

# **“NSIF - Contributions to Pig Breeding During the Last 35 Years”**

Rodger Johnson

# Purposes for NSIF (1975)

- **Uniformity:** Establish accurate and uniform performance testing procedures
- **Development/Education:** Assist members in developing and utilizing performance testing
- **Cooperation:** Facilitate cooperation among all segments of the industry in developing and utilizing performance testing
- **Confidence:** Increase confidence in performance testing

# 1970s

- June, 1975
- Working Committees (n = 15-23)
  - Nutrition and health
  - Reproductive Performance
  - Record Utilization and Standardization
  - Merchandising Performance Testing
  - Central Test Station Procedures
  - On-the-farm Testing

# Guidelines for Uniform Swine Improvement Programs (June, 1976)

- Trait recording and adjustment factors
- Ratios
  - $(P_i/\hat{Y}) \times 100$
- Index Standardization
  - $I = 100 + 45(DG - \overline{DG}) - 65(FG - \overline{FG}) - 60(BF - \overline{BF})$
  - $I = 100 + 110(DG - \overline{DG}) - 105(BF - \overline{BF})$
- Sow productivity
  - $SPI = 6.5 \times NBA + LWT_{21}$

# Central Testing

- ~6500 pigs tested at central test in 1970s
- May not have led to much genetic improvement (Bichard, 1978)
  - Problem was not that testing was inaccurate
    - Breeders failed to use results in their improvement program
    - Logistics were unfavorable
      - Too few boars tested to provide high selection intensity  
Few if any gilts tested

# On-Farm Performance Testing Operations Manual (1981)

- Nuts and Bolts manual
  - Files
    - Columns in punch cards
    - Codes
  - Trait recording
  - Procedures to standardize records
  - Indexes
    - Multiple sow records (MPSP, MPBV)
    - MLI, TSI, GI
  - Summary Reports

# 1980s

- Whole-herd testing
- Computers/EBVs
  - STAGES
  - Shortcut BLUP
- Pricing on EBVs
- Electronic feed intake recording
- Economics of genetic improvement
- Crossbreeding systems
  - Maternal breeds
  - Terminal sire breeds

# 1980s

- Application of research in other species to pigs
  - Poultry, Cattle, Mice
- Theory
  - Herd size, % tested, inbreeding
  - BLUP
    - Accuracy, pedigree errors
  - Improved ultrasonics
  - Gene ID and transfer



# 1990s

- Forum for exchange of ideas
  - 1991 – last year in which Central Test Station and On-Farm Testing Committees met?
  - Application of Biotechnology
    - Gene mapping
    - QTL studies
  - BLUP implementation
    - Animal Model
  - New traits
    - Meat Quality
    - Reproduction/longevity
    - Disease Resistance

# 2000s

- QTL identification
- Implementation of MAS
- Selection for disease resistance
- Genome selection

# Impact of NSIF

- Education
- How to implement science
- Started as a working group
  - Guidelines and procedures
- Morphed into a forum for exchange of ideas
  - Examples of successful applications
  - Challenging one another to do better
- Need remains
  - Please continue