



Evolution of the Independent Purebred Seedstock Industry in the USA



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Presented at the 2004 NSIF Meetings
December 10, 2004

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Theme of The Day

- Swine breeding systems to enhance pork quality throughout the world

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"Evolution"?

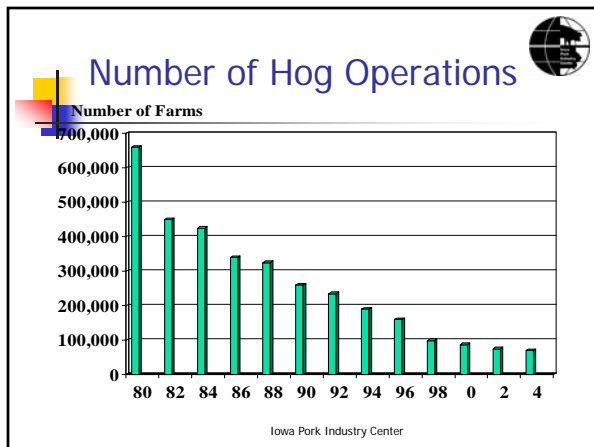
- *"a process in which something passes by degrees to a different stage"*
- Everything evolves
 - Seedstock swine industry
 - Commercial swine industry
 - Academia
 - Government

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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

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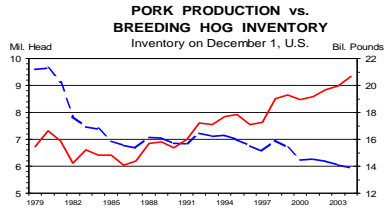


Seedstock Swine Industry

- 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 ???

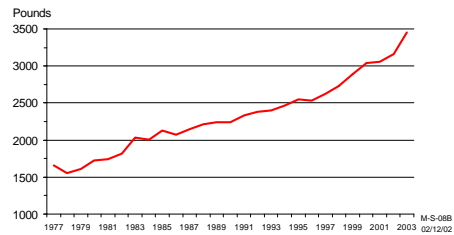
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Continued higher production .. from fewer breeding animals



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Pork Production per Breeding Hog



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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

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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

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Purebred Seedstock Suppliers

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

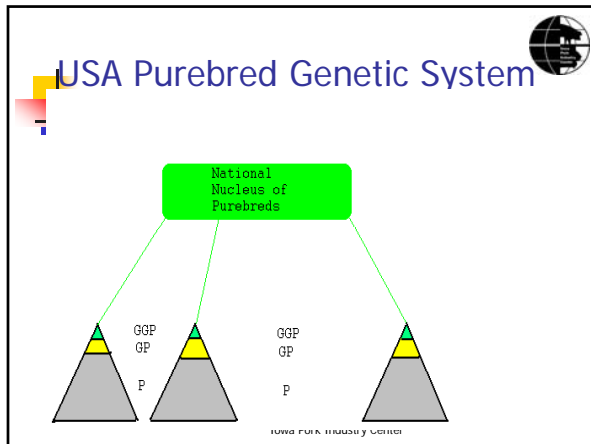


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Purebred Seedstock Suppliers

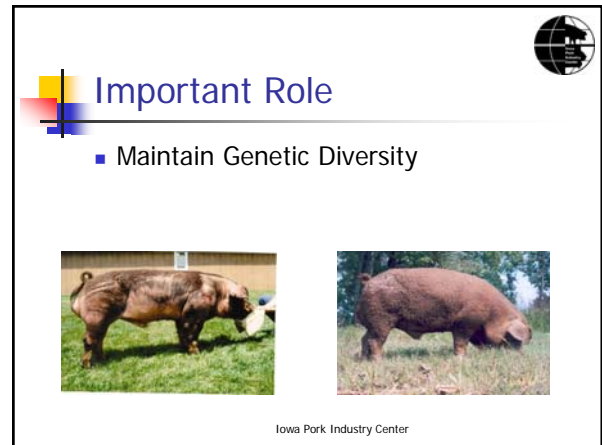
- Independent purebred producers servicing "youth livestock projects"
 - Regional and national basis
- Combination purebred producers
 - Commercial breeding stock
 - Breeding stock for youth livestock projects

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- ## Independent Purebred Seedstock Swine Producers
- Strength:
 - Their independence
 - Weakness:
 - Their independence
 - Consistency:
 - Their independence
 - Impact
 - Invaluable
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- ## 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
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- ## 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
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- ## 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
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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

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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


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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)


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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)

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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

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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)

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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)

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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)

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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)

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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

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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”

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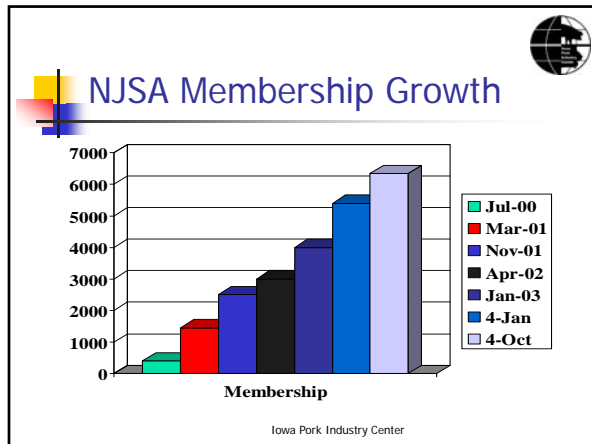
Independent Purebred NSR Seedstock Industry of Today



- Maintain breed purity
- Develop leadership for next generation



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STAGES – Largest Public Accessible Genetic Program

	Maternal Records	Growth Records
■ 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	

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- ## 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)
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- ## NSR International Marketing Efforts through USLGE
- World-wide demand
 - Trips planned for 2004 marketing year:
 - South Korea - Viet Nam
 - Philippines - Russia/Ukraine
 - China - Thailand
 - Malaysia - Romania
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- ## 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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- ## Acknowledgements
- Mr. Darrell Anderson, NSR
 - Dr. Tom Baas, ISU
 - Prof. Glen Conatser, Univ. of Tenn.
 - Mr. Dale Miller, National Hog Farmer
 - Dr. Ken Stalder, ISU
- Iowa Pork Industry Center