

# GoldenGate Genotyping

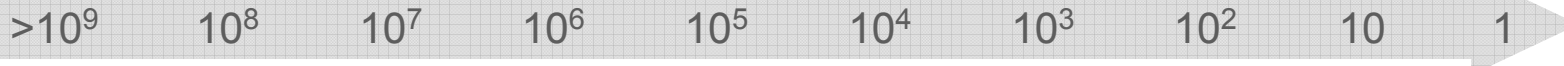
A New Evolution in High-Throughput Screening

# Addressing Breadth of Customer Needs

Discovery

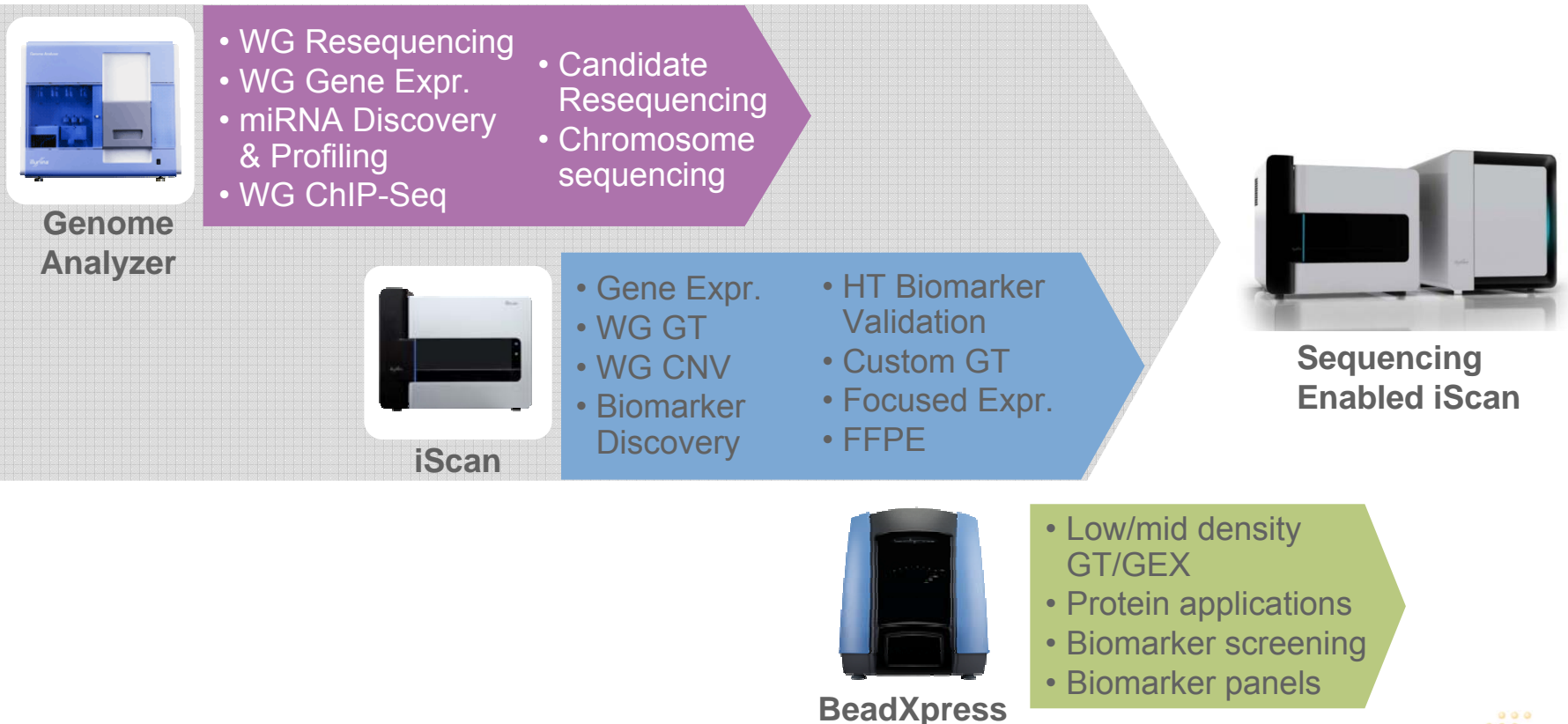
Focused Research/Validation

Screening



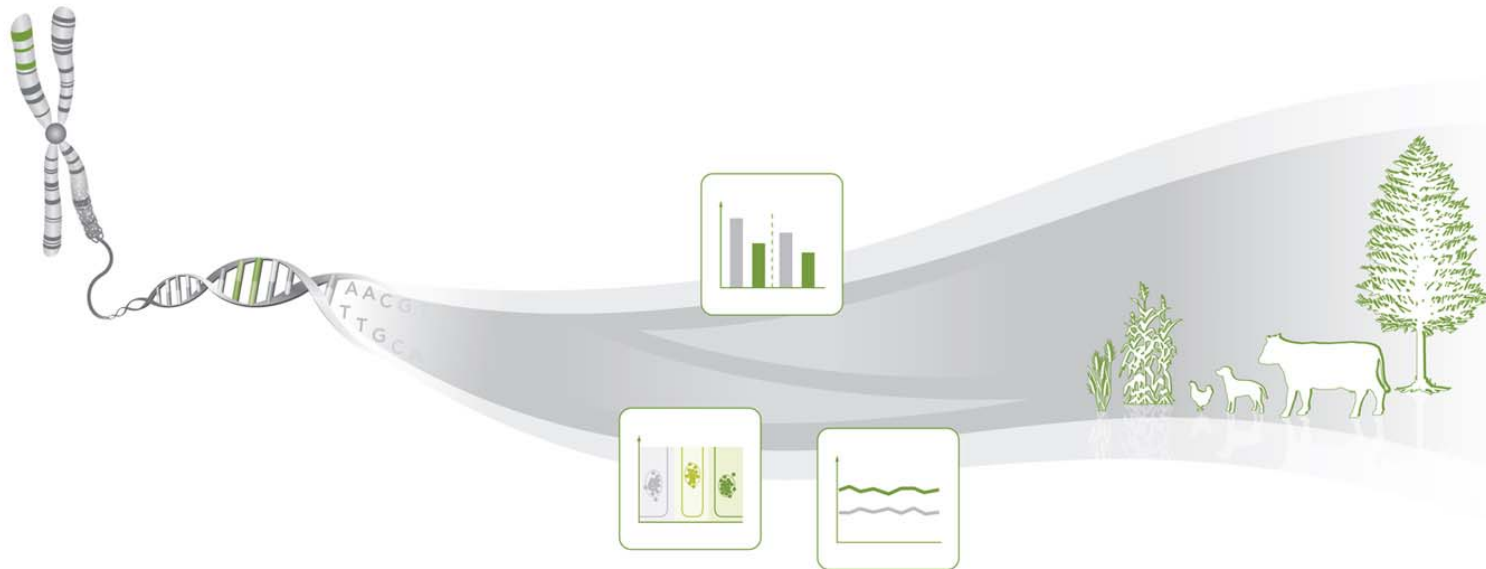
Whole Genome

Single Marker

