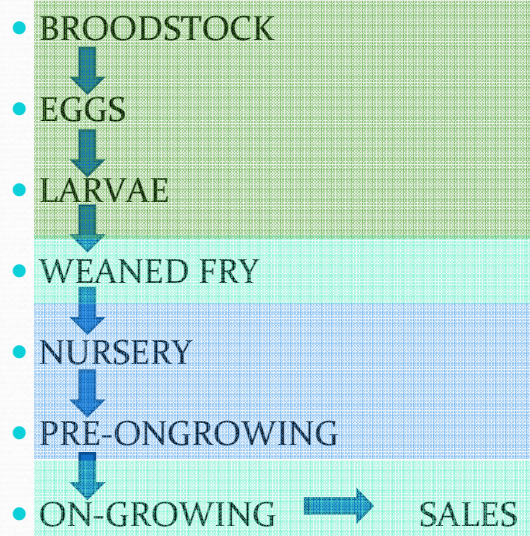


Hatchery Management

The Challenge

“Balancing Cost control with production Flexibility”

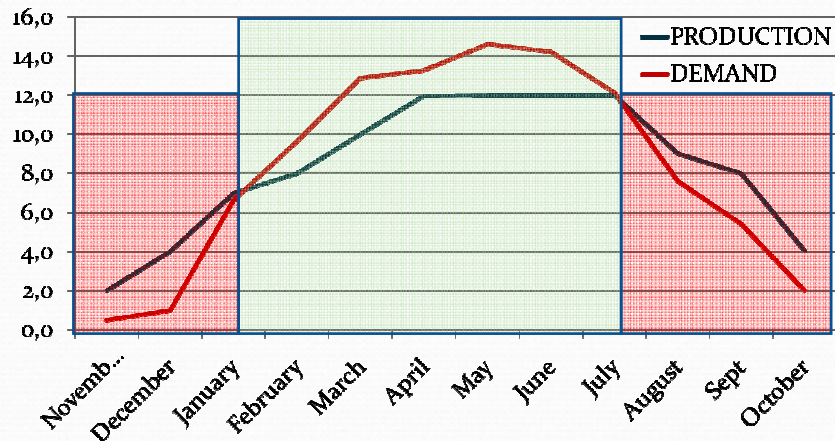
PRODUCTION CYCLE



PROBLEM

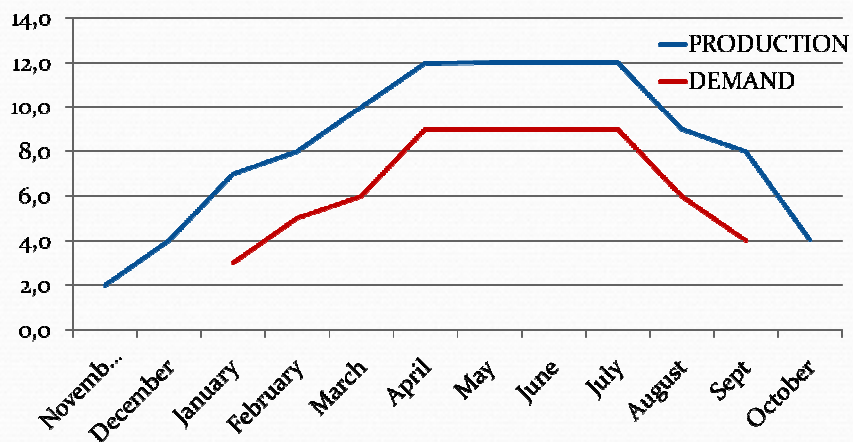
IMPACT

PRODUCTION V. DEMAND

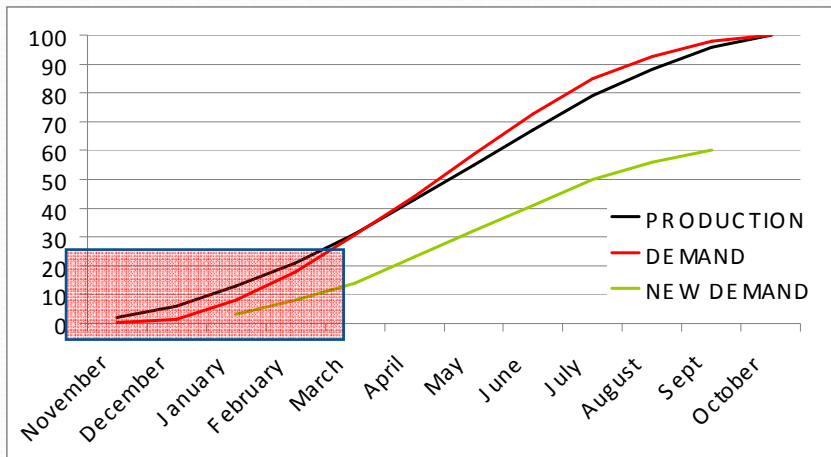


Note: Typical figures for a theoretical company producing 100 million fry.

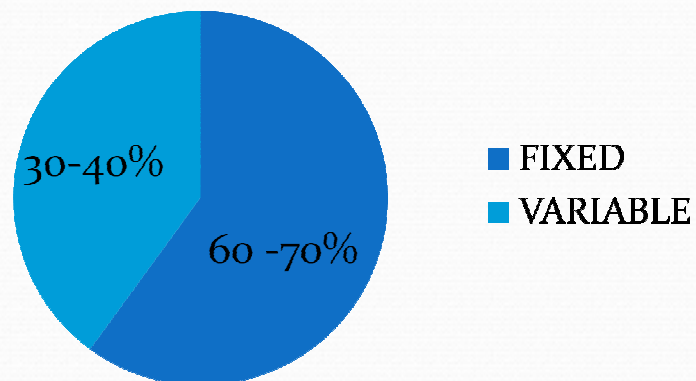
PRODUCTION V. DEMAND (CRISIS)



Cumulative affect of Fall in Demand



Hatchery Costs : General Allocation



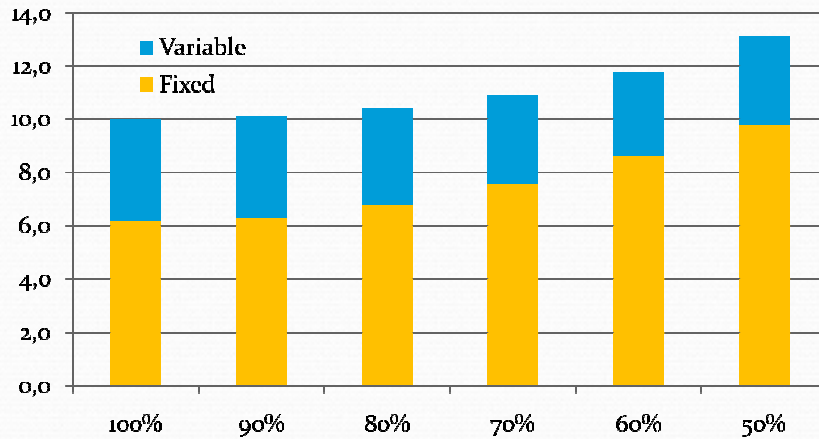
Hatchery Costs and Variability

Cost Item	%	Variability	Cents per Fish
STAFF	36%	0,2	3,6
ENERGY (including HEATING)	14%	0,3	1,4
