Cal/EPA

Department of Pesticide Regulation

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Worker Health and Safety Branch
Industrial Hygiene Services

Hazard Recognition for Pesticides

Hazard Recognition

How is it done for Pesticides?

Sulp du|#Vrxufh=#Wkh#DDEHO

Dowhuqdwlyh#Vrxufhv

- P VG V
- Uhihuhqfh#Wh{w#
- SHO/#WOY/#QIR VK #Srfnhw#J xlgh

Hazard Recognition

What is a Pesticide?

IILIUD#-73#FIU#19516,

Š-4,#dq|#xewdqfh#ru#p l{wxu#ri#xewdqfhv#qwhqghg#iru#suhyhqwlqj/#ghvwur|lqj/#hsholqj/#ru#lqjdwlqj#dq|#shvw#lqvhfw/#urghqw/#ohp dwrgh/#fxqjxv/#z hhg/#rwkhu#irup v#ri#wuhdwphqw#ru#dtxdf#sodqw#ru#dql dq#lh#ru#yluxvhv/#edfwhuld/#ru#rwkhu#p lfurujdqlvp v/#h{fhsw#yluxvhv/#edfwhuld/#ru#rwkhu#p lfurujdqlvp v#rq#ru#q#dylqj#p dq#ru#rwkhu#dql dv/#z klfk#wkh#Ogp lqwrdwru#ghfoduhv#wr#eh#d#shvw/#dqg#5,#dq|#xewdqfh#ru#p l{wxu#ri#xewdqfhv#qwhqghg#iru#xvh#dv#d#sodqw#uhjxodwru/#ghirdqw/#ru#ghvlffdqwõ

Hazard Recognition

What is a Pesticide?

IILIUD#-73#FIU#19516,

Š-4,#dq|#xewdqfh#ru#p l{wxu#ri#xewdqfhv#qwhqghg#iru#suhyhqwlqj/#ghvwur|lqj/#hsholqj/#ru#lqjdwlqj#dq|#shvw#lqvhfw/#urghqw/#ohp dwrgh/#fxqjxv/#z hhg/#rwkhu#irup v#ri#wuhdwphqw#ru#dtxdf#sodqw#ru#dql dq#lh#ru#yluxvhv/#edfwhuld/#ru#rwkhu#p lfurujdqlvp v/#h{fhsw#yluxvhv/#edfwhuld/#ru#rwkhu#p lfurujdqlvp v#rq#ru#q#dylqj#p dq#ru#rwkhu#dql dv/#z klfk#wkh#Ogp lqwrdwru#ghfoduhv#wr#eh#d#shvw/#dqg#5,#dq|#xewdqfh#ru#p l{wxu#ri#xewdqfhv#qwhqghg#iru#xvh#dv#d#sodqw#uhjxodwru/#ghirdqw/#ru#ghvlffdqwõ

Hazard Recognition

What is Special about Pesticides?

Shvwlflghv#duh#d#fodvv#ri#kd}dugrxv#fkhp lfdo#wkdw#duh#hdvlo|#dev runhg#lqwr#wkh#hqylurqp hqw#lq#d#frqwurohg#idvklrq#wr#dffrp sodvk#wkhu#sduwlfxodu#xqfwlrq1#

- Wkh|#duh#dovr#rq#ri#wkh#hz #p dwhuldov#wkdw#duh#lqwhqwlrqdoo|#dgghg#wr#rxu#irrg#vxsso|1

Wkh|#duh#dovr#ghvljqhg#z lwk#bnwkdow|#lq#p lqg1

Hazard Recognition

Factors to Consider

Fodvvlilfdwrq

Xvh#Fdwhjru|

Qrp hqfodwxuh

Irup xodwrq

Odeho#Iqirup dwrq

Sk|vlfdo#Fkhp lfdo#Surshuwhv

Hazard Recognition

Classification

W|sh	Wdujhw
Dfdulflgh	P lwv# #Wlfv
Dojdhflgh	Dojdh
Dwwudfwdqw	Ydulrxv
Dylflgh	Elugv
Edfwhulflgh	Edfwhuld
G hirddqw	Ohdi#Vwxfwxuh
G hvvlffdqw	Soolqw

