

Fruits & Veggies Grandiose on Pesticides

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“Common food items contain banned pesticides in quantities a thousand times more than the permissible limits. The findings are based on random samples collected from across the country.

Various investigations and concerning research reports reveal that although a Pesticides Act exists to safeguard consumer interest, there is no MRL (Maximum Residue Level) in place or regulations to enforce it. Nearly every food item from rice to veggies and fruits available in the market are contaminated with poisonous pesticides, authorities caution. Pesticides and insecticides could be detrimental to people’s immune and reproductive systems. It can even lead to infertility. Developmental toxins’ in these chemicals may adversely affect the development in children. They may also act as endocrine disrupters, leading to hormonal imbalances. These chemicals are also not biodegradable(able to decompose naturally). As such, they persist for a long time and get transferred into the food chain. This means that overtime, they get deposited in the human body.



Probably it's time to take a closer look at what's on your platter. Cypermethrin, heptachlor, quinalphos, aldrin, chlorodane, dichlorvas, cypermethrin — these banned pesticides could well be a part of your regular diet. Okras, leafy green cabbages and other veggies, bananas or oranges and apples that you so relish may be overloaded with some of these harmful pesticides.



A study by the FSSAI (Food Safety and Standards Authority of India) under the UAM (Union Agriculture Ministry) threw up some unpalatable facts. Common food items contain banned pesticides in quantities a thousand times more than the permissible limits. The findings are based on random samples collected

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from across the country. From the vegetable basket, brinjal tops the chart with the level of banned pesticide at 860 % above legal limits, followed by cauliflower and cabbage. Wheat and rice too had these dangerous pesticides. While the level of aldrin in wheat is 21,890 times more than the permissible level, that of chlorfenvinfos in rice was measured at 1,324% above the allowed limit.

A pesticide is any substance or mixture of substances specifically intended to prevent, repel, destroy or lessen the effect of a pest. The term pesticide is technically a catch-all phrase that specifically means one of the following: insecticide, herbicide, fungicide or any other chemical substances used to control pests. Pests that pesticides fight or kill may include insects and insect-like organisms, unwanted plants, weeds, fungi, viruses or bacteria that cause plant diseases, mice and other vertebrate animals or any other pest that may attack plants, soil, trees, structures or people.

In accordance with the reports of health experts, if consumed for a prolonged period, these pesticides can prove fatal. Pesticides are neurotoxins and can affect vital organs like the kidney and liver as well as the endocrine system. Some can cause food poisoning or allergic reactions. They're even more dangerous for pregnant women, passing through the placenta and causing genetic alterations.

***“An apple a day
needn't always
keep the doctor
away. “***

According to the survey, both apples and oranges were found to have banned pesticide level of 140% above permissible limits. "The fruit are waxed with chemicals and pesticides to give them a longer life. Vegetables like cabbage and cauliflower, which are supposed to be very important for women's health, are dipped in 2 to 3 levels of pesticides to keep them fresh.

Farming techniques like crop rotation have become a thing of the past. The solution lies in cleaning them thoroughly and buying from small vendors rather than supermarkets. Small vendors grow vegetables and fruit on a small scale and not well-versed with the use of chemicals. Smaller the vegetable is in size, more organic it is. Kitchen gardening is the best solution to keep pesticides at bay. Vegetables can be grown easily in pots, even if you live in an apartment.

So, we should all go pesticide free? Did you ever think about what would happen if pesticides, etc., were not applied to fruits and veggies? For one, their amount would diminish due to pests, which would mean that food supply would decrease and about 40% of the world's population would go without. Those chemicals that you hate so much actually make it possible for an ever-growing population to eat. The arguments on pesticides, etc., are too simplistic and make it out like all pesticides are carcinogens at any exposure. You might also want to consider that whenever you hear about an outbreak of foodborne illness associated with fruits or veggies (most recently, the baby spinach contaminated with e. coli), what does it come from? That's right, those pesticide-free organic veggies.

Though the survey findings by Times News Network ring alarm bells, it's practically impossible to do away with fruit and vegetables. Therefore, the next best option

would be to exercise as much caution as possible. Simple things like washing them adequately before cooking could remove a lot of the chemical coating, if not all.

