

Interactive Program Delivery For Pesticide Label and Regulatory Topics

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Abstract

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Applicators from several disciplines have responded positively to the development of pesticide label and regulatory information delivered in a Jeopardy game format. Content and structural development for the game is detailed. Three delivery media are discussed: overhead transparencies, poster boards, and computers (on-line and off-line). Internet URL references are provided for PDF files and Web sites that further illustrate game development, interactivity, and delivery.

KEYWORDS: pesticide, safety, education, methods, program, delivery, games

Introduction

Washington State University Pesticide Education Program (WSU PEP) and the University of Nebraska-Lincoln (UNL) Pesticide Education Office have created an interactive game to educate applicators about the pesticide label and its components and about regulatory topics. The game format has proven useful in both initial applicator education (pre-certification) and review sessions (recertification), for both private and commercial applicators. The same interactive game format has also been used by the University of California at Davis Cooperative Extension in English and Spanish worker protection education programs (J. Weber and M. Zavala, 1996).

The basic game format has been presented with several types of media: overhead transparencies, poster board, and computer (on-line and off-line) presentations. The two major themes for which this delivery method has been used are label review and regulation education. As the content can be customized for the audience, this method of instruction is applicable to ground-based or aerial applicators and has been used for target clientele groups including agriculture, forestry, rights-of-way, turf, ornamental, and structural. Applicator responses to the interactive game format have been very positive.

Game Development

The interactive game uses a format resembling the television quiz show

“Jeopardy.” Audience “contestants” follow the popular television show’s protocol of supplying a question to correspond with an answer given by the instructor “emcee.” As with the television game, a board displays possible scores in a number of categories. Less difficult “answers” are hidden behind lower scores. The participant selects a category and a score, which results in the game board displaying an “answer.” The participant or team must then provide the appropriate “question.” The person providing the correct question then selects the next category and score. A modified format is used in the computer-based version of the game, wherein the game provides a question, instead of the answer, and the participant provides the answer, usually by selecting from a multiple-choice list of possible answers.

The first step in developing the game is defining five or six major

categories and creating the associated column headings. An example of a game board showing basic, self-explanatory headings is provided as Table 1, below. Another example, with more creative headings reminiscent of the television program, is provided as a portable document file (PDF), RegBox.pdf. (In this example, “Up, Up and Away” referred to drift issues, “Over-Exposed” to exposure issues, “In the Marketplace” to dealer sales concerns, “The Cover is the Word” to pesticide labels, and “Happy Trails to record keeping.”) Five answer-question items with a progressive level of difficulty are then developed for each major category to correspond with increasing point rankings (in the case of our examples, 100-500 or 1-5). A complete set of questions corresponding to the RegBox.pdf example is provided as RegJepQA.pdf.

Table 1. Example of a Basic Game Board

Label Basics	Safety	Applicator	Legal Issues	Environment	Directions
100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500

Game developers essentially produced three “layers” of information for each square on the game board: answer, question, and discussion points (Tables 2a and 2b). The discussion points or comments were developed to further explain the concept presented in the answer and question. This feature increased

interaction and provided a means to review basic information. Comments were delivered orally in face-to-face learning situations or were automatically incorporated into the game in computer-based learning situations.

Table 2a. Three “Layers”: Answer, Question, Comments

Answer to the Question	Question	Comments for Discussion
Danger	What is the signal word?	Danger is a very distinct signal word that indicates the product is highly toxic at low doses of exposure. Injuries resulting from products with Danger (not Danger-Poison) signal words include burns and blindness (severe skin and eye damage). It does not indicate the product is a poison. Read the precautionary statements to determine the exposure concerns. Danger is a common signal word found on professionally applied herbicides.

Table 2b. Three “Layers” in Multiple-Choice Format for Computer-Based Version

Question	Answer to the Question	Comments for Discussion
What is the signal word?	<ul style="list-style-type: none"> a. Danger b. Danger-Poison c. Warning d. Caution 	Danger is a very distinct signal word that indicates the product is highly toxic at low doses of exposure. Injuries resulting from products with Danger (not Danger-Poison) signal words include burns and blindness (severe skin and eye damage). It does not indicate the product is a poison. Read the precautionary statements to determine the exposure concerns. Danger is a common signal word found on professionally applied herbicides.

Content was created for two types of games: label review and regulation review. For label review, developers created fictitious labels using actual pesticide labels as a template. Fictitious brand names were invented and in some instances the active ingredient was altered. Examples of some insecticide and herbicide label creations are provided as PDF links [NZDlabel.pdf](#), [Surmise.pdf](#), [Slamlabel.pdf](#), [Rondo_herbicide.pdf](#). To further prevent concerns about using a “real” label, a statement was placed at the end of the label noting, “This fictitious label is for educational purposes only.” Referring to different sections of the fictitious label, game developers created three layers of information (answers, questions and comments, as illustrated in Tables 2a and 2b) for each square on the game board. Not all answers and questions originated directly from the label; the audience had to interpret the label and fully comprehend the situation from their own knowledge and experience in order to provide the correct response.

In creating the content for a regulation review game, WSU PEP worked closely with the Washington State Department of Agriculture (WSDA). An example of an entire set of content for a regulatory game is provided as a

PDF link: [RegJepQA.pdf](#). Major categories can be tailored to the topical issues that change with time and audience. The category heading “Water & Earth” has been used, for example, to focus on environmental issues, while “Hard Work” was used to focus on worker protection standards.

Media Development

This interactive game lends itself to a variety of delivery media, increasing its utility. It can be “played” in meeting rooms of all sizes and types and it accommodates many different presentation styles and personalities.

Overhead Transparencies

Using a word processing program, a game board showing categories and rank (point value) was created and printed on a single overhead transparency ([RegBox.pdf](#)). (Alternately, graphics or page-layout software could be used.) The box was marked off with a transparency pen as each answer/question was completed. A separate overhead was used to display each answer ([RegJepOH.pdf](#)). The category and rank were noted on the answer sheet to help sort items later, if overheads were to be reused. Each answer statement was printed in a large (e.g., 36 point) sans-serif font such as Arial Black or Helvetica Bold. The discussion

notes were printed on plain paper and used to separate answer overhead transparencies, providing quick access to notes in immediate proximity of their respective answer/question ([RegJepNotes.pdf](#)).

When delivering the game to a live audience, notes, ideas, and even wrong answers were written directly onto the overheads as the responses were discussed. The facilitator's job was to make sure the important points were stated clearly and emphasized. Audience members frequently asked questions, enhancing the discussion. We learned to keep a pencil handy to update the discussion notes page, as applicators often provided ideas useful to include in future presentations.

Poster Board

A poster board can be used as the game board when the room is relatively small and the audience is small in number. When using this method, the facilitator wrote the answers on note cards with the questions and notes printed on the back. The answers were given orally and the discussion was conducted orally. (J. Weber and M. Zavala, 1996).

Computer-Based

WSU PEP and UNL have used computer-based label and regulation review games both off-line and on-line. The fundamental element for successful computer delivery was the development of a Web site that contained the entire game in HTML files. The Web site was used for both classroom and Web delivery. In classroom situations (audiences ranging in size from 60 to 250 people), the HTML files were transferred to a hard disk or compact disk and delivered by laptop computer and a LCD projector. These games were developed using either the answer-question format (for live delivery only) or a multiple-choice question format (<http://pested.unl.edu/rondo/> and <http://pested.unl.edu/surmise/>), which was used both live in-class and on the Internet.

From the programming perspective, development of a game Web site followed four steps.

1. The label, each answer, each question, and each set of discussion points were developed in a word processing program.
2. Each item was exported as an HTML script and then imported into Web design application software (in this case, Macromedia Dreamweaver) for page construction. HTML anchors were added to the label

document for use in the interactive elements of the game. (An incorrect response would cause the label to scroll to the section where the correct response information is found.) The Web site frameset and infrastructure was built in the Web design application.

3. The interactive portions of the game were created and programmed.
4. Testing was conducted and revisions were made.

The HTML code was cleaned up and refined using BBedit. Graphics for the Web page were created using Adobe ImageStyler and Adobe Photoshop. Images were compressed and optimized for the Web using Adobe ImageReady.

