

# MICROFILM DIVIDER

OMB/RECORDS MANAGEMENT DIVISION

SFN 2053 (2/85) 5M



ROLL NUMBER

DESCRIPTION

1442

2001 HOUSE AGRICULTURE

HB 1442

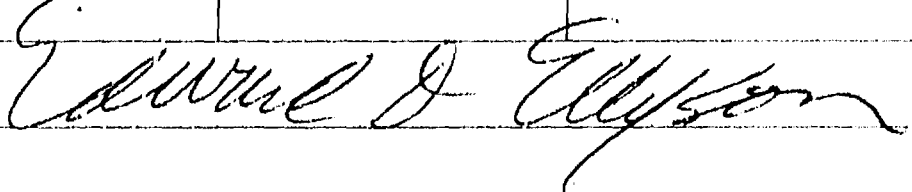
2001 HOUSE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. HB 1442

House Agriculture Committee

☐ Conference Committee

Hearing Date 2--8--01

Tape Number	Side A	Side B	Meter #
FIVE	A		3720 TO END
SIX	A		00 TO 920
Committee Clerk Signature 			

Minutes:

1A: 3720; CHAIRMAN NICHOLAS: We will open the hearing on HB 1442.

A bill for an act relating to the sampling of genetically modified crops.

Representative Lemieux, you were the prime sponsor of 1442.

REPRESENTATIVE LEMIEUX: Thank you Chairman Nicholas and members of the Agr. committee. I am not real sure how to follow up a presentation like that. HB 1442 is a Bill to establish some rules. When we were younger we all played games and every game had it's own rules. When we played games on the play ground when we were little the rules tried to make it fair for the little guy to play with the big guys. No one got hurt, everyone had fun and it was an enjoyable afternoon on the play ground. HB 1442 is an attempt to establish some rules by which we will all play. It is not an attempt to circumvent anyone's rights. It is just saying if we are going to play this game which we have all been committed to. Its a game called GMO

If we are going to play this game, we need to play the game fair so that everybody has a good time. No one gets hurt. HB 1442 begins by saying that if you are going to sample a field and you are the patent holder. You must follow the rules. I have some proposed amendments. We have been trying to perfect this Bill for a number of days. I think most of the people have seen the amendment and rather than talking to the Bill. It would probably be more appropriate to talk to the amendments. The amendments are basically put together so that we have members of this committee can read them. I will walk you through the bill step by step. SECTION ONE AND STARTING WITH LINE ONE: Before a person holding a patent on a genetically modified seed may enter upon the land of another for the purpose of obtaining crop samples to determine whether patent infringement has occurred, the person holding the patent must:

- A. Obtain written permission of the landowner or lessee; or
- B. Obtain an order from a district court having jurisdiction over the area in which the land is located. The land owner must give written permission.

PLEASE NOTE: REPRESENTATIVE READ THE BILL.....PLEASE SEE BILL WHICH IS ATTACHED TO THESE MINUTES. PLEASE SEE AMENDMENTS.

Basically, ladies and gentleman of the House Agr. Committee. We know that we are farming with GMO crops. We feel, I feel that the people in the state of ND, have to have some protection that lays down some guide lines of fairness and equity. That is what this bill is all about. We don't want to infringe on Monsanto's rights to protect their patent. We just suggest that we play by the rules so that we can all win.

CHAIRMAN NICHOLAS: Any questions? O.K. thank you REP. LEMIEUX.



Page 3  
House Agriculture Committee  
Bill/Resolution Number SB 1442  
Hearing Date 2--8--01

Do the other cosponsors want to comment on this? O.K. who else would like to comment on HIB 1442? We will take testimony.

ERIC ARMUNDSTAD: PRESIDENT OF NDFB. I would like to address the amendment. We certainly do support this legislation. It just make common sense. The provision for notification clause we agree with. They are property rights. You have the right to know who is out there. The independent verification of the sampling techniques and things like that are certainly very important. Along with the dispute resolution, therefore NDFB will support this legislation.

CHAIRMAN NICHOLAS: ADDITIONAL TESTIMONY.

ROGER JOHNSON: Commissioner of Agriculture. I am going to try and be quick. I support the amendment. There may be a few minor issues that need to be cleaned up with them but it make a lot of sense to me.

CHAIRMAN NICHOLAS: Thank you Roger.

MARK SITZ: ND FARMERS UNION: We would too be in favor of SB 1442. With regard to the amendment that was handed out we would be in agreement with that as well.

CHAIRMAN NICHOLAS: Thank you. Anyone else wishing to appear in support of this Bill?

TOM NELSON: REPRESENTING THE DAKOTA RESOURCES COUNCIL. We recommend a DO PASS on this Bill.

RODNEY NELSON: FARMER NEAR CASSELTON, ND Most everyone here has heard or read of the situation that I have had with Monsanto. This legislation, I can't imagine anyone being against the BIO-TECH COMPANIES that have patents would certainly be in favor of this because it take the burden of proof away from them and it sets some ground rules so that you

know if they really think that they have a problem on a farm, they would certainly be able to prove that point through this legislation. I am proud of everyone that put it together.

CHAIRMAN NICHOLAS: QUESTIONS? I will ask for further support of 1442.

O.K. ANYONE IN OPPOSITION TO 1442?

MONSANTO REPRESENTATIVE: I have to admit you have thrown me a total curve. I had a beautiful speech written up on the ups and downs of the original version of 1442. I had a chance to look at your amendments. I would be happy to sit down with you. There is a lot of common ground. I don't get involved in the legal parts nor the patent enforcement area. However that said, there are some common grounds. I can go through some of these things with you. In a form like it is right now, even with these amendments, my gut reaction it still may present some potential problems. If a grower is caught in a web in a situation when there is a patent enforcement action. There maybe rights that are already available to growers so much of this may simply be unnecessary. We would be glad to sit down with you. Some examples here. Section One -- gaining permission to enter a field. It is our practice to try to obtain permission to enter a field. To do other wise would constitute a trespass. We could not do that. It is not written in our code that we can enter a field without permission. There are some growers that when you talk about written permission. There are some growers who have said we don't want to put anything on paper. We have to respect there position on that, as well. Some of the time periods are questionable. Some of the time periods are a little questionable requiring a five day time period following the issuance of permission or court order. In allowing a five day time period also creates a opportunity for mischief. Within five days you can do a lot to alter, damage or destroy evidence that we would need to gather to demonstrate that patent

had been violated. Let me say this, I was with our guide last week who works very closely in this area. We do not randomly go out and say that we are going to check this guy's farm next week. Information comes to us from a variety of mechanisms. An average cost to just look into an allegation is between 3 and 4 thousand dollars. Just to look into something where another grower told us something. Issues like a county extension service or another third party representative be present. We would welcome that. We would prefer that it not be made mandatory because again it provides an in-between time. There are a couple of sections. No. Four. Samples, we certainly agree. The grower can take a sample and do an analysis and we can do the same. The costs are born on both sides. Fine no problem. There is an issue around Subsection Five taking samples from only standing crop or representative standing plants in the field. Again the technology that is available to us we can find crop residue after the fact. It is not something that we look to do but it is available. We can find ourselves in the tail end of the growing season some one could tell that so and so has grown a crop. We think he stole the technology. He saved the seed. You might want to look into this. By the time we could actually take action, that crop could be cut and gone. If that happens then. Like a crime. Again taking samples turning it around back and forth from a lab and getting the results back to a land owner; 45 days we could work with this. A little more time would be beneficial for all sides. A very tight time frame could be very problematic. We are really concerned that you put the person that failed to comply could lose our license they claim. We would lose our protection and ability to enforce the patent based on some ultimately arbitrary time frame that are out of our control. It is the Lab. If it is backed up or they screw something we have lost

control of our interest in it. I don't know that that is right. We have issues with Section 7. In the years that we have been enforcing our patent [end of tape # 5 and going to # 6 ]

If something were to happen here if we do want to provide some in state protections. We are happy to work with you and try to develop those and make sure they work. The producer for us to protect our technology so that we can continue to bring these things forward, but at the same time it has to fall within the boundaries of Federal Law.

REPRESENTATIVE FROELICH: One question, can you quote one statute where [could not understand question]

MONSANTO: We would not enter the property without permission.

REPRESENTATIVE ONSTAD: On your patent enforcement policy, what kind of threshold do you deem lets say you go check the field, what kind of threshold do you deem that the person, lets say you have a report, and you go check the field.

MONSANTO: Again, I don't know if there is set criteria. There might very well be again I am not the guy that goes out and dose this. I would get an answer to you. What the red flags are. I will get you answers. There are a variety of mechanisms that trigger. Most of them come from a neighbor as to complaints.

REPRESENTATIVE LEMIEUX: You suggested that a farmer who may be in violation of your patent may taint, damage or destroy his crop. What would his advantage be by destroying his crop. On the flip side of the coin that something out of no fault of the operator. It is your contention then that something out of the hands of the operator could also come in and taint the crop so that it could be detected that it could be Roundup ready. I will give you a example. Do you suppose that some one could have a crop that is on the east side of the section line and on

the west side of the section line again. Neighbor has a crop with roundup ready soy beans or canola. Is it possible that the farmer that dose not have GMO SOYBEANS OR CANOLA that his crop could be tainted by the pollen drifting across his fields do we believe some residue in the soybeans that are being produced.

MONSANTO: We are not talking about number one incidental or anything other then someone has planted seed and there is a large field ahead of us or in plain view. Where we think something has taken place. A half a dozen seeds dose not trigger anything.

REPRESENTATIVE LEMIEUX: You have not told us what the percentage of roundup genes have to be present which I acknowledge you don't have that information with you but if someone can taint the field by putting some other mechanism to taint that field. Could not that field then also then be tainted? By no act of there own.

MONSANTO M. Diamond: That is not a question for me to answer. I will sit down with you and create something that works for everybody involved. We can go around and around on this, this is not our intent. Our intent here is to provide protection for the growers, protection to our technology.

REPRESENTATIVE LEMIEUX: Do you know if your company has ever in the past used profiling. For the use of going out and investigating patent interests.

M. DIAMOND: That question is not within my expertise.

CHAIRMAN NICHOLAS: Any more questions Committee Members. O.K. WE ARE GOING TO CLOSE THE HEARING ON SB 1442.

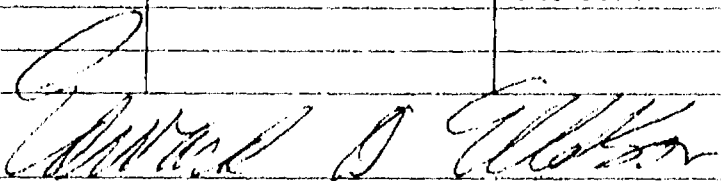
2001 HOUSE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. HB 1442

House Agriculture Committee

☐ Conference Committee

Hearing Date February 15, 2001

Tape Number	Side A	Side B	Meter #
2	x		1 to 1197
Committee Clerk Signature 			

Minutes:

Rep. Lemieux: The amendments you have in front of you today should be 1.07. We tried to address as many concerns as were possible. As a change to the amendments I spoke to when we heard this bill. We replaced the word landowner with the word farmer. We defined the word farmer. Section 1, part 1 for the purpose of this section, farmer means person responsible for planting a crop, managing and harvesting the crop. Part 2, section 1 for a person can enter on the land. Part 1, they can notify the ag commissioner and that's so there is public record. No. 2 is shall notify the farmer and request his written permission. Part 3, he must obtain the written permission of the farmer. Subsection D - if the farmer is not willing to give his written permission they may petition the court having jurisdiction over that portion of the state and that allows the patent holder the opportunity to get a court order. Unless there is a shorter period time than agreed to, at least five days must pass (part 3) from the time the farmer gave written permission. The farmer may accompany the patent holder. An agent of the county extension

service or any other independent agent agreed to by both parties also must accompany the person holding the patent at the time any sample is taken.

Rep. Renner: In No. 3, how come we have five days? So after the person giving permission can't collect them for five days?

Rep. Lemieux: The thought there was to afford the opportunity to get the independent parties. Someone wants to inspect a field and you say okay, but if we are going to find an independent party, it's going to take some time.

Rep. Renner: What if you are already to go?

Rep. Lemieux: Unless a shorter period of time is agreed to in writing or ordered by the district court. It awards all parties to be there to document. We are trying to leave a paper trail. So if there is a patent infringement that we protect the patent holders and the farmer. That is the whole intention of this bill. So any disputes can be settled. On section five if the patent holder believes that the crop from which samples are to be taken maybe subject to intentional damage, that person can seek a protection order from the district court. That protects the patent holder, if they feel someone would possibly taint damage or destroy the crop. Part 6 the person holding the patent may obtain no more samples than those reasonably necessary to make the determination. An equal number of samples must remain in the custody of the county extension agent or the independent agent agreed to by both parties. That is for the farmers protection. All samples must be label with date, time, and location from which they are taken. They must be signed by the farmer, the patent holder and the independent agent. The person holding the patent shall provide the containers and the cost shared equally by the patent holder and the farmer. Part 7, the person holding the patent may take crop samples from only a standing crop. We added a line here, upon showing a good cause the person holding the patent may collect samples from crop residues

remaining in the field after harvest. That's basically we are stating if you feel there is a patent infringement we strongly encourage you to take it from a standing crop. If the investigation takes place after harvest you can take the sample, but we strongly encourage those samples to be taken from a standing crop. Section 8 it says that within sixty days we would like to have the tests done, the persons holding the patent notifies the farmer of the results. There is also a section in there that if the patent holder fails to comply with the dates set forth in this subsection, the crop samples may not be used in any claims as evidence. Section 9 suggest we encourage mediation. In section 10, if there is not an agreement, then we encourage the use of the seed arbitration board. Section 11 says that if there is no finding or agreement reached the case will go to district court where the land is located.

Rep. Renner: This item 11, can we change that item that says St. Louis, that it would be in district court in North Dakota now.

Rep. Lemieux: Yes, unless through contractual agreement the farmer has signed his rights away to go to the court. If you signed the right away and if we understand the programs as one of the patent holders has, they have a rewards program, and to qualify for the rewards program one of the things you must do. We as the state cannot limit the ability to sign a contract, if you sign a contract you had better know what you are entering into. This says if you have not signed a contract, or not participated or waived your rights to district court, than any claims shall be brought to district court.

Chairman Nicholas: This is a pretty extensive change from the bill we heard right?

Rep. Lemieux: The changes were brought forth after a conference call with the a patent attorney or one the enforcement people with Monsanto. These were things discussed in that conference



call and again this bill is to try and protect both the patent holders and the producers. The brunt of the bill is to still protect both parties.

Chairman Nicholas: Dale, were you a party to this with Monsanto when this was put together?

Dale: No, I do not represent Monsanto.

Rep. Nicholas: Have you had these prior to this?

Dale: Rep. Lemieux faxed to me one page of the new pages, so I have not had a chance to look at them.

Chairman Nicholas: I would ask Nelson, have you had a chance to review these? Did you have a chance to look at these.

Nelson: No, I have not.

Chairman Nicholas: I think what I will do, so interested parties on both sides have a chance to review this, I am going to hold this bill until tomorrow morning also. So everyone gets a chance to look at these amendments. Close hearing on HB 1442.

2001 HOUSE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. HB 1442

House Agriculture Committee

☐ Conference Committee

Hearing Date 2--16--01

Tape Number	Side A	Side B	Meter #
ONE	A		1784 TO 2369
Committee Clerk Signature <i>Edmund Elison</i>			

Minutes:

1A: 1784 CHAIRMAN NICHOLAS: Committee Members, what are your thoughts on HB 1442?

REPRESENTATIVE LEMIEUX: Rep. Lemieux read the amendments which are attached to these minutes. Please see them.

REPRESENTATIVE LEMIEUX MADE A MOTION TO ACCEPT THE BILL WITH THE AMENDMENTS, IT WAS SECONDED BY REP. RENNER. ALL IN FAVOR SAY YES.

THE CHAIR WILL ENTERTAIN A MOTION ON HB 1442. AS AMEND EMENDED.

REPRESENTATIVE MADE THE MOTION FOR A DO PASS AND REPRESENTATIVE

FROEHLICH SECONDED. ANY FURTHER DISCUSSION. O.K. THE CLERK

WILL TAKE THE ROLL ON HB 1442. THERE WERE THIRTEEN YES, NO NO'S AND

TWO ABSENT. REPRESENTATIVE RENNER WILL CARRY THE BILL 1A:2369

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1442

Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act relating to the sampling of genetically modified crops; and to declare an emergency.

**BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:**

**SECTION 1. Genetically modified seed - Patent Infringement - Sampling - Mediation.**

1. Before a person holding a patent on a genetically modified seed may enter upon any land farmed by another for the purpose of obtaining crop samples to determine whether patent infringement has occurred, the person holding the patent:
  - a. Shall notify the agriculture commissioner in writing of the person's belief that a patent infringement has occurred and include facts justifying the belief;
  - b. Shall notify the landowner or lessee in writing of the person's belief that a patent infringement has occurred and request written permission to enter upon land farmed by the landowner or lessee; and
  - c. Must obtain the written permission of the landowner or lessee.
2. Unless a shorter period of time is agreed to in writing, the obtaining of samples under written permission from the landowner or lessee may not be conducted until a period of at least five days has passed from the time that the landowner or lessee gave written permission. The landowner or lessee may accompany the person holding the patent at the time any samples are taken.
3. An agent of the county extension service or any other independent agent agreed to by both parties also must accompany the person holding the patent at the time any sample is taken.
4. The person holding the patent may obtain no more samples than those reasonably necessary to make a determination regarding patent infringement. An equal number of samples must remain in the custody of the county extension agent or the independent agent agreed to by both parties for future comparison and verification purposes. All samples taken must be placed in containers, labeled as to the date, time, and location from which they were taken, and the labels must be signed by the landowner or lessee, the person holding the patent, and the county extension agent or the other independent agent agreed to by both parties.
5. The patent holder may take crop samples from only a standing crop or representative standing plants in the field. No claim for relief may be based on crop samples taken from a field in violation of this subsection.
6. Within forty-five days from the date the samples are taken, an independent laboratory shall conduct all tests to determine whether patent infringement has occurred. The person holding the patent shall notify the landowner or lessee of the test results, by certified mail, within ten days from the date the

samples were analyzed. If the person holding the patent fails to comply with the dates set forth in this subsection, all claims against the landowner or lessee for patent infringement are waived.

7. If a dispute between the landowner or lessee and the person holding the patent remains after the samples have been analyzed, the landowner or lessee may require the person holding the patent to participate in mediation of the matter. The mediation must be conducted by the agricultural mediation service. The mediator may require that additional independent tests be conducted.
8. If the case is not settled after mediation, either party may file a claim with the state seed arbitration board.
9. If the case is not settled after arbitration, either party may file a claim for relief with the district court having jurisdiction over that portion of this state in which the land farmed by the landowner or lessee is located. This requirement, if the claim is based on a contract, is deemed to be part of the contract, regardless of whether the contract is written or oral.

