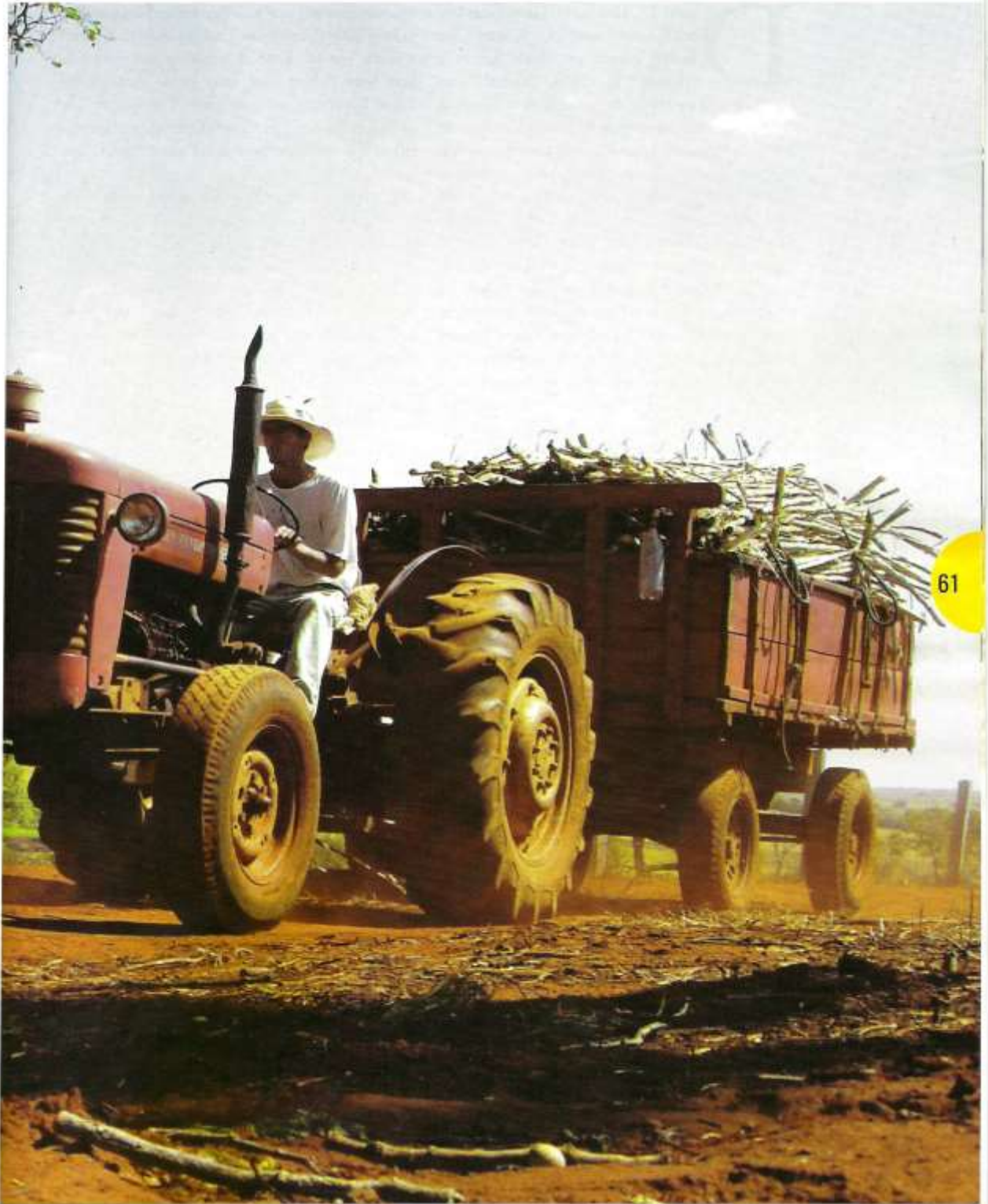


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**D**aniel D. Chiras, in his outstanding book *Environmental Science*, the Indian edition of which has been released in 2010, narrated an interesting story about the farmers in a village in the Appalachian Mountains in North Carolina. In 1992, they suspected that the local water supply was receiving appreciable amount of chemical residues that were being used to control pests and weeds. Concurrently, they also suspected that the same cause was also responsible for the higher rate of childhood leukemia in the region. Health officials could not ascertain the linkage between higher rate of childhood leukemia and pesticide application. Entirely on their own accord, hundreds of farmers in Watauga County decided to take positive action. They reduced the amount of pesticide application in a big way and introduced natural biological pest control methods. The result of such an action gave them back their flourishing wildlife and better groundwater. In five years they got back what they had lost in the past 30 years.

