC1507 × MON 88017 × DAS-59122-7 is a product of Monsanto's and Dow AgroSciences' research programs, offering unique genetic characteristics for specific grower needs and may be protected by one or more of the following U S patents 5023179, 5110732, 5164316, 5196525, 5322938, 5352605, 5359142, 5378619, 5424412, 5554798, 5641876, 5717084, 5728925, 5804425, 6018100, 6025545, 6051753, 6063597, 6083878, 6331665, 6489542, 6645497, 6962705, 7064249, 7227056, and 7250501

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