Hazard Recognition

Classification

W|sh	Wdujhw
G lvlqihfwdqw	Edfwhuld
Ixqjlflgh	Ixqjxv
LJU# #SJU	Lqvhfw#ru#Soolqw
K huelflgh	Soolqw
Lqvhfwlflgh	Lqvhfw
P lwflgh	P lwv# #Wlfnv
P roxvflflgh	Vqdlv# #Vxjv

Hazard Recognition
Classification

W|sh	Wdujhw
Q hp dwflgh	Q hp dwrghv
Slvflflgh	Ilvk
Suhgdflgh	Odujh#Yhuwhebudwv
Uhshoodqw	Ydulrxv
Urghqwflgh	Urghqw
Vbylflgh	Z rrg|#Soqw

Hazard Recognition

Use Category

J hqhudo#X vh#

R yhu#kh#frxqwu#dydodeoh#ru#xqwdlqhg#xvhuv1

Uhvwulfwhg#X vh#

R qd|#dydodeoh#ru#xvh#e|#fhuwlilhg#dssdfdwruv1

Hazard Recognition
Nomenclature

Dfwlyh#Lqjuhglhqw#:#DIL,

Wkh#p dwuld#kdw#grhv#kh#folp hg#dfwlylw|

Lqhuw#Lqjuhglhqw

Hyhu|wklqj#oh1

Hazard Recognition

Nomenclature

šINERTSõ

- Lqhuw#Lqjuhglhqw#duh#p l{hg#z lwk#wkh#dfwlyh#lqjuhglhqw1#Lqhuw#Lqfoxgh#fduulhuv/#vroyhqw/#glxhqw/#vxuidfwdqw/#dgmxydqw-/#p xovli|lqj#djhqw/#rgrxup dvnv/#wdeld}huv#hwf1

