



***Catfish
Technical Assistance
Curriculum***

By

**Mississippi State University
Mississippi State University Extension Service
MSU Department of Agricultural Economics**

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Trade Adjustment Assistance Program



What is Trade Adjustment Assistance (TAA) for Farmers and Fishermen

The Trade Act of 1974, as amended by the Trade Act of 2002, established Trade Adjustment Assistance (TAA) for Farmers. The Trade Act of 1974 was created by Congress to provide business owners and their employees relief from hardships created by foreign import competition.

The purpose of TAA for Farmers is to help agricultural producers and fishermen adjust to import competition. The amended program provides technical assistance and cash benefits to eligible farmers and fishermen from the U.S. Department of Agriculture (USDA), and access to Department of Labor (DOL) retraining and education programs.

Traditional TAA has provided technical assistance and labor retraining services to non-agricultural businesses and employees. TAA for farmers expands the benefits to include:

- Technical assistance from the Extension Service to assist producers and fishermen in exploring alternative commodities, marketing opportunities, and alternative enterprises.
- A cash payment of up to \$10,000 depending on the amount of product you harvested.
- Retraining and education to help producers and fishermen transition to a different career, including tuition for up to 104 weeks of full-time classroom education.

Establishing a Commodity's Eligibility for TAA

Commodities must be certified as eligible for TAA before individual producers can apply for benefits. The eligibility criteria for a commodity are:

- Average price of the commodity in the most recent 12 months must be less than 80% of the average price over the past 5 years in which data is available.
- Imports of directly competing products must have increased during the most recent 12 month period.
- Increase in imports must have “contributed importantly” to the price decrease.

Petitions to seek TAA eligibility may be filed by a group of agricultural producers or their representatives (grower groups) with USDA's Foreign Agricultural Service (FAS).

The TAA petition form is available at www.fas.usda.gov/itp/taa/FAS0930.pdf or may be requested by phone at (202) 720-2916 or by e-mail at trade.adjustment@fas.usda.gov. Petitions may be made on behalf of a state, region or the nation as a whole.

FAS does an initial eligibility screen. If the petition meets basic requirements, the information is posted in the Federal Register and FAS must announce the determination regarding a commodity's eligibility within 40 days of posting in the Federal Register.

Applying for Individual Producer or Fishermen TAA Benefits

Producer or fishermen are eligible to apply for TAA benefits once a commodity petition has been certified and if:

- They are an owner, operator, landlord, tenant, sharecropper, or fisherman who is entitled to a share of the commodity available for marketing from the farm or fishing operation.
- They harvested the commodity in the year for which TAA eligibility has been established.

Applying for Cash Benefits

Application must be made at a USDA Farm Service Agency (FSA) office within 90 days after the commodity has been certified as eligible for TAA. The application form is available at http://forms.sc.egov.usda.gov/eforms/Forms/FSA0229_030923V01.pdf or at local FSA offices. Information regarding the location of local FSA office is available at http://oip.usda.gov/scripts/ndisapi.dll/oip_agency/index?state=us&agency=fsa. After an application has been submitted the applicant has until September 30 of the current year to submit the following documentation:

- Certification that technical assistance has been received from the Extension Service.
- Acceptable production documentation for the commodity.
- Evidence that net income was less than the last year in which no adjustment assistance was received.
- Proof that average gross revenue was less than \$2.5M for preceding 3 years.

Applying for Technical Assistance Benefits

Technical assistance at no cost will be widely available through the Extension Service. Technical assistance must be completed within 180 days after the commodity has been certified as eligible for TAA. Sources for technical assistance are listed at <http://www.agrisk.umn.edu/taa/> or can be obtained by contacting one of the four regional TAA centers:

Western Region	Washington State University	(800) 477-4012
Southern Region	Texas A&M University	(254) 968-4144
Northeast Region	University of Delaware	(302) 831-6540
North Central Region	University of Nebraska	(402) 472-2039

Technical assistance will help producers and fishermen evaluate opportunities to improve production efficiencies, alternative or improved marketing, and alternative enterprises potentially suitable for the geographic area.

Applying for Retraining and Education Benefits

To apply for Department of Labor retraining and education benefits contact your state department of labor. Links to your state department of labor TAA coordinators are available at <http://www.doleta.gov/tradeact/contacts.cfm>. The national Department of Labor TAA site is <http://www.doleta.gov/tradeact>.

The Department of Labor provides TAA employment counseling, case assessment, job development, and self-directed job search services. Education assistance (Trade Readjustment Allowances) pay tuition and travel for up to 104 weeks of full-time education including classroom training, on-the-job training, and employer –based training.

Deadlines to Apply for Benefits

Application for cash benefits must be made at with FSA within 90 days after FAS announces a commodity is approved for TAA.

Technical assistance must be received from the Extension Service within 180 after FAS announces a commodity is approved for TAA.

Department of Commerce Assistance

Farmers and fishermen may also qualify for assistance as business owners through the U.S. Department of Commerce. Qualified applicants may receive 50% cost sharing for projects like developing business plans, creating new marketing strategies, research and new product development, or design of marketing materials. A separate application with the Department of Commerce is required. For more information go to www.taacenters.org/locations.html.

To Obtain Further Information

Extension's one stop site for information on technical assistance is <http://www.agrisk.umn.edu/taa>. This site also provides links to obtaining cash benefits from FSA and retraining benefits from the Department of Labor. You can also obtain additional information at your local FSA or Extension county offices.

Alternatively you can contact the Washington, D.C. Trade Adjustment Assistance Office, Foreign Agricultural Service, at (202) 720-2916 or write to USDA, Foreign Agricultural Service, Trade Adjustment Assistance, STOP 1021, 1400 Independence Avenue, SW, Washington, DC 20250-1021, or e-mail at trade.adjustment@fas.usda.gov.

Where Am I?

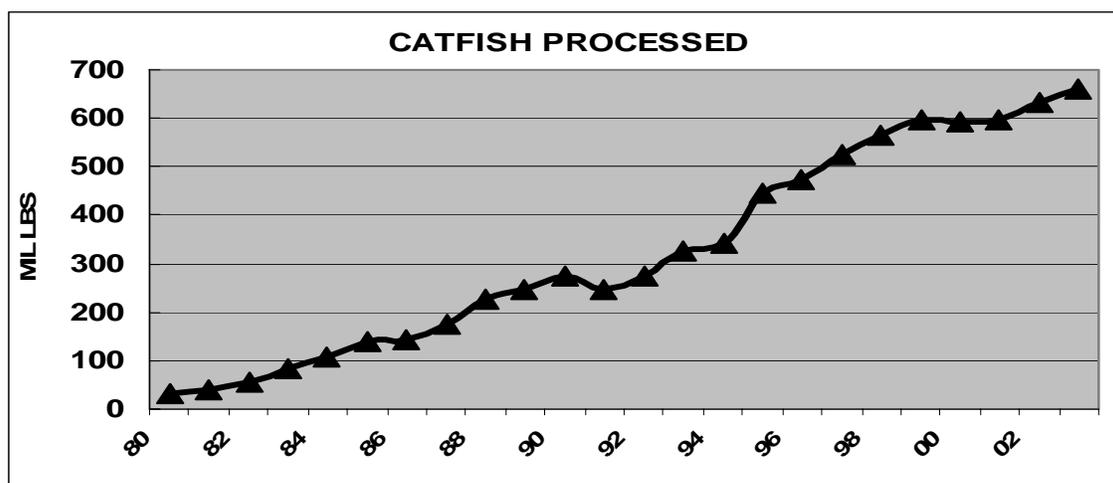
- **World Trade Situation and Outlook**
- **Evaluating the Financial Viability of the Business**
- **Inventory of Resources and Talents**

World Trade Situation and Outlook



Industry Overview

Catfish is by far the most important aquacultural species in the United States. The growth of the catfish industry has been phenomenal. In 1970, less than 6 million pounds were processed. By 1990, that figure grew to over 360 million and in 2002, 631 million pounds were processed; an increase over 100- fold in this period. In 2003, approximately 658 to 660 million pounds of catfish were processed, up 4% from 2002 – a new record.



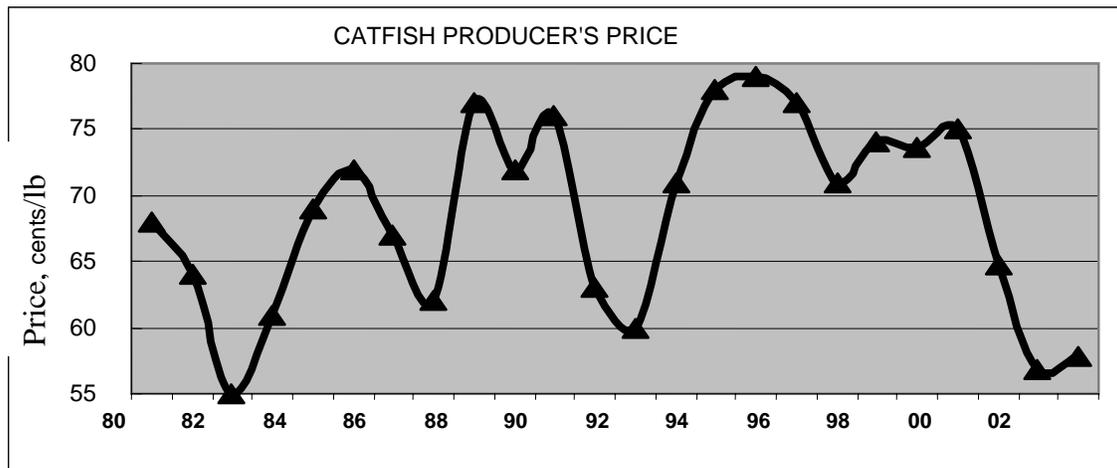
Mississippi is the leading producer of catfish accounting for over 60% of sales. Alabama, Arkansas, and Louisiana are also considered major producers, contributing 16%, 15%, and 6% to U.S. sales, respectively.

The catfish industry is wrestling with several issues - low producer prices, low processor prices, overcapacity in the processing sector, increased domestic competition from other protein sources, international competition (i.e., imports of basa, tra, and other seafood products), rising production costs (feed prices, environmental regulation, bird predation, and changing product size), and stagnant per capita consumption. On the positive side, improving economic conditions should lead to increases in demand for catfish.

Price Received by Producers

In 2002, prices received by farmers were \$0.08 below 2001 and \$0.18 below the 2000 price. Typically, catfish prices begin a seasonal increase in late spring; however in 2001 and 2002, this seasonal increase never occurred. Prices did improve during the first four months of 2003, from \$0.53 to \$0.63 per pound. From May to October 2003, the price decreased to \$0.56 per pound then rebounded to a year-high of \$0.64 per pound.

The 2003 average price should be \$0.58, up \$0.015 from 2002. For the first time in three years, farmgate receipts for foodfish delivered to processing plants could be up \$20 million to approximately \$380 million.



U. S. Consumption and Supply

Increases in catfish sales can occur either from capturing market share from other seafood products and other protein sources, or from increased per-capita consumption. United States consumers ate more than seven times more red meat (beef and pork) and more than four times more poultry (chicken and turkey) than fish and shellfish products in 1999. United States farm-raised catfish must also compete within the much larger and highly volatile seafood industry. While catfish can promote its stable year-round supply, the fluctuations in the overall seafood market will continue to challenge the catfish industry.

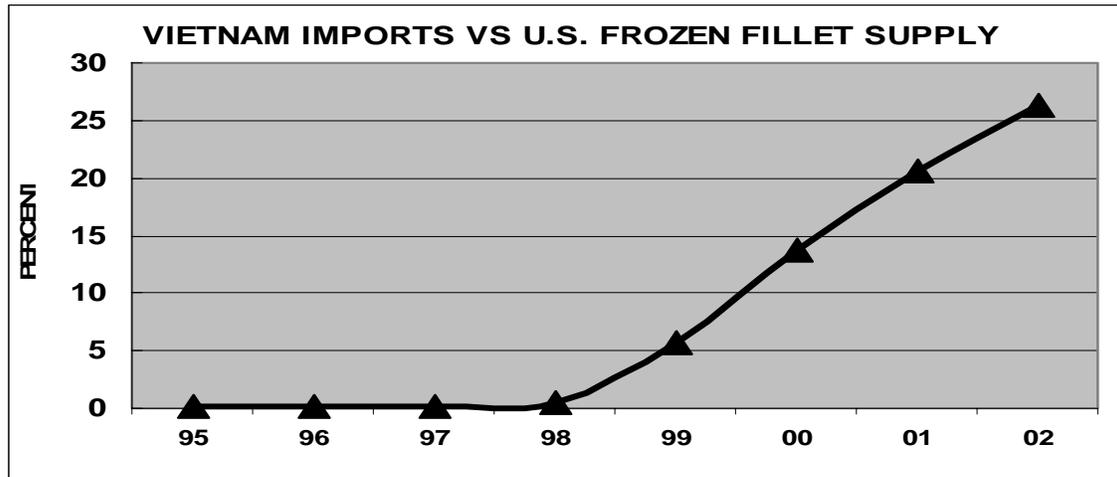
U.S. fish and seafood consumption grew during the 1980's, from 12.4 to 16.2 pounds per capita. Since then, consumption has stabilized in the 14 to 16 pound range. In 2002, per capita consumption was 15.6 pounds, an increase from 14.8 pounds in 2001. Despite overall lower consumption of seafood, United States per capita consumption of farm-raised catfish has more than doubled from 0.41 pounds in 1985 to 1.1 pounds per capita in 2002. The top ten seafood species consumed by Americans in 2002 were, in descending order: shrimp, tuna, salmon, pollock, farm-raised catfish, cod, crabs, clams, tilapia and flatfish. In 2001, per capita consumption of fish and shellfish products (14.8 pounds) was much lower than consumption of beef (63.1 pounds), broilers (52.4 pounds),

and pork (46.9 pounds).

Imports

The U.S. seafood supply is making a transition. In the 1970's and 1980's, imports ranged from 45 to 50% of all seafood products consumed in the United States. In the 1990's, imports increased significantly, accounting for 55 to 70% of total consumption. In the 2000's, this trend has continued with imports now representing 75 to 80% of total supply.

In contrast, imports are a relatively new phenomenon to the catfish industry. Foreign catfish supplies have been relatively small until the last 4 to 5 years. The primary import products are frozen fillets marketed to the food service industry (i.e., chain restaurants, buffets, retail outlets). From 1995 to 1998, imports only supplied 1 to 3% of the United States frozen catfish fillet market. By 2002, imports represented over 26% of the total United States frozen fillet market. Vietnam was the primary source of these fillets, supplying 99%. (Source: International Trade Commission/ Department of Commerce.)

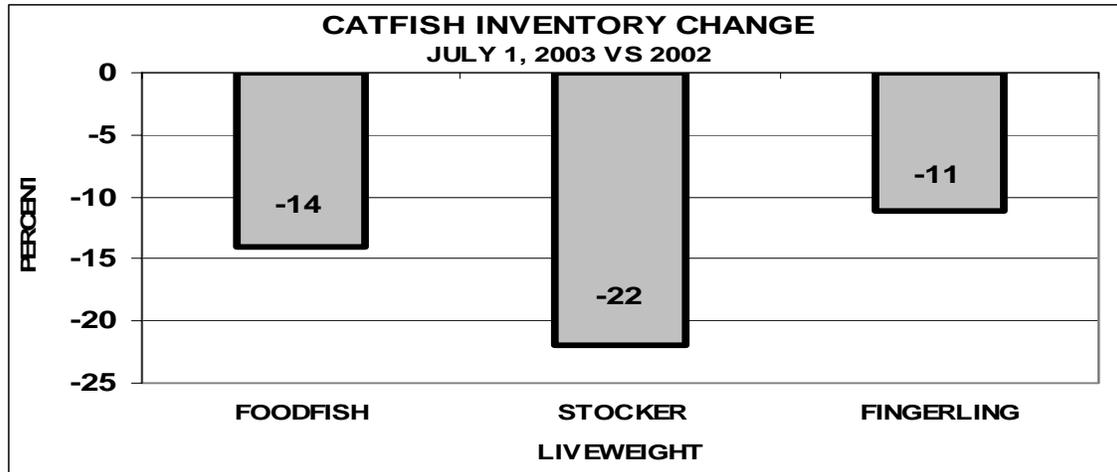


In response to the rapid increase in volume of imports, the catfish industry has initiated both legislative and legal actions. Last year, the U.S. Food and Drug Administration began to prohibit the labeling of any fish as "catfish" unless it is a member of North American Ictaluridae family. The 2002 Farm Bill also includes Country of Origin Labeling (COOL) that applies to farm-raised fish, wild fish, and other commodities. The law requires retailers to inform consumers at the final point of sale as to the country of origin of the product, but exempts food service establishments such as restaurants. COOL compliance is currently voluntary but will become mandatory in September 2004.