**SECTION 2. EMERGENCY.** This Act is declared to be an emergency measure."

Renumber accordingly

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1442

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**BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:**

**SECTION 1. Genetically modified seed - Patent Infringement - Sampling - Mediation.**

1. For purposes of this section, farmer means the person responsible for planting a crop on, managing the crop, and harvesting the crop from land on which a patent infringement is alleged to have occurred.
2. a. Before a person holding a patent on a genetically modified seed may enter upon any land farmed by another for the purpose of obtaining crop samples to determine whether patent infringement has occurred, the person holding the patent:
  - (1) Shall notify the agriculture commissioner in writing of the person's belief that a patent infringement has occurred and include facts justifying the belief;
  - (2) Shall notify the farmer in writing of the person's belief that a patent infringement has occurred and request written permission to enter upon the farmer's land; and
  - (3) Must obtain the written permission of the farmer.
- b. If the farmer withhold written permission, the person holding a patent may petition the district court having jurisdiction over that portion of this state in which the farmer's land is located for an order granting permission to enter upon the farmer's land.
3. Unless a shorter period of time is agreed to in writing or ordered by the district court, samples may not be collected until a period of at least five days has passed from the time the farmer gave written permission or from the date of the court order. The farmer may accompany the person holding the patent at the time any samples are taken.
4. An agent of the county extension service or any other independent agent agreed to by both parties also must accompany the person holding the patent at the time any sample is taken.
5. If the person holding a patent believes that the crop from which samples are to be taken may be subject to intentional damage or destruction, the person may seek a protection order from the district court.
6. The person holding the patent may obtain no more samples than those reasonably necessary to make a determination regarding patent infringement. An equal number of samples must remain in the custody of the county extension agent or the independent agent agreed to by both parties for future comparison and verification purposes. All samples taken must be placed in containers, labeled as to the date, time, and location

from which they were taken, and the labels must be signed by the farmer, the person holding the patent, and the county extension agent or the other independent agent agreed to by both parties. The person holding the patent shall supply the containers. The cost of the containers must be shared equally by the person holding the patent and the farmer.

7. The person holding the patent may take crop samples from only a standing crop or representative standing plants in the field. Upon a showing of good cause, the person holding the patent may collect samples from crop residues remaining in the field after harvest.
8. Within sixty days from the date the samples are taken, an independent laboratory shall conduct all tests to determine whether patent infringement has occurred. The person holding the patent shall notify the farmer of the test results, by certified mail or by any other method of delivery for which a signature is required, within ten days from the date the samples were analyzed. If the person holding the patent fails to comply with the dates set forth in this subsection, the crop samples may not be used as evidence in any claim alleging patent infringement.
9. If a dispute between the farmer and the person holding the patent remains after the samples have been analyzed, the farmer may require the person holding the patent to participate in mediation of the matter. The mediation must be conducted by a mediator jointly selected by the farmer and the person holding the patent. If the farmer and the person holding the patent are unable to select a mediator, the mediation must be conducted by the agricultural mediation service.
10. If the case is not settled after mediation, either party may file a claim with the state seed arbitration board. The board may require that additional independent tests be conducted.
11. If the case is not settled after arbitration, either party may file a claim for relief with the district court having jurisdiction over that portion of this state in which the farmer's land is located. This requirement, if the claim is based on a contract, is deemed to be part of the contract, regardless of whether the contract is written or oral.

**SECTION 2. EMERGENCY.** This Act is declared to be an emergency measure."

Renumber accordingly

VR  
2/19/01  
182

HOUSE AMENDMENTS TO HB 1442 HOUSE AGR. 2-19-01  
Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act relating to the  
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**SECTION 1. Genetically modified seed - Patent infringement - Sampling -  
Mediation.**

1. For purposes of this section, farmer means the person responsible for planting a crop on, managing the crop, and harvesting the crop from land on which a patent infringement is alleged to have occurred.
2. a. Before a person holding a patent on a genetically modified seed may enter upon any land farmed by another for the purpose of obtaining crop samples to determine whether patent infringement has occurred, the person holding the patent:
  - (1) Shall notify the agriculture commissioner in writing of the person's belief that a patent infringement has occurred and include facts justifying the belief;
  - (2) Shall notify the farmer in writing of the person's belief that a patent infringement has occurred and request written permission to enter upon the farmer's land; and
  - (3) Must obtain the written permission of the farmer.
- b. If the farmer withholds written permission, the person holding a patent may petition the federal district court having jurisdiction over that portion of this state in which the farmer's land is located for an order granting permission to enter upon the farmer's land.
3. Unless a shorter period of time is agreed to in writing or ordered by the federal district court, samples may not be collected until a period of at least five days has passed from the time the farmer gave written permission or from the date of the court order. The farmer may accompany the person holding the patent at the time any samples are taken.
4. An independent agent agreed to by both parties also must accompany the person holding the patent at the time any sample is taken.
5. If the person holding a patent believes that the crop from which samples are to be taken may be subject to intentional damage or destruction, the person may seek a protection order from the federal district court. The protection order may not interrupt or interfere with normal farming practices, including harvest and tillage.
6. The person holding the patent may take crop samples from only a standing crop or representative standing plants in the field. Upon a showing of good cause, the person holding the patent may collect seed samples from crops remaining in the field after harvest.

7. The person holding the patent may obtain no more samples than those reasonably necessary to make a determination regarding patent infringement. An equal number of samples must remain in the custody of the independent agent agreed to by both parties for future comparison and verification purposes. All samples taken must be placed in containers, labeled as to the date, time, and location from which they were taken, and the labels must be signed by the farmer, the person holding the patent, and the independent agent agreed to by both parties. The person holding the patent shall supply the containers for that person's samples. The independent agent shall supply the containers for the agent's samples and the farmer shall bear the cost of the agent's containers.
8. Within sixty days from the date the samples are taken, an independent laboratory shall conduct all tests to determine whether patent infringement has occurred. The person holding the patent shall notify the farmer of the test results, by certified mail or by any other method of delivery for which a signature is required, within ten days from the date the samples were analyzed. If the person holding the patent fails to comply with the dates set forth in this subsection, the crop samples may not be used as evidence in any claim alleging patent infringement.
9. If a dispute between the farmer and the person holding the patent remains after the samples have been analyzed, the farmer may require the person holding the patent to participate in mediation of the matter. The mediation must be conducted by a mediator jointly selected by the farmer and the person holding the patent. If the farmer and the person holding the patent are unable to select a mediator, the mediation must be conducted by the agricultural mediation service.
10. If the case is not settled after mediation, either party may file a claim with the state seed arbitration board. The board may require that additional independent tests be conducted.
11. If the case is not settled after arbitration, either party may file a claim for relief with the federal district court having jurisdiction over that portion of this state in which the farmer's land is located. This requirement, if the claim is based on a contract, is deemed to be part of the contract, regardless of whether the contract is written or oral.

**SECTION 2. EMERGENCY.** This Act is declared to be an emergency measure."

Renumber accordingly



2-16-01

Date:  
Roll Call Vote #:2001 HOUSE STANDING COMMITTEE ROLL CALL VOTES  
BILL/RESOLUTION NO. HR 1442House AGRICULTURE

Committee

☐ Subcommittee on \_\_\_\_\_

or

☐ Conference CommitteeRenner TRAIL

Legislative Council Amendment Number

Amended with

Action Taken

Do Pass

Motion Made By

Lemieux

Seconded By

Renner

Representatives	Yes	No	Representatives	Yes	No
Eugene Nicholas, Chairman	<input checked="" type="checkbox"/>		Rod Froelich	<input checked="" type="checkbox"/>	
Dennis E. Johnson - Vice Chairman	<input checked="" type="checkbox"/>		Doug Lemieux	<input checked="" type="checkbox"/>	
Rick Berg	<input checked="" type="checkbox"/>		Philip Mueller		
Michael Brandenburg	<input checked="" type="checkbox"/>		Kenton Onstad	<input checked="" type="checkbox"/>	
Joyce Kingsbury	<input checked="" type="checkbox"/>		Sally M. Slandvig	<input checked="" type="checkbox"/>	
Myron Koppang			Dennis J. Renner	<input checked="" type="checkbox"/>	
Edward H. Lloyd	<input checked="" type="checkbox"/>		Dwight Wrangham	<input checked="" type="checkbox"/>	
Bill Pietsch	<input checked="" type="checkbox"/>				

Total (Yes)

13  
2

No

Absent

Floor Assignment

Renner

If the vote is on an amendment, briefly indicate intent:

**REPORT OF STANDING COMMITTEE**

**HB 1442: Agriculture Committee (Rep. Nicholas, Chairman) recommends AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (13 YEAS, 0 NAYS, 2 ABSENT AND NOT VOTING). HB 1442 was placed on the Sixth order on the calendar.

Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act relating to the sampling of genetically modified crops; and to declare an emergency.

**BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:**

**SECTION 1. Genetically modified seed - Patent Infringement - Sampling - Mediation.**

1. For purposes of this section, farmer means the person responsible for planting a crop on, managing the crop, and harvesting the crop from land on which a patent infringement is alleged to have occurred.
2. a. Before a person holding a patent on a genetically modified seed may enter upon any land farmed by another for the purpose of obtaining crop samples to determine whether patent infringement has occurred, the person holding the patent:
  - (1) Shall notify the agriculture commissioner in writing of the person's belief that a patent infringement has occurred and include facts justifying the belief;
  - (2) Shall notify the farmer in writing of the person's belief that a patent infringement has occurred and request written permission to enter upon the farmer's land; and
  - (3) Must obtain the written permission of the farmer.
- b. If the farmer withholds written permission, the person holding a patent may petition the federal district court having jurisdiction over that portion of this state in which the farmer's land is located for an order granting permission to enter upon the farmer's land.
3. Unless a shorter period of time is agreed to in writing or ordered by the federal district court, samples may not be collected until a period of at least five days has passed from the time the farmer gave written permission or from the date of the court order. The farmer may accompany the person holding the patent at the time any samples are taken.
4. An independent agent agreed to by both parties also must accompany the person holding the patent at the time any sample is taken.
5. If the person holding a patent believes that the crop from which samples are to be taken may be subject to intentional damage or destruction, the person may seek a protection order from the federal district court. The protection order may not interrupt or interfere with normal farming practices, including harvest and tillage.
6. The person holding the patent may take crop samples from only a standing crop or representative standing plants in the field. Upon a showing of good cause, the person holding the patent may collect seed samples from crops remaining in the field after harvest.

7. The person holding the patent may obtain no more samples than those reasonably necessary to make a determination regarding patent infringement. An equal number of samples must remain in the custody of the independent agent agreed to by both parties for future comparison and verification purposes. All samples taken must be placed in containers, labeled as to the date, time, and location from which they were taken, and the labels must be signed by the farmer, the person holding the patent, and the independent agent agreed to by both parties. The person holding the patent shall supply the containers for that person's samples. The independent agent shall supply the containers for the agent's samples and the farmer shall bear the cost of the agent's containers.
8. Within sixty days from the date the samples are taken, an independent laboratory shall conduct all tests to determine whether patent infringement has occurred. The person holding the patent shall notify the farmer of the test results, by certified mail or by any other method of delivery for which a signature is required, within ten days from the date the samples were analyzed. If the person holding the patent fails to comply with the dates set forth in this subsection, the crop samples may not be used as evidence in any claim alleging patent infringement.
9. If a dispute between the farmer and the person holding the patent remains after the samples have been analyzed, the farmer may require the person holding the patent to participate in mediation of the matter. The mediation must be conducted by a mediator jointly selected by the farmer and the person holding the patent. If the farmer and the person holding the patent are unable to select a mediator, the mediation must be conducted by the agricultural mediation service.
10. If the case is not settled after mediation, either party may file a claim with the state seed arbitration board. The board may require that additional independent tests be conducted.
11. If the case is not settled after arbitration, either party may file a claim for relief with the federal district court having jurisdiction over that portion of this state in which the farmer's land is located. This requirement, if the claim is based on a contract, is deemed to be part of the contract, regardless of whether the contract is written or oral.

**SECTION 2. EMERGENCY.** This Act is declared to be an emergency measure."

Renumber accordingly

2001 SENATE AGRICULTURE

HB 1442

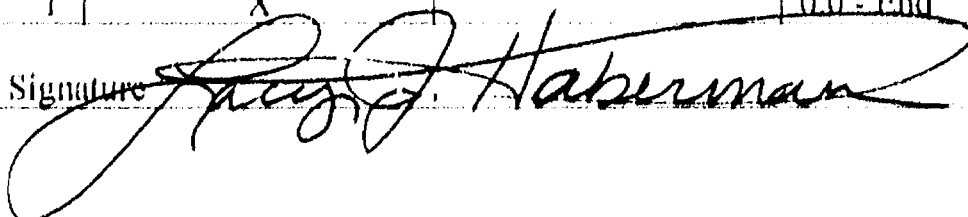
2001 SENATE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. HB 1442

Senate Agriculture Committee

☐ Conference Committee

Hearing Date March 15, 2001

Tape Number		Side A	Side B	Meter #
March 15	1		X	29.6 - End
March 30	1	X		0.0 - End
Committee Clerk Signature				

Minutes:

REP. LEMIEUX; Sponsor, introduced the bill to the committee. See attached information. This is an attempt to establish rules and guidelines for the testing of genetically modified patent infringement allegations. These contracts are very weighty agreement and is very difficult to understand. The passage of this bill will allow some rules and due process and that is the purpose of this bill.

SENATOR KROEPLIN; This can apply to organic farmers, is there anything in this bill that will protect them or is it just the potential violator of patent infringement?

REP. LEMIEUX; There is no protection for an organic grower in this bill, it only addresses the due process for potential patent infringement.

PIERRE LEMIEUX; testified in support of this bill. See attached testimony.

ROGER JOHNSON; Agriculture Commissioner, testified in support of this bill. See attached testimony.

RODNEY NELSON; farmer - Casselton ND, testified in support of this bill. See attached information.

SCOTT BAUCUM; Trait Stewardship Manager - Monsanto, testified in opposition of this bill. See attached testimony.

SENATOR KLEIN; Is there an option for growers not to sign the technology agreement and still use your technology?

SCOTT BAUCUM; There is an option to purchase soybeans, a farmer may either purchase soybeans under the terms of an agreement and receive additional benefits or the option to purchase soybeans at his/her retailer without signing a growers license agreement. There is no option for corn and canola purchases they are handled in very different ways.

SENATOR KROEPLIN; Is the Monsanto created gene that you talked about, is this synthetic gene?

SCOTT BAUCUM; We wouldn't have created it, we put in place to perform a function.

SENATOR KLEIN; With all the acres that are being produced, how would you find that there has been a breach of contact?

SCOTT BAUCUM; We receive information by anonymous reporting. The information is process through our customer service center, it would be brought to my group to look at and evaluate. Then we would go into an investigation stage.

SENATOR KROEPLIN; In regards to a third party gathering and sharing samples, do you have a problem with that?

SCOTT BAUCUM; We do use third parties to gather samples and do our lab work.

SENATOR KROEPLIN; Would you share samples with a forth party?

SCOTT BAUCUM; We would be willing to share samples as long as we weren't required to undergo additional expenses.

CAL ROLFSON; Legislative Council, ACPA, testified in opposition to this bill. See attached testimony.

GREG DAWS; testified in the neutral position on this bill.

DONALD VIG; organic farmer - Valley City, ND, testified in support of this bill. This bill gives my neighbors the tools they need to protect themselves from aspects of this new technology which will directly affect me.

RICHARD SCHLOSSER; ND Farmers Union, testified in support of this bill. There needs to be protection for producers.

SCOTT FRY; Dakota Resource Council, testified in support of this bill.

The hearing was closed.

**March 30, 2001**

Charles ?????????; Attorney General's Office, explained the bill and answers questions of the committee.

Discussion was held.

SENATOR KROEPLIN moved to amend the amendments.

SENATOR NICHOLS seconded the motion.

REP. LEMIEUX explained this bill to the committee.

Roll call vote: 3 Yeas, 3 No, 0 Absent and Not voting.

Motion failed.

SENATOR KLEIN moved the amendments 10702.0205.

SENATOR ERBELE seconded the motion.

Page 4

Senate Agriculture Committee

Bill/Resolution Number HB 1442

Hearing Date March 15, 2001

Roll call vote: 4 Yeas, 2 No, 0 Absent and Not voting.

SENATOR KLEIN moved for a DO PASS.

SENATOR ERBELE seconded the motion.

Roll call vote: 6 Yeas, 0 No, 0 Absent and Not voting.

SENATOR KLEIN will carry the bill.



Date: 3-30-01

Roll Call Vote #: /

## 2001 SENATE STANDING COMMITTEE ROLL CALL VOTES

**BILL/RESOLUTION NO.** 1442

Senate	Agriculture	Committee
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☐ Subcommittee on \_\_\_\_\_

☐ Conference Committee

Legislative Council Amendment Number

Action Taken *amend amendments*

Motion Made By Sen. Kuepfer Seconded By Sen. Nichols

[illegible]

Total (Yes) 3 No 3

Absent 0

### Floor Assignment

**If the vote is on an amendment, briefly indicate intent:**

remove Page 3 line 13  
line 14 through 16

March 30, 2001

PROPOSED AMENDMENTS TO ENGROSSED HOUSE BILL NO. 1442

Page 1, line 1, remove "; and to declare an"

Page 1, line 2, remove "emergency"

Page 1, line 14, replace "justifying" with "from"

Page 1, line 15, replace "belief" with "allegation"

Page 1, line 16, replace "person's belief" with "allegation"

Page 1, line 21, replace "federal" with "state" and remove "having jurisdiction over that portion of this"

Page 1, line 22, remove "state in which the farmer's land is located"

Page 2, line 1, remove "Unless a shorter period of time is agreed to in writing or ordered by the federal"

Page 2, remove lines 2 and 3

Page 2, line 4, remove "court order."

Page 2, line 6, replace "An Independent agent agreed to by both parties also must" with "If requested by the farmer, the state seed commissioner shall"

Page 2, line 7, after the period insert *or the patent holder* "The state seed commissioner may impose a fee for providing that service. The patent holder and the farmer shall each pay one-half of the fee charged by the commissioner."

Page 2, line 10, replace "federal" with "state"

Page 2, line 12, remove the first "crop", remove "only", and replace "or" with ", from"

Page 2, line 13, replace ". Upon a showing of good cause, the" with ", or"

Page 2, line 14, remove "person holding the patent may collect seed samples"

Page 2, line 18, replace "Independent agent agreed to" with "state seed commissioner or the farmer"

Page 2, line 19, remove "by both parties"

Page 2, line 21, replace "holding" with "who took the samples"

Page 2, line 22, remove "the patent" and replace "Independent agent agreed to by both parties. The person" with "state seed commissioner if the commissioner was present at the time the samples were taken. The patent holder and the farmer shall share equally the cost of the containers needed for the second set of samples which are retained by the state seed commissioner or the farmer"

Page 2, line 23, remove "holding the patent shall supply the containers for that person's samples"

Page 2, remove line 24

Page 2, line 25, after "farmer" insert "and the person holding the patent", replace "bear" with "equally share", remove "agent's", and after "containers" insert "and the cost of obtaining the samples"

Page 2, line 29, replace "ten" with "twenty-one"

Page 2, line 30, replace "samples were analyzed. If" with "results were reported to" and after "patent" insert a period

Page 3, remove lines 1 and 2

Page 3, line 3, replace "If a dispute between the farmer and the person holding the patent remains after" with "The parties may"

Page 3, remove line 4

Page 3, line 5, remove "patent to" and replace "of the matter" with "at any time"

Page 3, line 8, replace "the" with "an independent"

Page 3, line 9, remove "with the state"

Page 3, remove lines 10 and 11

Page 3, line 12, remove "11. If the case is not settled after arbitration, either party may file a claim"

Page 3, line 13, ~~replace "federal" with "state"~~ and replace "that portion of this state in which" with "the claim. Unless otherwise specified in a contract between the farmer and the person holding the patent, the appropriate state district court is the one that has jurisdiction over that portion of this state in which the farmer's land is located."

