Tilapia Case Study in Trinidad and Tobago

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in Collaboration with
Seafood Industry Development Company (SIDC)

Training Workshop on Value Chain Approach to Fisheries

Suriname, July 18th-22nd, 2016

Outline

- History of the industry
- Tilapia value chain overview
- SWOT
- Lessons learnt and opportunities for growth

History of the industry

- Tilapia production in Trinidad and Tobago was first started in 1951 with the culture of Mozambique Tilapia, *Oreochromis moissambicus.*
- Production was limited to subsistence activities in small ponds but increased by 1998, to a maximum of 26 tonnes, - aquaculture project of the state owned Caroni (1975) Limited.
- This system consisted of a hatchery, outdoor concrete tanks and 9.5 ha of earthen ponds ranging in sizes from 0.25 hectare to 1 hectare.

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History of the industry

- The Bamboo Grove Fish Farm is another government-owned facility which consists of a small hatchery and 2.5 hectares of ponds.
- The Institute of Marine Affairs (IMA) has a hatchery/wet laboratory and nine small earthen ponds with a total area of 0.18 hectares.
- The Sugarcane Feed Centre (SFC) too, has 13 ponds with a total area of 0.88 hectares and a small hatchery.

Institutional Focus

July 2011

- Joint Initiative (Research and Marketing Development Agency)
- Rearing focus

2013

- Action Plan for Aquaculture
- SIDC to provide high quality feed at low cost (externally sourced)
- Feed cost = 60-65% of total production cost

2013

- Sugarcane Feed Centre – research in production systems and environmental conservation
- Live and processed fish sold to public and farmers

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Institutional Focus

October 2012–September 2013

- 234 people have been trained in commercial aquaculture
- eight new commercial aquaculture farmers have been registered
- five new hatcheries have started production of tilapia fingerlings
- the tilapia hatchery facility at Sugarcane Feeds Centre expanded

2014

- SFC is purchasing tilapia from farmers and processing and marketing the fish. Goal 1.2 lb whole fish.
- launched the $215,000 Tilapia Floating Raft Cage Culture Project in Ste.
- Madeline, South Trinidad – Nov 2014

