

SESSION 1: STATE OF THE AQUAFEED INDUSTRY IN ASIA AND GROWTH IN VIETNAM



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Status of Asia's Aquafeed Industry: Dealing With The Challenges and Striving Towards Greater Sustainability

Abstract

The past 3 years have been dominated by the covid pandemic, followed by the conflict in Ukraine and the effects that both events had on ingredient prices, production costs and logistics. Although the cost impact was not the same for the different ingredient categories, the general price trend was clearly upwards, resulting in considerable production cost increases for the feed mills and farms. Feed volumes have been affected due to shifts in demand for different seafood products, interrupted production cycles and financial concerns.

Looking on the bright side, this has forced the industry to address several underlying issues such as adapted purchasing strategy, credit policies and the way in which technical teams look at their formulations, particularly ingredients and additive inclusions. Important gaps in our current knowledge have been identified. On the farm side, the reactions to the situation differ between countries and market segments, mainly according to the potential -or not- to make profit.

With a market pull for a more sustainable industry, coupled with increasing competition in Asia as well as from other seafood producing regions, the adoption of sustainable ingredients in Asian aquafeeds and technological progress for improved farm performance is essential. As such, the status and gaps in the road towards a more sustainable feed industry will run like a red thread throughout the presentation.

Status of Asia's Aquafeed Industry:

Dealing with the Challenges and Striving Towards Greater Sustainability

Piet Verstraete, 4Sea Consulting Ltd.