Page 3, remove lines 14 through 17

Renumber accordingly

Date: 3-30-01  
Roll Call Vote #: 2

2001 SENATE STANDING COMMITTEE ROLL CALL VOTES  
BILL/RESOLUTION NO. 1442

Senate \_\_\_\_\_ Agriculture \_\_\_\_\_ Committee \_\_\_\_\_

☐ Subcommittee on \_\_\_\_\_  
or  
☐ Conference Committee

Legislative Council Amendment Number 10702 0205

Action Taken - amendments

Motion Made By Sen. Klein Seconded By Sen. Erbele

Senators	Yes	No	Senators	Yes	No
Senator Wanzek - Chairman	✓		Senator Kroeplin		✓
Senator Erbele - Vice Chairman	✓		Senator Nichols		✓
Senator Klein	✓				
Senator Urlacher	✓				

Total (Yes) 4 No 2

Absent 0

Floor Assignment \_\_\_\_\_

If the vote is on an amendment, briefly indicate intent:

Date: 3-30-01  
Roll Call Vote #: 3

2001 SENATE STANDING COMMITTEE ROLL CALL VOTES  
BILL/RESOLUTION NO. 1442

Senate Agriculture Committee

☐ Subcommittee on \_\_\_\_\_  
or  
☐ Conference Committee

Legislative Council Amendment Number \_\_\_\_\_

Action Taken Do Pass

Motion Made By Sen. Klein Seconded By Sen. Erbele

Senators	Yes	No	Senators	Yes	No
Senator Wanzek - Chairman	✓		Senator Kroeplin	✓	
Senator Erbele - Vice Chairman	✓		Senator Nichols	✓	
Senator Klein	✓				
Senator Urlacher	✓				

Total (Yes) 6 No 0

Absent 0

Floor Assignment Senator Klein

If the vote is on an amendment, briefly indicate intent:

**REPORT OF STANDING COMMITTEE**

**HB 1442, as engrossed: Agriculture Committee (Sen. Wanzek, Chairman) recommends AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (6 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). Engrossed HB 1442 was placed on the Sixth order on the calendar.

Page 1, line 1, remove "; and to declare an"

Page 1, line 2, remove "emergency"

Page 1, line 14, replace "justifying" with "from"

Page 1, line 15, replace "belief" with "allegation"

Page 1, line 16, replace "person's belief" with "allegation"

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Page 2, line 4, remove "court order."

Page 2, line 6, replace "An independent agent agreed to by both parties also must" with "If requested by the farmer or the person holding the patent, the state seed commissioner shall"

Page 2, line 7, after the period insert "The state seed commissioner may impose a fee for providing that service. The patent holder and the farmer shall each pay one-half of the fee charged by the commissioner."

Page 2, line 10, replace "federal" with "state"

Page 2, line 12, remove the first "crop", remove "only", and replace "or" with "from"

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Page 3, remove lines 14 through 17

Renumber accordingly

2001 TESTIMONY

HB 1442



COMMISSIONER OF AGRICULTURE  
ROGER JOHNSON



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DEPARTMENT OF AGRICULTURE  
State of North Dakota  
600 E. Boulevard Ave. Dept. 602  
Bismarck, ND 58505-0020

**Testimony of Roger Johnson  
Agriculture Commissioner  
Engrossed House Bill 1442  
Senate Agriculture Committee  
Roosevelt Park Room  
March 15, 2001**

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Chairman Wanzek and members of the Senate Agriculture Committee, I am Agriculture Commissioner Roger Johnson. I am here today in support of Engrossed House Bill 1442, a bill to provide guidelines for the sampling and testing of crops by the holder of a patent on genetically modified seed.

As you know, farmers purchasing and planting certain patented genetically modified seeds are required to sign technology agreements with the patent holder. The purpose of these agreements is to protect the patent holder from patent infringement violations including secondary sales and the "saving back" of seed raised from the patented seedstock.

Patent holders have the right to protect the financial investments in and patents of their products—that is not the issue of this legislation. What is at issue is the fairness and equity of enforcement practices in cases of alleged producer patent violations. Producers deserve reasonable guidelines and expectations for any sampling and testing procedures conducted for purposes of determining alleged patent infringement.

This bill will not prohibit a patent holder from protecting its patents and enforcing the provisions of technology agreements. It will, however, provide important legal protocols for crop sampling and testing, timeliness of laboratory testing and producer notification of test results, and methods for resolving disagreements about test results.

In my opinion, definitive protocols are not only reasonable, but also necessary to ensure fair and equitable treatment of both producers and patent holders. This bill, ~~if amended~~, would go a long way in accomplishing that.

Chairman Wanzek and committee members, I urge a do pass on Engrossed HB 1442. I would be happy to answer any questions you may have.

*Rep. Lemier*

# MONSANTO

## 2001 TECHNOLOGY AGREEMENT

We appreciate your interest in Monsanto's advanced technologies and the exciting benefits they offer. This Monsanto Technology Agreement covers Roundup Ready<sup>®</sup> soybeans, YieldGard<sup>®</sup> corn, Roundup Ready<sup>®</sup> corn, Roundup Ready<sup>®</sup> corn with YieldGard<sup>®</sup>, Roundup Ready<sup>®</sup> sugarbeets and Roundup Ready<sup>®</sup> canola.

For your convenience, this Agreement remains in effect until either you or Monsanto choose to terminate the Agreement. Once you enroll, information regarding new and existing technologies and any new terms will be mailed to you each year. Continuing to use Monsanto's technologies after receipt of any new terms constitutes your agreement to be bound by the terms. Additionally, by completing this Agreement, you are automatically enrolled in the value package called Roundup Rewards<sup>™</sup>, designed to bring increased benefits to you.

### YOU RECEIVE:

- Opportunity to purchase and plant seed containing these technologies under this Agreement.
- Opportunity to participate in Roundup Rewards for applicable crop(s).

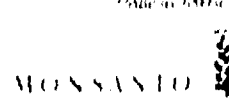
### YOU UNDERSTAND:

- These Monsanto gene technologies are protected under U.S. patent law. Monsanto licenses the grower, under applicable patents<sup>1</sup> owned or licensed by Monsanto, to use these technologies under the conditions listed below. This Agreement only covers the United States, and does not authorize planting of seed in the United States which has been purchased in another country or planting of seed in another country which has been purchased in the United States.
- Grain/commodities harvested from Roundup Ready corn, Roundup Ready corn with YieldGard, Roundup Ready canola and Roundup Ready sugarbeets are approved for U.S. food and feed use, but not yet approved in certain export markets where approval is not likely to be received before the end of 2001. As a result, the grower is restricted from introducing such grain/commodities into channels of trade where the potential for export to such markets exists. The grower must channel such grain/commodities for feeding on farm, use in domestic feed lots or other uses in domestic markets only. Growers should refer to Monsanto's Technology Use Guide for information on crop stewardship regarding the potential movement of pollen to neighboring crops\*. For assistance in locating domestic outlets for corn grain/commodities, view the ASTA web site at [www.amseed.org](http://www.amseed.org) or contact Monsanto at 1-800-768-6387.
- The gene technologies referenced in this Agreement can only be used in locations where the products have been approved for use by all required governmental agencies.

### YOU AGREE:

- To use the seed containing Monsanto gene technologies solely for planting a single commercial crop.
- Not to supply any of this seed to any other person or entity for planting, and not to save any crop produced from this seed for replanting, or supply seed produced from this seed to anyone for replanting.
- Neither to use this seed nor to provide it to anyone else to use for crop breeding, research, generation of herbicide registration data or seed production.
- To use in Roundup Ready crops only a Roundup<sup>®</sup> brand or other herbicide which has been registered for use by and has a label for use in the particular Roundup Ready crop approved by all required governmental agencies. MONSANTO DOES NOT MAKE ANY REPRESENTATIONS, WARRANTIES OR RECOMMENDATIONS CONCERNING THE USE OF PRODUCTS MANUFACTURED OR MARKETING BY OTHER COMPANIES WHICH ARE LABELED FOR USE IN ROUNDUP READY CROP(S). MONSANTO SPECIFICALLY DISCLAIMS ALL RESPONSIBILITY FOR THE USE OF THESE PRODUCTS IN ROUNDUP READY CROP(S). ALL QUESTIONS AND COMPLAINTS ARISING FROM THE USE OF PRODUCTS MANUFACTURED OR MARKETING BY OTHER COMPANIES SHOULD BE DIRECTED TO THAT COMPANY.
- To purchase seed containing these gene technologies only from a seed company with required technology license(s) from Monsanto and to pay the applicable Technology Fee for the particular product being purchased.
- To implement an Insect Resistance Management program as specified in the applicable YieldGard corn sections of the Technology Use Guide and to comply with Insect Resistance Management programs and research.\*
- To channel grain produced to domestic use as necessary to prevent movement to markets where the grain is not yet approved for import.

\* Refer to the applicable section of the Monsanto Technology Use Guide, which is part of this Agreement, for specifics relating to these terms. If you have not received a copy of the Monsanto Technology Use Guide, contact Monsanto at 1-800-768-6387.



## GENERAL CONDITIONS:

The grower's rights may not be transferred to anyone else without written consent of Monsanto. If the grower's rights are transferred with Monsanto's consent or by operation of law, this Agreement is binding on the person or entity receiving the transferred rights.

If the grower violates the terms of this Agreement, in addition to other remedies available to the technology provider(s), the grower's rights under this Agreement will terminate immediately and the grower forfeits any right to obtain an Agreement in the future and that violation may result in infringement of one or more of the patents applicable to that product. The grower agrees that the technology provider(s) are entitled to recover their full amount of legal fees and other costs of enforcing this Agreement. If the Agreement is terminated, the grower will no longer have a right under this Agreement to purchase seed containing these technologies, however, any obligations that arose before termination will continue in effect. In the event that the grower saves, supplies, sells or acquires seed for planting in violation of this Agreement and license restriction, in addition to all remedies for patent infringement and/or other remedies available to the technology provider(s), the grower agrees that damages will include a claim for liquidated damages that shall be equal to the gross revenue from the seed for grain production (calculated based upon the Chicago Board of Trade price for the applicable grain/commodity as of August 1st of the year in question and the USDA stated U.S. average yield for such crop for the year in question). Grower consents to Monsanto review of Farm Service Agency crop reporting information including Forms 578 and corresponding aerial photographs and dealer/retailer invoices for seed and chemical transactions.

Grower acknowledges that grower has received a copy of Monsanto's Technology Use Guide and has read and agrees to abide by and be bound by the terms of this Guide.

Monsanto retains ownership of the licensed genes (for example the Roundup Ready gene), and the gene technologies, and the grower receives the right to use the licensed genes and technology as specified in this Agreement.

Grower is deemed to have accepted the terms of the following LIMIT OF WARRANTY AND LIABILITY upon signing this Agreement and/or opening a bag of seed containing Monsanto gene technology, which terms may not be varied by any oral or written agreement.

If grower does not agree to be bound by the following conditions of purchase or use, he/she should return the unopened bags to his/her seed dealer.

## NOTICE REQUIREMENT:

As a condition precedent to the grower, or any other person with an interest in grower's crop, asserting any controversy, claim, action, or dispute against Monsanto and/or any seller of seed containing Monsanto's gene technologies regarding performance or non-performance of the gene technologies or the seed in which it is contained, the grower must provide prompt and timely notice to Monsanto (regarding performance or non-performance of the gene technologies) and/or the seller of any seed (regarding performance or non-performance of the seed) within sufficient time to allow an in-field inspection of the crop(s) about which any controversy, claim, action, or dispute is being asserted. For purposes of this Agreement, such notice shall be insufficient if it is provided more than 15 days after the issue(s) regarding performance or non-performance of the gene technology and/or the seed in which it is contained is first observed. The notice shall include a statement setting forth the nature of the claim, and the technology and/or seed variety in question.

Monsanto warrants that the Monsanto gene technology licensed hereunder will perform as set forth in the Monsanto Technology Use Guide when used in accordance with directions. This warranty applies only to Monsanto gene technology contained in planting seed that has been purchased from a seed company licensed by Monsanto, or such seed company's authorized dealers or distributors, and planted from the original sealed bag. EXCEPT FOR THE EXPRESS WARRANTIES SET FORTH ABOVE, MONSANTO MAKES NO OTHER WARRANTIES OF ANY KIND, AND DISCLAIMS ALL OTHER WARRANTIES, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. THERE IS NO IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY.

**THE EXCLUSIVE REMEDY OF THE GROWER AND THE LIMIT OF THE LIABILITY OF MONSANTO OR ANY SELLER FOR ANY AND ALL LOSSES, INJURY OR DAMAGES RESULTING FROM THE USE OR HANDLING OF A PRODUCT CONTAINING MONSANTO'S GENE TECHNOLOGY (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, PRODUCT LIABILITY, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PRICE PAID BY THE GROWER FOR THE QUANTITY OF SUCH PRODUCT INVOLVED, OR, AT THE ELECTION OF MONSANTO OR ANY SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL MONSANTO OR ANY SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES.**

THIS AGREEMENT IS GOVERNED BY THE LAWS OF THE STATE OF MISSOURI AND THE UNITED STATES (OTHER THAN THE CHOICE OF LAW RULES). THE PARTIES CONSENT TO THE EXCLUSIVE JURISDICTION AND VENUE OF THE U.S. DISTRICT COURT FOR THE EASTERN DISTRICT OF MISSOURI, EASTERN DIVISION, AND THE CIRCUIT COURT OF THE COUNTY OF ST. LOUIS, STATE OF MISSOURI, FOR ALL DISPUTES ARISING OUT OF OR CONNECTED IN ANY WAY WITH THE USE OF THE SEED OR THE TECHNOLOGIES AS PROVIDED THROUGH THIS AGREEMENT OR ITS RELATED PARTS.

If any provision of this Agreement is determined to be void or unenforceable, the remaining provisions shall remain in full force and effect.

Thank you for choosing our advanced technologies. We look forward to working with you in the future.

If you have any questions regarding the technologies from Monsanto, please call the Monsanto Customer Relations Center at: 1-800-ROUNDUP.

**PLEASE MAIL THE SIGNED 2001 MONSANTO TECHNOLOGY AGREEMENT TO:** Monsanto Grower Licensing, P.O. Box 3469, Monticello, MN 55565

\* Refer to the applicable section of the Monsanto Technology Use Guide, which is part of this Agreement, for specifics relating to these terms. If you have not received a copy of the Monsanto Technology Use Guide, contact Monsanto at 1-800-768-6387.

The licensed U.S. patents include: for YieldGard® corn - 5,484,958, 5,500,385, 5,352,605, 5,538,877, 5,538,880, 5,359,142, 5,322,938, 5,164,316, 5,196,525, 5,424,412, and 5,424,200; for Roundup Ready® corn - 5,554,779, 5,435,060, 5,538,877, 5,538,880, 5,004,945, 5,188,642, 5,717,084, and 5,728,925; for Roundup Ready® soybeans - 4,940,835, 5,188,642, 5,352,605, 5,632,435, 5,530,196, 5,717,084, 5,728,925, and 5,804,425; for Roundup Ready® cotton - 5,004,863, 5,159,135, 5,633,435, 5,352,605, 5,188,642, 4,940,835, 5,717,084, 5,728,925, and 5,804,425; for Bollgard® cotton - 5,530,196, 5,858,742, 5,880,275, 5,004,863, 5,159,135, 5,608,143, 5,633,435, 5,500,385, 5,424,200, 5,359,142, 5,352,605, 5,322,938, 5,196,525, 5,188,642, 5,164,316, 4,940,835, 5,717,084, 5,728,925, and 5,804,425; for Roundup Ready® canola - 5,378,819, 5,463,175, 5,778,760, 5,627,061, 5,633,435, 5,530,196, 5,188,642, 5,717,084, 5,728,925, and 5,804,425; and for Roundup Ready® superweeds - 5,178,019, 5,463,175, 5,778,760, 5,627,061, 5,633,435, 5,164,316, 5,196,525, 5,322,938, 5,359,142, 5,424,200, 5,352,605, 5,530,196, 4,940,835, 5,188,642, 5,717,084, 5,728,925, and 5,804,425.

House Bill 1442 North Dakota Senate Ag Committee

Hi my name is Pierre Lemieux I am 15 years old, I am a freshman at Rolette High School. My interest in House Bill 1442 is because earlier this year I got a package from monsanto and there was a lot of good information along with a 2001 Monsanto Technology Card. The card says I have been a member since 1999.

I don't remember attending a Roundup meeting.

To my knowledge I did not sign a Monsanto contract.

I was only 13 in 1999 I don't think I could enter into a contract without my parents consent.

When I look at the new contracts for Monsanto for 2001 I think they are hard to understand.

I wonder how many other people got monsanto tech cards without reading, understanding or SIGNING a technology agreement.

I have attached a copy of my 2001 card.

THANK YOU

M O N S A N T O

Dear Grower:

We have lots of important information for you in this mailing!

You'll be happy to know that since we have your Monsanto Technology Agreement on file, there is no need to sign a new agreement for 2001. This means you are automatically qualified to purchase Monsanto biotechnology products in 2001.

Enclosed in this mailing are the following items:

**Your 2001 Technology Card** - Provides access to all of the Monsanto technologies covered in the agreement. Simply show it to your seed retailer when purchasing any of these technologies.

**Your 2001 Technology Agreement Terms** - This explains the terms and conditions that will apply to your purchase and use of the technologies for the 2001 season.

**Your 2001 Monsanto Technology Use Guide** - Provides a single, convenient source of technical information about Monsanto's portfolio of seed technologies. **This Technology Use Guide is part of your 2001 Monsanto Technology Agreement and contains information relating to your obligations under the Technology Agreement. Please review it thoroughly.**

We appreciate your business and will continue to work hard to meet your needs. If you have any questions regarding your Monsanto Technology Card or any of the other enclosed materials be sure to call our Customer Relations Center at 1-800-ROUNDUP.

Sincerely,

Staci Leap  
Promotions Management

P.S. Help us keep you up-to-date on the latest in Monsanto products and programs! Please fill out the enclosed postage-paid response card and send it back to us right away. Thank you!

Always read and follow label directions.

M O N S A N T O

2001  
TECHNOLOGY CARD

PIERRE LEMIEUX  
Valid Thru 07/31/01

000000069701  
Member Since 1999

*Rodney Nelson* 002

WEGNER, FRAASE, NORDENG, JOHNSON & RAMSTAD

ATTORNEYS AT LAW  
15 SOUTH NINTH STREET  
FARGO, NORTH DAKOTA 58103  
TELEPHONE: (701) 235-7501  
FAX: (701) 235-0906

HERVIN NORDENG  
CHAD E. JOHNSON  
DAYLEN D. RAMSTAD

DOUGLAS W. NESHKIM  
OF COUNSEL  
MARK R. FRAASE

November 7, 2000

VIA FAX & U.S. MAIL  
(314) 552-7139

Daniel C. Cox  
Thompson Coburn LLP  
One Firststar Plaza  
St. Louis, MO 63101

RE: Monsanto Company vs. Greg Nelson, et al.

