What's your poison?

the Soil Association guide to pesticide residues in popular food

Soil Association
Bristol House
40–56 Victoria Street
Bristol BS1 6BY

T 0117 314 5000
F 0117 314 5001
E info@soilassociation.org

www.soilassociation.org

Soil Association Scotland
Tower Mains
18 Liberton Brae
Edinburgh EH16 6AE

T 0131 666 2474
F 0131 666 1684
E contact@sascotland.org

www.soilassociationscotland.org

Registered charity no. 206862

Written and researched by Alissa Cook
Edited by Michael Green
Additional research Pesticide Action Network *UK*
For more information see www.pan-uk.org
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What's your poison?

Along with chemical weapons, chemicals used in farming are the only substances that are deliberately released into the environment designed to kill living things. They pose unique hazards to human health and the environment.

Most of the food we eat is produced from a farming system that is heavily reliant on these chemicals. Although used to kill targeted pests, diseases or weeds, farm chemicals also create wider problems. They damage the natural balance of the soil, destroy wildlife and leave chemical residues in a quarter of our food.

The damaging effect of farming with chemicals on the environment is accepted. Yet, the potential to damage human health has not been acknowledged by those appointed by the Government to control pesticides.

Thirty years ago it was recognised that farm workers needed better protection from the harmful effect of the chemicals and protective clothing became a legal requirement. According to the Government, residues left by these same chemicals in our food are at levels that do not pose any unacceptable risk to human health.

However, there are real uncertainties about the effectiveness of official safety regulation of pesticides, and some risks are unknown. People are right to be concerned about how food is produced and whether their health and that of their families is at unnecessary risk.

People do not want chemical residues in their food. In response, the Food Standards Agency (FSA) is now keen to find ways to minimise pesticide residues in food: "The FSA is committed to minimising pesticide residues in food because members of the public would prefer to have food that doesn't contain residues." However there are disputes over the most appropriate action. As a result very little has been achieved. The Government has still to prepare an effective Pesticides Reduction Strategy for the UK, as it is required to do under EU rules.

Safe from harm?

Thirty-one thousand tonnes of pesticides are applied to UK farmland every year. The front cover shows what a farmer typically wears when spraying crops – crops we are going to eat. So, the farmer is protected but are you?

Chemical companies have by law to provide safety information for the users of their products. Below is a list of common safety guidelines.

- **WEAR SUITABLE PROTECTIVE CLOTHING**
- **TAKE OFF IMMEDIATELY**
  ALL CONTAMINATED CLOTHING
- **WASH ANY CONTAMINATION**
  FROM SKIN OR EYES IMMEDIATELY
- **DO NOT EAT, DRINK OR SMOKE**
- **WASH HANDS AND EXPOSED SKIN**
  BEFORE MEALS AND AFTER USE
- **IN CASE OF ACCIDENT OR YOU FEEL UNWELL**
  SEEK MEDICAL ADVICE IMMEDIATELY
- **DANGEROUS IN THE ENVIRONMENT**
- **KEEP OUT OF REACH OF CHILDREN**
- **KEEP ONLY IN THE ORIGINAL CONTAINER**
- **KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDINGSTUFFS**

An organic antidote

The National Farmers Union, which is supposed to represent the views of UK farmers, says that chemicals are a "fundamental element of a farmer's business" and without them it would be difficult to grow enough food. Many farmers know that this is not true.

The Soil Association – along with an increasing number of farmers, growers, food processors and consumers – believes that organic farming is a viable alternative. Organic farming works with nature to produce food without relying on chemicals to meet consumer demand. The Food Standards Agency recognises this: "Organic food contains fewer residues of the pesticides used in conventional agriculture, so buying organic is one way to reduce the chances that your food contains these pesticide residues."

In the long run, the problems pesticides cause will only be solved when all farming and food is organic.

If you are concerned about pesticide residues in your food, buy organic.

