



# THE IMPACT OF HUMAN HEALTH: ENVIRONMENTAL CONTAMINANTS CAN CROSS THE PLACENTA?

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## ABSTRACT

**Background:** 200 years ago, people used only organic matter such as farm yard manure, foliage etc as fertilizers and the yield was more and also of high quality both in taste and size. Gradually, the use of natural waste materials reduced and people started to use synthetic fertilizers so called Green Revolution. Although initially the yield was good, it started reducing year by year and finally led to poor quality of products and minimum yield. The reason was the microorganisms in the soil were destroyed due to the unavailability of food and the excess use of chemical fertilizers, chemical fungicides and chemical pesticides. Nowadays, even if we use more chemicals, there would be no considerable yield definitely as there are no microbes in the soil to serve and feed the plants. This is lead to congenital abnormalities, pre-term/low birth weight, sudden infant death syndrome, problems related to complication of pregnancy, and respiratory distress syndrome.

**Objective:** 1. Trend in pesticides consumption in Tamilnadu 2. the present paper is aimed at, To evaluate the correlation between life expectancy and pesticides consumption. 3. Genetically modified food impact on human health

**Methods:** the present study passed on secondary data, the 10 years data collected from various statistical report published by government of Tamilnadu, state agriculture plan Tamilnadu volume-1. Tamilnaduan economic appraisal and state agriculture plan report of Tamilnadu and in order to find out the relation Correlation coefficient has been used and the following semi log model was applied to find out the trend  $\log Y = a + bt$ , and Compound growth rate (CGR) =  $[\text{Antilog } b - 1] \times 100$  also used in the present study.

**Finding:** the study found that pesticides consumption has been negative trend whereas bio-pesticides distribution has been positive trend in Tamilnadu and also the study found that the significant correlation between pesticide and bio-pesticides consumption and human health in Tamilnadu. The "r" value ( $r = -0.84$ ) is very high and negative. Whereas in the bio-pesticides impact ratio is low the "r" value is -0.45.

**Conclusion:** the only solution is to multiply the microorganisms in the soil again and to increase the use of organic matter in the place of chemical fertilizers which is increase life expectancy and reduce infant and prenatal mortality.

**Keywords:** fertilizer, mortality, bio-pesticides, microorganisms, genetically modified food

## Introduction:

The present study investigated the impact of human health: environmental contaminants can cross the placenta? 200 years ago, people used only organic matter such as farm yard manure, foliage etc as fertilizers and the yield was more and also of high quality both in taste and size. Gradually, the use of natural waste materials reduced and people started to use synthetic fertilizers so called Green Revolution. Although initially the yield was good, it started reducing year by year and finally led to poor quality of products and minimum yield. The reason was the microorganisms in the soil were destroyed due to the unavailability of food and the excess use of chemical fertilizers, chemical fungicides and chemical pesticides. Nowadays, even if we use more chemicals, there would be no considerable yield definitely as there are no microbes in the soil to serve and feed the plants. This is lead to congenital abnormalities, pre-term/low birth weight, sudden infant death syndrome, problems related to complication of pregnancy, and respiratory distress syndrome. The major causes of death associated with PM10 exposure were deaths from respiratory causes and Sudden Infant Death Syndrome, or SIDS. Pesticides have also been associated with fetal death and spontaneous fetal death.

## Objective:

1. To Assess Trend in Pesticide and Bio- Pesticide Distribution in Tamilnadu
2. To Assess Significant Relation between Pesticide Distribution and Prenatal Mortality
3. Genetically modified food impact on human health

## Methodology:

The study period is 10 years from 1997-98 to 2006-07 and secondary data have collected from various statistical report published by government of Tamilnadu, State Agriculture Plan Tamilnadu volume-1. Tamilnaduan Economic Appraisal and in order to find out the relation between pesticide distribution and prenatal mortality Correlation has been used in the form of

$$r = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{[N\sum x^2 - (\sum x)^2][N\sum y^2 - (\sum y)^2]}}$$

Where:

- N = number of pairs of scores
- $\sum xy$  = sum of the products of paired scores
- $\sum x$  = sum of x scores
- $\sum y$  = sum of y scores
- $\sum x^2$  = sum of squared x scores
- $\sum y^2$  = sum of squared y scores

To study the movements of pesticide- bio-pesticide distribution are examined by fitting the following linear trend equation was applied:

$$Y = a + bt$$

Where Y = Dependent variable,  
t = Time, and 'a' and 'b' are parameters to be estimated.

