



# PERMACULTURE ON CANADIAN FARMS

*By Ken Taylor*

**I was born on a ‘permaculture’ farm in 1945, long before anyone knew what it meant. Like many farm families in those days, we had to learn how to sustain ourselves with minimal outside resources.**

**T**oday permaculture is defined as “designing sustainable human environments,” which is exactly what most farms did before agriculture changed into agribusiness. Our farm had to provide enough food for our large family (14) and also generate some income for other basics. Our “farm design” evolved out of necessity rather than any knowledge of permaculture techniques.

We had a large fruit orchard, nut trees in front of the farmhouse, acres of vegetable garden, ponds for fish/livestock/us, free-range poultry for meat/eggs, grass-fed beef, twenty milking cows and a few pigs. We used no pesticides or synthetic fertilizers (we couldn’t afford them) and our ‘cultural methods’ of farming included composting manure, using cover crops, rotating crops and seed saving. Today that farm would have no difficulty getting organic certification. Those lessons learned at a young age convinced me to later purchase and then establish my own ‘permaculture’ farm, Windmill Point Farm.

The rules of farming have changed dramatically in the last fifty years. Many of the practices used then are now illegal; such as free-range poultry, eggs

and milk production without quota, etc. These ‘new’ restrictions weighed heavily when trying to design my own permaculture farm. Turning to today’s conventional farms for direction is not very fruitful either. Farm agribusiness has a reputation for depleting resources, contaminating waterways, polluting the environment and a host of other unsustainable practices—all in the name of making

money. Farm incomes have risen in the last fifty years but expenses have risen even faster such that these farms now show little if any profit. So neither depleting the farmer’s resources nor the earth’s resources is a very good model for permaculture design.

After 35 years of trials and errors in ‘designing’ my own farm, I can offer encouragement for those wanting to change to the more sustainable practices encompassed in permaculture farming.

Here are some suggestions:

1. Eliminate market-controlled substances from your farm production. My list included milk, eggs, meat, poultry and all other living species that required daily feeding and care. Too many rules and too much labour.

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2. As much as possible, convert annual crops (vegetables and grains) to perennial crops (trees)...permanent culture. More money and much less labour.

3. Design roads, buildings and waterways to reflect the permaculture principles of protecting/conserving resources and lowering inputs. The farm becomes more independent and thus more sustainable.

4. Maximize your profits by finding your own 'cash cows'...and milking them to the limit.

Many different permaculture designs have been suggested over the past decade but the direction I chose for my farm was first inspired by J. Russell Smith's books *Forest Farming* and *Tree Crops: A Permanent Agriculture*. These readings reversed my farm mentality from "cutting those nuisance trees" that interfered with the productivity of my fields to planting trees everywhere I could. I am now convinced that the only sustainable future food system must involve tree crops. Canadian farmers are struggling

### Greenbarn explained

The greenbarn is our renovated cattle barn. It has individual glazing panels that can be zipped in and out with a putty knife and interchanged with screens for summer ventilation. The panels are very flexible but also very tough (they can support the weight of a person jumping on them).

We use soybean foam insulation to moderate temperature swings. We have removed the barn boards and replaced them with panels of glass for better light transmission on the sunny side.

Inside the greenbarn, we grow lemons, oranges, limes, mangoes, winter tomatoes and many other exotics. The structure is heated by our vegetable oil furnace, with heat flowing through radiant heat piping.

We also have an underground fruit and vegetable cold room in the greenbarn.

to find profitable markets for what they produce while the public is desperately trying to find local products. Something's wrong somewhere.

Years of field trials on Windmill Point Farm have resulted in an incredible diversity of tree crops that we now successfully grow in our tough Canadian climate. Our farm is located on the highest and windiest point of land on the island of Ile Perrot, Quebec. The

winter wind chills can be  $-40^{\circ}\text{C}$  or colder. The soil is mostly heavy clay.

Tree crops like Asian pears can yield returns of well over \$50,000 per acre. Heartnut trees are more effective at absorbing excess greenhouse gases than nearly all other trees we tested and the crop of heartnuts is both delicious and profitable. The chart on page 10 lists other "permaculture-type" trees that perform a multitude of functions on our farm.

