

DIRTY

DOZEN

The UK government tests roughly 3,000kg of food for pesticide residues each year. Once the results are published, PAN UK analyses this data and makes it accessible to the general public by producing the annual 'Dirty Dozen'. The Dirty Dozen lists the fruit and vegetables most likely to contain residues of two or more pesticides (known as 'pesticide cocktails') to help inform people's shopping decisions. (see *Dirty Dozen 2024*).

The problem with UK government testing

Unfortunately, the government tends to select a different list of produce for testing each year. As a result, produce found to be high in multiple pesticide residues one year will often not be tested in subsequent years. This inconsistent approach means that it is impossible to establish long-term trends in terms of which produce is the most problematic. In order to provide shoppers with a clearer overview of problem produce, PAN UK has compiled a list looking at the worst culprits over the past five years (see *Dirty Dozen 2020-2024*).

The cocktail effect

PAN UK's Dirty Dozen focuses on produce with multiple pesticide residues. This is because the government sets safety limits for just one pesticide at a time, ignoring the growing body of evidence that chemicals can become more harmful when combined (a phenomenon known as the 'cocktail effect'). This not only ignores the potential risks to human health associated with pesticide mixtures found on one item (an apple, for example) but also those found in one dish (such as a fruit salad) let alone an entire day's worth of food.

Why does PAN not provide a list of 'safe' produce?

PAN UK does not produce a so-called 'Clean 15' list of produce with the least residues. This is because the government testing programme is so limited that we would not want to give the impression that certain produce is guaranteed to be free from pesticide cocktails. It is also possible to grow food using hazardous pesticides without the chemicals in question appearing as residues in food. As a result, an absence of residues should not be taken as assurance that there have been no pesticide-related harms to human health or the environment where the food was grown.

Dirty Dozen 2024



Grapefruit

99%



Grapes

90%



Limes

79%



Bananas

67%



Peppers (sweet)

49%



Melons

46%



Beans

38%



Chilli Peppers

38%



Mushrooms

31%



Broccoli

26%



Aubergines

23%



Beans (dried)

21%

% of samples with multiple residues

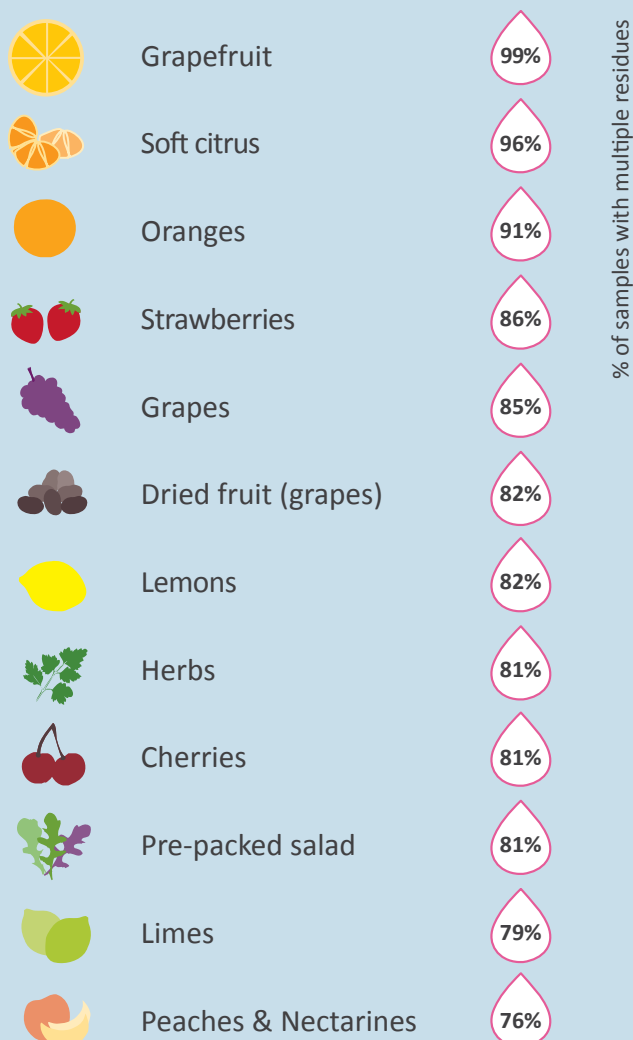
The results of the government's residue testing programme are only available for the preceding year. The results above are, therefore, based on the most recent data available.