According to the International Trade Commission and the Department of Commerce, imports from Vietnam pose a significant threat to the domestic catfish industry. The International Trade Commission has imposed tariffs on Vietnamese fish exporters ranging from 37 to 64%, retroactive to June 2003. Currently, the Vietnam Association of Seafood Exporters and Producers is appealing the tariffs.

Inventories of Catfish

Beginning in July 2003, pond inventories were down. Latest estimates indicate that foodsize fish inventories are 14% below 2002 levels. This inventory represents the available fish to supply processing needs for early 2004. The inventory of stockers was estimated to be down 22% from 2002. These fish should be marketable in late spring 2004. Fingerling supply was estimated to be down by 11% from 2002 and will impact fish availability in late 2004 and early 2005.



Processed volume has been around 600 million pounds for 1999 through 2001. Total processed volume for 2002 was 631 million pounds. For 2003, the processed volume could reach 650 to 660 million pounds. Given this projected higher processing volume and reported low pond inventories, 2004 inventories of foodfish and stocker/fingerlings could be lower than last year.

Factors Affecting Production Costs

Feed represents over 50% of variable costs. For every \$10 per ton change in feed there is a \$0.01 per pound increase in production costs. Feed prices have increased over \$40 per ton during 2003 (from \$220 to \$260). Based on 2003/2004 corn and soybean supply forecasts, catfish feed cost increases are likely to continue.

The average size of fish required by processors has increased over time. In the 1980's processors required a 1.0 to 1.25 pound fish, during the 1990's they required a 1.25 to 1.5 pound fish, and in the 2000's required fish size ranges from 1.5 to 2.0 pounds per fish. This latest increase from 1.5 to 2.0 pounds per fish can add \$0.05 to \$0.07 per pound to the cost of production. The increase is due to additional growth time (+ 4 months), additional death loss during the extended grow-out period (+ 8 %), an increase in feed conversion ratio as the catfish gets larger (+ 0.37 FCR), and additional fixed costs.

Outlook

Is the catfish industry on a 10-year cycle? In the last twenty years, the only years that have fallen below 60 cents have been 1982, 1992 and 2002. Despite projected low pond inventories and import tariffs, producer price is not expected to recover significantly in 2004. For the next several years, producers should not expect a return to consistent prices in the \$0.70 to \$0.80 range.

Efficient producers with reasonable equity are in a better position to survive this period of low prices. Obviously, any producer or processor can benefit from becoming more efficient. This drive for increased efficiency will create the incentive for consolidation, producer alliances, and cooperative marketing or purchasing groups.

The growth in the United States farm-raised catfish industry is expected to continue. The pace of expansion will be influenced by a number of factors, primarily the health of the United States economy.

Additional Resources:

“Aquaculture Outlook”, ERS, USDA, Various Issues.

<http://jan.mannlib.cornell.edu/reports/erssor/livestock/ldp-aqs/>

“Catfish Processing”, NASS, USDA, Various Issues.

<http://usda.mannlib.cornell.edu/reports/nassr/other/pcf-bb>

“Catfish Production”, NASS, USDA, Various Issues.

<http://usda.mannlib.cornell.edu/reports/nassr/other/pcf-bbc>

“Fisheries of the United States, 2001” National Marine Fisheries Service, U. S. Department of Commerce.

<http://www.st.nmfs.gov/st1/fus/current/index.html>

“Final Determination in the Antidumping Duty Investigation”, International Trade Commission/Department of Commerce.

http://www.ita.doc.gov/media/FactSheet/0603/catfish_final_061703.html

Evaluating the Financial Viability of the Business



Just as it is important to construct a new building on a strong foundation, it is important to build the economic future of your business on a sound financial base. Evaluating the financial viability of your business will help you understand the financial strengths and weaknesses of your business position. With knowledge of your financial situation you are in a better position to respond to current economic forces within the industry.

There are three major financial objectives that businesses usually monitor to track their financial performance:

- Solvency to track changes in the net worth of the business;
- Profitability to monitor the earnings of the business; and
- Liquidity to estimate cash flow available for short term payments.

Solvency

Solvency analysis compares the capital (assets) invested in the business with the sources of capital, debt and equity. In almost every business, one of the primary goals is to grow net worth or equity over time. In periods of low profits, a strong equity position helps the business survive and may also provide the borrowing capacity needed to make business adjustments.

The balance sheet is the financial tool used to evaluate solvency. It provides the foundation for all of the remaining financial analysis. It is very difficult to evaluate where you are and what resources you have available for adjusting to economic forces without an accurate balance sheet.

If you do not have a current balance sheet, you may be able to get a copy from your lender. Otherwise, you can build one from scratch. There is a set of financial statement forms at the end of this section that includes a balance sheet format. It is available in PDF format at <http://www.extension.iastate.edu/Publications/FM1824.pdf>. Other possible sources include:

- FINPACK Farm Financial Software, available through many local Extension offices.
- Assessing and Improving Your Farm Solvency, <http://www.agnr.umd.edu/MCE/Publications/PDFs/FS540.pdf>

Asset Valuation

It is becoming more and more common for agricultural balance sheets to include Cost and Market valuations for capital assets.

- Cost – capital assets are valued at their original purchase cost less depreciation. Cost value balance sheets are most useful in evaluating year to year progress.
- Market – capital assets are valued at their estimated current market value. This is most useful in evaluating the financial soundness of the business and borrowing capacity.

Market value balance sheets are still the standard used by most agricultural lenders. For the purpose of this analysis, it is probably most useful to value assets at their conservative market value net of selling costs.

Measuring Solvency

The Debt to Asset Ratio is the most common measure used to evaluate business solvency.

$$\text{Debt to Asset Ratio} = (\text{Total Liabilities} / \text{Total Assets}) * 100$$

Simple rules of thumb for evaluating solvency (Debt to Asset) position are:

Strong	Under 30 %
Caution	30 to 60 %
Vulnerable	Over 60 %

Businesses that are in a **Strong** solvency position have a firm foundation upon which to build or change their operations. They may be experiencing profitability or cash flow problems because of the current economic situation, but their financial position should open up doors to alternatives and borrowing capacity that allow them to survive and adjust to more profitable strategies.

Businesses whose debt to asset ratio raises the **Caution** flag need to do some serious financial planning to assure, as much as possible, that their net worth position is not going to continue to erode. If so, they need to look at their options. Their lender should still be willing to work with them but may not be willing to lend enough money to make major changes in facilities or equipment. In the worst case, they may need to consider exiting the business while there is still substantial net worth left.

Businesses in a **Vulnerable** solvency position have limited ability to borrow additional funds. They need to look at options that improve net worth growth without investing more money in the business. Some examples might include using existing facilities more fully and/or improving operating efficiencies. Other options could include adding non-farm income and reducing family living costs.

Profitability

Profitability analysis involves analyzing how much money the business is making. Profitability is measured using an Income Statement. Most non-farm businesses are required to complete an accrual income statement for tax purposes so it is relatively easy to evaluate their profitability.

Farmers and ranchers, unless they are very large, are not required to do accrual accounting for tax purposes. While cash accounting provides flexibility for tax management, it leaves agricultural producers in a position of evaluating their profitability based on a system whose general purpose is to reduce income. Therefore, for many growers, tax statements do not provide a reliable source of information for evaluating farm business profitability.

Accrual Adjusted Income Statement

An accrual adjusted income statement adjusts the cash income and expenses reported for tax purposes for changes in inventories of crops, growing livestock, and assets that would have been included in taxable income had they been sold during the period covered. It also adjusts for changes on prepaid expenses, accounts payable and other items that would have been recorded as expenses had they been paid.

The set of financial statements included at the end of this section includes an accrual adjusted income statement format. The FINPACK Farm Financial Software, available through many local Extension offices, also includes a tool to calculate accrual net farm income.

Using Schedule F Tax Statements

It may be impossible to complete an accurate accrual adjusted income statement. In that case, the only option may be to use tax information. If so, it is recommended that you use the average net farm income from several years' Schedule F tax forms. In theory, the average of the net income from three or more year's taxes will wash out the effects of year-to-year inventory changes. Livestock producers should add the income from sales of raised cull breeding livestock to the Schedule F net income.

The bottom line of the income statement, Net Farm Income, is the amount of money the business contributed during the period for owner withdrawals for family living and taxes. If, over a period of time, net farm income is not enough to cover owner withdrawals, other sources of income will be needed or net worth will decline.

Measuring Profitability

The most common measure of profitability is the Rate of Return on Assets (ROA).

$$\text{ROA} = \frac{\text{Net Farm Income} + \text{Interest Expense} - \text{Value of Unpaid Labor \& Management}}{\text{Total Farm Assets}}$$

Value of Unpaid Labor and Management is an estimate of the amount of income unpaid farm operators could have earned from off-farm employment.

Rate of Return on Assets can be directly related to interest rates. The goal when borrowing capital is to earn a higher return than the interest rates being paid. Businesses with low debt to asset ratios can operate with a lower ROA because they are paying interest charges on a smaller portion of their assets.

Business profitability can vary a great deal from one period to the next. Managers should take care when basing decisions on results from only one period. With that in mind, some simple rules of thumb for evaluating your Rate of Return on Assets are:

Strong	Over 8 %
Caution	3 to 8 %
Vulnerable	Under 3 %

A **Strong** ROA indicates that the business is operating efficiently. If there are cash flow problems, it may be that the business is not large enough to support the number of people or families drawing from it. Or it may be that there is too much short-term debt placing undue pressure on cash flows. In that case, maybe debt repayment schedules can be restructured.

If the ROA raises the **Caution** flag, take a closer look at business efficiencies. Are there adjustments that could be made to control costs, improve marketing, or use facilities and equipment more intensively?

For businesses where the ROA analysis comes up **Vulnerable**, managers need to dig deeper to try to figure out why the business was not profitable. It is human nature to blame problems on factors beyond management control, like foreign competition. The management challenge is to position the business so that it can react to those outside forces.

Liquidity

Liquidity deals with how much cash the business could convert or generate in the short term, usually one year, to meet financial obligations. Holding inventories of cash and liquid assets is a risk management strategy to cushion the business from short-term financial downturns. Unfortunately, cash flow pressures often prevent businesses from

holding liquid assets. And even if they can, it is difficult to invest those liquid assets in places that yield a high rate of return. So there is often a conflict between liquidity and profitability.

The Cash Flow Statement is the most common tool for analyzing the liquidity of your business. It can be either a summary of sources and uses of cash from the past period or a projection of cash flows for the future. Many agricultural lenders require a cash flow projection as part of any credit application.

The set of financial statements included at the end of this section includes a cash flow statement. Other sources of projected cash flow formats include:

- FINPACK Farm Financial Software, available through many local Extension offices
- Cash Flow Projection and Operating Loan Determination, <http://www.oznet.ksu.edu/library/agec2/mf275a.pdf>

Measuring Liquidity

The most common measure of liquidity is the Current Ratio. It is useful for businesses that have substantial current assets. Businesses with limited current assets have little liquidity no matter what the current ratio says.

$$\text{Current Ratio} = \frac{\text{Total Current Assets}}{\text{Total Current Liabilities}}$$

Simple rules of thumb for evaluating your Current Ratio:

Strong	Over 1.75
Caution	1.1 to 1.75
Vulnerable	Under 1.1

Businesses with a **Strong** Current Ratio have established a healthy risk management cushion for difficult economic times. Their challenge is to make sure they are earning a reasonable return on their liquid assets.

If the Current Ratio raises the **Caution** flag, management needs to monitor cash flows carefully. A low current ratio will not make the business unprofitable but it might make it difficult to take advantage of opportunities as they arise.

Businesses with a **Vulnerable** Current Ratio are in a precarious position. Businesses don't usually go out of business because they lose all their net worth; they go out because they can't pay their bills. Businesses that fall in this category need to take immediate action. First, determine if there is a profitability problem, a solvency problem, or are owner withdrawals putting too much strain on the business. Maybe adding non-farm income is an option. Operators in this position should work very closely with financial

advisors, creditors and others to craft a plan that will get their operation back on the road to financial security.

Adding Up the Evidence

Financial analysis is a diagnostic, but not necessarily a prescriptive process. In other words, it may reveal a problem, but it may not point to a specific solution. The remainder of the resources available through this site will help business managers dig deeper into their operations to look for adjustments and creative options for their individual situations. Producers who understand 'Where Am I?' financially are in a much better position to evaluate alternatives for generating more income, controlling costs, and improving their bottom line.

Developed by Dale Nordquist, Center for Farm Financial Management, University of Minnesota

Balance Sheet

Name _____

Date _____

FARM ASSETS	Cost Value	Market Value	FARM LIABILITIES	Market Value
Checking and Savings Accounts			Accounts payable	
			Farm taxes due	
			Short-term notes and credit lines	
Crops held for sale or feed			Accrued interest - short	
Invest in growing crops			- intermediate	
Commercial feed on hand			- long-term	
Prepaid expenses			Due in 12 mo. - intermediate	
Market livestock			- long-term	
Supplies on hand			Other	
Accounts receivable				
Other				
Total Current Assets			Total Current Liabilities	
Unpaid Patronage Dividends			Notes and contracts, remainder	
Breeding livestock			Other	
Time certificates				
Farm securities				
Other				
Machinery and Equipment				
Total Intermediate Assets			Total Intermediate Liabilities	
Buildings/improvements			Notes and contracts, remainder	
Farmland			Other	
Farm Securities				
Other				
Total Long-term Assets			Total Long-term Liabilities	
A. Total Farm Assets			B. Total Farm Liabilities	
Current Assets (market) Current Liabilities	= _____	Current ratio	Farm Net Worth, Cost Value (A - B)	
Total Liabilities Total Assets (market)	= _____	Debt to asset ratio	Farm Net Worth, Market Value (A - B)	

Balance Sheet (continued)

PERSONAL ASSETS		PERSONAL LIABILITIES	
Bank accounts, stocks, bonds		Credit card, charge accounts	
Automobiles, boats, etc.		Automobile loans	
Household goods, clothing		Other loans, taxes due	
Real estate		Real estate, other long-term loans	
E. Total Personal Assets		Total Personal Liabilities	
G. Total Personal Net Worth (E - F)			
H. Total Net Worth, Market Value (D + G)			

INCOME STATEMENT

Name _____

Date _____

INCOME			EXPENSES	
Cash income			Cash Expenses	
Sale of livestock bought for resale			Breeding fees	
Sales of livestock, grain, other products			Car and truck expenses	
Patronage dividends			Chemicals	
Agricultural program payments			Conservation expenses	
Crop insurance proceeds			Custom hire	
Custom hire income			Employee benefits	
Other cash income			Feed purchased	
Sales of breeding livestock			Fertilizer and lime	
A. Total Cash Income			Freight, trucking	
Income Adjustments	Ending	Beginning	Gasoline, Fuel, Oil	
Crops for sale or feed			Insurance	
Livestock held for sale			Interest paid	
Accounts receivable			Labor hired	
Unpaid patronage div.			Pension and profit-share plans	
Breeding livestock			Rent of land, buildings, equipment	
Subtotal of Adjustments	B.	C.	Repairs, maintenance	
D. Home Used Production			Seeds, plants	
E. Gross Farm Revenue (A + B - C + D)			Storage, warehousing	
F. Net Farm Income From Operations (F - N)			Supplies purchased	
Sales of farm capital assets			Taxes (farm)	
Previous cost value or new purchase			Utilities	
Cost of capital assets sold			Veterinary fees, medicine	
G. Capital Gain or Loss			Other cash expenses	
			Livestock purchased	
			I. Total Cash Expenses	

Income Statement (continued)

		Expense Adjustments	Beginning	Ending
		Investment in growing crops		
		Prepaid expenses		
		Feed and supplies on hand		
			Ending	Beginning
		Accounts payable		
		Farm taxes due		
		Accrued interest		
		Subtotal of Adjustments	K.	L.
		M. Depreciation		
H. Net Farm Income (G + H)		N. Gross Farm Expenses (J + K - L - M)		

Statement of Cash Flows

Name _____

Date _____

Cash Farm Income and Expenses		
Total Cash Income		
Total Cash Expenses		
Capital Assets		
Sales of Capital Assets		
Purchases and Net Cost of Trades		
Financing		
New Loans Received		
Principal Paid		
Nonfarm		
Nonfarm Income and Receipts		
Nonfarm Expenditures		
Cash on Hand, Farm and Nonfarm		
Beginning of Year		
End of Year		
Total		

If all cash transactions are included correctly, the totals for the two columns will be equal.

