Sustainability and
Global Seafood
ECONOMICS
Martin D. Smith, 1,2 et al.

Food Security

Aquaculture Production Systems – Advances in Water, Genetics, Health, and Nutrition

Jeffrey Silverstein
USDA/ARS Animal Production and Protection
National Program Leader, Aquaculture
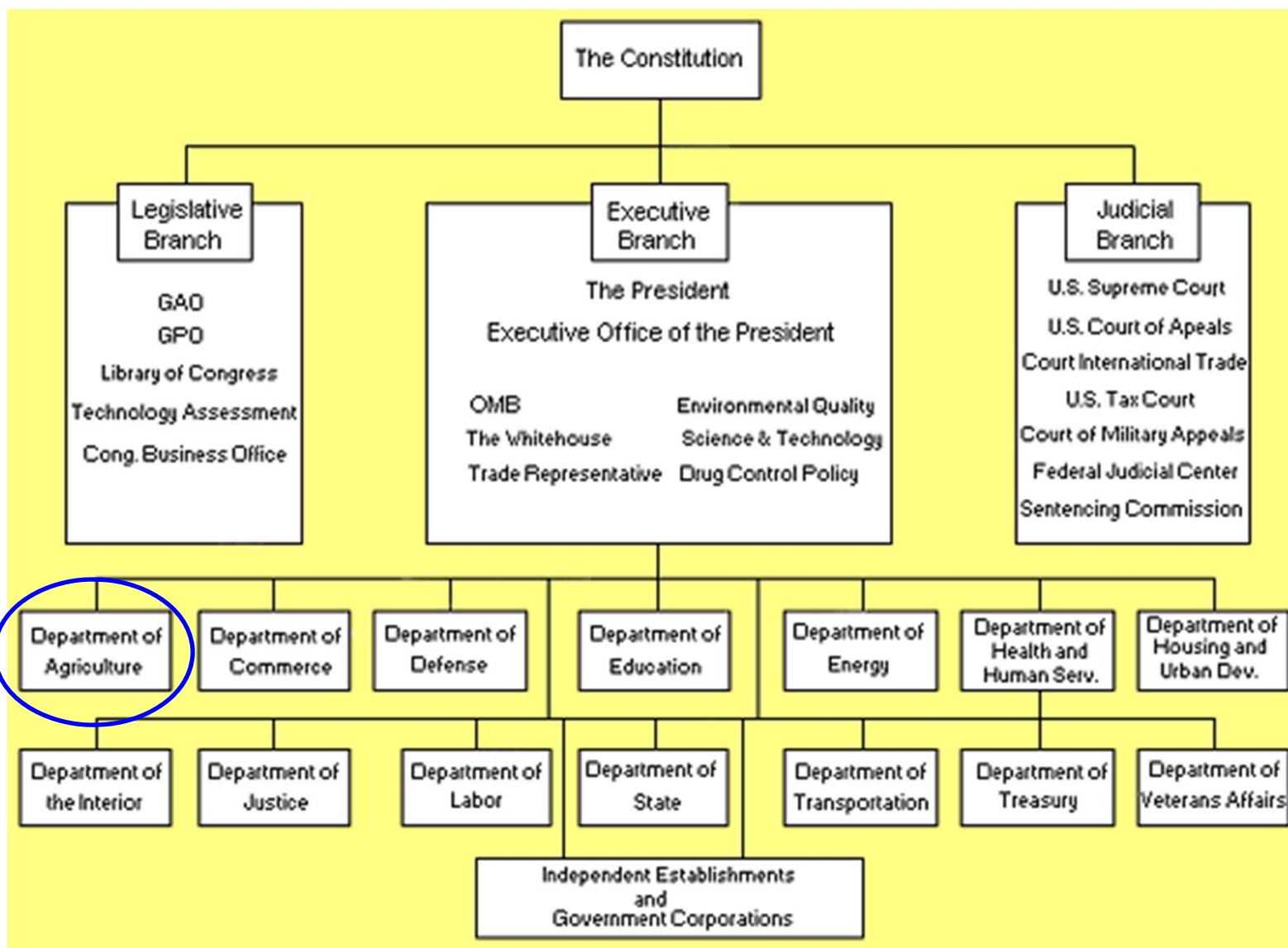Jeff.silverstein@ars.usda.gov

