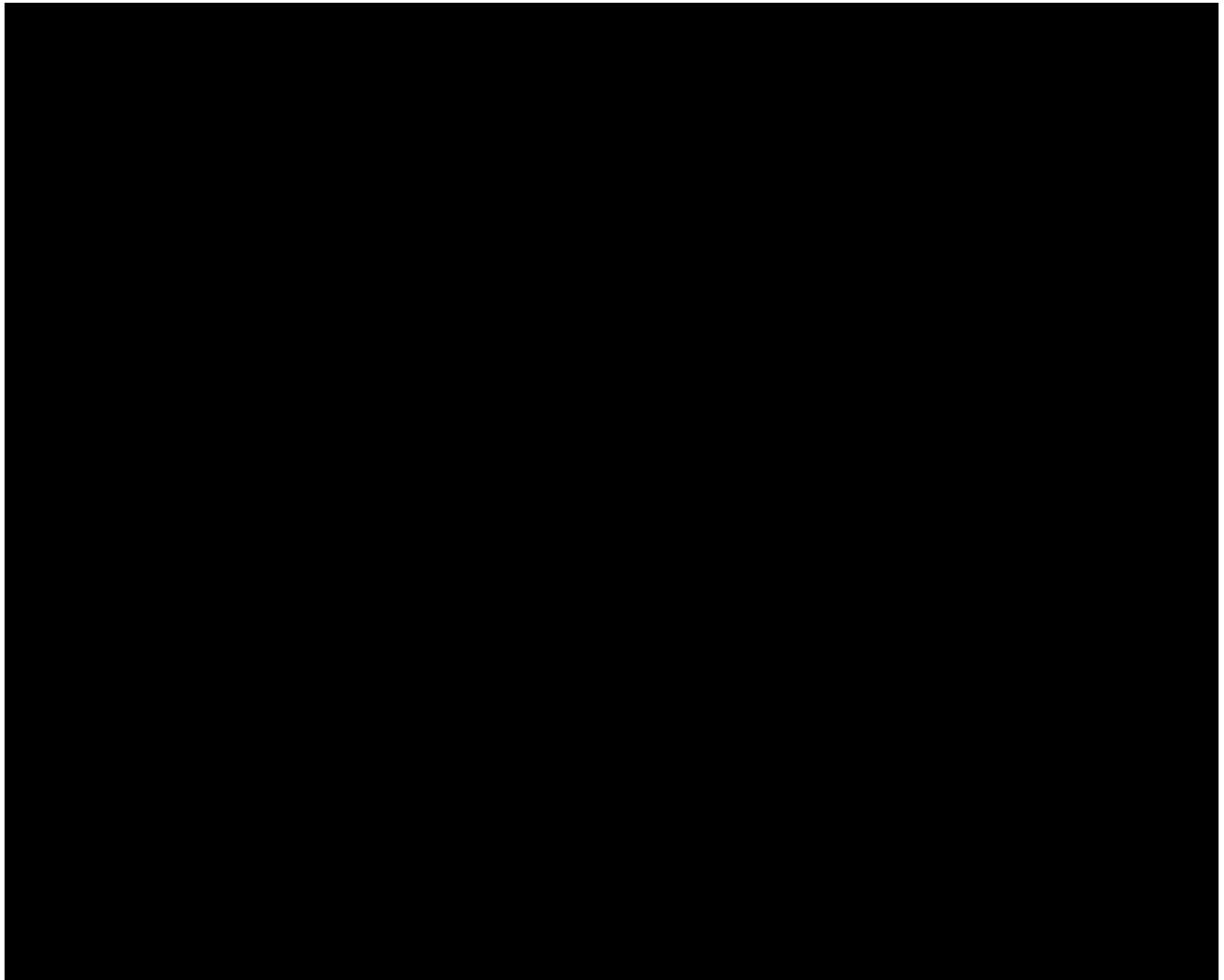

Household Hazardous Products and Hazardous Waste: A Summary for Consumers



PENNS^TATE



College of Agricultural Sciences
Agricultural Research and Cooperative Extension

Contents

	Page
I. What are Household Hazardous Products and Waste?.....	1
A. Hazardous Waste—Not Your Ordinary Pile of Trash	1
B. Household Hazardous Waste and Products	1
II. The Route of Household Hazardous Waste	3
A. Household Hazardous Waste and the Environment	3
... bcbW6 [baeS^aX: ageVza^V: SlSdVageI SeFW.....	3
... ai >a`YI [^: SlSdVageI SeVW SlSdVage1	5
... ageVza^V: SlSdVageI SeVW VfZW SFW5kUW.....	5
B. Hazardous Products and the Human Body	6
... ai 6a: SlSdVageEgTeS`Uw7^fWAgd4aVWl	6
..Faj [^e[fZWaVk	6

