

Greenhouses designed for cold climates

Basic Principles

- Manage heat
- Avoid extremes
- Largely automated
- Affordable: capital and O and M
- Extends growing season

Manage heat



Keep heat
Insulate
R value glazing
Control air movement, seal



Avoid extremes



Use automatic vents to get rid of excessive heat

Use rock heat sinks to store solar energy and avoid cold frosts



Largely automated



Mechanical vent openers open
Automatically with excessive heat

Flow meters control the daily amount of
Water going to the plants

Fan for heat sink runs 24/7



Affordable: capital and O and M

- Recycled computer fan operating 24/7 for 6 months, costs about \$6 a season.
- Rock heat sink, pick it yourself or get washed drain rock, about \$30 cubic meter
- Greenhouse materials \$1000 to \$5000 depending on materials, construction and size.
- Make the greenhouse fit your needs and consumption patterns. A greenhouse is only part of your garden plan.

Extends growing season

- Your design should extend the growing season 2 to 3 months without undue effort and/or cost.
- If your greenhouse does not do this , consider another design or changes to the existing greenhouse