Dear Mr. Cox:

I am writing to inquire when I can expect the letter that you promised relative to your refusal to furnish split samples of any testing done on the Nelson fields in the year 2000 so that we can use the splits to verify the integrity of your test results.

I am also by this letter renewing our request for the GPS coordinates of each individual sample that was taken from the Nelson fields in 1999 and the test results for each sample together with the protocol used for the testing.

Thank you for your anticipated prompt response to this letter.

Respectfully,

*Mark R. Fraase*  
Mark R. Fraase

MRF:jm  
cc: Nelsons

WEGNER, FRAASE, NORDENG, JOHNSON & RAMSTAD

ATTORNEYS AT LAW

18 SOUTH NINTH STREET

FARGO, NORTH DAKOTA 58103

TELEPHONE: (701) 235-7591

FAX: (701) 235-8906

MERVIN NORDENG  
CHAIK E. JOHNSON  
DAYLEN D. RAMSTAD

DOUGLAS W. NESTHEIM

OF COUNSEL

MARK R. FRAASE

September 19, 2000

VIA FAX & U.S. MAIL  
701-239-7214

Ken Bertsch  
State Seed Department  
State University Station  
1313 - 18th St. North  
Fargo, ND 58102

RE: Nelson 2000 Bean Crop  
Our File No. 00-218

Dear Mr. Bertsch:

I have your letter of September 14, 2000, wherein you set forth a suggested protocol for the preservation and testing of the Nelsons' 2000 soybean crop.

The Nelsons have complete confidence in your expertise in collecting representative samples of their 2000 soybean crop as well as testing the same.

You indicated in our telephone conversation of September 14, 2000, that comprehensive sample collection and testing could cost in excess of \$100,000. The Nelsons have already done significant sampling and testing at a considerable cost to them and they do not feel that any further testing would be of any value. Hence, they have instructed me to make it perfectly clear that any cost associated with the sampling and testing of their 2000 soybean crop will have to be done at no cost to them. In other words, you should look to Monsanto Corporation as your sole source of reimbursement for the cost of your efforts.

We would of course require that we have equal access with Monsanto Corporation to any information that you acquire as a result of these tests, including GPS coordinates for each sample taken together with the test results.

You should contact Roger Nelson directly relative to field locations and the soybean varieties planted on each field. Roger Nelson can be contacted at the farm shop, telephone number 701-967-



8945 or on his cell phone. Roger Nelson's cell phone number is 701-361-6903.

Thank you for your efforts in this matter.

Respectfully,

*Mark R. Fraase*

Mark R. Fraase

MRF:jm

Encl.

c: Nelsons  
Joel Cape (via fax and mail)

Subj: Interesting Indiana legislation  
 Date: 3/12/01 9:52:20 PM Central Standard Time  
 From: DDach8029  
 To: RODNEYGN

Rodney,

I thought you'd find this interesting. It's from a post that was on Newagtalk.com.

I'm sending you Indiana bill 1975 in another e-mail.

David Dechant

**House passes bill allowing farmers to plant older seeds**

<http://talk.newagtalk.com/forums/CropTalk/posts/2369.html>

At the Indiana Statehouse, from the Princeton Indiana paper, March 8

The House passed a bill that proponents say would help farmers by allowing them to plant seeds grown from certified seeds they bought in past years.

The bill includes language designed to protect producers who use grain from a commercially produced seed stock for seed in later crop years.

"Throughout history, farmers have saved seed, especially from soybeans, from year to year in an attempt to cut costs," said Rep. Bill Friend, R-Macy (Indiana)... "In recent years, seed companies have required farmers to sign contracts that not only prohibit this practice, but also charge a technology fee for research costs in developing the seed."

Rep. Dale Grubb, D-Covington (Indiana), said because of that practice, "the scales have tipped too far against the farmer."

"Not only must farmers accept the price given them for what they sell, but current practices prevent them from actually owning a product that they buy," Grubb said... "It's like buying a car and not being able to resell it."

Grubb and Friend said they are not sure whether federal law allows the provision, but they want farmers to ask lawmakers at the state and federal level to support the change.

The bill now goes to the Senate.

*The bill in Indiana found a much easier way to handle sampling & testing procedures*

Testimony before the ND Senate Ag Committee on HB 1442 March 15, 2001

Good Morning, my name is Scott Baucum, I am the Trait Stewardship Manager for Monsanto Company's U.S. Ag Business. Thank you for the opportunity to address HB 1442 and its potential impact on hundreds of North Dakota Farmers as well as the value protection effort in place at Monsanto.

I grew up on a cotton farm northwest of Lubbock, Texas. My father, a fifth generation farmer, passed away just three months ago. He left behind a life long partner, three children with faithful families and 167.25 acres of irrigated farmland on which he had made his final payment only 10 months before. He was the first generation to own the land he farmed. My mother now owns that farm by herself and the income from that farm does now and will continue to pale in comparison to the expected return from that same equity if it were on deposit in another investment. But it is "Our Land." That feeling cannot be valued in dollars and it is that value that many farmers hold so dear. It is also that emotion that fuels fear in the minds of farm families faced with economic challenge from several years of low commodity prices. Farmers have been at the mercy of market forces far too long and that is why it is so important for companies such as Monsanto to continue to have the freedom to operate so that they can generate new and better products which reduce farmers' input costs and, in the future, empower those farmers to produce new crops with higher value than could be obtained on a "commodity" basis. The good news is that research and development in biotechnology will provide new and better opportunities for the future. Last year armyworms attacked the cotton crop in West Texas. There were few pesticides available at an affordable price, given the need for multiple treatments. A product in Monsanto's near term pipeline -- Bollgard® II - will be able to protect cotton from the unexpected outbreak of worms without resort to multiple applications of insecticide. Because of Monsanto's investment into R&D that product will be available in a few years.

Even those who do not take advantage of the benefits of biotechnology are reaping the rewards in other ways. The price of many commercial soybean herbicides has decreased dramatically in response to the commercial success of Roundup Ready® soybeans. Additionally, Monsanto's breeding efforts using conventional breeding assisted by molecular breeding methods promises to provide enhanced varieties of non-transgenic crops much sooner than using traditional breeding alone. I am proud to work with the people at Monsanto in an effort to provide these valuable tools to North Dakota farmers.

HB 1442 threatens the product security of these scientific advances and it does not accomplish the intended and mutual goal of protecting the interests of North Dakota Farmers. Specifically, HB 1442 will, in effect, threaten to reduce or eliminate valuable risk management benefits currently being enjoyed by hundreds of North Dakota Farmers.

HB 1442 fails to protect the interests of North Dakota Farmers for at least 4 reasons:

1. It violates substantive due process and freedom to contract rights of North Dakota Farmers to enter into contracts on terms most favorable to them and places an unfair limit on their liberty and property rights. It is as unfair to North Dakota farmers as it is to Monsanto for the legislature to dictate the terms under which they can enter into contracts;
2. It attempts to divest federal district courts of their powers to resolve patent disputes in violation of the Supremacy Clause;
3. Most of the protections expressed in the drafting of this bill are already in place under the federal rules of civil procedure, the rules of evidence and by company policy; and
4. This bill, if not held unconstitutional, would require elevated invasiveness such as the signing of documents when it is not necessary, the implementation of waiting periods before the elements of review are completed, and making others aware of the potential issue before a violation has been determined to exist.

HB 1442 fails to protect the interests of North Dakota seedsmen, and residents employed by companies engaged in the research and development of new and better seed products in at least three ways:

1. It unconstitutionally seeks to remove otherwise available federal jurisdictions with experience and neutrality in crop patent infringement matters;
2. It creates unfair barriers to simple and discreet efforts to resolve patent infringement claims without resort to litigation by creating a state mandated driver of behavior toward the courts;

3. It creates an opportunity for delay in the collection of information vital to early resolution by necessitating coordination with third parties who are neither funded by this bill nor empowered to participate, at least on a prioritized basis.

HB 1442 seeks to eliminate one of the most important provisions of the Grower License Agreement, the forum selection clause. Having this provision in place motivates Monsanto to offer enhanced value to farmers in exchange for their agreement to submit to a St. Louis forum, which should be unimportant to farmers who do not plan to infringe the patents or breach the contract.

In 2000 alone, thousands of farmers enjoyed protection under the Technology Value Package, offered as further consideration to those farmers who agreed to sign a Grower License Agreement. Monsanto paid more than 300 North Dakota farmers in excess of six hundred thousand dollars in 2000 for crop loss and replant benefits, supplemental to any federal crop insurance claims that may have been paid.

For 2001 Monsanto plans to offer the Roundup Rewards™ program <sup>canola</sup> to thousands of North Dakota Farmers who will plant an estimated 1,700,000 acres of corn and soybeans with a Monsanto created gene. Monsanto wants to retain all of these farmers as customers and continue to provide as much value as possible in an effort to help North Dakota Farmers manage their risk. As the Grower License Agreement loses its value to Monsanto it is reasonable to assume that North Dakota Farmers stand to lose value as a result.

There are far more North Dakota Farmers benefiting from the current license agreement than are subject to its enforcement. North Dakota farmers are good customers who honor their commitments under the license agreement, in fact, after six years of commercialization we have only had one lawsuit in this state.

Monsanto respectfully requests that this committee not entertain legislation that would, in effect, tend to punish thousands of North Dakota Farmers for the intended benefit of one.

Thank you for your time and attention and most of all thank you for your business. I would be honored to answer any questions.

Most Respectfully Submitted  
15 March, 2001  
Scott Baucum  
Manager, Trait Stewardship  
Monsanto Company  
St. Louis, MO

TESTIMONY  
HOUSE BILL 1442  
BY  
CALVIN N. ROLFSON  
LEGISLATIVE COUNSEL  
AMERICAN CROP PROTECTION ASSOCIATION

My name is Cal Rolfson. I am an attorney in private practice here in Bismarck. I represent the American Crop Protection Association and speak in opposition to ~~HB 1338~~ <sup>HB 1442</sup>. I will focus my testimony on what I believe to be the legal and constitutional issues presented by this Bill.

Federal Law

Patent law is exclusively a federal remedy. It is federally pre-empted. No state under either state or federal constitutions, may pass laws that affect or interfere with the federal judicial jurisdiction in the area of patents.

For example:

- The Bill allows the producer to require the patent-holder to mediate disputes and sets out how the mediation will be conducted. That is a likely state intrusion into federal patent law provisions. (Page 3, lines 3-8, Engrossed Bill.)
- The Bill then permits an unsettled mediation case to be transferred to the state Seed Arbitration Board. The same federal patent intrusions are present here. (Page 3, lines 9-11, Engrossed Bill.)

- The Bill seeks to use state law to establish North Dakota as the federal venue for litigating a dispute. (Page 3, lines 12-16, Engrossed Bill.) That may or may not be the case.
- The Bill seeks to use state law to dictate what a patent-holder will or must do in terms of notice to the producer. Then the Bill goes on to tell the federal court that if this notice provision is not followed, the samples may not be used as evidence in any patent infringement claim. (Page 2, line 30 to page 3, line 2, Engrossed Bill.) This portion of the Bill essentially seeks to modify the federal rules of evidence by state law.
- The Bill seeks to impair the right of producers and seed companies to contract, in violation of both State of North Dakota and U.S. Constitutional provisions prohibiting the impairment of contracts.
- The Bill, as a whole, seeks to affect patent law and federal patent court procedures.

Consider some of the following practical effects imposed upon producers and patent holders under this Bill:

- HB 1442 may tend to force patent holders into litigation to protect their rights, and may falsely encourage or appear to endorse unethical or illegal use of patented material/properties.
- HB 1442 diminishes the rights and welfare of legitimate growers who have entered into agreements with manufacturers to plant and grow patent protected materials, and further appears to provide legal protections to

Individuals who may have committed unauthorized acts or breached contracts.

- HB 1442 may result in increased litigation between growers and patent-holders.
- HB 1442 may result in financial hardships to responsible growers who have signed and complied with agreements with the patent holders.
- Growers agreements protect the right of patent holders, as well as the growers themselves. To invalidate a growers agreement may potentially expose growers to a false sense of contract security. Essentially, HB 1442 attempts to undermine the legal protection offered to growers who have entered into legally binding agreements.

I urge the committee to carefully consider the serious legal implications that will accrue if this Bill passes.

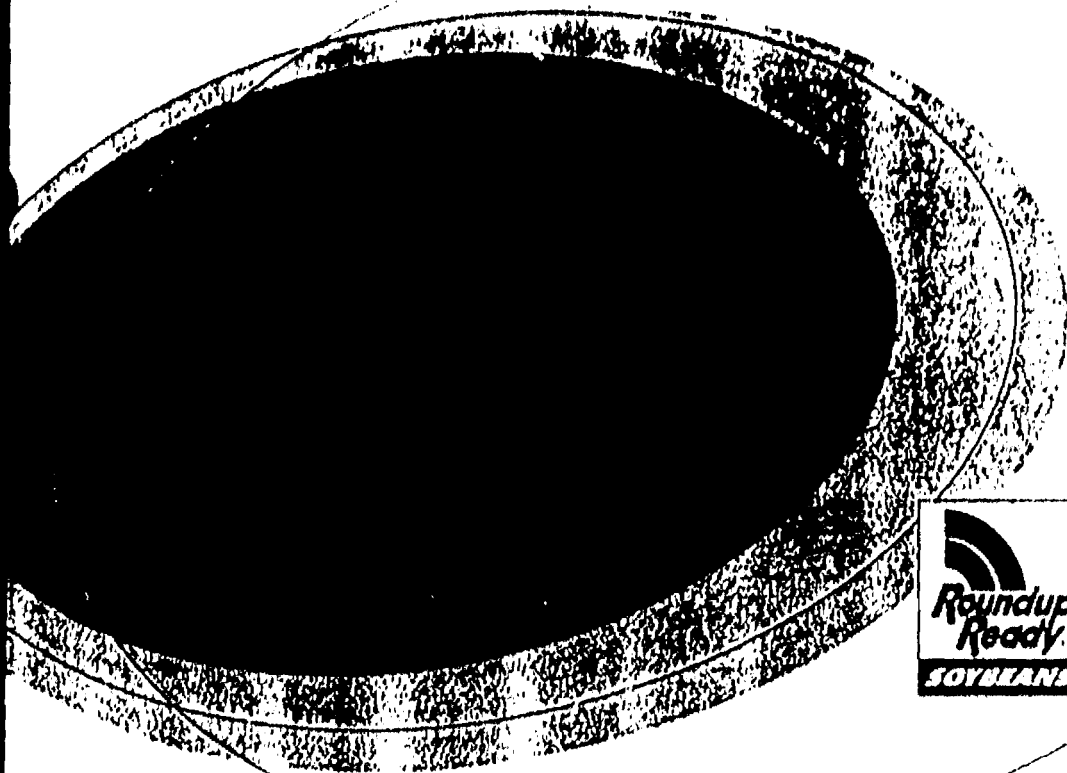
*Keep  
Seeding*

MONSANTO

2001  
TECHNOLOGY  
USE GUIDE







with



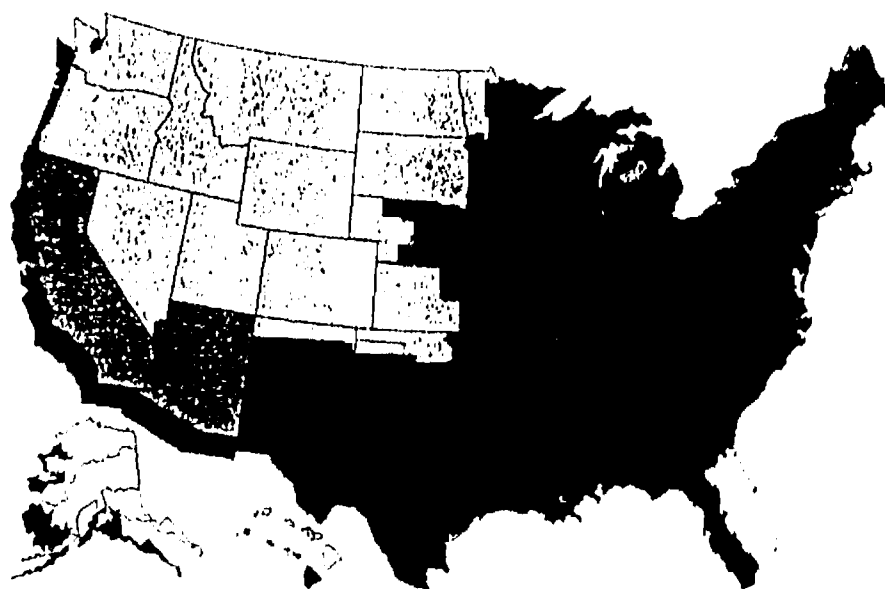
# Introduction


This 2001 Technology Use Guide provides a single, concise source of technical information about Monsanto's current portfolio of technology products and sets forth the requirements for the use of these products. As a user of Monsanto Technology it is important that you are familiar with and follow certain management practices. Please read all of the information pertaining to the technology you will be using. Growers planting Bollgard cotton should pay particular attention to the revised Refuge Options.


Included in this guide is information on the following:


	<i>Pages</i>
<i>Roundup Ready® Soybeans</i>	<i>1-5</i>
<i>Roundup Ready Corn</i>	<i>6-10</i>
<i>YieldGard® Insect Protected Corn</i>	<i>11-15</i>
<i>YieldGard with Roundup Ready Corn</i>	<i>16-17</i>
<i>Bollgard® Cotton</i>	<i>18-21</i>
<i>Roundup Ready Cotton</i>	<i>22-23</i>
<i>Bollgard with Roundup Ready Cotton</i>	<i>24</i>
<i>Roundup Ready Canola</i>	<i>25-26</i>
<i>Pollen Movement and Identity Preservation</i>	<i>27</i>
<i>Roundup® Brand Conversion Chart</i>	<i>28</i>


If you have any questions, please contact your Monsanto Authorized Retailer or Monsanto at 1-800-ROUNDUP.



 *Plains Region*

 *North Central Region*

 *California/Arizona*

 *Southern Region*

# Roundup Ready Soybeans



## Product Description

Roundup Ready soybean varieties contain in-plant tolerance to Roundup brand herbicides, enabling growers to spray labeled Roundup brands over the top from emergence throughout flowering for unsurpassed weed control, proven crop safety and maximum yield potential.

## Roundup Brand Non-Selective Over-The-Top Herbicide Products

Non-selective herbicide products sold by Monsanto for use over the top of Roundup Ready soybeans for the 2001 crop season are as follows:

- Roundup UltraMAX™
- Roundup Ultra<sup>4</sup>
- Roundup UltraDry™
- Roundup Original<sup>®</sup>
- Roundup Custom<sup>®</sup>
- Roundup D-PAK™

In addition, you may use another herbicide but only if it has been approved for this use and it has received a label for this use from all required governmental agencies. Monsanto does not make any representations, warranties or recommendations concerning the use of glyphosate products manufactured by other companies which are labeled for use in Roundup Ready crops. Monsanto specifically disclaims all responsibility for the use of these products in Roundup Ready crops. All questions and complaints arising from the use of glyphosate products manufactured by other companies should be directed to the manufacturer of the product in question.

