

### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON D C 20460

OFFICF OF PREVENTION PESTICIDES AND TOXIC SUBSTANCES

Robert L Hamilton Ph D Senior Regulatory Scientist Registration & Regulatory Affairs Valent U S A Corp 1101 14<sup>th</sup> Street N W Suite 150 Washington DC 20005

JUL 1 7 2012

### Dear Dr Hamilton

Subject Fast Track Label Amendments
Knack Insect Growth Regulator
EPA Reg No 59639 95
Esteem 35 WP Insect Growth Regulator
EPA Reg No 59639 115
Pyriproxyfen 0 86 EC Insect Growth Regulator
EPA Reg No 59639 160
Submissions dated May 31 2012

The label amendments above submitted in connection with the Federal Insecticide Rodenticide and Fungicide Act as amended are acceptable. A stamped copy of each product s label is enclosed for your records

Submit three (3) copies of your final printed labeling before releasing the product for shipment. Please also submit revised copies each product s labeling to Andrew Ertman in support of the pending IR 4 tolerance petitions. Please contact Kevin Sweeney at (703) 305 5063 if you have any questions. Thank you for your cooperation in this matter.

Sincerely

Richard Geliken

Product Manager 10 Insecticide Branch

Registration Division (7505P)

Enclosure



GROUP 76 INSECTICIDE

[Bracketed information is optional text]



### **INSECT GROWTH REGULATOR**

ACCEPTED

JUL 1 7 2012

Under the Federal Insecticide Fungicide and Rodenticide Act as amended for the pesticide Registered under EPA Reg. No 59639-95

Active Ingredient Pyriproxyfen Other Ingredients Total

(2 [1 methyl 2 (4 phenoxyphenoxy)ethoxy]pyridine)

Contains 0 86 pound ai per gallon

Contains aromatic petroleum distillates

By Wt 11 23% 88 77% 100 00%

### **KEEP OUT OF REACH OF CHILDREN**

### **CAUTION**

SEE NEXT PAGE FOR ADDITIONAL PRECAUTIONARY STATEMENTS

**NET CONTENTS 1 GALLON** 

# PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS & DOMESTIC ANIMALS CAUTION

Causes skin and eye irritation Do not get on skin in eyes or on clothing Harmful if inhaled swallowed or absorbed through skin Avoid contact with skin eyes or clothing Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling Remove contaminated clothing and wash clothing before reuse.

|                           | FIRST AID  |
|---------------------------|--|
| If on skin or<br>clothing | Take off contaminated clothing Rinse skin immediately with plenty of water for 15 20 minutes Call a poison control center or doctor for further treatment advice   |
| If in eyes                | Hold eye open and rinse slowly and gently with water for 15 20 minutes  Remove contact lenses if present after the first 5 minutes then continue rinsing eye  Call a poison control center or doctor for treatment advice          |
| If swallowed              | Immediately call a poison control center or doctor  Do not induce vomiting unless told to do so by a poison control center or doctor  Do not give any liquid to the person  Do not give anything by mouth to an unconscious person |
| If ınhaled                | Move person to fresh air  If person is not breathing call 911 or an ambulance then give artificial respiration preferably by mouth to mouth if possible Call a poison control center or doctor for further treatment advice        |

### **HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact **1 800 892 0099** for emergency medical treatment information

### **NOTE TO PHYSICIANS**

If ingested probable mucosal damage may contraindicate the use of gastric lavage This product contains a light hydrocarbon liquid ingestion or subsequent vomiting can result in aspiration of this product which can cause pneumonitis

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical resistant to this product are listed below 'f you want more options follow the instructions for category G on an EPA chemical resistance category selection chart

Applicators and other handlers must wear coveralls over short sleeved shirt and short pants or long sleeved shirt and long pants chemical resistant gloves such as Barrier Laminate or Viton ≥ 14 mils chemical resistant footwear plus socks chemical resistant headgear for overhead exposure chemical resistant apron when cleaning equipment mixing or loading

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### **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.

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### **ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by disposing of equipment washwaters or rinsate. Avoid direct application and/or spray drift to bee hives.

Note to EPA reviewer if this product is shipped in containers greater than 50 lbs, the following environmental hazard statement will be added to the label

[Do not discharge effluent containing this product into lakes streams ponds estuaries oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.]

### **DIRECTIONS FOR USE**

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

# READ ENTIRE LABEL USE STRICTLY IN ACCORDANCE WITH PREGAJTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS

Do not apply this product in a way that will contact workers or other persons either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe consult the agency responsible for pesticide regulation.

### 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 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 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) of 12 hours

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 is coveralls over short sleeved shirt and short pants chemical resistant gloves such as Barrier Laminate or Viton ≥ 14 mils chemical resistant footwear plus socks chemical resistant headgear for overhead exposure

#### DISCLAIMER RISKS OF USING THIS PRODUCT LIMITED WARRANTY AND LIMITATION OF LIABILITY

IMPORTANT Read the entire Label including this Disclaimer Risks of Using this Product Limited Warranty and Limitation of Liability before using this product. If the terms are not acceptable THEN DO NOT USE THE PRODUCT rather return the unopened product within 15 days of purchase for a refund of the purchase price.

#### **RISKS OF USING THIS PRODUCT**

The Buyer and User (referred to collectively herein as Buyer ) of this product should be aware that there are inherent unintended risks associated with the use of this product which are impossible to eliminate. These risks include but are not limited to injury to plants and crops to which this product is applied lack of control of the target pests or weeds resistance of the target pest or weeds to this product injury caused by drift and injury to rotational crops caused by carryover in the soil. Such risks of crop injury non performance resistance or other unintended consequences are unavoidable and may result because of such factors as weather soil conditions disease moisture conditions irrigation practices condition of the crop at the time of application presence of other materials either applied in the tank mix with this product or prior to application of this product cultural practices or the manner of use or application (or a combination of such factors) all of which are factors beyond the control of Valent. The Buyer should be aware that these inherent unintended risks may reduce the harvested yield of the crop in all or a portion of the treated acreage or otherwise affect the crop such that additional care treatment and expense are required to take the crop to harvest. If the Buyer chooses not to accept these risks. THEN THIS PRODUCT SHOULD NOT BE APPLIED. By applying this product Buyer acknowledges and accepts these inherent unintended risks AND TO THE FULLEST EXTENT ALLOWED BY LAW. AGREES THAT ALL SUCH RISKS ASSOCIATED WITH THE APPLICATION AND USE ARE ASSUMED BY THE BUYER.

Valent shall not be responsible for losses or damages (including but not limited to loss of yield increased expenses of farming the crop or such incidental consequential or special damages that may be claimed) resulting from use of this product in any manner not set forth on the label. Buyer assumes all risks associated with the use of this product in any manner or under conditions not specifically directed or approved on the label.

#### LIMITED WARRANTY

Valent warrants only that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the label under average use conditions when used strictly in accordance with the label and subject to the Risks of Using This Product as described above. To the extent consistent with applicable law AND AS SET FORTH ABOVE VALENT MAKES NO OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED. No agent or representative of Valent or Seller is authorized to make or create any other express or implied warranty.

#### LIMITATION OF LIABILITY

To the fullest extent allowed by law Valent or Seller is not liable for any incidental consequential indirect or special damages resulting from the use or handling of this product. The limitation includes but is not limited to loss of yield on all or any portion of the treated acreage increased care treatment or other expenses required to take the crop to harvest increased finance charges or altered finance ratings emotional or mental distress and/or exemplary damages. TO THE FULLEST EXTENT ALLOWED BY LAW THE EXCLUSIVE REMEDY OF THE BUYER AND THE EXCLUSIVE MAXIMUM LIABILITY OF VALENT OR SELLER FOR ANY AND ALL CLAIMS LOSSES INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY CONTRACT NEGLIGENCE TORT STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT OR AT THE ELECTION OF VALENT OR SELLER.

#### PROMPT NOTICE OF CLAIM

To the extent consistent with applicable law allowing such requirements. Valent must be provided notice as soon as Buyer has reason to believe it may have a claim, but in no event later than twenty one days from date of planting, or twenty one days from the date of application, whichever is latter, so that an immediate inspection of the affected property and growing crops can be made.

To the extent consistent with applicable law if Buyer does not notify Valent of any claims in such period it shall be barred from obtaining any remedy

### NO AMENDMENTS

Valent and Seller offer this product and Buyer accepts it subject to the foregoing **Disclaimer Risks of Using This Product Limited Warranty** and **Limitation of Liability** which may not be modified by any oral or written agreement

#### **TANK MIXES**

NOTICE Tank mixing or use of this product with any other product which is not specifically and expressly authorized by the label shall be the exclusive risk of user applicator and/or application advisor to the extent allowed by applicable

Read and follow the entire label of each product to be used in the tank mix with this product

[Optional Warranty/Disclaimer statement to be used when the product is sub registered by Makhteshim Agan of North America Inc.]