What are pesticides?

Pesticides are poisons designed to kill living organisms. 'Pesticides' is the umbrella term for thousands of different active substances including herbicides (commonly referred to as weed killers), insecticides and fungicides. Crops are often treated with pesticides many times during a growing season – as many as 20 different chemicals can be applied to wheat for example.

Certain groups of people are more susceptible to the effects of pesticides, especially young children and expectant parents. Exposure to certain pesticides at critical stages in development can interfere with particular organs and their functions. Of particular concern are endocrine disrupting chemicals which affect hormone systems and have been associated with learning disabilities, attention deficit disorder, and cognitive and brain development problems.

Dirty Dozen 2020-2024



Spotlight on bread

In 2024, the UK government tested 216 samples of bread, made up of white, brown, wholegrain, naan, pitta and garlic bread. It also tested 84 samples of wheat flour.

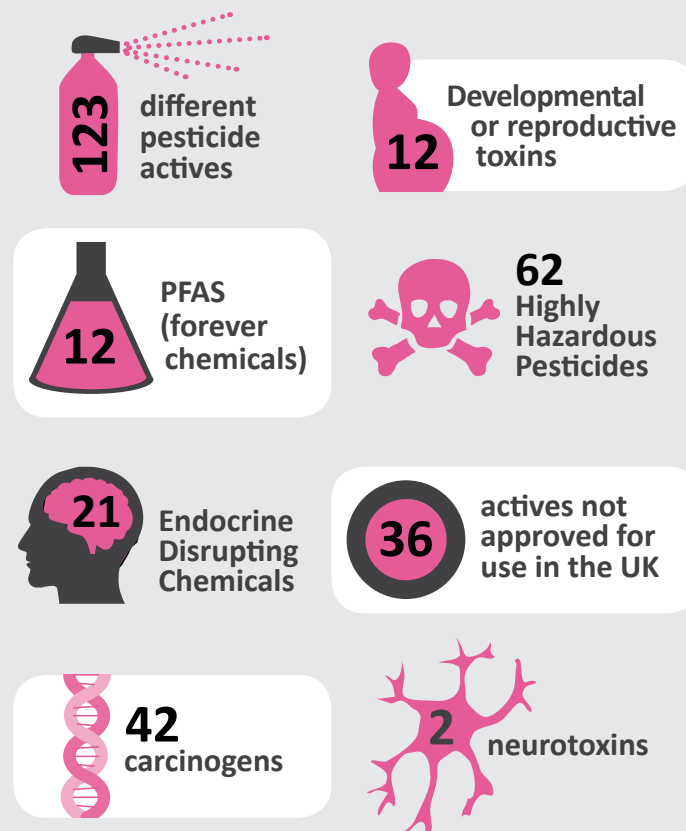
In total, 12 different pesticide active substances were found. They included four Highly Hazardous Pesticides (HHPs) – glyphosate, deltamethrin, pirimiphos-methyl and spinosad. Three other pesticides with potential links to cancer were also detected – difenoconazole, flonicamid and fosetyl.

Chlormequat – a plant growth regulator – was found in 97% of bread samples. There are concerns regarding the impact of chlormequat on human health, particularly its potential to cause birth defects as a result of prenatal ingestion. Glyphosate – an herbicide repeatedly linked to various cancers – was present in 28% of the bread tested.

Overall, 30% of the flour and 47% of the bread contained multiple pesticide residues. While this shows a very small decrease since 2021 (the last time bread was tested), it hints at the massive rise in pesticide use in the arable sector since 2013 when only 25% of bread contained multiple residues.

Clearly something is going wrong with our daily loaf. We urgently need the UK government to take a range of measures to drive pesticide reduction, including supporting farmers to transition to non-chemical alternatives.

Found on ALL fruit and vegetables tested in 2024



What is PAN UK doing?

PAN UK campaigns for a major reduction in pesticide-related harms to both human health and the environment. This includes making sure that UK farmers have the support they need to reduce their pesticide use and working with supermarkets to tackle pesticide harms linked to their global supply chains.



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