The Soil Association is working to persuade the Government to introduce a tax on all chemicals to provide a fund to pay for the removal of pesticides from our environment and drinking water.

See the back cover and discover what you can do.

The following pages use Government data and chemical industry labels to give you information about chemical residues found in some popular foods. None of these chemicals are used in organic food production.

Potatoes

Aldicarb

Aldicarb is a nerve poison. It prevents nerves from communicating with each other. It is used to kill worms and insects but is also taken up by plant roots and circulated around the whole plant. It is classified by the World Health Organisation as 'extremely hazardous'.

In 2003 the Government tested 144 potato samples for residues of aldicarb. They found nearly two per cent had detectable levels. This result suggests that over 25,000 tonnes of potatoes may have been eaten containing residues of aldicarb. The Government thinks that the levels of residues found are acceptable and do not pose an unacceptable risk to human health.

Any company selling aldicarb is legally obliged to provide safety information for the user of the chemical. This is required because aldicarb is a toxic chemical designed to kill. The extracts below, taken from an actual label and safety data sheet, refer to the pesticide granules rather than the residues found in our potatoes.

VERY TOXIC IF SWALLOWED
TOXIC TO AQUATIC ORGANISMS MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT
HARMFUL IN CONTACT WITH SKIN

SYMPTOMS OF POISONING
These may include excessive sweating, headache, weakness, faintness and giddiness, nausea, stomach pains, vomiting, small pupils, blurred vision, muscle twitching.

Pears

Carbendazim

Carbendazim controls plant diseases on cereals, oilseed rape, fruit and vegetables. Because it can penetrate the surface of the plant, it cannot always be washed off. In Germany, carbendazim is classified as a hormone disrupting chemical. According to the US Environmental Protection Agency, carbendazim is a possible cause of cancer.

In 2003 the Government tested 252 samples of pears for residues of carbendazim. They found over 12 per cent had detectable levels. This suggests that over 125 million pears sold to UK consumers in 2003 may have contained residues of Carbendazim. The Government thinks that the levels of residues found are acceptable and do not pose an unacceptable risk to human health.

Any company selling carbendazim is legally obliged to provide safety information for the user of the spray. This is required because cardendazim is a toxic chemical. The extracts below, taken from an actual label and safety data sheet, refer to the spray rather than the residues in our pears.

POSSIBLE RISK OF IRREVERSIBLE EFFECTS

FIRST AID MEASURES

INHALATION: Remove patient to fresh air until recovered. Administer oxygen or artificial respiration if patient has difficulty breathing

SKIN CONTACT: Remove contaminated clothing. Wash affected area. Seek medical attention

EYE CONTACT: Irrigate eye with fresh water for at least 15 minutes. Seek medical attention.

Bread

Chlormequat

Chlormequat is a plant growth regulator. It disrupts a plant's development so a whole crop will grow at the same rate and to the same height. It also increases the flowering rate and therefore the crop harvest. It is used on wheat, rye, oats, flowers, pears, almonds and tomatoes.

In 2003 the Government tested 144 samples of bread for residues of chlormequat. They found that just under 50 per cent had detectable levels. Their results suggest that around half of the bread eaten in the UK in 2003 may have contained residues of chlormequat. The Government thinks that the levels of residues found are acceptable and do not pose an unacceptable risk to human health. No UK or EU legal limits have been set for residues of chlormequat.

Any company selling chlormequat is legally obliged to provide safety information for the user of the spray. This is required because chlormequat is a toxic chemical. The extracts below, taken from an actual label and safety data sheet, refer to the spray rather than the residues found in our bread.

DANGEROUS FOR THE ENVIRONMENT
HARMFUL IN CONTACT WITH SKIN AND IF SWALLOWED

FIRST AID MEASURES
EYES: Keeping eyelids open, irrigate well with eye wash solutions or copious amounts of water without delay. Obtain medical attention at once
INGESTION: Do not induce vomiting. Wash out mouth with water and give water (0.25 litres) to drink. Keep patient at rest and obtain medical attention at once.