*For complete information about the use of Roundup herbicide brands over the top of Roundup Ready soybeans, refer to the appropriate product's labeling.*

Roundup Ready Soybeans

# Roundup Ready Soybeans

## Weed Control Recommendations – North Central Region

TREATMENT	ROUNDUP ULTRAMAX USE RATES*	INSTRUCTIONS
Preplant Burndown	In no-till systems, apply a preplant burndown application of Roundup UltraMAX* at 20 to 52 oz/A. See the label for appropriate rates by weed species.	Always start with a weed-free field. In no-till and reduced-till systems, apply a Roundup UltraMAX* burndown application to control existing weeds before crop emergence.
In-Crop (Drilled, Narrow Rows and Wide Rows)	In season, apply: • 20 oz/A of Roundup UltraMAX* on weeds 1" to 3" tall. • 26 oz/A of Roundup UltraMAX* on weeds 4" to 8" tall. • 40 oz/A of Roundup UltraMAX* on weeds 9" to 18" tall.	A single in-crop application of Roundup UltraMAX provides control of labeled weeds. For best results, apply about 3 to 4 weeks after planting or when weeds are 4" to 8" tall. In narrow rows, no additional application is generally necessary. If new flushes of weeds occur, they can be controlled by a sequential application of Roundup UltraMAX, applied about three weeks after initial in-crop application.
Weed Control Exceptions	For black nightshade, Pennsylvania smartweed, velvetleaf and waterhemp, apply: • 26 oz/A of Roundup UltraMAX* on weeds 3" to 6" tall. • 40 oz/A of Roundup UltraMAX* on weeds 7" to 12" tall. For morningglory, apply: • 26 oz/A of Roundup UltraMAX* on weeds 3" to 4" tall. • 40 oz/A of Roundup UltraMAX* on weeds 5" to 6" tall. For giant ragweed; to avoid the need for sequential applications, apply: • 26 oz/A of Roundup UltraMAX* on weeds 8" to 12" tall.	Weeds such as black nightshade, shattercane, morningglory and giant ragweed tend to emerge throughout the season, so a sequential application may be required if a new flush occurs. In wide rows, sequential applications may be necessary.
Perennial Weeds	An in-crop application of 26 to 52 oz/A of Roundup UltraMAX* will provide suppression and/or control of nutsedge and perennial weeds like hemp dogbane, milkweed, field bindweed, Canada thistle, horsenettle, johnsongrass, quackgrass, etc.	For additional information on perennial weeds, see the "Perennial Weed Rate Table" in the label booklet for Roundup UltraMAX. For best control, allow perennials to achieve at least 6 or more inches of growth before spraying.
Maximum Use Rates For Roundup UltraMAX	In-Crop: • 1.6 q/A per single application. • 1.6 q/A during flowering. • 2.4 q/A emergence through flowering. Preharvest: • 26 oz/A application.	Total Season: The combined total of preplant, in-crop and preharvest applications of Roundup UltraMAX cannot exceed 6.5 q/A. The combined total of in-crop and preharvest applications cannot exceed 2.4 q/A.

\*If using another Roundup brand herbicide, you must refer to the label booklet or Roundup Ready soybean supplemental label for that brand and the Roundup Brand Labeled Rate Conversion Chart on page 28 to determine appropriate use rates.



## Weed Control Recommendations – Plains Region

TREATMENT	ROUNDUP ULTRAMAX USE RATES*	INSTRUCTIONS
Preplant Burndown	In no-till systems, apply a preplant burndown application of Roundup UltraMAX* at 20 to 52 oz/A. See the label for appropriate rates by weed species.	Always start with a weed-free field. In no-till and reduced-till systems, apply a Roundup UltraMAX* burndown application to control existing weeds before crop emergence.
In-Crop (Drilled, Narrow Rows and Wide Rows)	<b>Initial Application:</b> • 26 oz/A of Roundup UltraMAX* on weeds 3" to 6" tall. <b>Sequential Application:</b> • 26 oz/A of Roundup UltraMAX* on weeds 3" to 6" tall.	A single in-crop application of Roundup UltraMAX provides control of labeled weeds.  For best results, make initial application about 2 to 3 weeks after planting or when weeds are 3" to 6" tall.  Follow up with sequential application when newly-emerged weeds are 3" to 6" tall.
Weed Control Exceptions	<b>For black nightshade, Pennsylvania smartweed, velvetleaf and waterhemp, apply:</b> • 40 oz/A of Roundup UltraMAX* on weeds 7" to 12" tall. <b>For morningglory, apply:</b> • 26 oz/A of Roundup UltraMAX* on weeds 3" to 4" tall. • 40 oz/A of Roundup UltraMAX* on weeds 5" to 6" tall. <b>For giant ragweed; to avoid the need for sequential applications, apply:</b> • 26 oz/A of Roundup UltraMAX* on weeds 8" to 12" tall.	Weeds such as black nightshade, shattercane, morningglory and giant ragweed tend to emerge throughout the season, so a sequential application may be required if a new flush occurs.
Perennial Weeds	An in-crop application of 26 to 52 oz/A of Roundup UltraMAX* will provide suppression and/or control of nutsedge and perennial weeds like Canada thistle, field bindweed, hemp dogbane, horsenettle, johnsongrass, milkweed, quackgrass, etc.	For additional information on perennial weeds, see the "Perennial Weed Rate Table" in the label booklet for Roundup UltraMAX.  For best control, allow perennials to achieve at least 6 or more inches of growth before spraying.
Maximum Use Rates For Roundup UltraMAX	<b>In-Crop:</b> • 1.6 q/A per single application. • 1.6 q/A during flowering. • 2.4 q/A emergence through flowering. <b>Preharvest:</b> • 26 oz/A application.	<b>Total Season:</b> The combined total of preplant, in-crop and preharvest applications of Roundup UltraMAX cannot exceed 6.5 q/A. The combined total of in-crop and preharvest applications cannot exceed 2.4 q/A.

\*If using another Roundup brand herbicide, you must refer to the label booklet or Roundup Ready soybean supplemental label for that brand and the Roundup Brand Labeled Rate Conversion Chart on page 28 to determine appropriate use rates.

Roundup Ready Soybeans

# Roundup Ready Soybeans

Weed Control Recommendations – *Delta/Mid-South/Southwest*

TREATMENT	ROUNDUP ULTRAMAX USE RATES*	INSTRUCTIONS
<b>Preplant Burndown</b>	In no-till systems, apply a preplant burndown application of Roundup UltraMAX* at 20 to 52 oz/A. See the Roundup UltraMAX label for weed species and proper rates.	Always start with a weed-free field. In no-till and reduced-till systems, apply a Roundup UltraMAX* burndown application to control existing weeds before crop emergence.
<b>In-Crop Applications</b>	<b>Initial Application:</b> <ul style="list-style-type: none"> <li>• 26 oz/A of Roundup UltraMAX* on weeds 3" to 4" tall.</li> <li>• 40 oz/A of Roundup UltraMAX* on weeds 5" to 12" tall.</li> </ul> <b>Sequential Application (If needed):</b> <ul style="list-style-type: none"> <li>• 13 oz/A of Roundup UltraMAX* on weeds 2" to 3" tall.</li> <li>• 20 oz/A of Roundup UltraMAX* on weeds 3" to 6" tall.</li> <li>• 26 oz/A of Roundup UltraMAX* on weeds 6" to 12" tall.</li> </ul>	For the initial application, weeds will generally be 3" to 4" tall 14 to 20 days after planting. New flushes of weeds should be controlled with a sequential application, approximately 2 to 3 weeks later. Application timing should be based on weed size and will vary according to environmental conditions.
<b>Weed Control Exceptions</b>	<b>Dayflower, hemp sesbania and spurred anoda:</b> <ul style="list-style-type: none"> <li>• Apply sequential applications of 26 oz/A of Roundup UltraMAX* followed by 26 oz/A on weeds 2" to 4" tall.</li> </ul>	These weeds can be more difficult to control and tend to germinate later in the season. Sequential applications may be required for full-season control.
<b>Perennial Weeds</b>	Sequential applications of 26 oz/A of Roundup UltraMAX* followed by 26 oz/A will provide suppression of perennial weeds such as milkweed, bindweed, horseweed (marestail), horsenettle, nutsedge, redvine and trumpet creeper.	For best results, allow perennials to achieve at least 6" of growth before spraying and time application based on size of annual weeds present. For additional information on perennial weed control, see the "Perennial Weed Rate Table" on the Roundup UltraMAX label.
<b>Maximum Use Rates For Roundup UltraMAX</b>	<b>In-Crop:</b> <ul style="list-style-type: none"> <li>• 1.6 q/A per single application.</li> <li>• 1.6 q/A during flowering.</li> <li>• 2.4 q/A emergence through flowering.</li> </ul> <b>Preharvest:</b> <ul style="list-style-type: none"> <li>• 26 oz/A application.</li> </ul>	<b>Total Season:</b> The combined total of preplant, in-crop and preharvest applications of Roundup UltraMAX cannot exceed 6.5 q/A. The combined total of in-crop and preharvest applications cannot exceed 2.4 q/A.

\*If using another Roundup brand herbicide, you must refer to the label booklet or Roundup Ready soybean supplemental label for that brand and the Roundup Brand Labeled Rate Conversion Chart on page 28 to determine appropriate use rates.



## Weed Control Recommendations – Southeast

TREATMENT	ROUNDUP ULTRAMAX USE RATES*	INSTRUCTIONS
Preplant Burndown	In no-till systems, apply a preplant burndown application of Roundup UltraMAX* at 20 to 52 oz/A. See the Roundup UltraMAX label for weed species and proper rates.	Always start with a weed-free field. In no-till and reduced-till systems, apply a Roundup UltraMAX* burndown application to control existing weeds before crop emergence.
In-Crop Applications	<b>Initial Application:</b> <ul style="list-style-type: none"><li>• 26 oz/A of Roundup UltraMAX* on weeds 3" to 6" tall.</li><li>• 40 oz/A of Roundup UltraMAX* on weeds 6" to 12" tall.</li></ul> <b>Sequential Application (If needed):</b> <ul style="list-style-type: none"><li>• 13 oz/A of Roundup UltraMAX* on weeds 2" to 3" tall.</li><li>• 20 oz/A of Roundup UltraMAX* on weeds 3" to 6" tall.</li><li>• 26 oz/A of Roundup UltraMAX* on weeds 6" to 12" tall.</li></ul>	For the initial application, weeds will generally be 3" to 4" tall 14 to 20 days after planting. New flushes of weeds should be controlled with a sequential application, approximately 2 to 3 weeks later. Application timing should be based on weed size and will vary according to environmental conditions.
Weed Control Exceptions	<b>For black nightshade, groundcherry and morningglory:</b> <ul style="list-style-type: none"><li>• 26 oz/A of Roundup UltraMAX* on weeds 3" to 4" tall.</li><li>• 40 oz/A of Roundup UltraMAX* on weeds 5" to 12" tall.</li></ul> <b>Florida pusley, hemp sesbania and spurred anoda:</b> <ul style="list-style-type: none"><li>• Apply 26 oz/A of Roundup UltraMAX* to weeds 4" to 6" tall followed by 26 oz/A on weeds 3" to 6" tall.</li></ul>	These weeds can be more difficult to control and tend to germinate later in the season. A sequential application may be required to control new flushes.
Perennial Weeds	Sequential applications of 26 oz/A of Roundup UltraMAX* followed by 26 oz/A will provide suppression of perennial weeds such as milkweed, bindweed, horseweed (marestail), horsenettle, nutsedge, redvine and trumpet creeper.	For best results, allow perennials to achieve at least 6" of growth before spraying and time application based on size of annual weeds present. For additional information on perennial weed control, see the "Perennial Weed Rate Table" on the Roundup UltraMAX label.
Maximum Use Rates For Roundup UltraMAX	<b>In-Crop:</b> <ul style="list-style-type: none"><li>• 1.6 q/A per single application.</li><li>• 1.6 q/A during flowering.</li><li>• 2.4 q/A emergence through flowering.</li></ul> <b>Preharvest:</b> <ul style="list-style-type: none"><li>• 26 oz/A application.</li></ul>	<b>Total Season:</b> The combined total of preplant, in-crop and preharvest applications of Roundup UltraMAX cannot exceed 6.5 q/A. The combined total of in-crop and preharvest applications cannot exceed 2.4 q/A.

\*If using another Roundup brand herbicide, you must refer to the label booklet or Roundup Ready soybean supplemental label for that brand and the Roundup Brand Labeled Rate Conversion Chart on page 28 to determine appropriate use rates.

Roundup Ready Soybeans

# Roundup Ready Corn

## Product Description

Roundup Ready corn contains in-plant tolerance to Roundup brand herbicides, enabling growers to make over-the-top applications from planting through the V8 stage or 30-inch corn height with excellent crop safety and no yield reduction.

## Monsanto Brands of Non-Selective Over-The-Top Herbicide Products

Herbicide products sold by Monsanto for use over the top of Roundup Ready corn for the 2001 crop season are as follows:

- Roundup UltraMAX
- Roundup Ultra
- Roundup UltraDry
- Roundup Original
- Roundup Custom
- Roundup D-PAK
- Ready Master<sup>TM</sup> ATZ
- Field Master<sup>4</sup>

In addition, you may use another herbicide but only if it has been approved for this use and it has received a label for this use from all required governmental agencies. Monsanto does not make any representations, warranties or recommendations concerning the use of glyphosate products manufactured by other companies which are labeled for use in Roundup Ready crops. Monsanto specifically disclaims all responsibility for the use of these products in Roundup Ready crops. All questions and complaints arising from the use of glyphosate products manufactured by other companies should be directed to the manufacturer of the product in question.

*Certain products listed above may not be labeled for this application in your specific state. Please contact the manufacturer of this product, the local retailer or the local extension agent for confirmation that this is an approved application.*

*For complete information about the use of Roundup herbicide brands over the top of Roundup Ready corn, refer to the appropriate product's labeling.*





## Weed Control Recommendations – North Central and Plains Regions

The Roundup Ready Corn System is extremely flexible and offers four recommended weed control programs. Growers can select the program that best fits the way they farm.

PROGRAM	ROUNDUP ULTRAMAX USE RATES*	INSTRUCTIONS
Pre Followed by Post Program	<p><b>Preemergence:</b></p> <ul style="list-style-type: none"> <li>Use 50% to 100% of the labeled rate of Bullet®, Degree™, Degree Xtra™, Harness® Harness Xtra, Harness Xtra 5.6L, Lariat®, Lasso®, Micro-Tech® or Partner®</li> </ul> <p><b>Postemergence:</b></p> <ul style="list-style-type: none"> <li>Apply Roundup UltraMAX® at 20 to 26 oz/A in-crop before weeds exceed 4" to 6" in height</li> </ul>	<ul style="list-style-type: none"> <li>Use full labeled rate of residual when application is 14 days or more prior to planting or when tough grasses are present, i.e., barnyardgrass, shattercane, seedling johnsongrass, sandbur.</li> <li>Use a minimum of 2.5 pVA of Harness on woolly cupgrass and wild proso millet.</li> <li>Minimum rates: 1.5 qVA of Bullet; 1.5 qVA of Degree; 2.25 qVA of Degree Xtra; 0.5 qVA of Harness; 1 qVA Harness Xtra or Harness Xtra 5.6L; 1.5 qVA of Lariat; 1.25 qVA of Lasso; 1.25 qVA of Micro-Tech; 2 lb/A of Partner.</li> <li>Products containing atrazine will provide improved control of cocklebur, giant ragweed and morningglory.</li> <li>Use 26 oz/A of Roundup UltraMAX® when morning-glory or perennial weeds are present or when broadleaf weeds are 4" in height or taller.</li> <li>To ensure proper coverage of weeds, drop nozzles are recommended when the corn is over 24" in height.</li> </ul>
Post Tank Mixture Program	<p><b>In-crop:</b></p> <ul style="list-style-type: none"> <li>Before weeds exceed 4" in height, apply a tank mixture of Roundup UltraMAX® at 20 to 26 oz/A plus 50% to 100% of the labeled rate of Bullet, Degree, Degree Xtra, Harness, Harness Xtra, Harness Xtra 5.6L, Micro-Tech or Partner</li> </ul>	<ul style="list-style-type: none"> <li>Use full-labeled rate of residual product when tough grasses are present, i.e., barnyardgrass, shattercane, seedling johnsongrass, sandbur.</li> <li>Use a minimum of 2.5 pVA of Harness on woolly cupgrass and wild proso millet.</li> <li>Minimum rates: 1.5 qVA of Bullet; 1.5 qVA of Degree; 2.25 qVA of Degree Xtra; 0.5 qVA of Harness; 1 qVA Harness Xtra or Harness Xtra 5.6L; 1.25 qVA of Micro-Tech; 2 lb/A of Partner.</li> <li>Products containing atrazine will provide improved control of cocklebur, giant ragweed and morningglory.</li> <li>Use 26 oz/A of Roundup UltraMAX® when morningglory or perennial weeds are present.</li> <li>Corn height restrictions if tank mixing: Bullet, Micro-Tech and Partner - 5"; Degree, Degree Xtra, Harness, Harness Xtra and Harness Xtra 5.6L - 11"</li> </ul>
Ready Master ATZ Program	<p><b>In-crop:</b></p> <ul style="list-style-type: none"> <li>Apply Ready Master ATZ at 1.5 to 2 qVA before weeds exceed 4" in height.</li> </ul>	<ul style="list-style-type: none"> <li>Use higher labeled rates for heavy weed infestations.</li> <li>Use 2 qVA when morningglory or perennial weeds are present.</li> <li>Apply Ready Master ATZ before corn reaches 12" in height.</li> </ul>
Post Sequential Program	<p><b>In-crop:</b></p> <ul style="list-style-type: none"> <li>Apply Roundup UltraMAX® at 20 to 26 oz/A before weeds exceed 4" in height.</li> </ul> <p><b>Sequentially:</b></p> <ul style="list-style-type: none"> <li>Apply Roundup UltraMAX® at 20 to 26 oz/A before weeds exceed 4" in height to control an additional flush of weeds.</li> </ul>	<ul style="list-style-type: none"> <li>Use 26 oz/A of Roundup UltraMAX® when morningglory or perennial weeds are present</li> <li>To ensure proper coverage of weeds, drop nozzles are recommended when the corn is over 24" in height</li> </ul>
Maximum Use Rates For Roundup UltraMAX	<p><b>In-crop:</b></p> <ul style="list-style-type: none"> <li>26 oz/A per single application.</li> <li>Total: 1.6 qVA emergence through V8 stage or 30" - whichever comes first.</li> </ul> <p><b>Preharvest:</b></p> <ul style="list-style-type: none"> <li>26 oz/A application.</li> </ul>	<p><b>Total Season:</b></p> <p>The combined total of preplant, in-crop and preharvest applications of Roundup UltraMAX cannot exceed 6.5 qVA. The combined total of in-crop and preharvest applications cannot exceed 2.4 qVA</p>

\*If using another Roundup brand herbicide, you must refer to the label booklet or Roundup Ready corn supplemental label for that brand and the Roundup Brand Labeled Rate Conversion Chart on page 28 to determine appropriate use rates.