LARVAL- WEANING FEEDS	16%	1	1,6
NURSERY FEEDS	4%	1	0,4
MEDICINES -CHEMICALS	2%	1	0,2
OXYGEN	3%	0,9	0,3
GENERAL CONSUMABLES	7%	0,3	0,7
GENERAL ADMINISTRATION	6%	0	0,6
DEPRECIATION	12%	0	1,2
Total costs per fry:			10 cents

Hatchery Costs: Reduced Demand

Cost Item	%	Cents per Fish	90%	80%	70%	60%	50%
STAFF	36%	3,6	3,8	4,2	4,6	5,2	6,1
ENERGY	14%	1,4	1,4	1,4	1,5	1,6	1,8
LARVAL- WEANING FEEDS	16%	1,6	1,5	1,4	1,2	1	0,9
NURSERY FEEDS	4%	0,4	0,5	0,4	0,4	0,3	0,3
MEDICINES -CHEMICALS	2%	0,2	0,2	0,2	0,1	0,1	0,1
OXYGEN	3%	0,3	0,3	0,3	0,2	0,2	0,2
GENERAL CONSUMABLES	7%	0,7	0,5	0,4	0,4	0,3	0,3
GENERAL ADMIN.	6%	0,6	0,7	0,8	0,9	1	1,2
DEPRECIATION	12%	1,2	1,3	1,5	1,7	2	2,4
Total costs per fry:		10,0	10,1	10,4	10,9	11,8	13,1