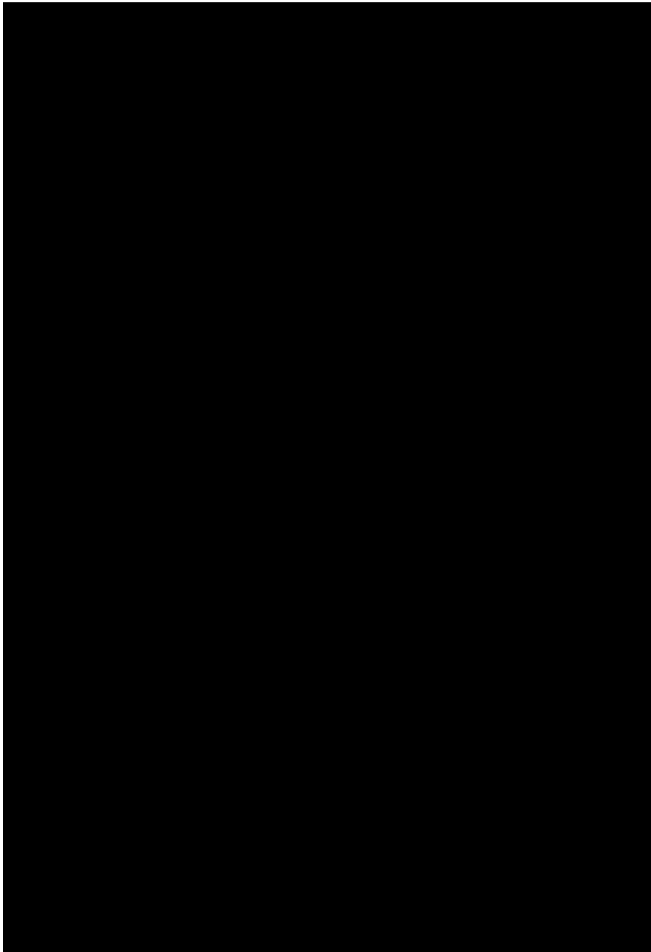
I. What Are Household Hazardous Products and Waste?

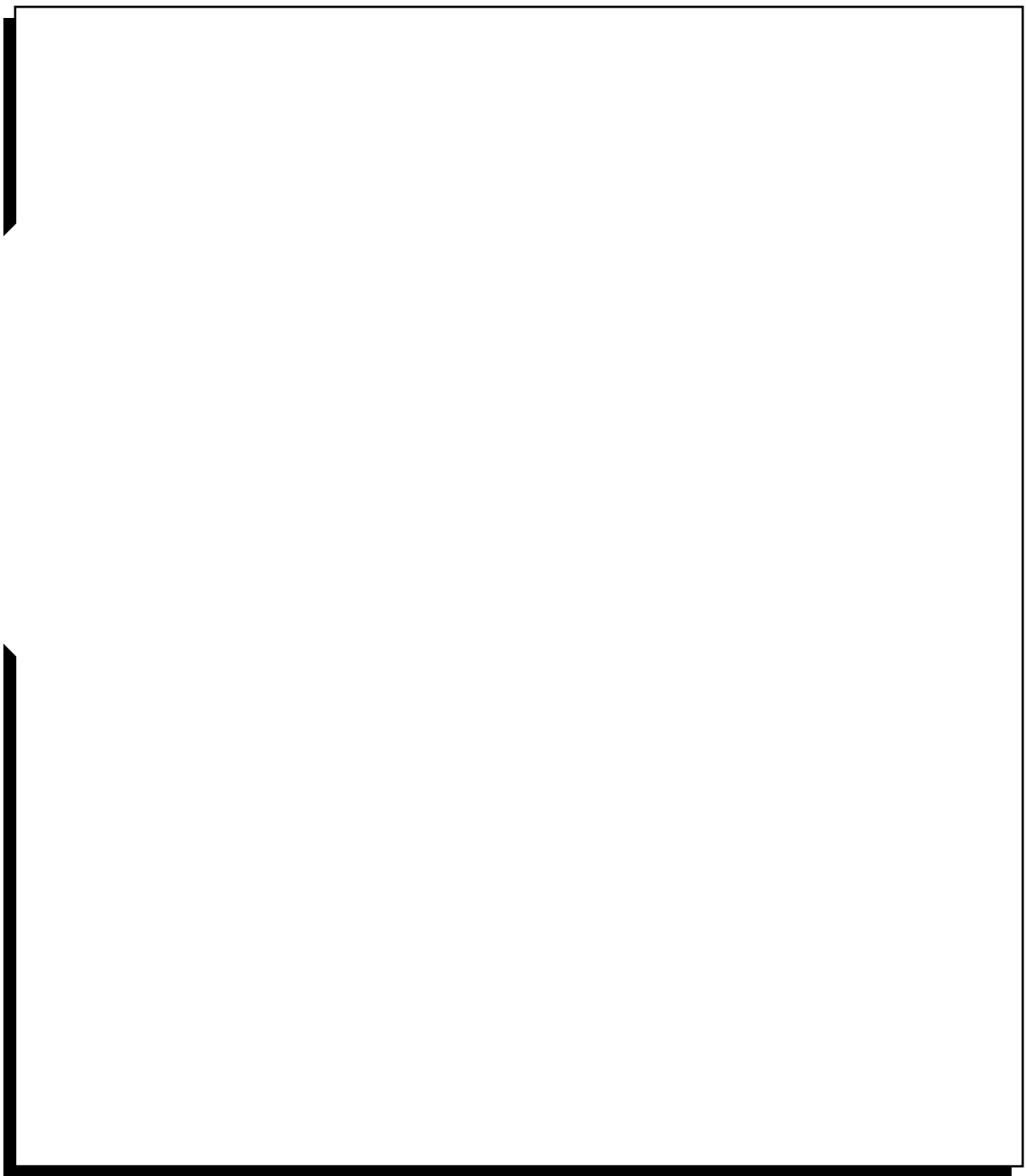
A. Hazardous Waste—Not Your Ordinary Pile of Trash

: Sl SdVagei SeVfZWW Td` Yefa_ [`V[SWWaX >ahW5S` S`/@W Kad fidWVWfeXdLWfa` VShWZMd Za_ W`S` VUVS` Zgb LdW e VdWVW`[] WSech` Sgfe in protective clothing. This is scary stuff. A total of %S1"" ZSl SdVagei SeVefWZShWVW`aYYW[fZW GÆZ7` h[da` _ WIS`BdaVWfa` 3YWUk/7B3fi[hW-fack/#++" fZ: Sl SdVagei SeVWVWVSWTk [Vgefck ZSeYS[W` Sf[a` S`SfWf[a` ž3eS` Sf[a` li WZShW TWg` fa fS] VefVefai Sd/bcbWV_ S` SYW Wf aX these materials. In the last ten years the disposal of in-VgefQs` ZSl SdVagei SeVWZSeTWa_ VZ[YZ`k dVg`SfWž 3`fZagYZfZWbdTW [e XsdXa_ dW`hW bcbYdW ZSeTW_ SWZ