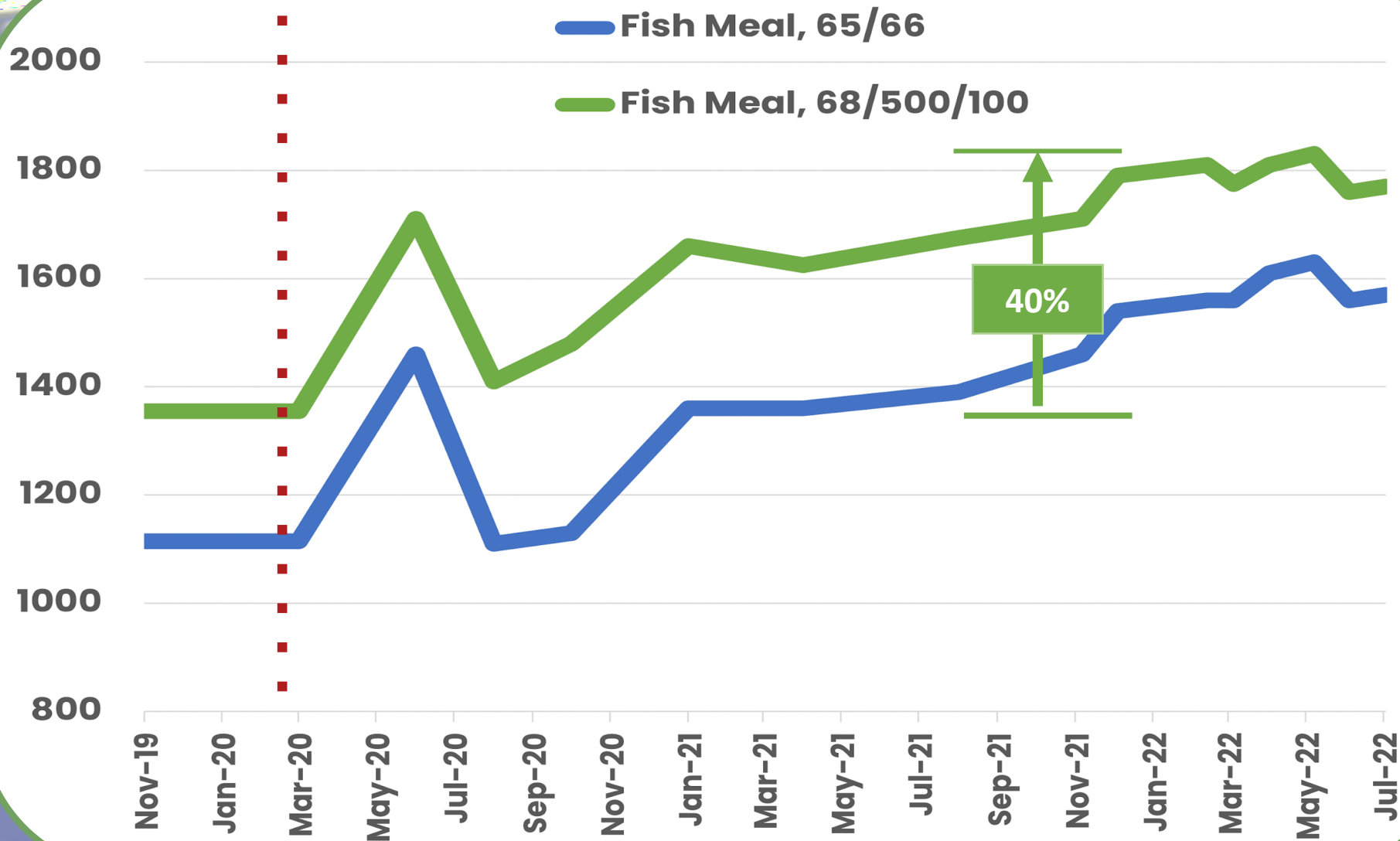


Part I: Rising Ingredient Costs

Fishmeal

Fob Peru, USD/ton

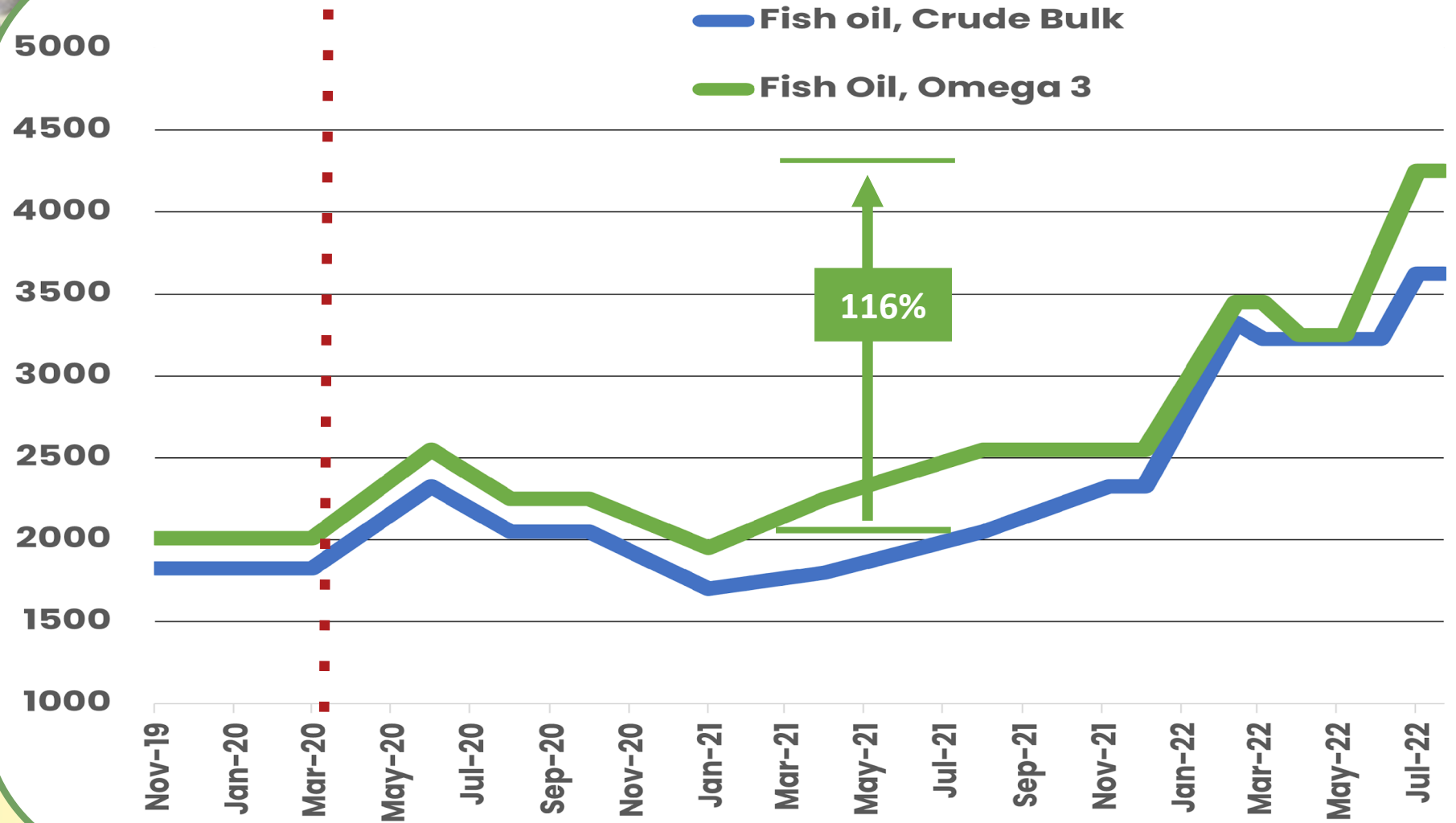
Ingredient
cost



Fishoil

FOB Peru
USD/ton

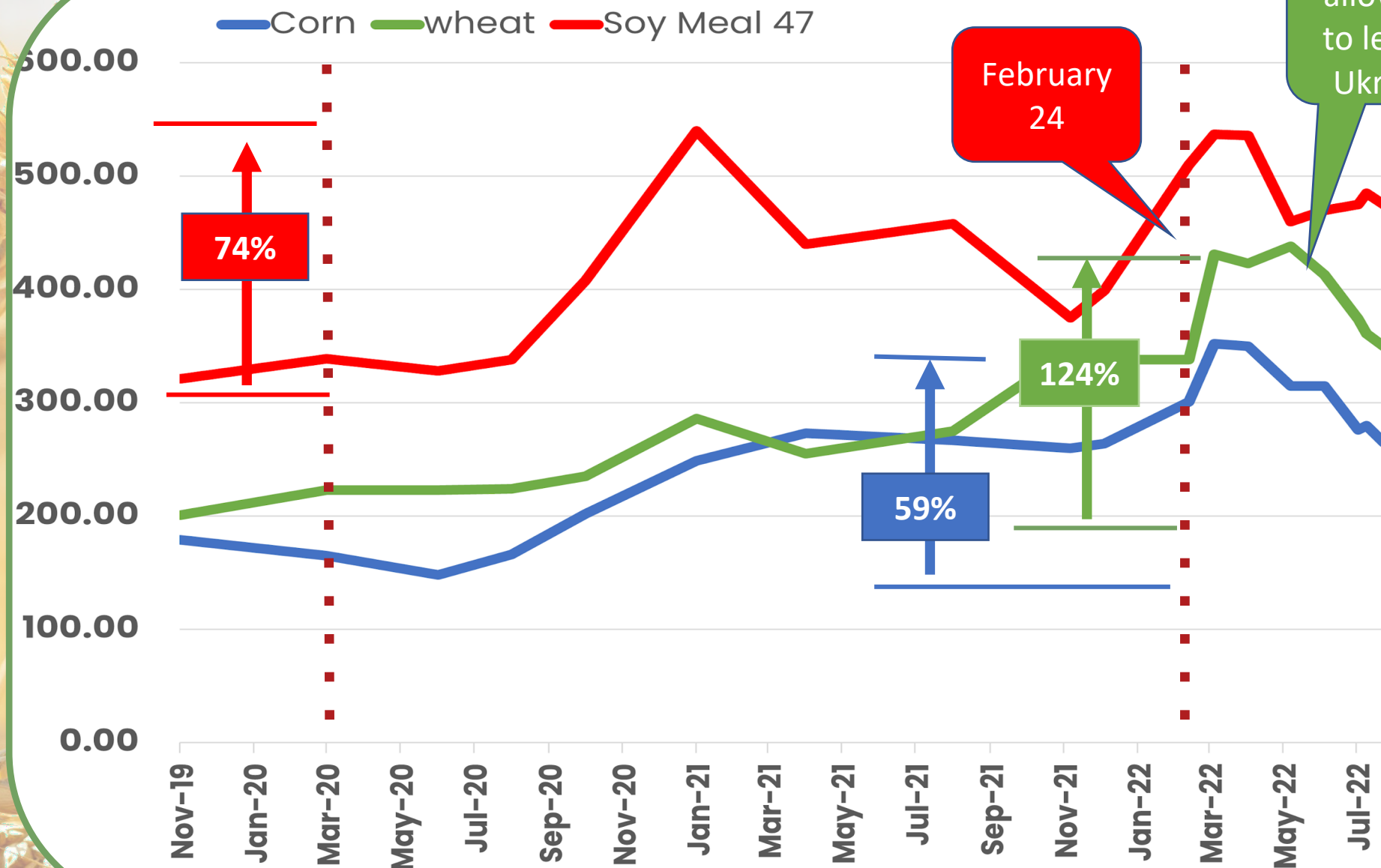
Ingredient
cost



Source: Hammersmith Marketing blogspot

Cereals & oilseeds FOB USD/ton

Ingredient
cost



Source: Hammersmith Marketing blogspot

India

Prices delivered to the factory (in % change relative to dec 2018)

Ingredient cost

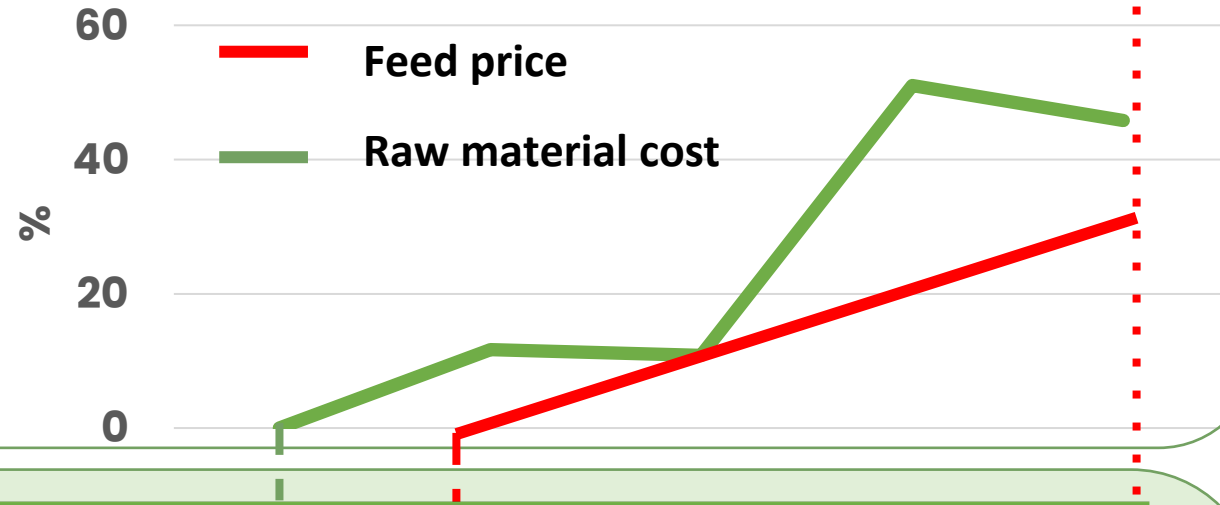
Dec 18	Dec 19	Dec 20	Oct-21	Actual
Fish meal Sardine 60%	13	8	14	23
Fish meal Sardine 65%	13	19	25	34
Fish solubles 40%	3	22	22	35
Soybean Meal 48%	17	16	203	89
Corn gluten 66%	15	10	98	89
Fish oil 25% HUFA	16	83	83	102
Soya lecithin	- 15	- 9	58	225
Broken rice	32	8	1	32
Whole wheat 13.5%P	3	- 1	- 8	11
Maida 24.5% wet gluten	- 3	- 11	- 23	6

Vannamei feed India

Ingredient cost



Raw material cost vs feed price of vannamei feed
% change



	Dec 18	Dec 19	Dec 20	Oct-21	Actual
Fish meal Sardine 60%		13	8	14	23
Fish meal Sardine 65%		13	19	25	34
Fish solubles 40%		3	22	22	35
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Broken rice		32	8	1	32
Whole wheat 13.5%P		3	- 1	- 8	11
Maida 24.5% wet gluten		- 3	- 11	- 23	6

Financial Impact



Rising ingredient-, energy- and logistic costs
FX- Asian currencies depreciated against the US dollar



Margins under pressure

Much more money needed to purchase for the same production

Extend or reduce credit?