Raspberries Chlorothalonil

Chlorothalonil is used to kill fungal diseases in crops. According to the US Environmental Protection Agency, chlorothalonil is likely to be a cause of cancer.

In 2003 the Government tested 72 samples of raspberry for residues of chlorothalonil. They found that over five per cent had detectable residues. This result suggests that over 2.5 million punnets of raspberries destined for UK consumers in 2003 may have contained residues of chlorothalonil. The Government thinks that the levels of residues found are acceptable and do not pose an unacceptable risk to human health.

Any company selling chlorothalonil is legally obliged to provide safety information for the user of the spray. This is required because chlorothalonil is a toxic chemical designed to kill. The extracts below, taken from an actual label and safety data sheet, refer to the spray rather than the residues found in our raspberries.

TOXIC TO AQUATIC ORGANISMS MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT
IRRITANT IRRITATING TO EYES & SKIN
MAY CAUSE SENSITISATION BY SKIN CONTACT

SYMPTOMS OF POISONING
Symptoms may not be apparent immediately but may occur after a few hours. Primary symptoms will be irritation of eyes, skin, or respiratory tract mucosae. Possible corneal opacity, may cause renal damage and ataxia. Temporary sensitisation may also occur in certain individuals, characterised by eye redness, bronchial irritation and skin rash.

Apples

Chlorpyrifos

Chlorpyrifos belongs to a group of chemicals known as organophosphates (OPs). Over 100 OPs are used in global food production today. Chlorpyrifos kills insects by disrupting their nervous system. It is used in heavy doses in orchards – 60 per cent of all UK apples are sprayed with it. In Germany, chlorpyrifos is classed as a hormone disrupting chemical. It is classified by the World Health Organisation as 'moderately hazardous'.

In 2003 the Government tested 301 samples of apple for residues of chlorpyrifos. They found over 20 per cent had detectable levels. This result suggests over 830 million apples consumed in the UK in 2003 may have contained residues. The Government thinks levels of residues found are acceptable and do not pose an unacceptable risk to human health.

Any company selling chlorpyrifos is legally obliged to provide safety information for the user of the spray. This is required because chlorpyrifos is a toxic chemical designed to kill. The extracts below, taken from an actual product label, refer to the spray rather than the residues found in our apples.

TOXIC TO AQUATIC ORGANISMS MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT
HARMFUL BY INHALATION AND IF SWALLOWED
HARMFUL MAY CAUSE LUNG DAMAGE IF SWALLOWED
IRRITATING TO EYES AND SKIN
MAY CAUSE SENSITISATION BY SKIN CONTACT

SYMPTOMS OF POISONING
Severe overexposure may lead to muscular fibrillations, pulmonary edema, convulsions, possible cardiac arrest and death.

Infant food

Pirimiphos-methyl

Pirimiphos-methyl is also an organophosphate (OP). OPs were developed in Germany during World War Two as a by-product of nerve gas. In general, OPs are among the most toxic pesticides to humans and animals.

On two occasions in 2002 the Government tested samples of cereal based infant food for residues of pirimiphos-methyl. On the first occasion two out of 71 samples had detectable levels. At this time no legal limit for residues of pirimiphos-methyl had been set. On the second occasion – when a legal limit had been set – three out of 73 samples had residues, all of which exceeded the legal limit. The legal limit had been exceeded by all samples that were found to contain residues. Cereal based infant food was not tested in 2003.

Any company selling pirimiphos-methyl is legally obliged to provide safety information for the user of the spray. This is required because pirimiphos-methyl is a toxic chemical designed to kill. The extracts below, taken from an actual product label and safety data sheet, refer to the spray rather than the residues found in infant food.