3` VdWV` ai` U[e]el Zai WVV [e`gefTW` [`Y to unfold. Upon examining the types of household S`Ve_ S`Tge[Wei SeVW VScTWa_ [`YSi SdW fZSfZVW SeVWScWZWS_ WkbWaxZSl SdVage i SeVWVWVSWTk `SdW` VgefckZ3`fZagYZfZVWUgS` S_ ag` faXZSl SdVagei SeVW` [`YXa_ a` WZageVad Tge[W` Sk TW` S`fZWg_ g`Sf[hWS_ ag` fXa_ S` the ZageVZa`VeS` Ve_ S`Tge[W`V [fZVGEZSWe up to a profound threat to the environment. There are XW` Si` eYahW [`YZSl SdVagei SeVW` ZageVZa`Vež FZVWVdMZ[e] SeVW_ Sk` VWS`k WVVWVebaeS` XU[`- ties that are not equipped to treat it.

: ageVZa`VZSl SdVagei SeVW: I fi[eTWa_ - [`YfZWVfXUgeaX_ g` [Ubs`i SeVW_ S` SYW WfZ3e i Waa] Xidi Skefa dVgUWZVha`g_ W`XIZWVSeZi W YWVSWi W_ gefS`ea VJS_ [`VZai i WLS` dVgUW its toxicity. The exact amou5h of houseEIZTNFOUIE MFUIF0m] HFOSB4PD`FP` -P





;[^] ea_ WSeW fZVá ` k V~~XXXXXXXXXX~~ WSe_ W
of the hazardous chemicals used in some industrial

II. The Route of Household Hazardous Waste

Among the different types of household hazardous waste, the most common are household hazardous waste (HHW) and household hazardous waste (HHW). The long-term effects of household hazardous waste on the environment are so recent.

Incinerators

Control devices, some pollutants found in hazardous waste incinerators are listed in Table 1. The most common pollutants found in hazardous waste incinerators are listed in Table 1. The most common pollutants found in hazardous waste incinerators are listed in Table 1.

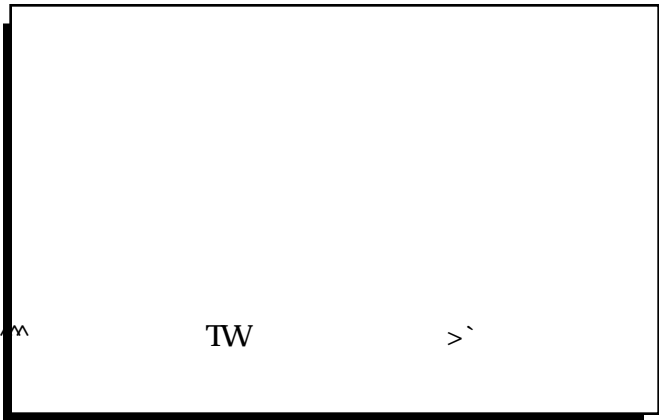
Wm	1`Ä	fZ	LS	Tg
Tg`Te	dW	dW`W		

2. On the Ground

If dumped directly on the ground, the first thing house-
Za^VZSlSdVagei SeW [^WUag`fW|eaa[ž: SlSdVage
_ Sfw|S^e_gafTWW|eaa^hWadegebWWW|`fa^cg|V
TVadW ah|`YfZagYZ.ea[ž: ai fz|U fz|eaa^gf|a`ad
_ |jfgdWe/|feh|Uae|fkfiWWW|`WZai Xef|f_ahWž
Ea[^fkbWŠ^ea|^ûgWUWZai XefS^VZai XsdZageW
Za^VZSlSdVagei SeW [^fshWžEa[^UZScSUW|ef|Ue
eg|ZSebadef|k/fZMS_ag`faXebSUMW|WwfZWea[^
badW|`ûgWUWZW|a`fS_ |`SfW

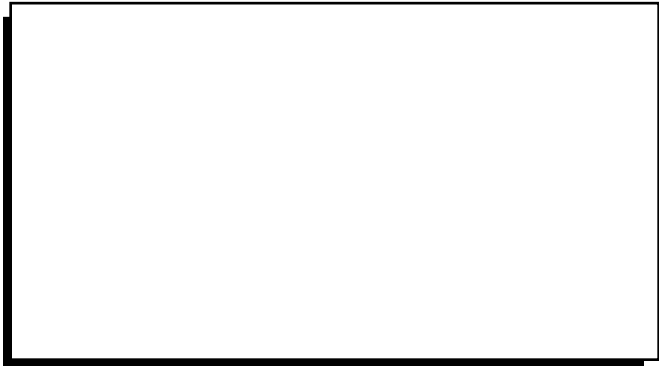
Septic S stems

FZVWf[UekeWl^aLSWza` e[W fdWfSTg[V` Ye
i SeW/SfWTVadWWSel` Y[fTSU [` fa fZVWWh[da` -
_ WfZ: ai WfW [] W U` WfadaS` V`S` Vu^d eW[U
ekeW eSdWaf WfY Wfa fdWfZSI SdVagei SeW/
: SLSdVagei SeW[V` UgV` YWUWefhWS_ ag` feaX
drain openers and cleaners containing lye and strong
T`SUZ_ Sk` Wsf[hWk SSWf fZVkefWle` Sfgd^
UW` e[YbcaUweTk Wfcaak^ hWk fdWf Wh[da` -
TWsa Seke [f

