The debate over pesticides: too quiet 30 years after the silent spring

It was the early 1960's when Rachel Carson stirred the world with her book, Silent Spring, on the potential dangers of pesticide use. Despite that milestone of a warning, followed by many more since, significant reductions in the amount of pesticides used in food production are hard to see. One has to seriously question whether agriculture's relationship with pesticides has really changed since the writing of Silent Spring; has complacency set in?

Much of the recent focus on pesticides has been with regard to water quality. While some agricultural practices may be efficient for reducing soil and nutrient losses, such as conservation tillage, they may not be a solution to the problem of chemical leaching. Conservation tillage can reduce the presence of pesticides in surface water but can also increase groundwater loading by abetting greater downward infiltration. Wherever water moves so do persistent pesticides; simply switching the method of tillage will not necessarily eliminate the leaching of pesticides unless that change in tillage system enables a reduction in herbicide use (e.g. ridge tillage).

Let it be said that there have been great advances in farmer education for pesticide application and that many farmers have implemented integrated pest management approaches, whether it be hiring scouts to determine insect levels in vegetable crops or using narrow herbicide bands in conjunction with electronically guided row crop cultivators. However, for the most part, chemical pesticides still remain the first line of defense against pest problems in agriculture, which is a problem in itself; doing a little seems to have created a complacent attitude amongst farmers that there is no longer a need to do a lot in reducing pesticide use.

Because of the water quality issue, the debate surrounding pesticide use has been too narrowly focused and consequently neglecting other factors. Three recent findings underline the necessity to continue to reduce the use of pesticides (herbicides, insecticides, fungicides and fumigants) in the environment:

Finding #1 - Methyl Bromide, a persistent soil fumigant, is a significant source of depletion of the ozone layer.

Finding #2 - DDT derivatives have been found in elevated levels in women with breast cancer.

Finding #3 - 2,4-D has been associated with, through a large study conducted amongst farmers in Western Canada, a greater risk of prostrate cancer from increased exposure.

Priority List for Protection from Pesticides

1. Eliminate Methyl Bromide

Methyl Bromide must be immediately withdrawn from the global market. Pesticides will always have the potential to be a problem because they are biocides, or killers of life forms. In light of this, what justification is there to keep methyl bromide on the market? Imported Dutch tulip bulbs, tobacco and monoculture cropping of strawberries, common recipients of methyl bromide doses, cannot justify contributing to the destruction of the ozone layer. There are alternatives - catch crops for field uses and soil heating in greenhouses as nematode controls, for example. It is incomprehensible that the only action on this issue by the federal government is to agree to cap the use of methyl bromide at 1995 levels! The risk in using the product is so high that there is no point in weighing the benefits, even in the short term.

2. Eliminate all non-essential pesticide applications

Consumers should not, for example, have access to biocides for use in home lawn maintenance. It is a gross contradiction that requires farmers to have a pesticide application permit for crop production while letting urbanites walk into a hardware store and buy unrestricted quantities of the latest pesticide for non-essential use in densely populated areas.

3. Eliminate the use of persistent chemicals

The worst pesticide problems to date have been caused by the most persistent chemicals; the original DDT story is well known and continues with evidence that pesticide applications from the 1950's are leading to increased incidence of breast cancer in the 1990's. With that knowledge, can there be a link between breast cancer (associated with consumption of animal fat) and the way meat is produced? Is the use of atrazine on corn, subsequently fed to beef cattle, contributing to a potential risk of breast cancer? Use of

persistent soil insecticides also needs to end; in Western Canada, canola seed treatments are killing off the burrowing owl. There is little to debate in the notion that the more persistence demonstrated by a chemical, the more "collateral damage" to other life forms it will cause.

4. Continue research and education programs

These must emphasize cultural control strategies and bio-controls as the main line of defense against pests. The target of several provincial governments to lower the quantity of pesticides used in farming by 50% over the next decade is a poor yardstick with which to measure a reduced reliance on chemical pesticides; most new pesticides are applied in much smaller quantities but the active ingredients are of greater potency compared to their predecessors.

A new reader opening Silent Spring for the first time will be surprised to learn, after 30 years, not all that much has changed except there is more evidence to support Rachel Carson's claims. Re-reading Carson's book 30 years later highlights just how slowly the alternative pest management strategies she suggested are being implemented. Unless the agricultural community shakes off its complacency about pesticide use, there may yet be a silent spring to come.