



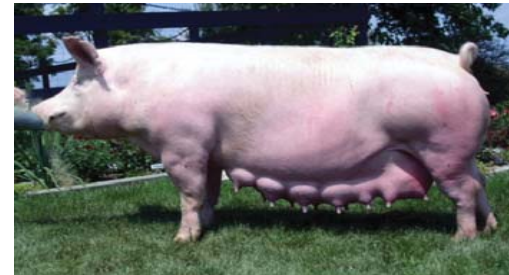
Evolution of the Independent Purebred Seedstock Industry in the USA

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Presented at the 2004 NSIF Meetings
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Theme of The Day

- Swine breeding systems to enhance pork quality throughout the world





"Evolution"?

- ***"a process in which something passes by degrees to a different stage"***
- Everything evolves
 - Seedstock swine industry
 - Commercial swine industry
 - Academia
 - Government



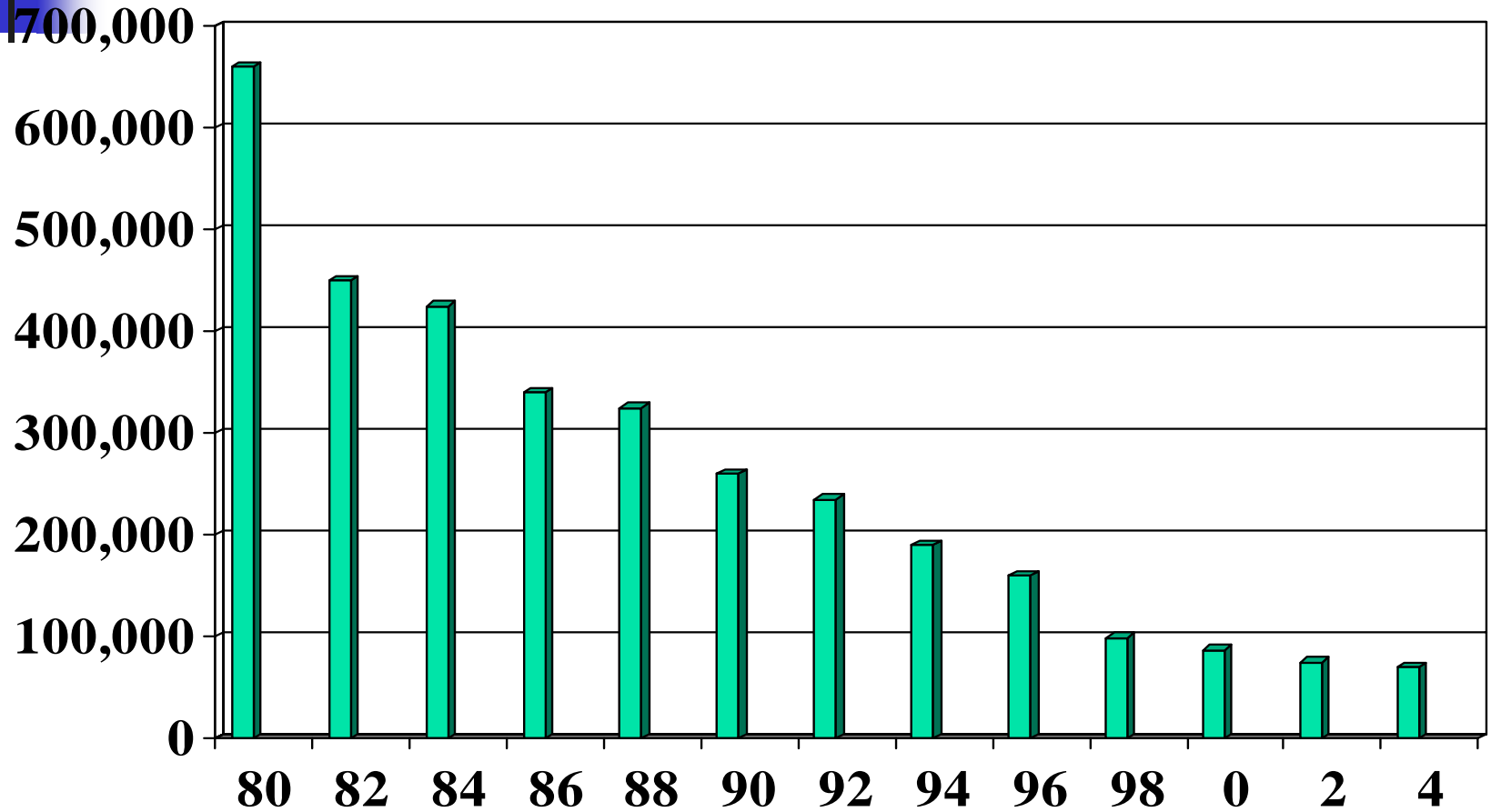
Commercial Swine Industry

- Families producing their own food from their own crops and animals