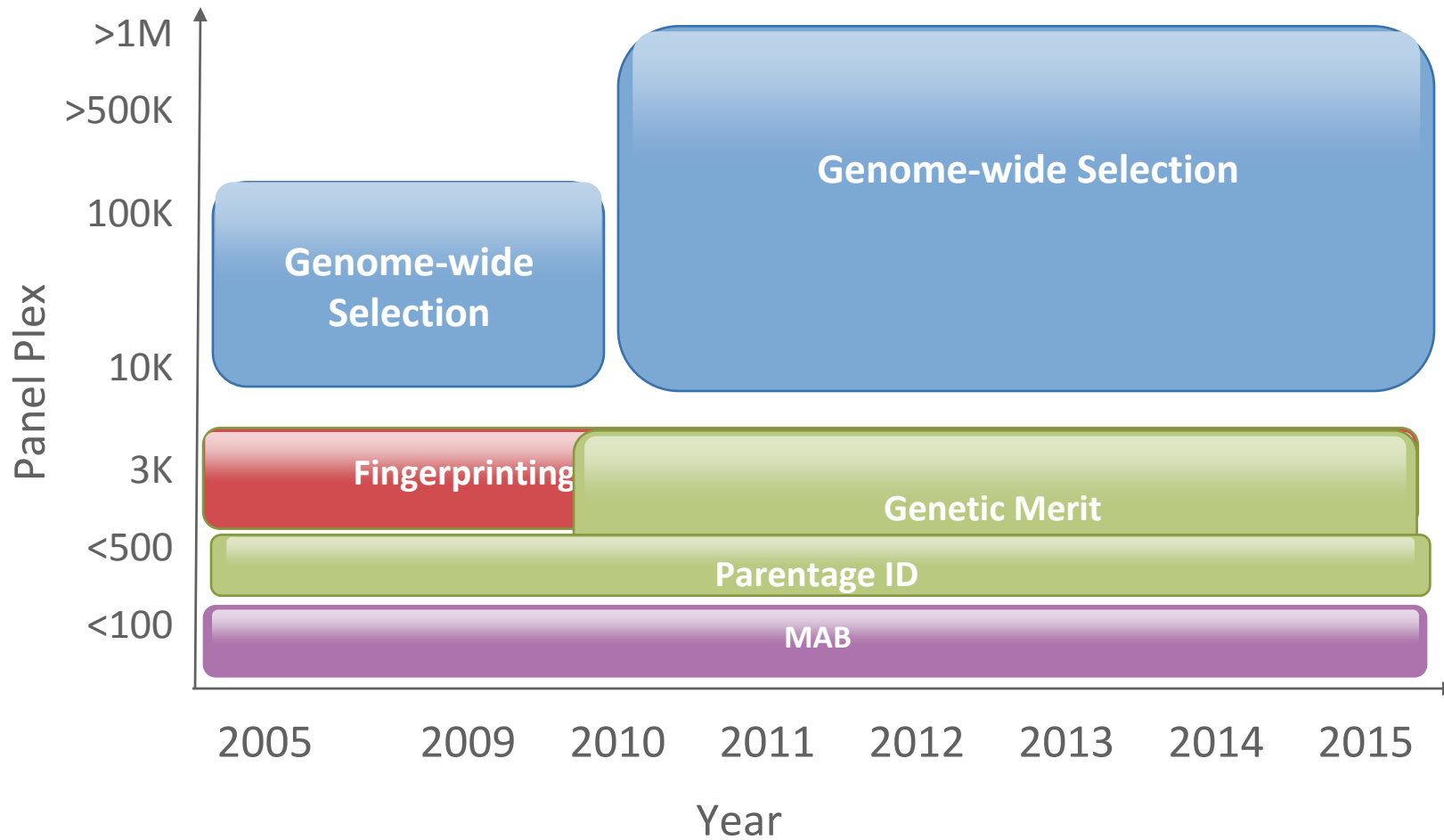


# Comprehensive Solution: Discovery to Validation to Screening

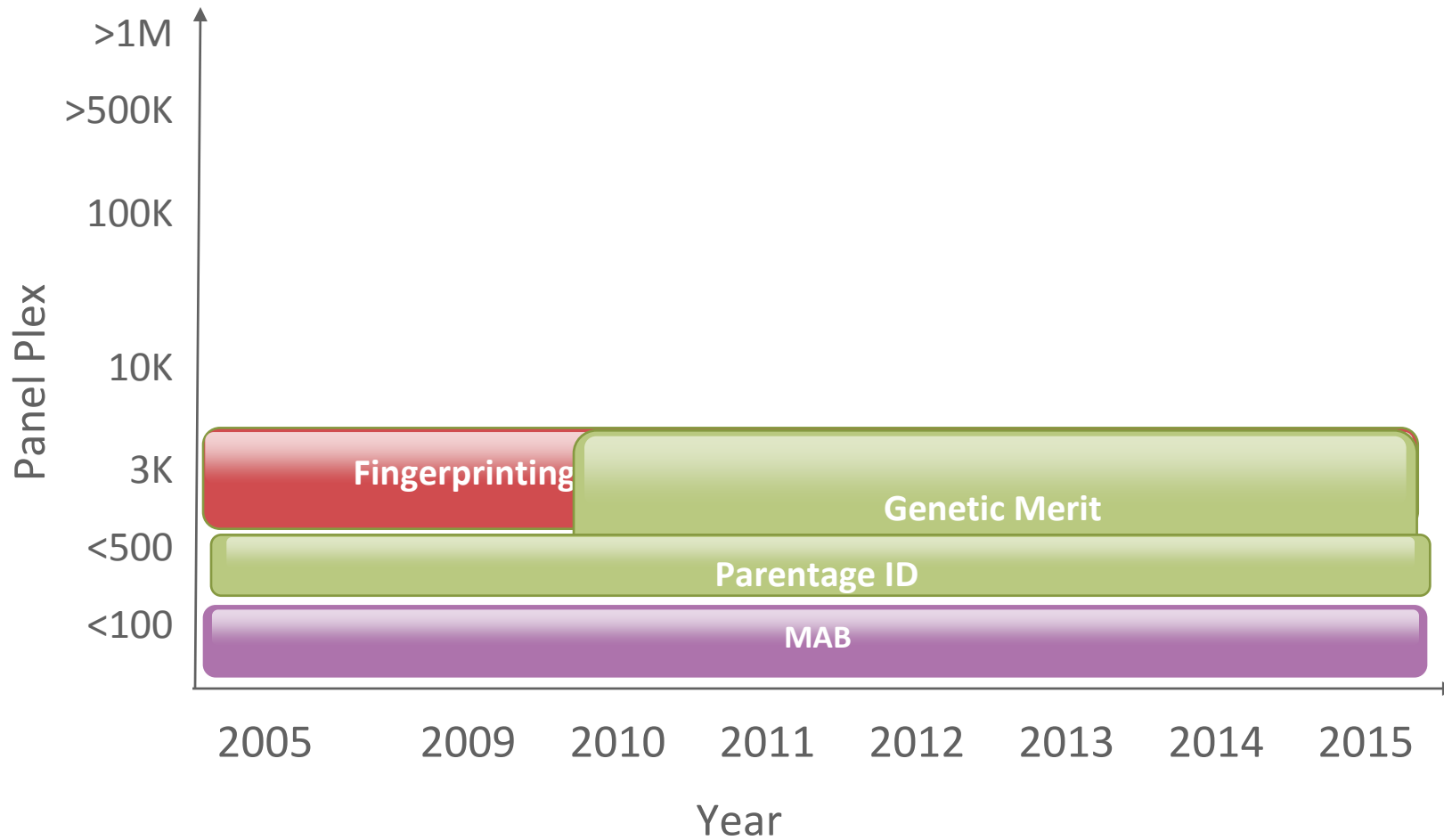
- **Discovery** - Any variant. Any species. The Genome Analyzer and iScan Reader combine high throughput, accuracy, and application flexibility. Taking you beyond simple discovery.
- **Validation** - Informative markers. Validated discoveries. Research with confidence using the Genome Analyzer, iScan Reader and BeadXpress platforms.
- **Screening** - Accelerate the transition from lab-to-field using the iScan and BeadXpress Readers. Quickly and easily screen your markers of interest in large populations.