2014

- Construction of Processing Facility
- Processing curtailed

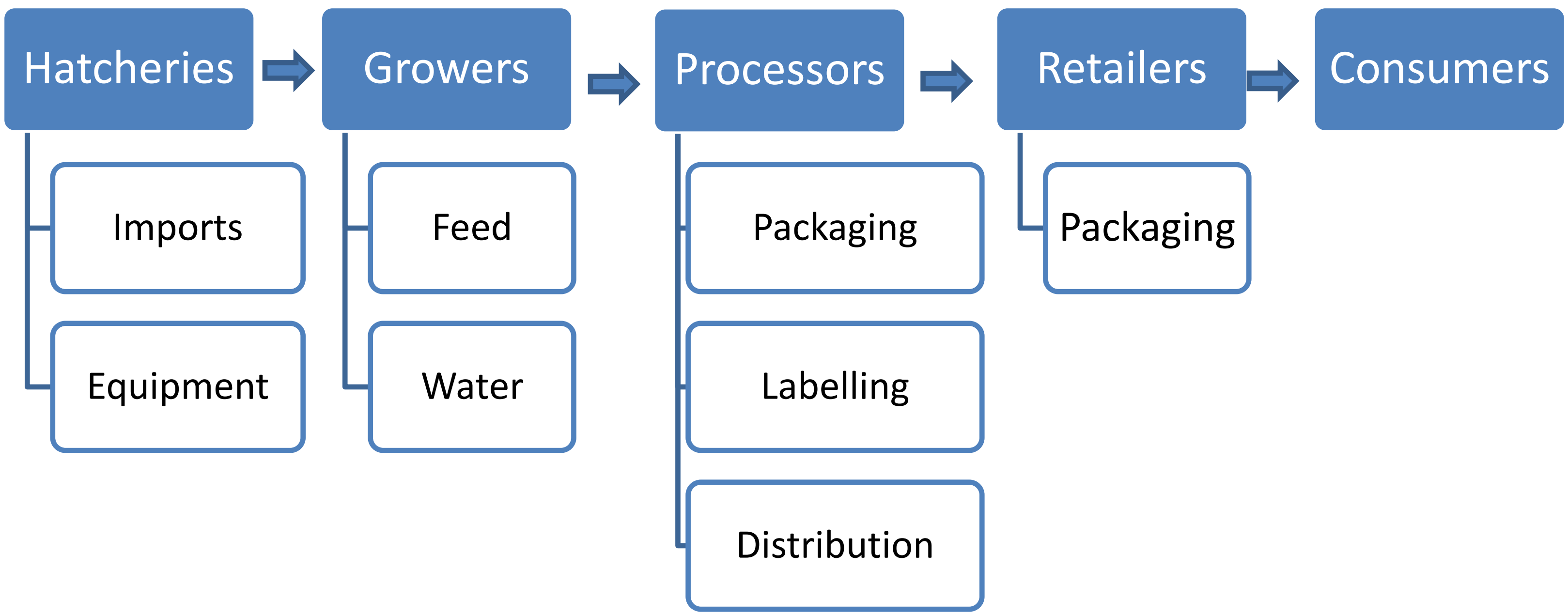
Incentives

- The sale of subsidized tilapia feed by the SIDC,
- Aquaculture-related training sessions offered by the FisheriesDivision of the Ministry of Agriculture, Land and Fisheries and
- the Ministry's subsidies and incentives for aquaculture package

Incentives

AQUACULTURE	% COST	MAXIMUM
New Ponds	25%	$ 25,000.00
Alternative culture system construction	25%	$ 25,000.00
Ponds rehabilitation	100%	$ 7,000.00
Water pumps, hoses and accessories	50%	$ 20,000.00
Aeration equipment	50%	$ 10,000.00
PVC pipes, valves, fittings and accessories	25%	$ 10,000.00
Harvesting gear and equipment etc.	25%	$ 10,000.00
New wells, dams, reservoir pond etc. construction	25%	$ 25,000.00
Wells and dams etc. refurbishment	15%	$ 15,000.00

Value Chain


Hatcheries
Imports
Equipment
Growers
Feed
Water
Processors
Packaging
Labelling
Distribution
Retailers
Packaging
Consumers

Market Prices and Costs

- **Hatcheries** →
  - Feed Cost = $7.70/kg
  - Fingerling cost = $1 - $2 each
  - Fingerling mortality = 10%
  - Estimated direct variable cost = $13.97/kg
- **Growers** →
  - Sale Price (Whole fish)= $28.60/kg
- **Processors – Whole to Drawn** →
  - **COST: ($15.64/kg)**
  - Conversion factor = 0.76
- **Retailers' Sale Price (2013)**
  - Fillet/SIDC = $66/kg
  - Chilled Fillet Average Price = $69.85, Packaging: T&S
  - Fillet Frozen Average Price = $109.42, Packaging: T&S, VP, PB, Box
  - Fillet (Breaded, Florentine, With Cilantro and lime, With Garlic and 5 spice rub) Average Price = $119.79

Source: Seafood Industry Development Company (SIDC)

Secondary Actors

- **ADB Agriculture Development Bank**
- **AU Aquaculture Unit**
- **CARIRI Caribbean Industrial Research Institute**
- **CDF Ministry of Social Development and Family Planning, Community**
- **Development Fund**
- **CFDD Chemistry Food and Drug Division**
- **CFTDI Caribbean Fisheries Training and Development Institute**
- **CSO Central Statistical Office**
- **EMA Environmental Management Agency**
- **EMBD Estate Management Business Development**
- **Expor-TT Export Trinidad and Tobago**
- **FD Fisheries Division**
- **FTC Ministry of Agriculture, Land and Fisheries, Farmers Training**
- **Centre**
- **IMA Institute of Marine Affairs**
- **MALF Ministry of Agriculture, Land and Fisheries**
- **MOH Ministry of Health, Public Health Inspectorate**
- **MTI Ministry of Trade and Industry**
- **NAMDEVCO National Marketing and Development Company**
- **NEDCO National Entrepreneurship Development Company**
- **NESC National Energy and Science Centre**
- **PHI Ministry of Health, Public Health Inspectorate**
- **SIDC Seafood Industry Development Company**
- **SFC Sugarcane Feeds Centre**
- **TCP Town and Country Planning**
- **TTBS Trinidad and Tobago Bureau of Standards**
- **UTT University of Trinidad and Tobago**
- **UWI University of the West Indies**
- **VET Ministry of Health, Veterinary Public Health**
- **WASA Water and Sewerage Authority**