http://www.ars.usda.gov/research/programs/programs.htm?NP_CODE=106

Aquaculture Innovation Workshop - Shepherdstown, WV-January 17-18, 2011

The Constitution

Legislative Branch

GAO

GPO

Library of Congress

Technology Assessment

Cong. Business Office

Executive Branch

The President

Executive Office of the President

OMB

The Whitehouse

Trade Representative

Environmental Quality

Science & Technology

Drug Control Policy

Judicial Branch

U.S. Supreme Court

U.S. Court of Apeals

Court International Trade

U.S. Tax Court

Court of Military Appeals

Federal Judicial Center

Sentencing Commission

Department of Agriculture

Department of Commerce

Department of Defense

Department of Education

Department of Energy

Department of Health and Human Serv.

Department of Housing and Urban Dev.

Department of the Interior

Department of Justice

Department of Labor

Department of State

Department of Transportation

Department of Treasury

Department of Veterans Affairs

Independent Establishments and Government Corporations

Secretary

Chief Financial Officer

Inspector General

General Counsel

Chief Information Officer

Under Secretary for Research, Education and Economics

(REE)

Agricultural Research Service

National Institute of Food and Agriculture

Economic Research Service

National Agricultural Statistics Service

Under Secretary for Natural Resources and Environment
- Forest Service
- Natural Resource Conservation Service

Under Secretary for Farm and Foreign Agricultural Services
- Farm Service Agency
- Foreign Agricultural Service
- Risk Management Agency

Under Secretary for Rural Development
- Rural Utilities Service
- Rural Business-Cooperative Service
- Rural Housing Service

Under Secretary for Research, Education and Economics
- Agricultural Research Service
- National Institute of Food and Agriculture
- Economic Research Service
- National Agricultural Statistics Service

Assistant Secretary for Congressional Relations
- Office of Congressional Relations
- Office Intergovernmental Relations

Under Secretary for Marketing and Regulatory Programs
- Agricultural Marketing Service
- Animal and Plant Inspection Service
- Grain Inspection, and Stockyards Administration

Assistant Secretary for Civil Rights
- Civil Rights
- Outreach
- Programs
- Prevention and Center

OSDBU

3

Aquaculture
National Program 106

- 25 projects
- 60 scientists
- 15 laboratory sites
- Budget: $35 Million
- Freshwater and Marine Systems

Aquaculture Research Components

- Catfish, Atlantic Salmon, Rainbow Trout, Hybrid Striped Bass, Oysters, Yellow Perch

