NEWS RELEASE

USDA FOREST SERVICE • FOREST PRODUCTS LABORATORY
One Gifford Pinchot Drive • Madison, WI 53726-2398 • Website: www.fpl.fs.fed.us

FOR IMMEDIATE RELEASE December 12, 2008

Contact: Gordie Blum, (608) 231-9325
E-mail: gblum@fs.fed.us

Wisconsin research lab presents recommendations to Major League Baseball

MADISON, Wis.— If you followed baseball last Summer, you know that almost all of the major television sports outlets peppered their nightly baseball coverage with images of broken bats flying towards fans, pitchers or ducking infielders. Broken bats have always been a part of the game, but over the past few years the frequency and intensity of the breaks seemed to be on the rise. In fact, from last July through September, 2,232 bats broke during Major League games. And to Major League Baseball this is a serious issue with potentially harmful consequences.

Much of the discussion over "why" this is happening has centered on the use of maple bats. Most of the more dramatic multiple piece breaks that were shown on television were from maple bats.

Enter Dave Kretschmann, a Research Engineer at the U.S. Forest Service's Forest Products Laboratory. Dave is a baseball fan, but more importantly, he is a wood scientist. It's Dave's job to study wood to understand how well it will perform in different end uses. It's the perfect combination to head up a team to look at what could be done to make wooden bats safer for players and fans alike. And in his mind, there was nothing about the structure of maple that should have made it dramatically more likely to break than ash.

"There are structural differences between maple and ash and over 60 percent of the bats that major leaguers use are made from sugar maple; so you would expect there to be a difference in failure rates, but not to the degree that we were seeing," said Kretschmann.

Still, until the research was done, he could not be absolutely sure. Starting in July, MLB started collecting broken bats and shipping them to Madison, where Kretschmann and his partners from Timberco Inc. began measuring and analyzing each specimen to begin looking for patterns.

“What we found was that the majority of multiple piece failures were caused by severe slope of grain. Essentially, the grain pattern for maple is more difficult to discern than ash, making it harder for manufacturers to grade it properly, and also process it so that you have the grain oriented properly. We also confirmed that the old adage we all learned in Little League about swinging with the ‘trademark up’ could be put to good use for reducing the number of maple bat failures, by putting the trademark in a different place for maple bats,” said Kretschmann.

After months of work, Kretschmann and his team sent their initial recommendations to Major League Baseball’s Safety and Health Advisory Committee. The Committee and the Major League Baseball Players Association announced on December 9 at their winter meetings in Las Vegas that they have adopted the nine recommendations. The recommendations will be in effect for the 2009 season.

In July, the Safety and Health Advisory Committee formed an interdisciplinary team of external experts in such areas as wood science, industrial wood product certification, statistical analysis and laboratory and field testing of baseball bats. Wood quality issues were examined by two Wisconsin-based organizations: the USDA Forest Service's Forest Products Laboratory (FPL), the United States government's primary research facility for wood products, from which Kretschmann is the Committee's primary contact; and Timberco, Inc. ("TECO"), an independent, accredited certification and testing agency for structural and nonstructural wood products. Dr. Carl N. Morris, Professor of Statistics at Harvard University, and Dr. James A. Sherwood, Professor of Mechanical Engineering at the University of Massachusetts-Lowell and Director of the Baseball Research Center, also have assisted with the Committee's data analysis and designed additional bat tests.

Among the steps taken by the experts were on-site visits to five bat manufacturers, during which they met with company officials and observed their manufacturing quality control processes; video review of hundreds of multi-piece bat failures; administration of a survey to all MLB-approved bat suppliers, players and equipment managers; and lab testing both of bats and maple dowels.

From July-September 2008, 2,232 bats broke during Major League games - including both cracked bats that stayed in one piece and bats that broke into multiple pieces - and were subsequently collected and submitted to the experts for analysis. Among the 2,232 broken bats, 756 broke into multiple pieces. The two primary modes for the multi-piece breaks were due to

poor-quality "slope of grain" and/or ruptures caused by excessive bending. Slope of grain is a term used in the wood industry to quantify how straight the grain is along the edge (radial) and flat (tangential) faces of a piece of wood. As the straightness of the grain decreases, the durability of the bat decreases.

The study by the Safety and Health Advisory Committee concluded that among the 756 multi-piece broken bats, maple bats were three times more likely than ash bats to break into two or more pieces. The failed bats showed that the maple bats were four times more likely to have broken due to poor-quality slope of grain than the ash bats failing in the same manner.

To address the slope of grain issue, the team of experts compiled nine recommendations to reduce the frequency of multi-piece bat failures, all of which have been adopted for 2009:
1. All bats must conform to slope of grain wood grading requirements which apply to the 2/3 length of the billet that will constitute the handle and taper regions of the bat. All manufacturers must identify and grade the handle end prior to production of the bat to ensure that its slope of grain satisfies the grading requirement.
2. All manufacturers must place an ink dot on the tangential face of the handle of sugar maple and yellow birch bats before finishing. Placing an ink dot enables a person to easily view the slope of grain of the wood.
3. The orientation of the hitting surface on sugar maple and maple bats should be rotated 90o (one quarter turn of the bat). The edge grain in maple that is currently used as the hitting surface is the weaker of the two choices. To facilitate such a change in the hitting surface, manufacturers must rotate the logos they place on these bats by 90o.
4. Handles of sugar maple and yellow birch bats must be natural or clear finish to allow for inspection of the slope of grain in the handles.
5. Manufacturers must implement a method of tracking each bat they supply (e.g., serial number) so that each can be linked back to the manufacturer's production records.
6. Representatives of each authorized manufacturer should be required to participate in an MLB-sponsored workshop on the engineering properties and grading practices of wood as they relate to the manufacture of solid-wood baseball bats.
7. Manufacturers should be visited on a regular basis by MLB or its designated representatives to audit each company's manufacturing processes and recordkeeping with respect to bat traceability.
8. Audits should be randomly conducted of bats by MLB or its designated representatives at the ball parks to ensure that the new bat requirements are being followed.

9. A formalized third-party bat certification and quality control program should be established to certify new suppliers, approve new species of wood, provide training and education to bat manufactures, and address issues of non-compliance.

The team of experts believes that implementation of these recommendations will have an immediate impact in the 2009 season on reducing the frequency of bats breaking and the number of bats breaking into multiple pieces.

"I am hopeful that the implementation of these recommendations will do much to resolve the issues posed by the broken bat episodes we saw this season, most importantly to assure the safety of our on-field personnel and our fans," said Baseball Commissioner Allan H. (Bud) Selig. "I thank the Safety and Health Advisory Committee and their experts for their extensive work on this essential task."

Major League Baseball Players Association Executive Director Donald Fehr said: "We are pleased that we were able to work through this issue with MLB, and we appreciate very much all of the hard work put in by everyone involved in this effort."

The research and analysis by the team of experts will continue during the off-season and throughout the 2009 regular season, including the collection and review of additional data. The experts will examine potential ways to reduce the incidents of multi-piece failures even further, which may include studying wood drying methods, moisture content, and the durability of specific bat models. In addition, the experts will advise the Committee on the development and implementation of a third-party bat certification and audit program.

To defray the substantial costs that the Committee has incurred to conduct its investigation of bat durability, the Office of the Commissioner has increased the annual administrative fee for supplier authorization from $5,000 per supplier in 2008 to $10,000 per supplier in 2009. Additionally, the Office of the Commissioner has increased the required minimum limits for authorized bat suppliers of Umbrella Liability Insurance from $5 million to $10 million for Each Occurrence and General Aggregate.

# # #