What if interest rates go up?

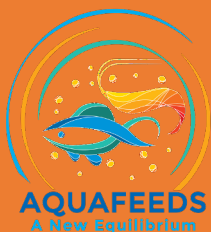
Liquidity under pressure

Solvency under pressure



Part II: Impact on Production volumes

Shrimp



Affected by the COVID-19 pandemic, **global production of marine farmed shrimp in 2020 was nearly 15 percent lower year-on-year.**

The **decline was 20 percent from Asian sources but production increased by 22 percent in Latin America** because of the significant rise in Ecuador's harvest.

Globefish, 16/07/2021.

Dropping market share for Asia:

Robins McIntosh forecasts (Infofish Shrimp 2022) that Asia will only contribute 55% to global shrimp production by 2030 down from 65% in 2019 and 80% in 2010.

Some of the main reasons cited:

Number of crop failures

Production cost: ex farm prices are 45 and 76 cents (USD) higher than Ecuador for India and Indonesia respectively.

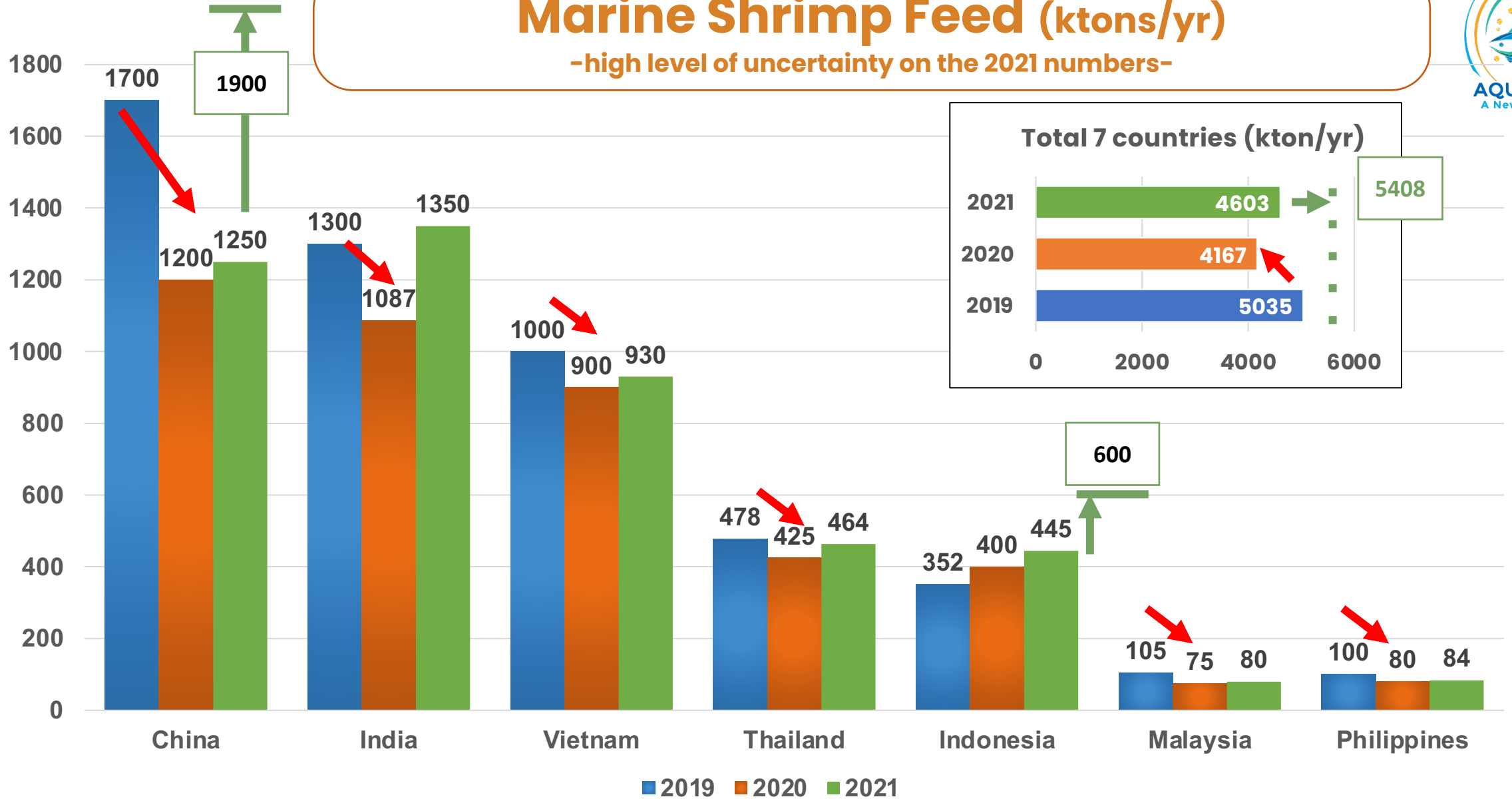
Poor survival rate: average survival rate of 80% in 2010 to 60% today.

Slower in promoting Trace-ability, sustainability and branding quality shrimp versus Ecuador's "**Sustainable Shrimp Partnership Programme**".

