Universal Truths

• You can’t make money growing fish - you have to sell them
• Most aquaculture businesses fail because of poor business planning
• If it doesn’t work on paper it probably won’t work at all
• If it does work on paper it still may not work in the real world
5 Areas of concern

- Market identification
- Bioprogramming
- Facility characterization
- Financial analysis
- Environmental impact
Resources

• RAC publications
  – ncrac.org
  – srac.tamu.edu
  – nrac.umd.edu

• White Papers
  – aquanic.org

• Aquaculture associations
  – wisconsinaquaculture.com

• Extension specialists
  – Aquaculture.uwsp.edu
Market identification: finding a hole in the market

• Fish species
  – Outdoor- climate limitations
  – Indoor- market limitations

• Target audience
  – Wholesale
  – Retail
Market identification

- **Product(s)**
  - Product form
  - Value added
  - Vertical integration

- **Pricing**
  - Market price
  - Premium price
  - Breakeven price

- **Production level**
  - Quantity
  - Flow
Market identification

Ultimately the question to be answered is: How is my product different from existing products in the marketplace?

Some of the answers to this question are: convenience, quality, price, feel-good factor

Know and understand your competition!
Bioprocessing: if you feed it, will it grow

• Goals
  – Statement of intent, purpose, and methodology
  – The what, why and how of the project
Biological criteria

- **Species description**
  - Propagation and life cycle
  - Production cycle

- **Behavioral characteristics**
  - Negative attributes

- **Culture techniques**
  - Propagation
  - Juvenile needs
  - Grow-out method
Biological criteria

- Environmental requirements
  - Water quality
  - System limitations
- Nutritional requirements
  - Feed conversion ratio
    - Lbs of feed/lbs of weight gain
  - Live
    - Minnow size is critical
  - Formulated feeds
    - Fish meal vs grain based diets
Biological criteria

- Growth rates
  - Time to market size
  - Relevance to production cycle

- Mortality rates
  - Survival at different life stages

- Diseases
  - Veterinary needs
  - Biosecurity
Facility characterization

- Integrates goals, design criteria, financial constraints and site conditions into a functional and operational plan.
Facility programming

• **Production schedule**
  - Populations at each life stage
  - Water and space needs

• **Infrastructure**
  - Water system
  - Production space
  - Support space
    - Feed and equipment storage
    - Processing area
    - Transfer/holding facilities
    - Office space
Production fits site or Site fits production

- Predetermined site
  - Economic viability given limits imposed by site constraints
- Undetermined site
  - Optimize biological and physical requirements
Schematic design

• Translates criteria and site constraints into a workable design
• Identify and solve major design problems
• Verify no constraints to production goals
Results in:

• Report describing facility design concept
• Site layout with location of major components
• Floor plans for support buildings
• Schematic diagram of hydraulics, air and power systems - REDUNDANCY!
• Topographical survey-emphasis on water flow
• Preliminary construction cost and schedule
Financial analysis

- Financing source(s)
  - Bank
  - Investors
  - Personal wealth
Financial analysis

• Cost/benefit requirements of owner and financing organization—may require some modeling
  – Interest on borrowed capital
  – Profit distribution to investors
  – Equity in tangible assets
  – Tax considerations
    • Business deductions, depreciation
    • Employee costs
      – Salary, fringe benefits, social security, insurances
Financial analysis

• Phased development
  – Basic necessities/immediate needs
    • Small scale trial
  – Cash flow restrictions
    • Mitigated by vertical integration
  – Room for expansion
  – Change in focus
Environmental analysis

• Influences on the environment
• Positive and negative impacts
  – Wetlands
  – Native and non-native species
  – Water table
Environmental analysis

• Permitting
  – Construction and building permits
    • Zoning and pond construction
  – Fish hatchery license
  – Livestock premises registration
  – HAACP food processing license
  – Well drilling and use permits
  – Retail sales license and sales tax number
Project notebook

what it is

• Composite results of bioprogramming and planning
• Describes a properly evaluated and functional facility
• Includes cost projections, construction and operations schedule
Project notebook
what it does

- Enables immediate decisions without further work
- Provides a framework to sell your idea to financial backers
- Guide for subsequent phases of development in spite of
  - Postponements
  - Changes in permitting
  - Changes in designer
Questions?

Unsuccessful businesses do not plan to fail-

They fail to plan!!