# Roundup Ready Corn

## Weed Control Recommendations – Southern Region

The Roundup Ready Corn System is extremely flexible and offers four recommended weed control programs. Growers can select the program that best fits the way they farm.

PROGRAM	ROUNDUP ULTRAMAX USE RATES*	INSTRUCTIONS
Pre Followed by Post Program	<p><b>Preemergence:</b></p> <ul style="list-style-type: none"> <li>• Use 50% to 100% of the labeled rate of Bullet®, Degree™, Degree Xtra™, Harness®, Harness Xtra, Harness Xtra 5.6L, Lanat®, Lasso®, Micro-Tech® or Partner®.</li> </ul> <p><b>Postemergence:</b></p> <ul style="list-style-type: none"> <li>• Apply Roundup UltraMAX® at 20 to 26 oz/A in-crop before weeds exceed 4" to 6" in height.</li> </ul>	<ul style="list-style-type: none"> <li>• Use full labeled rate of residual when application is 14 days or more prior to planting or when tough grasses are present.</li> <li>• Minimum rates: 3 pVA of Bullet; 1.5 qVA of Degree; 2.25 qVA of Degree Xtra; 1 pVA of Harness; 1 qVA Harness Xtra or Harness Xtra 5.6L; 3 pVA of Lanat; 2.5 pVA of Lasso; 2.5 pVA of Micro-Tech; 2 lb/A of Partner.</li> <li>• Products containing atrazine will provide improved control of cocklebur, giant ragweed and morningglory.</li> <li>• Use 26 oz/A of Roundup UltraMAX® when morningglory or perennial weeds are present or when broadleaf weeds are 4" in height or taller.</li> <li>• To ensure proper coverage of weeds, drop nozzles are recommended when the corn is over 24" in height.</li> </ul>
Post Tank Mixture Program	<p><b>In-crop:</b></p> <ul style="list-style-type: none"> <li>• Before weeds exceed 4" in height, apply a tank mixture of Roundup UltraMAX® at 20 to 26 oz/A plus 50% to 100% of the labeled rate of Bullet, Degree, Degree Xtra, Harness, Harness Xtra, Harness Xtra 5.6L, Micro-Tech or Partner.</li> </ul>	<ul style="list-style-type: none"> <li>• Use full-labeled rate of residual product when tough grasses are present.</li> <li>• Minimum rates: 3 pVA of Bullet; 1.5 qVA of Degree; 2.25 qVA of Degree Xtra; 1 pVA of Harness; 1 qVA Harness Xtra or Harness Xtra 5.6L; 2.5 pVA of Micro-Tech; 2 lb/A of Partner.</li> <li>• Products containing atrazine will provide improved control of cocklebur, giant ragweed and morningglory.</li> <li>• Use 26 oz/A of Roundup UltraMAX® when morningglory or perennial weeds are present.</li> <li>• Corn height restrictions if tank mixing: Bullet, Micro-Tech and Partner - 5"; Degree, Degree Xtra, Harness, Harness Xtra and Harness Xtra 5.6L - 11"</li> </ul>
Ready Master ATZ Program	<p><b>In-crop:</b></p> <ul style="list-style-type: none"> <li>• Apply Ready Master ATZ at 1.5 to 2 qVA before weeds exceed 4" in height.</li> </ul>	<ul style="list-style-type: none"> <li>• Use higher labeled rates for heavy weed infestations.</li> <li>• Use 2 qVA when morningglory or perennial weeds are present.</li> <li>• Apply Ready Master ATZ before corn reaches 12" in height.</li> </ul>
Post Sequential Program	<p><b>In-crop:</b></p> <ul style="list-style-type: none"> <li>• Apply Roundup UltraMAX® at 20 to 26 oz/A before weeds exceed 4" in height.</li> </ul> <p><b>Sequentially:</b></p> <ul style="list-style-type: none"> <li>• Apply Roundup UltraMAX® at 20 to 26 oz/A before weeds exceed 4" in height to control an additional flush of weeds.</li> </ul>	<ul style="list-style-type: none"> <li>• Use 26 oz/A of Roundup Ultra when morningglory or perennial weeds are present.</li> <li>• To ensure proper coverage of weeds, drop nozzles are recommended when the corn is over 24" in height.</li> </ul>
Maximum Use Rates For Roundup UltraMAX	<p><b>In-crop:</b></p> <ul style="list-style-type: none"> <li>• 26 oz/A per single application</li> <li>• Total: 1.6 qVA emergence through V8 stage or 30" - whichever comes first</li> </ul> <p><b>Preharvest:</b></p> <ul style="list-style-type: none"> <li>• 26 oz/A application</li> </ul>	<p><b>Total Season:</b></p> <p>The combine, total of preplant, in-crop and preharvest applications of Roundup UltraMAX cannot exceed 6.5 qVA. The combined total of in-crop and preharvest applications cannot exceed 2.4 qVA.</p>

\*If using another Roundup brand herbicide, you must refer to the label booklet or Roundup Ready corn supplemental label for that brand and the Roundup Brand Labeled Rate Conversion Chart on page 28 to determine appropriate use rates.



## Weed Control Recommendations – California/Arizona

The Roundup Ready Corn System is extremely flexible and offers two recommended weed control programs. Growers can select the program that best fits the way they farm.

PROGRAM	ROUNDUP ULTRAMAX USE RATES*	INSTRUCTIONS
Post Sequential Program	<p><b>In-crop:</b></p> <ul style="list-style-type: none"><li>• Apply Roundup UltraMAX* at 20 to 26 oz/A in-crop before weeds exceed 4" in height.</li></ul> <p>Reapply Roundup UltraMAX* at 20 to 26 oz/A to control an additional flush of weeds, before weeds exceed 4" in height.</p>	<ul style="list-style-type: none"><li>• To ensure proper coverage of weeds, drop nozzles are recommended when the corn is over 24" in height.</li><li>• Do not graze, harvest or feed corn forage or silage following sequential in-crop applications in California; restriction removal pending. In-field grazing after grain harvest is permitted.**</li><li>• For control of yellow and purple nutsedge, add 1 oz/A of Semptra® CA herbicide to either or both Roundup UltraMAX applications.</li></ul>
Pre Followed by Post Program	<p><b>Preemergence:</b></p> <ul style="list-style-type: none"><li>• Use 50% to 100% of labeled rate of Lasso®</li></ul> <p><b>Postemergence:</b></p> <ul style="list-style-type: none"><li>• Apply Roundup UltraMAX* at 20 to 26 oz/A in-crop before weeds exceed 4" to 6" in height.</li></ul>	<ul style="list-style-type: none"><li>• Use full-labeled rate of residual when application is 14 days or more before planting or when tough grasses are present.</li><li>• To ensure proper coverage of weeds, drop nozzles are recommended when the corn is over 24" in height.</li><li>• For control of yellow and purple nutsedge, add 1 oz/A of Semptra® CA herbicide to Roundup UltraMAX application.</li></ul>
Maximum Use Rates For Roundup UltraMAX	<p><b>In-crop:</b></p> <ul style="list-style-type: none"><li>• 26 oz/A per single application.</li><li>• Total: 1.5 q/A emergence through V8 stage or 30" – whichever comes first.</li></ul> <p><b>Preharvest:</b></p> <ul style="list-style-type: none"><li>• 26 oz/A application.</li></ul>	<p><b>Total Season:</b></p> <p>The combined total of preplant, in-crop and preharvest applications of Roundup UltraMAX cannot exceed 6.5 q/A. The combined total of in-crop and preharvest applications cannot exceed 2.4 q/A.</p>

*\*If using another Roundup brand herbicide, you must refer to the label booklet or Roundup Ready corn supplemental label for that brand and the Roundup Brand Labeled Rate Conversion Chart on page 28 to determine appropriate use rates.*

*\*\*Consult the product label for current grazing restrictions in California.*

Roundup Ready Corn

# Roundup Ready Corn

## Import Clearances

The United States regulatory agencies have given full approval of Roundup Ready corn for commerce in the U.S., granting approval for marketing and consumption as food, food ingredients, and feed for livestock. However, regulatory approval of grain/commodities harvested from Roundup Ready corn and Roundup Ready corn with YieldGard is pending in certain export markets, and is not likely to be received before the end of 2001. As a result, the grower is restricted from introducing such grain/commodities into channels of trade where the potential for export to such markets exists.

The vast majority of corn products currently shipped to Europe are by-products for food and feed use from dry and wet mill processing facilities. Regulations and threshold tolerance levels for feed products have not yet been established in all European countries. It is generally recognized in the industry that a certain amount of adventitious pollen movement occurs and it is not possible to achieve 100% purity of seed or grain in any corn production system.

## Channeling Grain Successfully

Until European approval, the grower must channel Roundup Ready corn and products produced from Roundup Ready corn for feeding on farm, use in domestic feed lots or other uses in domestic markets only. We recommend that you talk to your grain buyer about their policies for Roundup Ready corn. And, inform your elevator when you deliver grain with the Roundup Ready trait so it can be channeled to the appropriate market.

Channeling grain may be accomplished in the following ways:

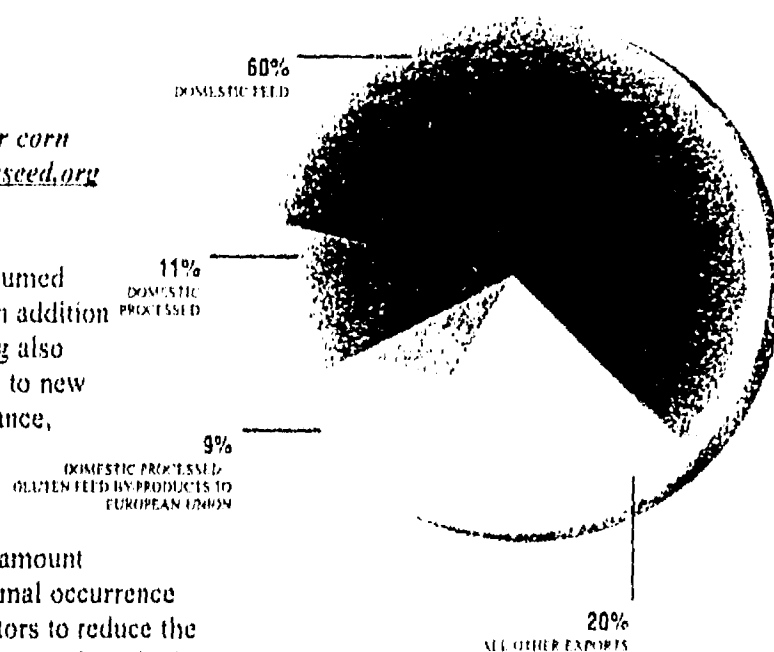
- Feeding the grain on-farm.
- Selling the grain for domestic feed use
- Selling to grain handlers for domestic use.

For assistance in locating domestic outlets for all other corn grain/commodities, view the ASTA web site at [www.amseed.org](http://www.amseed.org) or contact Monsanto at 1-800-768-6387.

Currently, more than 70 percent of the U.S. corn is consumed domestically, so ample marketing opportunities exist. In addition to meeting market needs, conscientious grain channeling also ensures that growers will continue to have timely access to new technologies that provide improvement in crop performance, greater cropping systems options and opportunities for improved economic returns.

Corn is a naturally cross-pollinated crop and a minimal amount of pollen movement between neighboring fields is a normal occurrence in its production. Growers can manage a number of factors to reduce the occurrence and extent of pollen movement. These factors are described in the last section of this Technology Use Guide under the heading "Pollen Movement". We encourage you, as stewards of corn technology with pending European Union approval, to consider these factors and talk with your neighbors about your cropping intentions.

1999 Corn Usage



Source: USDA Economic Research Service, August 2000. U.S. Department of Commerce, Corn Refiners Association, Inc.

# YieldGard Insect Protected Corn



## Product Description

YieldGard Insect Protected Corn is the first genetically improved corn that offers full plant, full season protection against European corn borer, southwestern corn borer and southern cornstalk borer to deliver maximum yield potential. YieldGard hybrids, in general, also provide effective suppression of corn earworm, fall armyworm and stalk borer.

## Insect Resistance Management

### *Combat Resistance with a Refuge*

Although rare, resistance can develop in nature. The possibility of insect resistance is a risk that must be planned for, and minimized. The best way to preserve the benefits and insect protection of YieldGard is to develop an Insect Resistance Management (IRM) plan which is a requirement when purchasing YieldGard Insect Protected Corn. The key component of any IRM plan is a refuge.

A refuge is simply a block of non-*B.t.* corn that is planted on a portion of a grower's corn acres. Its primary purpose is to maintain a small population of corn borers nearby that are not exposed to the *B.t.* protein found in YieldGard corn. Within the refuge, corn borers are allowed to survive without exposure to the *B.t.* protein. This ensures that susceptible insects are nearby to mate with any rare resistant corn borer moths that may emerge from the *B.t.* corn. Susceptibility is then passed on to their offspring, helping to preserve the long-term effectiveness of this technology.

The refuge should be planted with a similar hybrid and maturity, as close as possible to, and at the same time as, the majority of *B.t.*-protected corn. It is also important to practice resistance management early on to help reduce the risk of corn borer resistance before it develops. Growers can then continue to benefit from the consistent corn borer control and top yield potential found in YieldGard hybrids.

### *Refuge Requirements –*

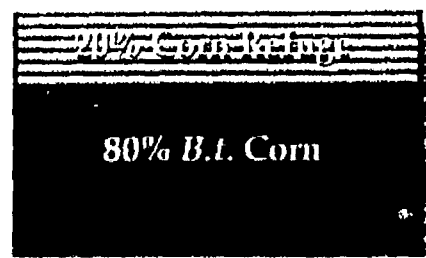
#### *North Central and Plains Regions, California/Arizona and Non-Cotton Growing Area of the Southern Region*

Refuges must be established for the 2001 growing season as follows:

- On each farm, plant up to 80 percent of corn acres with *B.t.* corn. Plant at least 20 percent of corn acres with non-*B.t.* corn. The non-*B.t.* corn can be treated with insecticides only when the level of pest pressure meets or exceeds economic thresholds. Sprayable *B.t.* insecticides must not be applied to the non-*B.t.* refuge corn.

Plant the refuge (non-*B.t.* corn) within, adjacent to or near YieldGard fields. The refuge should be placed within 1/4 mile of the YieldGard field, if possible, and must be placed within 1/2 mile to help provide a population of susceptible insects near the YieldGard field. In limited regions where growers routinely use conventional insecticides to control European corn borer (ECB) and southwestern corn borer (SWCB) and anticipate the need to spray in the upcoming season, the refuge acreage is required to be within 1/4 mile of the *B.t.* corn planting.

*Growers will be notified immediately if any changes to the refuge requirements occur before planting in 2001.*



*North Central and Plains Regions,  
California/Arizona and  
Non-Cotton Growing Area  
of the Southern Region*

YieldGard Insect Protected Corn

# YieldGard Insect Protected Corn

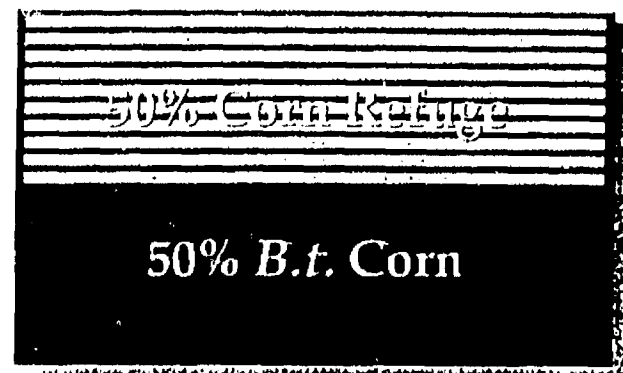
## *Refuge Requirements -*

### *Southern Region - Cotton-Growing Areas*

In the cotton-growing areas shown on the following page, there are special refuge requirements for YieldGard corn, as follows:

- On each farm, plant up to 50 percent of corn acres with YieldGard corn. Plant a minimum of 50 percent of corn acres with non-*B.t.* corn. The non-*B.t.* corn can be treated with insecticides only when the level of pest pressure meets or exceeds economic thresholds. Sprayable *B.t.* insecticides must not be applied to non-*B.t.* refuge corn.

Plant the non-*B.t.* corn refuge within, adjacent to, or near the YieldGard fields. The refuge must be placed within 1/4 mile of the YieldGard field, if possible, and must be placed within 1/2 mile to help provide a population of susceptible insects near the YieldGard fields.



