



## **2018 USA Softball Equipment Committee Review**

**This past year the Equipment Committee, Dr. Lloyd Smith and the WSU lab have spent time on bat & ball compliance, as well as working with manufacturers in advance to make sure new designs and products meet our basic requirements of Rule 3 Section 1A.**

**We completed the development of a process to identify and establish a USA Softball Composite Non Linear Bat Protocol. We worked with the WSU Lab and manufacturers to develop, document, and implement a new procedure to determine the Compression threshold for all non-linear bats. We continue to work with manufacturers who seek an exemption to the barrel compression passing criterion.**

**It appears the 52/300 technology has been successful with the 11” ball and we realized the same benefits of a significant reduction in the Impact Severity Index and the reduction in injuries when a ball strikes a player.**

**USA Softball has invested in a new product called Flight Scope. This product replaces the Trackman Radar device to assist equipment testing in the certification of bats and ball. We feel the Flight Scope product will give us real time data on many aspects, and will provide the committee with game condition information which is vital to make decisions on bats and balls, such as batted ball speed, swing speed, flight of the ball and much more.**

**Flight Scope information will be immediately available versus having to calculate the data from the field which can be a time consuming exercise. By increasing our understanding of how equipment performs and impacts our game, we will be able to better quantify how rule changes affect play. This will allow us to make decisions about softballs, bats, and the effects of temperature on equipment. Added value to the Flight Scope will be a great training tool for the USA Softball program. This device will record pitch speed and location, for immediate feedback for umpires while calling pitches at a training camp. We will realize a valued relationship between the Equipment Testing and Certification Committee and the Umpire program, making the USA Softball program even stronger.**

**Dr. Smith and his lab continue to work on a number of projects in the lab such as producing a Non-Linear Bat Video for the USA Softball web site. Some of the other projects worked on by Dr. Smith is the continuation of the Reaction Time field study which measures player reaction under game conditions. Information from this study will be valuable in making equipment decisions in the future. Reaction Time goals include, measuring acceptable risk, player perception of a batted ball, formulation of response time, and the determination of an average acceptable reaction time.**

**The lab continues research regarding rolled bat identification using non-destructive methods. A bat durability cannon has been designed and is nearly complete. This system will allow us to impact bats at speeds and quantities representative of play on the field. If the results of this research is successful, this work will allow a comparison between rolled and used bats in a laboratory setting.**

**The lab is also studying Ball Aerodynamics. Dr. Smith has developed and refined a dedicated station to measure ball drag and lift in free flight, closely simulating play conditions. The goal in this study is to understand the features of a stitched ball that contributes to its lift and drag.**

**The lab has also started a process to study head protection and has an active program to compare and assess head protection strategies. The work primarily considers the effect of helmet design on head acceleration and brain response, but also includes ball-head impact simulations. Head-ball impact simulations represent a unique ability of the lab, given their history in developing accurate, validated ball models.**

**The Equipment Committee also worked with Executive Director Craig Cress to develop a new design for our certification marks by incorporating our old mark and our new USA Softball name.**

**This past year we shared a very positive Long Range Planning survey taken at the 2017 Council meeting regarding equipment changes implemented the past few years.**

**It is also extremely important that we continue to work with our manufacturing partners as we collectively search for new ideas to improve equipment for the game of softball.**

**In 2019 the Equipment Committee plans will be to continue studying reaction time, bat and ball compliance, field study with Flight Scope, and continued lab projects and initiatives under way.**

**We appreciate the good work of Dr. Lloyd Smith and his lab at WSU. We recognize and thank the members of the Equipment Committee, Kevin Ryan, Rich Cress, Craig Cress and the entire USA Softball staff for their assistance this past year. As in the past, it is the duty of the Equipment Committee to make the very best decisions possible for the game of softball. We continue to base those decisions regarding bat and ball combinations and other related equipment, on the scientific data we collect in an effort to uphold the integrity of the game of softball.**

**Respectfully submitted,**

**Dick Gulmon**

**Chairman, Equipment Testing and Certification Committee**