-Zuridah Merican, AAP July/August 2022-

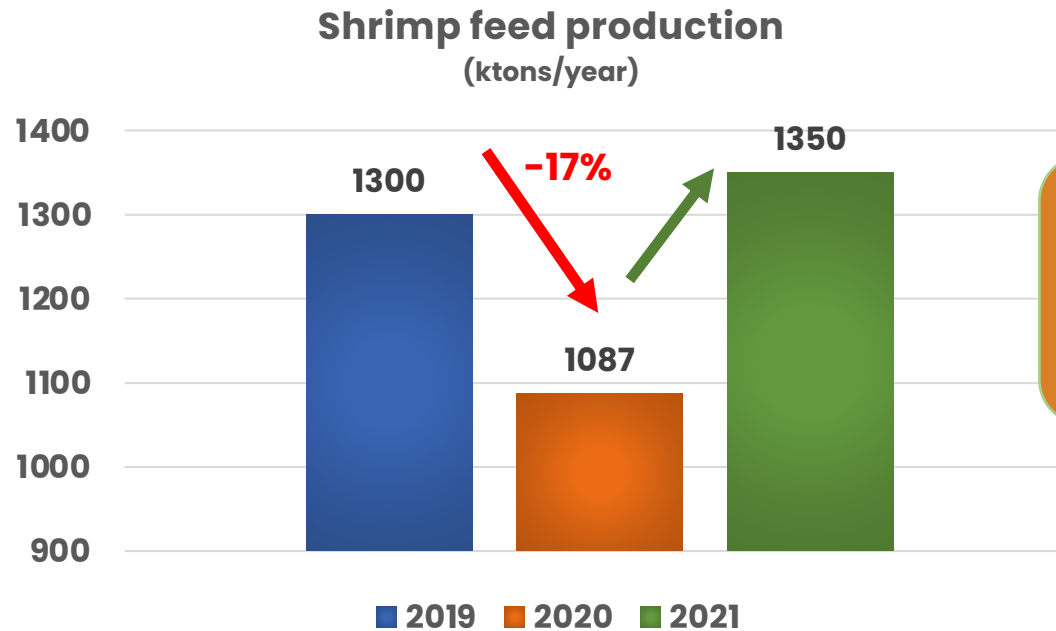
Marine Shrimp Feed (ktons/yr)

-high level of uncertainty on the 2021 numbers-



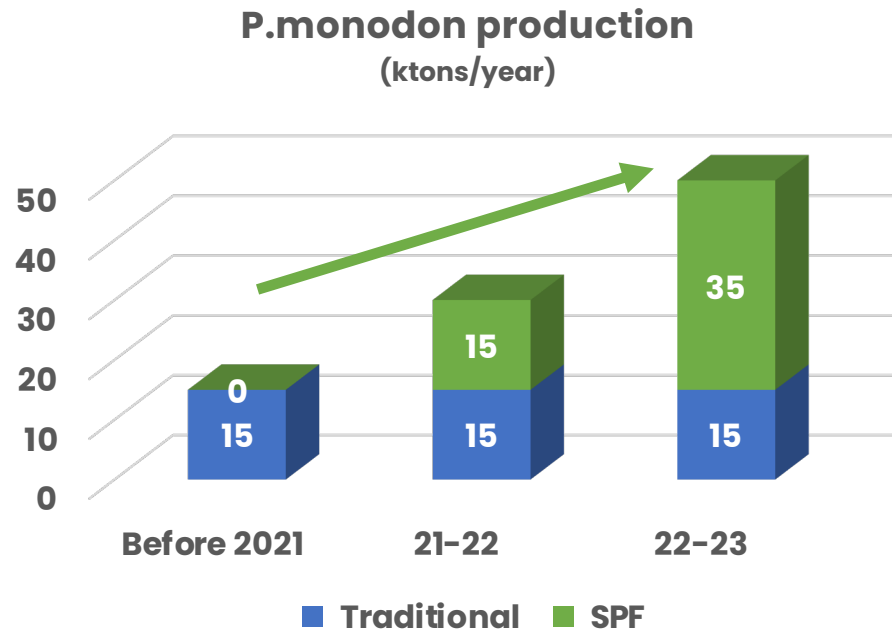
-Reported by AAP-

India Shrimp feed



Broodstock supply
Poor PI quality
Disease/Weather

India Monodon Production



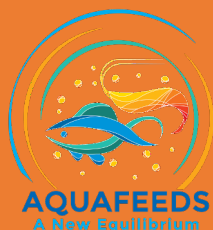
Opportunity as India's vannamei production is threatened by Ecuador.

Bottleneck: market development (Bangladesh and Vietnam leading now).