# Agrigenomics Applications



# Agrigenomics Applications – Low Plex Screening



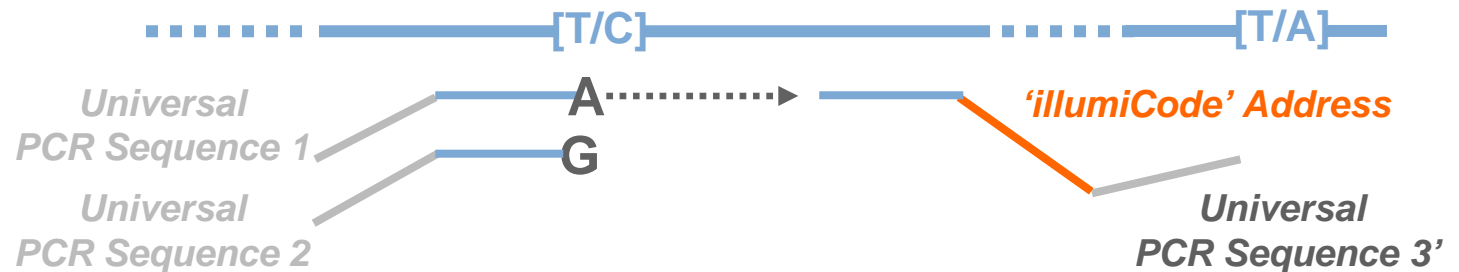
# GoldenGate Assay

- Pre-optimized and robust assay, tolerant of poor template quality
- Accurate SNP genotyping through allele specific extension
- Uses Universal Assay Chemistry – up to 1536 Assays in a single reaction

## Allele-specific Extension & Ligation

Genomic DNA

Allele Specific  
Extension &  
Ligation



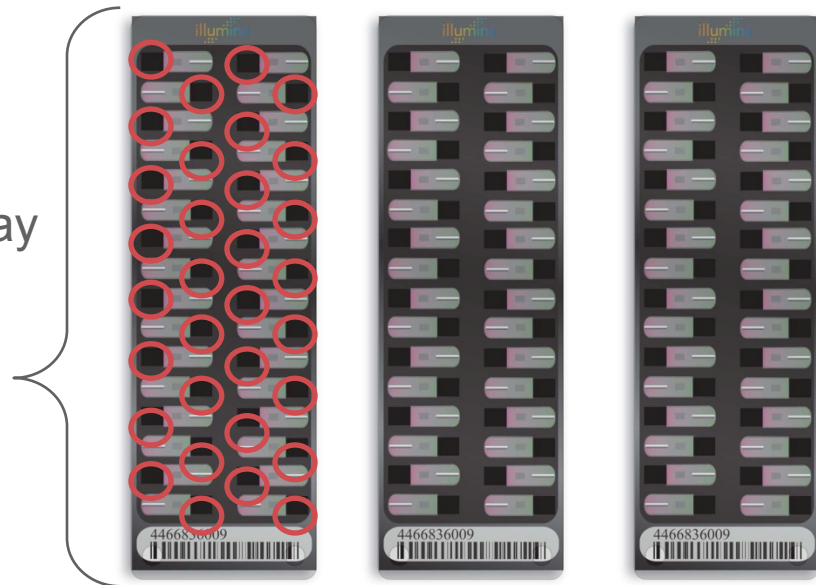
# GoldenGate<sup>®</sup> Custom Genotyping

## GoldenGate BeadArray

- 96 to 1536-plex
- DNA input ~ 250ng
- iScan system
- LIMS/Automation
- BeadChips
- ~288 samples/day

# Universal-32 BeadChip for the GoldenGate Assay

- Designed for the flexible, pre-optimized GoldenGate Assay
  - Available for 96 to 1536 SNPs
  - Custom designs for any species
- Compatible with the iScan and BeadArray
  - Up to 128 samples per iScan run
  - 96 samples scan in less than 30 min.
- Designed for 8 channel pipette loading
- Autoloader capability
- Ideal for streaming with Infinium processes
- Automation and LIMS supported





# iScan



- Powerful and economical platform
- Fully automated operation
- Compact bench top system
- Highest Resolution (0.54)
- Forward Compatible
- Fastest Scan Times
- Modular
  - Automatization
  - Microarray
  - Next-Gen-Sequencing