*Southern Region -  
Cotton Growing Areas*

# *Southern Region - Cotton-Growing Areas*

ALABAMA  
All Counties

ARKANSAS  
All Counties

FLORIDA  
All Counties

GEORGIA  
All Counties

LOUISIANA  
All Counties

MISSISSIPPI  
All Counties

MISSOURI  
Counties of:  
Butler  
Dunklin  
Mississippi  
New Madrid  
Pemiscot  
Scott  
Stoddard

NORTH CAROLINA  
All Counties

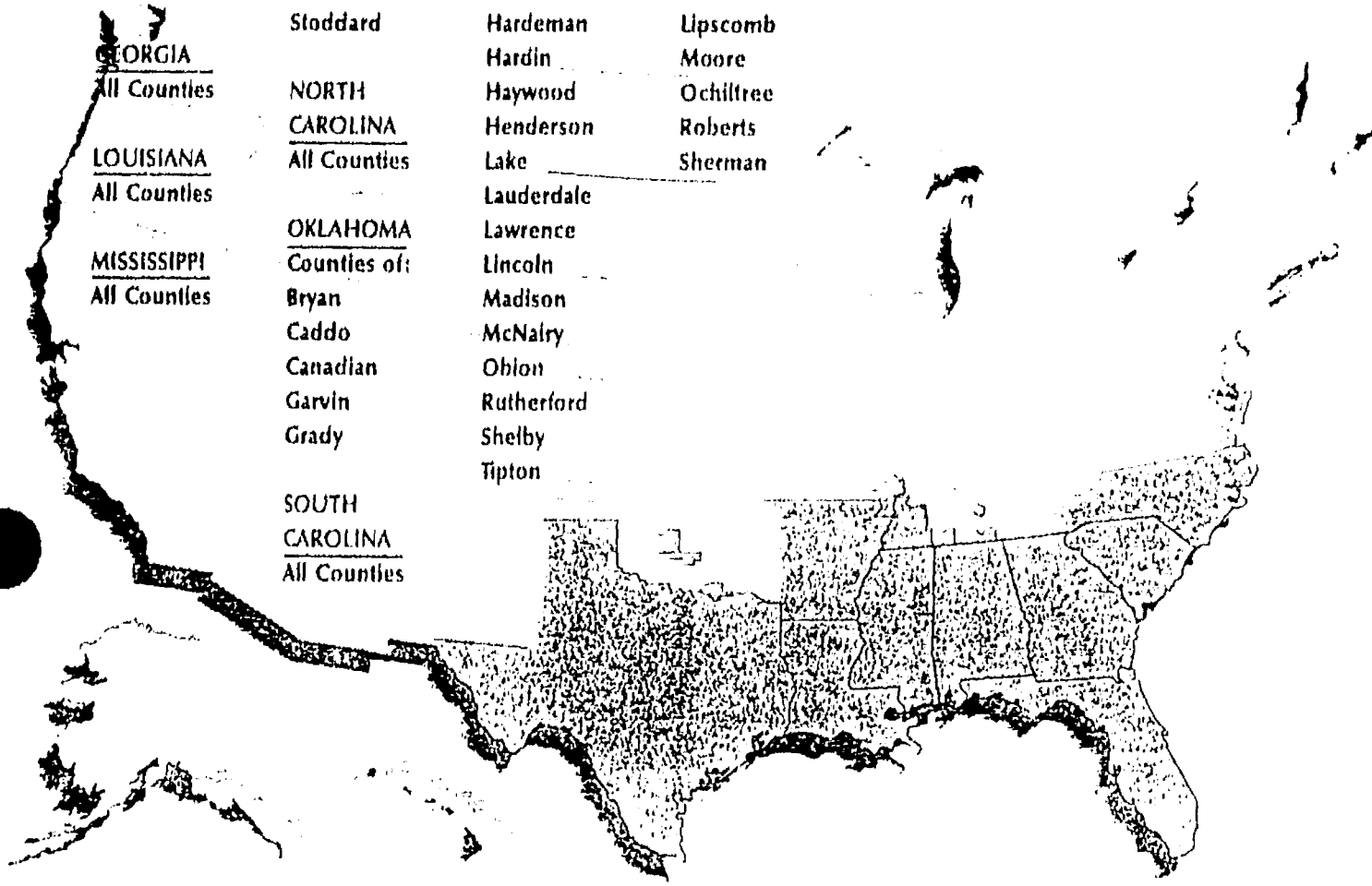
OKLAHOMA  
Counties of:  
Bryan  
Caddo  
Canadian  
Garvin  
Grady

SOUTH CAROLINA  
All Counties

TENNESSEE  
Counties of:  
Carroll  
Chester  
Crockett  
Fayette  
Franklin  
Gibson  
Hardeman  
Hardin  
Haywood  
Henderson  
Lake  
Lauderdale  
Lawrence  
Lincoln  
Madison  
McNairy  
Obion  
Rutherford  
Shelby  
Tipton

TEXAS  
All Counties  
EXCEPT  
Carson  
Dallam  
Hansford  
Hartley  
Hutchinson  
Lipscomb  
Moore  
Ochiltree  
Roberts  
Sherman

VIRGINIA  
Counties of:  
Greensville  
Isle of Wright  
Northampton  
Southampton  
Suffolk City  
Sussex



YieldGard Insect Protected Corn

# YieldGard Insect Protected Corn

## Refuge Recommendations

Any non-*B.t.* corn acres planted on a grower's farm near *B.t.* corn can serve as a refuge. Entire non-*B.t.* fields within 1/4-1/2 mile of *B.t.* corn can serve as part of a refuge and provide an added margin of protection against resistance.

- Plant only non-*B.t.* corn in the refuge.
- Plant a refuge on every farm where YieldGard hybrids are planted.
- Plant the refuge close to, and at the same time as, YieldGard corn.
- Manage the refuge the same way YieldGard corn is managed. Reducing inputs or putting the refuge on marginal land merely reduces the effectiveness of the refuge.
- Mixing non-*B.t.* seed with YieldGard seed for use in the refuge or on any corn acreage, is not a recommended refuge design.

## Refuge Configuration Options

The refuge on each farm may be arranged in a number of configurations. These options offer the flexibility to easily incorporate an effective corn refuge into farm operations.

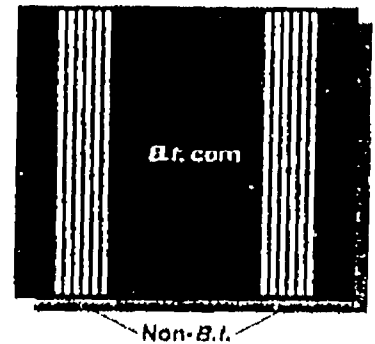
Options include:

- Plant separate non-*B.t.* cornfields within 1/2 mile of each *B.t.* corn field.
- Plant 20 percent non-*B.t.* corn strips or blocks within a *B.t.* field.
- Split the planter to alternate two or more rows of non-*B.t.* corn with *B.t.* corn.
- Plant pivot corners to non-*B.t.* corn.
- Plant field perimeters or end rows to non-*B.t.* corn.

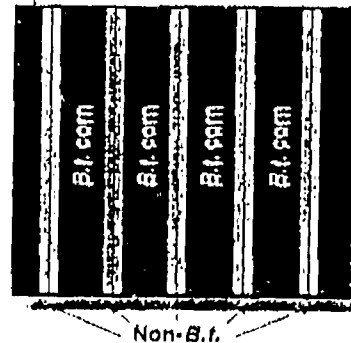
Separate Field



Block



Split Planter



Pivot Corners



Perimeter







Planting Refuges, Preserving Technology

### *Multi-Phased Approach to Insect Resistance Management*

Adding a refuge to a corn production program is just one part of resistance management. For the most effective results, researchers recommend a multi-phased approach.

- Plant corn hybrids with YieldGard to ensure that an "effective dose" of *B.t.* is available for corn borer control throughout the plant, throughout the season. This will control nearly all susceptible insects.
- Plant a block of non-*B.t.* corn close to the YieldGard corn. The block of non-*B.t.* corn will serve as a refuge to support the survival of susceptible corn borers. These corn borers will play a crucial role in preserving the effectiveness of the YieldGard technology.
- Practice Integrated Pest Management (IPM) by preserving the natural enemies of corn borers and other insect pests. Natural predators such as lacewings, wasps, ladybugs, spiders, minute pirate bugs and pheasants can help reduce corn borer populations. YieldGard insect protection aids IPM because it affects only target insects and allows beneficial insects to thrive.
- Growers should monitor their fields of insect protected corn, and contact their seed dealer or Monsanto representative if a resistance problem is suspected.

### *Non-Target Species*

The potential for non-target species (e.g. monarch butterfly larvae) to be affected by *B.t.* corn pollen remains under study. As an interim measure, the EPA encourages growers to place the non-*B.t.* corn refuge between *B.t.* corn and habitats such as prairies, forests, conservation areas and roadsides.

*The sale, distribution and planting of B.t. corn, including YieldGard hybrids, is prohibited in the state of Maine.*

*Report suspected cases of insect resistance by calling Monsanto at 1-800-951-9511.*

*EPA Registration Number: 524-489 Active ingredient: Bacillus thuringiensis CryIA(b) delta endotoxin and the genetic material necessary for its production in corn. This product controls European corn borer (*Ostrinia nubilalis*), southwestern corn borer (*Diatraea grandiosella*), Southern cornstalk borer (*Diatraea crumbidoides*), and suppresses corn earworm (*Helioverpa zea*), stalkborer (*Papaipema nebris*), and fall armyworm (*Spodoptera frugiperda*). Routine applications of insecticides to control these insects are usually unnecessary when corn containing YieldGard insect protection is planted.*

*YieldGard is available in corn hybrids offered by a variety of seed producers. Growers must read and follow the limitations and requirements in the appropriate Product Notice or Product Use Guide, including this Technology Use Guide.*

YieldGard Insect Protected Corn

# YieldGard with Roundup Ready Corn

## Product Description

YieldGard with Roundup Ready corn offers growers all the benefits of both traits combined in one crop. These hybrids exhibit the same insect protection qualities as YieldGard corn and, like Roundup Ready corn, are tolerant to over-the-top applications of Roundup brand herbicides.

## Recommended Management Practices

Managing YieldGard with Roundup Ready corn requires a grower to follow the recommended management practices associated with corn containing each individual trait.

Growers of YieldGard with Roundup Ready corn hybrids must follow the same guidelines for establishing required refuge options as described for YieldGard corn on pages 11 to 15 of this Technology Use Guide.

*For complete details on Monsanto over-the-top products, agronomic recommendations, requirements and crop stewardship for YieldGard with Roundup Ready corn, refer to the Roundup Ready Corn and YieldGard sections of this Technology Use Guide.*



with



## Import Clearances

The United States regulatory agencies have given full approval of Roundup Ready corn for commerce in the U.S., granting approval for marketing and consumption as food, food ingredients, and feed for livestock. However, regulatory approval of grain/commodities harvested from Roundup Ready corn and YieldGard with Roundup Ready corn is pending in certain export markets, and is not likely to be received before the end of 2001. As a result, the grower is restricted from introducing such grain/commodities into channels of trade where the potential for export to such markets exists.

The vast majority of corn products currently shipped to Europe are by-products for food and feed use from dry and wet mill processing facilities. Regulations and threshold tolerance levels for feed products have not yet been established in all European countries. It is generally recognized in the industry that a certain amount of adventitious pollen movement occurs and it is not possible to achieve 100% purity of seed or grain in any corn production system.

## Channeling Grain Successfully

Until European approval, the grower must channel Roundup Ready corn and products produced from Roundup Ready corn for feeding on farm, use in domestic feed lots or other uses in domestic markets only. We recommend that you talk to your grain buyer about their policies for Roundup Ready corn. And, inform your elevator when you deliver the grain with the Roundup Ready trait so it can be channeled to the appropriate market.

Channeling grain may be accomplished in the following ways:

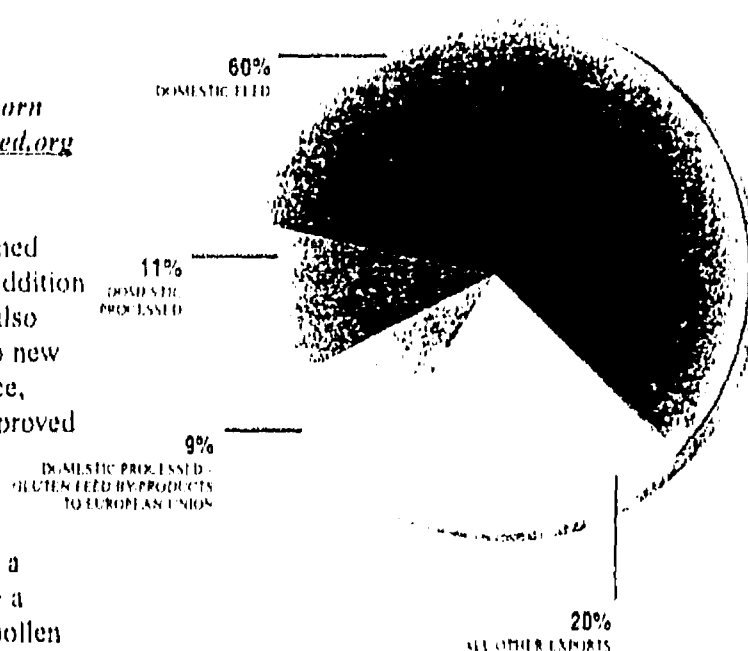
- Feeding the grain on-farm.
- Selling the grain for domestic feed use
- Selling to grain handlers for domestic use.

For assistance in locating domestic outlets for all other corn grain/commodities, view the ASTA web site at [www.amseed.org](http://www.amseed.org) or contact Monsanto at 1-800-768-6387.

Currently, more than 70 percent of the U.S. corn is consumed domestically, so ample marketing opportunities exist. In addition to meeting market needs, conscientious grain channeling also ensures that growers will continue to have timely access to new technologies that provide improvement in crop performance, greater cropping systems options and opportunities for improved economic returns.

Corn is a naturally cross-pollinated crop and a minimal amount of pollen movement between neighboring fields is a normal occurrence in its production. Growers can manage a number of factors to reduce the occurrence and extent of pollen movement. These factors are described in the last section of this Technology Use Guide under the heading "Pollen Movement". We encourage you, as stewards of corn technology with pending European Union approval, to consider these factors and talk with your neighbors about your cropping intentions.

1999 Corn Usage



Source: USDA Economic Research Service  
August 2000 U.S. Department of Commerce  
Corn Refiners Association, Inc.

YieldGard with Roundup Ready Corn

# Bollgard Cotton

## Product Description

Bollgard cotton contains an insecticidal protein from *Bacillus thuringiensis*, subsp. *kurstaki* (B.t.k.) that protects cotton plants from certain lepidopteran insect pests. Specifically, Bollgard provides excellent, season-long control of tobacco budworm and pink bollworm, and a high level of suppression of the cotton bollworm. When larvae feed on Bollgard cotton plants, this protein protects the plants by reducing larval survival and damage. Under most circumstances with Bollgard cotton, the need for remedial insecticide treatments for these pests is reduced or eliminated.

Bollgard cotton has no effect on the environment, humans or other non-target species, including beneficial predators and parasites. The insecticidal protein from B.t.k. begins to break down immediately when the plant dies. It does not accumulate in the soil and will not leach into the groundwater. In fact, Bollgard protection should lead to a decrease in broad-spectrum insecticide use and beneficial insects may increase in the cropping system. Increases in beneficial insects can suppress various cotton pests, further reducing the need for, and application of, insecticides.

## Recommended Management Practices

### *Agronomic Management*

As with any cotton variety, using the best agronomic management practices with Bollgard cotton will yield the greatest benefits. Use varieties, seeding rates and planting technologies appropriate for each specific area. As much as possible, manage the crop to avoid plant stress.

### *Manage Target Insects*

High populations of cotton bollworm or other insect pests may reach damaging levels that warrant supplemental insecticide applications. If any cotton insect pest reaches locally established thresholds in Bollgard cotton, Monsanto recommends the use of appropriate remedial insecticide treatments to ensure desired levels of control.

Fields should be carefully monitored for all pests, including cotton bollworms, to determine the need for remedial insecticide treatments. For target pests, scouting techniques and supplemental treatment decisions should take into account the fact that larvae must hatch and feed before they can be affected by the Bollgard gene. Fields should be scouted at least twice per week during periods of heavy or sustained egg lay, especially during bloom. Scouting should include a modified whole plant inspection, including terminals, squares, blooms, bloom tags and small bolls. Larvae greater than 1/4 inch (3- to 4-days old) are generally recognized as survivors that will be difficult to control with Bollgard alone. Apply supplemental insecticides if the frequency of advanced stage larvae or plant damage warrants treatment. Changes to these recommendations may be required under certain circumstances; consult the local crop advisor or extension specialist for management recommendations in a specific area.

### *Manage Non-Target Insects*

Although Bollgard cotton will sustain less damage from some of the most troublesome lepidopteran pests, it will not provide protection against non-lepidopteran species. These insects should be monitored and treated when necessary using recommended thresholds and insecticides. If possible, choose insecticides that are least harmful to beneficial insects.

### *Practice Integrated Pest Management (IPM)*

- Employ appropriate scouting techniques and treatment decisions to enhance beneficial insects that can provide some additional insect pest control.
- Manage for appropriate maturity and harvest schedules. Destroy stalks immediately after harvest to avoid regrowth and minimize selection for resistance in late-season infestations.
- Use soil management practices that encourage destruction of over-wintering pupae in cotton containing the Bollgard gene.

## Insect Resistance Management Requirements

Lepidopteran cotton pests have demonstrated an ability to develop resistance to many chemical insecticides. As a preemptive measure, cotton with the Bollgard gene must be managed in ways that will retard resistance development. *Growers planting Bollgard cotton in 2001 must follow the Resistance Management practices addressed in this section.* These practices are designed to ensure that some lepidopteran populations are not exposed to the *B.t.k.* protein so they can reintroduce susceptibility into the selected populations. To do this, the insects must be provided a refuge that is a food source and that does not contain the *B.t.k.* protein.

*The Resistance Managements Requirements for 2001 have changed from 2000. The 2001 changes include:*

- *All refuge options include a distance requirement from the refuge to all Bollgard cotton fields.*
- *Added flexibility with a new 95:5 option.*
- *Minimum width requirement for 95:5 options.*
- *Opportunity to work with neighboring growers using a Community Refuge Plan.*

*Growers of Bollgard cotton must carefully read and follow the Resistance Mangement Requirements for 2001.*

Due to the importance of delaying the development of resistance to Bollgard cotton, failure to plant an appropriate refuge or to manage it properly could result in the revocation of the grower's Monsanto Technology Agreement. Should this occur, sales of Monsanto technology products to the grower would be suspended. Please help ensure that Bollgard technology is preserved by fully cooperating in refuge management.

*In Florida, do not plant Bollgard cotton south of Tampa (Florida Route 60). Not for commercial sale or use in Hawaii.*

## Refuge Options

### OPTION 1 – EMBEDDED REFUGE

Plant at least 5 acres of non-Bollgard cotton (refuge cotton) for every 95 acres of Bollgard cotton. Plant the refuge cotton embedded as a contiguous block within the Bollgard field.

For very large Bollgard cotton fields, multiple blocks of non-Bollgard cotton planted across the fields may be used as refuge.

To implement the embedded refuge option for small or irregularly shaped fields, neighboring fields farmed by the same grower can be grouped to represent a larger field unit provided the refuge and the Bollgard fields exist *within a one mile squared area*. Within the larger field unit, one of the smaller fields planted to non-Bollgard cotton may be utilized as the embedded refuge provided the refuge is at least 150 feet wide.

The embedded refuge *may be treated* with any insecticide (excluding foliar *B.t.k.* products) labeled for the control of tobacco budworm, cotton bollworm, or pink bollworm whenever the *entire* field or field unit is treated. The embedded refuge *may not be treated independently* of the Bollgard field or field unit for tobacco budworm, cotton bollworm or pink bollworm.

For areas in California, Arizona and New Mexico affected by pink bollworm **ONLY**, the refuge cotton may be planted as single rows within the Bollgard field. Interspersing individual rows of non-*B.t.k.* cotton within a Bollgard field is **NOT** allowed where either cotton bollworms or tobacco budworms can be a significant pest.

In cases where placement of the refuge within one mile of the Bollgard cotton would be in conflict with state seed production regulations, the grower must plant the refuge as close to the Bollgard cotton as allowed.

**95 Acres of  
Bollgard Cotton.**

**5 Acres of  
Non-*B.t.k.* Cotton**

# Bollgard Cotton

Refuge Options continued

## OPTION 2 – EXTERNAL STRUCTURED UNSPRAYED REFUGE

Ensure that at least 5 acres of non-Bollgard cotton (refuge cotton) is planted for every 95 acres of Bollgard cotton. This refuge *may not be treated* with any insecticide labeled for the control of tobacco budworm, cotton bollworm, or pink bollworm.

The size of the refuge must be at least 150 feet wide. The refuge must be managed (fertility, weed control and management of other pests) similarly to Bollgard cotton. *The refuge must be planted within one-half linear mile from the edge of the Bollgard cotton field.*

Following is a list of the insecticide active ingredients that cannot be used under this option:

acephate	methomyl	spinosad
amitraz	methoxyfenozide	thiocarb
chlorfenapyr	methyl parathion	pepper spray
emamectin benzoate	profenofos	garlic spray
endosulfan	pytheroids	Helicoverpa zea nuclear
indoxacarb	sulprofos	polyhedrosis virus

If the refuge is to be planted in the same field as Bollgard cotton, the refuge should be planted in a continuous block. Do not interplant rows of Bollgard and conventional cotton for this option. Do not mix Bollgard and non-Bollgard seed for this option. To avoid mixing seed in the planting process, be sure to clean all seed out of seed hoppers when switching from non-Bollgard seed to Bollgard seed or vice versa. Refuge cotton should be managed in a similar manner to the Bollgard cotton to ensure a suitable host for susceptible insects throughout the season.