Fixed v. Variable Costs



Hatchery Costs: General Allocation

Cost Item	%	Variability	Cents per Fish	HATCHERY	NURSERY
STAFF	36%	0,2	3,6	1,8	1,8
ENERGY	14%	0,3	1,4	0,7	0,7
LARVAL- WEANING FEEDS	16%	1	1,7	1,7	
NURSERY FEEDS	4%	1	0,4		0,4
MEDICINES -CHEMICALS	2%	1	0,2	0,0	0,2
OXYGEN	3%	0,9	0,3	0,2	0,2
GENERAL CONSUMABLES	7%	0,3	0,7	0,3	0,3
GENERAL ADMIN.	6%	0	0,6	0,3	0,3
DEPRECIATION	12%	0	1,2	0,6	0,6
Total costs per fry:			10,0	5,5	4,5

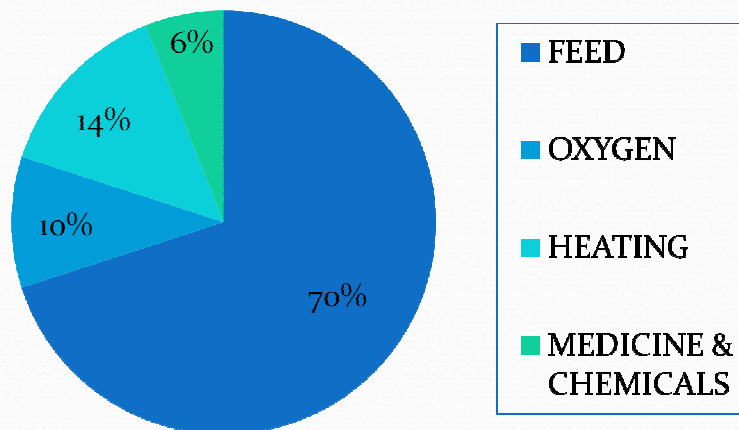
Hatchery Costs: Variable Cost Allocation

Cost Item	%	Variability	Cents per Fish	HATCHERY	NURSERY
STAFF	36%	0,2	3,6	0,4	0,4
ENERGY	14%	0,3	1,4	0,2	0,2
LARVAL- WEANING FEEDS	17%	1	1,7	1,7	
NURSERY FEEDS	5%	1	0,5		0,5
MEDICINES -CHEMICALS	2%	1	0,2	0,0	0,2
OXYGEN	3%	0,9	0,3	0,1	0,1
GENERAL CONSUMABLES	5%	1	0,5	0,3	0,3
GENERAL ADMIN.	6%	0	0,6		
DEPRECIATION	12%	0	1,2		
Total costs per fry:			10,0	2,6	1,6

