**Solar Energy as an Alternative for the Green Farmer**

What we can do to make our farm more environmentally friendly? There are many ways we can “go green” by recycling, reducing and reusing. We can go organic in terms of feed for our livestock or fertilizer for our crops. We can reduce our carbon footprint by reducing the use of fossil fuels used to run our farms by switching to an alternative fuel source. Solar energy is one alternative fuel source that is readily available.

Luckily there are quite a few technologies available to us that help us harness solar energy and make it useable in our everyday life. These technologies are expensive at first to implement but in the long run can be very cost effective. With these technologies we can heat our homes, barns and greenhouses with solar energy and we can even use it to light up our homes and work places. We can also use it to dry crops.

Passive solar design and active solar design are two methods for heating our homes, barns and greenhouses. According to the United States Department of Energy, structures that are built using passive solar design have windows, walls and floors that are designed to collect, store and distribute solar energy in the form of heat in the winter and to keep heat out in the summer. This method is easier to incorporate when designing a new building; however, older structures can be retrofitted with passive solar design as well. The advantage of this method is there is nothing mechanical or electrical needed to move the solar heat around. So there is no consumption of electrical energy and very little maintenance required.

The other popular method that can be incorporated is Active Solar Heating. This method uses the Sun’s solar energy to heat a liquid such as water or antifreeze, stores it, and then redistribute it in the form of heat. The heat is redistributed through radiant heating systems in the walls and floors or through boilers with hot water radiators. This method is extremely cost-effective in cold climates where heating is used year round. The United States Department of

Energy states that it is very cost-effective if it is replacing a more expensive method of heating, such as electricity, propane or oil heat.

Electricity around the home and work place can also be provided through solar electric energy that can be captured and stored with photovoltaic systems. Photovoltaic systems operate on direct and scattered sunlight. This source of electric energy is efficient enough nowadays to power electrical fencing used to contain livestock, lighting inside and outside and to power water pumps on the farm. This method is extremely cost-effective for locations that are remote and power lines are unavailable or hard to install and is recommended as the alternative by the United States Department of Energy.

Another method of using the sun's energy is for drying crops. This method has been used since humans learned how to cultivate the land. This ancient method is still used in developing countries around the world. However crops that are left out to dry are at risk from animals, rain and contamination from wind and dust. A solar dryer provides protection from all of this and uses a design that maximizes solar energy to heat up the air to dry the grain. The downside to the solar dryer is that it is expensive to build and the drying rates cannot be controlled. The upside is that it cuts the cost of drying operations by not using propane or natural gas dryers.

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