- Wkh|#duh#qrwqhfhvvdulo|#sk|vlfdoo|/#elrorjlfdoo|#ru#fkhp lfdoo|#Lqhuw1##

Hazard Recognition
Nomenclature

Sursulhwdu|2Wudgh#Q dp h

Urxqgxs/#Gxuvedq/#Srdvw

Frp p rq#Q dp h

J o|skrvdwh/#Fkorus|ulirv/#vhwkr{|glp

IX SDF#Q dp h

5/7Celf|forOflvCp hwk|c0|deedCgdeed07/8Cwdqv0
klghhkrlf#Dflg

Hazard Recognition
Formulations

Whfkqlfdo#Judgh

X vxdoo|#z kdw#wkh#irup xodwru#wduw#z lwk/#

wkh#Ssxuh#wxiiõ1

Irup xodwlrq

Wkh#p l{wxuh#dfwlyh# #qhuw,#riihuhg#ru#vdo2xvh1

Hazard Recognition

Formulations

P rvw#Šilqlvkhgõ wdqn#p l{hv#duh# sulp dulo|

WATER

Hazard Recognition
Formulations

Dhurvrov=Oltxlg#DIL#q#d#frp sdwhdn#vroyhqw

Edlw=DIL#p l{hg#z lwk#q#dwwudfwdqw

Gxvw=DIL#q2rq#d#ilqh#gu|#sduwlfxodwh1

Hp xovlildeh#Frqfhqwudwh=DIL#p l{hg#z lwk#
hp xovlihu#q#dq#rujdqlf#vroyhqw1

Hazard Recognition
Formulations

Icrz dech=DIL#lq#d#šedwwhuõ wkdw#fdq#irup # dtxhrxv#vxvshqvlrqv1

Judqxodu=DIL#lq2rq#odujh#gu|#sduwlfxodwh1#

P lfurhqfdsvxodwhg=DIL#p ehgghg#q# p lfurfdsvxdnv/#uhdnvhg#e|#gliixvlrq1

Hazard Recognition
Formulations

Vorz #Jhohdvh=DIL#hp ehgghg#q#p dwul{/#
uhohdvhg#e|#gliixvlrq2vxuidfh#frqwdfw1

Vrxedh#Srz ghu=DIL#srz ghu#wkdw#lv#z dwhu#
vrxedh1

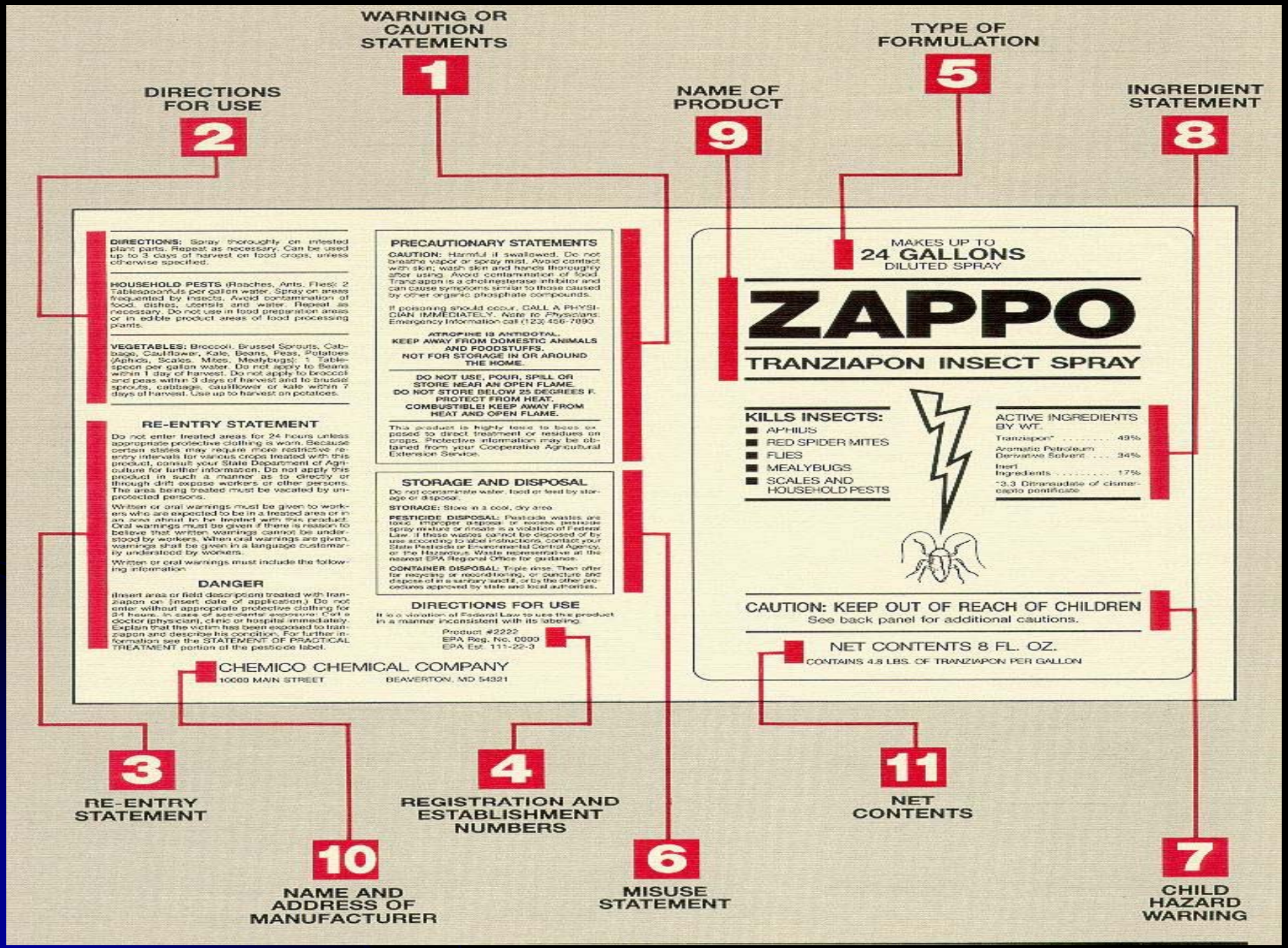
Z hwwdeh Srz ghu=DIL#lqho|#jurxqg/#z lo#
wd|#q#vxvshqvlrq#z lwk#djlwdwlrq1