-Dr Manoj Sharma-

Thailand Shrimp production

Jan-June
2021/2022



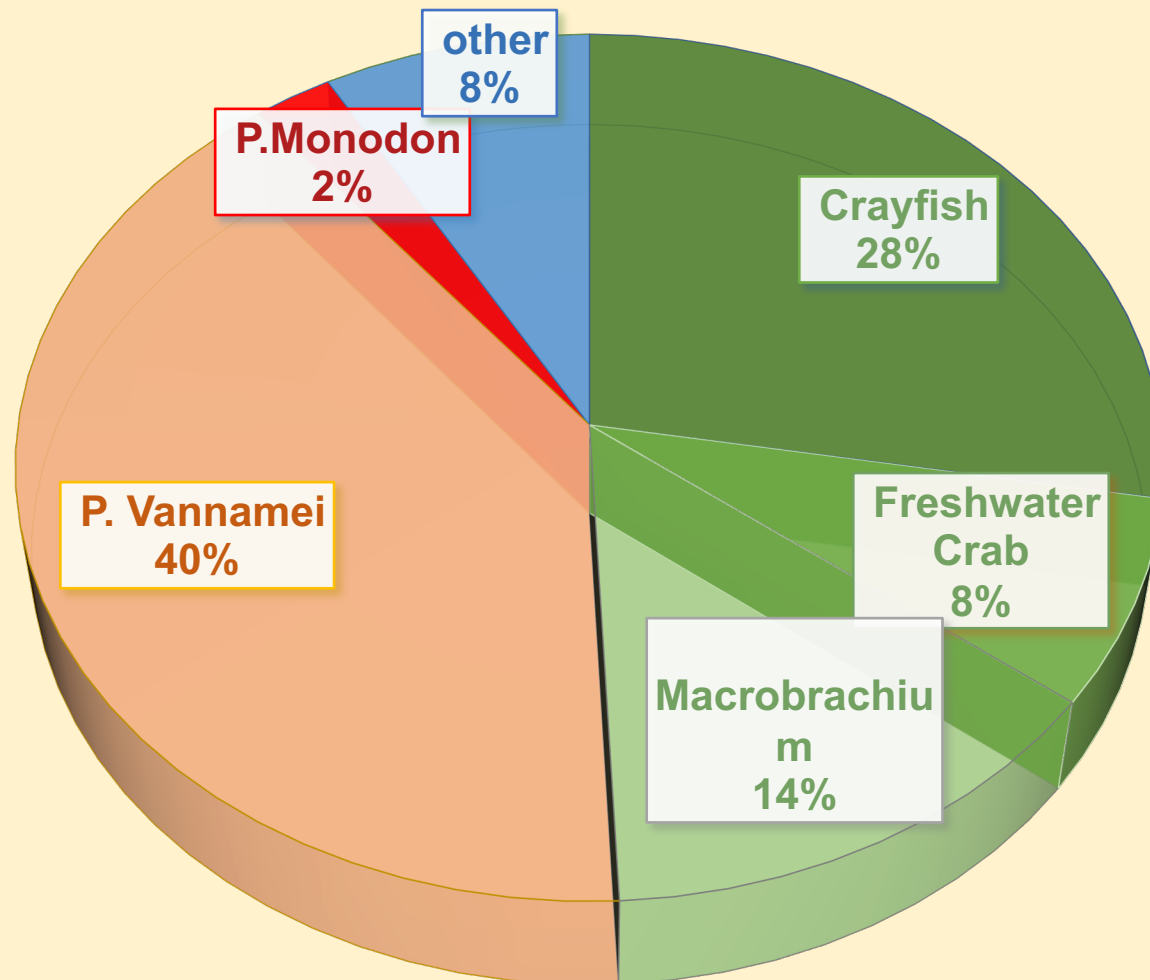
Thai Farmed Shrimp Production by region/ July 2022 (unit: tons)									
Regions/Shrimp Species	2021		2022		% Diff. Jul 22/21	2021	2022	% Diff Jan-Jul 22/21	2021
	June	July	June	July		Jan-Jul	Jan-Jul		Jan-Dec
Eastern-Total	4,588.4	5,835.1	5,925.7	5,632.4	-3.5%	33,741.6	35,172.2	4.2%	57,011.9
Black Tiger Shrimp	210.4	188.0	312.5	188.9	0.5%	1,252.3	1,812.9	44.8%	2,566.5
Pacific White Shrimp	4,378.0	5,647.1	5,613.2	5,443.5	-3.6%	32,489.3	33,359.3	2.7%	54,445.4
Central-Total	2,571.6	2,531.2	2,390.1	2,851.5	12.7%	15,458.2	15,916.3	3.0%	29,974.9
Black Tiger Shrimp	11.0	8.6	4.2	3.5	-59.4%	160.6	120.1	-25.2%	169.1
Pacific White Shrimp	2,560.6	2,522.6	2,385.9	2,848.0	12.9%	15,297.6	15,796.2	3.3%	29,805.7
Upper South-Total	8,461.7	7,879.7	7,161.3	7,146.6	-9.3%	46,545.0	44,153.0	-5.1%	81,117.8
Black Tiger Shrimp	248.9	162.4	302.1	330.9	103.7%	1,101.5	2,351.0	113.4%	2,396.0
Pacific White Shrimp	8,212.8	7,717.3	6,859.2	6,815.7	-11.7%	45,443.5	41,802.0	-8.0%	78,721.8
Andaman Coast-Total	5,923.1	5,166.4	5,066.4	4,549.2	-11.9%	29,931.8	30,839.3	3.0%	53,870.4
Black Tiger Shrimp	808.8	674.4	535.2	632.7	-6.2%	3,406.9	4,783.6	40.4%	7,368.3
Pacific White Shrimp	5,114.4	4,492.0	4,531.1	3,916.5	-12.8%	26,525.0	26,055.8	-1.8%	46,502.1
Lower South-Total	3,747.9	3,584.0	2,536.4	2,466.6	-31.2%	17,484.8	12,651.6	-27.6%	32,849.3
Black Tiger Shrimp	38.7	38.8	124.2	86.3	122.2%	283.9	565.2	99.1%	628.9
Pacific White Shrimp	3,709.2	3,545.2	2,412.2	2,380.3	-32.9%	17,200.8	12,086.4	-29.7%	32,220.3
All regions-Total	25,292.7	24,996.4	23,080.5	22,646.2	-9.4%	143,161.3	138,732.9	-3.1%	254,824.2
Total-Black Tiger Shrimp	1,317.9	1,072.3	1,278.3	1,242.2	15.8%	6,205.2	9,632.4	55.2%	13,128.9
Total-Pacific White Shrimp	23,974.9	23,924.1	21,802.3	21,404.0	-10.5%	136,956.2	129,100.4	-5.7%	241,695.3