#### LIMITATION OF WARRANTY AND LIABILITY

Read the entire directions for use conditions of warranties and limitations of liability before using this product. If terms are not acceptable return the unopened product container at once By using this product user or buyer accepts the following CONDITIONS DISCLAIMER OF WARRANTIES and LIMITATIONS OF LIABILITY

**CONDITIONS** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials or the manner of use or application, all of which are beyond the control of Makhteshim Agan of North America. Inc. All such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES To the extent consistent with applicable law Makhteshim Agan of North America. Inc. makes no other warranties express or implied of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of Makhteshim Agan of North America. Inc. is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law. Makhteshim Agan of North America. Inc. disclaims any liability whatsoever for special. incidental or consequential damages resulting from the use or handling of this product.

**LIMITATIONS OF LIABILITY** To the extent consistent with applicable law the exclusive remedy of the user or buyer for any and all losses injuries or damages resulting from the use or handling of this product whether in contract warranty tort negligence strict liability or otherwise shall not exceed the purchase price paid or at Makhteshim Agan of North America Inc s election the replacement of product

### RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management purposes *Knack* Insect Growth Regulator is a Group 7C insecticide. Any insect population may contain individuals naturally resistant to *Knack* Insect Growth Regulator and other Group 7C insecticides. The resistant individuals dominate the insect population if these insecticides are used repeatedly. These resistant insects may not be controlled by *Knack* Insect Growth Regulator or other Group 7C insecticides although local experts should be consulted for local resistance recommendations. The classification scheme is based on mode of action. It is recognized that resistance of insects and mites to insecticides and acaricides can also result from enhanced metabolism reduced penetration or behavioral changes that are not linked to any site of action classification but are specific for individual chemicals or chemical groupings. Despite this alternation of compounds from different chemical classes remains a viable management technique.

To delay insecticide resistance

Avoid exclusive repeated use of insecticides from the same chemical subgroup Integrate other control methods (chemical cultural biological) into insect control programs

For further information contact your local distributor

### **GENERAL INFORMATION**

Do not apply this product through any type of irrigation system

Knack Insect Growth Regulator is intended for use in Insect Pest Management (IPM) or Insect Resistance Management (IRM) programs Knack Insect Growth Regulator will not control insect adults, and it is recommended to be used in combination and/or rotation with other IPM or IRM materials. Contact your local state extension service for details

Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects, but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

### ARTICHOKE (GLOBE)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROP            | PESTS   | PRODUCT RATES PER ACRE      | SPECIAL INSTRUCTIONS   |
|-----------------|---|-----------------------------|--|
| Artichoke Globe | Artichoke Plum Moth<br>Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly   | 8 to 10 fl oz               | Apply with ground equipment in adequate water for uniform coverage (10 to 50 gals/A)   |
|                 | Sweetpotato Whitefly  |                             | HIGHER WATER VOLUMES MAY PROVIDE IMPROVED INSECT CONTROL   |
|                 |   |                             | Begin applications when whiteflies reach threshold levels per University/Extension recommendations (e.g. 3 to 5 adults per leaf and/or equivalent levels of immatures) |
|                 |   |                             | Under severe pressure use the higher recommended rates   |
|                 |   |                             | Only whole fields should be treated  |
|                 |   | local Integrated Pest Ma    | or alternated with commonly used anagement (IPM) and Insect Resistance   |
|                 | Do not apply within 7 days of harvest Do not make more than 2 <i>Knack</i> Insect Growth Regulator applications per growing season  |                             |  |
|                 | Do not exceed 20 fl oz of <i>Knack</i> Insect Growth Regulator per acre per season  Do not apply earlier than 14 days after last KNACK treatment  Regardless of formulation do not apply more than 0 134 lb pyriproxyfen per acre per |                             |  |
|                 |   | lays after the last applica | istered pyriproxyfen uses in treated ation   |

MANAGING INSECT RESISTANCE Repeated use of the same class of insecticides or insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* Insect Growth Regulator may be used in alternation in the other IGR materials possessing dissimilar modes of action and/or with other chemical classus of insecticides. Valent also does not recommend using rates below 8 fl oz per acre for white ly control because reduced rates can lead to a greater potential for resistance development. Follow local, state and federal IPM and IRM recommendations. Read and follow all product labels before applying any insecticide.

### **ASPARAGUS**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects, but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development, evidence of activity will be slower than typical contact insecticides.

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROP      | PESTS                                       | PRODUCT RATES PER ACRE     | SPECIAL INSTRUCTIONS   |
|-----------|---|----------------------------|--|
| Asparagus | Whitefly                                    | 8 to 10 fl oz              | Apply with ground equipment in adequate water for uniform coverage (10 to 50 gals/A)   |
|           |   |                            | HIGHER WATER VOLUMES MAY PROVIDE IMPROVED INSECT CONTROL   |
|           |   |                            | Begin applications when whiteflies reach threshold levels per University/Extension recommendations (e.g. 3 to 5 adults per leaf and/or equivalent levels of immatures) |
|           |   |                            | Under severe pressure use the higher recommended rates   |
|           |   |                            | Only whole fields should be treated  |
|           | Do not apply within Do not make more season | -                          | wth Regulator applications per growing   |
|           |   |                            | oth Regulator per acre per season  (nack Insect Growth Regulator   |
|           | season                                      | ,                          | e than 0 134 lb pyriproxyfen per acre per registered pyriproxyfen uses in treated  |
|           |   | 30 days after the last app |  |

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides or insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To op imize esistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* Insect Growth Regulator may be used in a ternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl oz per acre for whiterily control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal Integrated Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

#### **BANANA AND PLANTAIN**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed Since Knack Insect Growth Regulator is an Insect Growth Regulator (IGR) and activity depends on the insect s development evidence of activity will be slower than typical contact insecticides

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf. This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROPS              | PESTS   | PRODUCT RATES PER ACRE   | SPECIAL INSTRUCTIONS   |
|--------------------|---|--|--|
| Banana<br>Plantain | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly<br>Sweetpotato Whitefly              | 13 to 16 fl oz   | Apply with air or ground equipment in adequate water for uniform coverage By air 3 to 10 gals/A By ground 10 to 50 gals/A  |
|                    |   |  | HIGHER WATER VOLUMES MAY PROVIDE IMPROVED INSECT CONTROL   |
|                    |   |  | Begin applications when whiteflies reach threshold levels per University/Extension recommendations (e g 3 to 5 adults per leaf and/or equivalent levels of immatures)                              |
|                    |   |  | Only whole fields should be treated  |
|                    | season Do not exceed 48 fl o Regardless of formula season Do not apply earlier th Do not plant any crop | an 3 <i>Knack</i> Insect Grow<br>z of <i>Knack</i> Insect Grow<br>ation do not apply more<br>nan 14 days after last <i>K</i> | th Regulator applications per growing th Regulator per acre per season than 0 327 lb pyriproxyfen per acre per nack Insect Growth Regulator treatment egistered pyriproxyfen uses in treated areas |

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides or insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resultance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no merbition three applications per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 13 flioz per acre for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal integrated. Fest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and reliow ali product labels before applying any insecticide.

### **BERRIES**

### (Crop Group 13) [not all berries for use in CA]

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

| CROPS   | PESTS   | PRODUCT<br>RATE<br>PER ACRE               | SPECIAL INSTRUCTIONS  |
|---|---|---|---|
| Berries Bingleberry Blackberry including Bingleberry Black Satin Berry Boysenberry Cherokee Blackberry Chesterberry Cheyenne Blackberry Coryberry Darrowberry Dirksen thornless berry Himalayaberry Hullberry Lavacaberry Lucretiaberry Mommoth Blackberry Marionberry Nectorberry Olallieberry Oregon Evergreen Berry Phenomenalberry Rangeberry | Cherry Fruitworm Cranberry Fruitworm Lecanium Scale | 16 fl oz                                  | Apply with ground or air equipment as a full coverage spray (minimum of 5 gals/A by air or 50 gals/A by ground) Thorough coverage is critical for adequate control. It is essential to use adequate water volume to ensure thorough coverage  Fruitworms: Apply when egg laying begins and again at petal fall. Additional applications of another insecticide at 10 to 14 day intervals may be needed under high population pressure or sustained moth flight  Lecanium Scale: Apply at either dormant delayed dormant or an in season cover spray. At dormant or delayed dormant use a spray oil at the manufacturer is recommended oil rate in a cover spray make applications when scale crawlers first emerge. Follow local recommendations regarding in season use and rates of oil in your area. |
| Ravenberry<br>Rossberry   | [1 not for use in CA]                               |   | iii your aroa   |
| Shawnee Blackberry Youngberry Blueberry Currant Elderberry  | used insecticides to co<br>Insect Resistance Man    | mply with local Inte<br>agement (IRM) pro |   |
| Gooseberry<br>Huckleberry<br>Juneberry<br>Lingonberry   | growing season<br>Do not exceed 32                  | than 2 Knack Ins                          | ect Growth Regulator applications per   |
| Loganberry <sup>1</sup> Raspberry (black and red) <sup>1</sup> Salal  | treatment   | ·   | er last <i>Knack</i> Insect Growth Regulator  |