X OY=DIL#xqglxwhg/#5#bhu#ru#hvv#shu#dfuh1

Hazard Recognition

Label Information

Odehv#surylgh#hvvhqwldo#vdihw|#
lqirup dwlrq1#Do#X VHSD#dssuryhg#
odehv#p xvw#surylgh#d#p lqlp xp #vhw#
ri#vshflilf#lqirup dwlrq1#


WARNING OR CAUTION STATEMENTS
1
TYPE OF FORMULATION
5
DIRECTIONS FOR USE
2
NAME OF PRODUCT
9
INGREDIENT STATEMENT
8
DIRECTIONS: Spray thoroughly on infested plant parts. Repeat as necessary. Can be used up to 3 days of harvest on food crops, unless otherwise specified.
HOUSEHOLD PESTS (Roaches, Ants, Flies): 2 Tablespoonfuls per gallon water. Spray on areas frequented by insects. Avoid contamination of food, dishes, utensils and water. Repeat as necessary. Do not use in food preparation areas or in edible product areas of food processing plants.
VEGETABLES: Broccoli, Brussel Sprouts, Cabbage, Cauliflower, Kale, Beans, Peas, Potatoes (Aphids, Scales, Mites, Mealybugs): 1 Tablespoon per gallon water. Do not apply to Beans within 1 day of harvest. Do not apply to Broccoli and peas within 3 days of harvest and to brussel sprouts, cabbage, cauliflower or kale within 7 days of harvest. Use up to harvest on potatoes.
RE-ENTRY STATEMENT
Do not enter treated areas for 24 hours unless appropriate protective clothing is worn. Because certain states may require more restrictive re-entry intervals for various crops treated with this product, consult your State Department of Agriculture for further information. Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.
Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. When oral warnings are given, warnings shall be given in a language customarily understood by workers.
Written or oral warnings must include the following information
DANGER
(Insert area or field description) treated with Tranzapon on (insert date of application.) Do not enter without appropriate protective clothing for 24 hours. In case of accidental exposure: Call a doctor (physician), clinic or hospital immediately. Explain that the victim has been exposed to tranzapon and describe his condition. For further information see the STATEMENT OF PRACTICAL TREATMENT portion of the pesticide label.
PRECAUTIONARY STATEMENTS
CAUTION: Harmful if swallowed. Do not breathe vapor or spray mist. Avoid contact with skin; wash skin and hands thoroughly after using. Avoid contamination of food. Tranzapon is a cholinesterase inhibitor and can cause symptoms similar to those caused by other organic phosphate compounds.
If poisoning should occur, CALL A PHYSICIAN IMMEDIATELY. Aside to Physicians: Emergency Information call (123) 456-7890
ATROPINE IS ANTIDOTAL.
KEEP AWAY FROM DOMESTIC ANIMALS AND FOODSTUFFS.
NOT FOR STORAGE IN OR AROUND THE HOME.
DO NOT USE, POUR, SPILL OR STORE NEAR AN OPEN FLAME.
DO NOT STORE BELOW 25 DEGREES F.
PROTECT FROM HEAT.
COMBUSTIBLE! KEEP AWAY FROM HEAT AND OPEN FLAME.
This product is highly toxic to bees exposed to direct treatment or residues on crops. Protective information may be obtained from your Cooperative Agricultural Extension Service.
STORAGE AND DISPOSAL
Do not contaminate water, food or feed by storage or disposal.
STORAGE: Store in a cool, dry area
PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal or excess pesticide spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.
CONTAINER DISPOSAL: Triple rinse. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
DIRECTIONS FOR USE
It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.
Product #2222
EPA Reg. No. 0000
EPA Est. 111-22-3
CHEMICO CHEMICAL COMPANY
10000 MAIN STREET
BEAVERTON, MD 54321
MAKES UP TO
24 GALLONS
DILUTED SPRAY
ZAPPO
TRANZIAPON INSECT SPRAY
KILLS INSECTS:
APHIDS
RED SPIDER MITES
FLIES
MEALYBUGS
SCALES AND HOUSEHOLD PESTS
ACTIVE INGREDIENTS BY WT.
Tranzipon* 49%
Aromatic Petroleum Derivative Solvent 34%
Inert Ingredients 17%
*3,3 Dibransadate of cismercapto pontificate
CAUTION: KEEP OUT OF REACH OF CHILDREN
See back panel for additional cautions.
NET CONTENTS 8 FL. OZ.
CONTAINS 4.8 LBS. OF TRANZIAPON PER GALLON
3
RE-ENTRY STATEMENT
4
REGISTRATION AND ESTABLISHMENT NUMBERS
11
NET CONTENTS
10
NAME AND ADDRESS OF MANUFACTURER
6
MISUSE STATEMENT
7
CHILD HAZARD WARNING