Available Support Services for Aquaculture Industry

Support Services	Agencies Responsible	Services Offered
Provision of Aquaculture Industry Data	FD (AU), CSO , IMA	CSO – Provision of industry statistics FD (AU), IMA – Collection and analysis of fisheries data
Registration/ Certification	MALF (County Offices)	MALF – Assignment of Farmers' Badges to access agrosubsidies
Demos/ Site Visits	SFC, AU, CFTDI	AU, SFC – Facilitates site tours CFTDI – Offers usage of Processing Facility
Training (Technical, Business & Administrative)	SIDC, CFTDI, FTC, NEDCO, CARIRI	SIDC – Outreach training in financial empowerment and entrepreneurship CFTDI – Training in seafood processing NEDCO, CARIRI – Business and innovation training FTC – Training in aquaculture systems
System Design & Site Approvals	AU, EMA, WASA, TCP	AU – Offers technical advice on aquaculture system designs EMA, WASA, TCP – Provides land-use approvals

Available Support Services for Aquaculture Industry

Support Services	Agencies Responsible	Services Offered
Proposal Writing & Market Trends Assessment	SIDC, CDF, CSO,	SIDC, CDF – Development of project proposals CSO – Provides industry statistics, trend/market data
Loan/ Funding	ADB, NEDCO	ADB – Offers loans for agribusinesses NEDCO – Provides loans for downstream business activities
Land Prep, Housing & Security	Private, EMBD	Private – land preparation services, buildings and security systems sourced from private businesses. EMBD – Infrastructural development of agro-lands
Procurement of Equipment & Supplies	MALF, SIDC, AU	MALF, AU – Provides access to subsidized equipment andsupplies for agriculture SIDC – Sale of imported fish feed at cost price to farmers

Available Support Services for Aquaculture Industry

Support Services	Agencies Responsible	Services Offered
Sale of Fingerlings	SFC, IMA, Private farms	SFC – Sale of tilapia fingerlings
Veterinary Services	**Veterinary Services**	VET, UWI - Monitoring animal diseases
Production (Quality Management Systems)	CFDD, SIDC	SIDC – Farm Assessments CFDD – Laboratory testing
Market Development & Promotion	SIDC, NAMDEVCO	
Post-Harvest Handling & Storage	Private, farmer	Private/Farmer – Cold storage is outsourced or produce is stored by farmer in freezer/chiller
Transportation Provision, Quality Inspection	PHI	PHI – Ensures compliance by inspecting vehicles transporting produce

Available Support Services for Aquaculture Industry

Support Services	Agencies Responsible	Services Offered
Processing & Packaging	SIDC, SFC, CFTDI, NAMDEVCO, CFDD	SIDC, SFC, CFTDI – Processing of Finfish CFDD – Inspect product labels, laboratory evaluations
Vending/Sale	SIDC, TTBS, PHI, Regional Corporation	PHI - Quality monitoring, inspection of retail premises, sampling and testing, compliance with food safetyordinances Regional Corporation – Maintain and manage market
Export	ExporTT	ExporTT – Provision of technical assistance to exporters
Data Collection	FD, SIDC, ExporTT	