@Vinij Tansakul 30-08-2022

Source: Marine Shrimp Information Management Working Group, DOF, 24 August 2022

Species diversification

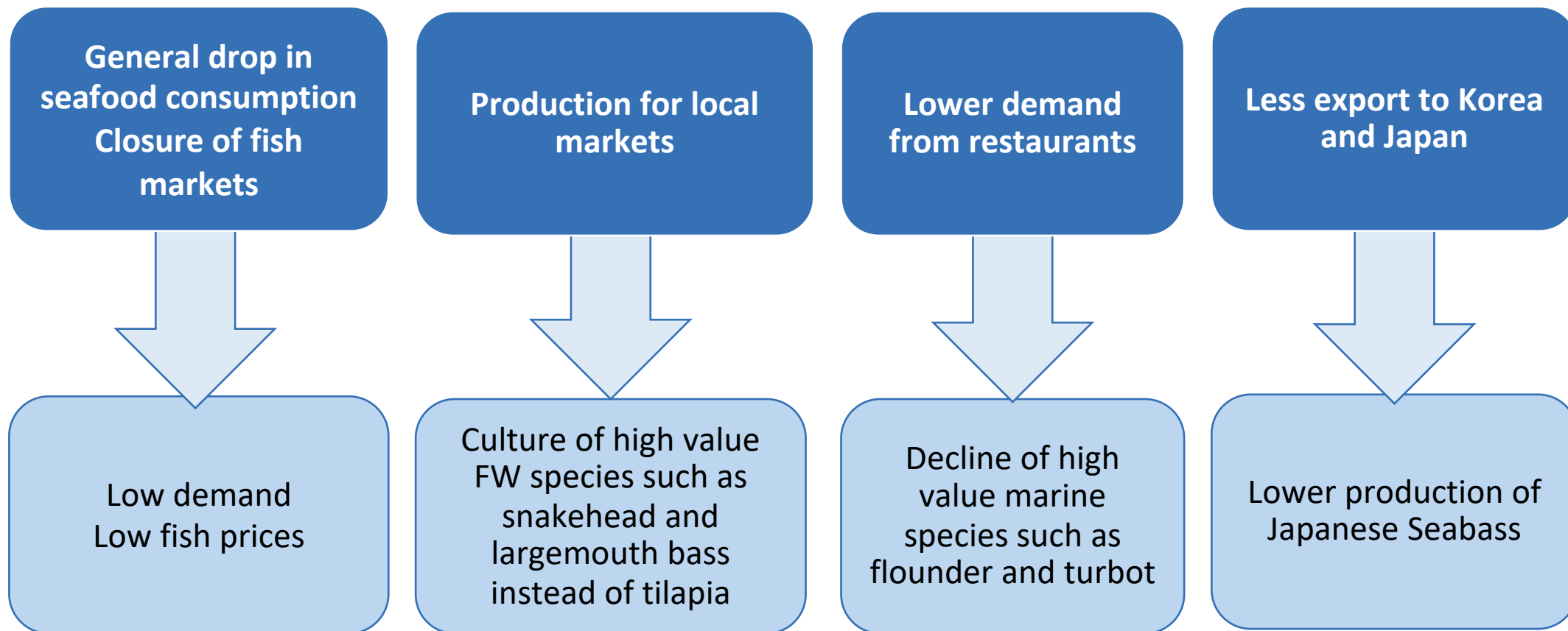
China Crustacean Production (ktons/yr)-2020



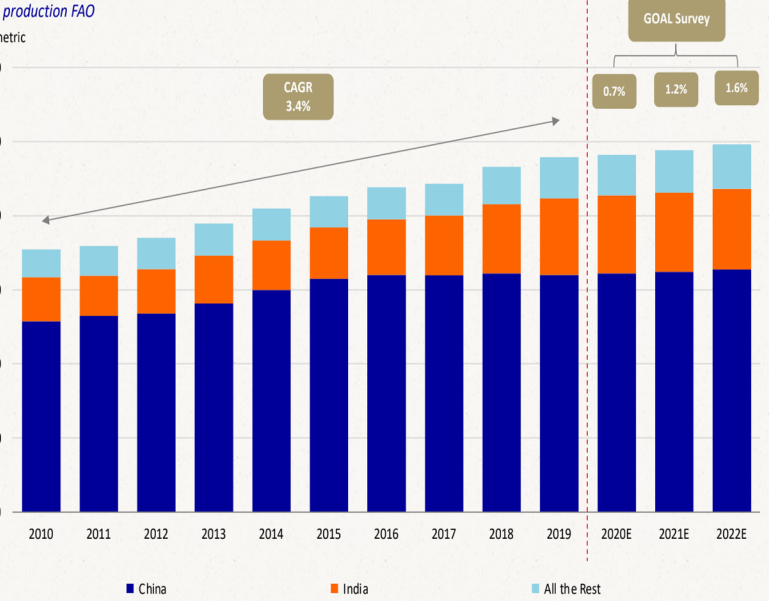
Total	3249
Crayfish	900
Freshwater Crab	250
Macrobrachium	450
P. Vannamei	1300
P. Monodon	80
other	269