The interactive game play was created using Macromedia Director 7. The graphic elements created using Photoshop and ImageStyler were imported into Director. Each question and its feedback screen were created as its own frame. Behaviors were written in Director to respond to correct and incorrect answers. Behaviors for incorrect answers were programmed to interact with the HTML anchors in the sample label to provide a clue as to the correct answer. Sound, visual effects, and a cumulative score were added to make the game more enjoyable and stimulating. When completed, the

Director movie was exported as a Shockwave movie for the Web.

Initial development of the Web-based game took approximately 80 to 120 hours from the time the original Word files were completed. The Rondo (<http://pested.unl.edu/rondo/>) game and Surmise (<http://pested.unl.edu/surmise/>) games were straight conversions of an early version of the original game. Though they required much of the same process for conversion, HTML editing, Director programming, and testing, the development for each of these subsequent games took 10 to 20 hours. Editing the HTML coding and modifying Director behaviors to interact with the new answers and the new HTML label comprised most of the time spent on the Rondo and Surmise conversions. These games have been circulated on CD-ROM by UNL.

Media Delivery

The target clientele groups for the interactive game varied; they included applicators specializing in turf, ornamental, agriculture, forestry, rights-of-way, aerial, and structural. If a label game was used, a label appropriate for the audience was constructed. If a regulation review game was developed, it focused on regulations pertinent to the target clientele group. In cooperation with WSDA, both a label and a

regulation game were translated into Spanish; the label remained in English.

For in-class delivery of label-based games, whether presented on poster board, overhead transparencies, or computer and projector, labels were printed and distributed to the participants. In-class time was allotted for the audience to peruse the label prior to starting the game.

In-Class Use of Poster Board

This method was used with small audiences. The poster game board was placed on an easel. The instructor had a set of note cards with answers, questions, and discussion points. A student was selected to choose a category and rank. The person who answered the question correctly chose the next category.

In-Class Use of Overheads

This method was used with audiences up to 300 people. The game board transparency was placed on the overhead projector. A table or other surface was placed next to the overhead projector to hold several stacks of overheads, which were separated by category so the facilitator could find the appropriate category and rank quickly. A transparency pen was used to strike through the squares on the game board as they were completed. As soon as a category

and rank was selected, the instructor pulled the particular transparency with the answer and the paper with the corresponding notes. The answer transparency was displayed. The instructor noted responses received and any useful participant comments directly on the transparency for all audience members to see.

Upon receiving a correct answer, the instructor would either pass out candy or award points. The correct responder usually received the dubious honor of selecting the next category. In the manner of the Jeopardy television show, this selection would usually take the form of "We'll take safety for 300 points." This role-playing engaged the audience and indicated interest.

Competition within a class could take place between individuals or between groups. For individual competition, the number of candy pieces corresponding to the difficulty level of the question (1 to 5) was awarded. The candy was delivered to the person who yelled out the correct response, which caused a great deal of activity on the part of the presenter, adding to the upbeat atmosphere. In the group competition, questions were ranked from 100 to 500 points and the class was divided into halves, which then competed against each other to earn points.

In-Class Use of Computers

This delivery method was used with both small and large audiences. A computer with the game on its hard drive was connected to an LCD projector. An audience participant started the game by selecting a category and rank. The instructor followed the participants' instructions at the computer by clicking on the appropriate square, causing the computer to display the answer. If this format is used, it is advisable to keep a printed set of instructor notes to make sure all important discussion items are presented to the audience. As with the overhead presentation, candy or points were awarded for correct answers. WSU used the answer:question format; UNL used the multiple-choice format.

On-Line Use of Computers

This delivery method is available on the Internet through UNL and WSU. UNL offers it publicly as a review in preparation for certification examinations. WSU offers it as a proctored recertification course requiring password access. Both use the multiple-choice format, where the question precedes the answer. Computer-based label games provide an option for the computer user to print the label or read it from an adjacent frame. The student launches the game and selects a category and rank. A

question is displayed with multiple-choice answers. The student selects an answer. If the answer is incorrect, the computer responds "try again." If the answer selected is correct, the computer responds with the sound of applause and displays a text box with comments that discuss the correct answer. The computer program was coded to not allow the user to move on until sufficient time had passed for the student to read the discussion material. The student would then select another category and rank, until the game was completed.

For the WSU on-line recertification course, the student must complete the entire game board to finish the course. For the in-class presentations, as much of the game is played as time allows. More lively and lengthy discussion means fewer game squares are completed, but is explored in greater depth.

Applicator Responses

WSU PEP, UNL, and University of California have all received positive responses to the game format. Applicators are comfortable with the format since most have seen the Jeopardy game show on television, understand its methodology, and enjoy their participation. With a more interactive delivery style and audience involvement, more applicators actively listen and learn. This has been substantiated

by evaluations conducted at the training sessions that asked whether the applicators learned something new. This is most encouraging since the material discussed is usually basic information about labels, their interpretation, and a review of state and federal rules and regulations. In addition, applicators' comments such as "having the lights up for a change," "nice change," and "make Carol work" indicated a positive training environment.

Conclusions

Both the label game and the regulation review game are well-received interactive methods of pesticide applicator education. Some media are quite simple and easy to assemble; others require more preparation time and technical expertise. WSU PEP and UNL would be pleased to share any of the resources they have already developed. UNL has provided access for downloading the Rondo (http://pested.unl.edu/rondo/Rondo_herbicide.pdf) or Surmise (<http://pested.unl.edu/surmise/Surmise.pdf>) labels and have circulated the games on compact disk.

References

Weber, J. and M. Zavala. 1996. Interactive Game for Worker Protection. Presentation at the Western Region Pesticide Conference. Reno, Nevada.

Regulation Jeopardy Game

Up, Up & Away	Over-Exposed	In the Marketplace	The Cover is the Word	Happy Trails
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5

which four ways (name 4)	<ul style="list-style-type: none"> • different pest • additional application method, and tank mixing? 	
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Happy Trails		
time frame in which all records must be maintained by pesticide licensees	What is seven years?	Keep any way, if requested turn in approved manner. Even non licensed people applying to greater than 1 acre of ag land per year.
term refers to the amount of pesticide product applied to a given area	What is the Amount Applied?	Total amount of pesticide applied in the TOTAL area treated. Also required for listing is the Total amount of pesticide per acre (not total area)
term refers to the amount of pesticide product mixed in a known amount of water or other diluent	What is concentration	1- amount of product in 100 gallons water 2 - % formulation in tank mix or 3 - Amount of tank mix per acre
two NAMES used to convey what the product is.	What are the brand name and common name of the active ingredient?	Brand name and EPA Reg. No. must be on records. Often confused with Common name of AI.
respirator program requirements (name 3)	annual fit test annual health check up written program	

federal agency empowered to embargo crops that contain illegal pesticide residues	Who is the Food and Drug Administration or the FDA?	WSDA also monitors in state Import markets must meet US tolerances when brought in - can USE other products but if there is no tolerance, then detection better be zero.
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The Cover is the Word

primary safety document	What is the pesticide label.	Unbelievable that people handling these products do not read the label. Hopefully they have access and will read the label. Precautionary Statement - what to protect First Aid - in case of emergency
Two agencies who “approve” pesticides for registration	What are the EPA and WSDA?	Some products are not registered in WA, but are in OR, ID, Canada. Can not bring them in Brush killers are good examples, many have LV esters Internet sales, phone sales, boondoggles
toxicity and storage requirements of any pesticide are based on this label language	What are signal words?	Category 1 - Danger, Danger Poison - Locked, Posted, special posting locations Category 2, 3 secure and out of the reach. Talk about Danger vs. Danger Poison, Warning, Caution Special storage requirements Dealer dropoffs.
where a pesticide may be used is designated by these specific label directions	What is an application site?	MUST be on the label. No grey area with agricultural commodities due to tolerances
FIFRA allows the users of pesticides to deviate from normal label instructions in	What is • less product	

Two ways to minimize tank solution from entering water-filling systems	What is an airgap or anti-backsiphon device (check valve)	If filling with a hose, pay attention at all times, do not leave the filling operation. Clean up spills immediately. If a significant spill, contact WA Ecology.
3 places you could report pesticide related injuries or illness (even potential)	What are WA Poison Control center, Dept. of Health, your doctor	get help if you have an exposure. Label will tell you immediate first aid, but follow up with medical assistance. Labe/MSDS provide invaluable info to doctors All incidents are reported to DOH.
prudent PPE for mixing an emulsifiable concentrated formulation of an insecticide	What are long sleeved shirt, long pants, rubber boots and gloves, chemically resistant apron, eye protection	Read the label - precautionary statement, what needs protecting? - look for PPE requirements - think about your mix/load operation Do you have water for rinsing at ALL times? How do you handle your contaminated clothing? (take home, wash with family clothing?)