# BRASSICA LEAFY VEGETABLES (Crop Group 5)

**GENERAL** KNACK Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects *Knack* Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed Since *Knack* is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROPS   | PESTS  | PRODUCT<br>RATES<br>PER ACRE  | SPECIAL INSTRUCTIONS   |
|---|--|---|--|
| Brassica Leafy Vegetables<br>Broccoli<br>Broccoli Raab (rapini)<br>Brussels Sprouts                               | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly<br>Sweetpotato Whitefly   | 8 to 10 fl oz   | Apply with ground equipment in adequate water for uniform coverage (10 to 50 gals/A)   |
| Cabbage Cauliflower Cavalo Broccolo Chinese Broccoli (gai Ion) Chinese Cabbage (bok choy and napa)                |  |   | HIGHER WATER VOLUMES MAY PROVIDE IMPROVED INSECT CONTROL   |
| Chinese Mustard (gai choy) Collards Kale Kohlrabi Mizuna Mustard Greens Mustard Spinach Rape Greens Turnip Greens |  |   | Begin applications when whiteflies reach threshold levels per University/Extension recommendations (e.g. 3 to 5 adults per leaf and/or equivalent levels of immatures) |
|   |  |   | Under severe pressure use the higher recommended rates   |
|   |  |   | Only whole fields should be treated  |
|   | per growing season Do not exceed 20 fl oz i season Do not apply earlier that Regulator treatment Regardless of formulati acre per season | 2 Knack Insect Growt Knack Insect Growt n 14 days after last K on do not apply more | owth Regulator applications th Regulator per acre per  Cnack Insect Growth than 0 134 lb pyriproxyfen per egistered pyriproxyfen uses in                               |
| MANAGING WHITEELY RES   | treated areas sooner th  | an 30 days after the I  | ast application  |

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl. oz/A for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal Integrated Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

### **BULB VEGETABLES** (Crop Group 3)

GENERAL Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides

| CROPS  | PESTS   | PRODUCT<br>RATES<br>PER ACRE | SPECIAL INSTRUCTIONS  |
|--|---|------------------------------|---|
| Bulb Vegetables Garlic Garlic Great Headed Leek Onion Dry Bulb Onion Green Onion Welsh | Onion Thrips<br>Western Flower Thrip  | 8 fl oz                      | FOR SUPPRESSION OF THRIPS Apply with ground equipment in adequate water for uniform coverage (20 to 50 gals/A) Begin applications when thrips reach threshold levels per University/Extension Thorough coverage is critical for adequate water volume to ensure thorough coverage |
| Shallot  | Knack Insect Growth Regulator may be mixed and/or alternated with commonly used insecticides to comply with local Integrated Pest Management (IPM) and Insect Resistance Management (IRM) programs  Do not apply within 3 days of harvest Do not make more than 2 Knack Insect Growth Regulator applications per growing season Do not exceed 16 fl oz of Knack Insect Growth Regulator per acre per season Do not apply earlier than 14 days after last Knack Insect Growth Regulator treatment Regardless of formulation do not apply more than 0 134 lb pyriproxyfen per acre per season Do not plant any crop other than those with registered pyriproxyfen uses in treated |                              | egrated Pest Management (IPM) and Insect Sect Growth Regulator applications per ect Growth Regulator per acre per season er last <i>Knack</i> Insect Growth Regulator   |

### CITRUS (Including Ugli Fruit and White Sapote) (Crop Group 10)

(

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

| CROP                                 | PESTS  | PRODUCT RATES PER ACRE  | SPECIAL INSTRUCTIONS  |  |
|--------------------------------------|--|---|---|--|
| Citrus<br>Ugli Fruit<br>White Sapote | Black Scale Brown Soft Scale California Red Scale Florida Red Scale Snow Scale   | 16 fl oz  | Apply with ground equipment in 200 to 1500 gals/A Apply in sufficient water volume for tree size. Thorough coverage is critical for control. It is essential to use adequate water volume to ensure thorough coverage.  Apply anytime prior to fruit becoming infested when scale is in the crawler stage. Application at the 2 d or 3 d generation of scale may result in excessive dead scale remaining on the fruit at harvest. Thorough coverage is essential for good control.  Knack Insect Growth Regulator may be applied with superior spray oils at 1/2 to 1 %. Follow the manufacturer's directions and recommendations on timing and rates. |  |
|                                      |  |   | NOTE For scale apply only one application during emergence of scale crawlers per calendar year  |  |
|                                      | Knack Insect Growth Regulator may be mixed and/or alternated with commonly used insecticides to comply with local Integrated Pest Management (IPM) and Insect Resistance Management (IRM) programs |   |   |  |
|                                      | season Do not exceed 16 f  | an 1 <i>Knack</i> Insect Growtl<br>l oz of <i>Knack</i> Insect Grov | n Regulator application per growing with Regulator per acre per season e than 0 134 lb pyriproxyfen per acre  |  |

continued

CITRUS (Including Ugli Fruit and White Sapote) (Crop Group 10) continued

| <u> </u>                             | anny ogn i rait and                                     | Time Capolo, (Oro  | p Croup 10) continued  |
|--------------------------------------|---|--|--|
| Citrus<br>Ugli Fruit<br>White Sapote | Citrus Black Fly<br>Citrus Leafminer<br>Citrus Whitefly | 10 fl oz   | Apply with ground application in 200 to 1500 gals/A Apply in sufficient water volume for tree size. Thorough coverage is critical for control. It is essential to use adequate water volume to ensure thorough coverage.  Apply when pests are just beginning to build and before infestation has occurred. Thorough coverage is essential for good control. |
|                                      | Do not exceed 20 fl c Do not apply earlier t            | orth local Integrated Pest Ma<br>grams<br>day of harvest<br>nan 2 <i>Knack</i> Insect Growth<br>oz of <i>Knack</i> Insect Growth<br>han 21 days after last <i>Knac</i> | nd/or alternated with commonly used nagement (IPM) and Insect Resistance  Regulator applications per growing  Regulator per acre per season sk Insect Growth Regulator treatment in 0 134 lb pyriproxyfen per acre per   |

#### COTTON

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROP   | PESTS  | PRODUCT RATE<br>PER ACRE   | SPECIAL INSTRUCTIONS   |
|--------|--|--|--|
| Cotton | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly | 8 to 10 fl oz  | Apply with air or ground equipment in adequate water for uniform coverage  |
|        | Sweetpotato Whitefly   | Do not apply less than 8 fl<br>oz/A  | By Air 3 to 10 gals/A<br>By Ground 10 to 50 gals/A   |
|        |  |  | HIGHER WATER VOLUMES MAY PROVIDE IMPROVED INSECT CONTROL   |
|        |  |  | Make only one application per growing season   |
|        |  | Begin application when whiteflies reach threshold levels per University/Extension recommendations (e g 3 to 5 adults per leaf and/or equivalent levels of immatures) |  |
|        |  |  | Under severe pressure use the higher recommended rates   |
|        |  |  | Only whole fields should be treated  |
|        | Do not exceed 10 fl oz K<br>Regardless of formulatio               | 1 Knack Insect Growth Regulation Inack Insect Growth Regulator In do not apply more than 0 067 lb Iner than those with registered pyri                               | tor application per growing season<br>per acre per season<br>pyriproxyfen per acre per season<br>proxyfen uses in treated areas sooner |

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator to one application per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl oz per acre for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal Integrated Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

### **CRANBERRY**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides

| CROP      | PESTS  | PRODUCT RATES PER ACRE | SPECIAL INSTRUCTIONS  |
|-----------|--|------------------------|---|
| Cranberry | Cherry Fruitworm<br>Cranberry Fruitworm<br>Lecanium Scale  | 16 fl oz               | Apply with ground or air equipment as a full coverage spray (minimum of 5 gals/A by air or at least 20 gals/A by ground) Thorough coverage is critical for adequate control. It is essential to use adequate water volume to ensure thorough coverage.  |
|           |  |                        | Fruitworms Apply when egg laying begins and again at petal fall Additional applications of another insecticide at 10 to 14 day intervals may be needed under high population pressure or sustained moth flight  |
|           |  |                        | Lecanium Scale Apply at either dormant delayed dormant or an in season cover spray At dormant or delayed dormant use a spray oil at the manufacturer's recommended oil rate. In a cover spray make applications when scale crawlers first emerge. Follow local recommendations regarding in season use and rates of oil in your area. |
|           | Knack Insect Growth Regulator may be mixed and/or alternated with commonly used insecticides to comply with local Integrated Pest Management (IPM) and Insect Resistance Management (IRM) programs   |                        |   |
|           | Do not apply within 7 days of harvest Do not make more than 2 <i>Knack</i> Insect Growth Regulator applications per growing season Do not exceed 32 fl oz of <i>Knack</i> Insect Growth Regulator per acre per season Do not apply earlier than 14 days after last <i>Knack</i> Insect Growth Regulator treatment Regardless of formulation do not apply more than 0 218 lb pyriproxyfen per acre per season |                        |   |