- Farms specializing in production of one crop or one animal product to sell to others
- Marketing based on number of animals
- Marketing based on individual animal merit
- Marketing locally whenever desired
- Marketing when and where scheduled by packer



Number of Hog Operations

Number of Farms





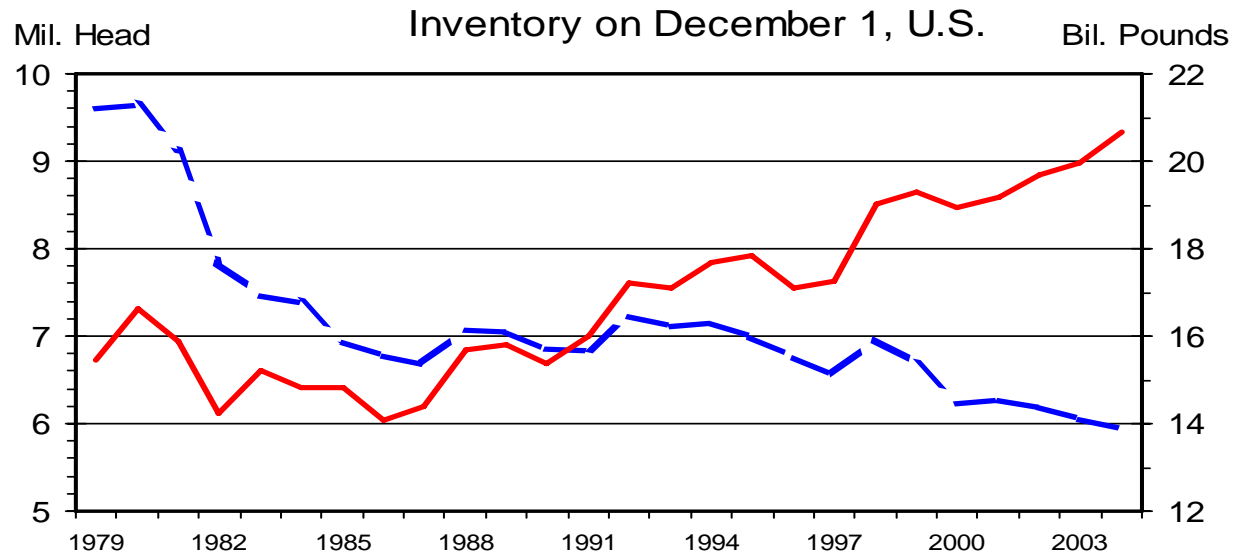
Seedstock Swine Industry

- Selling purebred boars and gilts to local customers
- Selling purebred boars to fit into rotational crossbreeding systems
- Selling boars and crossbred females to fit into terminal crossbred systems
- Selling boars for AI usage into terminal crossbred systems
- Selling semen for AI usage into terminal crossbred systems (closed herd systems)
- Future could be selling ???