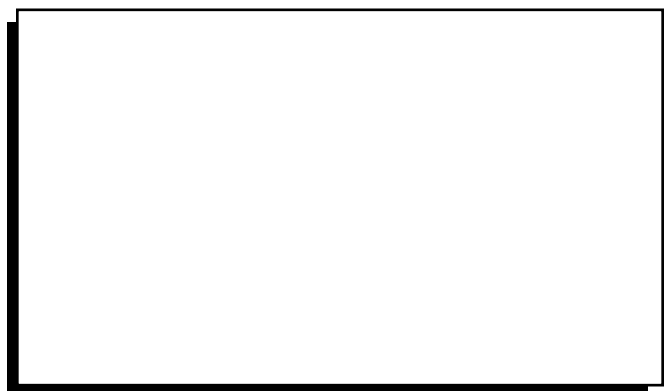


TW >` SX

WV fa fdWfZSI SdVage` [UgV` S \ -S [e



The Water Cycle



Toxicity: A Relative Term

Toxicity is a relative term. The effects of hazardous egTefS UW hSk YdSf kZAgddSf[a` WbWWea` Zai _ gLZ aXfZVegTefS UW W V WbWbaeWfal fZWLa` - UWfSf[a` aXfZSf egTefS UWfZWVYZ aXfbaegdW time, and our individual characteristics. Characteristics [ûgWU] Yfaj [Ufk [UgWV

1. **Genetic factors**—For example, the efficiency of the [V WUS` SXXf fZVST] f[k fa WUUMfaj [ež
2. **Lifestyle of the individual**; E_a] [Y S UaZa^ Ua` eg_bf[a` l aTWfkd S` VbdM] age_ WUS^Z[efack S^ SXXf Zai fZWTaV k ZS` V Wfaj [ež;` YWMS1 ZVfZ[W] [Vh[VgS`ei [^TWVWfSTWfa XWaxX some toxins.

3. **Gender**—Some toxins have different effects on _ S`WS` V XV S`Wz9WMS^kdi a_ WZShVS `SdWd bWUWSYWaXxf [fZMdfafS^TaVki WYZH _ VS` - [YfZWUS` SUg_ g`SfW adVSSZa`gT`Wfaj [e [fZMfTaVWfZS` _ Wz
4. **Age**—The very old and the very young are more egeUmf[T`Wfa fZWXXUfe aXfaj [UegTefS` UWZ Infants and young children have incompletely developed systems. Since children have higher dAb[dsf[a` dSaf fZW SdV adVgeUmf[T`Wfa faj [e through inhalation.
5. **Allergic sensitivity**; ? S` k [Vh[VgS`ei Za SdW particularly sensitive to chemicals experience an allergic reaction to some toxic chemicals, even in ^ai S_ ag` feS` V concentrations.

III. Household Hazardous Products: Problems and Solutions

A. Looking at Labels

Federal regulations require that certain information SbWScda` ZSf SdVage bcaVgUf `STWzFZW Federal Hazardous Substances Act (FHSA) WST`[eZW `STW` YdVg[dW Wfe XadUa` eg_ WbcaVgUfe Ua` fs [- [YZSf SdVage egTefS` Uaf WUmf XadbWf [UWzFZW Xa`ai [Y [Xad Sfa` [e dVg[dWfa SbWScda` ZSf SdVage bcaVgUfe

..E[Y S`i adVe/danger, warning, caution, poisonfz FZWZdW adVe Y[hWea` WZ] faXZai ZSf SdVage SbcaVgUf [ežBcaVgUfe `STWVz6S` YWf SdWZW_ aef ZSf SdVage S` VfZaeWSTWVz5Sgfa` ^ SdWZVMSf hazardous

..6WU]bf[a` aXfZVZSf SdVSeeaUfSfWi [fZfZWbcaVgUf /XadVW_ b`WuS_ _ ST`Wba[ea` fi

..5a_ _ a` UZW [US` S_ WadfZWZSf SdVage ingredients

..;` efcUf[a` eXdeSXXgeVS` VZS` V [Y

..8[cfS[V]` efcUf[a` e

..@S_ VS` V`aUsf[a` aX_ S` g`SufgdW adVefdTgfa d

..z= WbAgf aXDWUZ aX5Z] `VdW` eSfW` Wf adfZW equivalent

Hazardous products are regulated only in terms of their acute health effects. Chronic health effects are `af[S] W [fa Ua` e[VMSf[a` l S` VhWk XW efgV[WZShW TWUa` VgUfWfa WUW [WgefZai VS` YWage fZaeW effects are.

FdSWWUWk `Si eS`ai _ S` g`SufgdW efa a_ [f [ef] YadebW[uUS`k WU [Y [YdWVWfe a` `STW [X Va [Yea i ag`VUSgeWZW Wa` a_ [U^aez? S` g`SU turers are required to disclose the exact product ingre- V[Wfe fa bZke[U]S` efdWf [YS bSf[WfZi Z[VWZ]e `Si protects manufacturers, it prevents consumers from]`ai [YWVsu`ki ZSf fZW SdWgk [Yz

Vague Language

? S` g`SufgdW sometimes use generic terms or vague language rather than reveal the specific chemical idenf[k aXfZMdbcaVgUfeZFi a Ua` _ a` WUWUfWU eSdW petroleum distillates and organic solvent. Petroleum Vef`^SfW SdS` TaSV d` YWaxLa` bag` Ve fZSf SdW _ SWW ZWUgWw [^ [e dW WzBWA` Wg_ Vef`^SfW have varying degrees of toxicity, ranging from highly faj [UTW WWfa bWb` Wg_ Wk /YWMS`k S UUMfW Se` a` faj [UzEbW[uUadS` [Uea`hWfe e [`Sd k ZShW Si [WMS` YWaxfaj [Ufk S` VuS_ _ ST] f[kZAdS` [U solvents include acetone, isopropyl alcohol, and methylene chloride.

