

Improving On-farm Particle Size Analysis

The importance of proper particle size of feed materials is well understood by producers, veterinarians, and nutritionists alike. Reducing particle size increases the relative surface area of the feed material thus allowing for greater interaction with digestive enzymes. The improved digestibility results in improved daily gain and feed efficiency. Better digestibility also means fewer nutrients in swine waste, a plus for the environment.

Producers should target 700 microns particle size with an acceptable range of 650 to 750 microns. Research shows that for every 100 microns over 700 that producers lose \$0.50 per pig due to poorer feed conversion. The KSU Swine Nutrition Lab analyzes several hundred particle size samples each year for producers across the US. In addition they have been working to help improve particle size analysis techniques for producers to measure particle size on their farms. The standard equipment for testing particle size is relatively expensive to purchase and maintain, and the total analysis can be rather time consuming. Therefore, we have been researching a simpler, less-expensive method that would be helpful to producers and feed manufacturers to quickly check their grain particle size. Currently, there is a commercially available one-sieve testing method for determining particle size, but K-State has recently demonstrated greater accuracy with a three-screen method. The one screen method generally results in underestimating actual particle size and may give producers a false sense of security regarding their particle size. Results with the three screen method appear to be more accurate. As a result of this research a fact sheet where producers can get all the information they need to purchase the equipment, instructions on what to do, and a spreadsheet to analyze the results and

create a chart of your grain's particle size over time has been assembled. The procedures are outlined in a fact sheet posted on the K-State swine web page under the Research and Extension heading.