Greenhouses and Cold Frames for Year-Round Local Vegetable Production

by Edwin Kessler

There is much concern about anticipated effects of global warming, and there is a search for means to mitigate irregularly rising temperatures over the whole planet, including Oklahoma.

Reduction of emissions of the greenhouse gas, carbon dioxide, is a great challenge, because, as noted at the "Powershift 2007" conference at the University of Oklahoma on April 28th, 2007, 85% of the energy that fuels our society is derived from the burning of carbonaceous fuels.

One significant feature of our industrialized agriculture is the shipment of food over long distances. For example, much of Oklahoma's winter vegetables are brought here from California, Arizona, Texas, Florida, and Mexico in trucks that burn gasoline and diesel fuel and emit carbon dioxide.

But we could grow our own, both in summer and in winter when insect pests are at a minimum!

Your author has experimented with organic cold frame agriculture since 1983 and was initially surprised at the abundance of hardy vegetables produced in winter in an inexpensive structure covered with six-mil plastic and heated only by sunlight. A brief description is provided below. Much more detailed information, including a 23-page paper, is available from your author.

Even greater and more varied production could be obtained from a greenhouse (a structure with artificial heat), but application of heat can be costly. Here is an alternative: use the heat rejected by our power plants!

Power plants use fuels to create steam that turn the turbines that generate electricity, and while much water is reused, all power plants emit warm and even hot water. This water is a danger to wildlife and must cool before entering our streams.

This water could be used to maintain greenhouses at temperatures above freezing, and this would enable greater vegetable production and perhaps even production of some fruits.

Of course, implementation of this suggestion would require discussions with facility owners and significant investments for investigation and construction of structures with suitable control systems.

Does this represent an important business opportunity? Maybe some zealous farmer or businessperson will pursue this!

Edwin Kessler received a doctorate in meteorology from MIT in 1957 and was Director of the National Severe Storms Laboratory in Norman, Oklahoma, from 1964 until 1986, when he retired. He was Chair of Common Cause Oklahoma from 1993 until 1999 and today is CCOK's vice-chair. With the University of Oklahoma, he shares operation of an organic research farm ten miles west of Purcell, Oklahoma. He believes that farming is too important to be left to the corporations.