### CUCURBITS (Crop Group 9)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROPS   | PESTS  | PRODUCT RATES<br>PER ACRE  | SPECIAL INSTRUCTIONS   |
|---|--|--|--|
| Cucurbits Balsam Apple Balsam Pear  | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly   | 8 to 10 fl oz  | Apply with air or ground equipment in adequate water for uniform coverage  |
| Bitter Melon Cantaloupe Chayote   | Sweetpotato Whitefly   | Do not apply less<br>than<br>8 fl oz/A   | By air 3 to 10 gals/A<br>By Ground 10 to 50 gals/A   |
| Chinese Cucumber Chinese Waxgourd Citron Melon Cucumber                       |  |  | HIGHER WATER VOLUMES PROVIDE IMPROVED INSECT CONTROL   |
| Edible Gourd Gherkin Momordica spp Muskmelon Pumpkin Summer Squash Watermelon |  |  | Begin application when whiteflies reach threshold levels per University/Extension recommendations (e.g. 3 to 5 adults per leaf and/or equivalent levels of immatures)  |
| Winter Squash   |  |  | Under severe pressure use the higher recommended rates   |
|   |  |  | Only whole fields should be treated  |
|   | growing season Do not exceed 20 fl of Do not apply earlier th treatment Regardless of formula per season Do not plant any crop | an 2 <i>Knack</i> Insect Growth<br>z <i>Knack</i> Insect Growth<br>nan 14 days after last <i>Kr</i><br>ntion do not apply more t | wth Regulator applications per  Regulator per acre per season  ack Insect Growth Regulator  than 0 134 lb pyriproxyfen per acre  gistered pyriproxyfen uses in treated |

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides or insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl. oz per acre for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal Integrated Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

# FRUITING VEGETABLES (Crop Group 8)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed Since Knack Insect Growth Regulator is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf. This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present.

| CROPS  | PESTS  | PRODUCT RATES<br>PER ACRE  | SPECIAL INSTRUCTIONS   |  |  |
|--|--|--|--|--|--|
| Fruiting Vegetables Eggplant Ground Cherry Okra Pepino Pepper Tomatillo Tomato | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly<br>Sweetpotato Whitefly   | 8 to 10 fl oz  Do not apply less than 8 fl oz/A of <i>Knack</i> Insect Growth Regulator when used as a stand alone application | Apply with air or ground equipment in adequate water for uniform coverage By Air 3 to 10 gals/A By Ground 10 to 50 gals/A  HIGHER WATER VOLUMES PROVIDE IMPROVED INSECT CONTROL  Begin application when whiteflies reach threshold levels per University/Extension recommendations   |  |  |
|  |  |  | (e g 3 to 5 adults per leaf and/or<br>equivalent levels of immatures) Under<br>severe pressure use the higher<br>recommended rates   |  |  |
|  | Banded Wing Whitefly Cabbage Looper Green Peach Aphid Greenhouse Whitefly (immatures & adults) Silverleaf Whitefly Sweetpotato Whitefly Tobacco Hornworm   | 6 to 8 fl oz   | Only whole fields should be treated  Apply as a tank mix with ground equipment for uniform coverage (25 to 150 gals/A by ground) Make application when eggs or insects first appear. If control is needed during this period use an alternate insecticide registered for the target pest  Knack Insect Growth Regulator may also be mixed or alternated with commonly used insecticides to comply with local IPM programs  Comply with all applicable directions restrictions and precautions on the registered tank mix partner label |  |  |
|  | Knack Insect Growth Regulator may be mixed and/or alternated with commonly used insecticides to comply with local Integrated Pest Management (IPM) and Insect Resistance Management (IRM) programs  Do not apply within 1 day of harvest Do not make more than 2 Knack Insect Growth Regulator applications per growing season Do not exceed 16 fl oz Knack Insect Growth Regulator per acre per season Do not apply earlier than 14 days after last Knack Insect Growth Regulator treatment Regardless of formulation do not apply more than 0 109 lb pyriproxyfen per acre per season Do not plant any crop other than those with registered pyriproxyfen uses in treated areas sooner than 30 days after the last application |  |  |  |  |

### FRUITING VEGETABLES (Crop Group 8) continued

| CROP                       | PESTS  | PRODUCT RATES<br>PER ACRE  | SPECIAL INSTRUCTIONS   |
|----------------------------|--|--|--|
| Fruiting Vegetables Tomato | Banded Wing Whitefly Beet Armyworm Fruitworm Greenhouse Whitefly (immatures & adults) Potato Aphid Silverleaf Whitefly Sweetpotato Whitefly Thrips Tomato Pinworm Yellowstriped Armyworm | 6 to 8 fl oz<br>+<br>Danıtol <sup>®</sup> 2 4 EC Spray<br>10 2/3 fl oz   | EARLY SEASON WHITEFLY CONTROL PROGRAM FOR REDUCTION OF GEMINIVIRUS Apply as a tank mix with ground equipment for uniform coverage (10 to 120 gals/A) Make application when scouting first indicates adult whiteflies are on young plants NOTE This may result in treatment immediately following transplanting |
|                            |  |  | MID TO LATE SEASON WHITEFLY CONTROL PROGRAM FOR PREVENTION OF IRREGULAR FRUIT RIPENING Apply as a tank mix with ground equipment for uniform coverage (20 to 120 gals/A by ground) Make application when scouting indicates whiteflies are present   |
|                            |  |  | Knack Insect Growth Regulator may also be mixed or alternated with commonly used insecticides to comply with local IPM programs  |
|                            |  |  | Comply with all applicable directions restrictions and precautions on the registered label for <i>Danitol</i> 2 4 EC Spray   |
|                            |  | ocal Integrated Pest Manag   | or alternated with commonly used gement (IPM) and Insect Resistance  |
|                            | season Do not exceed 16 fl oz Do not apply earlier tha Regardless of formulat season   | n 2 Knack Insect Growth R<br>Knack Insect Growth Regulan 14 days after last Knack<br>tion do not apply more than | Insect Growth Regulator treatment<br>0 109 lb pyriproxyfen per acre per  |
|                            | areas sooner than 30 days  |  | ered pyriproxyfen uses in treated  |

### **GRAPE**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed Since Knack is an insect growth regulator (IGR) and activity depends on the insects development evidence of activity will be slower than typical contact insecticides

| CROP  | PESTS   | PRODUCT<br>RATE<br>PER ACRE | SPECIAL INSTRUCTIONS  |
|-------|---|-----------------------------|---|
| Grape | Glassy Winged Sharpshooter<br>Grape Berry Moth<br>Lecanium Scale                      | 16 fl oz                    | Apply with ground equipment as a full coverage spray (50 to 200 gals/A) Thorough coverage is critical for adequate control It is essential to use adequate water volume to ensure thorough coverage   |
|       |   |                             | Lecanium Scale Apply at either dormant delayed dormant or an in season cover spray At dormant delayed dormant you may use a spray oil at the manufacturer s recommended oil rate Do not use oil in an in season spray In a cover spray make applications when scale crawlers first emerge |
|       |   |                             | Follow local recommendations regarding in season use and rates of oil in your area  |
| :     |   |                             | alternated with commonly used insecticides to d Insect Resistance Management (IRM)  |
|       | <ul> <li>Do not apply within 21 days of Do not make more than 2 Kin season</li> </ul> |                             | Regulator applications per growing  |
|       | <ul><li>Do not exceed 32 fl oz Knac</li><li>Do not apply earlier than 14</li></ul>    | days after last Kna         | egulator per acre per season  ck Insect Growth Regulator treatment  nan 0 218 lb active of pyriproxyfen per acre  |