In the Marketplace

person in the state who can purchase restricted use pesticides	What is a certified applicator?	authorized agent supervision
products registered as pesticides by Washington Department of Agriculture, but which are not registered federally as pesticides	What are adjuvants?	must keep records must be registered with WSDA
amount of a legal pesticide residue that is allowed to remain on an agricultural commodity at harvest	What is a pesticide tolerance?	EPA sets prior to product/label approval Critical to current re-registration, losing products for certain commodities daily Illegal residues <1% usually from NO tolerance set for crop
taking home leftover spray or products for home pests	What is illegal, stupid, and with serious consequences	not for home use horror stories

Game Development Template

Up, Up, and Away		
air is quite stable with no vertical and horizontal mixing of air	What is an Inversion?	*Critical for long distance drift. *How far in 6 hours at 0.5 mph *higher humidity *unstable will dilute in air
two equipment factors that control droplet size	What are nozzle size and pressure	your decision, you select. --lower pressure, larger droplets --larger nozzle, larger droplets
Three items you personally have no control over when managing drift.	What are wind direction, speed, temperature, humidity, inversions, people in the area	Direction most critical, other than people. Know what is down wind, must have wind to tell. Speed somewhat important. Old label language talked of applying in under 3mph, I say apply in min. of 3mph
Most important factor in controlling drift.	What is Applicator Attitude Professionalism	You read the label You read the wind You set up the equipment You make the decision to spray or not to spray.
Categories of Droplet Sizes as now accepted by EPA, and nozzle and pesticide manufactures	What are Very Fine, Fine, Medium, Coarse, Very Coarse, Extra Coarse	New in nozzle booklets. New on labels. Use Coarse Sprays

Over-Exposed

most common symptom of pesticide exposure	What is dermal exposure?	most is skin irritation, not illness cover up!
signal word indicating highly toxic, especially injurious to the skin and eyes	What is Danger?	Danger is not deadly, but extremely toxic and injurious to eyes and skin Many herbicides have this signal word Warning and Caution - can only tell by reading the precautionary statements.

RESTRICTED USE PESTICIDE

DUE TO AVIAN AND AQUATIC TOXICITY

For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification

N•Z•D 50W

INSECTICIDE

For control of certain insects and mites on fruits, vegetables, lawns, and ornamentals. For specific pests, refer to use directions.

This product must not be used on golf courses and sod farms.

Active Ingredient:

Diazinon O,O-Diethyl O(2-isopropyl-6-methyl-4-pyrimidinyl) phosphorothioate 50%

Inert Ingredients: 50%

Total: 100%

EPA Reg. No. 100-460

**KEEP OUT OF REACH OF CHILDREN.
CAUTION**

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forest, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exemptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI).

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, it:

- Coveralls
- Waterproof gloves
- Shoes plus socks

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Harmful if swallowed, inhaled or absorbed through skin. Do not breathe dust or spray mist. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling and before eating or smoking. Remove contaminated clothing and wash before reuse. Avoid contamination of food and feed. Keep out of reach of domestic animals. Do not use on humans or pets. Do not contaminate ornamental fish ponds.

Statement of Practical Treatment

If swallowed: Call a physician or Poison Control Center immediately. Drink one or two glasses of water and induce vomiting by touching back of throat with finger. Repeat until vomit fluid is clear. Do not induce vomiting or give anything by mouth if person is unconscious or convulsing.

If inhaled: Remove victim to fresh air. Apply artificial respiration if indicated. Get medical attention.

If on skin: Remove contaminated clothing and wash affected areas thoroughly with soap and water. Get medical attention.

If in eyes: Flush eyes with plenty of water. Call a physician if irritation develops or persists.

Note to Physician: This product is an organophosphate insecticide. If symptoms of cholinesterase inhibition are present, atropine sulfate by injection is antidotal. 2-PAM is also antidotal and may be administered, but only in conjunction with atropine.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Environmental Hazards

This product is highly toxic to birds, fish and other wildlife. Birds, especially waterfowl, feeding or drinking on treated areas may be killed. Because of the migratory habits of Atlantic Coast waterfowl, do not apply this product to lawns in Nassau County, New York between November 1 and May 20. Do not exceed maximum permitted label rates. Rates above those recommended significantly increase potential hazards to birds and waterfowl. Avoid overlapping of sprays. On lawns, if waterfowl, e.g., ducks or geese, can be expected in the treated area after treatment (except spot treatment), apply a minimum of 1/4 inch of water immediately after applying this product. Stop irrigation before puddling occurs. Keep out of lakes, streams, ponds, tidal marshes and estuaries. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Shrimp and crab may be killed at application rates recommended on this label. Do not apply where fish, shrimp, crab, and other aquatic life are important resources.

This pesticide is highly toxic to bees exposed to direct treatment or to residues on blooming crops or weeds. Do not apply this pesticide or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

Physical or Chemical Hazards Do not use, pour, spill, or store near heat or open flame.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Failure to follow the directions for use and precautions on this label may result in poor insect control, crop injury, or illegal residues.

General Information

NZD 50W is a wettable powder which should be mixed with sufficient water to assure thorough coverage unless otherwise noted in the Directions for Use.

Best control is obtained when application is made at first sign of pests. Application should be repeated only as directed to maintain control.

Since NZD 50W is a wettable powder formulation, constant agitation is necessary during application.

To avoid spray drift do not apply under windy conditions. Avoid spray overlap, since crop or plant injury may result.

Do not use on food crops grown in greenhouses.

Work Safety Rules

Repeated exposures to cholinesterase inhibitors such as are contained in this product may, without warning, cause prolonged susceptibility to very small doses of any cholinesterase inhibitor.

When handling NZD 50W, do not rub eyes or mouth with hands. If you feel sick in any way, STOP work and get help right away. See **Practical Treatment** section of this label. When handling this product, wear the appropriate personal protective equipment.

Reentry Statement

Twenty-four hours must elapse between the time of application to vegetables fruits, field crops and the time a worker enters or is allowed to enter the treated area unless the person entering the treated area is wearing the personal protective equipment listed above. For lawns, ornamentals, or noncrop areas do not enter or allow entry into treated areas without personal protective equipment until sprays have dried.

In vegetables or fruit trees, written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Oral warnings must inform workers of areas or fields that may not be entered without specific personal protective equipment for 24 hours after application, and appropriate actions to take in case of accidental exposure, as described under **Statement of Practical Treatment** in the **Precautionary Statements** on this label. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information: WARNING Area treated with NZD 50W on (date of application). Do not enter without appropriate personal protective equipment for 24 hours after application. In case of accidental exposure, flush eyes or skin with plenty of water. Call physician if irritation persists. Remove and wash contaminated clothing before reuse.

CHEMIGATION

Do not apply this product through any type of irrigation system.

Fruit and Nut Crops

NZD 50W may be applied using ground or aerial application equipment as specified in the table below. This table also indicates the **minimum** amount of water that can be used for the various methods of application. The rate NZD 50W for aerial spray or concentrated spray applied by ground equipment is based on a dilute full cover spray applied to fruit trees with conventional ground equipment at a rate of 300-400 gallons of water per acre. The specific amount of product to be used appears under the separate directions for use for each crop. (Note: "lbs" or "lbs. of product" in the directions means pounds of this product, not pounds of active ingredient). If the "Rate" calls for 1 lb. of NZD 50W per 100 gallons of water, this amounts to 3-4 lbs of product per acre when applied to fruit trees at usual dilute ground spray volumes of 300-400 gallons of water per acre. In no case should the amount of product used per acre exceed the maximum amount per acre per application that is specified in the directions for use for individual crops.

