The scanned article (Strohfeuer_B ...) was forwarded to me by Roger Samson, and I came across the other article (Herlt_Pp_Stroh) while trying to find a unit that can burn entire bails without preprocessing.

One of the major differences of the 2 units is that Hertl unit can burn entire bails, whereas the Helbig unit includes a bail shredder and feeds loose straw into the combustion unit.

The following is a short summary of the "Strohfeuer heizt Staelle" article (straw fire heats barns):

The major recommendation argument for straw based systems is the lack of regional wood biomass. Based on the information I could gather, it seems that straw is readily and economically available in most areas of Germany (not likely the case in Ontario). The cost assumptions are based on a straw price of 60 EUR/tonne and an energy value of 3.8 kWh/kg resulting in 0.0158 EUR/kWh (appr. 0.022 CAD/kWh). As a comparison wood pellets cost 0.0429 EUR/kWh and oil costs 0.0663 EUR/kWh.

A 200 kWh rated heating unit and an annual heat generation of 640'000 kWh will result in annual costs of EUR 10'000. As a comparison oil based heating would result in an annual cost of EUR 42'000. The Helbig furnace meets very stringent emission standards. Helbig offers heating units ranging from 200 kWh to 5000 kWh. The straw bails can be stored up to 100 meters away from the furnace. A bail shredder separates foreign objects (e.g. stones) and subsequently an auger based system transports the straw to the combustion unit. The furnace efficiency is rated at 91%. Specialty steel of the grate elements reduces possible corrosion. The combustion temperatures range from 600-1200 degrees Celsius. For efficiency sake the unit is engineered as low as possible, allowing continuous operation. A 5'000 litre storage tank compensates for peak heat demands of up to 400 kWh. The described unit has a total cost of EUR 160'000 and an additional building cost of EUR 85'000 for the storage of straw (800 bail capacity, exceeding annual requirement).

My "Reader's Digest" version does not serve justice to the original german document, but I hope that it generates additional interest in the many uses of biomass.

Herlt_Pp_

Strohfeuer_BZ_34_2011