Source of financial statements: Farm Financial Statements, William Edwards, Iowa State University, <http://www.extension.iastate.edu/Publications/FM1824.pdf>

Inventory of Resources and Talents



One of the purposes of TAA Technical Assistance is to help business owners find a profitable future direction for their business. The direction you take your business will depend on several factors, including:

- What you want to do (your goals)
- What is happening within the industry, and
- The package of skills, resources, and talents you and the other stakeholders in your business can pull together to implement a change.

Your resources come in at least two forms: 1) the hard assets and financial resources that are included on your balance sheet and 2) the knowledge, interests, and abilities that you can draw on from your management team. This section will focus on these personal attributes. It will ask a series of questions that are intended not to highlight weaknesses, but rather to help you build on your strengths and avoid the pitfalls of mapping a direction for your business that does not match your skills, likes, or values.

Production and Operations Management	<u>Yes</u>	<u>No</u>
---	------------	-----------

Are your skills best suited to high volume commodity production?

- | | | |
|--|-------|-------|
| • Do you have a history of producing high yields or rates of production per unit? | _____ | _____ |
| • Are you a low cost producer? | _____ | _____ |
| • Do you stay on top of new technologies? | _____ | _____ |
| • Do you get things done on time? | _____ | _____ |
| • Is expansion an option or interest? | _____ | _____ |
| • Do you gain your competitive advantage by producing more per unit at a lower cost? | _____ | _____ |

Or, are your skills best suited to niche market or value added products?

- | | | |
|---|-------|-------|
| Are you good at juggling multiple production schedules? | _____ | _____ |
| Do you monitor production activities and quickly make adjustments if problems surface? | _____ | _____ |
| Do you have a history of producing high quality products? | _____ | _____ |
| Do you gain your competitive advantage by marketing multiple products at a high margin? | _____ | _____ |

No matter the type of operation, efficient production is important. But it may be more important for some than for others. For producers of traditional agricultural commodities, the goal is to be the lowest cost producer. If you can keep costs per unit down and produce enough volume, you can generally be successful in commodity production.

For direct marketers, value added producers, and other non-traditional operations, efficient production is still important. But product quality and efficient marketing may well be more important than producing the highest production rates at the lowest costs. The world is full of stories of companies that have been very successful just because they out-marketed the other guys. Producing these types of products takes a different mindset. You may spend more of your time outside of production activities while managing others. You will spend more time in your office and less time on your tractor. If you can be happy doing these activities and you have skills in those areas, you may want to consider a transition into this type of operation.

Marketing

Yes No

Are your skills best suited to marketing traditional agricultural commodities?

- Would you rather be out in the field or in the production facilities than negotiating with buyers? _____
- Do you feel time on the phone is wasted time? _____
- Do you have the option to contract your production? _____
- Do you negotiate input costs? _____
- Do you lock in a profit when it is offered to you? _____

Or, do you have skills suited to marketing niche market, value added, wholesale, or retail products?

- Do you like to negotiate deals? _____
- Are you good at closing a deal? _____
- Do you know how to estimate the market for a product? _____
- Do you develop good relationships with buyers and sellers? _____
- Do you have skills in advertising and promotion? _____
- Are you good at making pricing decisions? _____
- Do you know who your competitors are? _____
- Do you target your products at a specific market? _____

Is there a market for your product? Most commodity producers have not had experience with estimating market size, target marketing, advertising and promotion, and pricing. These are skills that may be needed if you plan to move into a “niche” market or if your plans include direct marketing or processing of farm products. Many commodity

producers have the ability to move into these areas but they may need to educate themselves on the techniques. There are classes and other resources in community colleges and other institutions in most communities to help you improve these skills.

People Skills

Yes No

Are your skills best suited to managing a sole proprietorship?

- Do you feel a need to be actively involved in all or most production activities? _____
- Would you rather be out doing than directing others? _____
- Do you feel frustrated training employees? _____
- Do you worry about others getting things done right? _____

Or, do you have the skills needed to manage multiple employees?

- Do you like to work in a team setting? _____
- Are you comfortable delegating tasks to others? _____
- Are you able to constructively criticize employees? _____
- Do you have specific hiring procedures? _____
- Do you have specific training procedures for new employees? _____
- Are you comfortable with firing employees? _____
- Do you get satisfaction out of seeing someone else succeed? _____
- Do you like to delegate production tasks to others? _____
- Are you good at training others to do production tasks? _____

Many feel that they have to grow to be competitive in today’s business world, but there are still many very successful small businesses. Moving from a business with few employees to a multiple employee business is one of the biggest challenges for most business managers (inside and outside of agriculture). Those who successfully make the transition tend to be very happy with the change. They find that they can get away with assurance that things are getting done while they are gone. They build managerial capacity in the next generation and they get a great deal of satisfaction out of seeing others grow and be successful. But not everyone has the skills to be a people manager. If you are not comfortable with your skills in this area, there are two options: 1) get help and training in personnel management; or 2) stay small and look for other ways to improve profitability.

Money Management Skills

Yes _____

No _____

Should you consider hiring accounting and financial services?

- Do you use your records only for tax purposes? _____
- Do you let accounting functions slide as long as possible? _____
- Does your lender complete your balance sheet for you? _____
- Do you place financial reports in your files without examining them? _____
- Would you rather do just about anything else but accounting? _____
- Do you lack trust in your lenders? _____

Or, do you have the skills to manage the finances of the business?

- Do you know your production costs per unit? _____
- Do you like to do your own accounting? _____
- Do you read and understand financial reports? _____
- Do you develop a financial plan at the beginning of each production or accounting cycle? _____
- Do you monitor deviations from your financial plan and make mid-term adjustments to your plans? _____
- Do you periodically analyze the financial performance of your business? _____
- Do you work well with you lenders? _____
- Do you cover risks with adequate insurance and other risk management tools? _____
- Do you know how your living costs? _____
- Do you know your net worth? _____

Financial management is an area where many agricultural producers feel least comfortable. Again, there are a lot of resources within the Extension Service and local community and technical colleges to help you improve these skills. This is also an area where you might consider hiring outside help or joining a farm management group if one is available in your area. Hiring accounting and tax services, however, may not provide you with a great deal management information. You still need to understand the reports and monitor financial performance.

Other Resources

Other resources include the physical assets you own, the other assets you can acquire through lease or other means, and the financial resources that you can access in terms of equity capital and borrowing capacity. If you are considering a major business adjustment, consider how well adapted each of these resources is to your new business plan. Is the business large enough to support you and other stakeholders? Is your land base suited to high yield and high quality production of your selected products? Are production facilities and equipment adequate? Has asset replacement been adequately considered in your financial plans? Is an adequate and well educated labor force available? These are among the questions that you should honestly answer before you commit to investing more in your business operation.

Summary of Strengths and Weaknesses

After considering the resources, talents, and interests of the operation and the management team, it may be helpful to summarize the strengths and weaknesses of the operation. The worksheet on the following page provides a framework for this summary.

Summary of Resources and Talents

Strengths	Weaknesses
Production and operations	
Marketing	
People skills	
Money management	
Other resources	

Other Publications

Checking Your Farm Business Management Skills, Farm Business Management for the 21st Century, Purdue Extension, West Lafayette, Indiana, by Michael Boehlje, Craig Dobbins, and Alan Miller.

Are Your Farm Business Management Skills Ready for the 21st Century?, Self-Assessment Checklists to Help You Tell, Farm Business Management for the 21st Century, Purdue Extension, West Lafayette, Indiana, by Michael Boehlje, Craig Dobbins, and Alan Miller.

Building a Sustainable Business, A Guide to Developing a Business Plan for Farms and Rural Businesses, Minnesota Institute for Sustainable Agriculture, St. Paul, Minnesota, by Gigi DiGiacomo, Robert King, and Dale Nordquist.

Where Do I Want To Be?



- **Business Options Available to Improve Profitability**
- **Goals**
- **Production Efficiency**
- **Marketing Opportunities**
- **Alternative Enterprises**
- **Transitioning Out of the Business**

Business Options Available to Improve Profitability



Options to Improve Profitability

When faced with financial stress due to low prices, agricultural producers and fishermen have several options to improve profitability. There are four general options available to increase profits. They are:

- Improve the profit margin
- Expand the business
- Create innovative niches
- Exit and transition to a new business or job

The first two options are described by one of the most basic equations in economics:

$$\text{Profit} = (\text{Price} - \text{Cost}) \times \text{Volume}$$

Profits can be improved by increasing the margin between the market price received for a product and the cost to produce the product or by increasing the amount of the product produced.

Improving the Profit Margin

There are two components to increasing the profit margin:

- Reducing the cost of production
- Increasing the market price received

Economic forces are squeezing profit margins, but successful managers continue to pry the profit margin apart with a critical eye toward cost control practices and improved marketing.

Controlling the cost of production is always an essential management function of successful businesses. Data shows that there is rarely one area where significant cost reductions can be attained, but rather the more profitable businesses manage many costs two to five percent more efficiently than their competitors.

With tight profit margins, marketing actions that improve the sales price even a few cents may increase profits by significant percentage.

Expanding the Business

Expanding the business is an option that many producers have pursued. As profit margins have tightened, expanding the size of the business has been the most feasible option for many producers.

Additional sales volume may be necessary to cover the overhead costs of the business and to allow the families involved to meet their financial needs. But when considering an expansion, care should be taken when doing financial planning to verify that the expansion will improve your financial situation. If the profit margin is in fact negative, or the added volume will cause overhead costs to increase, an expansion may just put your business in a deeper financial hole.

Creative and Innovative Strategies

Over time agricultural producers have developed many creative and innovative strategies to help increase profitability. These range from adding value to their products through cooperatives or on-farm processing, direct marketing, niche products and markets, marketing recreational and agri-tourism opportunities, and contracts with businesses and municipalities.

Today's producers need to determine which strategy they will pursue - a commodity production strategy or a creative alternative strategy. The commodity strategy generally involves expanding to an adequate size and focusing on being low cost producer. The creative alternative strategy generally means focusing on markets, customers, and innovative niches. Some high-capacity producers are able to pursue both of these strategies.

Transitioning to a New Career

Exiting the business is always an option, although not one that many people want to consider. Commodities that have been certified as eligible for Trade Adjustment Assistance (TAA) are facing financial challenges. Some producers may elect or need to exit the business. Producers should evaluate the skills and resources available or needed to transition to a different business or career. For some finding off-farm employment or downsizing by selling some assets may also be options.

TAA provides retraining and educational resources to help producers who are transitioning to a different career. The Department of Labor provides TAA services through which eligible producers and fishermen may receive reemployment and educational assistance. Reemployment services include employment counseling, case assessment, job development, and self-directed job search services. Education assistance (Trade Readjustment Allowances) pay for up to 104 weeks of full-time education including classroom training, on-the-job training, and employer –based training.

Developed by Kevin Klair, Extension Economist, Farm Management, University of Minnesota.

Goals

Most of us would not leave home on a trip to an unfamiliar destination without a road map. We would want to know where food, gas, and lodging were available. Family members would discuss the best route. An arrival time would be estimated to inform family and friends. What about an agricultural business or fishery that is considering a new business model? Before launching into a new business plan, a well-developed “road map” is needed. A successful “road map” starts with discussion of where you want to go—personal and business goals. Steps for generating goals to guide your business decision-making follow.

What Are Goals?

A goal is a statement of what an individual or family wants to achieve. Through goals, each person, family, or business unit identifies its aspirations for the future. Goals change with circumstances and time, and they must be reevaluated and updated periodically.

How to Use Goal Setting

Goals provide focus and direction for management. Attaining high priority goals takes precedence in management decisions. They serve as reference points to monitor how well a business is doing and as a motivation if deadlines are specified. Goals help aid decision making in the face of uncertainty. Finally, achieving goals can serve as a rallying point for the family or business management team.

Steps in Goal Setting

Goal setting requires creative thinking. Goals can be tangible and intangible, short-term and long-term, monetary and non-monetary. Goals are personal and unique to the family since they reflect values and beliefs, the resources available, and the opportunities and limitations faced. Because achieving goals often requires the cooperation of family, the goal setting process should involve discussion and compromise among family members. Seven steps for setting goals follow.

- Assess where the operation was in the past.
- Assess family and farm resources (including self) and planning restrictions.
- Develop a general management plan.
- Identify and establish specific goals or objectives.
- Prioritize goals.
- Develop plans for action and implementing goals.
- Measure progress and reassess goals.

Developing SMART Goals

Other tips for goal setting are to make them SMART: Specific, Measurable, Action-oriented, Reasonable, and established in a Time frame. Write goals down to make them visible and increase commitment. Goals should be measurable, for instance, to increase income by \$8,000 per year. Goals should be challenging, but achievable. To be most effective, set family and business goals jointly, that is, set goals with family members rather than for them. Using realistic deadlines specify when the goal is to be attained.

Prioritizing Goals

Goal priorities can provide clear guidelines for management decisions and make possible a level of consistency that otherwise is difficult to maintain. To help establish goal priorities, ask these questions:

- Which goals are most important for family well-being? Farm well-being?
- Which short-term goals, if attained, would help achieve long-term goals?
- Which short-term goals conflict with, or impede, long-term goals?
- Which short-term goals do not support any long-term goals?
- Which goals are so important that they should be attained even if it prevents reaching other goals?

High priority goals should not receive all the attention and resources while other goals are ignored. Priorities should not be completely either/or decisions, and priority decisions need not be permanent. In prioritizing goals, weigh the importance of each task for long-term and short-term goals. Consider personal life goals as well as business aims. Group similar activities wherever possible and identify links between goals.

Implementing Goals

To effectively set and implement goals, the business manager must invest time and energy in mapping out goals. A thorough job of planning, with a commitment to the goal-setting process, will help ensure positive results. Make the goal known to others. Relate individual goals to family or team goals. Try to anticipate problems and plan strategies for overcoming them. Do not ignore potential conflicts or restrictions that might prevent reaching goals. Identifying possible problems in the planning stage will

allow time to resolve conflicts or channel efforts to feasible objectives. Beware of the following potential pitfalls:

- Making goals too lofty
- Trying to do too many things at once
- Overemphasizing quantitative aspects
- Vulnerability to unexpected events
- Failing to use all information or include all decision makers
- Ignoring good plans.

Summary

Goal setting, although important for all individuals and families, is especially important for family farms and small businesses because of family and business interrelationships. The development of individual goals, discussion and negotiation of family goals, and business and family priority setting gives structure to the management process. Setting goals as a family at least annually (or whenever circumstances change significantly) should become part of the business management routine. By helping individuals and families work smarter, goal-directed management can improve business efficiency. Achievement of goals should result in a feeling of accomplishment and pride. Use the following worksheet to begin specifying goals for family and business.

Reprinted from Goal Setting for Farm and Ranch Families, Damona Doye, Oklahoma Cooperative Extension Service, Oklahoma State University.

Goal Setting Worksheet

Short Term
 Intermediate term
 Long-term
 Farm/business
 Family/personal

Goals	Priority (High, Med. Low)	Potential Conflicts or Restrictions	Ways to Resolve Conflict	Resources Needed	Assigned Person(s)	Deadline
Most important goal?						
Second most important goal?						
Other goals?						

Provide each family member or person involved in farm management with a copy of this worksheet. Ask each person to complete it, without input from others initially. When everyone has completed the worksheet, discuss it with family and/or business associates. Use additional copies of the worksheet to document your family or farm management team's best thinking and mark it as such. Short-term goals should include those that will allow you to attain your long-term goals. An additional sheet detailing activities necessary to achieve a goal may be needed, along with an associated time line.