Ea_ VZ[YdM]Wfe` ^efWa` ^STW`WUd]TWZW
Xg` Ufa` aXfZWZW [US^]` YdM]Wf/Yd]SeW]ffW]Uad
de]a` [Z]T]fad ba^eZ]` YSYW]fid]SfZW]fZS` fW]` YfZW
La` eg_ Wli ZSf dbW]u]UZW [US^]` YdM]Wfe]Sd]WgeWZ

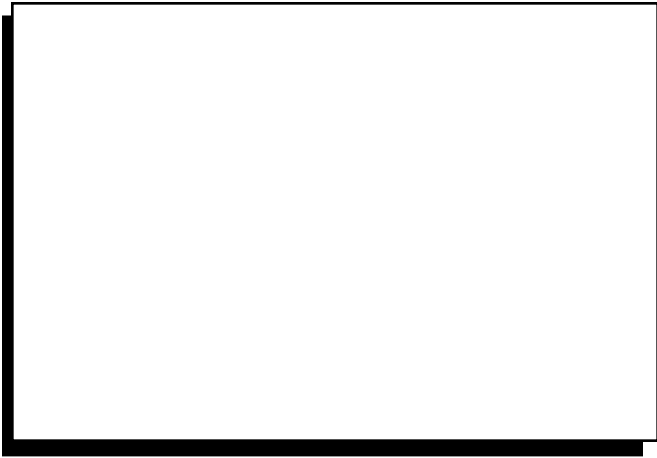
Misleading Terms

Ea_ WU] e_ Sk TW]W]M]h]Weg]Z]Se]z]S]h]WS` V
“inert.” The term “active” refers to those ingredients
fZSf]S]U]g]S^k Va i ZSf]fZW]b]d]V]g]U]f [e]` f]W]W]fa Va]z
z,` W]f` d]W]e]fa S` k afZW]eg]Te]S` U]W] [` fZW]b]d]V]g]U]f
geg]S^k fZW]h]W]U]W]f]Z]f_ S] W]f]Z]W]S]U]h]W] YdM]-
W]f]W]ek]fa S]b]b]k]S` VS^ai e [f]fa b]W]e]d_ fZW]a]Z
Consumers often assume that “inert” means nontoxic.
;` W]f [` YdM]Wfe_ Sk TW]gef]Se]Z]S]d]V]ge]Se]f]Z]W]S]U]h]W]
ingredients, or even more so. For example, methylene
chloride, a carcinogen, is often an inert ingredient in
disinfectants.

Another misleading term that is used is “non-
toxic.” It is important to note that “nontoxic” has no
regulated de nition and therefore the manufacturers
may use it as they desire.

Incorrect First Aid Advice

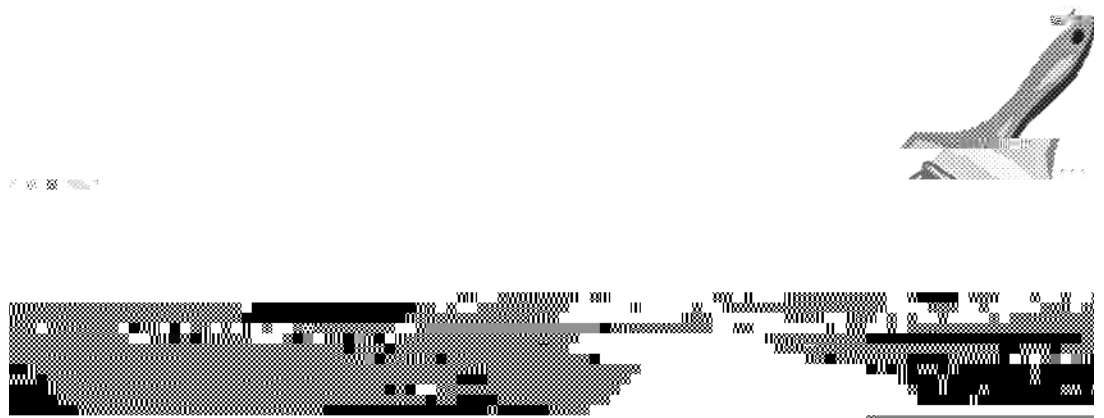
Consumers should never assume that rst aid informa-
f]a` ^efWa` ^STW`e]c S a



WET CELL BATTERIES

FZWeSi [WebMdg_ aXfaj [Ufk Seaa[SfWi [fZ
UWS [YbdVgUel dS Y[YXa_ WeZSI SdVagei [-
Vai





The most frequently used household pesticides
 SdW[e] XMS` feL`_ afZIS`eLúS] Wf bWúWUá^SdH
 z` aZbWf efdbe` S` V/Si `!YsdWWUSdWbdVgUfež? S` k
 V[e] XMS` feL` fS]` faj [Uea`hWfe/fa^gWWW_ WZk-
 ^WWZ^adWfž? afZIS`eL efd` Yfaj [UhSbad^/ SbZ-
 fZS`WfWfSe]`k WfWfZWTaVt Tk [`ZS`Sf]a` žEa_ WbW
 ea products often do more damage to the pets than
 fa fZWúWSež7ebW]S`k bdaT`W Sf[USdWZaeWbdVgUfe
 Uá` fS] [`YadS` abZaebZSfW`S` VUSdIS_ SfWá_ -
 bag` Vež3ei [fZ_ afZIS`eL z` aZbWf efdbe` Uá` eS` f`k
 W [fhSbadžFZWSdWf Ydi [`YeWfadaXfZWbWf]-
 U[W] Vgefck [eLá_ _ W]S`^Si ` USdWbdVgUfež

Concerns Surrounding Pesticide Use

Pesticides work overtime. Once in the environment, pesticides may do more than their intended purpose. Bw[UW]US`] [^^` af a` `k fZWbWf Tgf [fe` Sfgd`^ b]WsfadSei WžFZge fZW Sfgd`^IS`S` UWfW` Ww predator and prey is disrupted.