Crop	Aerial Appl. Gals/Acre	Ground Appl. minimum Gals/Acre	
		dilute	concentrate
apples	20	100	20
grapes	20	100	20

Preharvest interval or the number of days between the last application and harvest:

Apples - 21 days

Grapes - 28 days

Apples

San Jose Scale, Brown Scale, European Red Mite Eggs, Brown Mite Eggs, Twig Borers, Black Cherry Aphid Eggs, Mealybugs

- 1 lb. + 2 gals. dormant oil or 1-1 1/2 gals superior type oil in 100 gals. of water
- Apply as a dormant or delayed dormant spray. Do not apply more than 4 lbs of product or 6 gals of oil per acre

Leafhoppers

- 1 lb. in 100 gals. of water
- Apply, beginning at petal fall, as infestations develop. Repeat application in 14 days if necessary

Codling Moths, Rosy Apple, Aphids, Spider Mites

- 1 lb. in 100 gals. of water
- Make 3 cover sprays beginning when infestations occur. Do not repeat applications closer than 14 days
- Note: Mites will be suppressed if diazinon is used in the regular cover spray program. Slight russeting may occur on some varieties of apples such as Golden Delicious

Note: to protect bees, do not apply this product to fruit trees when the trees or substantial numbers of weeds in the orchard are in bloom.

Grapes

Omnivorous Leafrollers, Aphids, Spider Mites

- 1-2 lbs. per acre in a minimum of 100 gals of water (200 gals of water maximum)

- Apply as a thorough cover spray when pest appears
- Repeat application after 7 days if necessary

Vegetable Crops

Carrots

Wireworms

- 6-8 lbs per acre or 2-1/4 to 3 oz. per 1,000 sq ft.
- Broadcast just before planting and immediately incorporate into the top 4-8 inches of soil.

Preharvest interval or the number of days between the last application and harvest - 21 days

Insect Control on Ornamentals

To control certain insects on ornamental such as Arborvitae, Azalea, Birch, Boxwood, Camellia, Carnations, Chrysanthemum, Douglas Fir, Elm, Gladioli, Hawthorn, Holly, Juniper, Lilac, Locust, Maple, Oak, Pine, Ornamental Plum, Poplar, Rhododendron, Rose, Spruce and Willow. apply the recommended rates indicated below. Try to spray underside of leaves and penetrate dense foliage.

Aphids, Bagworms, Carnation Bud Mites, Carnation Shoot Mites, Clover Mites, Cyclamen Mites, European Red Mites, Flea Beetles, Leafhoppers, Obscure Root Weevils, Scale Crawlers, Spider Mites,

- 1/2 oz. per 3 gals water or 1 lb per 100 gals water

Pear Slugs, Tent Caterpillars

- 1-1/2 oz. per 3 gals water or 3 lbs per 100 gals water

Note: Do not use on Ferns, Poinsettia, Hibiscus, Papaya, Pilea, and Gardenia, since injury results.

Lawn Pest Control (Excluding Sod Farms and Golf Courses)

Precautions: Birds, especially waterfowl feeding or drinking on treated areas may be killed. Apply this product only as specified on this label. Because of the migratory habits of certain waterfowl do not apply in Nassau County New York between November 1 and May 20. Do not exceed maximum permitted label rates, since rates above those recommended significantly increase potential hazards to birds, especially waterfowl. Avoid overlapping sprays. If waterfowl e.g., ducks or geese, can be expected to enter treated area after treatment (except spot treatments), water lawn with at least 1/4 inch water immediately after application, however stop irrigation before puddling occurs.

To control pests listed below, apply recommended rates:

Ants, Armyworms, Bermudagrass Mites, Clover Mites, Springtails (*Collembola*), Crickets, Cutworms, Digger Wasps, Earwigs, Frit Flies, Lawn Billbugs, Fleas, White grubs

- 3 oz per 3 gals of water per 1,000 sq ft.
- Spot spray ant hills and wasp ground nest openings. For digger wasps, apply product at dusk when wasps are not active.
- For frit flies, mow grass and water well before treatment, but delay application until grass is dry.
- For grubs apply any time between late July and early October.

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

Pesticide: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If pesticide, spray mixture or rinsates cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration or if allowed by state and local authorities, by burning. Stay out of smoke from burning container.

For minor spills, leaks, etc. follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup and disposal of wastes. In the event of a major spill, fire or other emergency, call 1-800-888-8372 day or night.

This is a fictitious label for educational purposes only.

FICTITIOUS LABEL — EDUCATIONAL USE ONLY

Surmise 75

Insecticide In Water Soluble Packets

For prevention or control of subterranean termites and carpenter ants.

For use by individuals/firms licensed or registered by the state to apply termiticide products.

ACTIVE INGREDIENT:

Imidacloprid, 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine 75.0%
INERT INGREDIENTS 25.0%
100.0%

EPA Reg. No. 3120-751-0-123

EPA Est. 12345-NE

CAUTION

PRECAUTIONARY STATEMENTS

CAUTION: Harmful if swallowed, inhaled or absorbed through skin. Avoid contact with skin, eyes, or clothing. Avoid breathing dust or vapor. Wash thoroughly with soap and water after handling.

PPE: Pesticide handlers (mixers, loaders, and applicators) must wear long-sleeved shirt and long pants, socks, shoes, and water-proof gloves. In addition: all pesticide handlers must wear protective eyewear when working in a non-ventilated space or when applying termiticide by rodding or sub-slab injection.

STATEMENTS OF PRACTICAL TREATMENT

If swallowed: call a physician or Poison Control Center. Drink one or two glasses of water and induce vomiting. Do not induce vomiting or give anything to an unconscious person. **If on skin,** wash with soap and water. **If in eyes,** hold eyelids open and flush with plenty of water.

ENVIRONMENTAL HAZARDS

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Apply only to soil or other substrate that will accept the solution at the specified rate. Do not treat soil that is water-saturated or frozen.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Structures that contain wells or cisterns within the foundation of the structure can only be treated using the treated backfill method described in the treatment around wells and cisterns section of this label.

IMPORTANT: Read these entire DIRECTIONS FOR USE, before using Surmise 75 insecticide.

MIXING TABLE FOR SURMISE 75 INSECTICIDE

GALLONS OF FINISHED SOLUTION DESIRED	NUMBER OF SURMISE 75 PACKETS NEEDED	
	0.05% Concentrate	0.1% Concentrate
25	1	2
50	2	4
100	4	8

MIXING: Refer to Mixing Table for proper amount of SURMISE 75 insecticide to be used.

Within each foil envelope are clear inner packets containing SURMISE 75 insecticide. The clear inner packet is water soluble. Do not handle the clear inner packets with wet hands or wet gloves. Rough handling may cause breakage.

To prepare the spray mixture, open the foil envelope and drop the required number of unopened clear water soluble packets into the spray tank while filling with water to the desired level. Operate the agitator while mixing. The packets should be completely dissolved within a few minutes from the time they are added to the water.

APPLICATION VOLUME

It is recommended that application volumes described in the SURMISE 75 Insecticide "DIRECTIONS FOR USE" be used whenever possible. However, where soil conditions will not accept application of 4 gallons of SURMISE 75 Insecticide per 10 linear feet, twice the SURMISE concentration may be applied in 2 gallons of solution per 10 linear feet.

CONTROL - GENERAL

The purpose of chemical soil treatment for termite control is to establish a continuous chemical treated zone between the wood and other cellulose material in the structure and the termite colony in the soil. Generally a 0.05% dilution is used for typical control situations. Where severe or persistent infestations occur, a 0.1% dilution may be used.

PRE-CONSTRUCTION TREATMENT

Do not apply at a lower dosage and/or concentration than specified on this label for application prior to installation of the finished grade.

Prior to each application, applicators must notify the general contractor, construction superintendent, or similar responsible party, of the intended termiticide application and intended sites of application and instruct the responsible person to notify construction workers and other individuals to leave the area to be treated during application and until the termiticide is absorbed into the soil.

CONCRETE SLAB-ON-GROUND OR BASEMENTS: Apply an overall treatment to the entire surface of soil or other substrate to be covered by the slab. Apply at the rate of 1 gallon of solution to accurately and uniformly cover 10 square feet.