Continued higher production .. from fewer breeding animals

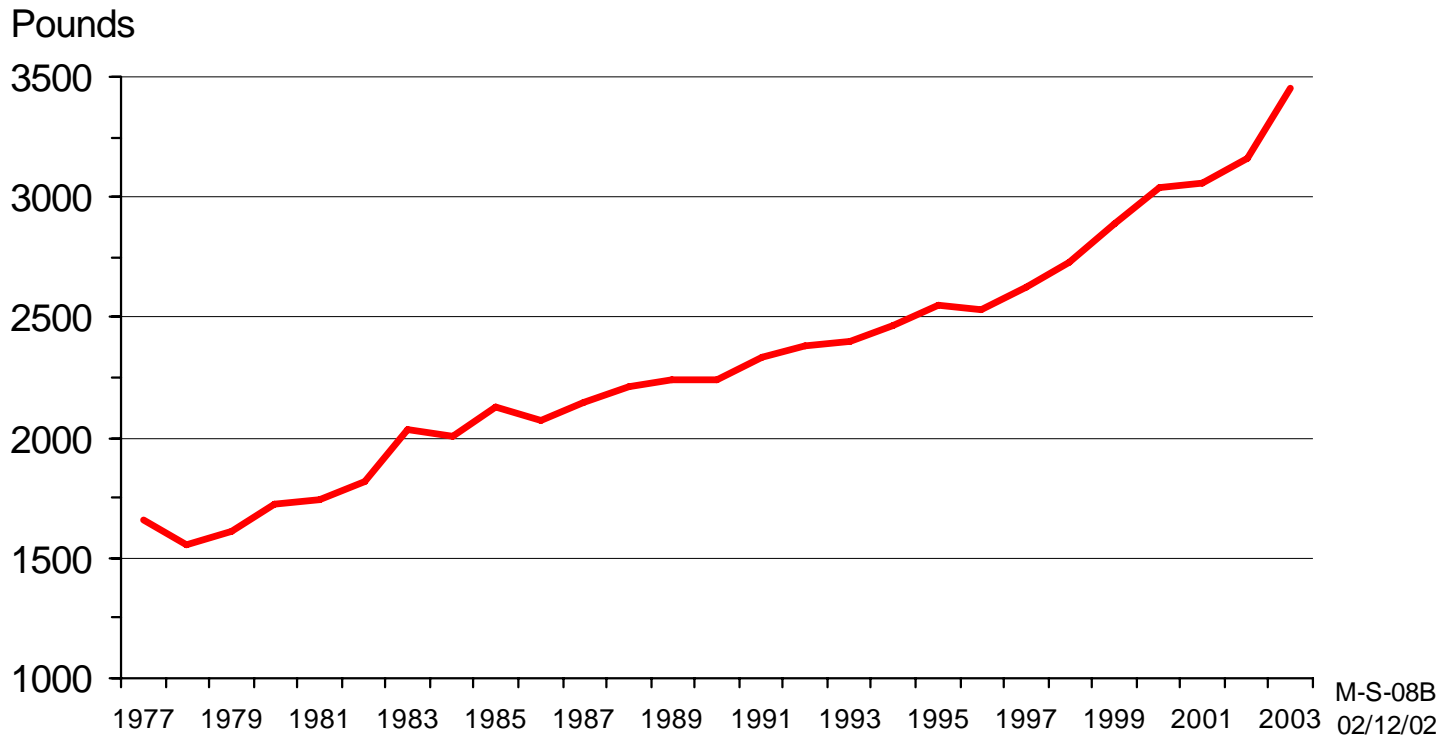


PORK PRODUCTION vs. BREEDING HOG INVENTORY





Pork Production per Breeding Hog





Evolution of Pure Breeds

- Derivation of the breeds
 - Import animals
 - Evolve existing breeds
- Maintain breed purity
 - Form breed associations
 - Maintain pedigree herdbook
- Promote/Improve the breed
 - Livestock shows
 - Genetic improvement programs



Purebred Seedstock Suppliers

- Independent purebred producers servicing a small local area
 - Duroc, Hampshire, Landrace, Yorkshire, Chester White, Spots, Berkshire, Polands
- Niche market producers
- Smaller independent commercial producers

Purebred Seedstock Suppliers

- Regional independent breeding companies utilizing the “National Nucleus” of purebreds
 - Comparts, Forkner, Waldo, Stewarts, Zierke, Shaffer, Whiteshire, Tempel, Cedar Ridge, etc