Hazard Recognition

Label Information: Signal Words

Fdwhjru|#L=#GDQJHU2SRLVRQ

Yhu|#wr{lf#p dwhuldo

SR OG =#Wdvwh#wr#d#whdvsrrq#

Srvvleo|#fruurvlyh#wr#h|hv#ru#vnq

X vxdoo|#Jhvwulfwhg#X vh

Hazard Recognition

Label Information: Signal Words

Fdwhjru|#L-#Z DUQLQJ

P rghudwho|#wr{lf#p dwhuldo

SR OG =#Whdvsrrq#wr#rxqfh

Srvvleo|#vhyhuho|#uulwdwlqj#wr#n|hv#ru#vnlq

Hazard Recognition

Label Information: Signal Words

Fdwhjru|#LL=#fdxwlrq

ŠVdjkwo|õwr{lf#p dwhuldo

SR OG =#Juhdwhu#wkdq#rqh#rxqfh

Vrp hz kdw#uulwdwlqj#wr#h|hv#

Vdjkw#uulwdwlrq#wr#vnlq

Hazard Recognition

Label: Precautionary Statement

Orfdwlrq#ri#kxp dq#kd}dug#qirup dwlrq#
dqg#dssursuldwh#SSH#wr#eh#z ruq#z khq#
kdqgodqj#wklv#p dwhuldo1

P d|#dovr#frqwdlq#qirup dwlrq#rq#
hqylurqp hqwdo#kd}dugv#dqg#vshflilf#
sk|vlfdo#dqg#fkhp lfdo#kd}dugv#
+iluh/#h{sorvlyh/#yrodwlw|/#hwf1,

Hazard Recognition

Label: Identifiers

Wudgh#Qdp h

Frp p rq#Qdp h

IX SDF#Qdp h

HSD#Jhjlvwudwlrq#Qxp ehu

Hazard Recognition
Label: Storage and Disposal

- Lqirup dwlrq#rq#surshu#vwrudjh#
  +whp shudwxuh#h{wuhp hv/#qrw#qhdu#irrg/#
  ihhg#ru#lqfrp sdwledqv,#dqg#glvsrvdo#
  uhvlgxh#dqg#xvhg#frqwdlqhuv1

Hazard Recognition
Label: Contents/Formulation

K rz #p xfk#grhv2gl g#wkh#frqwdlqhu#krogB

Z kdw#duh#wv#sk|vlfdo#fkdudfwhulvwlfvB

Z kdw#shufhqwdjh#D1LB#lqhuwB

Hazard Recognition
Label: Directions/Re-Entry

- Lqirup dwlrq#ru#wkh#p l{hu2ordghu/# dssolfdwru/#jurz hu/#idup #z runhuv#dqg#dq|# rwkhu#shuvrqv#z kr#p d|#xvh#ru#frp h#q# frqwdfw#z lwk#wkh#p dwhuldo#dqg2ru#lw# uhvlgxhv1#

Lqfoxghv#wdujhw#shvw#dorz hg#furs#xvhv/#vshflda#thvwulfwlrqv/# Z SV#lqirup dwlrq/#uhhqwu|#qwhuydov/#gd|v#wr#kduyhvw/#nwf1

