

MEAT QUALITY EXPECTED PROGENY DEVIATIONS

Author: Ronald O. Bates, Michigan State University, East Lansing, MI 48824-1225

Reviewers: Ken Stalder, Iowa State University, Ames, Iowa
Allan Schinckel, Purdue University, W. Lafayette, IN

At the request of the members, the National Swine Registry has developed a meat quality evaluation program to estimate Expected Progeny Deviations (EPDs) as a part of its ongoing STAGES genetic evaluation program. The Genetic Advisory Committee of the National Swine Registry (NSR) has worked with NSR personnel to develop the data collection protocols and statistical analyses tools so that participating members can incorporate EPDs on select meat quality traits as a part of their genetic improvement program.

Members who wish to participate in this portion of the STAGES program will work with NSR personnel for data collection. NSR has developed relationships with packing companies so that members can have their animals harvested and the appropriate data collected. NSR will work with members to develop schedules for animal harvest. NSR asks members to have animals identified individually by tattoo using a series of numbers provided to them by NSR. Members must weigh all animals before leaving the farm and provide that information along with the registration number, ear-notch, sex, and tattoo to NSR and deliver their animals to the designated packing plant on the specified date. NSR will then have the appropriate data collected and match it with the information provided by the member.

Meat quality data will be collected on the loin muscle at the 10th rib location approximately 24 hours after slaughter. Data collected will include, CIE L*, pH and marbling score. These traits have been determined to be favorably related to several important fresh meat and processing characteristics. Below is a further explanation of these traits.

Meat Quality Traits

CIE L* This measurement is typically taken with a Minolta Colorimeter and is a measure of light reflectance. The range in values typically is 36 to 66. Higher values indicate paler meat, while lower values indicate darker meat. Pale meat is typically discriminated against in the meat case. Darker pork is often targeted for export. Parents with L* EPDs that are positive (above zero) should produce progeny with paler pork. Parents with L* EPDs that are negative (below zero) would produce progeny with darker pork. Selecting boars and gilts with negative EPDs will cause genetic change for darker pork.

pH This measurement is taken with a pH meter and is a measure of meat acidity. The range in values is typically 5.0 to 6.8. Lower values suggest meat is more acid and would be less juicy and poorer eating characteristics, while higher values would suggest meat would have better eating characteristics (more juicy, more tender). Parents with positive EPDs (above zero) should produce progeny with higher meat pH values. Parents with negative pH EPDs (below zero) would

indicate that pork from their progeny would have lower pH values. Selecting boars and gilts animals with positive EPDs for pH will cause genetic change for higher pH values.

Marbling
Score

This measurement is visual score from 1 to 10, and approximates the percent fat within the muscle. The scale used is that recommended by the National Pork Board. Higher values indicate loins have more marbling and likely better eating quality while lower values indicate loins have less marbling. Parents with positive EPDs (above zero) should have progeny with more marbling. Parents with negative EPDs (below zero) would have progeny with less marbling. Selecting boars and gilts with positive EPDs would cause genetic change for increased marbling.