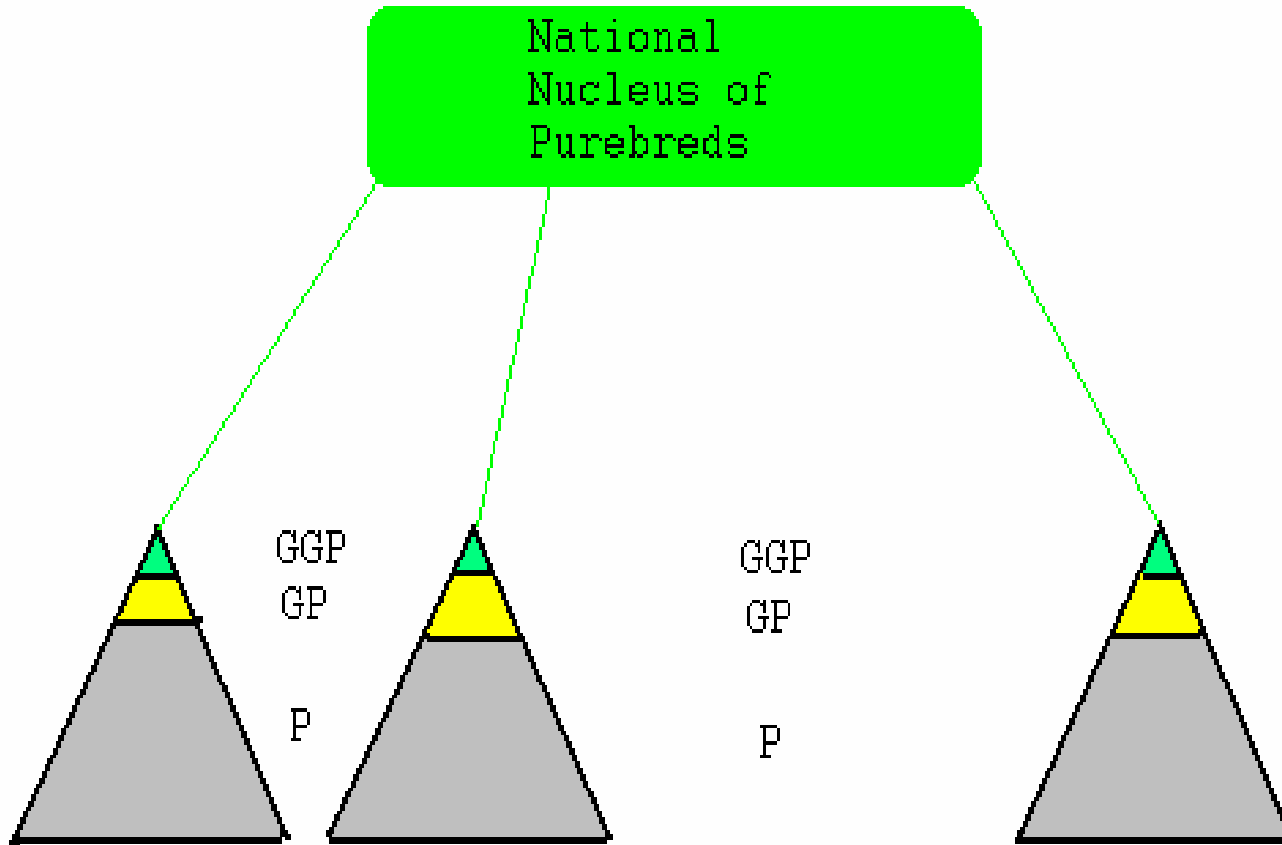


Purebred Seedstock Suppliers

- Independent purebred producers servicing “youth livestock projects”
 - Regional and national basis
- Combination purebred producers
 - Commercial breeding stock
 - Breeding stock for youth livestock projects



USA Purebred Genetic System





Independent Purebred Seedstock Swine Producers

- Strength:
 - Their independence
- Weakness:
 - Their independence
- Consistency:
 - Their independence
- Impact
 - Invaluable



Products of Seedstock Supplier

- Genetically superior germplasm in a healthy format
- Program to insure genetic improvement
- Advice and support in implementing a farm specific genetic system
- Development of new technologies to enhance client profitability
- Leadership

Important Role

- Maintain Genetic Diversity





Introduction of Purebred Swine into the USA

- Some purebred hogs reportedly brought to USA by Columbus (2nd voyage) and DeSoto
- 1812 – Purebred hogs reported as being imported from England and bred (Yorkshire, Red, Lincolnshire)
- 1820 – Chester White breed started in USA
- 1823 – Berkshires brought to USA
- 1830 – Yorkshires and Hampshires brought into the USA from Europe
- 1832 – Durocs imported from Europe
- 1934 – Landrace imported from Denmark



Swine Breeding Organizations

- 1891 – American Duroc-Jersey Association established
- 1893 – American Yorkshire Club started
- 1893 – organizations that evolve to the Hampshire Swine Registry and Chester White Record Association are formed
- 1914 – Spotted Poland China Record Association formed
- 1934 – United Duroc Swine Reg. established
- 1950 – Amer. Landrace Assoc. formed



Swine Breeding Organizations

- 1938 – National Association of Swine Records formed
- 1974 – National Association of Swine Test Stations formed
- 1975 – National Swine Improvement Federation formed
- 1994 – National Swine Registry formed