Pesticides move away. I [`VeT`ai bW[UW]WZg` -

A Poison By Any Other Name

But the fact, some pesticides can cause cancer, genetic National Cancer Institute found that children

What we don't know CAN hurt us! Some authorities tested for their chronic health effects. The EPA is

Banned pesticides may still be around. Banned pesticides in your house, call the manufacturer to help

What Are Some Solutions?

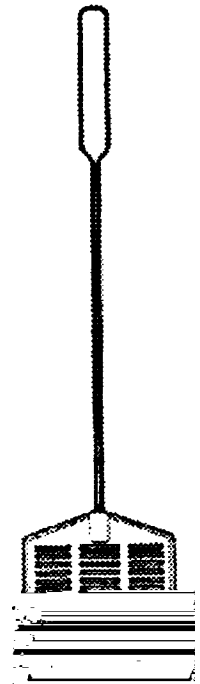
Fruit and vegetables are a perfect, round, red apple? What are the health and ecological

Ined. A pest is defined as a plant or animal that is "detrimental to humans." This definition leaves a

Other species in that system. Every "pest" has a role in activities.

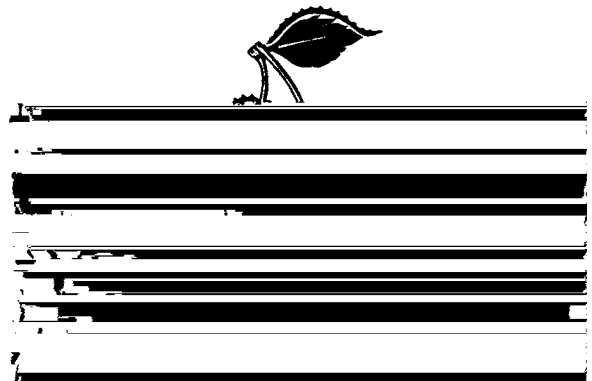
Home Hints

maintained so that it is unattractive to pests. Some easy i Ske fa SUZ zg Sff SU hW Za VSD fa] W fZW Zage VUS S V X W Xa Xa V U g Td efa d Xa V tight- tting containers, eliminate sources of free-stand- ing to pesticides, try mechanical means of pest control, such as screens. Use natural repellents for certain insects species. Basil, dried lavender, cedar chips, or pyrethrum nontoxic repellents certainly smell