# Illumina LIMS Solution



- Prevent sample mix-up
- Increase confidence and efficiency:
- Complete system integration
- Maximize quality, save resources:

# GoldenGate<sup>®</sup> Custom Genotyping

## GoldenGate BeadArray

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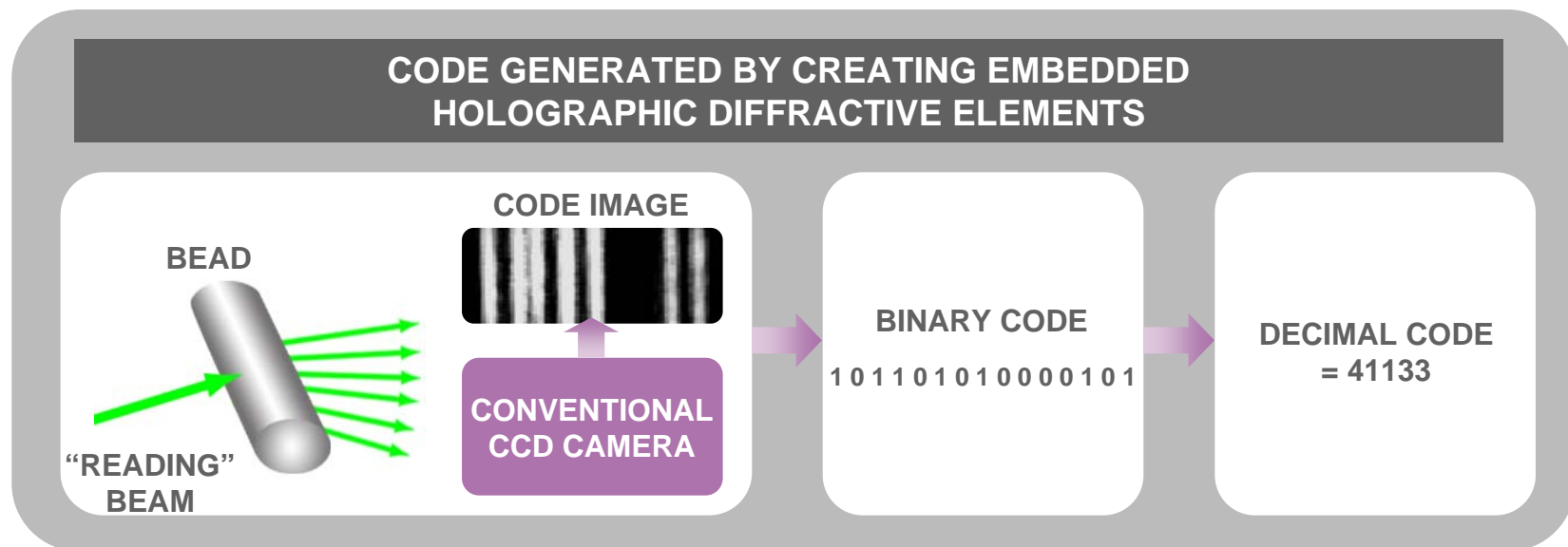
## GoldenGate Veracode

- 48 to 384-plex
- DNA input ~ 250ng
- BeadXpress system
- Automation
- VeraCode
- ~288 samples/day

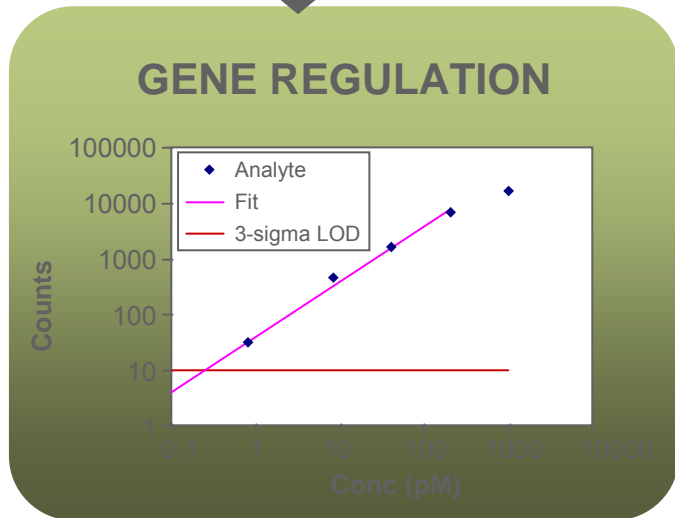
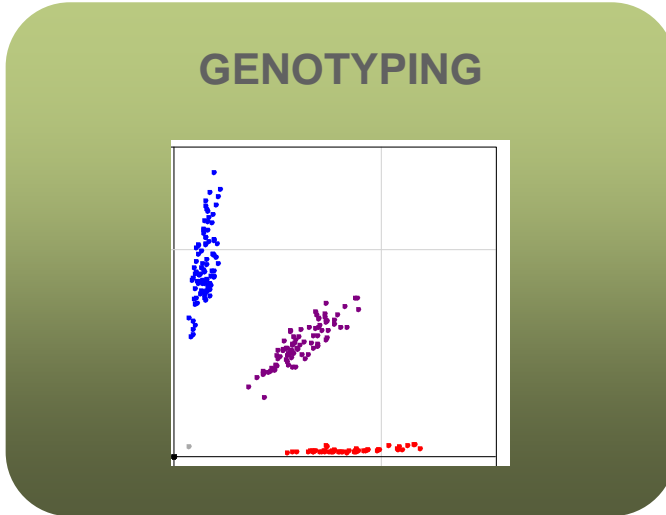
# VeraCode Technology