    – **Genetic Improvement**
    – **Control of Growth, Stress, Reproduction**
    – **Nutrition and Feeds**
    – **Health**
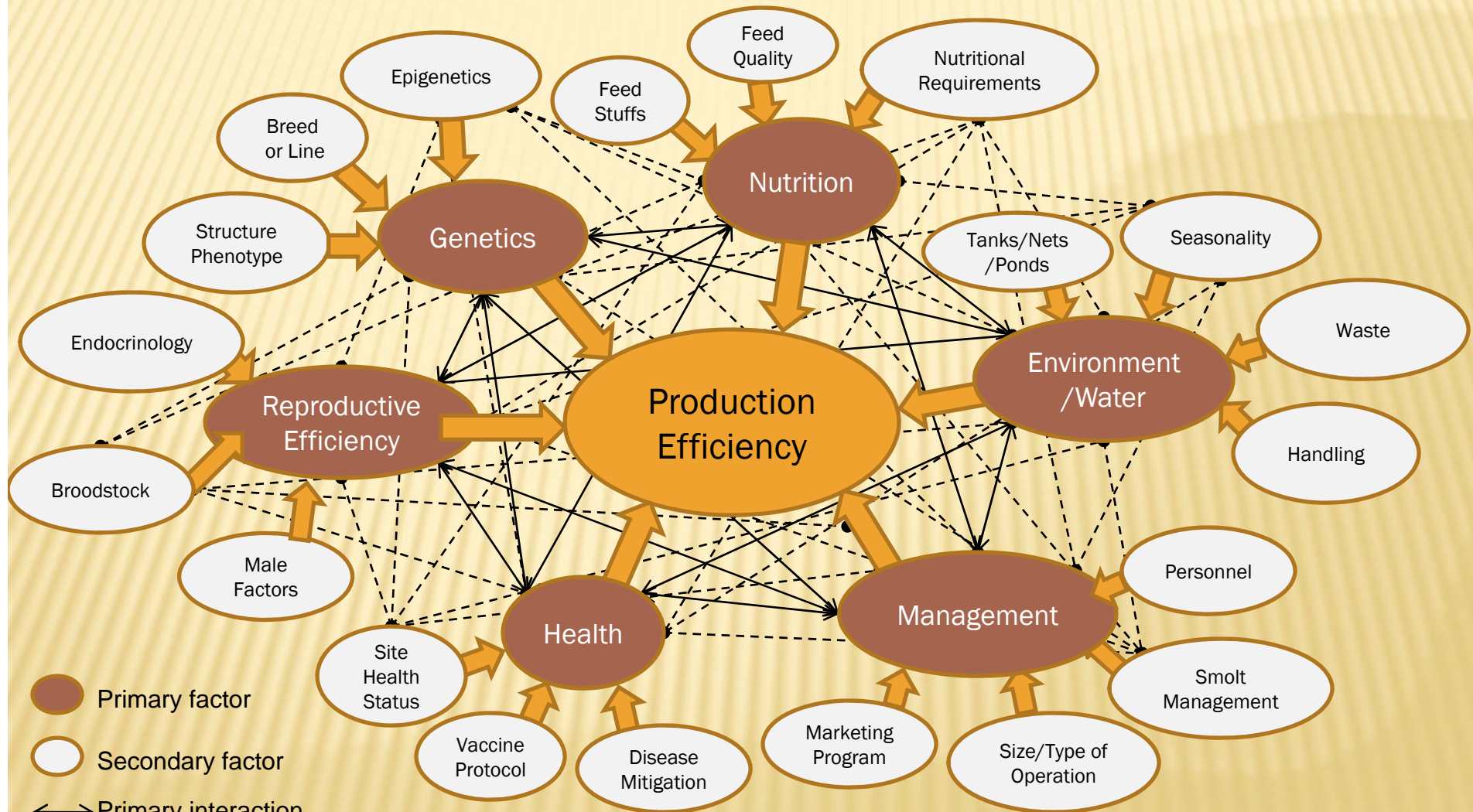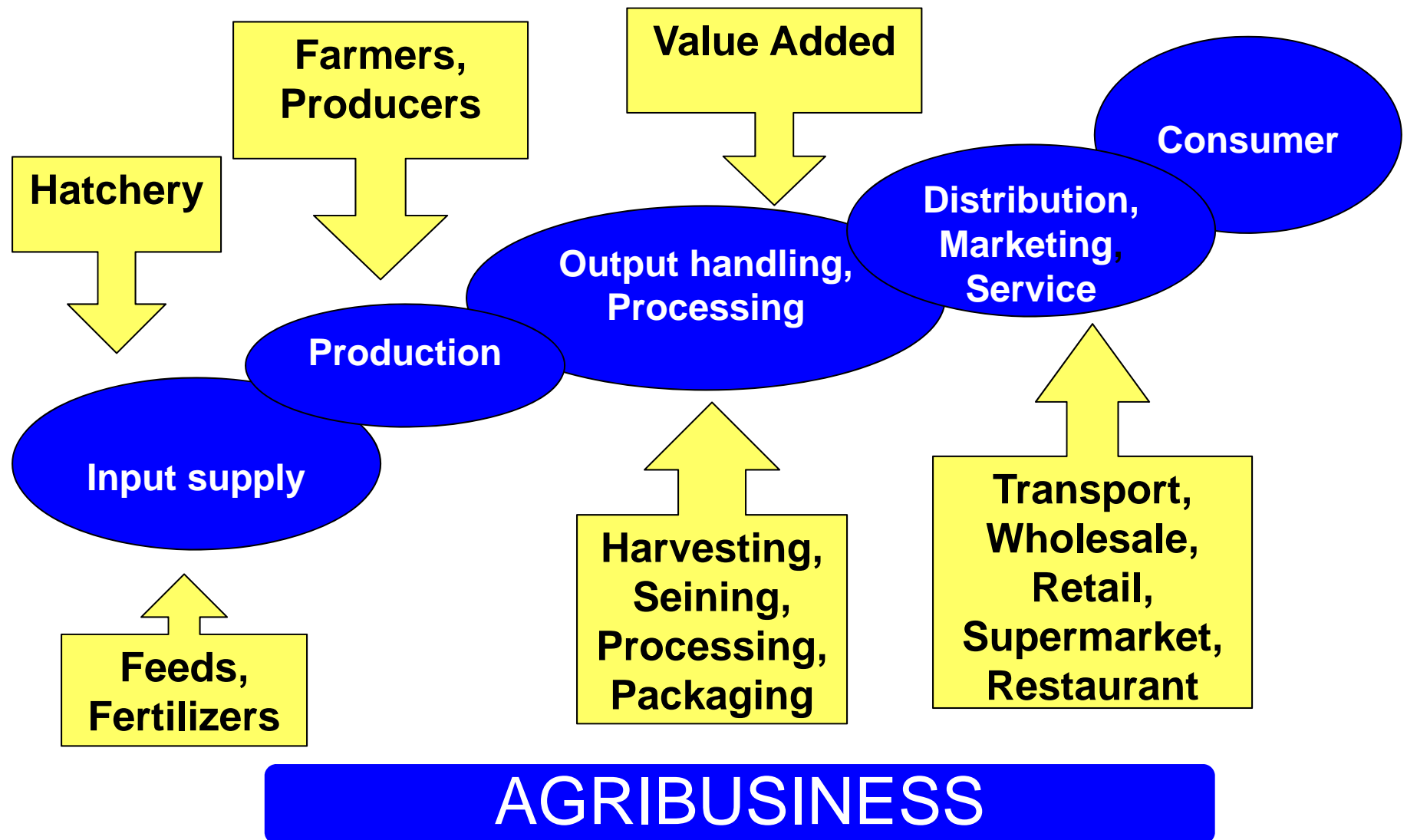   – **Production systems and products**