Production Efficiency

Maximizing Profits vs. Maximizing Production

In any agricultural enterprise, including catfish production, it is very easy for managers to become focused on increasing production. While increasing yields can be positive for an operation, it is extremely critical that managers do not lose sight of the fact that higher production generally only comes at a price. The ultimate objective of the operation is not to generate as high a yield as possible but rather to generate as high a profit as possible. A fundamental economic principle to keep in mind is that as long as inputs into the production process cost something, maximizing profits and maximizing production will not be the same thing.

To illustrate this concept, let's use the example of increasing stocking rates. Research and commercial experience has shown that moving from moderate stocking rates (5,500 to 7,500 fish per acre) to higher stocking rates (8,500 to 12,000 fish/acre) will increase total weight harvested within a production cycle. However, production does not respond at the same rate as the increase in stocking rate (i.e., doubling the stocking rate does not result in a doubling of total weight harvested). Whether the move to higher stocking rates is profitable or not depends on how the value of the additional production compares to any additional costs associated with the higher stocking rate such as additional input costs for feed, aeration, fingerlings, and increased mortality.

Clearly, fish prices and input prices will affect the outcome of this comparison. If catfish prices are \$0.80 per pound, the value of the higher production may be sufficient to cover increased input costs. However, if the catfish price is \$0.50 per pound, this will not be the case. On the input side, if the price of feed is \$190 per ton, then higher stocking rates may be profitable even at relatively low catfish prices. Conversely, if the price of feed is \$300 per ton, then higher stocking rates are not likely to be profitable even at relatively high catfish prices.

The purpose of the following material is not simply to provide strategies for increasing production. The real objective is to assist producers in achieving more cost effective production, thereby improving the profitability of their catfish operations.

Cost of Production Basics

Reducing Cost per Unit

The production of agricultural commodities is typically characterized by low profit margins. Moreover, commodity producers are typically price-takers (i.e., they receive the market rate for their production and have little, if any, ability to bargain for a higher price). Consequently, the best opportunity for improving profit margins often lies in reducing costs of production. Producers in all areas of agriculture have proven over the years to be very adept at (and very interested in) reducing costs to the lowest possible level. In evaluating ways to reduce costs, it can be instructive to consider the general nature of the costs involved in agricultural production.

Production Costs

First of all, in any type of production system—both agricultural and non-agricultural—costs of production can be categorized as being one of two types: variable or fixed. Variable costs are those costs that depend on the level of total production. In catfish production, major variable costs could include such things as fingerlings and/or stockers, feed, labor, and fuel. As more pounds of catfish are produced, more fingerlings, feed, labor, and fuel will be required. Total variable costs will increase. If production ceases, no more fingerlings, feed, labor, and fuel will be needed and total variable costs will be zero.

Fixed costs do not depend on the level of production. Fixed costs are those costs that will be incurred whether anything is produced or not. Examples of fixed costs include depreciation on facilities and equipment, property taxes, and insurance. Since the total level of fixed costs does not change as production increases, producers do realize some cost advantage from increasing production. As production increases, fixed costs per unit of output (or average fixed costs) decline. This is nothing more than the idea of “spreading the overhead,” a common goal of producers in every industry. Of course, there is a limit to how much costs can be reduced by increasing production. At some point, increases in average variable costs due to production inefficiencies will begin to outweigh the reductions in per unit total costs.

Economies of Scale

The relationship between input costs and output levels can be important for producers to consider. In many production processes, economies of scale may exist. Economies of scale is a term referring to per unit cost savings that result from increased production. The idea is that increasing production may allow resources to be used more efficiently, thereby reducing per unit costs. For example, a catfish producer with 10 acres of ponds may not find it economical to invest in the facilities and equipment needed to handle bulk feed. It may, however, be economical for a producer with 35 acres. The larger producer may realize significant cost savings from being able to handle bulk feed.

Producers may be able to capture economies of scale without increasing their own production by working cooperatively with other producers. Smaller producers may work together to, for example, purchase inputs in bulk at a price that none of them individually would be able to negotiate.

Finally, it should be noted that simply increasing production will by no means ensure a reduction in per unit costs. At some point, increasing output may very likely lead to diseconomies of scale. That is, increasing production beyond a level that is appropriate for the management ability and physical resources available to the operation will create inefficiencies that will lead to increasing per unit costs. The key is to identify opportunities to make better use of existing resources, always keeping in mind the financial, environmental, and human resource constraints of the operation and acting in a manner that is consistent with short-run and strategic business and family goals.

Enterprise Budgeting

Elements of an Enterprise Budget

An enterprise budget collects all cost of production and sales information into one “snapshot” of your operation. It includes variable and fixed costs and receipts from sales of all catfish products leaving the farm. Often a sensitivity analysis is included with the enterprise budget. This analysis will typically vary the prices of goods sold, or vary prices of important inputs – that is, items needed to produce catfish (feed, labor, fuel, fingerlings, etc.). An enterprise budget can be used to see how your operation is doing financially and economically. Once completed, your enterprise budget net return is a base against which returns from alternative enterprises, management or sensitivity analyses can be compared.

Enterprise budgets are only as good as the information put into them. Provided below are representative 40- and 250-acre catfish enterprise budget examples where you can see detailed information on quantities and prices for each item (for additional information, see the links at the end of this section). When constructing an enterprise budget for your operation, you’ll need to use your farm records and if you do not have the needed information it is a signal that you may need to start keeping records for these missing items. The point is to put the most accurate information possible into the enterprise budget so its results are meaningful and helpful. Thus, record keeping is critical in developing an enterprise budget, but once developed it can help you better understand your operation and through identification of higher input expenses help you in controlling your costs of production. It can also give you an understanding of your operation’s short- and long-term viability. Using computer spreadsheet software to enter your information into the enterprise budget is very helpful as you can quickly change one or more items and see their impact on your operation.

Table 1. Representative catfish enterprise budget for a 40-acre operation.

Acres	40	Selling price	\$0.65	per lb			
Price of feed, \$/ton	230	Electricity	\$0.045	cost, \$/kw-hr			
Stocking rate, fingerlings/acre	Year 1 = 5000	Year 2 & 3 =	6000	Year 4 on =	7000		
Feed fed per pound of fish gain	Year 1 = 2.00	Year 2 & 3 =	2.15	Year 4 on =	2.25		
Hired labor rate, \$/week	\$250	Harvest cost =	\$ 0.02	to seine & haul harvested fish			
Begin weight, lb/1,000	60	Final weight	1.5	lb			
Interest rates: short-term	10%	inter.-term:	10%	long-term:	10%		
	Weight Each	Unit	Quantity	Price or Cost / unit	Value or Cost	Per Acre	Percent of Costs
1. Gross Receipts							
Catfish sales	1.5	Lb	217,500	0.65	141,375	3,534	
2. Variable Costs							
Feed, food fish		Ton	252	210	52,999	1,325	40%
Labor							
Management		Year	1	10,000	10,000	250	8%
Hired labor		Week	50.40	250	12,600	315	10%
Fingerlings	6 inch	Each	248,000	0.075	18,600	465	14%
Custom Seine & Harvesting							
Seine and harvest of food fish		Lb	217,500	0.015	3,263	82	2%
Transport of harvested fish		Lb	217,500	0.035	7,613	190	6%
Fuel & lubricants, diesel/gasoline		Acre	40	89	3,557	89	3%
Electricity							
Aeration		10-hp hr	12,512	0.381	4,769	119	4%
Meter charge		meter/mo	12	35	420	11	0%
Repairs and Maintenance		month	12	467	5,609	140	4%
Chemicals							
Salt		Ton	48	53	2,544	64	2%
Lime		Ton	40	15	600	15	0%
Copper sulfate		50 lb bag	44	15	660	17	0%
Interest on Operating Capital		Dol	92,425	0.10	9,242	231	7%
TOTAL VARIABLE COSTS					132,476	3,312	100%
3. Income Above Variable Cost					8,899	222	
4. Fixed Cost							
Land charge		Dol	10,000	0.10	0	0	0%
Machinery depreciation		Dol			13,426	336	49%
Pond depreciation		Dol			4,083	102	15%
Taxes (land)		Acre	20.58	40	823	21	3%
Interest on Pond Construction		Dol	33,500	0.10	3,350	84	12%
Interest on Equip/Mach Loans		Dol	57,810	0.10	5,781	145	21%
TOTAL FIXED COSTS					27,463	687	100%
5. Overhead							
Office supplies		Year		600	600	15	46%
Insurance, general liability		Acre	40	6.25	250	6	19%
Insurance on equip/machinery		Dol	115,620	0.0040	462	12	35%
TOTAL OVERHEAD COSTS					1,312	33	100%
6. Total of All Specified Expenses					161,251	4,031	
7. Net Returns Above All Specified Expenses (1)					-19,876	-497	
Net Returns Per Acre:		Above Specified Variable Costs			\$222	per acre	
		Above Specified Total Costs			\$-497	per acre	
Breakeven Price:		To Cover Specified Variable Expenses			\$0.61	per lb	
		To Cover Specified Total Expenses			\$0.74	per lb	

Table 2. Representative catfish enterprise budget for a 250-acre operation.

Acres	250.00	Stocking rate, fingerlings/acre	7,500.00			
Price per lb of fish	\$ 0.60	Feed fed per pound of fish gain	2.20			
Price of feed, \$/ton	\$ 230.00	Begin weight, lb/1,000	30.00			
Fingerling price, \$/each	\$ 0.05	Interest rate for operating loan	10 %			
Final weight, lb	1.50	Price to seine harvest-sized fish,\$/lb	\$ 0.02			
		Price to seine harvest-sized fish, /1, \$/lb	\$ 0.00			
	Unit	Quantity	Price or Cost Per Unit	Value or Cost	Per Acre	Percent of Costs
1. Gross Receipts						
Catfish sales	lb	1,653,650	0.60	992,190	3,969	100%
2. Variable Costs						
Feed, food fish	ton	1,899	230	436,678	1,747	49%
Labor						
Manager	year	1	35,000	35,000	140	4%
Hired labor, various wages	year	7	varies	109,000	436	12%
Fingerlings	each	1,875,000	0.050	93,750	375	11%
Harvest transport, /1	lb	1,653,650	0.015	24,805	99	3%
Fuel & lubricants						
Diesel	gal	22,332	1.05	23,449	94	3%
Gasoline	gal	12,392	1.25	15,490	62	2%
Electricity						
Aeration	kw-hr	12,596	0.932	11,736	47	1%
Meter charges	Month	60	35	2,100	8	0%
Water pumping	Acre	250	55.44	13,860	55	2%
Repairs and Maintenance	month	12	2074	24,883	100	3%
Telephone	month	12	208	2,500	10	0%
Accounting/legal	year	1	2400	2,400	10	0%
Bird chasing	year	1	2000	2,000	8	0%
Chemicals						
Salt	ton	250	50	12,500	50	1%
Diuron, off-flavor control	trt/acre	1,500	9	13,500	54	2%
Copper sulfate	trt/acre	250	9	2,250	9	0%
Supplies and Administrative	year	1	600	600	2	0%
Office supplies	year	1	600	600	2	0%
Insurance, general liability	acre	250	6.25	1,563	6	0%
Interest on Operating Capital	dol	828,663	0.10	62,150	249	7%
TOTAL VARIABLE COSTS				890,812	3,563	100%
3. Income Above Variable Cost				101,378	406	
4. Fixed Cost						
Land charge (not included)	dol	240,000	0.1000	0	0	0%
Machinery depreciation	dol			39,683	159	32%
Pond depreciation	dol			36,822	147	30%
Taxes (land)	acre	29	250	7,350	29	6%
Interest on Pond Construction	dol.&%	212,340	0.10	21,234	85	17%
Interest-Equipment loan	dol &%	160,850	0.10	16,085	64	13%
Insurance on equip/machine	dol/\$	321,700	0.004	1,287	5	1%
TOTAL FIXED COSTS				122,461	490	100%
5. Total of All Specified Expenses				1,013,273	4,053	
6. Net Returns to Land				-21,083	-84	
Net Returns Per Acre:	Above Specified Variable Costs, \$/acre				\$406	per acre
	Above Specified Total Costs (variable plus fixed), \$/acre				-\$84	per acre
Breakeven Price:	To Cover Specified Variable Expenses, \$/lb				\$0.54	per lb
	To Cover Specified Total Expenses, \$/lb				\$0.61	per lb

Enterprise Budget Analysis

Short-run Viability

The short-run indicator of your operation's financial viability is the "Income Above Variable Costs" line in the enterprise budget. This is the gross receipts minus all variable or cash costs. When this short-term measure is positive, it's an indication that you should stay in business as you are covering all cash costs associated with production and you have additional funds available to cover (pay) some or all of the fixed costs. If the income above variable costs line is negative then your operation is not viable in the short run and changes to make the operation profitable will need to be made. Now, this could occur due to unusually low prices received for your product in one year and could be abnormal or not. How would you know if this low price will continue or not? The truth is no one knows, but looking at past pricing trends may help in understanding the current price received.

The National Agricultural Statistic Service (NASS) has a webpage (<http://www.usda.gov/nass/search.htm>) where catfish pricing information can be found and you can compare your current price to prices received for past years. Also, looking at NASS catfish price series shows you how prices have changed during the year. The same can be done for prices of important inputs, such as catfish feed. While there is currently no catfish feed price data, there is information on major catfish feed ingredients, such as soybeans, corn and wheat. If soybean prices are going up, that's an indication that there will be an increase in catfish feed prices. The opposite is true as well, that is, if soybean prices are decreasing then catfish feed prices should go down. Thus, keeping track of associated commodity prices could help you in managing your costs.

Long-run Viability

The long-run indicator of your operations viability is the "Net Return to Land" line in the enterprise budget. This is the gross receipts minus variable and fixed costs. When this long-term measure is positive, it's an indication that you should stay in business as you are covering all cash and non-cash costs associated with production. Non-cash costs are those that account for usage of equipment in the production process and account for your labor and management above what you pay yourself. A negative net return along with a positive income above variable costs indicates you should continue operating in the short-run, but changes that will increase net returns will have to be made for your business to stay in operation over the long-run. A negative net return and negative income above variable costs indicate you should stop producing as you are losing money for every pound of fish you produce.

Breakeven Price Analysis

Another useful part of the enterprise budget is the breakeven price section. These indicators are calculated and indicate the price required for your catfish product to cover

or pay for all variable costs or as the price required to cover all (variable plus fixed) costs. Once calculated, the breakeven price is compared to the actual price received. If the breakeven price is less than the price received then you know how much money you are making for every pound of catfish sold; and if the breakeven price is greater than the actual price received you know how much money you are losing for every pound of catfish produced. Again, you can compare your breakeven prices to NASS catfish price series to help you better understand how your operation may fare in the future.

Sensitivity Analysis

A sensitivity analysis of the enterprise budget can help you see how profitable your operation is under various price changes. Identified major inputs, such as feed, fingerlings or fuel can be included in the sensitivity analysis along with the price received for catfish. The resulting table, see below, would show your expected net returns per acre under low to high catfish feed prices and low to high catfish prices received. If your operation's net return is positive you can quickly see at what prices the net return would become negative. How likely are these price combinations to occur? Again, no one knows for sure, but you can compare these prices to NASS prices for catfish and feed ingredients, for a view of how they varied in the past and may vary in the future.

Feed Price (\$/ton)	Price Received for Catfish, \$/lb						
	0.55	0.60	0.65	0.70	0.75	0.80	0.85
190	-89	242	573	904	1,234	1,565	1,896
200	-170	161	491	822	1,153	1,484	1,814
210	-252	79	410	740	1,071	1,402	1,733
220	-333	-3	328	659	989	1,320	1,651
230	-415	-84	246	577	908	1,239	1,569
240	-497	-166	165	495	826	1,157	1,488
250	-578	-248	83	414	745	1,075	1,406
260	-660	-329	1	332	663	994	1,324
270	-742	-411	-80	251	581	912	1,243
280	-823	-493	-162	169	500	830	1,161
290	-905	-574	-243	87	418	749	1,079
300	-987	-656	-325	6	336	667	998
310	-1,068	-737	-407	-76	255	585	916

Cash flow statements and an integrated cash flow enterprise budget example can be found in the “Additional Links” section at the end of this chapter.

