Susan Willmon, Director of Breed Improvement

AGA Experience

- Why SNPs?
    - Avoid another transition
    - Cost savings with diagnostic tests
    - Accuracy
    - Fewer rechecks/faster turnaround
    - Integration with Whole Genome Scan
    - More powerful multi-sire parentage
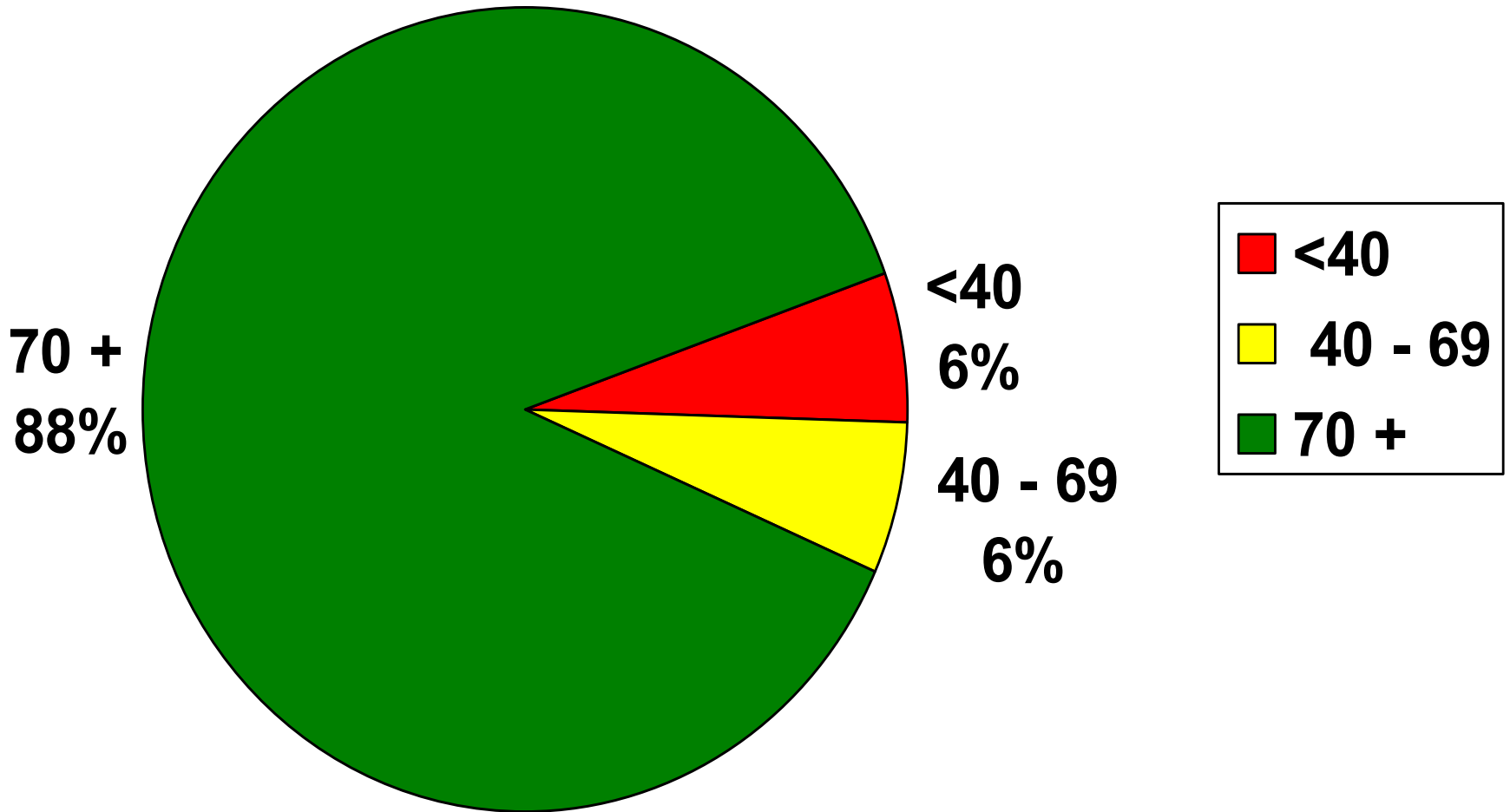
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- STR to SNP Transition Process
  - Ran STRs and SNPs simultaneously for several months and compared results
  - Used SNPs to resolve a few problem STR cases
  - Used SNPs to confirm sires in progeny test project.
  - 100% SNPs as of May 1, 2008.

