

**RECOVERING TAG FIBER FROM COTTONSEED USING THE POWER ROLL GIN STAND****Thomas C. Wedegaertner****Cotton Incorporated****Cary, NC****J. Weldon Laird****Lubbock, TX****Greg A. Holt****USDA-ARS Cotton Production and Processing Research Unit****Lubbock, TX****Abstract**

In the mid-1990s, Cotton Incorporated and the USDA-ARS Cotton Production and Processing Research Unit developed a process that became known as EasiFlo™ cottonseed (Patent #5,750,466; Issued May 12, 1998). This process involves the application of gelatinized starch to the surface of fuzzy cottonseed, creating a hard, durable, water soluble crust on the seed. This coating process produces a cottonseed product that “flows” through typical grain handling equipment such as hopper bottom railcars, bins, augers, and bucket elevators that would otherwise be incapable of handling cottonseed. Unfortunately, initial attempts produced an unacceptable product due to excessive residual staple-length lint that remains on the seed after ginning. Extensive studies were conducted to evaluate the residual lint content of cottonseed from numerous locations. It was determined that very clean seed contains about 10% residual lint, as measured by a certified cottonseed testing laboratory. Upland cottonseed contains about 10% linters. Excessive lint remains on cottonseed for various reasons, such as dull saws, improper ginning techniques, high moisture seed cotton and excessive throughput. When gelatinized starch is applied to cottonseed having excessive residual lint, the resulting product is unacceptable. “Average” cottonseed contains about 11-12% residual lint. Therefore, average cottonseed contains about 1-2% residual staple length lint. At 1.5% residual lint, the U.S. cotton crop loses about 300,000 bales of lint that could otherwise be sold at a much greater value, compared to its value if it remains on the seed. The need to remove this residual lint resulted in the creation of the “Power Roll Gin Stand” (Patent #6,061,875; Issued May 16, 2000). The USDA and their Licensee have tried to commercialize this technology for use in primary ginning rather than as second-stage ginning. Commercialization efforts have failed, so this technology is being re-evaluated for the use for which it was created, second-stage ginning.

A demonstration project was established at the “mini-mill” at Roaring Springs, Texas. Two Power Roll Gin Stands were installed during 2011. The plant came on-line in November 2011. Gathering and evaluating data on lint yield and quality for this paper was limited due to the short time frame. Initial lint samples collected for quality evaluation indicated that lint from this process averages about 33 staple; however, subsequent samples had a much shorter length. Further testing is underway to establish lint quality data.

Lint yield from this process and from many years of experience with this equipment in the EasiFlo cottonseed process indicates that, on average, about 1.5% lint can be recovered from “average” cottonseed. This represents 30 pounds of lint (“tag fiber”) that can be recovered by this process, per ton of cottonseed. It appears that the Power Roll Gin Stand technology is commercially viable as a stand-alone process to recover tag fiber from cottonseed.