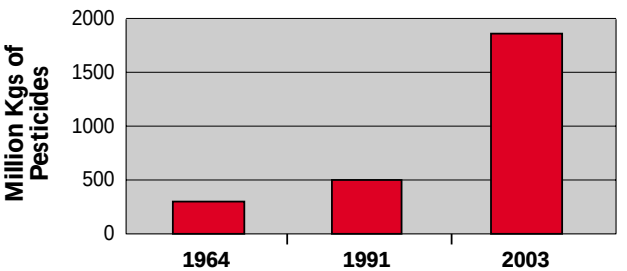
ATOMS *in* AGRICULTURE

Modern conventional farming methods employ the use of synthetic chemicals and fertilisers known as pesticides, which are sprayed or injected into the ground. Pesticides are hazardous to human health and the environment, undermine local and global food security and threaten agricultural biodiversity.

In his 1974 book *Atoms in Agriculture*, Dr Americo Mosca, famous chemistry prizewinner of the Brussels World Fair, discovered that toxic genetic chemicals used in agriculture are more dangerous than atomic fallout.

"I calculate that in the U.S. the use of toxic genetic chemicals, (herbicides, insecticides, hormones, steroids etc.) cause damage equal to the atomic fallout from 145 H-bombs of 14 megatons each, or in terms of atomic bombs – from 72,500 atomic bombs of the Hiroshima type. For this reason, disease of all kinds and the birth of mentally retarded babies have increased tremendously in the United States in the last 10 years. The damage to plants, crops, soil fertility and water pollution are practically incalculable. If use of these toxic genetic chemicals persists in agriculture and on food, this will cause the destruction of the American people."

Use of Pesticides in Agriculture



Organic farming methods may involve more labour and time but the processes are far less damaging to the world's eco-system and the human race.

COMBINATION OF PESTICIDES LINKED TO PARKINSON'S DISEASE.

The latest findings of the team led by Deborah Cory-Slechta, Ph.D., professor of environmental medicine and Dean for Research at the University of Rochester School of Medicine and Dentistry, appear in the Dec. 15, 2000 issue of the *Journal of Neuroscience*.

The Journal reported that two commonly used agriculture chemicals: the herbicide paraquat (paraquat dichloride) and the fungicid maneb (manganese ethylene bisdithiocarbamate) – combined – creates the exact pattern of brain damage in mice that doctors see in patients with Parkinson's disease.

"The environmental reality is that several of these chemicals are used on the same crops and in the same geographical locations. You've got to get rid of the weeds. Then the insects. Then funguses. These are different chemicals that do different things, but they're often applied in the same fields," says Cory-Slechta, who was joined in the research by graduate student Mona Thiruchelvam and faculty members Eric Richfield, Raymond Baggs, and A. William Tank.

Maneb, paraquat and many other pesticides are used in the agriculture-rich areas of the country, including the Midwest, California, Florida and the North-east. The map of their use mirrors areas of the country where people are more likely to die of Parkinson's disease.

The study is one of the first to examine the effects of such chemicals in tandem. The current regulations and determinations of safety levels are usually based on the effects of single chemicals. In the real world, however, we are exposed to mixtures of chemicals every day. There are thousands upon thousands of combinations.

"No-one has looked at the effects of studying together some of these compounds that, taken by themselves, have little effect," says Cory-Slechta. "This has enormous implications."