



## SHOULD YOU MODIFY YOUR COMBINE?

Farmers are always searching for ways to make their combine harvest faster and save more grain. In his book "Combine Settings for Better Harvesting" and at many combine clinics held throughout the prairies, Mr. Ray Stueckle claims that certain modifications will greatly increase combine capacity and improve performance. In response to questions from many farmers, concerning the value of these modifications, PAMI, in cooperation with Mr. Stueckle, has completed field comparisons of modified and standard production model combines. Detailed results of these comparisons are contained in PAMI Research Report No. R0180. This article briefly summarizes the results.

Two John Deere 6600 sidehill combines were used for the test. One was a standard production model, while the header, concave, cylinder, shoe and straw walkers of the second combine were modified by Mr. Stueckle to agree with the recommendations outlined in his book. These modifications included truing the cylinder, reshaping the concave (FIGURE 1), blanking the first four concave intervals and removing alternate wires from the remaining concave intervals. In addition, the table auger flighting was hard surfaced and squared, the feeder paddles were re-timed, the rear beater grate was removed, the fan diameter was increased, the air deflectors were removed from the fan throat, an air block was placed across the rear of the sieve and the shoe throw was increased. Cover plates were also added behind each walker step in barley. In canola, the straw walkers were covered with one-quarter inch wire mesh.

The standard combine was set in each field for optimum performance, according to the manufacturer's recommendations. The modified combine was set and adjusted by Mr. Stueckle in

each field. Settings generally agreed with those given in his book; however, cylinder speeds were usually from 200 to 300 rpm higher than those specified in the book. Both combines were tested side-by-side, on the same day, in the same field, using the same procedures and test equipment used in normal combine evaluation (See PAMI Gleanings No. 80 04).

Field test results are shown in FIGURES 2, 3 and 4. Results for the standard combine are given in orange, while results for the modified combine are given in black. As can be seen from the figures, at the normal combining speeds, there was very little difference in overall performance of the standard and modified combines in wheat or canola. The standard combine saved more grain than the modified combine in barley.

Laboratory tests conducted at the University of Saskatchewan support and confirm the field test results. These tests were conducted comparing the performance of standard and modified concaves from Massey Ferguson 750 combines and from John Deere 6600 combines. No beneficial effects were found for modifying either concave and in the case of the John Deere 6600, modifying the concave shape caused severe backfeeding at moderate to high feedrates.

The overall conclusion from both field and laboratory tests was that there was no real benefit to be gained from combine modifications, and in many cases, the modifications actually reduced capacity and increased losses.

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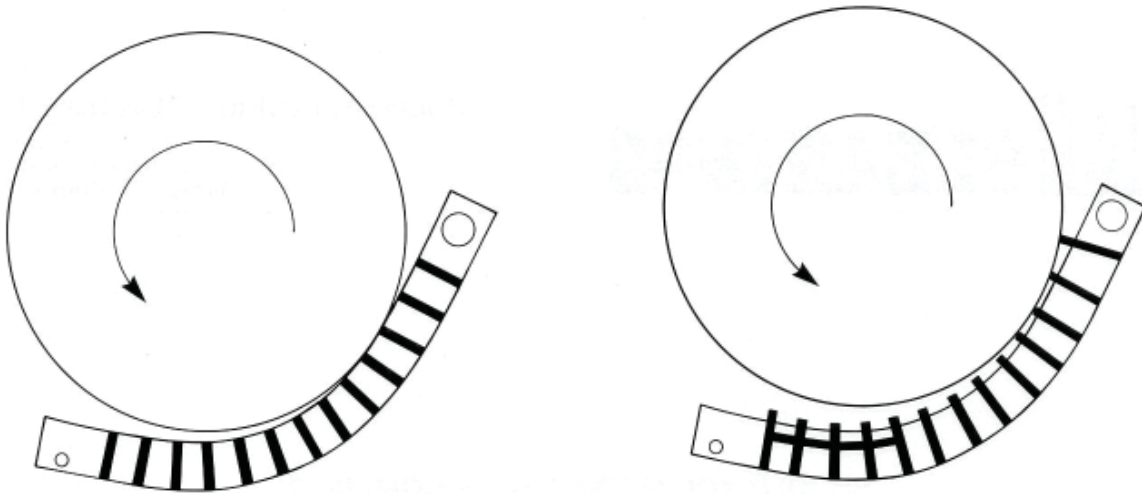


FIGURE 1. Standard JD 6600 Concave (left) and Modified Concave (right).