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- **Sample Parameters:**
  - Request new samples < 40 SNPs
  - Redo samples 40 to 69 SNPs
  - Minimum number of compared loci – 60
  - Sample type
    - Hair - contamination issue
    - Tissue – small no-sample rate
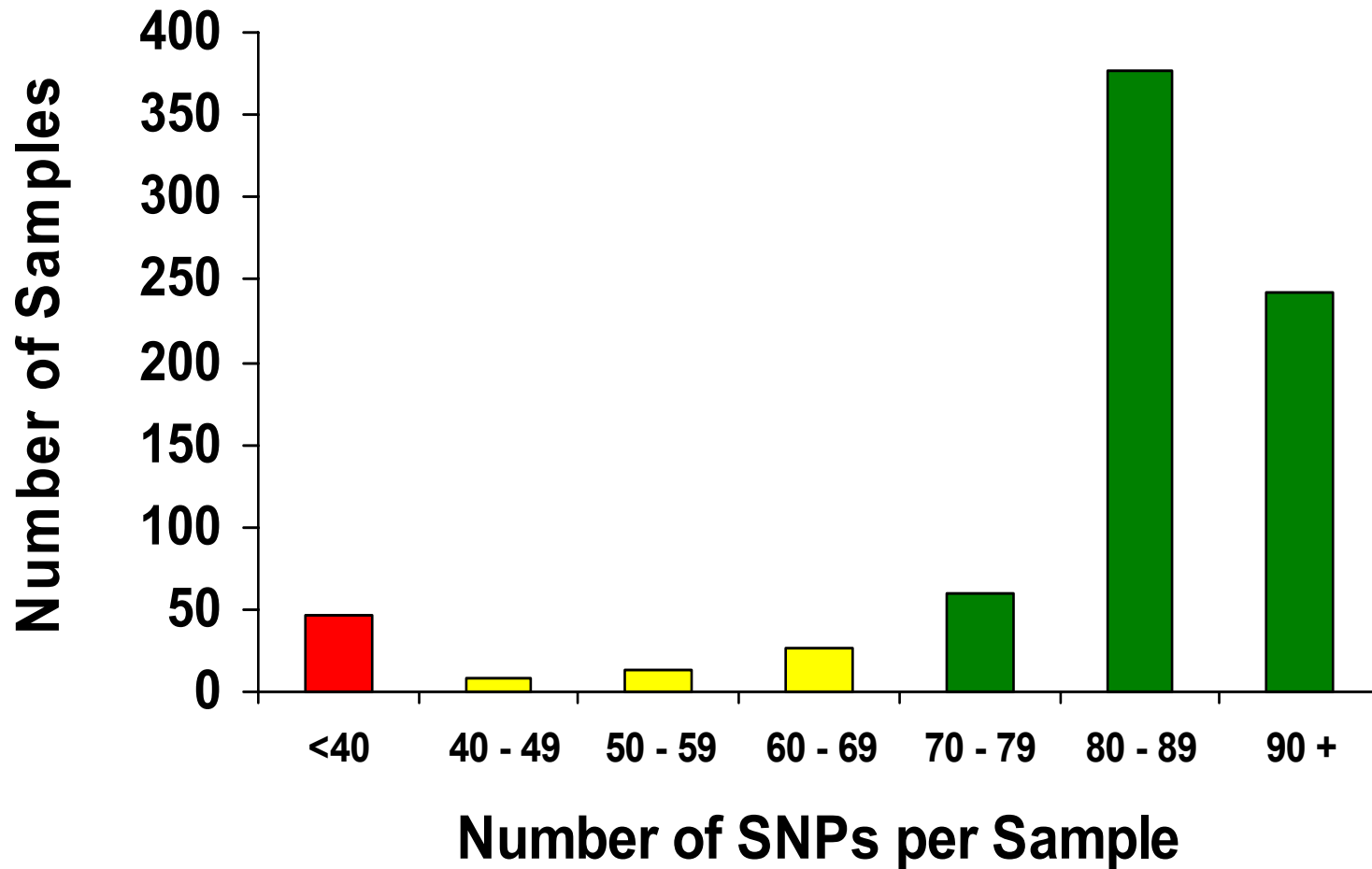   - Semen – cost of straw – long term sample retention

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SNP Call Rate[1]

70 +
88%

<40
6%

40 - 69
6%

Legend:
- <40
- 40 - 69
- 70 +

[1]All samples – new and archived

SNP Call Rate[1]

88% of AGA samples have 70+ SNPs

Number of Samples (y-axis: 0, 50, 100, 150, 200, 250, 300, 350, 400)