Reducing Important Variable Costs

From the enterprise budget you can see in the “Percent of Costs” column of Table 1 and 2 the percentage each variable input expense is of the total variable costs. By far the feed component at 49% is the single greatest input cost on the catfish farm. Second, is the

labor and management expense making up 16% of variable costs. The third largest variable cost is that of fingerlings, followed by fuel (diesel, gas, and electricity), interest on operating expenses, harvest and transport costs, repairs and maintenance, and chemical usage costs. Obviously, if any of these variable costs can be reduced your variable costs will be reduced. The trick is to maintain current production levels or have a smaller reduction in production than would normally be associated with a similar decrease in variable cost; that is, you want to reduce costs more than the value of production when modifying your operations management.

Feed

Feed accounts for about 50% of variable operating costs and represents a cost of about 25 cents per pound of fish at current feed prices and an average feed conversion of 2.3.

There are four principle methods to reduce feed costs:

- Reduce dietary protein level,
- Reduce or eliminate animal protein,
- Reduce feed conversion ratios, or
- Restricted feeding regimes.

Reducing dietary protein from 32% to 28% can result in a savings of \$60 to \$80 per acre per year. Feeding a 28% protein feed will not have a significant effect on feed conversion ratios or processing yield. This has been proven in research and commercial catfish ponds.

Eliminating animal protein can result in a savings of around \$2 per ton of feed or \$10 to \$12 per acre per year. Research has shown that eliminating animal protein does not compromise disease resistance to enteric septicemia of catfish.

Feed conversion ratios on commercial catfish farms typically average 2.3 or higher and vary from farm to farm and as fish get larger their ratio will become less efficient. A decrease in the feed conversion ratio by 0.1 unit results in a savings of about \$50 per acre per year. The two largest factors affecting feed conversion ratios are the difficulty in efficiently feeding fish in large ponds and unrealized harvest due to mortality. Feeding fish slightly less than full feed has proven to be the most efficient strategy. However, it is difficult to judge when fish are near satiation so fish are easily underfed or overfed if care is not taken. Reducing mortality is a goal of every fish farmer and is discussed in the Disease section.

To reduce feed costs, some farmers have implemented restricted feeding regimes such as feeding once every other day, once every third day to satiation, or limiting feed on a daily basis. Recent research has shown that feeding fish less than daily may improve feed conversion efficiency and reduce feed cost, but will also reduce production and processing yield and extend the production cycle compared to feeding daily. Producers should weigh savings on feed cost against losses of production if fish are to be fed less than daily for an extended period. If a restricted feeding regime is to be followed, catfish

should be fed to satiation on days fed rather than limiting feed on a daily basis, so that smaller, less aggressive fish have a better opportunity to eat.

Labor and Management

Probably the most time consuming tasks on an aquaculture farm involve feeding, water quality monitoring and harvesting of fish.

Reducing labor costs can be accomplished by reducing the number of laborers on the farm. One way to accomplish this is by reducing the production intensity level of your operation. Decreasing your production intensity can be achieved by reducing stocking rates which leads to less feed being fed and can reduce summertime water quality problems, and thus require fewer water monitoring labor hours.

Another possible way to reduce water quality monitoring labor is to develop a long-term plan of incorporating automated water quality monitors. These monitoring systems measure dissolved oxygen levels and will turn on and off one or more aerators per pond as needed to meet the minimum oxygen level set for an aerator in each pond. Additionally, these systems often have radios that can transmit information to a computer located in your home or office. This would be a capital expense and could be quite a large investment and may not be applicable to your situation. This tool cannot fully replace labor but could reduce your labor expenditures in the long run and make your farm more efficient.

Use of on-farm labor versus third-party firms to harvest fish for processing may need to be investigated. There are economies of scale at work for this labor expense. As catfish farms become larger and daily movement of fish is required, then on-farm harvest crews may be less expensive than paying third party custom harvesters to seine. A partial budget analysis of the expenses to harvest using each method could be conducted for your farm situation to determine which is more cost efficient.

Seasonal labor hiring can reduce overall labor costs. In many catfish farms the peak production period is between March and September. During these months additional labor is required for monitoring water quality, feeding fish, repairing/maintaining equipment and machinery. So hiring just for this peak period and not for the entire year could result in reduced labor costs.

Fingerlings and Stockers

Costs associated with fingerling acquisition can represent as much as 12 to 13% of the total variable costs of catfish production. The relative value of different sizes of fingerlings is related to their performance when understocked in growout ponds. Research has shown that the optimal size of fingerling to understock in multiple-batch growout ponds would be 5 inches. Survival of 3-inch understocked fingerlings has been shown to be low.

Fingerlings can be produced by either 1) stocking fry to grow to fingerlings at the end of the growing season; or 2) stocking fry initially at a high density and then thinning and restocking at lower densities when the fry reach 2 inches. In general, fry stocked at higher densities will have higher overall costs per acre to stock and feed, but lower costs per fish, per pound, and per inch. These costs vary depending upon the stocking density and whether or not fingerlings were thinned and re-stocked. It is cheaper to produce small (< 4-inch) fingerlings without thinning, but larger fingerlings (> 4.5 in) are produced most inexpensively with thinning.

Risk analysis indicates that a management strategy of producing large fingerlings by stocking fry at low densities would have a high probability of costing more than market prices of those fingerling sizes. By stocking at higher fry densities, the chances of producing fingerlings at a cost per inch less than commercial rates are very high. This does not mean that high-density production of smaller fingerlings is the most profitable or the best management strategy for a growout operation.

Stocking larger fingerlings or stockers in the first year can reduce cash flow problems for startup businesses. Fingerlings graded by size are possible to purchase these days and have advantages, such as more uniform sized fish at harvest and greater control of growout. It may be possible to harvest and sell these fish the first year and generate much needed revenue. Whether or not it is best to continue to purchase and stock stockers after the initial year will depend upon the price of stockers and the relative cost of producing stockers.

Aeration

The development and widespread adoption of aeration technology in the catfish industry can be linked to increased catfish yields in the 1980s. An economic engineering approach has been used to estimate total aeration cost and to generate average cost curves of aeration. Below 250 hours of aeration per season, tractor-powered aeration devices were more efficient economically. Above 250 hours of aeration, electric aerators were more efficient. For pond sizes above 1 acre, electric floating paddlewheels generally are the most cost efficient.

Off-flavor

Off-flavor episodes delay harvest and restocking, add cost to production, and increase risk of mortality to diseases and low dissolved oxygen levels during the delay period. Also, off-flavor fish that reach the market place can have a negative impact on consumer acceptance.

Copper sulfate has been proven effective in reducing the incidence of off-flavor. In the Mississippi delta region, treatment rates are 5 pounds per surface acre (0.25 ppm copper) per week when water temperatures were above 70°F. (The rates may vary depending on your water characteristics, see your extension agent for help.) In experiments at the National Warmwater Aquaculture Center, copper sulfate treatments resulted in fewer

instances of off-flavor, shorter duration of off-flavor episodes, and less variation in harvest yields. Average harvest yields over a three-year period were higher for copper sulfate treated ponds than control ponds. The additional production costs for treated ponds were more than offset by income from higher average production and fewer fish losses from disease outbreaks during off flavor holding periods.

Diuron has been approved on an annual basis for off-flavor treatments in many states. Treatment rates are 0.5 ounce per acre-foot applied weekly for a maximum of nine treatments per year. Water temperatures should be above 68°F. Producer and processor surveys revealed that benefits of reduced off-flavor outweighed costs of diuron usage by 43 to 1.

Disease

Physiological stress and physical injury are the primary contributing factors of fish disease and mortality in catfish production. Fish reared under commercial aquaculture conditions are weakened by stress conditions including increased fish density, poor water quality and injury during handling.

Prevention through good management practices is the best control measure to minimize disease problems and fish losses. Prevention of disease outbreaks is more cost-effective than treating dying fish. Fish health researchers suggest that the single most important prevention technique is a thorough water quality monitoring program. Vital parameters to monitor include dissolved oxygen, ammonia, nitrite, and chlorides. Maintaining 60 to 100 parts per million chlorides during the fall and spring is a very cost efficient method of preventing nitrite toxicity related losses.

Catastrophic losses of catfish due to trematode infections are becoming a more common occurrence in the southeastern United States. Fingerlings and foodfish should be checked for encysted trematodes whenever they are being seined or transported. Prevention measures include keeping American white pelicans (final host) off ponds and reducing Rams' horn snails (second intermediate host) around pond margins.

Once a disease outbreak occurs, a rapid response is critical to reducing losses. First, samples of sick fish should be submitted to a fish diagnostic laboratory for a complete diagnosis. Economics must be considered when determining the best treatment procedure. Does the cost of treatment exceed the value of the fish? Do the number of fish dying (or likely to die) have a high enough value to justify the cost of the treatment?

If chemical or antibiotic therapy is determined to be economically justified, treatment should be applied before infection intensifies or fish reduce feed intake. Fingerlings that are undergoing a fall outbreak of enteric septicemia of catfish may be placed on a restricted feeding regime to reduce the spread of the infection.

Bird Depredation

The growth of the farm-raised catfish industry has been accompanied by increases in depredation by fish-eating birds. The double-crested cormorant is widely perceived by both scientists and fish farmers to cause the greatest amount of bird-related losses on catfish farms. Most attempts to quantify losses on catfish farms have been based on studies that quantify the numbers of cormorants observed on ponds and the numbers of fish consumed daily as observed on specified sampling days. However, the most important effect is the effect on yield of catfish due to depredation by cormorants. Research has shown that in single-batch production systems, cormorant depredation reduced yields by 19.6% and increased production costs by 17.2%. Results were similar in multiple-batch production systems.

Partial Budget Analysis

Agriculture is a complex and dynamic industry. New technology and new production techniques that promise higher returns or lower costs are constantly being introduced. Producers routinely find themselves in the position of evaluating whether or not a new investment or some other type of change to the existing operation will be worthwhile.

Elements of a Partial Budget

In evaluating a proposed change to an existing agricultural operation, the basic issue to be addressed is whether or not the long run profitability of the farm will be improved. In evaluating these long-run effects, a partial budget can be a very useful tool. Basically, a partial budget is made up of four components: two identify changes in the operation that will increase profits and two identify changes in the operation that will decrease profits. Interpreting the results of a partial budget is very simple. If increased profits exceed decreased profits, then the change being considered is a good one. A basic outline of a partial budget would look something like this:

1) Changes that Increase Revenue	2) Changes that Decrease Revenue
+ 3) Changes that Reduce Costs	+ 4) Changes that Increase Costs
<hr/>	<hr/>
Increased Profits	Decreased Profits

The difficulty in applying a partial budget to a particular problem is accounting for all cost and return changes that will result. Each profit-changing item must be included to determine whether or not the proposed change to an operation will be profitable.

Partial Budget Example

The application of a partial budget to a specific decision will help to illustrate how this tool might be useful to catfish producers. This partial budget analysis considers the case of a producer who is trying to decide whether to continue raising catfish with a multi-

batch stocking system or to convert to a 3-phase (modular) production system, i.e., fry to fingerlings in phase one, fingerling to stocker size in phase two, and stocker to harvest size in phase three. This producer has 1,050 acres of ponds in foodfish production and is targeting a 6,500 pound/acre total production with an average fish weight of 1.5 pounds.

The first step in the evaluation is to identify any changes to the operation that will increase the operation's profits. The producer must determine if the proposed change to the operation will lead to any increase in revenue. In our example, the producer expects to be able to increase total production by almost 641,000 pounds. Next, the producer must decide if the proposed change will lead to any reduction in costs. In this example, the producer expects to be able to reduce off-flavor problems. This will lead to lower expenditures on diuron treatments.

The next step in the evaluation process is to identify any changes to the operation that would decrease profits. Any potential decreases in revenue should be taken into account. In this example, the switch to a modular production system would not be expected to result in any reduction in revenue. There may well be cases, though, where revenue would be expected to be reduced. For example, if the move to a modular system were part of an overall downsizing of the operation, income could be reduced. Finally, any changes in the operation that would increase costs must be included in the partial budget. In this example, a number of costs would be expected to increase. The modular system requires additional purchases of fingerlings and feed as well as additional fuel, labor, and equipment costs associated with seining and moving fish a number of times as part of the modular system. Table 4 shows a completed partial budget for the modular vs. multi-batch production system. Note that the numbers in this budget show how much a given revenue or expense item would change in moving from multi-batch to modular production. For example, the \$52,772 in foodfish/stocker feed in the "Increased Costs" section of the budget represents the difference in projected feed expenses between multi-batch and modular production. In other words, the producer estimates that feed expenses will go up by almost \$53,000 in moving from multi-batch to modular production.

Table 4. Partial Budget of Modular vs. Multi-Batch Production

Increased Revenue		Decreased Revenue	
Change in foodfish production	\$384,570	Not applicable	
(+640,950 lbs @ \$0.60/lb)			
		Increased Costs	
		Foodfish/Stocker feed	\$52,772
		Fingerlings	\$106,250
		Transport of harvested fish	\$9,615
		Labor (+4 seining personnel)	\$72,000
		Salt	\$2,650
Decreased Costs		Copper sulfate (algae control)	\$450
Change in off-flavor costs	\$8,100	Diesel fuel	\$5,355
		Electricity (aerator, pumps, meters)	\$16,066
		Deprec., maint., R&M on equipment	\$14,870
		Taxes	\$688
		Misc. expenses	\$1,250
		Overhead (phone, accounting, etc.)	\$314
		Interest on op. cap.	\$72,926
Increased Profits	\$392,670	Decreased Profits	\$355,205

Results of the partial budgeting exercise indicate that moving to the modular production system would be a profitable decision. The change in profits is projected to be \$37,465 (\$392,670 minus 355,205). It is very important to note, however, that the outcome of any partial budgeting exercise depends on the assumptions used in developing the budget. For example, if the price of foodfish in the above budget goes from \$0.60 per pound to \$0.50 per pound, then multi-batch production becomes a more attractive option. In that case, the change in profits is projected to be -\$26,630 (\$328,575 minus \$355,205). It is important to carefully consider the values used in estimating cost and return entries in the partial budget. It can also be useful to examine how changes in key values—such as foodfish, fingerling, and feed prices—affect the outcome of the partial budget analysis.

Summary

An evaluation of the efficiency and profitability of an operation is always important but becomes critically important during periods of low catfish prices. The strategies and tools provided in this section provide a means for identifying and addressing key areas of concern related to the viability of your catfish operation. A thorough appraisal of the production and financial aspects of any operation requires considerable effort. For assistance in evaluating your own operation, help is available through your local Extension Service. Additional resources are listed in the TAA for Catfish links section.

Additional Links

Links to enterprise budgets, sensitivity analyses, cash flows and depreciation schedules:

<http://www.agecon.msstate.edu/Research/budgets.php>

<http://www.uaex.edu/aqfi/staff/engle1.html>

For additional information on accessing assistance or advice in managing your operation, please refer to the "Other Resources" section on the TAA Catfish webpage
<http://www.agrisk.umn.edu/taa/Commodities/Catfish/OtherResources.htm>

Marketing Opportunities

In general terms, agricultural producers have two options for improving profitability: reduce costs or increase revenue (or some combination of both). Reducing costs often involves increasing the efficiency of production in some fashion—for example, through the application of new technology. Increasing revenue may also involve improving efficiency. For example, reducing death loss or increasing pounds marketed from the same pond acreage would increase revenue for catfish producers. Very often, though, efforts to increase revenue involve making changes in marketing strategies.

Key Marketing Concepts

Over the last several years, the term “value-added” has been widely used in agricultural industries to describe efforts by producers to capture more of the final consumer’s food dollar. Capturing more of the final value of a product is certainly a worthy goal for commodity producers; however, it may not be as easy as it appears at first glance. A proper understanding of the marketing chain and the roles of different individuals and firms in it will be helpful to anyone considering value-added marketing strategies.

Many efforts by agricultural producers to add value actually consist of trying to capture part of the marketing margin. The marketing margin can be defined as the difference between the farm price of a raw commodity and the retail price of a finished food product derived from that commodity. The marketing margin is the total amount of money that is available to pay for all of the marketing services required to convert a commodity in raw form at the farm gate into a finished product in the supermarket. To many people, the term marketing is synonymous with advertising. Certainly promoting a product can be a part of marketing, but in food industries, the term marketing typically refers to “the performance of all business activities involved in the flow of food products and services from the point of initial agricultural production until they are in the hands of consumers.”¹ In other words, marketing involves transportation, storage, processing (which may involve several steps), and a host of related activities necessary to produce a retail food product.