In order to find out the growth, the following semi log model was applied:

$$\log Y = a + bt$$

Compound growth rate =  $[\text{Antilog } b - 1] \times 100$

## Trends in Pesticide and Bio-Pesticide Distribution in Tamilnadu

The term pesticide covers a wide range of compounds including insecticides, fungicides, herbicides, rodenticides, molluscicides, nematocides, plant growth regulators and others. Among these,

organochlorine (OC) insecticides, used successfully in controlling a number of diseases, such as malaria and typhus, were banned or restricted after the 1960s in most of the technologically advanced countries. The introduction of other synthetic insecticides – organophosphate (OP) insecticides in the 1960s, carbamates in 1970s and pyrethroids in 1980s and the introduction of herbicides and fungicides in the 1970s–1980s contributed greatly to pest control and agricultural output. Ideally a pesticide must be lethal to the targeted pests, but not to non-target species, including man. Unfortunately, this is not the case, so the controversy of use and abuse of pesticides has surfaced. The rampant use of these chemicals, under the adage, “if little is good, a lot more will be better” has played havoc with human and other life forms. The following table-1 shows trends in pesticide and bio-pesticide distribution in Tamil Nadu.

**Table-1**  
**Trends in pesticide and bio-pesticide distribution in Tamil Nadu**

Sl. No.	Health Indicator	Linear Trend Coefficients		R <sup>2</sup>	CGR (%)
		a	b		
1.	Pesticide	7.909 (5.486)* (0.166)^	-0.144 (0.003)* (0.664)^ (0.874)+	0.68	-2.06
2.	Bio-pesticide Dust	20.542 (0.687)* (3.702)^	10.566 (1.182)* (4.034)^ (0.000***)+	0.731	0.54
3.	Bio-pesticide liquid	17.553 1.034 16.970	0.100 (1.172) (-12.806) (0.005**)	0.965	0.45

Source: secondary data

\*standed error, ^ t-value, + p value

\*\* Sig at 5 % level

\*\*\* Sig at 1% level

Table -1 illustrates the trend and compound growth rate of pesticide and bio-pesticide in Tamil Nadu. Pesticide has registered a decline trend and its annual average yearly decrease rate at which -2.06. The bio-pesticide dust and liquid have shown an increasing trend with annual average yearly increase being 0.54 and 0.45 respectively. As a next step it is proposed to examine whether the distribution of pesticide and health status. The following table shows the correlation between pesticide distribution and prenatal mortality.

Correlations:

**Table-2**  
**The correlation between pesticide consumption and life expectancy**

REFLECTION THEORY MODEL					
		h. status	Pesticide	Dust	Liquid
Life expectancy	Pearson Correlation	1	-.845	-.465	-.477
	Sig. (2-tailed)		.248	.246	0.277
	N	10	10	10	10
Pesticide	Pearson Correlation	-.845**	1	.028	-.168
	Sig. (2-tailed)	.248		.947	.691
	N	10	10	10	10
Dust	Pearson Correlation	-.465	.028	1	-.432
	Sig. (2-tailed)	.246	.947		.002
	N	10	10	10	10
liquid	Pearson Correlation	-.477	-.168	-.432	1
	Sig. (2-tailed)	.277	.691	.002	
	N	10	10	10	10

Source: secondary data

The above table shows that the correlation co-efficient between pesticide and life expectancy -0.845 which indicates 84% negative relationship between pesticide and life expectancy it reveals that 84% reduced pesticide consumption, the life expectancy will increase 16%, on the other hand 84% increase pesticide consumption 16% will decrease life expectancy. In the case bio-pesticide and life expectancy also get negative relationship but when you comparing bio-pesticide and pesticide, the bio-pesticide impact ratio is low.

#### How to Protect your Children:

- Avoid genetically modified soy, corn, and canola. Only buy these foods if they are organic or labeled non-GMO.
- Be aware that genetically modified sugar from beets is now being grown and introduced into our food supply.
- Avoid eating papaya from the United States (Hawaii) as it is genetically modified
- Try and consume organic dairy, eggs, and meat as animals are regularly fed genetically modified feed.
- Avoid non-organic milk and milk products as they may also contain Bovine Growth Hormone (BGH).
- Visit local organic farmers markets and buy directly from farmers.

#### Conclusion:

To sum up, based on our limited knowledge of direct and/or inferential information, the domain of pesticides illustrates a certain ambiguity in situations in which people are undergoing life-long exposure. There is thus every reason to develop health education packages based on knowledge, aptitude and practices and to disseminate them within the community in order to minimise human exposure to pesticides.

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