In 2005, in India one learnt about the 'Cancer

international politics and development' published in June 2006 (*Development Dialogue* Volume 1) stated that the use of chemical fertilisers and pesticides may have helped raise crop yields through the Green Revolution since the mid-1970s but "the use of chemicals has had harmful effects, including a fall in the average sperm count among males and spread of new diseases".

To probe a little deeper; the sperm count study was carried out on the basis of 14,947 samples spread over 16 countries (India included) between 1938 and 1991. The study was carried out by a team of scientists comprising Elizabeth Carisen, Alexander Giwerczman, Niles Keiding and Niels E. Skakkebaek and published in the *British Medical Journal* (Volume 305; September 12, 1992). The results showed a genuine decline in semen quality over the last 50 years and the authors have pointed to the "environmental rather than genetic factors" for such a decline within a relatively short period.

Unfortunately, for many scientists, it is much more rewarding to prove that a glacier is melting at a very fast rate (even if it is not the case) than it is to

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## The situation may be alarming in Punjab but in most places where Green Revolution was successful, the disease burden showed concomitant rise

'Train' in the Bhatinda district of Punjab, where people had not known about the disease even at the beginning of this century. Cancer Train, in a recent story broadcast by National Public Radio, routinely carries many cancer patients and their families to the Acharya Tulsi Regional Cancer Treatment Research Centre in Bikaner, where remarkable care and treatment is routinely provided at a very reasonable cost with least hassles to the patient and the family members escorting them. A study by Punjab's School of Public Health titled 'Epidemiological Study of High Cancer and Rural Agricultural Community of Punjab in Northern India' found a statistically significant increase in cancer rates in high-pesticide areas.

The situation may be alarming in Punjab but in most places where Green Revolution was successful, the disease burden showed concomitant rise. While amount of crops grown was measured, the resultant sufferings were not. Development writer Praful Bidwai, in his seminal paper titled 'From what now to what next: Reflections on three decades of

provide that the use of agrochemicals by the Indian farmers, under the constant tutoring of very highly paid marketers, does lead to serious health hazard. Consider the lesson provided by the Inter-Academy Report on GM crops, which 'casts shadow on the integrity and competence of Indian Science' (*Down To Earth*, October 16-31, 2010).

In such a scenario, the policy writers on the possible health hazards from the uncontrolled use of agrochemicals will have three options. It is well to remember that agrochemicals are emphatically promoted by a highly efficient market mechanism put in place by a powerful industry of agrochemicals.

Option One: There being no credible scientific report linking agrochemical use and the rise in disease burden of the farmers or the users of the food grown in such chemical dominated agriculture. Neither is there any rider from the World Bank, IMF, Asian Development Bank and such other respected donors regarding this matter. Therefore, trust the resilience of our farmers and consumers



(read insensitivity) and allow 'business as usual' approach to continue.

Option Two: There is a chance of certain NGOs (both national and international) and unattached intellectuals who may blow up this issue causing discomfiture in and outside the Parliament. It may be wiser to initiate a long-term programme appreciating the problem.

Option Three: There is a chance of the matter reaching disturbing proportions. This may then allow an additional handle at the disposal of the extremists. It would be better to engage dedicated individuals or NGOs to begin ground work for initiating balanced agriculture in some sensitive parts of the country.

The point is that farmers anywhere and in any village in India, like those in North Carolina, regardless of ecological conditions, can sit in a group and decide for themselves their future course of action. Few years ago, the farmer was spending Rs 10 and earning Rs 2 to grow an amount of food grain that now takes Rs 20 to grow and a generates

profit of no more than a rupee. Farm animals, which were living for 20 years earlier, are now dying at 10. The hay used for roofing now wears out in two years. Earlier they could easily sustain for six years. There is no record of how many unknown diseases have crept into the life of villagers. While the loss of sperm count may not be a tangible problem for them at present but any rural doctor will be able to identify clear links between the rise in Metrogl consumption and agrochemical sales.

Farmers may equally think for themselves about whether they will continue to dump their traditional wisdom or, for once, look at the things that have started happening around them, their future and the future of their children. Are they ready to learn from the farmers of a village in North Carolina and give their own beautiful minds a chance? There is sufficient scientific knowledge and assistance available to begin a balanced and holistic agriculture that preserves the future of the farmers and also the future of the country.

Will our farmers rise from slumber? ●

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