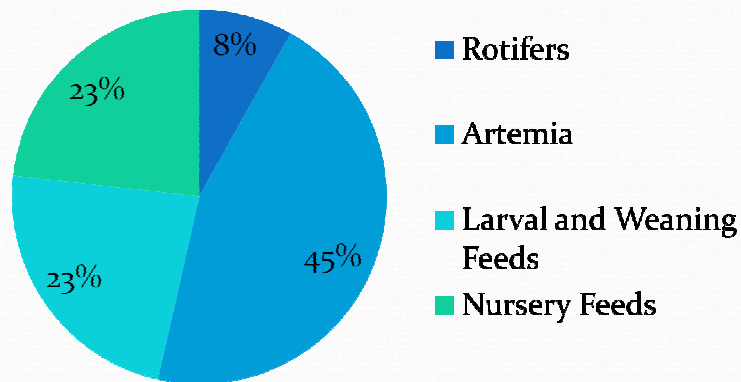
50%

35%

Variable Costs Breakdown



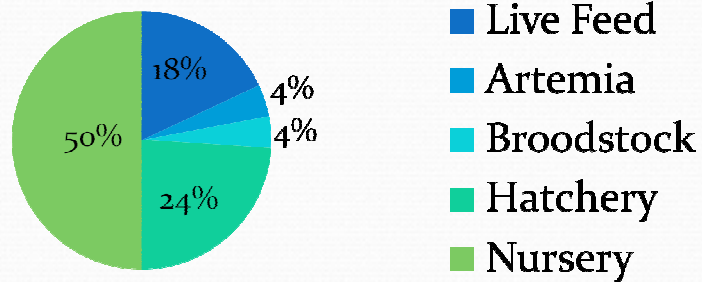
Variable Costs: Feed Costs



Hatchery Costs: General Rules

- 1) Production fall = Cost Increase
- 2) Cost Control = Restructuring
= Reduction in fixed costs
- 3) Targeting Larval feeding has maximum potential to reduce Variable Cost

STAFFING CONSIDERATIONS



- Hatchery: Set by number of tanks FIXED
- Nursery: Set by number of fry VARIABLE

STAFF CONSIDERATIONS

Table of STAFF REQUIREMENT FOR LARVAL PRODUCTION

OUTPUT PER TANK	TANKS	STAFF	OUTPUT (Millions)	STAFF PER MILLION FRY
100.000	30	15	15	1
200.000	30	15	30	0,5
300.000	30	15	45	0,3
400.000	30	15	60	0,25
500.000	30	15	75	0,2

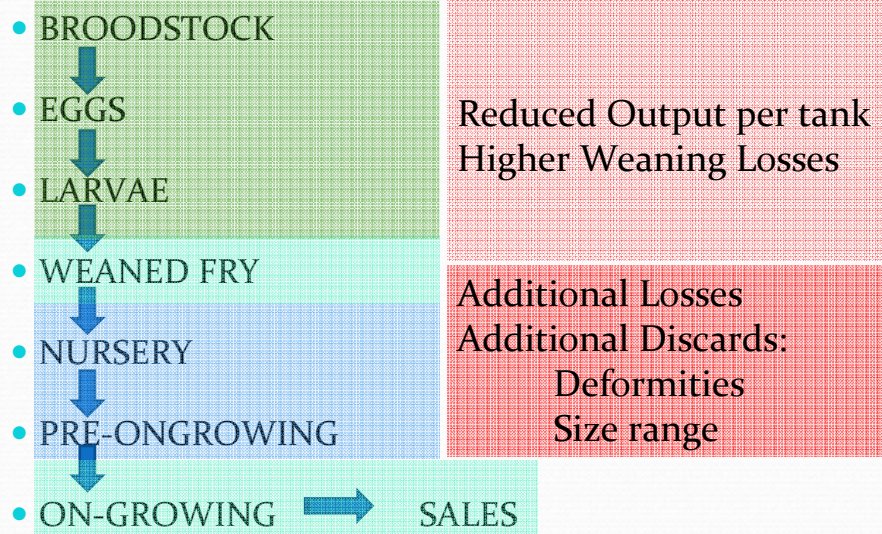
Hatchery Costs: Tank Output

Affect of tank output on Larval Facilities

OUTPUT PER TANK	OUTPUT (Millions)	TANKS
100.000	100	200
200.000	100	100
300.000	100	67
400.000	100	50
500.000	100	40

Increasing Output per tank allows restructuring.
Changes the balance of costs from fixed to variable