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Competing Products

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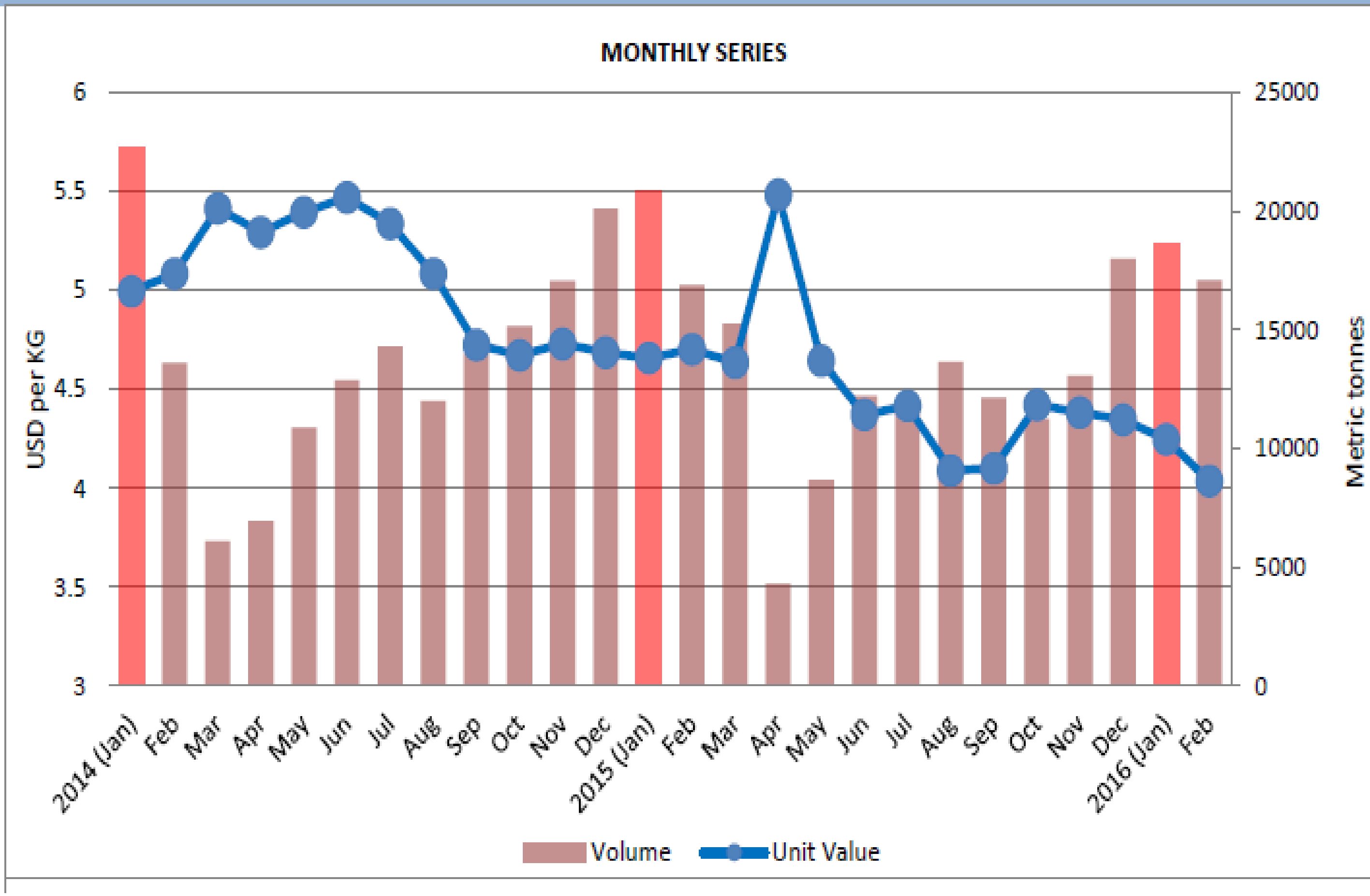
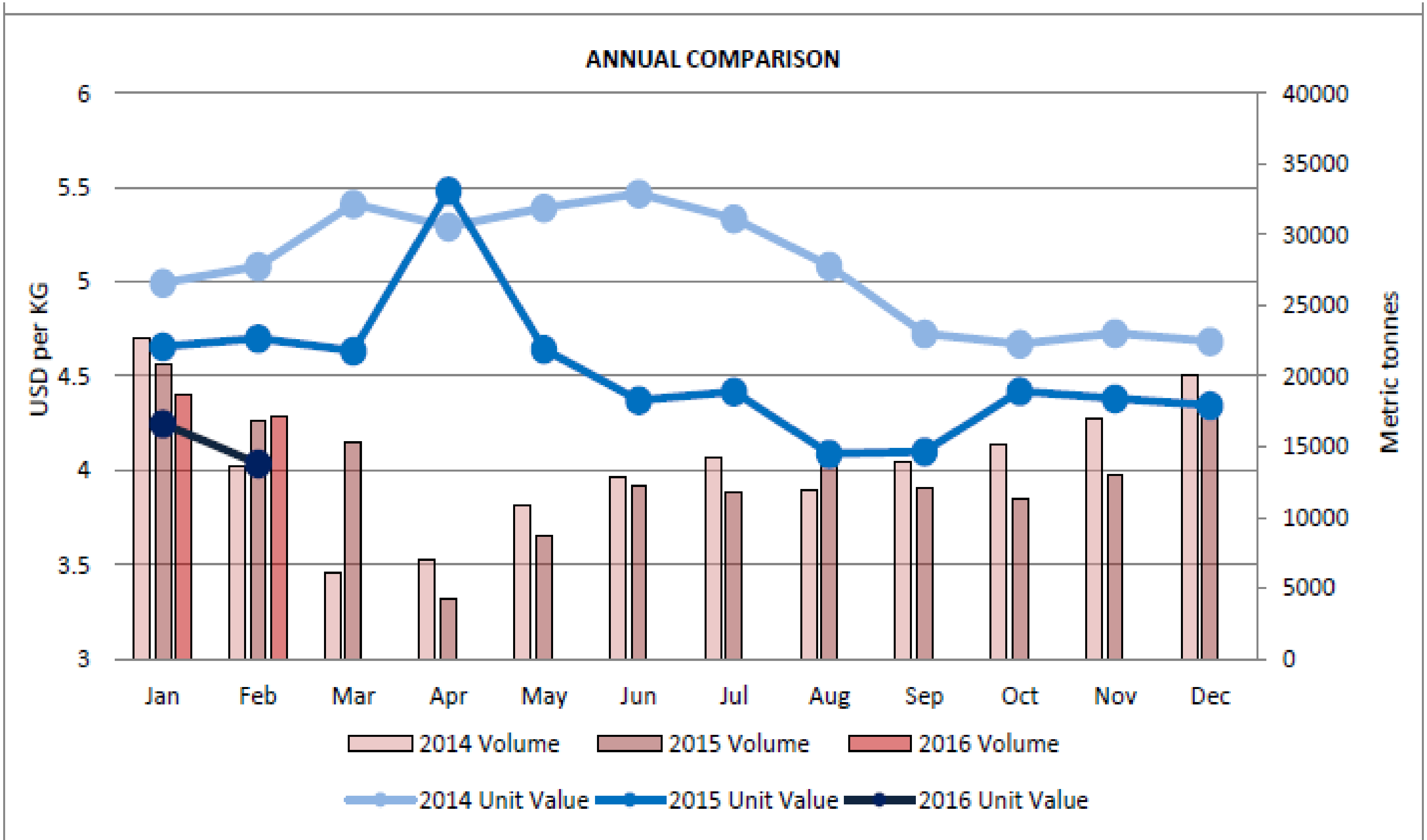