2445

# LEAFY VEGETABLES (EXCEPT BRASSICA VEGETABLES) (Crop Group 4)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROPS  | PESTS  | PRODUCT<br>RATES<br>PER ACRE  | SPECIAL<br>INSTRUCTIONS  |
|--|--|---|--|
| Leafy Vegetables (Except Brassica Vegetables) Amaranth (Chinese Spinach) Arugula (Roquette) Cardoon Celery Celery Chinese Celtuce Chervil Chrysanthemum Edible Leaved Chrysanthemum Garland Corn Salad Cress Garden Cress Upland Dandelion Dock (Sorrel) Endive (Escarole) | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly<br>Sweetpotato Whitefly   | 8 to 10 fl oz   | Apply with ground equipment in adequate water for uniform coverage (10 to 50 gals/A)  HIGHER WATER VOLUMES MAY PROVIDE IMPROVED INSECT CONTROL  Begin applications when whiteflies reach threshold levels per University/Extension recommendations  Under severe pressure use the higher recommended rates   |
| Fennel Florence Lettuce Head and Leaf Orach Parsley Purslane Garden Purslane Winter Radicchio (Red Chicory) Rhubarb Spinach New Zealand Spinach Vine Spinach Swiss Chard   | applications per group Do not exceed 20 feet season Do not apply earlie Regulator treatme Regardless of form pyriproxyfen per according to the control of th | than 2 Knack Insolving season of oz Knack Insector than 14 days after than 14 days after than 4 days after per season op other than those as sooner than 30 | sect Growth Regulator  It Growth Regulator per acre  It Growth Regulator  It Growth Regula |

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl. oz/A for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal Integrated Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

### LEAVES OF ROOT & TUBER VEGETABLES (Crop Group 2)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack Insect Growth Regulator is an Insect Growth Regulator (IGR) and activity depends on the insect sidevelopment evidence of activity will be slower than typical contact insecticides.

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major

obstacles is getting the product to the underside of the leaves where whitefly are present **PRODUCT CROPS PESTS** SPECIAL INSTRUCTIONS RATES **PER ACRE** Leaves of Root & Tuber Banded Wing Whitefly 8 to 10 fl oz Apply with ground equipment in Greenhouse Whitefly Vegetables adequate water for uniform Silverleaf Whitefly coverage (10 to 50 gals/A) Beet Garden Sweetpotato Whitefly Burdock Edible **HIGHER WATER VOLUMES** Carrot MAY PROVIDE IMPROVED Cassava Bitter Cassava Sweet **INSECT CONTROL** Celeriac Chervil Turnip Rooted Begin applications when Chicory whiteflies reach threshold Dasheen (Taro) levels per University/Extension Parsnip recommendations (e.g. 3 to 5 Radish adults per leaf and/or Radish Oriental (daikon) equivalent levels of immatures) Rutabaga Salsify Black Sugar Beet Under severe pressure use the **Sweet Potato** higher recommended rates Tanier Turnip Only whole fields should be Yam True treated Do not apply within 7 days of harvest Do not make more than 2 Knack Insect Growth Regulator applications per growing season Do not exceed 16 fl oz Knack Insect Growth Regulator per acre per season Do not apply earlier than 14 days after last Knack Insect Growth Regulator treatment Regardless of formulation do not apply more than 0 109 lb pyriproxyfen per acre per season Do not plant any crop other than those with registered pyriproxyfen uses in treated areas sooner than 30 days after the last application Do not allow livestock to graze on treated areas Do not apply this product with an adjuvant

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl. oz/A for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal Integrated Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

### (Succulent or Dried) (Crop Group 6)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack Insect Growth Regulator is an Insect Growth Regulator (IGR) and activity depends on the insect sidevelopment evidence of activity will be slower than typical contact insecticides.

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROPS   | PESTS   | PRODUCT RATES<br>PER ACRE   | SPECIAL INSTRUCTIONS  |
|---|---|---|---|
| Legume Vegetables (any cultivar of Bean (Phaseolus) Field Pea (Pisum) and Soybean) Beans (Lupinus) Grain Lupin Sweet Lupin  | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly<br>Sweetpotato Whitefly  | 8 to 10 fl oz   | EARLY SEASON WHITEFLY PROGRAM Apply with ground equipment in adequate water for uniform coverage (10 to 50 gals/A Thorough coverage is critical for adequate control it is essential to use adequate water volume to ensure thorough coverage |
| White Lupin White Sweet Lupin Beans ( <i>Phaseolus</i> ) Field Bean Kidney Bean Lima Bean   |   |   | Begin applications when whiteflies reach threshold levels per University/Extension recommendations (e.g. 3 to 5 adults per leaf and/or equivalent levels of immatures)  |
| Navy Bean<br>Pinto Bean   |   |   | Under severe pressure use the higher recommended rates  |
| Runner Bean<br>Snap Bean<br>Tepary Bean   |   |   | Only whole fields should be treated   |
| Wax Bean Bean (Vigna) Adzuki Bean Asparagus Bean Blackeyed Pea Catjang Chinese Longbean Cowpea Crowder Pea Moth Bean Mung Bean Rice Bean Southern Pea Urd Bean Yardlong Bean Broad Bean (fava) Chickpea (garbanzo) Guar Jackbean Lablab Bean Lentil Pea (Pisum) Dwarf Pea | I CA only not for use on  | soybeans]   |   |
| Edible podded Pea<br>English Pea<br>Field Pea<br>Garden Pea   | Do not exceed 20 fl o   | an 2 <i>Knack</i> Insect Growth Rez<br>z of <i>Knack</i> Insect Growth Re | egulator applications per growing season<br>egulator per acre per season<br>Insect Growth Regulator treatment   |
| Green Pea<br>Snowpea<br>Sugar Snap Pea<br>Pigeon Pea<br>Soybean[ <sup>1</sup> ]   | Regardless of formulation do not apply more than 0 134 lb pyriproxyfen per acre per season Do not plant any crop other than those with registered pyriproxyfen uses in treated areas sooner than 30 days after the last application Do not allow livestock to graze treated areas |   |   |
| Sword Bean  | Do not use on legume  | e vegetables varieties grown  | for livestock feed  |

continued

### LEGUME VEGETABLES (Crop Group 6) continued

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides or insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl oz per acre for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal Integrated. Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

### **OLIVE**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

| CROP  | PESTS  | PRODUCT RATES<br>PER ACRE | SPECIAL INSTRUCTIONS   |  |  |  |
|-------|--|---------------------------|--|--|--|--|
| Olive | Black Scale<br>San Jose Scale  | 13 to 16 fl oz            | Apply with ground equipment in 100 to 400 gals/A Apply in sufficient water volume for tree size Thorough coverage is critical for adequate control It is essential to use adequate water volume to ensure thorough coverage  |  |  |  |
|       |  |                           | Apply at either dormant delayed dormant or an in season cover spray. At dormant delayed dormant use a spray oil at the manufacturer s recommended oil rate. In a cover spray make applications when scale crawlers first emerge. Follow local recommendations regarding in season use and rates of oil in your area. |  |  |  |
|       |  |                           | Under heavy scale pressure use the higher rate of Knack Insect Growth Regulator  |  |  |  |
|       |  |                           | nd/or alternated with commonly used insecticides to IPM) and Insect Resistance Management (IRM)  |  |  |  |
|       | Do not apply within 7 days of harvest  |                           |  |  |  |  |
|       | Do not make more than 2 Knack Insect Growth Regulator applications per growing season  Do not exceed 32 fl oz of Knack Insect Growth Regulator per acre per season |                           |  |  |  |  |
|       |  |                           | nack Insect Growth Regulator treatment   |  |  |  |
|       |  |                           | than 0 218 lb pyriproxyfen per acre per season   |  |  |  |

### **PASTURE GRASS AND RANGELAND**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an insect growth regulator (IGR) and activity depends on the insects development evidence of activity will be slower than typical contact insecticides.

| CROPS                       | PESTS                                  | PRODUCT<br>RATES<br>PER ACRE | SPECIAL INSTRUCTIONS  |
|-----------------------------|--|------------------------------|---|
| Pasture Grass and Rangeland | Cricket<br>Grasshopper<br>Locust       | 8 to 10 fl oz                | Apply with air or ground equipment in adequate water for uniform coverage  By air 3 to 10 gals/A  By Ground 10 to 50 gals/A |
|                             |  |                              | HIGHER WATER VOLUMES<br>PROVIDE IMPROVED<br>INSECT CONTROL  |
|                             |  |                              | Begin application when pests reach threshold levels per University/Extension recommendations                                |
|                             |  |                              | Under severe pressure use the higher recommended rates  |
|                             |  | ly with local Integrated F   | and/or alternated with commonly<br>Pest Management (IPM) and Insect   |
|                             | growing season • Do not exceed 20 fl o | z <i>Knack</i> Insect Growt  | owth Regulator applications per h Regulator per acre per season re than 0 134 lb pyriproxyfen per                           |
|                             | Do not apply earlier the treatment     | nan 14 days after last       | Knack Insect Growth Regulator   |