Currently, farms are being criticized for producing far too many greenhouse gases. Permaculture tree farms would do the exact opposite by absorbing (sequestering) tonnes of greenhouse gases (10 to 50 tonnes per hectare depending on the type of tree). Eventually these types of farms should be given the monies being paid by companies who are buying carbon credits to offset their overproduction of greenhouse gases.

The recent United Nation's FAO report notes that the Kyoto Protocol specifies "protection and enhancement of sinks" in



*The greenbarn under construction at Windmill Point Farm.*

agricultural soils as worthy undertakings. However this has been much neglected by energy experts. As well, with all the buzz around carbon dioxide as the culprit in the global warming discourse, little attention is paid to on-farm emissions of methane from livestock (about 21–22 times more potent than carbon dioxide) and nitrous oxides from the application of chemical fertilizers and raw manure (about 200 times more potent).

We are now experimenting with several new permaculture techniques that should improve our efficacy and sustain our

limited farm resources. Techniques include:

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**A smaller crop sold at a high price is better than a larger crop at a low price.**

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1. Covering open fields with permanent mulches (geotextiles, bioplastics, clover, strawberries, green manures, etc). This reduces labour costs and alleviates problems of water stress, pests and disease.

2. Planting mixes of trees (a jungle) to optimize symbiosis among species.

3. Slowly converting high-input permaculture crops (like McIntosh apples) to more carefree “plant and pick” ones (like Kikusui pears).

4. Changing the conventional farm mantra “more and more productivity at any cost” to a more sustainable permaculture wisdom that says “a smaller crop sold at a high price is better than a larger crop at a low price.”

5. Eliminating “energy-sucking” plastic greenhouses and slowly converting our original cattle barn

### Permaculture type trees and bushes

In this century, permaculture tree farms may represent the only sustainable solution that will profit both farmer and community.

#### Purpose

- Buffer cold north winds in winter
- Provide shade from the summer sun
- Increase property value
- Sequester greenhouse gases
- Provide food
- Provide food and shelter for wildlife
- Prevent soil erosion and flooding
- Freshen indoor air
- Beautify deck, balcony, porch
- Produce profit for farmers
- Fertilize soil for animal grazing
- Act as a barrier to intruders
- Provide weird and wonderful stuff, such as alcohol, soap, drugs, tea, spices, oils, paper, violins, shoes, shirts, chairs, tools, posts, firewood, wood to build houses

#### Examples of trees and bushes to use

- Roselow flowering crabapple, hazelnut, seaberry\*
- Maple, mulberry, heartnut
- Kiwi, cork tree, Mazza cherry\*\*, Saskatoon, Nanking cherry, coffee tree
- Heartnut, willow, mulberry, walnut, aspen
- Sugar maple, walnut, Asian pear
- Haskap, Manchurian cherry (*Prunus maakii*), Dolgo crabapple
- Willow, cranberry, Indian currant, seaberry, sumac, black elderberry, alder, Amur maackia\*\*\*
- Meyer lemon, Jasmine plum
- Pomegranate, guava, fig
- Asian pear, heartnut, grape
- Locust, sugarberry, peashrub
- Seaberry, *Rosa rugosa*, blackberry

\* *Hippophae rhamnoides*, also called sea buckthorn

\*\* A cross between sweet cherry and sour cherry; it used to be called the Duke cherry

\*\*\* *Maackia amurensis*, a great leguminous tree with late flowers, steel-blue spring leaves and bronze peeling bark



*Scenes from Windmill Point Farm (clockwise): Ken Taylor showing off an Asian pear; Winter cranberries for birds; Kikusui Asian pear in bloom on twenty-year old dwarf trees.*

into a year-round 'greenbarn' wherein we grow all our own lemons, oranges, limes, mangoes, winter tomatoes and many other exotics. Great potential here for winter cash flow.

6. Producing our own vegetable oil fuel to heat the greenbarn and run our small tractor. We even get great cleaning soap as bonus.



*Photo on page 8: Three of Windmill Point Farm's seedless grapes – Earliblue, Magenta and Lakemont.*

We see many exciting possibilities for transforming today's farms into more sustainable and profitable permaculture farms.

*Ken Taylor of Windmill Point Farm spoke at COG-Ottawa's Eco Farm Day in February 2008. See [www.windmillpointfarm.ca](http://www.windmillpointfarm.ca), visit the Saturday food market, or write Windmill Point Farm, 2103 Perrot Blvd., N.D. Ile Perrot, QC J7V 8P4.*