Breed Promotion and Genetic Improvement Program Activities

- 1900 – International Livestock Exposition started in Chicago
- 1927 – a national barrow show started in Peoria
- 1938 – Production Registry Program started by NASR
- 1944 – “Ton Litter” program started by UDSR
- 1947 – National Barrow Show started



Breed Promotion and Genetic Improvement Program Activities

- 1945 – Wisconsin Swine Selection Cooperative (Dr. A. B. Chapman)
- 1950 – Meat type hog program started (R.G. Plager, W.J. Loeffel)
- 1953 – Certified Superior Meat Litter Program started (Bob Shannon, Rollie Pemberton, Wilbur Plager, Bernard Ebbing, Carroll Plager, Larry Kunkle)



Genetic Improvement Program Activities

- 1954 – First swine central test station in US started in Ohio
- 1954 – First Certified Superior Meat Litter (Hampshire)
- 1955 – Iowa Swine Test Stations started (L.N. Hazel)
- 1959 – On farm testing with Certified Meat Sire Program (UDSR)



Certification Standards 1953

- Must meet P.R. requirements
 - Weigh 200 lbs. In 180 days
 - Weigh between 180 – 230 lbs. at slaughter
 - **Live weight** **Length** **Backfat** **Loineye**
- | | | | |
|-----------|-------------|-----------|------|
| 180 – 199 | 28.5 – 31.5 | 1.1 – 1.6 | 3.50 |
| 200 – 214 | 29.0 – 32.0 | 1.2 – 1.7 | 3.75 |
| 215 – 230 | 29.5 – 32.5 | 1.3 – 1.8 | 4.00 |



Genetic Improvement Program Activities

- 1972 – PSS genetic control proposed based on purebred pig research (Lauren Christian)
- 1973 – NBS Production Tested contest started
- 1978 – SPI program adopted by NSIF (K. Irvin, Gene Isler)
- 1981 – SPI program started by AYC (Conatser)



Genetic Improvement Program Activities

- 1985 - STAGES program presented to NSIF (Harris, Schinckel, Stewart, Lofgren)
- 1986 – STAGES program starts with AYC (G. Conatser, D. Anderson)
- 1988 – Across herd genetic evaluation using BLUP based on central test stations (J. Mabry, D. Anderson, R. Maloney)



Genetic Improvement Program Activities

- 1990 – STAGES across herd genetic evaluation using on-farm data (AYC, D. Anderson, Purdue scientists)
- 1991 – NBS Sire Progeny Test started (Lauren Christian, D. Anderson, R. Maloney, R. Goodwin)
- 1998 – STAGES program updated (Mabry, Schinckel, Baas, See, Bates, Hogberg)



Genetic Improvement Program Activities

- 1998 – Pork Quality Alliance started by NSR (D. Anderson)
- 1999 – NSR Long Range Plan implemented (D. Anderson, NSR)
- 2000 – National Junior Swine Association started (D. Anderson, NSR)
- 2000 – NSR Commercial Services division started (Rick Pfortmiller)



Purebred Industry 20 Years Ago

- Eight Individual Breed Offices
- Eight Breed Secretaries and Staffs
- Much duplication of efforts and dollars
- Culminated with the merger of Hampshire, Duroc, & Yorkshire Associations in 1994



NSR Core Values

- “We acknowledge that NSR members have varied and diverse business structures, goals, and scope, but we respect these differences and commit ourselves to the future and success of all NSR members”

