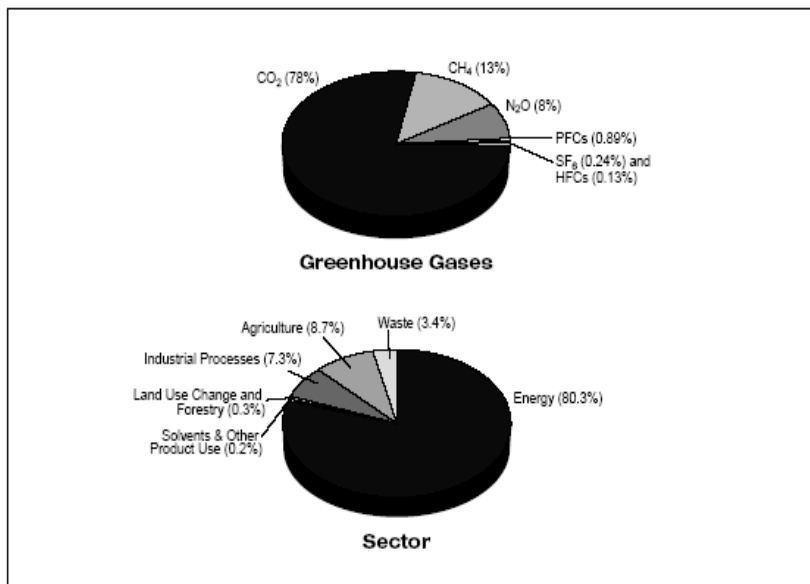


## AGRICULTURE and CLIMATE CHANGE

Scientists around the world have reached a consensus that human activities are having a discernable impact on the global climate -- the climate is changing. Agriculture is a net contributor to climate change through the emission of greenhouse gases (GHG's). By current calculation methods, primary agriculture is responsible for about 8.7% of Canada's greenhouse gases, not including transportation, input costs or agri-food processing (see Figure 1). Primary agriculture in Canada accounts for 61%, 38%, and less than 1% of Canada's total emissions of nitrous oxide (N<sub>2</sub>O), methane (CH<sub>4</sub>), and carbon dioxide (CO<sub>2</sub>), respectively. Nitrous Oxide is released when nitrogenous fertilizers are used and fossil fuels are burned. Methane is a gas produced when vegetation is burned, rotted or digested in the absence of Oxygen. One of the major sources of these emissions is the digestive system of grazing livestock. Finally, Carbon Dioxide is produced from the burning of fossil fuels. These practices occur on the farm

regularly and it is difficult to run an efficient farm without them. With this being said however, it is possible to implement measures which greatly increase efficiencies thus decreasing the amount of fossil fuel emissions released.



but it is also vulnerable to the damaging effects of climate change. The effects of climate change are already having a dramatic effect on both agricultural yields and operations. Climatic variations, particularly deviations from "normal" conditions, represent significant and recurring risks to agricultural producers. They also have major implications for crop insurance, disaster aid programs, and the viability of rural communities. Climate change has the potential to alter these risks (e.g. increases in the frequency or magnitude of "non-normal" climatic conditions or weather). If changes take place gradually, agriculture may be able to adapt. Sudden changes, however, could have drastic results such as: changes in production patterns, increases in crop damage, water shortages, and new, unpredictable changes in the interactions among crops, weeds, insects, and disease. Opportunities may also arise from climate change, notably a northward extension of crop lands and grazing zones with longer growing seasons from increase temperatures. Nevertheless, the adaptation costs of climate change are an undesirable prospect. An increase in temperature will likely establish an environment favorable to new pests, molds and diseases.