Kitchen gardening is another option to explore. Also, customers must be wary of getting carried away by glossy packaging. Those spotless apples

and oranges may not be as healthy as they appear. For all you know, the rough and rugged ones on the roadside could be a better bet. Regulating authorities should have checks in place to track such gross violation of permissible limits and take necessary action.

Gulp Down With Prudence			
Food stuff	Pesticide detected	Content (ppm)	% > legal limit
Brinjal	Heptachlor	0.48	860
Cabbage	Cypermethrin	3.91	95.5
Okra	Cypermethrin	0.31	55
Rice	Chlorfenvinfos	0.36	1324
Banana	Chlorodane	015	54
Cauliflower	Aldrin	0.42	320
Apple	dichlorvas	0.24	140

Above figures reflect how common food stuffs contain banned pesticides in quantities far above the permissible limits.

Possible Ailments: Nervous system related problems; Endocrine disruption; Liver dysfunction; Enzyme inhibition; Kidney malfunction; Convulsion; Some forms of cancers

(Source: Union Agriculture Ministry)

VERACITY CONFIRM

- There is hardly any surveillance of residue pesticide levels in food products other than the one run by UAM. Karuganti K: Alliance for Sustainable & Holistic Agriculture
- The SC in its October 22, 2013 order has said that the FSSAI should be made responsible for monitoring and exercising control on soft drinks. The problem isn't with fruits & veggies. Khurana A: Centre for Science & Environment

SOUPCON FOR A WHILE

- Wash the fruits and veggies in running water 4 to 5x.
- Soak them in salt water for a few minutes. This will help kill germs.
- Peel off fruit and veggies whenever possible.
- Even if it's planned to remove the skin from fruit and veggies, wash them first to eliminate pesticide residue.
- Wash fruits and veggies with KMnO_4 (Potassium permanganate) solution and rinse 2 to 3x with fresh water before consuming them.
- Go for organic fruits and veggies if possible or can afford. Smaller in size the veggie is in size, more organic it is.

↓ REFERENCES

1. Gildea RC, Huffling K, Sattler B. Pesticides and health risks. *J Obstet Gynecol Neonatal Nurs.*, 2010, 39 (1): 103–10.
2. Jurewicz J, Hanke W., Prenatal and childhood exposure to pesticides and neurobehavioral development: review of epidemiological studies. *Int J Occup Med Environ Health* 2008, 21 (2): 121–32.
3. Bassil KL, Vakil C, Sanborn M, Cole DC, Kaur JS, Kerr KJ. "Cancer health effects of pesticides: systematic review. *Can Fam Physician*, 2007, 53 (10): 1704–11.
4. Alavanja MC, Hoppin JA, Kamel F., Health effects of chronic pesticide exposure: cancer and neurotoxicity. *Annu Rev Public Health*, 2004, 25: 155–97.
5. Miller GT, *Sustaining the Earth*, 6th edition. Thompson Learning, Inc. Pacific Grove, California. 2004, Chapter 9, Pages 211-216.
6. Jeyaratnam J. Acute pesticide poisoning: a major global health problem. *World Health Stat Q*, 1990, 43 (3): 139–44.
7. Maheshwari RK, Rani B. Cold drink: A poisonous brew (Soft Drink: Hard Truth). *Agrobios Newsletter*, 2006, 5 (4): 5-7.
8. Maheshwari, RK, Rani B, Arora C, Pesticides and health hazard. *Water Engineering News*, 2007, 9(11):3-4
9. Prasher G. TNN - Plates loaded with pesticides. *Times Nation*, November 13, 2013.
10. Rizwie RR, Jayawardana S. Pesticides on a plate. *The Nation*, October 20, 2013.
11. Council on Scientific Affairs. Educational and informational strategies to reduce pesticide risks *Prev Med* 1997, 26 (2): 191–200.
12. nation.lk/edition/component/k2/item/22008-pesticides-on-a-plate.html#sthash.H06FKF2C.dpuf