TOXIC TO AQUATIC ORGANISMS MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT
HARMFUL BY INHALATION
HARMFUL MAY CAUSE LUNG DAMAGE IF SWALLOWED

FIRST AID MEASURES
EYE CONTACT: Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for 15 minutes. Obtain immediate medical attention
INGESTION: If swallowed seek medical advice immediately. Do not induce vomiting.

Carrots

Trifluralin

Trifluralin is widely used to kill weeds in fruit, vegetable and arable crops. It prevents root development in weeds by disrupting cells. Trifluralin is classified by the US Environmental Protection Agency as a possible cause of cancer. According to the Environment Agency and the World Wide Fund for Nature, it is a hormone disrupting chemical. Some countries ban trifluralin for its threat to wildlife.

Residue levels vary from year to year and in 2003 no residues of trifluralin were found in carrots. However, in 2002 when the Government tested 120 samples of carrot, two per cent had detectable levels of trifluralin. This suggests that over 53 million carrots in the UK in 2002 may have contained residues of trifluralin. The Government thinks that the levels of residues are acceptable and do not pose an unacceptable risk to human health. No UK or EU legal limits have been set for residues of trifluralin.

Any company selling trifluralin is legally obliged to provide safety information for the user of the spray. This is required because trifluralin is a toxic chemical designed to kill. The extracts below, taken from an actual product label and safety data sheet, refer to the spray rather than the residues found in our carrots.

TOXIC TO AQUATIC ORGANISMS MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT
HARMFUL MAY CAUSE LUNG DAMAGE IF SWALLOWED
IRRITATING TO EYES AND SKIN

AFFECTS AND SYMPTOMS
INHALATION: Vapours – headache, dizziness, collapse
INGESTION: Nausea, headache, cramps, vomiting.

Lettuce

Vinclozolin

Vinclozolin is mainly used on peas, vines, oilseed rape and other fruit and vegetables to kill plant diseases. It is classified by international regulators as a hormone disrupting chemical. According to the US Environmental Protection Agency, vinclozolin is a possible cause of cancer.

Residue levels vary from year to year and in 2003 no residues of vinclozolin were found in lettuce. However, in 2002 when the Government tested 85 samples of lettuce, five per cent had detectable levels of vinclozolin. This suggests that one in 20 lettuces eaten by UK consumers in 2002 may have contained residues of vinclozolin. The Government thinks levels of residues found are acceptable and do not pose an unacceptable risk to human health.

Any company selling vinclozolin is legally obliged to provide safety information for the user of the spray. This is required because vinclozolin is a toxic chemical designed to kill. The extracts below, taken from an actual product label and safety data sheet, refers to the spray rather than the residues in our lettuce.

MAY CAUSE SENSITISATION BY SKIN CONTACT
HARMFUL TO FISH AND OTHER AQUATIC LIFE

FIRST AID MEASURES
In cases of serious personal contamination seek medical attention. Inhalation effect relates to irritancy of dust only. If breathing fails, use artificial respiration. If swallowed, wash mouth with water and if possible induce vomiting. Seek medical attention for any apparent symptoms.

Support the Soil Association

The Soil Association is working to reduce chemical use and raise awareness about the benefits of eating organic food. In order to do this effectively we need your help.

Just £3 a month can help us change how food is produced, and support our work lobbying politicians and helping farmers to go organic. Your support makes all the difference. Please complete and return the form opposite to get updates on our work plus…

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To thank you we'll send you this fascinating read revealing the often hidden story behind what we eat.

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Living Earth is our thought-provoking magazine, featuring columns from Monty Don and Sophie Grigson.

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Act now

Ask your MP
To press the Government to introduce a tax on all pesticides to pay to remove the chemicals from drinking water and the environment

I want to know more about pesticides
See www.soilassociation.org/pesticides

How do I stay up to date?
For regular email updates about pesticides and related issues fill out your details at www.soilassociation.org/register

I want to spread the word
Order further copies of this booklet.
Telephone 0117 914 2447

Where can I buy organic food?
Find out at www.whyorganic.org

How do I support the Soil Association?
Find out overleaf

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