Straw Slicer

New Slicer Helps Make Paper from Straw

By Steven Vale

Specialist writer on agricultural machinery

A straw slicer, which forms part of the first project in the United Kingdom to make paper from straw, has been developed by the Silsoe Research Institute in Bedford, north of London.

At the heart of the system is a slicing unit first developed at Silsoe in the early 1980s (after the recent world petroleum crisis) as a fuel-efficient method of reducing the length of grass for silage. The design never took off but has been modified during the last 12 months to make it suitable for the straw project.

On the machine, 500-kg (1100-lb) square bales are broken up by a bale buster.

"We are not intending to work on anything other than bales of this size," says project leader Andrew Knight, "as transport efficiency is best."

The bales are broken apart by two shredding rotors, which do not chop the straw. If the straw is of optimum quality then it falls apart easily. ("Poorer quality straw takes slightly more effort to break up," says Mr. Knight, "which results in a lower throughput with conventional equipment.")

There are around 12 to 13 million tonnes (tons) of straw produced annually in the United Kingdom, and farmers currently use around 50% for feeding and bedding. This means some 6 million tonnes (tons) that used to be burnt, now has to be incorporated.

"There are about 3 million tonnes of straw available each year to industry," says Mr. Knight, "and with the burning ban recently coming into force, farmers ought to be looking for new incomes. Straw is a locally produced, annually renewable source."

The problem is that industry wants an even product of consistent and reliable quality. The slicer will prepare straw for further processing,

producing a uniform product that will encourage industry to consider using it as a raw material.

Pilot Plant

The potential markets include chicken litter, paper making and fuel. Current methods of preparation induce chopping and milling straw. The slicer, however, offers the advantages of uncomplicated machinery, high work rates and low power requirement.

"The important point is that it makes the straw more attractive as a raw material," he emphasises. "It may also encourage farmers to change their attitude to straw and treat it as part of the crop rather than a by-product."

The slicer will also handle different materials, and tests have already been performed with linseed, barley, paper and even cardboard.