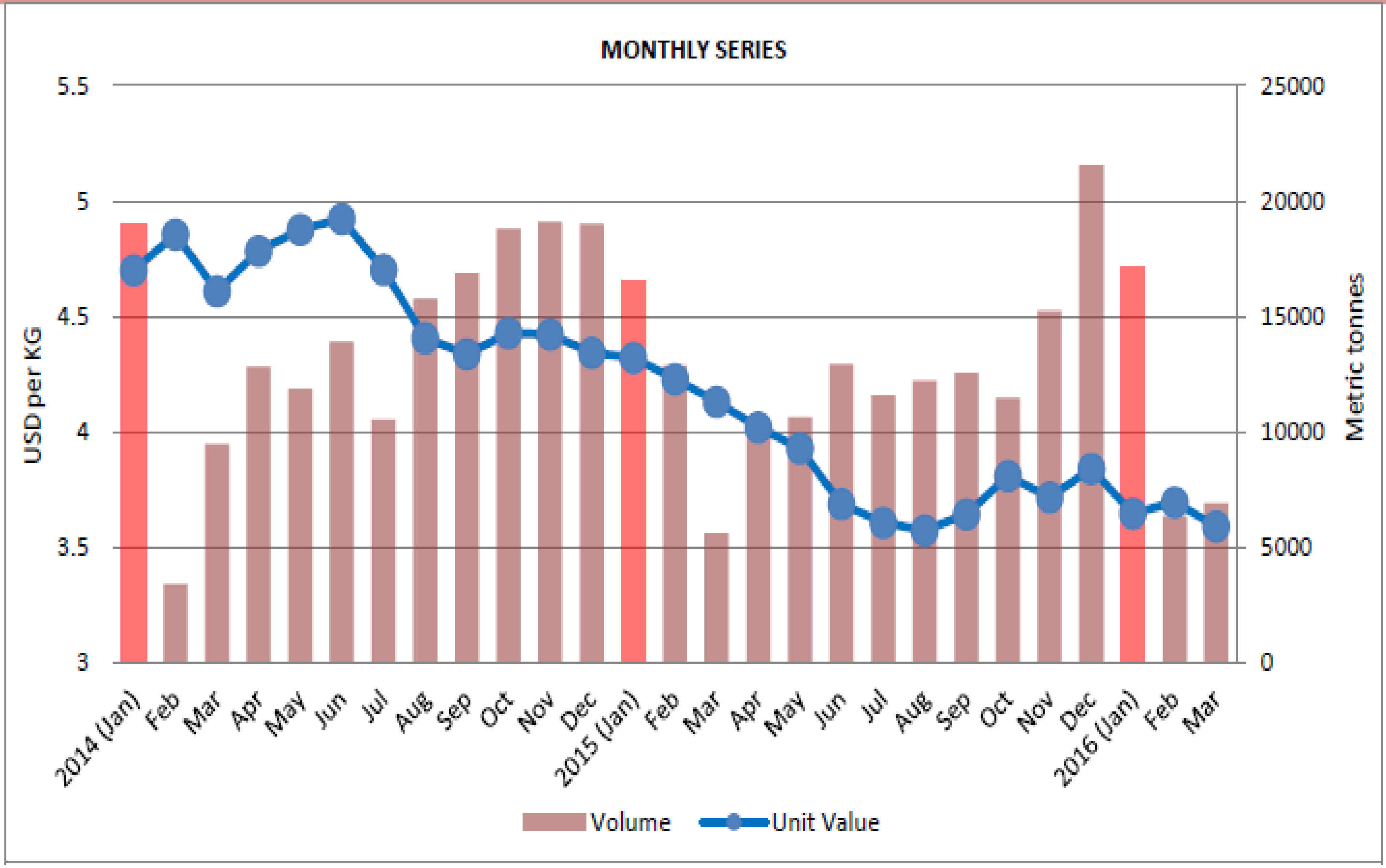
USA | Imports | Tilapia | Frozen fillets