As noted, many of the value-added or alternative marketing strategies pursued by agricultural producers represent an attempt to capture a greater portion of the marketing margin. As a simple example, consider the case of a farmer’s market. A vegetable producer selling sweet corn in a farmer’s market must take responsibility for a number of

¹ Kohls, R.L. and J.N. Uhl. *Marketing of Agricultural Products, 6th Edition*. MacMillan Publishing, New York: 1985, p. 8.

marketing functions that would be performed by somebody else if the corn were simply sold off the farm. For example, the farmer is obviously responsible for transporting his product to the farmer's market, for locating and securing a place at the market, and for handling the retail transaction. The farmer will also very likely perform some minimal level of processing: at the very least culling and sorting the corn, perhaps even shucking, cleaning, and packaging some of it.

The farmer's market is a very simple example, but it hopefully illustrates a basic point: marketing services come at a cost. Farmers often overlook the fact that marketing is a productive activity. The marketing margin exists because there is value in the performance of marketing services. The farmer selling produce through a farmer's market must expend additional resources—including a potentially significant amount of time—beyond those employed in the production of the crop. In addition, the alternative marketing strategy may require a different set of management skills than are needed in production. Dealing with the logistics of product storage and/or delivery or handling requests or criticisms from customers may become essential functions. This is not to say that alternative marketing strategies are not worthwhile. They can in many cases be very successful. In fact, alternative marketing strategies may be the best way for some producers to improve their bottom line. But simply capturing a higher price is not, in itself, sufficient to make an alternative marketing strategy successful. The increase in returns must be enough to compensate the producer for the additional marketing activities being performed.

A point to remember in any alternative marketing activity is that the ultimate goal is to capitalize on existing consumer demand. It is extremely difficult to create demand for a new product or service. Therefore, to successfully pursue alternative marketing strategies, it is critical to understand consumer preferences in the marketplace. With regard to catfish, consumers reported that their reasons for eating catfish include:

- enjoyment of flavor (68% of consumers)
- health and nutrition (31%)
- and addition of variety to their diet (22%).

Catfish consumers identified that the main reasons for not consuming catfish more often were:

- price (22%),
- lack of fresh product availability (16%),
- lack of preparation knowledge (14%), and
- too time consuming to prepare (13%).

Respondents located in "non-traditional" catfish consumption regions of the U.S. would eat more catfish if a good product was continuously available and secondly, if a variety of ready-to-eat products were widely available.

Another important aspect of consumer preference relates to product form. Consumers have expressed a preference for frozen fillet products as evidenced by processors producing 60 to 70% fillets, 10 to 15% whole-dressed fish, 10 to 15% nuggets, and 10 to 15% value-added breaded, marinated, or strip/finger products. Frozen fillet products have had the greatest increase (both in volume and in sales) of any fresh or frozen

product. This preference for frozen over fresh fillets will likely continue, while fresh whole-dressed fish will continue to be favored over frozen whole-dressed fish.

Catfish steaks are considered a lower quality product having a limited market. Local restaurants that serve catfish steaks have developed clientele bases demanding this product over other forms, but profit margins are slim, and supply has decreased steadily. Quantities of whole-dressed fish are affected only slightly by price changes because markets are small and specialized. Nuggets are strictly by-products of shank fillets and are priced independently.

Catfish Marketing Alternatives

Catfish producers are faced with a number of potentially viable alternative marketing channels. The advantages and disadvantages of several of these alternatives will be discussed in turn.

Processors

For most catfish producers, the most readily accessible market outlet is to sell directly to a processor. This is an outlet through which a producer can market a very large volume of fish. It is also a market that is available on a year-round basis.

The number of catfish processing facilities has varied over time as processing plants have been built, closed, restarted, and sold. Since a peak of catfish processing companies in 1990, the number of processors has fluctuated between 25 and 28 processors. There are four multi-plant processors with capacities greater than 50 million pounds/year, 12 with capacities between 10 to 50 million pounds/year, and three companies with 5 million pounds/year. These, combined with the very small facilities, comprised a total processing capacity of 676 million pounds of liveweight catfish in 2000.

As catfish farming continues to expand within and outside the traditional four-state region (Mississippi, Arkansas, Alabama, and Louisiana), additional processing companies are likely to enter the industry. However, it has been difficult to sustain operations without a guaranteed supply of fish, particularly in new or expanding catfish production areas. Some plants pay premium fish prices and transport fish long distances to keep plants working at full capacity. Competition for fish from traditional production areas from plants in non-traditional areas is expected to increase, at least until sufficient local production can be developed to supply new plants.

In addition to providing an outlet for a large volume of fish on a year-round basis, processors represent an attractive marketing alternative for a couple of other reasons. Processors generally deal with many wholesale or retail customers, and they thus have a market for different sized fish. For this reason, processors will generally allow more latitude in the size distribution of fish than may be permissible through some other market outlets. A final advantage of selling to a processor is that the processor bears the majority of the liability for any problems related to product safety or quality.

Of course, selling to a processor is not without its disadvantages. The primary disadvantage is that the producer is a price taker. That is, the producer has very little ability to try to negotiate a higher price with the processor. Either the producer takes the price that is offered, or he rejects the price and doesn't sell the fish. This situation is common to most producers of agricultural commodities. It is also worth noting that a producer is not guaranteed to be able to sell to a processor at any given time. Processors do generally handle a large volume of fish, but from time to time, even large processors may not need to make additional purchases. They do not represent a guaranteed outlet for production.

Given the producer's weak bargaining position, it is to his or her advantage to have as much information as possible about regional processors' operational characteristics. Key information would include:

- historical prices paid for fish from the plant as compared to other plants;
- dockage rates (poundage or percentage deducted from the total delivery amount) for trash fish, out-of-size fish, turtles, or other reasons;
- required stock purchases and/or billbacks;
- transportation charges;
- payment frequency to growers and typical length of time between the time of delivery of fish and receipt of payment;
- seasonality issues;
- delivery volume requirements;
- fish size requirements;
- quality standards and checks
- delivery quotas and scheduling patterns;
- availability of contracts and requirements; and
- state bonding requirements.

Direct Sales

The primary alternative that catfish producers have to selling to processors is to market directly to a customer further down the marketing chain. Producers may try to establish direct sales outlets with wholesalers, retailers (e.g., local grocers or restaurants), or final consumers. The primary advantage of direct selling is that it is potentially a high-margin activity. In direct selling, the producer captures all or a large portion of the marketing margin. But direct selling is not necessarily easy. At the very least, it can require a great deal of the manager's time and is best undertaken by those with a strong entrepreneurial bent.

One of the first obstacles to direct selling is the fact that establishing business relationships with wholesalers, grocers, or restaurants may be difficult for an individual producer. Moreover, these direct sales outlets may have very strict requirements for their suppliers. For example, a grocery store or restaurant may require a constant supply of product conforming to quite narrow standards for quality and consistency. This can be exceedingly difficult for an individual producer to provide.

Another issue to consider is that direct sales to local grocery stores and restaurants will probably require on-site processing unless restaurant personnel clean the fish. Typically only managers of very exclusive seafood restaurants will purchase whole fish to be cleaned by their personnel. The ability to process fish on-site will likely require the producer to have a functioning Hazard Analysis, Critical Control Points (HACCP) plan in place. Finally, in direct selling, the producer assumes a great deal more liability for product safety or quality problems than in selling to a processor.

Direct sales to consumers may be somewhat easier than direct sales to wholesalers, stores, or restaurants in that, depending on the form in which the product is delivered, HACCP requirements and product liability may be reduced substantially. Also, the need to conform to a particular store or restaurant's product standards is eliminated. The major problem with direct sales to consumers is that this is typically a very low volume market outlet. Successful direct marketing to consumers on any significant scale can be a very time-consuming proposition.

Because direct sales require a regular supply of market-sized fish, producing fish for direct sales generally requires smaller, more expensive ponds (less than 5 acres in size). Access to a greater number of ponds allows the producer to rotate harvesting and manage around off-flavor.

Fee fishing may present another type of direct marketing opportunity for catfish producers, particularly for those located close to major population centers. Fee fishing provides a relatively high-margin outlet for fish, and it does not require any capacity for further processing. The major disadvantages of fee fishing are that it requires a comparatively large amount of labor, sales are not necessarily consistent, and it is highly seasonal. Still, for certain producers, fee fishing may be a good alternative for marketing at least some of their production.

One final marketing alternative for catfish producers is live haul sales. Livehaulers truck fish to pay lakes or live markets and require a larger (2 to 3 pound) fish. As with some of these other alternatives, live haul is not likely to be a consistent means of marketing a large volume of fish, but it may be a way to achieve a higher margin on part of a farm's production.

Summary and Conclusions

The most successful aquaculture businesses often are those that are market-oriented, have diverse markets, and are committed to their customers. Catfish producers in any given area may have several alternatives to marketing their fish to a processor. Each of these alternatives has its own advantages and disadvantages. Producers must carefully consider whether the potential for a higher price that a given alternative offers will be sufficient in the long run to offset any costs associated with the new marketing plan. As with any change to the business, the producer also must evaluate whether adopting new marketing strategy is compatible with the resources available in the operation and is consistent with the business and family goals of the operation.

Alternative Enterprises

Introduction

You are encouraged to apply the previous sections on resource inventory and financial measurements to your farm situation to assist you in determining if your operation has the ability to weather current low prices or whether you need to do some serious financial and farm management to stay afloat.

An alternative enterprise choice for your farm is a long-term adjustment and should not be considered a quick fix to current conditions. If your present situation is strong, you have the financial and time resources needed to fully investigate alternative enterprises before making a decision to diversify or not. If your present financial situation is vulnerable, alternative enterprises will not be a realistic profit-making venture for you. You need to be in relatively good financial shape to transition into an alternative enterprise. The inventory and financial measure information for your farm will help you know what shape your operation is in and whether your catfish operation is viable in the long term and whether alternative enterprises can help your operation.

If your catfish operation is determined to be viable but you are suffering from the current low prices, you may or may not want to consider alternative enterprises. With current low prices, you do not want to sell fish, especially if you are losing money with every pound sold. However, cash flow considerations may make it necessary to sell fish to meet current obligations and stay in business.

Your long-term view of the catfish industry will play a part in your decision to stay in catfish or to diversify partially or fully into other enterprises. Whether long-term price levels will rebound or not cannot be known with certainty, but your future farm operation make-up must be decided regardless. If you think prices will rebound, you could decide to weather the bad times by cutting back on expenses or by lowering the intensity of your operation, i.e., feeding less often or stocking fewer fish. Also, you can and should look into alternative enterprises as a precautionary measure to consider for the future. If your long-term view of the industry is such that you think prices will not rebound to a level that will make your business viable, then exiting the industry or consideration of alternative enterprises would be advisable. It is always a good idea to investigate alternative enterprises because it gives you choices, whether they are ever acted upon or not.

If financial measures make your current catfish operation non-viable what should you do? This depends upon the underlying financial soundness of your overall operation. If your

financial measures are poor in profitability, solvency, and liquidity (as defined in the “Evaluating the Financial Viability of the Business” section), you may not have the resources, credit, or time needed to transition into another enterprise. As stated before, changing to an alternative enterprise is a long-term decision and a sound financial base is needed to give you the time needed for it to be profitable. However, different alternatives require different amounts of investment, so your financial situation may steer you toward enterprises that would require similar types of equipment and machinery and away from enterprises that would require significant capital investment.

Diversification of enterprises could reduce overall risk and exposure to changing prices, particularly if the enterprises are different enough that factors putting downward pressure on one commodity may have the opposite effect on the other commodity being produced. Finally, if your operation is not viable and your financial situation is not sound and alternative enterprises would not alter the situation, you may need to look at exit strategies that offer the greatest opportunity to preserve existing equity.

For operations looking to diversify into alternative enterprises, one guide is your inventory of on-farm resources. An earlier section of this document discussed this inventory. Knowledge of human abilities, equipment/machinery, and land will help in deciding which alternative enterprise(s) may be right for you. If you have many tractors, then enterprises requiring tractors would be preferred over enterprises that require fewer tractors. Or another option would be to change to an enterprise requiring fewer tractors. This would allow you to sell excess equipment and use the proceeds to finance the new enterprise. This thought process should be continued for other equipment and machinery items.

Labor and management resources need to be examined to make a determination of their potential in a specific alternative enterprise. In your investigation of possible alternative enterprises, consider the financial aspects of the alternative and ask hard questions about its future profit potential.

Although general in nature, the following information on alternative aquatic species, row crop and livestock enterprises, as well as alternative land uses should point out obvious advantages and disadvantages. If your resource and financial situation allows you to either partially or fully change to another enterprise, much more information will be needed. Internet web sites with additional information have been inserted into the text where possible, but additional web searches for these enterprises are suggested. Contact producers currently in these businesses as well as the Extension Service.

Alternative Aquatic Species

Polyculture Systems

Polyculture is the rearing of two or more species in the same culture unit. The secondary fish species must be either marketable at a profitable price or reduce costs due to their impact on the catfish production system. The presence of the secondary species must not decrease the yield of catfish nor interfere with normal pond management. The secondary species should have environmental requirements similar to channel catfish and should be easy to harvest. The animal must also be legal to possess, grow, and sell.

The species that have been polycultured with catfish include:

- Grass carp (*Ctenopharyngodon idella*)
- Silver carp (*Hypophthalmichthys molotrix*)
- Bighead carp (*Hypophthalmichthys nobilis*) <http://srac.tamu.edu/438fs.pdf>
- Bigmouth or hybrid buffalo (*Ictiobus* spp.) <http://srac.tamu.edu/723fs.pdf>
- Paddlefish (*Polyodon spathula*) <http://srac.tamu.edu/437fs.pdf>
- Tilapia (*Oreochromis* spp.) <http://srac.tamu.edu/280fs.pdf>
- Fathead minnow (*Pimephales promelas*)
- Freshwater prawns (*Macrobrachium rosenbergii*)

Despite the possible economic advantages, polyculture is rare in commercial catfish aquaculture. Markets for most secondary species are limited, and substantial time and labor are required to separate the different species for marketing. However, there may be opportunities for those producers who are selling into markets that purchase various species on a consistent basis.

Alternative Finfish Species

Based on existing equipment such as seines and feeding equipment, the first alternative aquatic species to consider would be an alternative finfish species. There are several finfish species that have environmental requirements similar to catfish. Producers should be aware that the markets for commonly produced fish are difficult to enter because the structure and procedures for buying and selling fish are complex and embedded in tradition. It should also be noted that all of the species listed below are near market saturation levels and finding your niche will be difficult.

Hybrid striped bass

Hybrid striped bass have gained acceptance both as culture species and as a sportfish. Hybrids survive and do well in a wide range of environmental conditions. A hybrid striped bass enterprise budget can be found at <http://srac.tamu.edu/3000fs.pdf>.

Domesticated broodstock lines have yet to be developed. Striped bass and white bass broodstock must be collected from the wild and induced to spawn in indoor facilities.

However, fingerlings are readily available from several sources across the United States. Stocking rates for hybrids are generally lower than catfish because they are less tolerant of low dissolved oxygen levels.

Constraints focus primarily in the area of marketing. Most purchasers of hybrids require strict size control therefore fish that are either undersized or oversized at harvest will bring a reduced price. Consumer demand for this species is greatest along the eastern seaboard so transporting fish becomes a critical issue.

Tilapia

Tilapia are a tropical group of fish that are one of the most popular fishes being cultured around the world today. Tilapia exhibit desirable culture characteristics such as rapid growth, ease of reproduction, and tolerance for both crowding and poor water quality conditions. For information concerning tilapia production in ponds, go to <http://srac.tamu.edu/280fs.pdf>.

Despite several positive attributes, there are problems associated with tilapia culture in open ponds. The main problem is early maturity, leading to slow growth of females and overpopulation with submarketable-sized fish. Unfortunately, growth generally ceases when water temperatures fall below 68°F and death occurs below 55°F. This temperature range restricts temperate ponds to one crop per year, while two or three crops per year can be obtained in tropical regions. Harvesting can also be problematic because large numbers of tilapia are able to avoid capture by burrowing into the mud. Since tilapia are non-native fish, open pond production may be prohibited by state regulatory agencies.