### **PAWPAW**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROP   | PESTS                          | PRODUCT RATES PER ACRE   | SPECIAL INSTRUCTIONS   |  |  |
|--------|--------------------------------|--|--|--|--|
| Pawpaw | Scale<br>Whitefly              | 13 to 16 fl oz   | Apply 100 to 400 gals/A with ground equipment Coverage is essential for good control. Apply in sufficient water volume for tree size. Use of higher water volume will assure better coverage.              |  |  |
|        |                                |  | Scale Apply at either dormant delayed dormant or an in season cover spray. At dormant or delayed dormant use a spray oil at the manufacturer's recommended oil rate. Do not use oil in an in season spray. |  |  |
|        |                                |  | In a cover spray make applications when scale crawlers first emerge  |  |  |
|        |                                |  | Under heavy scale pressure use the higher rate of <i>Knack</i> Insect Growth Regulator   |  |  |
|        | In season sprays of K by scale | In season sprays of Knack Insect Growth Regulator may not protect fruit from blemishes |  |  |  |
|        |                                | y with local Integrated Pes  | and/or alternated with commonly used it Management (IPM) and Insect  |  |  |
|        | Do not make more season        |  | owth Regulator applications per growing  |  |  |
|        | Do not apply earli             | er than 14 days after last i   | wth Regulator per acre per season  Knack Insect Growth Regulator treatment e than 0 327 lb pyriproxyfen per acre per   |  |  |

### **PINEAPPLE**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

| CROP      | PESTS  | PRODUCT RATES PER ACRE  | SPECIAL INSTRUCTIONS  |
|-----------|--|---|---|
| Pıneapple | Black Scale<br>Brown Soft Scale<br>California Red Scale<br>Florida Red Scale<br>Snow Scale | 16 fl oz  | Apply with ground equipment in 20 to 50 gals/A Apply in sufficient water volume for plant size. Thorough coverage is critical for control. It is essential to use adequate water volume to ensure thorough coverage.  |
|           |  |   | Apply anytime prior to fruit becoming infested when scale is in the crawler stage. Application at the 2 d or 3 d generation of scale may result in excessive dead scale remaining on the fruit at harvest. Thorough coverage is essential for good control. |
|           |  |   | Knack Insect Growth Regulator may be applied with superior spray oils at 1/2 to 1 % Follow the manufacturer's directions and recommendations on timing and rates  |
|           |  |   | r alternated with commonly used insecticides (M) and Insect Resistance Management   |
|           | Do not exceed 16 fl oz on Do not apply earlier that  | 2 Knack Insect Growth R<br>of Knack Insect Growth R<br>n 21 days after last Knack | Regulator applications per calendar year<br>egulator per acre per season<br>k Insect Growth Regulator treatment<br>n 0 134 lb pyriproxyfen per acre per season  |

# POME FRUIT (Crop Group 11)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack Insect Growth Regulator is an Insect Growth Regulator (IGR) and activity depends on the insect sidevelopment evidence of activity will be slower than typical contact insecticides.

| CROPS   | PESTS   | PRODUCT<br>RATES<br>PER ACRE | SPECIAL INSTRUCTIONS   |
|---|---|------------------------------|--|
| Pome Fruit Apple Crabapple Loquat Mayhaw Quince | Codling Moth  Suppression of Pandemis Leafroller Obliquebanded Leafroller | 13 to 16 fl oz               | Apply by ground with airblast equipment in a minimum of 50 gals/A. Thorough coverage is critical for control. It is essential to use adequate water volume to ensure thorough coverage.  |
| Quince  | Conquebanded Leamoner   |                              | 1st Generation Codling Moth Apply at Biofix plus 100 degree days (this is usually close to petal fall) Make a second application 14 to 21 days later or timed to coincide with peak moth flights. For subsequent applications if needed apply other insecticides registered for Codling Moth control. The addition of oil has been shown to increase Codling Moth activity of Knack Insect Growth Regulator. Follow local recommendations regarding in season use and rates of oil in your area. |
|   |   |                              | Obliquebanded and Pandemis Leafroller Apply to the overwintering larvae at the pink to petal fall tree growth stage Knack Insect Growth Regulator does not directly control the larvae but inhibits normal pupation and adult emergence  |
|   | Florida Red Scale<br>Lecanium Scale<br>San Jose Scale                     | 13 to 16 fl oz               | Apply by ground with airblast equipment in a minimum of 50 gals/A. Thorough coverage is critical for control. It is essential to use adequate water volume to ensure thorough coverage.  |
|   |   |                              | Apply at delayed dormant through pink. For delayed dormant use a superior spray oil at the manufacturer's recommended rate of oil Under heavy scale pressure use the higher rate of <i>Knack</i> Insect Growth Regulator   |
|   |   |                              | Scale For control in season make application in cover sprays when scale crawlers first emerge. The use of oil at the crawler emergence stage has been shown to improve control. Follow local recommendations regarding in season use and rates of oil in your area.  |

continued

### POME FRUIT (Crop Group 11) continued

| CROPS   | PESTS   | PRODUCT RATES PER ACRE | SPECIAL INSTRUCTIONS   |
|---|---|------------------------|--|
| Pome Fruit Apple Crabapple Loquat Mayhaw Quince | Green Apple Aphid<br>Rosy Apple Aphid<br>Spirea Aphid<br>Spotted Tentiform<br>Leafminer<br>Western Tentiform<br>Leafminer | 10 to 16 fl oz         | Apply by ground with airblast equipment in a minimum of 50 gals/A. Thorough coverage is critical for control. It is essential to use adequate water volume to ensure thorough coverage.  Leafminers. Apply at peak moth flight for control of 1 or 2 <sup>nd</sup> generation. This usually occurs at pre pink to pink apple stage for 1 generation and 2 d cover for 2 <sup>nd</sup> generation.  Rosy Apple Aphid. Apply at 1/2 green apple growth stage.  Green Apple & Spirea Aphid. Apply when aphids first appear, but before aphids are colonized.  TIMING IS CRITICAL FOR ACCEPTABLE |
| D   |   | 40 4- 40 8             | APHID CONTROL  |
| Pear<br>Oriental Pear                           | Pear Psylla   | 13 to 16 fl oz         | Apply by ground with airblast equipment in 75 to 400 gals/A with a superior spray oil at manufacturer's recommended rates for the stage of growth. It is essential to use adequate water volume to ensure thorough coverage  Apply a single application during the delayed dormant to pink stage of growth at 16 fl oz/A or make two applications from delayed dormant through petal fall stage of growth at 13 to 16 fl oz/A. Make application just before sustained egg lay is anticipated  DO NOT USE SKIP ROWS DURING  |
|   |   |                        | APPLICATION  |
|   |   |                        | For in season control of pear psylla use an insecticide recommended for this use   |
|   | Lecanium Scale<br>San Jose Scale  | 13 to 16 fl oz         | Apply by ground with airblast equipment in 100 to 400 gals/A at delayed dormant with a superior spray oil at the manufacturer's recommended rates. Under heavy scale pressure, use the higher rate.  |
|   |   |                        | Apply in sufficient water volume for tree size Thorough coverage is critical for control. It is essential to use adequate water volume to ensure thorough coverage.  |
|   |   |                        | For control of scale in season make application in cover sprays when scale crawlers first emerge. The use of oil at the crawler emergence stage has been shown to improve performance. Follow local recommendations regarding in season use and rates of oil in your area.   |

continued

### POME FRUIT (Crop Group 11) continued

| CROPS                         | PESTS   | PRODUCT<br>RATES<br>PER ACRE | SPECIAL INSTRUCTIONS   |
|-------------------------------|---|------------------------------|--|
| Pome Fruit Pear Oriental Pear | Codling Moth  Suppression of Obliquebanded Leafroller Pandemis Leafroller | 13 to 16 fl oz               | Apply by ground with airblast equipment in 100 to 400 gals/A  1st Generation Codling Moth Apply at Biofix plus 100 degree days Make a  |
|                               |   |                              | second application 14 to 21 days later or timed to coincide with peak moth flights. For subsequent applications if needed apply other insecticides registered for Codling Moth control. The addition of oil has been shown to increase Codling Moth activity of Knack Insect Growth Regulator. Follow local recommendations regarding in season use and rates of oil in your area. |
|                               |   |                              | For additional generations apply other insecticides registered for Codling Moth Control  |
|                               |   | cal Integrated Pest M        | /or alternated with commonly used anagement (IPM) and Insect Resistance  |
|                               | season  | Knack Insect Growth          | Regulator applications per growing   |
|                               | Do not apply earlier than 14  | 4 days after last Knad       | Regulator per acre per season ck Insect Growth Regulator treatment an 0 218 lb pyriproxyfen per acre per   |