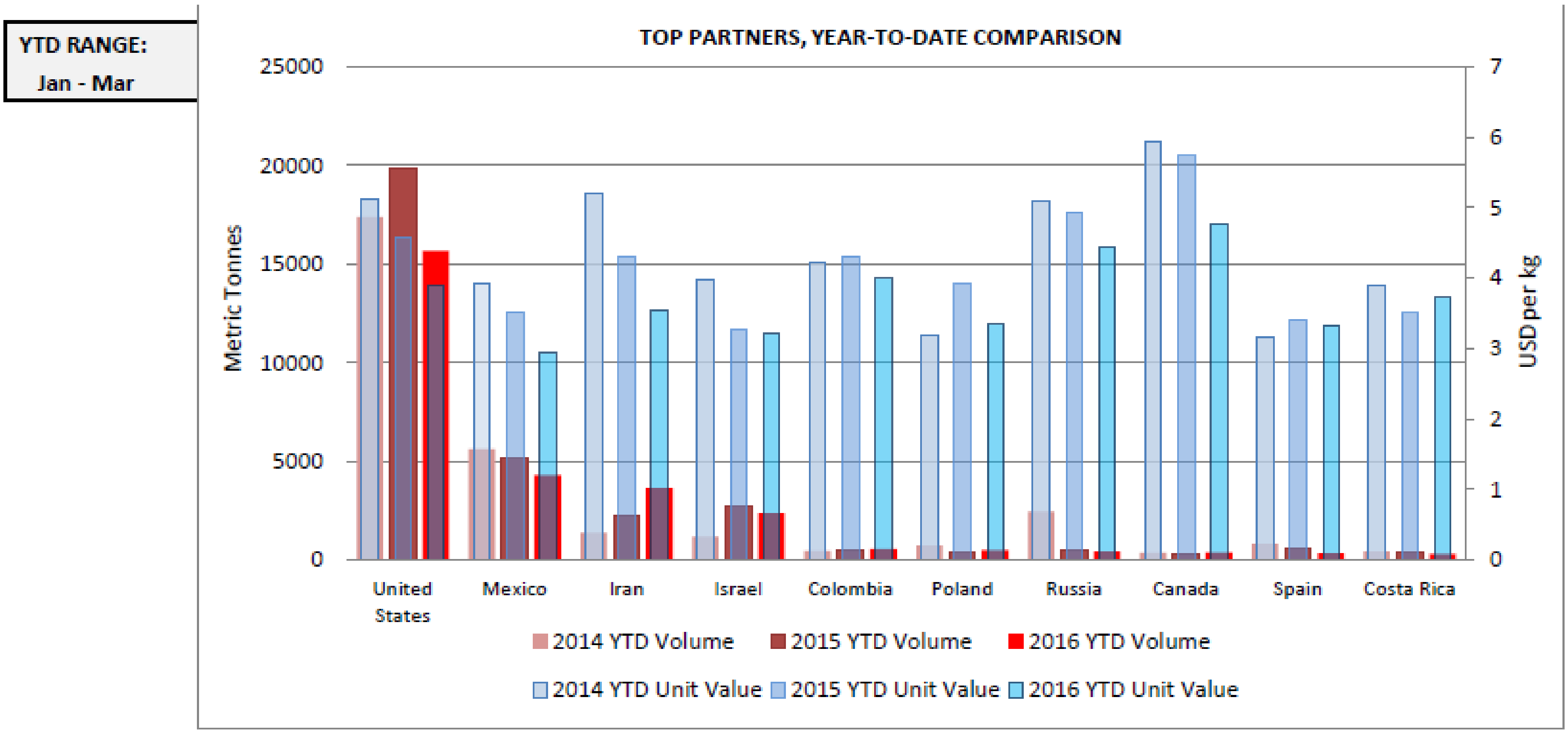

ANNUAL COMPARISON
6
5.5
5
4.5
4
3.5
3
USD per KG
40000
35000
30000
25000
20000
15000
10000
5000
0
Metric tonnes
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2014 Volume
2015 Volume
2016 Volume
2014 Unit Value
2015 Unit Value
2016 Unit Value

Tilapia Trade

China | Exports | Tilapia | Frozen fillets



China Exports (cont'd)



Source: FAO GLOBEFISH Monthly Trade Statistics, March 2016

Strengths

- Inexpensive energy sources
- Moderate investments in training and infrastructure in place
- Minimal production research, but local information available for productivity and gaps
- Fish farmer organization in place to lobby for stakeholder needs
- Above-ground ponds provide better water management

Weaknesses

- Poor availability of suitable land and adequate supply of good quality water.
- Limited physical resources and capitalize on our relatively inexpensive energy sources.”
- Limited quantities of tilapia fingerling
- High cost of feed
- Limited passionate labour force,
- High cost and availability of equipment,
- Limited access and or knowledge of recent scientific advancements in the aquaculture industry to increase efficiency of the farming practice
- High dependency on imported feed
- Limited lab capability and accreditation
- Many farmers unable to reach minimum market size requirements in optimal growth period

Opportunities

- Development of a high quality feed locally utilizing as far as possible, locally sourced feed components.
- Potential for regional export.
- Incorporation of the product into new dishes, new products
- Promotion by local and regional chefs to change tastes and preferences

Opportunities

- Currently, fish is served in at least one meal per week, with an estimated use of 3 oz fish fillet per meal.
- The fish currently used is imported, and this project seeks to promote import substitution of this product in the School Nutrition Programme in Trinidad and Tobago.
- Therefore, the current estimated demand for Tilapia for replacement in a lunch meal is 18,375 lbs tilapia/week (8,352 kg/week).

Threats

- Falling global prices
- Possible increasing food costs
- Slowly changing consumer preferences/ preference for local catch
- Increasing skepticism of quality of foreign-sourced fish from Asia

Thank You!

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