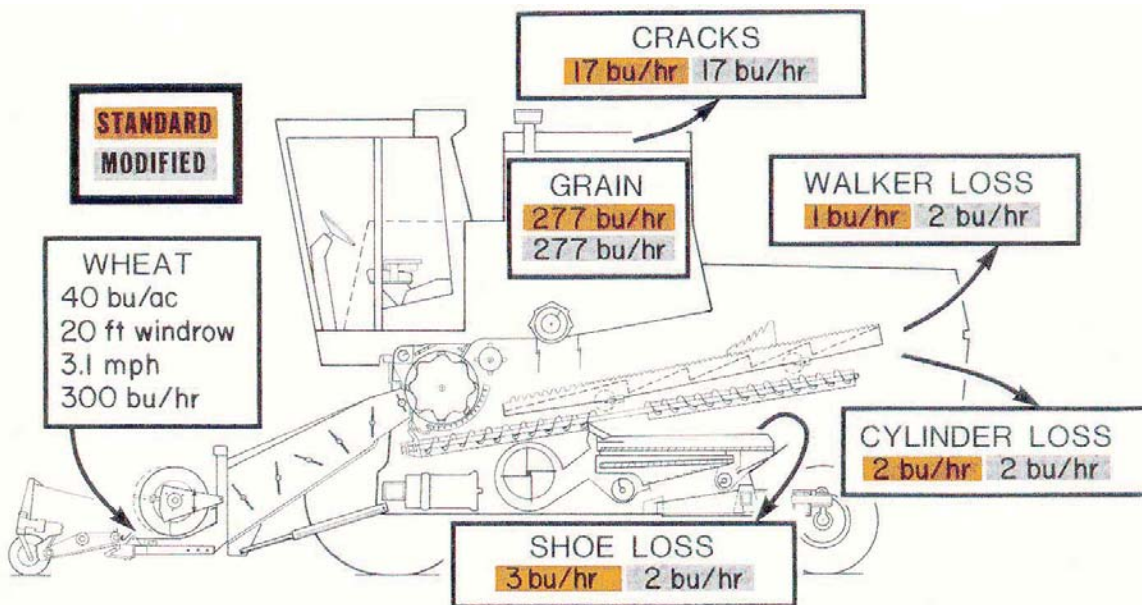


FIGURE 2. Field Results for the Standard Combine and the Modified Combine in Neepawa Wheat.