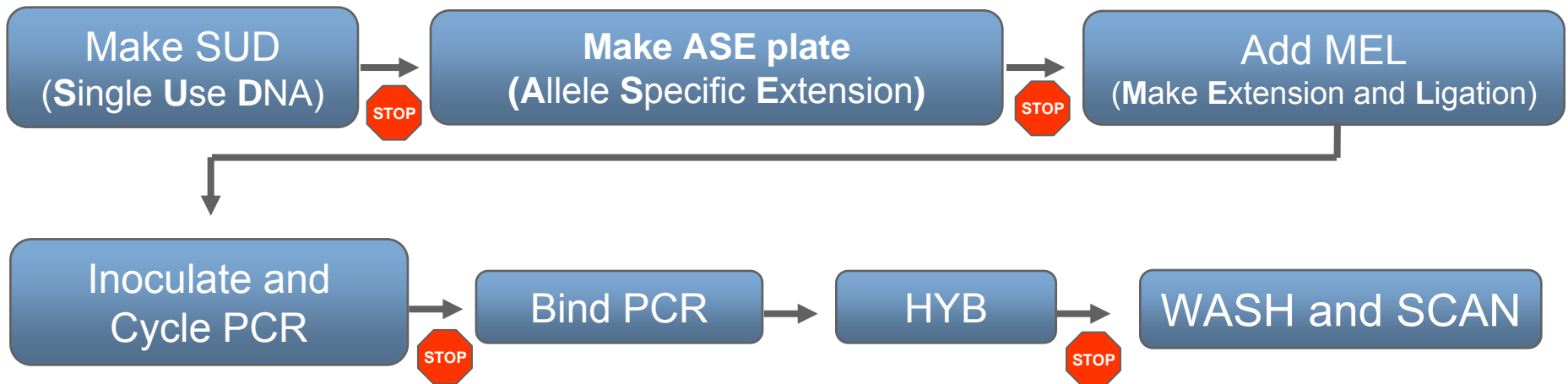
- Designed for the flexible, pre-optimized GoldenGate Assay
  - Available for 48 to 384 SNPs
- Cylindrical glass microbeads
- 240  $\mu\text{m}$  length x 28  $\mu\text{m}$  diameter
- Compatible with the BeadXpress Reader



# BeadXpress – Built for flexibility



# GoldenGate Workflow for BeadArray and VeraCode



Potential or recommended stopping point

# GoldenGate<sup>®</sup> Custom Genotyping

## GoldenGate BeadArray

- 96 to 1536-plex
- DNA input ~ 250ng
- iScan system
- LIMS/Automation
- BeadChips
- ~288 samples/day

## GoldenGate Veracode

- 48 to 384-plex
- DNA input ~ 250ng
- BeadXpress system
- Automation
- VeraCode
- ~288 samples/day

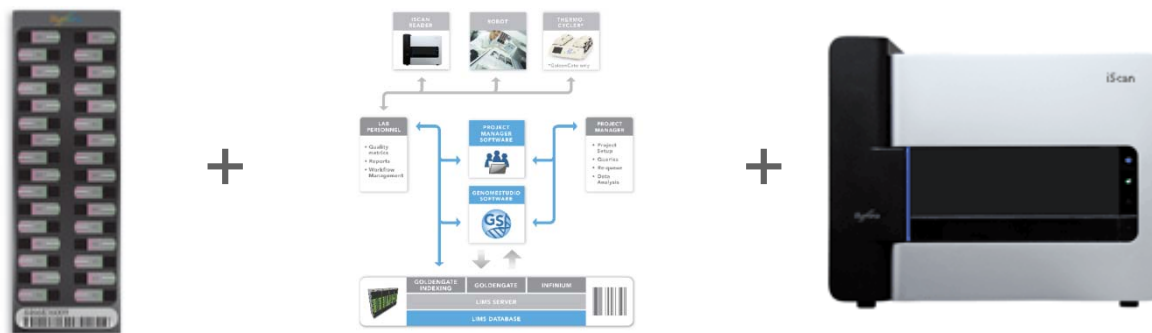
## GoldenGate Indexing

- 96 to 384-plex
- DNA input ~ 250ng
- iScan system
- LIMS/Automation
- BeadChips
- >2000 samples/day

# Introducing GoldenGate Indexing

The next evolution of GoldenGate

GoldenGate Indexing Technology Offers Optimal  
Combination of Throughput and Cost for Low Complexity  
Sample Screening