Number of SNPs per Sample (x-axis: <40, 40 - 49, 50 - 59, 60 - 69, 70 - 79, 80 - 89, 90 +)

[1]All samples – new and archived

Number of Sire and Dam Exclusions[1,2]
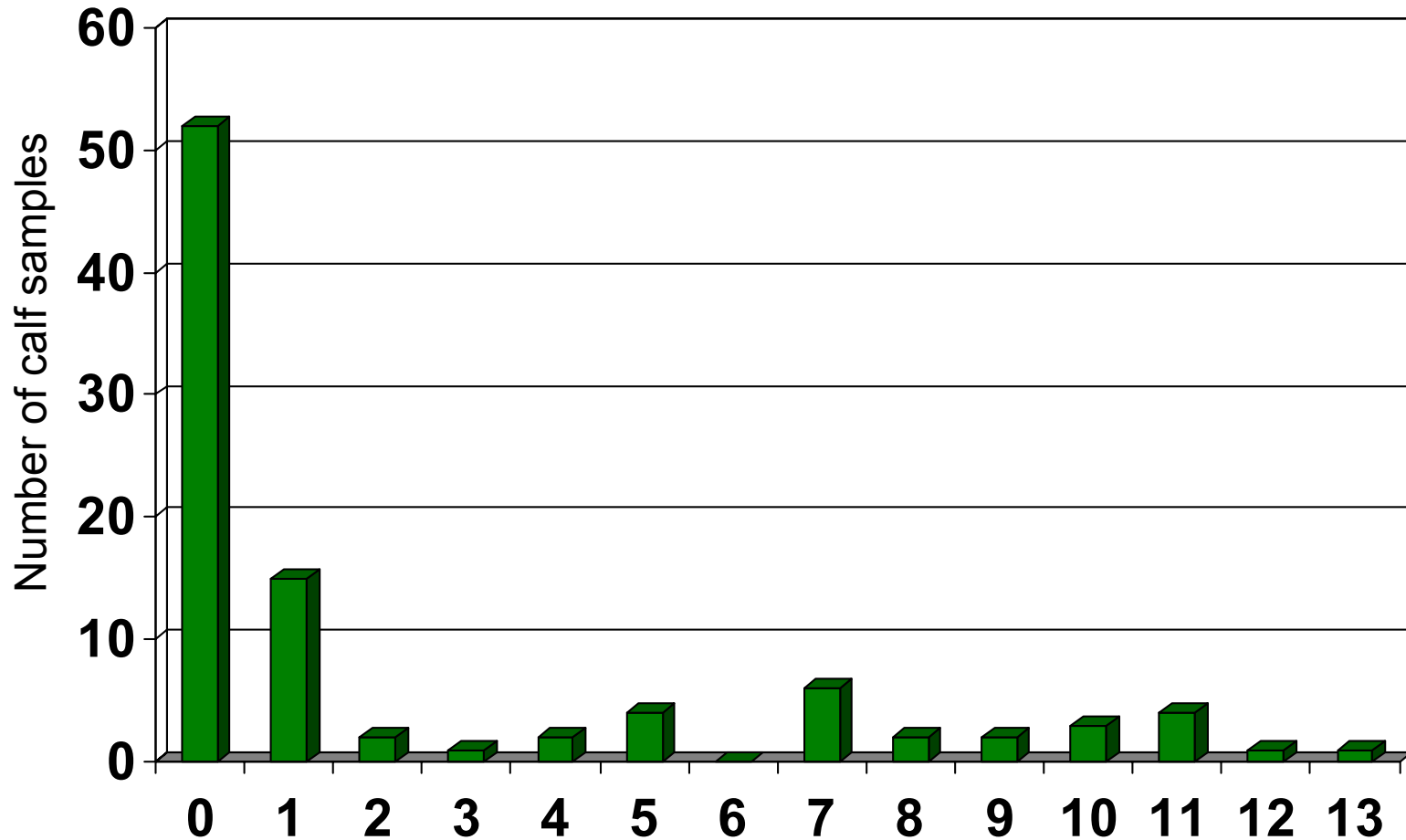
[1]All samples – new and archived
[2]Includes samples requiring validation only

- SmartCross project (17 multi-sires)
  - Unique sire identification to 74 of 76 calves
  - No calf had more than one sire qualify

Going Forward

- Standards
  - Key to future sharing of profiles between breeds
  - ?? Creation of SNP database on AI sires

- STR vs. SNP
  - Higher confidence in excluded parents

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