Prototype Tobacco Stalk Chopper
under development by
George Duncan & Carl King

Handling and disposing of tobacco stalks from the stripping operation is becoming a great concern by many producers. Even though data of a few years ago indicate only about 4-5 worker-hours per acre of labor are involved in carrying out stalks, this time plus the time to transport a load of loosely stacked stalks out to the field for disposal takes additional time, especially if two workers are required for the spreading task. The 'knot hole' stripping devices of the 1980s had simple knives welded onto a rotating wheel to chop the stalks going through the mechanism. Knife breakage was a periodic problem.

Previous research work by Dr. Larry Wells and co-workers of the BAE Dept. on experimental stripping machines utilized some form of rotating cutting head to chop and direct stalks into a container or other collection device. The recent re-emergence of various mechanical stripping aids increases the accumulation of stalks to be removed and disposed. A few producers have adapted various types of old forage harvester mechanisms and conveyors with electric motor power to create a stalk chopping operation.

Work on a specially built mechanism to receive stalks at the end of the stripping bench or stripping aid, chop and deliver the particles to a outside spreader or cart was renewed in 2006 by the authors. The concept uses simple commercial forage harvester knives mounted on a drum and precisely spaced with a fixed shear bar to chop stalks. A pair of feed rollers - one fixed and one floating with spring pressure - convey stalks into the cutting position and cause cutting into about 1.5 inch long particles. Two and three horsepower 230 V. motors are being tested. The chopped particles are directed downward where a typical chain-flight or similar conveyor can convey the particles to a hopper type vehicle such as a manure spreader or self-unloading hopper cart. Further work with some form of a blower is being done to fill a silage wagon or similar vehicle for maximum capacity and self-unloading capabilities.

One prototype chopper unit was used for about three weeks with Tom Hutchens' and Johnny Parr's Gathering-Belt Stripping Mechanism to handle stalks from about 7000-8000 pounds of stripped leaf per day. The chopper worked with 45-50 stalks/minute with ease. Two other chopper units have been built and had limited tests, one with a two hp electric motor for reduced costs and electricity requirements.
Intentions are to seek limited fabrication of a few units for further trials during the fall of 2007. Additional longer term performance tests are needed to assess the future fabrication, commercial price and marketing feasibility. For further information or interest in possible fabrication or purchase and use for the fall of 2007, please contact George Duncan, 859-257-3000, ext. 115, or email: gduncan@uky.edu.

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