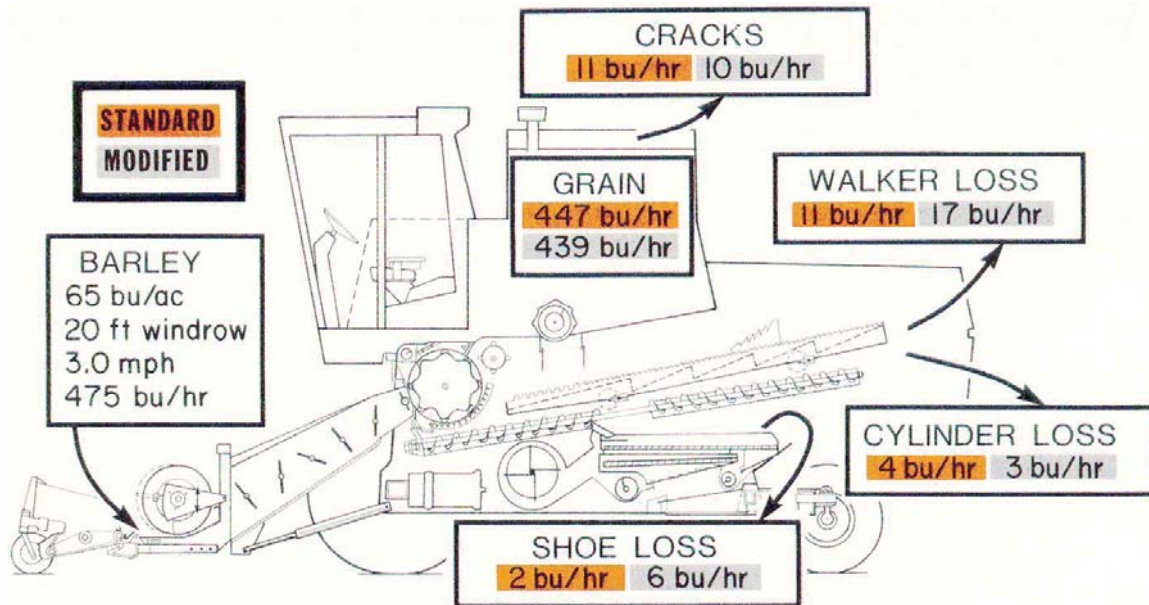


FIGURE 3. Field Results for the Standard Combine and the Modified Combine in Hector Barley.

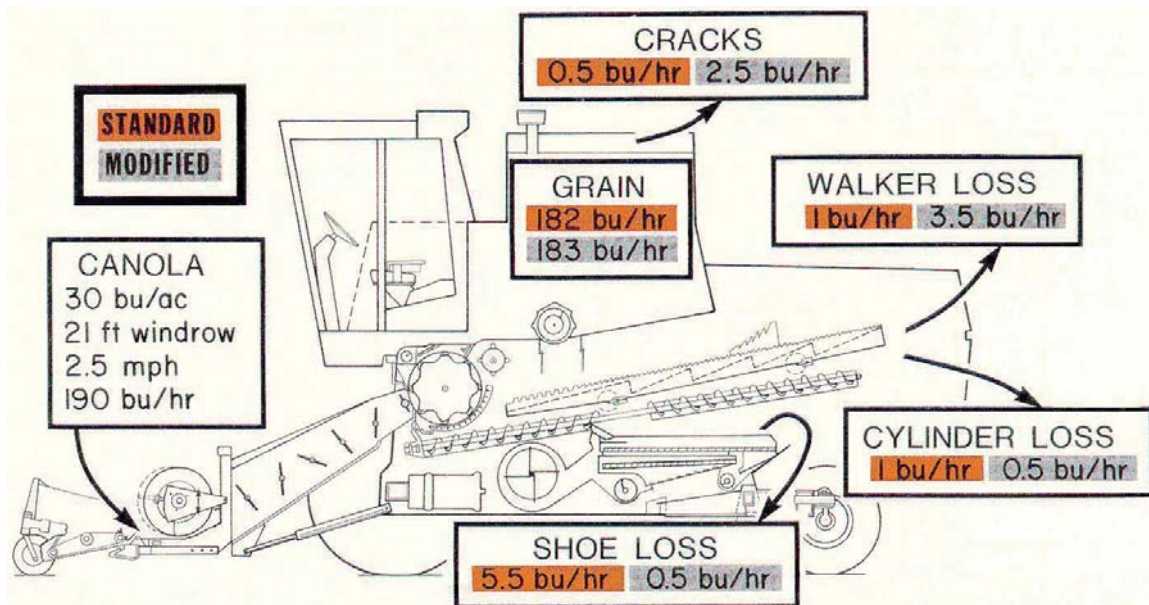


FIGURE 4. Field Results for the Standard Combine and the Modified Combine in Candle Canola.



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