### **POMEGRANATE**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

Knack Insect Growth Regulator does exhibit translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf. This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROP        | PESTS  | PRODUCT RATES PER ACRE | SPECIAL INSTRUCTIONS  |  |
|-------------|--|------------------------|---|--|
| Pomegranate | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly<br>Sweetpotato Whitefly   | 13 to 16 fl oz         | Apply with air or ground equipment in adequate water for uniform coverage By air 3 to 10 gals/A By ground 10 to 50 gals/A   |  |
|             |  |                        | HIGHER WATER VOLUMES MAY PROVIDE IMPROVED INSECT CONTROL  |  |
|             |  |                        | Begin applications when whiteflies reach threshold levels per University/Extension recommendations (e g 3 to 5 adults per leaf and/or equivalent levels of immatures) |  |
|             |  |                        | Only whole fields should be treated   |  |
|             | Do not apply within 14 days of harvest   |                        |   |  |
| }           | Do not make more than 3 Knack Insect Growth Regulator applications per growing season  |                        |   |  |
|             | Do not exceed 48 fl oz of <i>Knack</i> Insect Growth Regulator per acre per season Do not apply earlier than 14 days after last <i>Knack</i> Insect Growth Regulator treatment |                        |   |  |
|             | Regardless of formulation do not apply more than 0 327 lb pyriproxyfen per acre per season   |                        |   |  |
|             | Do not plant any crop other than those with registered pyriproxyfen uses in treated areas sooner than 30 days after the last application                                       |                        |   |  |

**MANAGING INSECT RESISTANCE** Repeated use of the same class of insecticides or insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than three applications per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 13 fl oz per acre for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local state and federal Integrated Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

### ROOT AND TUBER VEGETABLES (Crop Group 1)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

Knack insect Growth Regulator does exhibit translaminar movement which means that Knack insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf. This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present

| CROPS  | PESTS  | PRODUCT<br>RATES<br>PER ACRE | SPECIAL INSTRUCTIONS  |  |
|--|--|------------------------------|---|--|
| Root & Tuber Vegetables Arracacha Arrowroot Artichoke Chinese Artichoke Jerusalem Beet Garden Beet Sugar Burdock Edible Canna Edible Carrot Cassava (bitter and sweet) Celeriac Chaoyote (root) Chervil Turnip rooted Chicory Chufa Dasheen (taro) Ginger Ginseng Horseradish Leren Parsley Turnip rooted Parsnip Potato Radish Radish Oriental (dai kon) Rutabaga Salsify | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly<br>Sweetpotato Whitefly   | 8 fl oz                      | Apply with ground equipment in adequate water for uniform coverage (20 to 50 gals/A)  HIGHER WATER VOLUMES MAY PROVIDE IMPROVED INSECT CONTROL  Begin applications when whiteflies reach threshold levels per University/Extension recommendations (e.g. 3 to 5 adults per leaf and/or equivalent levels of immatures)  Under severe pressure use the higher recommended rates  Only whole fields should be treated |  |
| Salsify Black Salsify Spanish Skirret Sweet Potato Tanier Turmeric Turnip Yam Bean Yam True  | Do not apply within 7 days of harvest Do not make more than 2 Knack Insect Growth Regulator applications per growing season Do not exceed 16 fl oz of Knack Insect Growth Regulator per acre per season Do not apply earlier than 14 days after last Knack Insect Growth Regulator treatment Regardless of formulation do not apply more than 0 109 lb pyriproxyfen per acre per season Do not plant any crop other than those with registered pyriproxyfen uses in treated areas sooner than 30 days after the last application Do not allow livestock to graze treated areas |                              |   |  |

continued

### ROOT AND TUBER VEGETABLES (Crop Group 1) continued

MANAGING WHITEFLY RESISTANCE Repeated use of the same class of insecticides or insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl oz per acre for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local, state and federal Integrated Pest Management (IPM) and Insect Resistance Management (IRM) recommendations. Read and follow all product labels before applying any insecticide.

# SMALL FRUIT VINE CLIMBING CROPS (EXCEPT GRAPE) (Crop Group 13 07E)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

| CROPS   | PESTS   | PRODUCT<br>RATE<br>PER ACRE | SPECIAL INSTRUCTIONS  |
|---|---|-----------------------------|---|
| Small Fruit Vine Climbing Crops Berry Schisandra Gooseberry Grape Amur River Kiwifruit Fuzzy Kiwifruit Hardy Maypop and cultivars varieties and/or hybrids of these | Scale   | 16 fl oz                    | Apply with ground or air equipment as a full coverage spray (minimum of 5 gals/A by air or 50 gals/A by ground) Thorough coverage is critical for adequate control. It is essential to use adequate water volume to ensure thorough coverage  Apply at either dormant delayed dormant or an in season cover spray. At dormant or delayed dormant use a spray oil at the manufacturer's recommended oil rate. In a cover spray make applications when scale crawlers first emerge. Follow local recommendations regarding in season use and rates of oil in your area. |
|   | Knack Insect Growth Regulator may be mixed and/or alternated with commonly used insecticides to comply with local Integrated Pest Management (IPM) and Insect Resistance Management (IRM) programs  Do not apply within 30 days of harvest Do not make more than 2 Knack Insect Growth Regulator applications per growing season  Do not exceed 32 fl oz of Knack Insect Growth Regulator per acre per season  Do not apply earlier than 14 days after last Knack Insect Growth Regulator treatment  Regardless of formulation do not apply more than 0 218 lb pyriproxyfen per acre per season  Do not apply this product with an adjuvant |                             |   |

### STONE FRUIT (Crop Group 12)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

| CROPS  | PESTS   | PRODUCT RATES<br>PER ACRE | SPECIAL INSTRUCTIONS  |  |  |
|--|---|---------------------------|---|--|--|
| Stone Fruit Apricot Cherry Chickasaw Plum Damson Plum Fresh Prune Japanese Plum Nectarine Peach Plum Plumcot Prune | Lecanium Scale San Jose Scale  Suppression of Peach Twig Borer Oriental Fruit Moth  | 13 to 16 fl oz            | Apply in 100 to 400 gals/A with ground equipment Coverage is essential for good control Apply in sufficient water volume for tree size. Use of higher water volume will assure better coverage.  Scale Apply at dormant delayed dormant or as an in season cover spray. At dormant delayed dormant use a spray oil at the manufacturer's recommended oil rate.  Under heavy scale pressure use the higher rate of Knack Insect Growth Regulator.  Peach Twig Borer. Knack Insect Growth Regulator has provided good suppression of Peach Twig Borer when applied delayed dormant through bloom sprays. Use a spray oil at the manufacturer's recommended rate for the stage of crop growth. |  |  |
|  | In season sprays of Knack Insect Growth Regulator may not protect fruit from blemishes by scale  Knack Insect Growth Regulator may be mixed and/or alternated with commonly used insecticides to comply with local Integrated Pest Management IPM and Insect Resistance   |                           |   |  |  |
|  | Management (IRM) programs  Do not apply within 14 days of harvest Do not make more than 3 Knack Insect Growth Regulator applications per growing season Do not exceed 48 fl oz of Knack Insect Growth Regulator per acre per season Do not apply earlier than 14 days after last Knack Insect Growth Regulator treatment Regardless of formulation do not apply more than 0 327 lb pyriproxyfen per acre per season |                           |   |  |  |

### **STRAWBERRY**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed Since Knack Insect Growth Regulator is an insect growth regulator (IGR) and activity depends on the insects development evidence of activity will be slower than typical contact insecticides

Knack Insect Growth Regulator exhibits translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf. This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present.

| CROP       | PESTS   | PRODUCT<br>RATE<br>PER ACRE | SPECIAL INSTRUCTIONS   |
|------------|---|-----------------------------|--|
| Strawberry | Banded Wing Whitefly<br>Greenhouse Whitefly<br>Silverleaf Whitefly<br>Sweetpotato Whitefly  | 10 fl oz                    | Apply with ground equipment as a full coverage spray (100 to 400 gals/A) Thorough coverage is critical for adequate control. It is essential to use adequate water volume to ensure thorough coverage  Begin applications when whiteflies reach threshold levels per University/Extension recommendations (e.g. 3 to 5 adults per leaf and/or equivalent levels of immatures)  Under severe pressure use the higher recommended rates  Only whole fields should be treated |
| 1          | Do not apply within 2 da  | vs of harvest               | Only whole helde chedia be abated  |
|            | Do not make more than 2 Knack Insect Growth Regulator applications per growing  |                             |  |
|            | season  |                             |  |
|            | Do not exceed 20 fl oz Knack Insect Growth Regulator per acre per season  |                             |  |
|            | Do not apply earlier than 30 days after last <i>Knack</i> Insect Growth Regulator treatment Regardless of formulation do not apply more than 0 134 lb of pyriproxyfen per acre per season |                             |  |
|            | Do not plant any crop other than those with registered pyriproxyfen uses in treated areas sooner than 30 days after the last application  |                             |  |