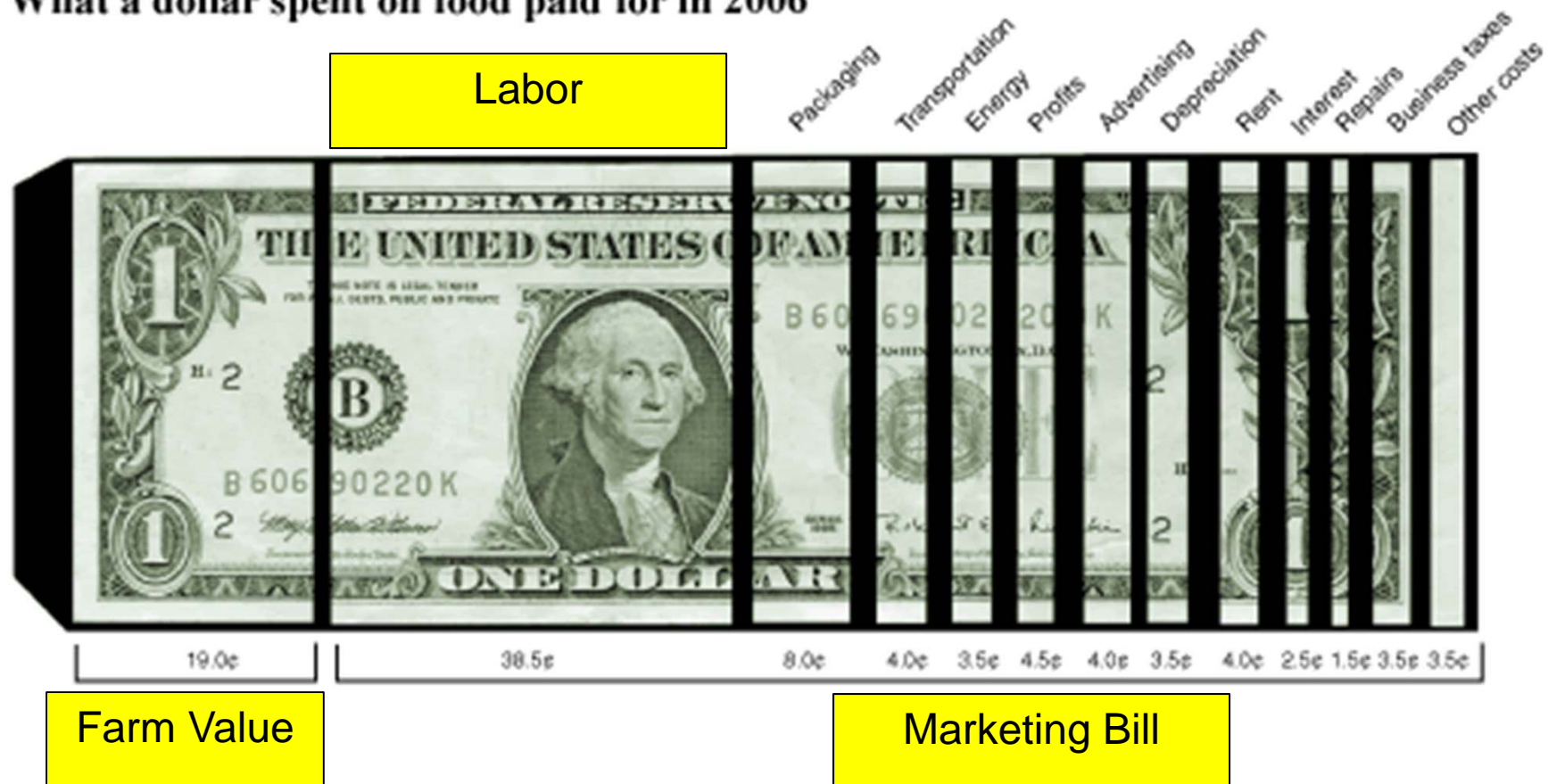# Domestic Aquaculture

Systems Approach

PRODUCTION EFFICIENCY

Boggess
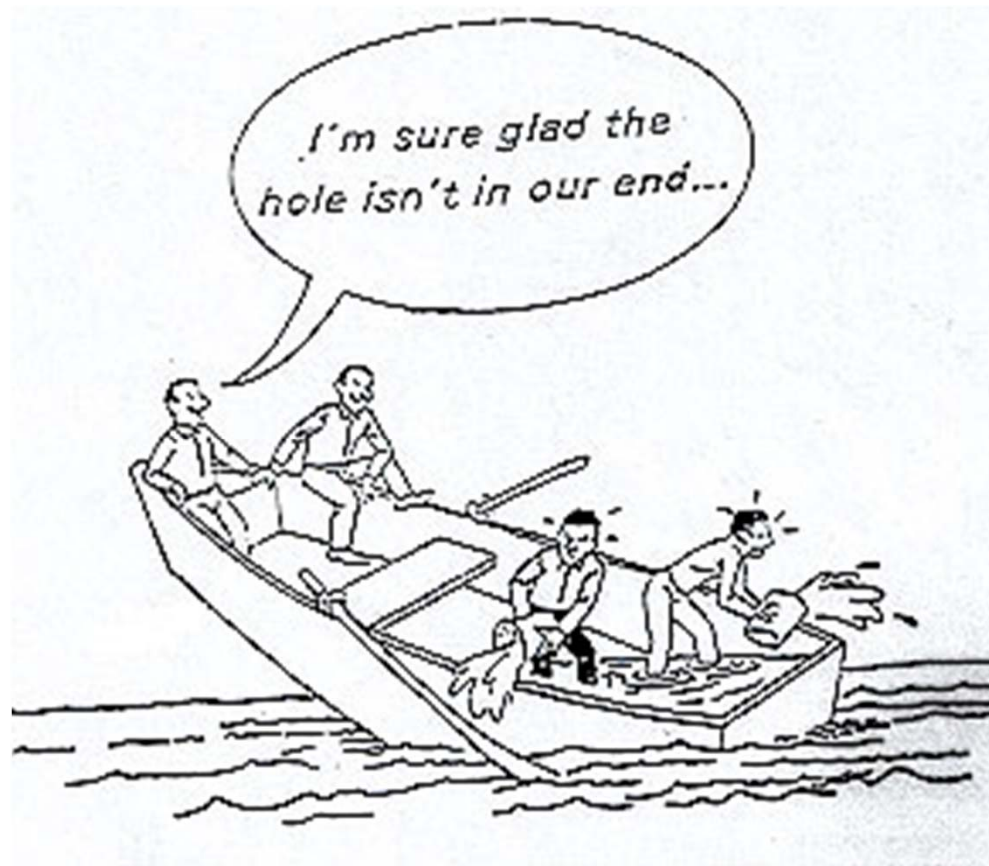
Aquaculture Value Chain-primary activities