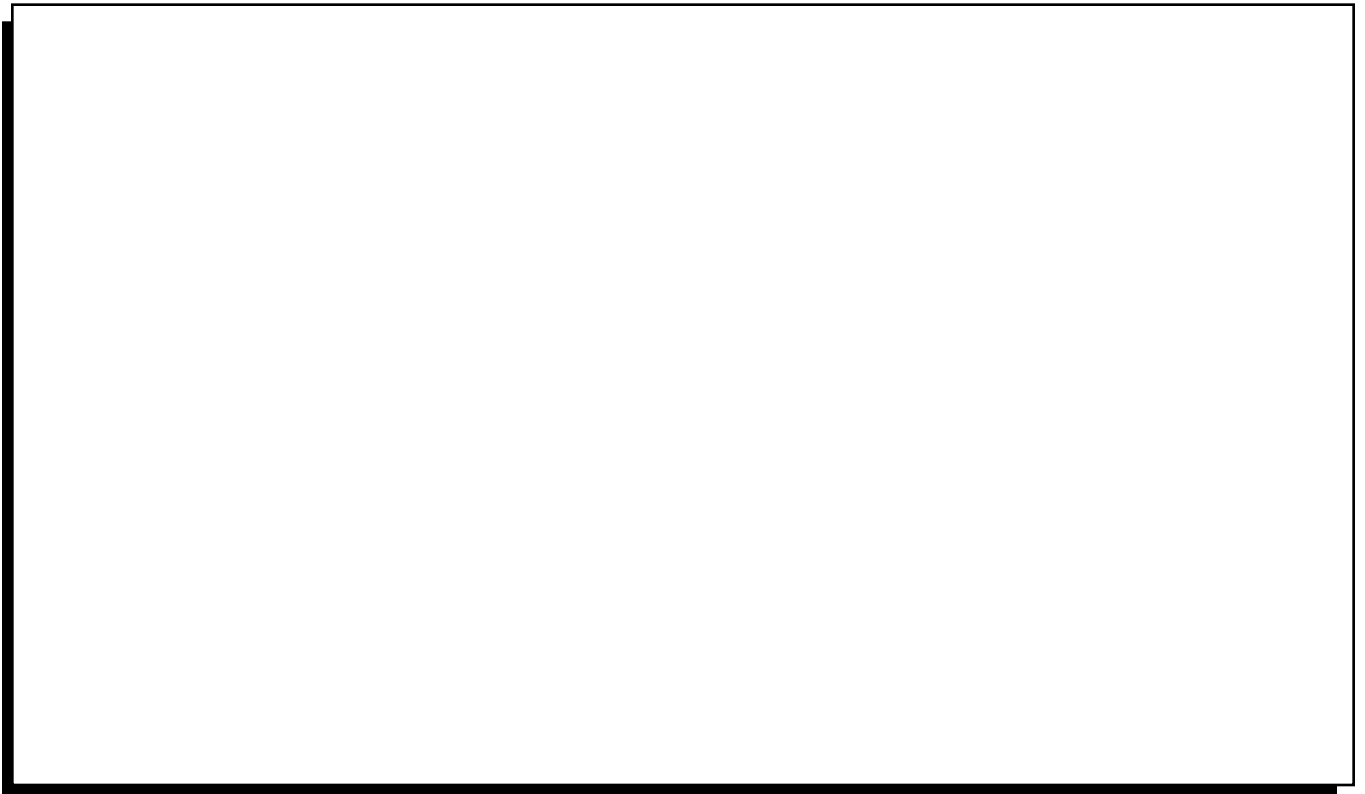
Garden Ideas

9SdWd faal US TW ead W into places that pests naturally avoid. What is in your garden and its placement help control pests. Ea VISE U VSE U g W Sha V Y a a U g d b S f Ya W eb W b S f Y V eb W fa Y W Ua b S a b S f YH rotating crop species from one year to the next, and planting species



Lawn Care

>Si`



Wear protective clothing. 9^ahW eSXk YSeeW
S VdWb[cfac_ Sk TWdWgdW[` adWfa eSXk geW
a hazardous product. Wear clothing other than your
WkVSk UafZW i ZWi ad [` Yi [fZS] SdVge bchV
gUel S ` V [` Vck kagdUafZW [Xbae [TWZ] YZWVckW
fWbWfgdWag V [Y [fWV S] [` YúS _ SPWShadēz
3`ea Sha [Vi Wd ` YeaXUa` fSf `WeWi Z [Vge [Y
ha/Sf [Vea hWfezFZWVWWeUS` SteadTfZWZW [US^
S VZaV [f ` Wf fa fZWVWUSge [Y [d [S] a ` I Tgd e ad
WWehWWS_ SYW h/Sf [VegTeS UeSdW [cg [VefZSf
evaporate easily into a gaseous form.

IPME when us PFBNDT-NDT4PFUMF4

FYUFANDEBEET a ten us Ue evaporate easily into a gaseous form. P"MEFTMRETKUAT- PPF when u

6 [baeS^_ WZaVe XidZSI SdVagei SefVWbWV
a` [fe| Vh|VgS^UZSdUWef[Uez? WZaVe| U gVW

Biological and Chemical Treatment

FZVWkbWaxfUS_ WfSdW_a_ a` k geWXdI S-
fwki SefVZ? WZaVe| ha'hW|a'aY[US^W_a_ baeffa`
/i [fZfZWVbax_ [UadS` [e_ efi` Wfd`|Sfa` i [fZ
other chemicals to decrease acidity, and precipitation
to remove suspended solids. Any resulting sludge may
TVgdZWfdWVW | U` WfW adeWf fa S ZSI SdVage
i SefWS` Vu^z

Rec cling/Reclaiming

Ea_ WkbWaxZSI SdVagei SefW_ Sk TWdUkUWadfZVd
Ua` e|fgWfedWVW_ Wea fZsfZVWUS` TVgeWVSY| z
8adVW_ bW_ea_ Wea'hWfeS` e` fZ fZ TW

2ZV U 1 2 U U

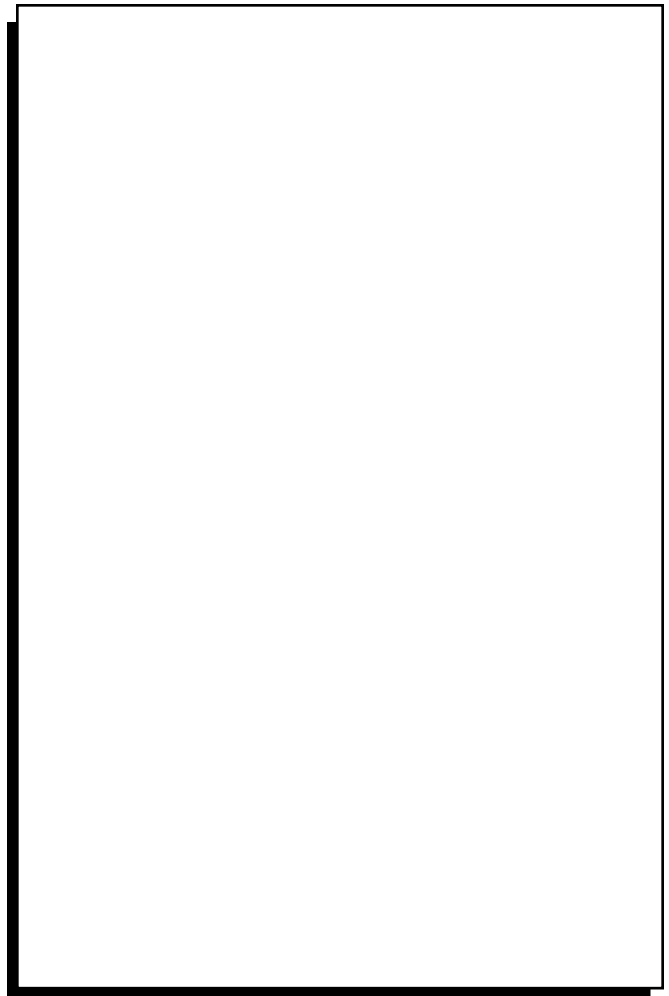
^aUSf[a`ei [fZ]` S Ua_ _g` [fkzEa_ WU[fWMMWb[U
gb: : I dYZf Sf fZWgdZ5gdte[VW_ afada[^La^W
tion is the most common type of program. Unattended
faj [Ue a` fZWgdll Zai WWS SdS bafWf[S^ZSI SdV
SeUZ[VdWS` VS` [_ S'e Lag^VWSe[k eb[^fZW_ adTW
[`gdWTk fZW_ z`