PRODUCTION CYCLE

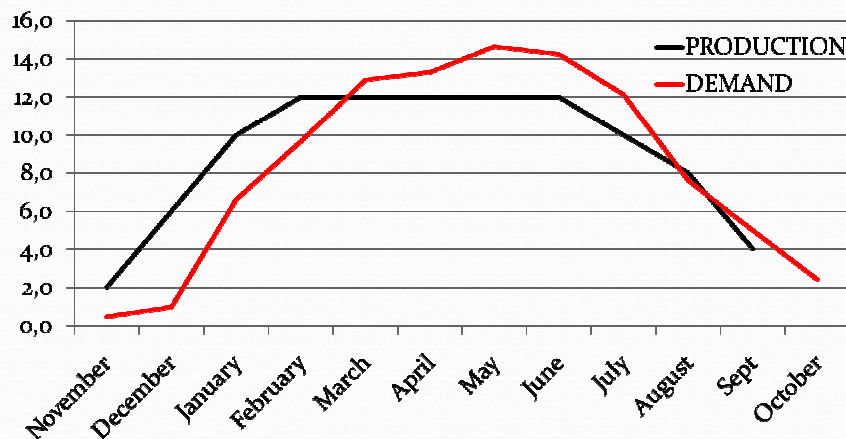


Consequences of Restructuring

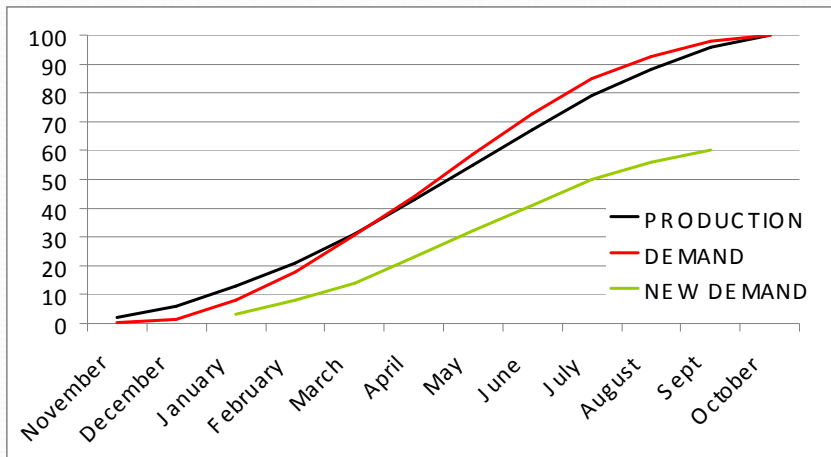
- Demands increased reliability
- Requires increased focus
 - Stability of systems
 - Quality of Inputs
 - Quality of Staff

Reduction in Fixed Cost **BUT** Increase in Variable costs

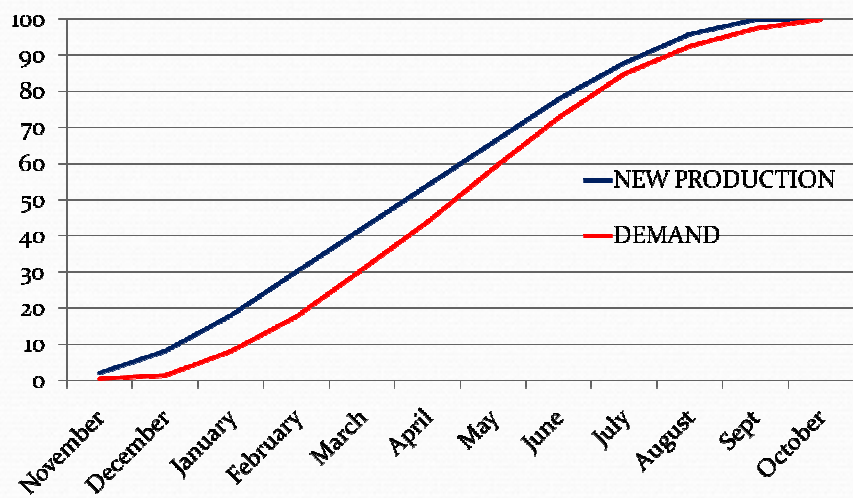
PRODUCTION FLEXIBILITY



Cumulative affect of Fall in Demand



PRODUCTION FLEXIBILITY



PRODUCTION FLEXIBILITY vs. COST -

Lessons from the Crisis -

- RESTRUCTURE TO REDUCE NO OF LARVAL TANKS
- MAXIMISE LARVAL TANK OUTPUT
- ELIMINATE VARIATIONS IN LARVAL OUTPUT
- ELIMINATE RISK TO NURSERIES
- IMPROVE PRODUCTION PLANNING
- ALLOW FOR EXTRA NURSERY CAPACITY
- AIM TO SELL AT DIFFERING SIZES (2-10gr)

Increased importance of R&D