What a dollar spent on food paid for in 2006

Labor

Packaging Transportation Energy Profits Advertising Depreciation Rent Interest Repairs Business taxes Other costs

Farm Value — 19.0¢

Labor — 38.5¢

Marketing Bill — 8.0¢ 4.0¢ 3.5¢ 4.5¢ 4.0¢ 3.5¢ 4.0¢ 2.5¢ 1.5¢ 3.5¢ 3.5¢
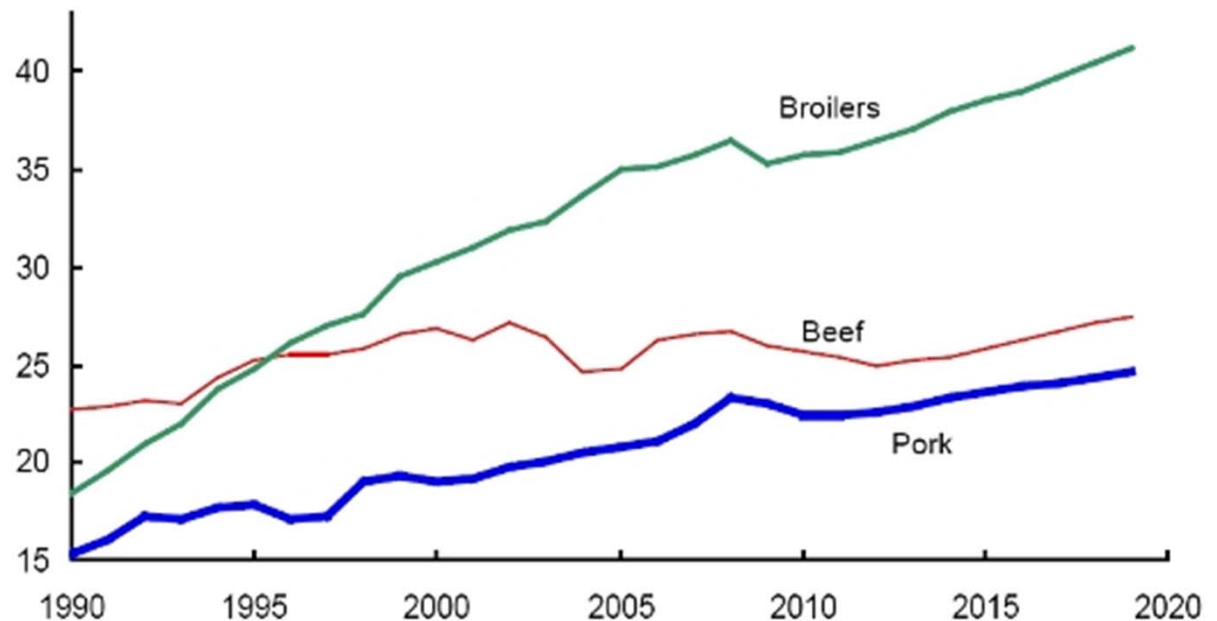
Source: USDA's Economic Research Service.

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Improvement through research

• 1970 broilers ~7.7 billion pounds annual production in US,
  • pre -value added,
  • pre -health claims

U.S. red meat and poultry production

Billion pounds

Broilers

Beef

Pork

BROILERS

ACRBC (1957)Males – 2001 Feed

Havenstein and Qureshi, 2004

Ross Males (2001) – 2001 Feed

Day 43 **Day 57** **Day 71** **Day 85**

Critical Questions/Challenges

- Maximize production efficiency
  - Better genetics
  - Better nutrition
  - Better health
- Control over more of the system
  - Cost of water/control of water quality
  - Control of waste
  - Biosecurity (incoming and outgoing)
- Integration with the value chain
- Benchmark against other industries (Poultry)

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Thank you!

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