United States shoppers prefer filleted tilapia. However, due to low dress-out percentage, fillets can be more expensive than other tilapia product forms, and competitive species may be less expensive. United States producers must also face stiff import competition from Taiwan, Costa Rica, and Ecuador. Domestic producers could fill local niches for live product. However, this marketing channel could be constricted if additional local production comes on-line.

Baitfish

Golden shiners, fathead minnows, and goldfish account for more than 90% of farm-raised bait and feeder fish sales in the United States. These fish adapt well to the environment of culture ponds, readily accept prepared foods, and reproduce freely in ponds. Baitfish enterprise budgets can be found at <http://srac.tamu.edu/122fs.pdf> and <http://srac.tamu.edu/142fs.pdf>.

Baitfish production requires a facility for holding and grading fish prior to transport to the final market. The facility contains vats typically constructed of reinforced concrete or concrete-filled cinderblock walls. Critical components include a suitable water and aeration system and emergency back-up power.

Unlike foodfish producers, baitfish producers must manipulate stocking density and feeding rate to produce a variety of sizes. Having the right size at the appropriate time of year is critical to marketing. Since fish of the same age may vary greatly in size, fish must be graded.

Labor requirements for baitfish production, especially during the spawning season, are much greater than catfish. Fish must be harvested to fill orders throughout the year and harvesting crews typically require higher numbers of personnel.

Ornamental Fish

The production of ornamental fish is primarily for use in home aquariums. Approximately 95% of the volume of fish in the aquarium trade is from farm-raised, freshwater species. The major center for ornamental fish culture in the United States is in Florida.

Written information on the requirements and practices for ornamental fish production is limited. Individual producers developed most production techniques through many years of experimentation. As such, new producers usually have little information upon which to base production plans. Except for goldfish and koi, most ornamental fish are native to tropical regions and cannot tolerate water temperatures below 64°F.

An average-size ornamental farm ranges from 1 to 15 acres and combines the use of indoor and outdoor facilities. The indoor area is used primarily for breeding, hatching eggs, and rearing larvae. The use of outdoor ponds and tanks is restricted to conditioning broodstock and growout to market size. Broodstock and growout ponds are typically as small as 2,150 ft².

The biggest challenges in production are obtaining and conditioning broodstock, artificial incubation of embryos, and larval feeding. Baitfish markets are extremely difficult to enter due to the fact that a large percentage of the total volume is controlled by a small number of companies. This has led to loyalties on the part of buyers and a resulting reluctance to break with historic suppliers.

Additional Finfish Species

Additional fish species might include yellow perch, red drum, and sportfish for stocking into private ponds. Yellow perch are best grown in small ponds or tanks. Red drum are a marine species that can tolerate freshwater with high alkalinity. Sportfish for stocking into private ponds include largemouth bass and various species of sunfish.

Alternative Crustacean Species

Freshwater Prawns

The potential for an economically successful prawn industry in the United States has improved due to the development of improved management practices. Production is now found from Illinois to Mississippi and from Georgia to California. Availability of juveniles for stocking, once a serious impediment to expansion, has been less of a problem due to new start-ups specializing in the hatchery and nursery phase. Information concerning freshwater prawns is available at <http://srac.tamu.edu/484fs.pdf> and <http://www.ksuaquaculture.org/ShrimpManual%20text%20Apr.pdf>.

Growout ponds should ideally range from 1 to 5 acres. Successful production in larger ponds has been achieved, but the logistics of management and harvest create several problems. Ponds with poor slope form small depressions on the pond bottom where prawns become stranded during a drain harvest. Best harvest efficiency is achieved when prawns can be collected in a net placed on the outside of the pond levee. If a pond is properly designed and the drainpipe is free of obstructions, this method requires the least amount of labor.

Dissolved oxygen concentrations should always be maintained above 3 ppm. Since prawns will not migrate to the zone of oxygenated water immediately behind an aerator, aeration should be sized to create circulation throughout the pond. Generally, aeration generated by 1 horsepower per surface acre of water is recommended.

Freshwater prawns are native to the tropical Indo-Pacific region and are therefore intolerant of low water temperatures. Prawns should not be stocked until the early-morning temperature is at least 68°F for several days. Pond harvest should be completed before morning temperatures reach 60°F. Depending on geographical location, this creates a growout period of 110-140 days.

Currently, economically viable wholesale markets do not exist. Producers of freshwater prawns need to have a strong entrepreneurial spirit to retail these animals in niche markets. Producers should be prepared to process and store product for year-round distribution.

Crawfish

Crawfish are produced either in shallow-flooded ponds with planted forage or deeper ponds that receive feed. Ponds with planted forage are best typified by the traditional Louisiana production system (http://www.lsuagcenter.com/Communications/pdfs_bak/crawfishmanual.pdf). Adapting this system to catfish ponds would necessitate planting a forage crop (either rice or sorghum sudangrass) into the pond bottoms. A shallow flood (18 to 24 inches) is sufficient for crawfish growth and harvesting operations. Due to the extensive nature of this system and the typical year-to-year variation in production, yields may be variable.

A management strategy has now been developed to produce crawfish in catfish production type ponds using supplemental feeding (<http://msucares.com/pubs/bulletins/b1115.pdf>). This system has the advantages of prolonging the growing and harvest season and minimizing the incidence of low dissolved oxygen.

Ideal pond size is 1 to 5 acres with a 3:1 slope. A pond design that maximizes the perimeter area to volume ratio is considered beneficial because greater surface area is available for burrowing. Pond depth should be approximately 4 feet. A pelleted 32% sinking catfish feed or an extruded 30% crude protein, sinking diet of comparable price is recommended. Feeding is generally based on an estimate of biomass of the population and water temperature. Expected annual yield ranges from 1,800 to 2,300 pounds per acre. Unfortunately, this system has yet to be proven on a large-scale commercial operation.

Marine Shrimp

Marine shrimp have been successfully cultured in ponds with low salinity water or waters with high alkalinity and hardness. Yields of marine shrimp production are higher than what can be accomplished with freshwater prawns. Size distribution of marine shrimp is also more uniform than freshwater prawn production. A reliable source for post-larvae is crucial to the success of marine shrimp operations. Sales price is influenced by the amount of wild catch shrimp.

Other Crop and Livestock Alternatives

Some catfish producers may wish to consider alternative enterprises that are not related to aquaculture. Such alternatives could include traditional row crop or livestock commodities. The advantages of moving into production of a traditional commodity is that markets are well established, inputs and the infrastructure to access them are readily available, and a good deal of public information related to the management and marketing of these commodities already exists. Disadvantages primarily relate to the significant investments that would be required for such a dramatic transition. These disadvantages are discussed in more detail below.

Commercial Row Crop Production

Realistically, the transition from catfish production to the production of commercial row crops would likely be a difficult one to make for most catfish producers. First, many of the assets used in catfish production are highly fixed—that is, they have limited potential for use in alternative enterprises (at least in non-aquaculture enterprises). Aeration equipment, harvesting equipment, and ponds are all examples of assets that would be of no use in crop production. In fact, ponds represent something of an obstacle to the production of most crops. Ponds will generally not be large enough to be efficiently

farmed with modern equipment. Removing levees is costly and, for all practical purposes, permanent.

Second, crop production requires a good deal of specialized equipment of its own. Tillage equipment, planters, and combines are necessary equipment in a row crop operation. Catfish producers who are already diversified into crop production may own this equipment. Those who are not currently involved in row crop production would either have to obtain this equipment—making a costly investment to do so—or arrange to have all field work and harvesting done on a custom basis. Custom hiring of all field operations is not likely to be a viable long-run strategy.

Finally, catfish production is often located where it is because the natural resources in the area are not well-suited to crop production. Soil type and topography limitations must be considered and may very well limit the crop alternatives that would have any chance of viability.

Commercial Livestock Production

Transitioning from catfish production to commercial livestock production presents many of the same challenges as transitioning to crop production. A transition to broiler or hog production is not feasible within the confines of existing pond infrastructure. Cattle production is comparatively easy to get into in terms of the required initial investment since a minimal amount of specialized equipment is required.

Cow/calf production and stocker grazing are two cattle production systems that are common throughout many regions of the country. In a cow/calf production system, breeding stock are maintained, and calves are marketed annually at or shortly after weaning. In a stocker grazing system, no breeding stock are owned. Rather, lightweight calves (i.e., 300-400 pounds) are purchased for placement on pasture. Upon reaching feeder cattle weight (i.e., 700-800 pounds) these calves are marketed or sent to a feedlot for finishing. The most significant investment with either of these systems is likely to be for the livestock themselves. The establishment of pasture (including not only the implementation of forage production but also investments in fencing and watering points) would also require significant investment.

Another important point to note is that cattle production tends to be quite extensive—especially compared to the intensive nature of aquaculture production. That is to say that even a well-run and successful cattle operation is not likely to generate a level of revenue per acre that is comparable to that obtainable from aquaculture production.

Specialty Crops and Livestock

A final alternative for catfish producers may be the production of specialty crop or livestock products. Examples of these might include vegetables, ornamental plants, floriculture, free-range poultry, or organic pork or beef. Specialty crops and livestock may offer the potential for higher returns (more than likely on a relatively small volume

of production) than commercial crop or livestock products; however, the risks tend to be much greater as well. For such products, marketing is a particular challenge. The producer must very often work to develop the market on his or her own. As with the commercial crops and livestock discussed earlier, significant investment may be required to make production feasible. Still, in individual situations, a producer may be able to identify a promising market niche and profit from specialty crop production.

Alternative Land Uses

Recreational Lease Opportunities

For some producers, the most attractive alternative land use may not be in agriculture. In many locations, recreational use of farmland is becoming an increasingly viable economic enterprise. Hunting and/or fishing leases can provide significant additional income to an agricultural operation. Catfish producers may have the opportunity to develop such recreational enterprises. Sport fishing leases are one enterprise for which catfish operations would clearly have access to most if not all of the necessary resources. Fishing leases would be a good complement to hunting leases. Catfish operations can be developed into good habitat for duck hunting. Many catfish operations may also control adjacent land that is suitable for hunting other game animals such as deer or turkey as well.

Land Retirement Programs

Land retirement programs may also be an option for some producers. The Conservation Reserve Program (CRP) administered by the USDA Farm Service Agency (FSA) is a program that provides a monthly rental payment on land taken out of agricultural production. The program was originally established to take highly erodible cropland out of production; however, in more recent years, the program has given priority to land in sensitive riparian areas and land that provides wildlife habitat benefits. Some catfish producers may have land that is eligible for CRP enrollment. Your local FSA office can provide additional information on the subject.

The Wetlands Reserve Program (WRP) is another land retirement program. This program is administered by the USDA Natural Resource Conservation Service (NRCS). Under the terms of this program, landowners receive a one-time payment to enroll land under a permanent or 30-year easement. Land enrolled in the program is then converted back to wetland conditions, with NRCS paying for the cost of this conversion. Landowners should be aware that the terms of the easement for land enrolled in WRP are quite restrictive. In granting an easement to NRCS, the landowner is essentially ceding significant management control of the land to NRCS. The easement does, however, permit recreational use of the land. This means that the landowner can still sell hunting or fishing leases on the property. For more information on WRP, see your local NRCS office.

Some non-governmental organizations also purchase easements on rural land through private programs similar to WRP. For example, in some areas, Ducks Unlimited purchases long-term easements on private land that is suitable for duck habitat. These programs may be attractive to some catfish producers. It is very important, though, to carefully examine the terms and conditions of any of these kinds of agreements. It may be advisable to seek legal counsel.

Additional Resources:

Budgets for Trout Production

<http://srac.tamu.edu/221fs.pdf>

Cage Culture: Harvesting and Economics

<http://srac.tamu.edu/166fs.pdf>

Caged Fish Production In Alabama

<http://www.aces.edu/pubs/docs/A/ANR-0957/>

In-pond Raceways

<http://srac.tamu.edu/170fs.pdf>

An Aquaculture-Oriented Bibliography of the Red Drum, *Sciaenops ocellatus*

http://www.lsuagcenter.com/Communications/pdfs_bak/reddrum.pdf

Paddlefish

<http://www.ksuaquaculture.org/fish.paddle.htm>

Production of Crawfish in Alabama

<http://www.aces.edu/departement/extcomm/publications/anr/ANR-891/pdf/anr-891.pdf>

Pond Culture of Hybrid Striped Bass Culture in the North Central Region

http://aquanic.org/publicat/usda_rac/efs/ncrac/FS107.pdf

Costs of Pond Production of Yellow Perch in the North Central Region

http://aquanic.org/publicat/usda_rac/efs/ncrac/ncrac111.pdf

Enterprise Budgets for Yellow Perch Production in Cages and Ponds in the North Central Region, 1994-95

http://aquanic.org/publicat/usda_rac/tr/ncrac/tb111.pdf

The Bait Industry in Illinois, Michigan, Minnesota, Ohio, South Dakota, and Wisconsin

http://aquanic.org/publicat/usda_rac/tr/ncrac/tb105.pdf

Transitioning Out of the Business



For some farmers and fishermen, exiting the business may be the best financial and family option. For some it may be the only option. Transitioning to a new career, business, or to retirement can be an emotional and complex experience. This is particularly true when financial stress is forcing a change or exit from the business. Some producers and their families may be ready for a change or for retirement, but others may be in the process of being forced out of their business for financial reasons. If you are facing a potential transition out of your business you should discuss your options and goals with family members, creditors, and financial advisors. You might also seek additional assistance from TAA technical assistance providers.

There are different transition issues that need to be addressed depending each individual's situation, but some general factors should be considered by most producers or fishermen faced with exiting their business. These include future sources of income, family and emotional well-being, tax and credit issues, and retaining and education opportunities for TAA eligible producers and fishermen.

Future Sources of Income

If you are transitioning out of your business, you need a new means to support yourself and your family. Your source of future income will depend significantly on your stage of life. Your stage in life will determine whether you are willing to start over with a new career or business, seek additional education and training, or plan for partial or full retirement.

Different Business or Career

An earlier section of the TAA technical assistance package, Inventory of Resources and Talents, discussed your skills and resources. This same inventory can be very useful to assess your opportunities to transition to new business or career. The education and experience that you have obtained will have a significant impact on the alternative sources of employment and income available. The management, technical and people skills obtained in farming or fishing can often be leveraged into valuable assets for other types of employment or in other businesses.

Farmers and fishermen possess a set of entrepreneurial skills that are valuable when starting a new business. But starting a new business is rarely easy. The statement is

frequently made that 80 percent of new businesses are gone within five years. Farmers and fishermen may possess the experience and management skills to give them the edge to overcome the odds when starting a new business, but should still seek advice and assistance. Small Business Development Centers (SBDC's) are located throughout the country and provide help with financial, marketing, production, organization, engineering and technical problems and feasibility studies. To locate the nearest SBDC visit (<http://www.sba.gov/sbdc/>) or call 1-800-8-ASK-SBA.

You may be interested in starting a new career as an employee, rather than starting a new business. You probably have numerous relationships with businesses in your area. If you are seeking off-farm employment, your existing relationships are one of the most valuable tools available to assist you in your job search. As the producer of a TAA certified commodity, you also have access to employment counseling services at your state department of labor (<http://www.doleta.gov/tradeact/contacts.cfm>). Location may also be a major factor in determining how you will seek future income. In many rural areas job availability is limited, many jobs may not pay enough to maintain your standard of living, or available jobs may not include health insurance benefits. Determining whether you are willing to relocate may be a major issue for you and your family.

Regardless of whether you are considering a new business or a new job, your attitude is critical to success. You have the opportunity to create a new future for yourself. You can take the attitude that your future is in your hands or you can have the attitude that you are a victim of circumstances beyond your control, of imports, overproduction, and lost markets. Your attitude may be the single most important factor in determining the success of your new career or business.

Retirement

The average age of agricultural producers in the U.S. is in upper 50's. For many producers, retirement may be a viable option when facing the choice of exiting the business or struggling financially to keep it going. If retirement is an option for you, there are a number of questions you should answer before making the decision to retire.

Do you have sufficient financial resources to sustain you through the retirement years? You should project your retirement income and your retirement expenses to determine if you will have adequate income for your retirement. If you aren't sure how to project your financial needs or how to evaluate income from your investments and capital assets, you should seek the assistance of a financial planner. How will you handle your capital assets? For many producers, the bulk of their wealth is tied up in capital assets such as land, buildings, and equipment. Will you sell the capital assets and invest the proceeds or will you lease out the assets to provide retirement income? Do you know how much social security you will receive if you retire? Do you have the annual statement you receive from Social Security Administration detailing how much you will receive at various retirement ages? You may want to contact your local social security office

(<http://s3abaca.ssa.gov/pro/fol/fol-home.html>) or call 1-800-772-1213 to determine your specific retirement benefits.

