THE IMPORTANCE OF FIBER AND YARN QUALITY IN BREEDING PROGRAMS

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Abstract

Preliminary spinning data from a selection study was compared to the spinning performance of commercial varieties grown in West Texas. The objective of the selection study is to compare to selection methods: 1. using only HVI data, and 2. using both HVI and AFIS data. The spinning performance of commercial bales was evaluated and used to identify weaknesses that can be addressed through breeding.

Spinning data from 12 commercial bales is presented in comparison to preliminary spinning data of experimental lines. For a more global comparison, the experimental lines were compared to Uster standard (Uster 50% - 50% of world production is at or this level or better), in addition to the different yarn sizes from the commercial bales. Yarn counts for the commercial bales ranged from 20 to 36 Ne, while the breeding lines were only spun into 30s. Both the commercial bales and experimental lines were ring spun on industrial size equipment. Three different levels of combing, 15 %, 20 %, and 25 % noils, were used for spinning the commercial bales. The comber setting for the commercial bales were determined using the average upper-half mean length (UHML) of each bale and the desired removal percentage. For the experimental lines, comber settings were held constant. This setting was based on the average UHML of the experimental lines (1.24 inches). These data indicated a reduction in the percent combing noils when AFIS data is used during the selection process. This reduction in noils percentage is an ideal example of how using AFIS to select breeding lines can affect spinning performance. The affects of an improved length distribution are also evident when looking at yarn properties. The experimental lines (from both selection methods) had improved yarn properties compared to the commercial bales. Based on these preliminary spinning data AFIS is effective in improving spinning performance. These data are preliminary but they do suggest that the selection method used in a breeding program can affect the spinning performances of experimental lines.