After completion of grading, make an application by trenching or trenching and rodding around the slab or foundation perimeter. Rod holes should not exceed 12 inches, or extend below the footing. Apply 4 gallons of solution per 10 linear feet, per foot of depth. When trenching, the trench should be about 6 inches in width and 6 inches in depth. When treating voids in hollow masonry units, use 2 gallons of solution per 10 linear feet of wall. Apply solution so it will reach the footing by injecting into the lower areas of the wall, just above the floor or footing.

When treating foundations deeper than 4 feet, apply the termiticide as the backfill is being replaced, or if this is not possible, treat the foundation to a minimum depth of 4 feet after the backfill has been installed. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. In no case should a structure be treated below the footing.

CRAWL SPACES: Application should be made by trenching or trenching and rodding along the inside and outside of foundation walls, around piers, interior supports in contact with the soil, plumbing, and utility services. Apply 4 gallons of solution per 10 linear feet, per foot of depth to provide a uniform treated zone.

HOLLOW BLOCK FOUNDATIONS OR VOIDS: Apply 2 gallons of solution per 10 linear feet to the lower part of the void so that it reaches the top of the footing or soil.

Treatment of voids in block or rubble foundation walls must be closely examined. Applicators must inspect areas of possible runoff as a precaution against application leakage in the treated areas.

All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact or to reoccupy the contaminated areas of the structure until the clean up is completed.

POST-CONSTRUCTION TREATMENT

CONCRETE SLAB-ON-GROUND: To apply a treatment under the slab, it will be necessary to drill through the slab or exterior foundation. Drill holes should be spaced in a manner that will allow for application of a continuous chemical treated zone. Treat all existing cracks and cold, construction or expansion joints. Apply 4 gallons of solution per 10 linear feet per foot of depth to provide a uniform treated zone. **DO NOT MAKE TREATMENT UNTIL LOCATION OF HEAT OR AIR CONDITIONING DUCTS AND VENTS ARE KNOWN AND IDENTIFIED. USE EXTREME CAUTION TO AVOID CONTAMINATION OF DUCTS AND VENTS.** Plug and fill all drilled holes in commonly occupied areas with a suitable sealant. Plugs must be of non-cellulose material or covered by an impervious, non-cellulose material.

An application should be made by trenching or trenching and rodding around the outside of the foundation wall. Apply 4 gallons of solution per 10 linear feet per foot of depth to provide a uniform treated zone.

CRAWL SPACES: When there is insufficient clearance between floor joists, and ground surfaces to allow applicator access, excavate, if possible, and treat according to crawl spaces (refer to Pre-Construction Treatment). If unable to excavate, crawl space soil and wood treatment may be used to prevent surface access by termites. Apply 1 gallon of solution per 10 square feet to provide a uniform chemical treated zone.

Treatment may also be made by drilling through the foundation wall or through the floor above and treating the soil perimeter at a rate of 1 gallon of solution per 10 square feet. Drill spacing must be at intervals not to exceed 16 inches.

To prevent subterranean termites from constructing mudtubes between soil and crawl space wood members above, an overall soil treatment of this product may be applied. Remove all cellulose debris before application. Apply 1 gallon of solution per 10 square feet to provide a uniform chemical treated zone.

BASEMENTS - OUTSIDE PERIMETER: Along the outside of the exterior walls, an application must be made by trenching or rodding within the trench. Rodding depth should be to the top of the footer, or to a minimum of 4 feet. Apply 4 gallons of solution per 10 linear feet, per foot of depth to provide a uniform treated zone by rodding through the trench.

BASEMENTS - INSIDE PERIMETER: Treat by drilling along the perimeter of the interior walls. Apply 4 gallons of solution per 10 linear feet to provide a uniform treated zone.

Plug and fill all holes in commonly occupied areas of the building with a suitable sealant.

HOLLOW BLOCK FOUNDATION OR VOIDS: Apply 2 gallons of solution per 10 linear feet to the lower part of the void so that it reaches the top of the footing or soil. Drill spacing must be at intervals not to exceed 16 inches.

PLENUMS: For plenum-type structures which use a sealed underfloor space to circulate heated and/or cooled air throughout the structure, apply the dilution at the rate of 4 gallons of solution per 10 linear feet, per foot of depth of soil to provide a uniform treated zone adjacent to both sides of foundation walls, supporting piers, plumbing and conduits.

When treating plenums, turn off the air circulation system of the structure until application has been completed and all termiticide has been absorbed by the soil.

TREATMENT AROUND WELLS OR CISTERNS: Do not contaminate wells or cisterns.

Structures With Wells/Cisterns Inside Foundations:

1. The treated backfill method must be used if soil is removed and treated outside/away from the foundation. The treated backfill technique is described as follows:
 - a. Trench and remove soil to be treated onto heavy plastic sheeting or into a wheelbarrow.
 - b. Treat the soil at the rate of 4 gallons of solution per 10 linear feet per foot of depth of the trench, or 1 gallon per 1.0 cubic feet of soil. Mix thoroughly into the soil.
 - c. After the treated soil has absorbed the solution, replace the soil into the trench.

Structures With Adjacent Wells/Cisterns and/or Other Water Bodies:

1. Prior to treatment, if feasible, expose the water pipe(s) coming from the well to the structure, if the pipe(s) enter the structure within 3 feet of grade.

- Prior to treatment applicators are advised to take precautions to limit the risk of applying the termiticide into subsurface drains that could empty into any bodies of water.
- When appropriate, the treated backfill technique (described above) can be used to minimize off-site movement of termiticide.

FOAM APPLICATIONS

Foam application may be made alone or in combination with conventional application methods, provided that the labeled amount of active ingredient per unit area is used.

Foam Application Use Directions: Mix solution of SURMISE 75 Insecticide with manufacturer's recommended volume of foaming agent (see table for foaming recommendations). Apply a sufficient volume of SURMISE 75 Insecticide foam alone or in combination with liquid solution to provide a continuous treated zone at the recommended rate for specific application sites.

MIXING TABLE FOR SURMISE 75 INSECTICIDE FOAM				
SURMISE 75 PACKETS *	GALLONS OF WATER	FOAM EXPANSION RATIO	FINISHED FOAM	
			(gallons)	(ai%)
One	1	25:1	25	0.05
	2.5	10:1		
	5	5:1		
Two	1	50:1	50	
	2.5	20:1		
	5	10:1		

* Add the manufacturer's recommended quantity of foam agent to the SURMISE 75 Insecticide solution.

CONTROL OF WOOD INFESTING PESTS

For control of **above ground termites and carpenter ants** in localized areas, apply a 0.05% to 0.1% solution or sufficient volume of SURMISE 75 Insecticide foam to voids and galleries in damaged wood, and in spaces between wooden structural members and between the sill plate and foundation where wood is vulnerable. Applications may be made to inaccessible areas by drilling, and then injecting the suspension of foam into the damaged wood or wall voids. Application to attics, crawl spaces, unfinished basements, or man-made voids may be made with a coarse fan spray of 0.05% to 0.1% solution or foam to control exposed worker and winged reproductive forms of termites or carpenter ants.

For control of **above ground termites and carpenter ants** inside trees, utility poles, fencing, and decking materials and similar structural members, locate the interior infested cavity and inject a 0.05% to 0.1% solution or sufficient volume of SURMISE 75 Insecticide foam. Retreat as needed.

For protection of **firewood from carpenter ants and termites**, treat soil beneath firewood prior to stacking with a 0.05% to 0.1% solution at 1 gallon per 10 square feet to prevent carpenter ant or termite infestation.

For control of carpenter ants in houses and other structures, apply a 0.05% to 0.1% solution as a general surface, spot, crack and crevice or wall void application. Wall voids and crack and crevice treatments may be made with sufficient volume of SURMISE 75 Insecticide foam. Repeat treatments when necessary.

RETREATMENT

Retreatment for subterranean termites can only be performed if there is clear evidence of reinfestation or disruption of the treated zone due to construction, excavation, or landscaping and/or evidence of the breakdown of the termiticide treated zone in the soil. These vulnerable or reinfested areas may be retreated in accordance with application techniques described in this product's labeling. Retreatment may be made as either a spot or complete treatment.

Annual retreatment of the structure is prohibited unless there is clear evidence that reinfestation or treated zone disruption has occurred.

GENERAL PRECAUTIONS FOR APPLICATIONS

After treatment, plug and fill holes drilled in concrete slab areas of the building with a suitable sealant.