Health is a major issue for most senior citizens. Do you want to retire early while your health is good? If you retire now will you have adequate health care coverage to cover you until you are eligible for Medicare? Should you wait to retire due to health care affordability?

Supplemental Income and Leasing Assets

You have probably considered supplementing your income with off-farm or non-fishing income. Have you exhausted all the possibilities for supplemental income? There are certainly trade-offs associated with finding a second job. You may not have the time to successfully manage your business. The impact on your quality of life or family life may cause you to decide supplemental income is not worth the cost.

You may want to explore the possibility of terminating your business while retaining control of your business assets. Leasing your land, equipment, or boat to other farmers or fishermen when combined with an off-farm or non-fishing job may allow you to support yourself financially. This alternative may allow you to keep the land or boat to which you have emotional ties, while providing sufficient income for your family. Exiting the business while retaining control of the assets is dependent on the amount of debt you have against those assets and your overall financial situation.

Family and Emotional Well-Being

When considering a transition or exit from your business, family concerns are one of the major issues that will impact your decision making. What are the goals of your family? How much emotional impact will leaving the business, possibly your way of life, or a potential move have on you and your family? Where will you live, can you stay living on your farm or in your community?

Goals

The previous Goals section of the TAA technical assistance package discussed setting and implementing goals for your business and family. Goals are important when you are considering a major career change. Even though exiting your business may be the best financial decision or in some cases you may not have a choice about exiting, considering your family goals as explore the next step is important.

Emotional Stress and Counseling

Transitioning out of your business and your way of life may be one of the most stressful events you will ever experience. This is especially true if you are exiting due to financial stress. Although you might not believe it now, many farmers and fishermen have

successfully and happily transitioned to a different career. Many successful business people started out with a farming background and took their work ethic and skills into another field. During this time of emotional stress, it may be very important for you get help. Counseling help is usually available. You might start by checking with your local county human services department or a member of your local clergy. If you don't know where to ask for help, contact your local Extension Service and ask them where to find assistance.

Living Situation

What options do you have to continue to live in your home and in your community? The answer may depend on many of the issues discussed above, can you find alternative employment or start a new business that will financially support you in your current living situation? If you live on a farm, can you retain ownership of it and rent out the land? If you need to sell the land, can you keep the farmstead and continue to live in your home? If you need to move to a different community to find employment, will you be able to continue to own a farm that may have been in your family for several generations? One of the most important aspects of these topics is whether you are willing to seek the help of friends, family, or business advisors to help you think through your options? Often times someone else can help you think about options more broadly and also, others can look at the situation without the emotional stress you may be experiencing.

Tax and Credit Issues

Taxes are one of the major issues you will need to address if you exit your business. If you are planning to sell your business or assets owned by your business, meet with a qualified tax advisor first. You should also keep your lender informed about your plans. Many assets have security agreements in which they are used as the collateral for the outstanding debt used to purchase the asset. Proceeds from assets sold with security agreements must be used to pay off the credit owed for the asset.

Income Taxes

Taxes can consume a major portion of the sales value of a business's assets. Tax planning is critical if you are transitioning out of your business and selling business assets. When selling capital assets you must pay income tax on the difference between the selling price and the tax basis of the asset. Tax basis is the generally the amount you paid for the asset minus any tax depreciation you have claimed on it. Some assets, such as land, are not generally depreciated, so the tax basis is simply the difference between the selling price and the original purchase price. Most assets owned more than 12 months qualify for capital gains tax rates. Capital gains rates are either 5% or 15% depending on your income level. For assets that have been depreciated below their market value, the difference between the sales price and depreciated value will be taxed at your normal income tax rate.

There are ways to reduce the amount of tax you will pay on the sales of your capital assets. One method is installment sales of property. The installment method allows you to spread out the taxation proportionally over the years that principal payments are made. Another strategy is to sell assets over several years. Both the installment method and selling assets over time will often allow you to keep more taxable income in lower tax brackets. If you are selling a farm that includes your personal residence, up to \$250,000 (\$500,000 for married filing jointly) of capital gain on the residence can be excluded from taxation. In every case you should consult a tax advisor.

Self-Employment Tax

Income tax must be paid on the sales of all farm or fishing assets, but self-employment tax is only due on current assets, such as, crop and livestock inventories. You may want to consider selling all of your current assets in a single year if it will push your income over the self-employment tax limit. In 2003, self-employment tax is only charged on the first \$87,000 of income. The self-employment tax threshold increases each year. Sales of capital assets including equipment, machinery, buildings, and land are not subject to self-employment taxes.

Collateral and Security Agreements

You have probably been discussing your situation with your lenders, but before you sell any assets you should contact the appropriate lenders to check on security agreements. You should repay outstanding loans against assets that you are selling or discuss a repayment plan and security release with your lender. Frequently there is considerable debt against farming or fishing assets. Liquidating some assets may only generate enough cash to pay the outstanding debt or in some cases the sales revenue may be insufficient to cover the debt. You should keep lenders informed throughout the process and work with them.

TAA Retraining and Education Opportunities

Producers of commodities that are eligible for TAA benefits are also eligible for substantially more retraining and educational benefits than the typical producer or fisherman facing an exit from their business. To learn more about TAA retraining and educational benefits available, contact the Department of Labor TAA coordinator in your state (<http://www.doleta.gov/tradeact/contacts.cfm>). For some producers and fishermen the TAA educational benefits may be the most significant benefit available under TAA. For others, such as those approaching retirement or unable to relocate to an area where jobs are available, the educational benefit may be less valuable.

The TAA Department of Labor program provides retraining and reemployment services tailored to help individuals prepare for employment in another job or career. Producers or

fishermen may receive up to 104 weeks of approved training in occupational skills or basic or remedial education.

There are some conditions that you need to meet to receive the educational benefits. You must be able to complete your educational program within 104 weeks and be job ready at the end of that time. Generally that means that will need to earn some type of degree within the 104 weeks. The educational program must be fully paid for by the Department of Labor. You can't supplement government payments with your own funds. This means that there are limits to how much the program can cost and on when you must complete it. Individual state labor agencies responsible for TAA have lists of educational programs in which TAA participants may enroll.

Summary

Whether to make the pivotal move of transitioning out of your farm or fishing business is a very personal decision that each person has to think through with the support of his or her family. Analyzing the financial viability of your business, determining the availability of alternative sources of income, working through the emotional and family issues, examining the tax consequences, and exploring retraining opportunities are important parts of the process. Assistance is available for all of these issues related to transitioning out of your business, but only you and your family can make the final decision.

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How Do I Get There?

- **Resources for Managers**

Resources for Managers



Management Functions

The activities of a manager are often divided into five distinct categories, commonly referred to as the functions of management:

1. **Planning** – defining the objectives of the organization and developing a strategy for achieving those objectives.
2. **Organizing** – assigning responsibilities and duties to employees/subordinates.
3. **Staffing** – recruiting, hiring, and developing personnel to work in the organization.
4. **Directing** – overseeing the efforts of others to ensure that the organization’s stated objectives are achieved.
5. **Controlling** – establishing standards for quality/performance and ensuring that those standards are met.

In reality, a manager has many duties and responsibilities that do not fit neatly into a single category. For example, a catfish manager may establish a performance standard of increasing fingerling survival by 5%. Some strategy for achieving this objective must be devised. Moreover, the manager must consider whether this performance target is consistent with the operation’s overall objectives (e.g., to reduce the use of antibiotics). Here, the planning and controlling functions of the manager clearly overlap. Still, the five management functions as defined above offer a convenient framework for thinking about and discussing the activities of managers. The following material provides additional detail on the closely-related planning and controlling functions of a manager.

Planning²

Effective planning is an important key to the success of any business; however, on most farm operations, planning—particularly long-range planning—often takes a back seat to dealing with the challenges of day-to-day operations.

² The material in the Planning section of this curriculum borrows from the Management 1st training material which was first developed at Cornell University. Management 1st material has been widely adopted by other institutions. An adaptation of the Management 1st material by the University of Kentucky was the primary reference for this work.

Goals

It is important to recognize that planning must take place on different levels. In the broadest sense, planning involves establishing a mission statement for the business. *The mission* statement is “a broadly stated definition of the basic purpose and scope” of the operation.³ The mission statement provides a reason for the existence of the business and describes, in a general sense, what the owners/managers want the business to achieve. The significance of a mission statement is that it communicates a vision for the business and provides a basis for long-range planning. It is important that the mission statement be shared with everyone involved in the business because the mission statement represents a common goal, a shared purpose. This is especially true of a family farm operation.

Major corporations recognize the significance of a mission statement. The following are excerpts from the corporate vision statement of Cargill, Inc.:⁴

- *Our purpose is to be the global leader in nourishing people.*
- *Our mission is to create distinctive value.*
- *Our approach is to be trustworthy, creative and enterprising.*
- *Our performance measures are engaged employees, satisfied customers, enriched communities and profitable growth.*

Tyson Foods, Inc. includes the following statement of core values on their corporate website:⁵

We are a company of people engaged in the production of food, seeking to pursue truth and integrity, and committed to creating value for our shareholders, our customers, and our people in the process.

Note that these statements incorporate the principles that are important to the owners and managers of the company (e.g., trust, value, integrity, creativity). A similar mission statement for a family farm operation might look something like the following:

J. Doe and Sons Farm Mission Statement

Our mission is to operate a farm that will provide:

- Financial success through the production and marketing of quality foodsize catfish;
- A reasonable standard of living for our family and a comfortable and secure retirement for family farm participants;
- A rural family living environment with ample time for recreation and personal growth opportunities;

³ Mondy, R.W. and S.R. Premeaux. *Management: Concepts, Practices, and Skills*, 6th edition. Needham Heights, MA: Allyn and Bacon, 1993, p. 138.

⁴ <http://www.cargill.com/about/value.htm> May 2003.

⁵ <http://www.tysonfoodsinc.com/corporate/info/mission.asp> May 2003.

- Opportunities for family member involvement and advancement in the family farm business; and
- Exceptional stewardship of the farm's land, water, and wildlife resources.

Once the “big picture” is clarified in the organization's mission statement, more narrowly defined goals can be developed. **Goals** (or objectives) define the desired outcome of the organization's activities. Goals may also be defined with reference to the length of time to completion. Short-run goals should be accomplished within a year; intermediate goals within five years; and long-run goals within ten years. For more information on goals and goal-setting, refer to the Goals material in the “Where Do I Want to Be?” section of this material.

Plans

A plan describes precisely what steps will be taken to achieve a given goal. Plans clearly define what actions will be taken; who will be responsible for those actions; when the activity will begin and end; and where the actions will take place.

Plans can be developed focusing on different aspects of the operation. A **strategic plan** encompasses all aspects of the operation and directs activities toward the accomplishment of long range goals. More specific plans may need to be developed to deal with more narrowly defined aspects of the operation. **Production and marketing** plans deal with how to most efficiently meet production goals and how to most profitably market production. These plans are closely related because the level and quality of production may very well affect the marketing options that are available to a producer. In addition, the marketing plan may need to address cyclical or seasonal factors affecting the production process.

Financial plans can also be critical to the success of an agricultural operation. For example, a good cash flow plan can help to ensure that funds are available to cover important expenses such as feed purchases or payments on installment debt. Also, a debt repayment plan can contribute to the long-run stability and solvency of the operation. **Personnel** plans can also be important to have, particularly in industries where demand for labor can be highly seasonal.

Planning should be considered a process that includes several steps. The first of these steps is to recognize the issue to be resolved. In many instances, a plan must be devised to deal with a particular problem or issue. For example, a farmer must develop a plan each year regarding what to produce on the farm. In other instances, plans need to be developed in response to the organization's goals and objectives. For example, if a farm goal is to increase total production by 25% in the next 2 years, a plan must be devised to accomplish that goal. Such a plan would have to deal with issues such as how to bring additional acreage under the farm's control, obtaining sufficient equipment to handle the additional acreage, securing additional financing to produce a crop on the expanded acreage, and how to market the crop so as to keep price risk to an acceptable level for the operation.

The second step in the planning process is to collect and analyze relevant information regarding alternative courses of action. Again, production decisions provide a useful illustration. In deciding the relative percentage of acreage devoted to production of foodfish and fingerlings, a producer needs to consider a number of different factors such as different product prices; relative cost of production; and issues such as pond rotation, vulnerability to predation, specialty equipment needs, and many others.

The third step in formulating a plan is to actually decide on a particular course of action. This involves selecting from among all feasible alternatives. This step necessarily involves making projections regarding the results of these alternatives. Preparing accurate budgets for alternative courses of action can be a very powerful tool in this phase of the planning process. For example, enterprise budgets for potential products can be an invaluable aid in making production decisions. The best course of action may not, however, always be one with the biggest bottom line in a planning budget. Other factors must be considered. There may be circumstances where the alternative course of action with the largest potential return may also involve an unacceptable level of risk, potentially putting the survivability of the operation in jeopardy. This is an important issue to keep in mind throughout the planning process.

The fourth and final step in the planning process is to implement the chosen course of action and to monitor the outcome. Note that, the planning process continues even after a plan has been implemented. It is important to monitor and evaluate the plan to determine whether or not objectives are being met. At times, it may be necessary to make adjustments or even major changes after a plan has been put in place. To illustrate the importance of monitoring and adjusting plans, consider the case of a cow/calf operator who implements a rotational grazing system. In periods of dry weather, the grazing plan will have to be modified to ensure that the nutritional needs of cattle are met without over-grazing the drought-stressed pasture. Failure to make timely adjustments to the plan will result in costly mistakes related to animal performance and maintenance of the forage stand.

Controlling

The planning process is closely related to the manager's ultimate responsibility to exercise control over the production process. Controlling refers to comparing actual performance to expected performance (or to established standards). An important part of the controlling process is to make plans for and implement corrective action when actual performance falls short of expectations. The controlling function of a manager can be broken down into three steps: establishing standards, evaluating actual performance, and implementing corrective action, if necessary. Clearly, controlling and planning are very closely related management activities since performance standards will be established through some type of planning process (whether formal or informal).

There are several types of standards that may be relevant for a manager to consider:

- **Time standards** refer to how long it should take to accomplish a given task. For example, at planting time, a farm manager may need to establish a standard for how many days it should take to get the crop in the ground.
- **Productivity standards** refer to the desired level of production during a certain time period. For example, at certain times during the growing season, a flying service manager may want to establish standards for how many acres are covered in a day.
- **Quality standards** may be closely related to productivity standards but refer to the quality attributes of production rather than simply to total output. For example, in addition to setting production goals, a dairy manager might want to establish a standard for somatic cell count in the milk produced on the dairy.
- **Cost standards** clearly relate to the cost of producing the final product. For example, the manager of a cow-calf operation might want to establish a standard or objective for cost of production on a per cow basis. This standard could actually be refined to include separate standards for feed costs, veterinary and medicine costs, or any other components of cost about which the manager is particularly concerned.

In a farm operation, the uncertainties associated with production will complicate the controlling function of the manager. A farm is a very different environment from a factory where the environment can be more completely controlled. Weather conditions and pressure from depredating birds, weeds, and diseases are examples of some of the unpredictable factors that can cause differences between actual and planned performance in any of the areas mentioned above. Still, it is important to evaluate differences between actual and planned performance to determine why discrepancies exist. In this manner, problems that are within the manager's control can be identified and dealt with.

It should be pointed out that setting standards may not be the exclusive prerogative of the manager. Dockages due to undersized fish or trash fish may reduce receipts. Off-flavor standards set by processors may cause managers to hold fish into subsequent years. In these examples, standards imposed by processors represent strict performance standards that must be met and not just subjective performance objectives.

Many managers of agricultural operations are not particularly used to the idea of formalizing goals, plans, and performance standards. Also, many managers may be quite comfortable dealing with planning and controlling production processes but less comfortable, for example, establishing long-run financial goals and plans.

Additional Links

For additional information on accessing assistance or advice in managing your operation, please refer to the "Other Resources" section on the TAA Catfish webpage <http://www.agrisk.umn.edu/taa/Commodities/Catfish/OtherResources.htm>