Independent Purebred NSR Seedstock Industry of Today



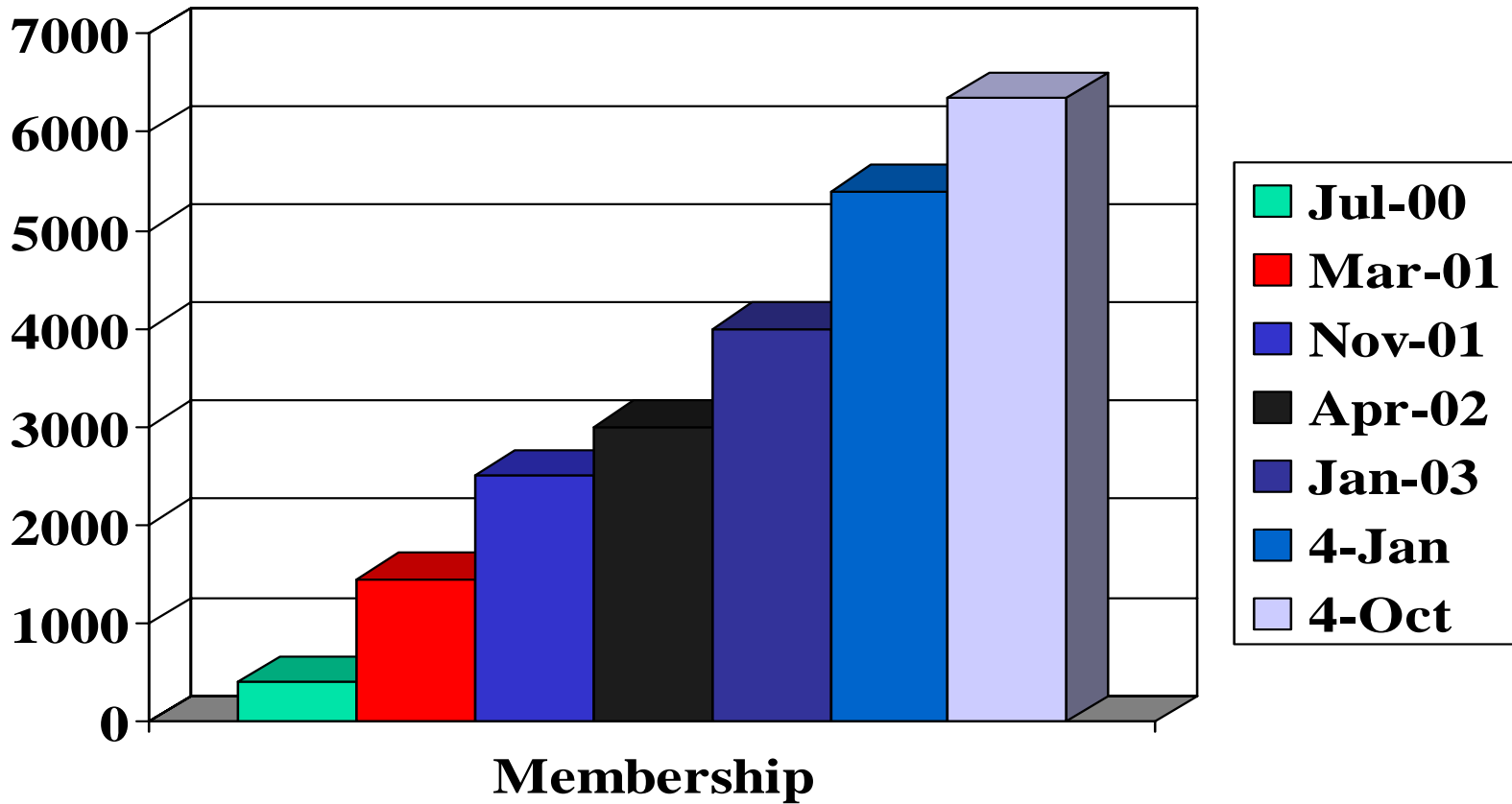
- Maintain breed purity
- Develop leadership for next generation



Iowa Pork Industry Center



NJSA Membership Growth





STAGES – Largest Public Accessible Genetic Program

	<u>Maternal Records</u>	<u>Growth Records</u>
■ Yorkshire	297,519	415,710
■ Duroc	108,226	215,897
■ Hampshire	102,968	109,117
■ Landrace	<u>70,134</u>	<u>99,136</u>
■ TOTALS:	578,847	839,860
■ GRAND TOTAL:	1,418,707	



Molecular Genomics Program

- Meat quality gene markers
 - Halothane, Rn gene markers
- Genomic scan research
 - Cooperative programs with universities and federal agencies
- DNA data banking program (maintain breed purity)



NSR International Marketing Efforts through USLGE

- World-wide demand
- Trips planned for 2004 marketing year:
 - South Korea
 - Philippines
 - China
 - Malaysia
 - Viet Nam
 - Russia/Ukraine
 - Thailand
 - Romania

Independent Purebred NSR Seedstock Industry of Today



- Provide programs, services and technologies to enhance the usage of Duroc, Hampshire, Landrace and Yorkshire genetics in the swine industry of the USA and the world
- Maintain genetic diversity
- For the benefit of all swine producers
 - Commercial
 - Independent seedstock suppliers
 - Company seedstock suppliers



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