# TREE NUTS (Crop Group 14)

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack Insect Growth Regulator is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

| CROP                | PESTS   | PRODUCT RATES PER ACRE | SPECIAL INSTRUCTIONS  |  |
|---------------------|---|------------------------|---|--|
| Tree Nuts<br>Almond | Black Scale San Jose Scale Suppression of Peach Twig Borer  | 13 to 16 fl oz         | Apply with ground equipment in 100 to 400 gals/A Coverage is essential for good control. Apply in sufficient water volume for tree size. Use of higher water volume will assure better coverage.  Apply at either dormant delayed dormant or an in season cover spray. At dormant delayed dormant use a spray oil at the manufacturer s recommended oil rate. In a cover spray make applications when scale crawlers first emerge. Follow local recommendations regarding in season use and rates of oil in your area.  Knack Insect Growth Regulator has provided good suppression of Peach. Twig Borer when applied delayed dormant through bloom sprays. |  |
|                     | Almond Do not apply within 21 days of harvest Do not make more than 1 <i>Knack</i> Insect Growth Regulator application per growing season Do not exceed 16 fl oz of <i>Knack</i> Insect Growth Regulator per acre per season Regardless of formulation do not apply more than 0 109 lb pyriproxyfen per acre per season |                        |   |  |

continued

### TREE NUTS (Crop Group 14) - continued

| CROPS  | PESTS  | PRODUCT RATES PER ACRE | SPECIAL INSTRUCTIONS  |
|--|--|------------------------|---|
| Tree Nuts Beechnut Brazıl Butternut Cashew Chestnut Chınquapın Filbert (Hazelnut) Hıckory Macadamıa Pecan Pıstachıo Walnut | Codling Moth<br>Dusky Veined Aphid<br>Walnut Aphid   | 16 fl oz               | Apply with ground equipment in 100 to 400 gals/A Apply in sufficient water volume for tree size. Thorough coverage is critical for control. It is essential to use adequate water volume to ensure thorough coverage.  1st Generation Codling Moth. Apply at Biofix plus 100 degree days. Make a second application 14 to 21 days later or timed to coincide with peak moth flights. For subsequent applications if needed apply other insecticides registered for Codling. Moth control. The addition of oil has been shown to increase Codling Moth activity of Knack Insect Growth Regulator. Follow local recommendations regarding in season use.  |
|  | Black Scale Brown Soft Scale Italian Scale Lecanium Scale San Jose Scale Walnut Scale Suppression of Peach Twig Borer  | 13 to 16 fl oz         | and rates of oil in your area  Apply with ground equipment in 100 to 400 gals/A at either dormant delayed dormant or an in season cover spray. The addition of a superior spray oil at dormant or delayed dormant may improve scale control. However, do not use a spray oil in oil sensitive crops such as Walnut Follow manufacturer's recommendations regarding use and rates of oil for your area.  In a cover spray make applications when scale crawlers first emerge. Follow local recommendations regarding in season use and rates of oil in your area.  Under heavy scale pressure, use the higher rate.  Coverage is essential for good control. Apply in sufficient water volume for tree size. Use of higher water volume will assure better coverage. |
|  | Knack Insect Growth Regulator may be mixed and/or alternated with commonly used insecticides to comply with local Integrated Pest Management (IPM) and Insect Resistance Management (IRM) programs  Do not apply within 21 days of harvest Do not make more than 2 Knack Insect Growth Regulator applications per growing season Do not exceed 32 fl oz of Knack Insect Growth Regulator per acre per season Do not apply earlier than 14 days after last Knack Insect Growth Regulator treatment Regardless of formulation do not apply more than 0 218 lb pyriproxyfen per acre per season |                        |   |

### TROPICAL & SUBTROPICAL FRUIT

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects but hatching of eggs laid by treated adults will be suppressed. Since Knack is an Insect Growth Regulator (IGR) and activity depends on the insect's development evidence of activity will be slower than typical contact insecticides.

| CROPS   | PEST  | PRODUCT RATE<br>PER ACRE | SPECIAL INSTRUCTIONS   |
|---|-------|--------------------------|--|
| Tropical & Subtropical Fruit Acerola Atemoya Avocado Binba Black Sapote Canistel Cherimoya Custard Apple Feijoa Guava Ilama Jaboticaba Longan Lychee Mamey Sapote Mango   | Scale | 16 fl oz                 | Apply with ground or air equipment as a full coverage spray (minimum of 5 gals/A by air or 50 gals/A by ground) Thorough coverage is critical for adequate control. It is essential to use adequate water volume to ensure thorough coverage.  Apply at either dormant delayed dormant or an in season cover spray. At dormant or delayed dormant use a spray oil at the manufacturer's recommended oil rate. In a cover spray make applications when scale crawlers first emerge. Follow local recommendations regarding in season use and rates of oil in your area. |
| Papaya Pulasan Rambutan Sapodilla Soursop Spanish Lime Star Apple Starfruit Sugar Apple Star Apple |       | 71 3                     |  |

### **WATERCRESS**

**GENERAL** Knack Insect Growth Regulator acts by suppressing embryogenesis within the insect egg and by inhibiting metamorphosis and adult emergence of target insects. Knack Insect Growth Regulator has no activity on adult insects, but hatching of eggs laid by treated adults will be suppressed. Since Knack is an insect growth regulator (IGR) and activity depends on the insects, development, evidence of activity will be slower than typical contact insecticides.

Knack Insect Growth Regulator exhibits translaminar movement which means that Knack Insect Growth Regulator applied to the upper surfaces of the leaves will move to the lower surface of the leaf. This translaminar movement is very important to chemical control of whitefly since one of the major obstacles is getting the product to the underside of the leaves where whitefly are present.

| CROP       | PESTS  | PRODUCT<br>RATE<br>PER ACRE   | SPECIAL INSTRUCTIONS   |  |
|------------|--|---|--|--|
| Watercress | Sharpshooters<br>Whitefly  | 8 to 10 fl oz   | Apply with ground equipment as a full coverage spray (10 to 50 gals/A) Thorough coverage is critical for adequate control. It is essential to use adequate water volume to ensure thorough coverage. |  |
|            |  |   | Begin applications when whiteflies reach threshold levels per University/Extension recommendations   |  |
|            |  |   | Under severe pressure use the higher recommended rates   |  |
|            |  |   | Only whole fields should be treated  |  |
|            |  | Growth Regulator may be mixed and/or alternated with commonly used comply with local Integrated Pest Management (IPM) and Insect Resistance                   |  |  |
|            | Do not apply w   | uthin 7 days of harv  | rest   |  |
|            |  |   | Insect Growth Regulator applications per   |  |
|            | growing season   | 00 (1 1/2 1/2   | 10 11 0  |  |
|            |  |   | ect Growth Regulator per acre per season   |  |
|            | Do not apply earlier than 14 days after last <i>Knack</i> Insect Growth Regulator treatment  Regardless of formulation do not apply more than 0 134 lb of pyriproxyfen per acre per season |   |  |  |
|            |  |   |  |  |
|            |  |   |  |  |
|            | areas sooner than  | plant any crop other than those with registered pyriproxyfen uses in trea<br>or than 30 days after the last application<br>oply this product with an adjuvant |  |  |

**MANAGING INSECT RESISTANCE** Repeated use of the same class of insecticides with similar modes of action can lead to the buildup of resistant whitefly strains. To optimize resistance management practices. Valent U.S.A. Corporation is restricting *Knack* Insect Growth Regulator no more than two applications per growing season. *Knack* Insect Growth Regulator may be used in alternation with other IGR materials possessing dissimilar modes of action and/or with other chemical classes of insecticides. Valent also does not recommend using rates below 8 fl oz per acre for whitefly control because reduced rates can lead to a greater potential for resistance development. Follow local, state and federal IPM and IRM recommendations. Read and follow all product labels before applying any insecticide.

### STORAGE AND DISPOSAL

Do not contaminate water food or feed by storage disposal or cleaning of equipment

### PESTICIDE STORAGE

Store in a cool dry place

Keep pesticide in original container

Keep container closed when not in use

Do not put concentrate or dilute into food or drink containers

Not for use or storage in or around the home

For help with any spill leak fire or exposure involving this material call day or night 800 892 0099

### PESTICIDE DISPOSAL

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

#### CONTAINER DISPOSAL

[Nonrefillable container Do not reuse or refill this container Clean container promptly after emptying Triple rinse as follows Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip Fill the container 1/4 full with water and recap Shake for 10 seconds Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal Drain for 10 seconds after the flow begins to drip Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill or by incineration or if allowed by state and local authorities by burning. If burned stay out of smoke.]

[Use the following statements for containers greater than 50 lbs]

[Nonrefillable container Do not reuse or refill this container Triple rinse container promptly after emptying Triple rinse as follows. Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth ensuring at least one complete revolution for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling if available]

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