**Highest Throughput:** Greater than 2,000 samples per day

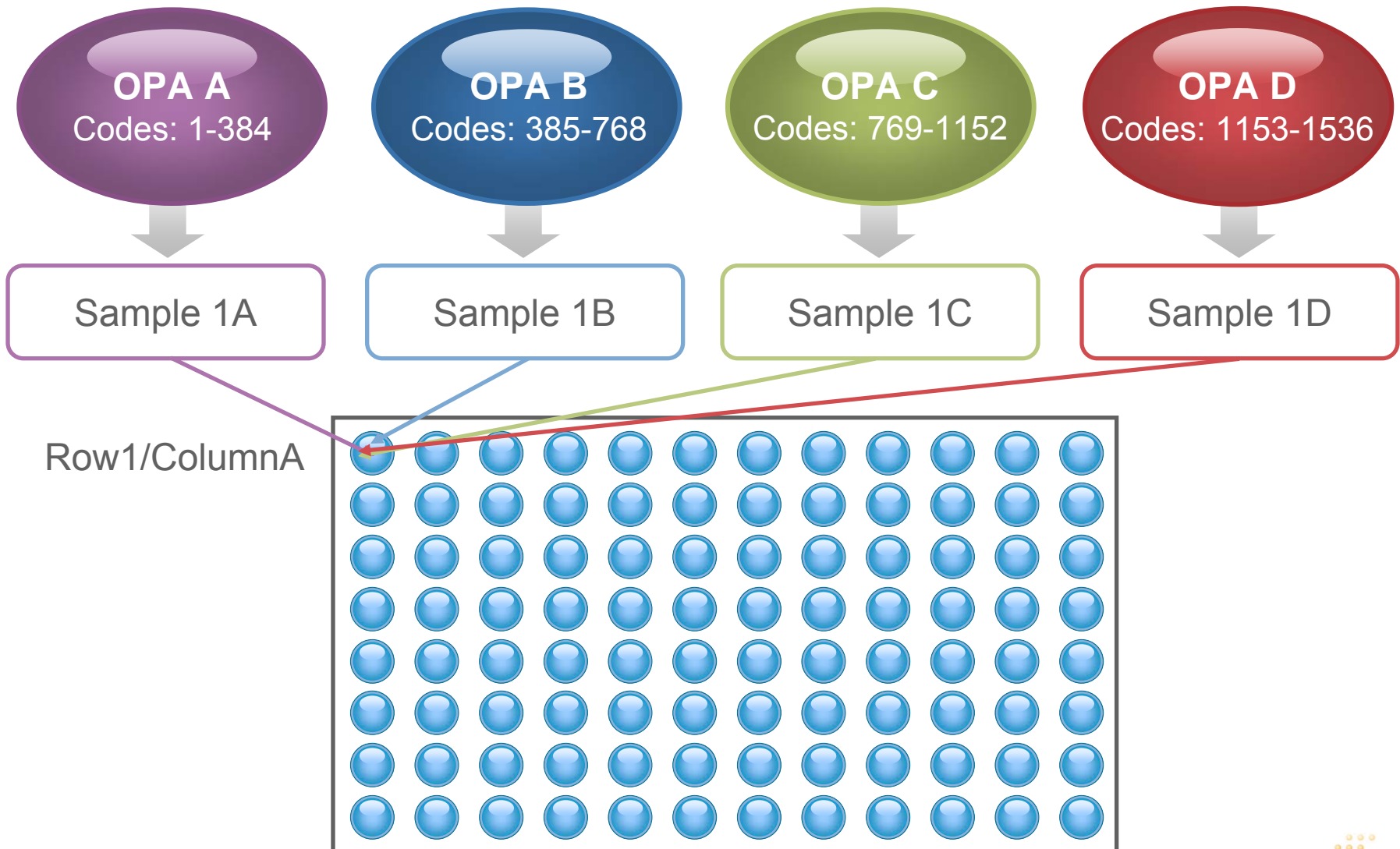
**Highly Flexible:** Advanced multiplexing enables analysis of 96 to 384 loci per sample