Do not apply solution until location of heat pipes, ducts, water, and sewer lines and electrical conduits are known and identified. Caution must be taken to avoid puncturing and injection into these structural elements.

Do not plant for the purpose of consumption, edible plants into the treated areas of soil.

Avoid contamination of public and private water supplies.

Use anti-backflow equipment or an air gap on filling hoses.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Do not store below freezing (32F). Exposure to moisture or excessive handling of water soluble packets may cause breakage. Store water soluble packets in original container and out of reach of children, preferably in a locked storage area.

Refer to PRECAUTIONARY STATEMENTS on label for hazards associated with the handling of this material. Do not walk through spilled material. In spill or leak incidents, keep unauthorized people away. Contact Chemtrec at 800-424-9300 for additional help.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site (in the treatment area) or at an approved waste disposal facility.

Container Disposal: Do not use carton in connection with food, feed or drinking water. The empty foil wrappers may be disposed of in the trash. After removing all PVA packets, the carton may be disposed of in the trash.

FICTITIOUS LABEL — EDUCATIONAL USE ONLY

Slam 20P

A surface applied herbicide for woody plant control in: noncropland areas, wildlife clearings, fencerows, firebreaks, industrial sites, and highway, pipeline, and railroad rights of way.

Active Ingredient	
Slamuthiuron	20%
Inert Ingredients	82%
Total	100%

0.2 pound active ingredient per pound product.

EPA Reg. No. 333-111-222 EPA Est. No. 327-WI-1

KEEP OUT OF REACH OF CHILDREN

WARNING - AVISO

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING

Harmful if swallowed, inhaled, or absorbed through skin. Causes moderate eye irritation.

STATEMENT OF PRACTICAL TREATMENT

If Swallowed. Call a physician or poison control center. Drink 1 or 2 glasses of water and induce vomiting. If person is unconscious, do not give anything by mouth and do not induce vomiting.

If Inhaled. Remove victim to fresh air. If not breathing, give artificial respiration. Get medical attention.

If in Eyes. Flush with plenty of water. Get medical attention if irritation persists.

In on Skin. Wash immediately with plenty of soap and water.

ENVIRONMENTAL HAZARDS

Do not apply Slam near desirable trees or other woody species. Exposure of even a small part of a plant root system to Slam may cause severe plant injury or death. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Note: Plant roots usually occupy an area much larger than the aerial portion of the plant. Treatment setback distance should be 1 to 2 times the height or width of the tree, whichever is greater. Contact an Arboriculturist if there is a question.

Groundwater Advisory: This product is known to leach through soil into ground water under certain conditions as a result of registered (rangeland/noncropland) uses. Use of this product in areas where soils have rapid to very rapid permeability, particularly where the water table is shallow, may result in ground water contamination.

Vulnerable Sites: to minimize any movement of slamuthiuron to subsurface water, do not exceed the application rates specified below on treatment sites where soils have a sand or loamy sand texture throughout the soil profile and ALL of the following characteristics:

- rapid to very rapid permeability
- absence of well-defined organic layers or a textural B-horizon
- water table of an underlying aquifer is shallow

MAXIMUM application rates for Slam in such areas are:

- Less than 20 inches annual precipitation: Do not apply more than 5 lb/acre Slam.
- Greater than 20 inches annual precipitation: Do not apply more than 10 lb/acre Slam.

Do not apply Slam in areas where the water table is predominately shallow (5 feet or less), such as marshy or sub irrigated areas or areas immediately adjacent to streams or lakes which are periodically flooded, unless such use is allowed under a state-approved plan.

Do not apply Slam where bedrock is continuously exposed or in areas of bedrock overlain by soils that are shallow or discontinuous.

Do not apply Slam in high shrink/swell soils which develop deep cracks when drying.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read the entire Directions for Use section before using this product.

GENERAL INFORMATION

Slam is a surface applied, soil-active pellet product for control of woody plants (trees, shrubs, vines). Treatments become effective after sufficient rainfall has occurred to move the active ingredient in Slam into the root zone. Herbicidal symptoms appear most rapidly when applied just before seasonal rainfall. Treated trees and shrubs (brush) exhibit leaf chlorosis and browning followed by defoliation. Woody plants may go through several defoliation cycles before death occurs. Time required to achieve control of woody vegetation may vary from one to several years. Increased application rates and additional time is required to achieve consistent woody plant control under the following conditions: (1) the treated area contains deep, medium-to-fine textured, or high organic matter soils; (2) the target species are deep-rooted, or (3) the vegetation consists of species tolerant to Slam.

For best brush control results, do not disturb intact plants by such practices as wood cutting, chaining, or burning for two years after the Slam application. Resprouting is more likely to occur if plants are disturbed before complete woody plant control occurs.

USE PRECAUTIONS

Slam is intended for control of unwanted woody vegetation such as trees, shrubs, and vines. Slam will also control herbaceous broadleaf plants such as clover and lespedeza. Grasses in the area immediately adjacent to pellets may be temporarily damaged. Dormant season application is recommended to minimize herbicidal effects on grasses and other herbaceous plants. The herbicidal activity of Slam in soil may prevent the growth of trees, shrubs and other broadleaf vegetation for several years after treatment.

Do not apply Slam to interior ditchbanks (areas which slope toward drainage). Do not apply to ditches used to transport irrigation water or potable water.

Do not cut hay for livestock feed for one year after a Slam treatment.

Do not apply Slam more than once per year.

Slam or soil containing Slam may be moved from treated areas by flowing water, wind, or mechanical means. Do not apply Slam in areas where overland flow of water might move Slam or soil containing Slam from the treated area. Do not apply where wind erosion may cause movement of soil containing Slam from the treated area unless the surface has been stabilized with gravel or some other means. Do not apply in areas where soil may be redistributed by mechanical means to non-treated areas.

Application Rates and Frequency

Broadcast Applications (Aerial or Ground Equipment)

- The maximum use rate and frequency of application is 1 to 2 lb a.i./acre once every three years for vulnerable sites where soils are sandy and depth to water table is shallow (see Environmental Hazards).
- For all other areas, the maximum use rate and frequency of application is up to 4 lb. a.i./acre once every three years and nor more than two treatments totaling of 6 lb. a.i./acre in a 6 year period.

Spot Treatments (Hand Application or Hand-held Equipment):
May be applied at rates up to 6 lb. a.i./acre when needed.

Factors in Herbicidal Response

Soil Texture, Soil Depth, and Organic Matter

Poor control or erratic results are likely to occur when Slam is applied to soils containing more than 5% organic matter or more than 30% clay. Do not apply to "blackland" or other heavy clay soils which crack extensively upon drying. Other deep, medium and fine-textured soils supporting deep-rooted woody plant species require increased application rates for consistent control. The susceptibility of woody plants occurring on shallow, coarse, or rocky soils with low organic matter is normally increased due to increased soil availability of Slam and shallow rooting depth. Therefore, use application rates at the low end of the rate range in these situations.

Woody Plant Size and Density

The height and density of woody vegetation is a reliable indicator of soil conditions. Woody vegetation is generally taller and more dense where soils are deeper and/or of medium to fine texture and where soil moisture conditions are more favorable. Higher rates in the rate range are required on such sites. On sites with coarse, shallow, or rocky conditions with less favorable soil moisture conditions, woody vegetation will be smaller and less dense. Lower rates in the rate range are required for control on such sites. Where a high level of woody plant control is required and application rates cannot be adjusted for changes in soils, plant size, or density, apply Slam at a rate sufficient to control the tallest and most dense woody vegetation in the treatment area.

Application Timing

Slam may be applied anytime except when the soil is frozen or is saturated with moisture. For optimum results, applications should be made prior to the resumption of active seasonal growth in the spring or before expected seasonal rainfall. In areas receiving greater than 25 inches of annual precipitation, late summer and fall applications may require a higher application rate in the indicated rate range to achieve consistent control.

Slam Application

Individual Plant Treatments. Individual plants, multistem clumps, or small stands of woody vegetation may be hand treated - apply Slam at a rate of 3/8-1 1/8 oz per 100 sq.ft. evenly over the area occupied by the target plants (equivalent to 10-30 lb/acre rate).