A` UWZageVZa^VZSI SdVagei SeW[e La^WMM [f
[eegTWf fa fZWS_ WdWg`Sfa` eSeZSI SdVagei SeW
YWWSfWTk [`VgedW`S` V[eV[ebaeWax]^ fZWS_ W
ZSI SdVagei SeW[e bae^XSU^f[VZfZWg^f_ SfWMM
tination of HHW depends on its individual character-
[ef[Uez8adVMS_ b^W_ S` k bS]^ feS` Va[ŽSeW ea^hWf
bdVgUfeSdWgd W[`XGWT^WMM^ Yz`

C. Source Reduction

Reduce It; Don't Produce It

FZ



Selected Basic Cleaning Ingredients

Chemical Name	CAS No.
Sodium Hydroxide	1310-73-2
Sulfuric Acid	7727-01-7
Sodium Hypochlorite	7681-49-4
Sodium Bicarbonate	14798-04-0
Sodium Chloride	7647-14-0
Sodium Dodecyl Sulfate	15117-68-3
Sodium Lauryl Ether Sulfate	14188-42-5
Sodium Metasilicate	1312-58-5
Sodium Perborate	10744-70-0
Sodium Percarbonate	15630-25-1
Sodium Phosphate	13707-62-0
Sodium Sulfate	7704-74-8
Sodium Tetraborate	14762-28-9
Sodium Zirconate	1312-58-5
Sulfuric Acid	7727-01-7
Tetrahydrofuran	3723-40-3
Zinc Oxide	1314-13-2

GeWZWS VaZUWS [Yea'gf[a`ei [fZUSgf[a`z= WbUWS WeagfaXZMASZaXUZ[VdWVgd` YefadSYWS` V
geVZW EISVSeeg_ W` a dWba` e[I]fk XidfZWWXU[hWWeaXZVWSVW SfhWZ

Key to Abbreviations
c. = cup
gal. = gallon
T. = tablespoon
t. = teaspoon
qt. = quart

All Purpose Cleaners

#ž ? [j #fZTadSj i [fZ #cfzaXi Sd_ i SFWZ3WS
eb/SeZaXW`a` g[UWadh]` Wsdfa Ugf YdSew/
Sž ? [j S fZTadSj S` V#fZeaSb [` #cfzaXi SFWZ
5S` TWefadW [` Sebck TaffW/
%ž ? [j %FzaXi SeZ [YeaVSbWcfzaXi Sd_ i SFWZ

Air Fresheners

#ž B'SUWWdWS_ ag` faXIS] [YeaVS [UaeW

The following resources were used in preparing this publication.

American Petroleum Institute. 1991. *Waste Oil: Technology, Economics, and Environmental, Health, and Safety Considerations.*

3d a^M = ScM WS%#++" žHousehold Batteries in Minnesota. EfzBSg1? @, ? [` VafS Ba^gfa` 5a` fca^3YWUž

4WS% fW9 [[S%#++" žz? [L [l [Y: ageWzV: SlSdVage Waste." *Garbage*. pp. 44-48.

5^Sc] lEgeS ž#++# "Targeting Toxics in the Waste Stream." *Waste Age*. pp. 105-116.

6SM 6Wd >k` ž#++*(žThe Nontoxic Home. >ae3` YWd 53, <WV kFSdZW;` Ź

6W 1@ad S ž#++#. zGeWA[^ DWagdWad Pollutant?" *Technology Review*.

6[U W BZ[^]b%#++" žA Database of Safer Substitutes for Hazardous Products. EWfVM 3, I SeZ[` Yfa` Faj [Ue Coalition.

6gj Tgkd 6S Sl WžHousehold Hazardous Waste Management News. 3` VahW? 3, I SefW SfUZ 5WVWž

6gj Tgkd 6S Sž#++" žzDWWFfdWwe [` : ageWzV: Sl-SdVageI SefW? S SYW Wž GžEPA Pollution Prevention

3VsbfWi [fZbW] [ee[a` Xa_ _ Sfm]S'ei dffW/Tk fZW3 eeaU[Sf[a` aXHM] a` fDWMkUWH BA 4aj #S&&
? a` fbWWMHM] a` f" (" #

6WAbW/Tk 5SfZk 8Sg`La` 4ai Wl 3 eeaU[SfWbaXead 6Wsd_ Wf aX3 Yd[U'fgd^S^S^ V7j fWe[a` 7VgUSf[a`

H[e]fBW EFSM5a^WwX3 Yd[U'fgd^EUWU@a` fZW W, agsci.psu.edu

BW EFSW5a^WwX3 Yd[U'fgd^EUWU@dMSLZ] WfWe[a` iS` VdWfWfWgUSf[a` bdyd_ eSdWg` WW[bsdTk BW ek'hS` [S]ag` fW] fZW
5a_ _ a` i WfZaXBW ek'hS` [S]S` VfZWGZ6Wsd_ Wf aX3 Yd[U'fgd^

I ZWwSvWS_ WsbWd` a V[e]d_ [Sf[a` [e]` fWWW S` V` a WadW WfTk BW EFSW5aabWsfhW7j fWe[a` [e]_ b[Wz

FZ]ebgT[USf[a` [eS W 5aabWsfh 16Wsd_ Wf[V WadW Ww 5aabWsfh [[fWWW [S