

Minnesota Fact Sheet 374c Farmstead Energy Improvement Maple Syrup Production

Purpose

The purpose of this practice is to implement improvements to reduce or improve energy efficiency of on-farm energy use.

Evaporators

Wood Fired Evaporators With Air Injection

Forcing air up through the wood in a wood fired evaporator increases the oxygen available to the fire, increasing the BTU output of the system. Air injection systems improve the combustion efficiency of the system, reducing the amount of wood that is needed.

Wood Fired Gasifier Evaporator

Wood gasifiers are designed to convert wood into a combustible gas which can be used to generate heat. Gasification results in a more complete combustion process, extracting more energy from the wood and reducing the amount of ash produced.

Preheaters

Enhanced Preheater

A typical preheater unit sits over the evaporator pan and uses steam from the evaporator pan to pre-heat the sap while at the same time injecting air into the sap to promote evaporation. With increased evaporation, it takes less time to boil the sap down, thus saving significant energy (oil & wood fuel) used in the process, as well as labor. Preheaters are typically used for maple syrup preheating, but the technology is potentially applicable to preheating for other processes or products as well.