Broadcast Treatments. Uniform application is critical; use of equipment not capable of confining the spread of pellets to the target area may result in injury or death of vegetation outside the intended treatment area. Do not apply more than 20 pounds per acre of Slam on noncropland.

Woody Plants Controlled by Slam

Apply Slam at 3.75 to 5 lb per acre for the following species:

creosote bush	mimosa, catclaw
Paloverde	snakeweed, broom
tarbrush	whitethorn

Apply Slam at 5 to 10 lb per acre for the following species:

oak, bigelow	oak, running live
whitebush	wolfberry

Apply Slam at 10 to 20 lb per acre for the following species:

acacia	birch, gray
cherry, bitter	elm
hackberry	huckleberry
locust, black	manzanita
oak, black	oak, shrub live
rose, multiflora	sumac

Apply Slam at 20 lb per acre for the following species:

alder, red	aspen
blackberry	boxelder
chokecherry	cottonwood
Douglas fir	pine birch

STORAGE AND DISPOSAL

Storage. Store in original container. In case of spill or leak, contain material and dispose as waste.

Pesticide Disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved disposal facility.

Container Disposal. Completely empty bag into equipment. Do not reuse. Then dispose of empty bag in a sanitary landfill or by other procedures approved by state and local authorities.

DO NOT REUSE THIS CONTAINER.

This is a fictitious label for education purposes only!

THIS FICTITIOUS LABEL IS FOR EDUCATIONAL PURPOSES

RONDO Herbicide

EPA Reg. No. 333-111-222

Avoid Rondo contact with foliage, green stems, exposed nonwoody roots or fruit of crops (except Rondo-Rip crops), desirable plants and trees, because severe injury or destruction will occur.

Active Ingredient

Glyphosate	41%
Other Ingredients	<u>59%</u>
TOTAL	100%

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children

CAUTION!

CAUSES EYE IRRITATION

Avoid contact with eyes or clothing.

First Aid: If in eyes, flush with plenty of water. Get medical attention if irritation persists.

Personal Protective Equipment (PPE) Applicators and other handlers must wear: long sleeved shirt and long pants, shoes plus socks.

User Safety Recommendations

User should:

Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

Remove clothing immediately if pesticide gets inside, then wash thoroughly and put on clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of Rondo should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

Do not mix, store or apply Rondo or spray solution of Rondo in galvanized steel or unlined steel (except stainless steel) containers or spray tanks. Rondo or Rondo spray solutions react with such containers and tanks to produce hydrogen gas, which is a highly combustible gas that can flash or explode if ignited by open flame, spark, or lighted cigarette.

DIRECTIONS FOR USE

It is a violation of Federal law to use Rondo in any manner inconsistent with its labeling. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulations.

AGRICULTURAL USE REQUIREMENTS

Use Rondo only in accordance with its labeling and with the Worker Protections Standard, 40 CR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about PPE and restricted entry interval. The requirements in this box only apply to users of Rondo that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permissible under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is coveralls, waterproof gloves, shoes plus socks.

STORAGE AND DISPOSAL

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

Rondo is a postemergent, systemic herbicide with no soil residual activity. It is generally nonselective and gives broad spectrum control of many annual weeds, perennial weeds, woody brush and trees.

Do not add surfactants, additives containing surfactants, or buffering agents to the spray solution when Rondo is the only product to be used. Ammonium sulfate, drift control additives, or dyes may be added.

Annual weeds are best controlled when they are small. Best control of perennial weeds is obtained when treatment is made at late growth stages approaching maturity. Always use the higher rates per acre within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed area.

Do not treat weeds under poor growing conditions, such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treatment weeds are covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut and have not been allowed to regrow to the recommended stage of treatment.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

The active ingredient in Rondo inhibits the enzyme found in plants and microorganisms that is essential to formation of specific amino acids.

Weeds must be emerged at the time of application to be controlled by Rondo. Weeds germinating from seed after treatment will not be controlled. Non-emerged plants arising from unattached underground rhizomes or root stocks or perennials will not be affected by Rondo and will continue to grow.

When Rondo comes in contact with soil, it is bound to soil particles. Under recommended use situations, once Rondo is bound to soil particles, it is not available for plant uptake and will not harm off-site vegetation where roots grow into treated areas or if the soil is transported off-site. The affinity to soil prevents leaching to groundwater.

Degradation of Rondo is primarily a biological process carried out by soil microbes.

ATTENTION

Avoid Rondo contact with foliage, green stems, exposed nonwoody roots or fruit of crops (except Rondo-Rip crops), desirable plants and trees, because severe injury or destruction will occur.

Avoid drift. Extreme care must be used when applying Rondo to prevent injury to desirable plants and crops.

Do not allow the herbicide solution to mist, drip, drift, or splash onto desirable vegetation since minute quantities of Rondo can cause severe damage or destruction to the crop, plants, or other areas which treatment was not intended. The likelihood of injury occurring from the use of Rondo increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles which are likely to drift. Avoid applying at excessive speed or pressure.

MIXING

Clean sprayer parts immediately after using Rondo by thoroughly flushing with water.

The addition of dry ammonium sulfate at 8.5 to 17 pounds per 100 gallons may increase Rondo performance. When using ammonium sulfate, apply Rondo at rates recommended on the label. Lower rates will result in reduced performance.

Corn with Rondo Rip Gene

GLANTO COMPANY RECOMMENDS USE OF THIS PRODUCT ONLY ON CORN HYBRIDS DESIGNATED AS CONTAINING THE RONDO RIP GENE. When applied as directed, this product controls labeled annual grass and broadleaf weeds in Rondo Rip corn.

- Applying this product to corn hybrids which are not designated as Rondo Rip will result in severe crop injury and yield loss.
- The Rondo Rip designation indicates that the corn contains a patented gene which provides tolerance to this herbicide. Information on Rondo Rip corn may be obtained from your seed supplier or Glanto representative.

Application Instructions. Apply 24 to 32 fluid ounces of Rondo Ultra herbicide per acre for control of labeled grasses and broadleaf weeds in conventional and no-till corn production systems. This product may be applied postemergence to Rondo Rip corn from emergence through the V8 stage (8 leaves with collars) or until corn height reaches 30 inches, whichever comes first. Single in-crop applications of this product are not to exceed 1 quart per acre. Sequential in-crop applications of this product from emergence through the V8 stage or 30 inches must not exceed 2 quarts per acre per growing season.

Maximum Yearly Rates Allowed

Preplant: Maximum amount of this product which can be applied prior to crop emergence is 5 quarts per acre.

In-crop: Maximum combined total of multiple in-crop applications from emergence through the V8 stage or 30 inches is 2 quarts per acre.

Preharvest: Maximum amount of this product that can be applied after maximum kernal fill is complete and the crop is physiologically mature (black layer formation) until 7 days before harvest is 1 quart per acre.

Cropping Season: Combined total per year for all applications may not exceed 8 quarts per acre.

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product under hard water conditions, drought conditions or when tank mixed with Bullet herbicides. Ensure that ammonium sulfate is completely dissolved in the spray tank before adding herbicides. Thoroughly rinse the spray system with clean water after use to reduce corrosion. The addition of other additives, including fertilizers and micro-nutrients are not recommended with this product since this may result in increased potential for crop injury.

Allow a minimum of 50 days between application of this product and harvest of corn forage and 7 days between application and harvest of corn grain. Allow a minimum of 10 days between in-crop applications of this product. There are no rotational crop restrictions following applications of this product.

For ground applications: Use the recommended rates of this product in 5 to 20 gallons of spray solution per acre as a broadcast spray. Carefully select correct nozzles and spray pressure to avoid spraying a fine mist. Check for even distribution of spray droplets.

For aerial applications: Use the recommended rates of this product in 3 to 15 gallons of spray solution per acre. Do not exceed 1 quart per acre.

Grass Seed Production

Types of applications: preplant, preemergence, renovation, site preparation, shielded sprayers, wiper treatments, spot treatment, creating rows in annual ryegrass.

Rondo may be applied before, during or after planting or renovation of turf or forage grass areas grown for seed production. Applications must be made prior to the emergence of the crop to avoid injury to the crop. For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, summer or fall applications provide best control.

Do not disturb soil or underground plant parts before treatment. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

Do not feed or graze treated areas for 8 weeks following application.