Pesticide Usage

Wrs#43#q#Fddiruqld/#e|#Srxqgv#5336,

Vxoixu	85/4;6/6<5
Shwurohxp #rlo/#XQF	4:/77:/<68
P hwdp 0vrglxp	47/;48/9;:
P hwk|c#eurp lgh	:/6;7/6<;
4/60glfkorursurshqh	:/33</367
P lqhudo#rlo	9/5;3/776
Jo|skrvdwh	8/963/476
Fkorurslfulq	7/<5:/458
Frsshu#vxoidwh	7/454/398
Vxoixu|oicxrulgh	6/445/3::

Pesticide Usage

Wrs#43#q#Fddiruqld/#e|#Dfuhv#5336,

Dgskd0+sdud0qrq|cskhq|o,0rp hjd0k|gur{|sro| +r{|hwk|dnqh,	8/;3;/9:8
Vxoixu	8/796/9<7
Lvrsurs|d#dofrkro	6/9<3/68:
J o|skrvdwh	6/989/;<4
R {|icxruihq	4/8;</;<6
Fkorus|ulirv	4/7:;/:94
Sdudtxdw	4/749/567
Frsshu#K |gur{lgh	4/48;/5;4
Dgskd0dn|odu|o0rp hjd0k|gur{|sro| +r{|hwk|dnqh,	<:8/4;<
G lxurq	;76/487

Pesticide Usage

Wrs#43#q#Fddiruqld/#e|#Dssdfdwrqv#5336,

Vxoixu	467/534
Dskd0sdud0qrq|skhq|o,0rp hjd0k|gur{|sro| +r{|hwk|dnqh,	45</47:
Jd|skrvdwh	454/879
Lvrsurs|d#dcfrkro	<6/<<:
R{|icxruihq	78/46<
Shup hwkulq	77/<5<
Frsshu#K|gur{lgh	73/89:
Ip lgdfarsulg	73/567
P dqhe	73/4;8
Fkarus|ulirv	6;/999

Pesticide Usage

Derxw#:3(#ri#Fddiruqld#shwlflgh#xvh#vqrq0djulfxowxudo#lqfxglqj=

- Exvlqhvv#dqg#qwxwlrqdo#xvh
- Krp h#dqg#jdughq#xvh

Kdi#ri#wkh#shwlflghv#vrog#duh#fkorulqh0edvhg#surgxfw#xvhg#iru#dwuwhdwp hqw#srrov/#grp hvwlf#dwu#xssdhv/#frrdqj2fdqdqlqj#edwkv#hwf1,