In cases where placement of the refuge within 1/2 mile of the Bollgard cotton would be in conflict with state seed production regulations, the grower must plant the refuge as close to the Bollgard cotton as allowed.

95 Acres of  
Bollgard Cotton



5 Acres of  
Non-B.t.k.  
Cotton

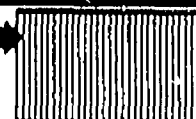
## OPTION 3 – EXTERNAL SPRAYED REFUGE

Ensure that at least 25 acres of non-Bollgard cotton are planted as a refuge for every 100 acres of Bollgard cotton. This refuge *may be treated* with insecticides (excluding foliar B.t.k. products) labeled for control of the tobacco budworm, cotton bollworm, or pink bollworm. *Ensure that a refuge is maintained within one linear mile (preferably within one-half mile) from the edge of the Bollgard cotton.*

In cases where placement of the refuge within one mile of the Bollgard cotton would be in conflict with state seed production regulations, the grower must plant the refuge as close to the Bollgard cotton as allowed.

100 Acres of  
Bollgard Cotton

25 Acres of  
Non-B.t.k. Cotton



## Community Refuge Plan

As distance-to-refuge requirements become more specific, Monsanto recognizes that growers who farm across broad areas on noncontiguous fields may have difficulty meeting those requirements with all field configurations. Particularly where smaller, isolated fields are involved, it may be impossible for an individual grower to have an associated refuge within one-half to one mile without placing the refuge within the individual field. Placing a refuge within these smaller, isolated fields is often impractical because of the requirement that the embedded refuge must be at least 150 feet wide.

Additionally, there is merit to the concept of multiple growers in an area working together to ensure that the Bollgard cotton and refuge fields are appropriately sized and placed to provide optimum insect resistance management (IRM) value, while providing for more flexibility in refuge field placement than can be achieved by the individual grower working alone. Monsanto recommends the following community refuge plan to address the situations described above:

### COMMUNITY REFUGE PLAN

A group of growers who farm in a contiguous area (a "community") may agree to implement a single IRM plan for the entire area managed by those growers. The Community IRM plan must meet the requirements of one of the three required refuge options, or an appropriate combination of the options.

The larger area bounding the entire group of farms would form a geographic "community" and the refuge requirements would apply to the community of growers and the geographic community exactly as they apply to a single grower.

The community refuge agreement among the growers must require that an appropriate amount of refuge (depending on the option chosen) is associated with the *total* amount of Bollgard grown by the community *and* all distance requirements are met for all Bollgard fields included in the community. A community refuge plan will require cooperative planning by all growers involved *prior* to the season to ensure that all Bollgard fields planted have associated refuge of the proper size and within the proper distance.

All growers participating in a community refuge plan will be required to complete and sign a form of Community Refuge Agreement provided by Monsanto. Individual participating growers must maintain a copy of the Community Refuge Agreement and field maps that show field identity by grower, field size, crop planted, and location and proximity of Bollgard and non-Bollgard refuge cotton fields.

Each community must designate a coordinator for the total community refuge plan. This coordinator must be knowledgeable on all of the requirements of the community plan and agree to represent the group to explain the plan. This coordinator will act as a facilitator and/or spokesperson for the community refuge group, but as the coordinator, is not responsible or personally liable for the acts or omissions of other members of the community.

The coordinator must maintain a copy of the community refuge plan and the field maps describing the individual grower participation in the community refuge plan for the entire community and must make them available upon request by a Monsanto representative. If Monsanto requests a grower visit to monitor IRM plan compliance with a community member, the individual grower is responsible to meet with the Monsanto representative, or to arrange for the coordinator to meet with the Monsanto representative.

# Roundup Ready Cotton

## Product Description

Roundup Ready cotton varieties contain in-plant tolerance to Roundup brand herbicides, enabling growers to make in-crop applications of Roundup Ultra<sup>®</sup> or Roundup UltraMAX<sup>™</sup> herbicides for unsurpassed weed control in cotton

## Roundup Brand Non-Selective Over-The-Top Herbicide Products

Non-selective herbicide products sold by Monsanto for use over the top of Roundup Ready cotton for the 2001 crop season are as follows:

- Roundup UltraMAX
- Roundup Ultra

*Roundup Ultra and Roundup UltraMAX do not require additional surfactant. Monsanto will label and promote only brands such as Roundup Ultra and Roundup UltraMAX that do not require surfactants and other additives until their interaction with Roundup Ready cotton is better understood.*

You may use another herbicide in Roundup Ready cotton, but only if it has been approved for this use and it has received a label for this use from all required governmental agencies. Monsanto does not make any representations, warranties or recommendations concerning the use of glyphosate products manufactured by other companies which are labeled for use in Roundup Ready crops. Monsanto specifically disclaims all responsibility for the use of these products in Roundup Ready crops. All questions and complaints arising from the use of glyphosate products manufactured by other companies should be directed to the manufacturer of the product in question.

*For complete information about the use of Roundup herbicide brands over the top of Roundup Ready cotton, refer to the appropriate product's labeling.*

## Recommended Management Practices

Roundup Ready cotton has excellent vegetative tolerance to Roundup Ultra allowing early season over-the-top applications. Incomplete tolerance in flower parts requires that applications after the fourth true-leaf stage be properly post-directed. An in-crop weed control program using Roundup Ultra alone usually provides the greatest value. If a residual herbicide is used, no more than one application is recommended. If used, the residual may be applied preemergence, preplant or at layby. Contact a Monsanto Representative, local crop adviser or extension specialist to determine the best option.

### Get a Clean Start

Always start with a clean field. Apply a preplant burndown treatment of a labeled Roundup brand herbicide at least 1-2 weeks before planting or use tillage to ensure field is weed-free. Plant Roundup Ready cotton using normal planting procedures.





### ***In-Crop Applications***

Best results are obtained when weeds are 1 to 3 inches tall. Use the recommended rate for the most difficult weed present. Please refer to the Roundup UltraMAX or Roundup Ultra label for recommended rates.

#### ***Over-the-Top through the Fourth Leaf***

- Apply Roundup UltraMAX over the top from crop emergence through the fourth true-leaf stage (until fifth leaf is as large as a quarter).
- Two applications can be made during this period at a maximum rate of 26 oz/A per application. There must be two nodes of growth and at least 10 days between applications.
- Where perennial weeds are a problem, make the first application early enough to allow a second application before cotton exceeds the fourth true-leaf stage.
- Over-the-top applications after the fourth true-leaf stage can result in boll loss, delayed maturity and/or yield loss.

#### ***Post-Directed Applications through Layby***

- After the fourth true-leaf stage through layby, apply Roundup UltraMAX post-directed to the base of the cotton plant. Applications during this period must be directed under the leaves to avoid foliar contact.
- Place nozzles in a low horizontal position to allow spray overlap in the row while keeping the spray at or below the cotyledon scar.
- Two post-directed applications can be made during this period at a maximum rate of 26 oz/A per application. There must be two nodes of growth and at least 10 days between applications.
- Excessive foliar contact can result in boll loss, delayed maturity and/or yield loss.

#### ***Preharvest Over-the-Top Applications***

- Before harvest and after cotton reaches 20 percent boll crack, if needed, apply up to 52 oz/A (26 oz/A, if by air) of Roundup UltraMAX.
- Applications must be made at least 7 days prior to harvest.
- This treatment is effective in controlling late season or perennial weeds and can improve harvest efficiency.

Please note that Roundup UltraMAX is not effective for preharvest cotton regrowth control in Roundup Ready cotton. Do not apply Roundup UltraMAX preharvest to crops grown for seed.

*The maximum volume of Roundup UltraMAX that may be used between crop emergence and layby is 2.2 quarts per acre.  
The maximum volume of Roundup Ultra that may be used in a single season is 6.5 quarts per acre.*

- If using Roundup Ultra, refer to the Roundup Ultra supplemental label for use in Roundup Ready cotton for appropriate use rates.

**ATTENTION** Use of Roundup UltraMAX in accordance with label directions is expected to result in normal growth of Roundup Ready cotton; however, various environmental conditions, agronomic practices and other factors make it impossible to eliminate all risks associated with the product, even when applications are made in conformance with the label specifications. In some cases, these factors can result in boll loss, delayed maturity and/or yield loss.

Roundup Ready Cotton

# Bollgard with Roundup Ready Cotton



## Product Description

Bollgard with Roundup Ready cotton varieties offer growers all the benefits of both genetic traits combined in one crop. These varieties exhibit the same insect protection qualities as Bollgard cotton and are tolerant to in-crop applications of Roundup Ultra and Roundup UltraMAX herbicides.

## Roundup Brand Non-Selective Over-The-Top Herbicide Products

Non-selective herbicide products sold by Monsanto for use over the top of Bollgard with Roundup Ready cotton for the 2001 crop season are as follows:

- Roundup UltraMAX
- Roundup Ultra

*Roundup Ultra and Roundup UltraMAX do not require additional surfactant. Monsanto will label and promote only brands such as Roundup Ultra and Roundup UltraMAX that do not require surfactants and other additives until their interaction with Bollgard with Roundup Ready cotton is better understood.*

You may use another herbicide in Bollgard with Roundup Ready cotton, but only if it has been approved for this use and it has received a label for this use from all required governmental agencies. Monsanto does not make any representations, warranties or recommendations concerning the use of glyphosate products manufactured by other companies which are labeled for use in Roundup Ready crops. Monsanto specifically disclaims all responsibility for the use of these products in Roundup Ready crops. All questions and complaints arising from the use of glyphosate products manufactured by other companies should be directed to the manufacturer of the product in question.

*For complete information about the use of Roundup herbicide brands over the top of Bollgard with Roundup Ready cotton, refer to the appropriate product's labeling.*

## Recommended Management Practices

Managing Bollgard with Roundup Ready cotton requires a grower to follow the recommended management practices associated with cotton containing each individual trait.

Growers of Bollgard with Roundup Ready cotton varieties must follow the same guidelines for establishing required refuge options, practicing Integrated Pest Management and managing target and non-target pests as described for Bollgard cotton on pages 18 to 21 of this Technology Use Guide.

*For complete details on Roundup brand over-the-top products, agronomic recommendations and requirements for Bollgard with Roundup Ready cotton, refer to the Bollgard Cotton and Roundup Ready Cotton sections of this Technology Use Guide.*

# Roundup Ready Canola



## Product Description

Roundup Ready canola varieties contain in-plant tolerance to Roundup brand herbicides, enabling growers to apply Roundup brand herbicides over the top of canola anytime from emergence throughout prebolting. The introduction of the Roundup Ready trait into leading canola varieties assures growers of unsurpassed weed control, proven crop safety and maximum yield potential.

Traditionally, canola growers have had few herbicide options, limiting their opportunities to maximize yield and profits with canola. Now with Roundup Ready canola, growers have the weed management tool necessary to improve canola profitability, thereby providing a viable alternative rotational crop to help break pest and disease cycles in cereal-growing areas.

## Roundup Brand Non-Selective Over-The-Top Herbicide Products

Herbicide products sold by Monsanto for use over the top of Roundup Ready canola for the 2001 crop season.

- Roundup Ultra
- Roundup UltraMAX
- Roundup UltraDry

In addition, you may use another herbicide but only if it has been approved for this use and it has received a label for this use from all required governmental agencies. Monsanto does not make any representations, warranties or recommendations concerning the use of glyphosate products manufactured by other companies which are labeled for use in Roundup Ready crops. Monsanto specifically disclaims all responsibility for the use of these products in Roundup Ready crops. All questions and complaints arising from the use of glyphosate products manufactured by other companies should be directed to the manufacturer of the product in question.

*For complete information about the use of Roundup herbicide brands over the top of Roundup Ready canola, refer to the appropriate product's labeling.*

*Apply Roundup brand herbicides only on approved Roundup Ready canola varieties (i.e., canola seed containing the Roundup Ready gene). Canola that does not express the Roundup Ready gene will be damaged or destroyed by Roundup brand herbicides.*

## Weed Control Recommendations

TREATMENT	ROUNDUP ULTRA USE RATES*	INSTRUCTIONS
Initial Application	For broad-spectrum weed control, use 16 oz/A of Roundup Ultra* herbicide in 5 to 10 gallons per acre water volume. No surfactant is required.	Spray when canola is at the 0- to 6-leaf stage of growth. To maximize yield potential, spray canola early at the 2- to 3-leaf stage to eliminate competing weeds. Short-term yellowing may occur with later applications, with little effect on crop growth, maturity or yield.
Sequential Application	Make a second application of Roundup Ultra* at 16 oz/A any time up to the 6-leaf stage of canola (prebolting).	Wait a minimum of 10 days between applications. Two applications of Roundup Ultra will: <ul style="list-style-type: none"> <li>• Control late flushes of annual weeds such as foxtail, pigweed and wild mustard</li> <li>• Provide season-long control of Canada thistle, quackgrass and perennial sow thistle</li> </ul>
Maximum Use Rate For Roundup Ultra	Any single over-the-top application of Roundup Ultra* should not exceed 16 oz/A. No more than two over-the-top applications may be made from crop emergence through the six-leaf stage of development.	

\*If using another Roundup brand herbicide, you must refer to the label booklet or Roundup Ready canola supplemental label for that brand and the Roundup Brand Labeled Rate Conversion chart on page 28 to determine appropriate use rates.

# Roundup Ready Canola



## Soil Incorporated Herbicides

The use of soil-incorporated herbicides, such as trifluralin and ethalfluralin are not recommended for use in Roundup Ready canola weed control programs. Roundup Ready canola acres treated with such herbicides will not be eligible for Roundup Rewards™ benefits.

## Protecting Roundup Ready Canola Technology

Employing new technology can reduce chemical usage and man-hours while boosting efficiency and productivity. Productivity will continue to rise as growers recognize the value of biotechnology products and are willing to share a portion of this value with technology developers like Monsanto. With the continued support of growers, further improvements in open-pollinated crops will be possible.

As with other Monsanto gene technologies, growers must sign a Monsanto Technology Agreement before purchasing Roundup Ready canola. In addition, growers must purchase a Canola Use Agreement (CUA) to plant this patented technology. The CUA is simply a new way to pay for technology. It is available only through local retailers of Monsanto technologies and defines the number of Roundup Ready canola acres a grower plans to grow. By purchasing the CUA, a grower also agrees to meet certain conditions (described in the next section).

Growers who observe, respect and support the CUA and Monsanto Technology Agreement are protecting their own interests by helping maintain a "level playing field" for all users of the technology. This enables research and development to continue so that new technologies which further boost efficiency and productivity can be brought to market.

*Separate CUAs must be signed for spring and fall plantings.*

## How To Purchase Roundup Ready Canola

There is a specific process growers must follow when purchasing Roundup Ready canola seed technology. This process serves to further protect the technology and the interests of the growers who use it.

When a grower decides to plant Roundup Ready canola, these steps must be followed:

1. **Attend a grower enrollment meeting.**  
Growers will learn about Roundup Ready technology and how to use it. This meeting is mandatory for all growers wishing to purchase Roundup Ready canola seed for the first time. For meeting schedules, call 1-800-ROUNDUP.
2. **Sign a Monsanto Technology Agreement.**  
This agreement allows growers to purchase all current and new Roundup Ready technologies. Growers with signed agreements receive a Technology Card and Monsanto Technology I.D. number.
3. **Sign up for Roundup Ready canola acres.**  
This requires growers to purchase a CUA (as described in the previous section). For spring 2001 purchases, the CUA Roundup Ready Canola System sells for \$15 per acre. This price includes 13 ounces per acre of Roundup UltraMAX or 16 oz of Roundup Ultra for use in Roundup Ready canola, a technology fee and the benefits of the Roundup Rewards Value Package.
4. **Purchase the seed.**  
To purchase Roundup Ready canola seed, growers must provide a copy of their CUA to their seed dealer in order to receive seed.
5. **Reconcile actual seeded acres.**  
This requires an on-farm visit by a local retailer of Monsanto technologies and completion of the legal description of the final planted acres on the CUA form.

# Pollen Movement and Identity Preservation

## Pollen Movement

Since corn is a naturally cross-pollinated crop, a minimal amount of pollen movement between neighboring fields is a well known and normal occurrence in its production. Factors that can affect the occurrence and extent of pollen movement include:

- The amount of pollen produced within the field. The pollen produced by the crop, known as pollen load, is usually great enough as to not allow significant levels of outside pollen to impact in-field pollination.
- The existence and/or degree of overlap in the pollination period of hybrids in adjacent fields varies, depending on maturity of hybrids, planting dates, and the weather. The pollination period ordinarily lasts from 5 to 10 days for a particular field.
- Distance between fields of different hybrids. The greater the distance between fields the less likely their pollen can mix. For instance, published studies have reported that 70 percent of the potential for cross-pollination occurs within less than 30 feet downwind from the source and that the likelihood for cross-pollination decreases to 2 to 7 percent at a distance of 80 feet.
- Distance pollen moves. How far pollen can travel depends on many environmental factors including weather during pollination, especially wind direction and velocity, temperature, and humidity. All these factors will vary from season to season and from location to location.
- The orientation and width of the adjacent field in relation to the dominant wind direction.

## Identity Preserved (I.P.) Production

Some growers may choose in 2001 to preserve the identity of their non-genetically enhanced corn and, therefore, to minimize the potential for movement of pollen from fields containing either any traits approved in the European Union or any traits not yet approved for export markets. The accepted practice with Identity Preservation (I.P.) production is that each grower has responsibility to provide any necessary crop isolation that might be required. In situations where a grower wants to preserve the identity of his or her crop, that grower should use the same generally accepted practices to manage pollen flow that are used in any of the currently grown identity preserved corn crops. These include adequate isolation distances, buffers between hybrids, border rows, planned differences in maturity between adjacent cornfields, and natural barriers. Examples of I.P. corn crops produced in this manner include production of seed corn, white, waxy, high oil, high amylose, high lysine and any other corn crop that meets specialty needs, including organic and non-genetically enhanced specifications.

In recognition of the minimal amount of unavoidable pollen movement that occurs when producing an identity preserved crop, markets have established 'standards' or tolerances. These tolerances are customarily in small percentages that can be met with reasonable management and production practices. In these cases, the growers certifying I.P. accept responsibility for the isolation and production practices, identity preservation and ultimately the purity of their crop. As of September 1, 2000, no official non-genetically modified crop product tolerance has been established by the U.S. government for Identity Preserved production. Since some buyers of I.P. production have established tolerances, contact your grain purchaser relative to their specific requirements.

As good stewards in the production of any open pollinating crop, we encourage growers to talk to their neighbors about their cropping intentions to facilitate the ability of any grower to preserve the identity of his or her crop, if they so desire.

For additional sources of information on Identity Preservation (I.P.), call 1-800-768-6387.

## MONSANTO AUTHORIZED RETAILERS

Monsanto Authorized Retailers are growers' primary source of information on Roundup Ready crops.

Any questions about Monsanto products should be directed to a Monsanto Authorized Retailer or Monsanto at 1-800-ROUNDUP.

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