**Fully Integrated:** Automated platform incorporating LIMS

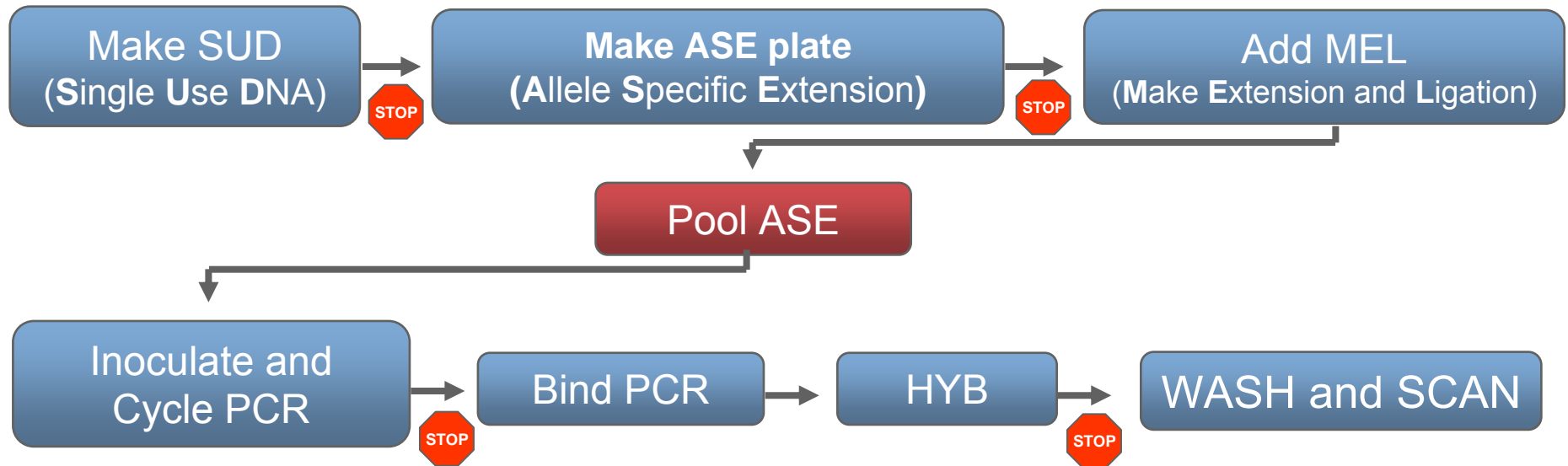
**Proven Technology:** Robust assay used in genotyping centers worldwide with average call rates > 99%



# GoldenGate Indexing Assay



# GoldenGate Indexing Workflow

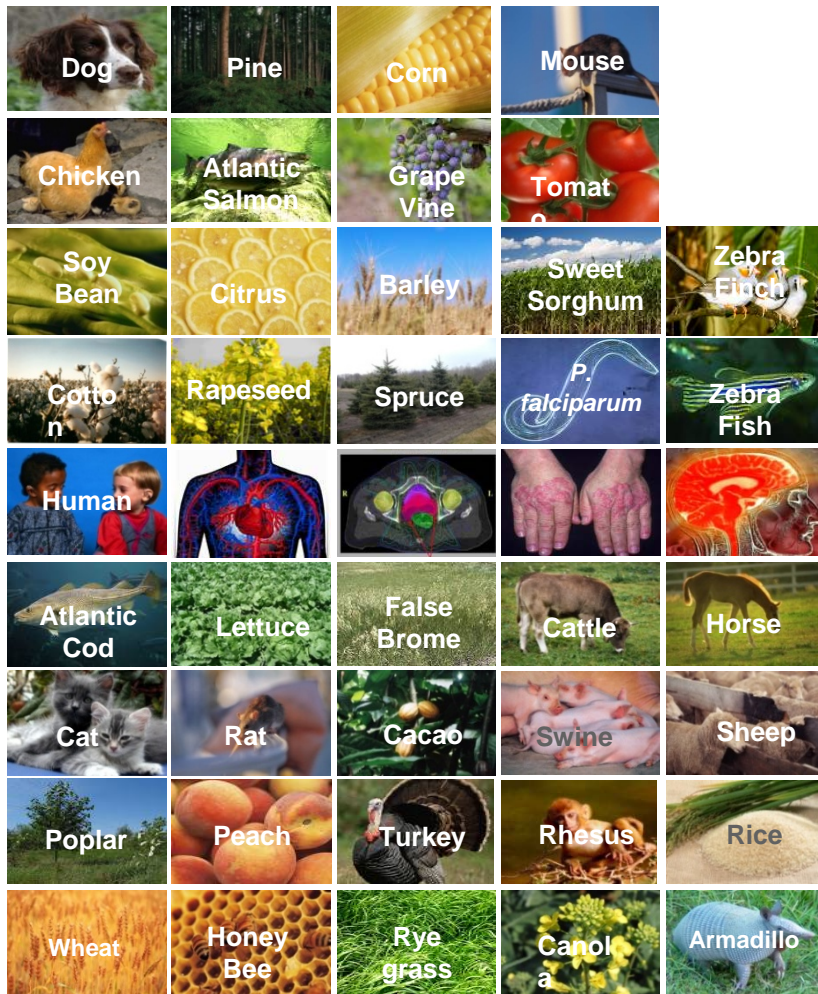


- Utilizing Pre-PCR with 96 tip head and current Post-PCR automation
- Pooling to save time and cost in Post PCR
- 2 Technicians on a split shift
- Applicable to all plexity



Potential or recommended stopping point

# Custom Genotyping on the GoldenGate Assay



## Applications

- Targeted panels
- SNP validation
- Agriculture fingerprinting panels
- Commercial Agriculture screening panels

The Right Content Lets you Capture More Biology

# Discover. Validate. Screen



A new evolution in agriculture genetic analysis.