Components of Exposure

Sources

Xqgluxwhg#Shwlflgh

Dssdodfdwlrq#Gluxwlrq

Irdd#Jhvlgxh

Rii#Wdujhw#Jhvlgxh

Gulw

Ghjudgdwlrq#Surgxfw

PPE
Program Requirements

Vhohfwlrq#ru#shwlflgh#xvhu#ledvhg#rq

LABEL

PPE

Jcryh#Fdwhjru|#Vhdfwlrq#Nh|#Edvhg#rq#K VHSD#Odeho#Frghv

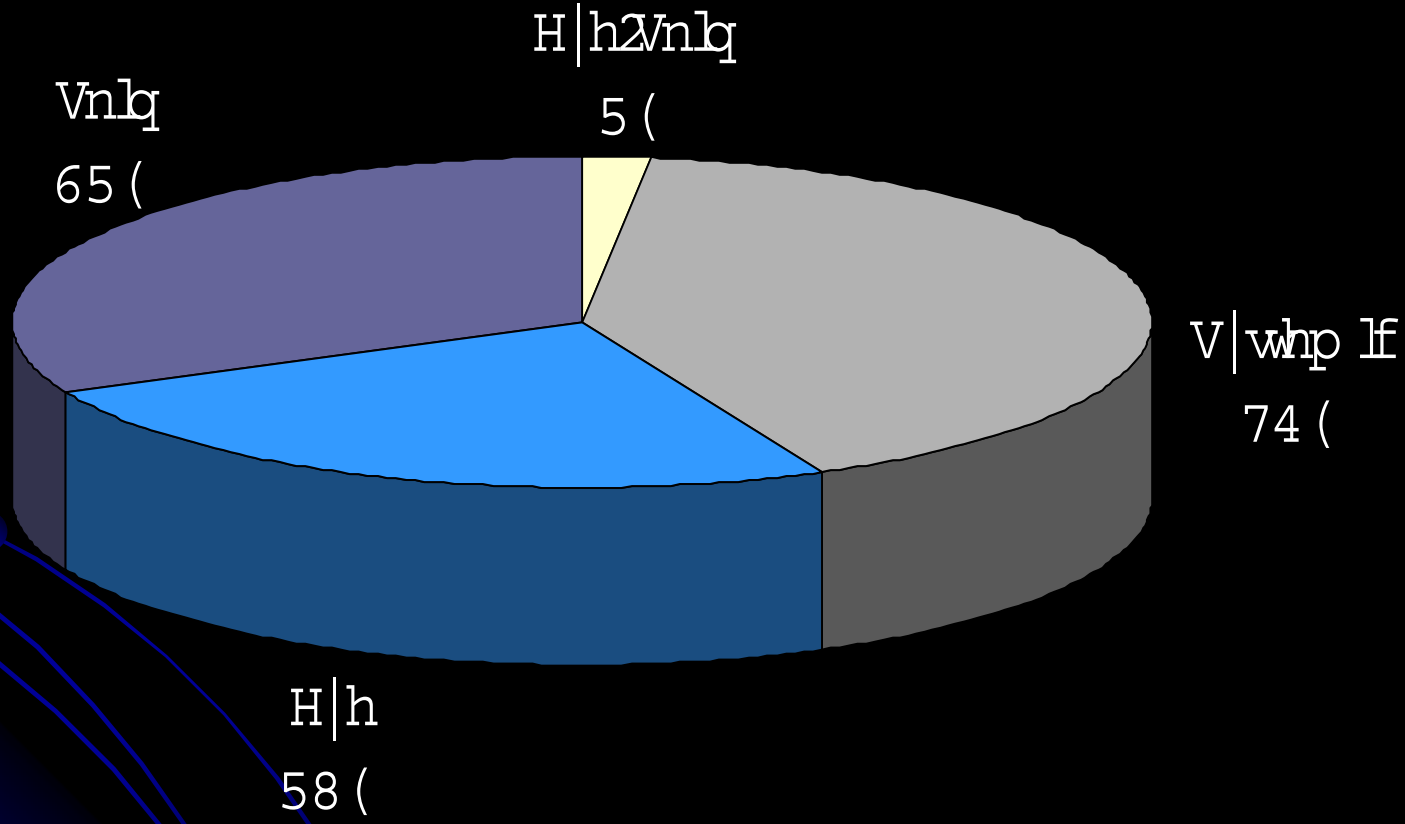
Odeho#Frgh	Fkhp lfdo#Fodvv	Uhfrp p hqghg#E|#FG SU
D	Z dwhu#dqg#Gu|#p dwhuldov	4/5/6/7/8/9/:/;
E	Nhwrqhv	4/5
F	Dcfrkrov	4/5/6/7/:/;/
G	Dfhwdwhv	4/5
H	Dolskdwlf#K |gurfduerqv	4/6/7/;
I	Durp dwlf#K |gurfduerqv	4/5/6/;
J	Ehq}hqhv	4/;
K	Kdor0k|gurfduerqv	4/;

4=Odp lqdwh##5=Exw|c##6=Q lwulo##7=Q hrsuhqh##8=Q dwxudo##
9=Sro|hwk|dqh##:=SYF##;=Ylwrq