Pastures

Types of applications: preplant, preemergence, pasture renovation, wiper treatments, spot treatment.

Spot and wiper treatments: Rondo may be applied as a spot or with wiper applicators in pastures. Application may be made in the same area at 30-day intervals.

For spot treatment and wiper applications, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Remove domestic livestock before application and wait 14 days after application before grazing or harvesting.

Preplant, preemergence, and pasture renovation: Rondo may be applied prior to planting or emergence of forage grasses and legumes. In addition, Rondo may be used to control perennial pasture species prior to re-planting. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

Cut Stumps

Treat cut stumps in any noncrop listed on this label. Rondo will control regrowth of cut stumps and resprouts of many types of woody brush and tree species, some of which are listed below. Apply Rondo using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50-100 percent solution of Rondo to the freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, application should be made during periods of active growth and full leaf expansion.

Alder, Eucalyptus, Madrone, Oak, Giant Reed, Salt-cedar, Sweetgum, Tan Oak, Willow

Do not make cut stump applications when the roots of desirable woody brush or trees may be grafted to the roots of the cut stump. Injury resulting from root grafting may occur in adjacent woody brush or trees.

Annual Weeds Rate Table

Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial application.

Apply to actively growing weeds.

Do not tank mix with soil residual herbicides when using these rates unless otherwise specified

For weeds that have been mowed, grazed, or cut, allow regrowth to occur prior to treatment.

For those rate less than 48 fl.oz. per acre, Rondo may be used up to 48 fl.oz. per acre where heavy weed densities exist.

Weed Species	Rate (fluid ounces per acre)					
	12	16	24	32	40	48
	Maximum Height and Length					
bittercress	-	12"	20"	-	-	-
crabgrass	-	12"	18"	-	-	-
field pennycress	-	6"	12"	-	-	-
smartleaf	-	4"	6"	8"	-	12"
wild oats	-	12"	-	-	-	-

Perennial Weeds Rate Table

Apply to actively growing perennial weeds.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

Unless otherwise noted, allow 7 or more days after application before tillage.

Best results are obtained when soil moisture is adequate for active weed growth.

Weed Species	Rate	Water Volume	Hand-held
	(qt/A)	GPA	%Solution
bahiagrass	3-5	3-20	2%
cattail	3-5	3-40	2%
nutsedge	0.5-3	3-40	1-2%

THIS FICTITIOUS LABEL IS FOR EDUCATIONAL PURPOSES ONLY!

Happy Trails – 5

**respirator program
requirements (name 3)**

Happy Trails – 4

**two NAMES used to
convey what the product
is.**

Happy Trails – 3

term refers to the amount of pesticide product mixed in a known amount of water or other diluent

Happy Trails – 2

**term refers to the amount
of pesticide product
applied to a given area**

The Cover is the Word – 4

**where a pesticide may be
used is designated by
these specific label
directions**

The Cover is the Word – 3

**toxicity and storage
requirements of any
pesticide are based on this
label language**

The Cover is the Word – 2

**Two agencies who
“approve” pesticides for
registration**

The Cover is the Word – 1

primary safety document

In the Marketplace – 5

**federal agency empowered
to embargo crops that
contain illegal pesticide
residues**

In the Marketplace – 4

**taking home leftover spray
or products for home
pests**

In the Marketplace – 3

**amount of a legal pesticide
residue that is allowed to
remain on an agricultural
commodity at harvest**

In the Marketplace – 2

**products registered as
pesticides by Washington
Department of Agriculture,
but which are not
registered federally as
pesticides**

In the Marketplace – 1

**person in the state who
can purchase restricted
use pesticides**

Over-Exposed – 5

**prudent PPE for mixing an
emulsifiable concentrated
formulation of an
insecticide**

Over-Exposed – 4

**3 places you could report
pesticide related injuries
or illness (even potential)**

Over-Exposed – 3

**Two ways to minimize tank
solution from entering
water-filling systems**

Over-Exposed – 2

**signal word indicating
highly toxic, especially
injurious to the skin and
eyes**

Over-Exposed – 1

**most common symptom of
pesticide exposure**

Up, Up, and Away - 5

**Categories of Droplet
Sizes, as now accepted by
EPA and nozzle and
pesticide manufactures**

Up, Up, and Away – 4

**Most important factor in
controlling drift.**

Up, Up, and Away – 3

**Three items you personally
have no control over when
managing drift.**

Up, Up, and Away – 2

**two equipment factors that
control droplet size**

Up, Up, and Away – 1

**air is quite stable with no
vertical and horizontal
mixing of air**

Happy Trails – 1

**time frame in which all
records must be
maintained by pesticide
licensees**

The Cover is the Word – 5

FIFRA allows the users of pesticides to deviate from normal label instructions in which four ways (name 4)

What is an Inversion?

- *Critical for long distance drift.
- *How far in 6 hours at 0.5 mph
- *higher humidity
- *unstable will dilute in air

What are:
nozzle size
pressure

your choice, you select.

lower pressure, larger droplets

larger nozzle, larger droplets

what are
wind direction, speed
temperature
humidity
inversions
people in the area

Direction most critical, other than people.

Know what is down wind, must have wind to tell.

Speed somewhat important.

Old label language talked of applying in under 3mph, I say apply in min. of 3mph.

Applicator Attitude Professionalism

You read the label

You read the wind

You set up the equipment

You make the decision to spray or not to spray.

Up, Up, and Away-5

Very Fine, Fine,
Medium, Coarse,
Very Coarse, Extra Coarse

New in nozzle booklets.

New on labels. Use Coarse Sprays.

What is the Worker Protection Standard?

In effect since 1992, full compliance now.

2001 is second cycle of 5 year training terms

Farms, forests, greenhouses, nurseries

rangeland, pastures exempt.

What are workers and handlers?

In field or near (1/4 mile) within 30 days of an application

workers - not direct exposure

handler - handle product or contaminated equipment, assist with application

What are: Training
Notification
Emergency Assistance
Decontamination

Training - different for handlers than
workers

in language they can understand.

Notification - oral/writing
sometimes Double notification

early entry training, PPE

Decon. - L&I more strict

What is 4 hour minimum?

No how - period.

After 4 hours, but during reentry, Early entry
trained with PPE

Hard Work - 5

Farmer or Custom Application - communication
is crucial.

In the Marketplace -1

What is a certified applicator?

authorized agent

supervision

What are adjuvants?

must keep records

must be registered with WSDA

What is a pesticide tolerance?

EPA sets prior to product/label approval

critical to current re-registration, losing products for certain commodities daily

illegal residues <1% usually from NO tolerance set for crop

In the Marketplace - 4

Illegal, stupid, serious consequences

not for home use

horror stories

What is the Food and Drug Administration or the FDA?

WSDA also monitors in state

Import markets must meet US tolerances when brought in - can USE other products but if there is no tolerance, then detection better be zero.

What is the pesticide label.

unbelievable that people handling these products do not read the label.

Hopefully they have access and will read the label.

Precautionary Statement - what to protect
First Aid - in case of emergency

The Cover is the Word - 2

What are the EPA and WSDA?

Some products are not registered in WA, but are in OR, ID, Canada. Can not bring them in

Brush killers are good examples, many have LV esters

Internet sales, phone sales, boondoggles

What are signal words?

Category 1 - Danger, Danger Poison - Locked, Posted, special posting locations

Category 2, 3 secure and out of the reach.

Talk about Danger vs. Danger Poison, Warning, Caution

Special storage requirements

Dealer dropoffs.

The Cover is the Word - 4

What is an application site?

MUST be on the label. No grey area with agricultural commodities due to tolerances

The Cover is the Word - 5

What is,

- less product
- different pest
- additional application method
- tank mixing?
- Less frequent

What is seven years?

Keep any way, if requested turn in approved manner.

Even non licensed people applying to greater than 1 acre of ag land per year.

What is the Amount Applied?

Total amount of pesticide applied in the TOTAL area treated.

Also required for listing is the Total amount of pesticide per acre (not total area)

What is concentration applied

1- amount of product in 100 gallons water

2 - % formulation in tank mix

or

3 - Amount of tank mix per acre

What are the brand name and common name of the active ingredient?

Brand name and EPA Reg. No. must be on records. Often confused with Common name of AI.

annual fit test

annual health check up

written program