Do#exw#Odp lqdwh#dqg#Sro|hwk|dqh#p xv#eh#47#p lov#ru#wklfnhu

PPE

Pesticide Illness/Injury, By Type



➢ <90<<#SIVS#G dwd#

+Z K) V,# Q r#Q rqR ff2G uli2Vwxf Uhv

PPE

Selection of PPE

P VG V2Odehc#Uhylhz

- Krz #grhv#djulfxowxudo#shvwlflgh#xvhuv# SSH#frp sduh#wr#KD]Z R SHU2KD]P DW# uhtxluhp hqwB

PPE

Comparison of Protection

Orz#Kd}dug

KD]P DW	DJUIFXOWXUDO
Ohyhd#G	Fdxwlrq
Fryhudoov	Z run#Fdrwklqj
Errw2Vkrhv	Errw2Vkrhv
H|h#Surwhfwlrq	Jdryhv-
Kdug#Kdw	H|h#Surwhfwlrq-
Jdryhv-	

PPE

Comparison of Protection

P rghudwh#Kd}dug

KD]P DW	DJ UIFX OWX UDO
Ohyho#F	Z duqlqj
FU#Forwklqj	Z run#Forwklqj
FU#Errw2Vkrhv	Errw2Vkrhv
Kdug#Kdw	FU#Jorryhv
FU#Jorryhv	Uhvsludwru
II#Jhvsludwru	VrxÃz hvwhuq-
	H|h#Surwhfwlrq-

PPE

Comparison of Protection

Kljk#Kd}dug

KD]P DW

Ohyho#E

FU#Forwkqj

FU#Errw2Vkrhv

Kdug#Kdw

FU#Joryhv

VFED

DJ ULF XOWX UDO

Gdqjhu

FU2Z run#Forwkqj

FU#Errw2Vkrhv

FU#Joryhv

Uhvsludwru

VrxÃz hvwhuq2EF

H|h#Surwhfwlrq

VFED#ru#Lxp ljdqw

PPE

Comparison of Protection

H{whp h#K d}dug

K D] P DW	DJ UIF X OWX UDO
Ohyhd#	Q r#z d|1
Hqfdsvxodwlqj#Vxlw	
FU#Errw2Vkrhv	
FU#J cryhv	
VF ED	

Additional Information

Uhfrjqlwlrq#dqg#P dqdjhp hqw#ri#Shvwlflgh#Srlvrqlqjv/#
8wk Hg1#X VHSD#G rf& #:680U<;033 6,

Idup #Fkhp lfdov#K dqgerrn/#P hlvwhu#Sxedvklqj#Fr1
;3308:50::73

R ffxsdwlrqdo#Vdihw|#dqg#K hdowk#jxlgdqfh#P dqxdo#ru#
Kd}dugrxv#Z dvwh#Vlwh#Dfwlylwlhv#QIR VK #G rf& #;80448,

Wkh#Z runhu#Surwhfwlrq#Vwdqgdug#ru#Djulfxowxudo#
Shvwlflghv0K rz #Wr#F rp so|#X VHSD#G rf& :680E0<60
334,#

Additional Information

Djurfkhp lfdo#dqg#Shvwlflgh#Vdihw|#Kdqgerrn>#
Z d{p dq/#FUF#Suhvv#COF#LVEQ&4089930658<90;,

Lqwxvwudwhg#Kdqgerrn#ri#Sk|vlfdo#Fkhp lfdo#Surshuwlhv#
dqg#Hqylurqp hqwdo#Idwh#ru#R ujdqlf#Fkhp lfdo/#Yro#3/#
Shvwlflghv>#P dfnd|#nw#dq/#Ohz lv#Sxedvkhuv#LVEQ&#40
899:3058803,

Kdqgerrn#ri#Hqylurqp hqwdo#Idwh#dqg#H{srvxuh#Gdwd#
ru#R ujdqlf#Fkhp lfdo/#Yro#6/#Shvwlflghv>#Krzdug/#
Ohz lv#Sxedvkhuv#LVEQ&30;:6:4065;04,

Wkh#Vdih#dqg#Hiihfwlyh#Xvh#ri#Shvwlflghv>#F#Gdylv#
Vwdwh#LSP /#Sxedfdwlrq#6657#LVEQ&40;:<<39076,