Swings in fish (feed) volumes: example from China 2020

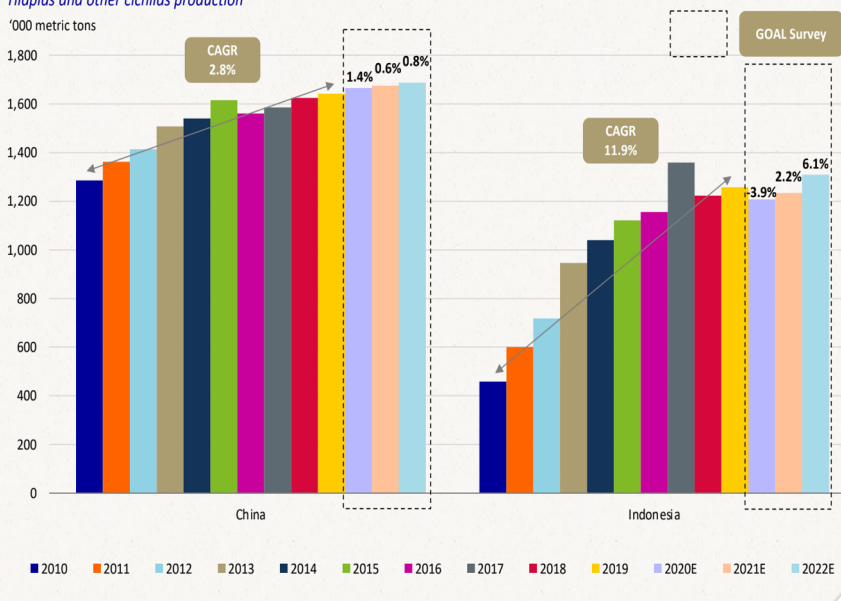
Info from Zhou Enhua, AAP, July/August 2021.



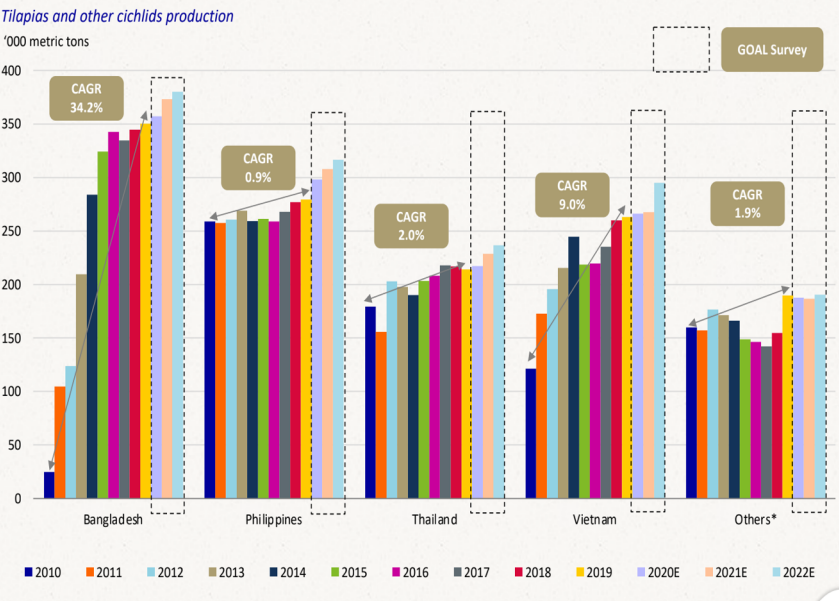
Carp (25 million tons) is now a 1 to 2% growth per year industry –Goal 2021–



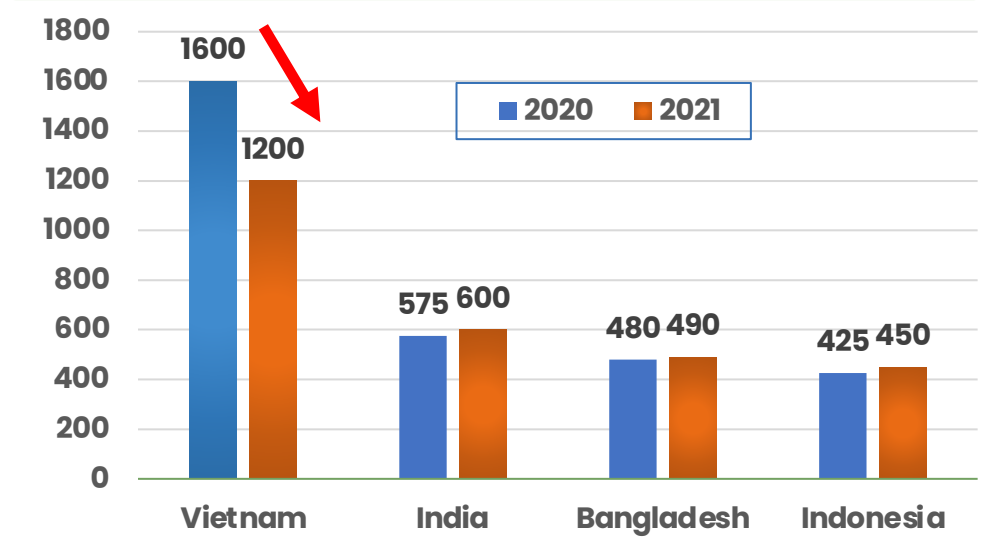
Tilapia in China (1.6 million tons) & Indonesia (1.2 million tons) – Goal 2021–



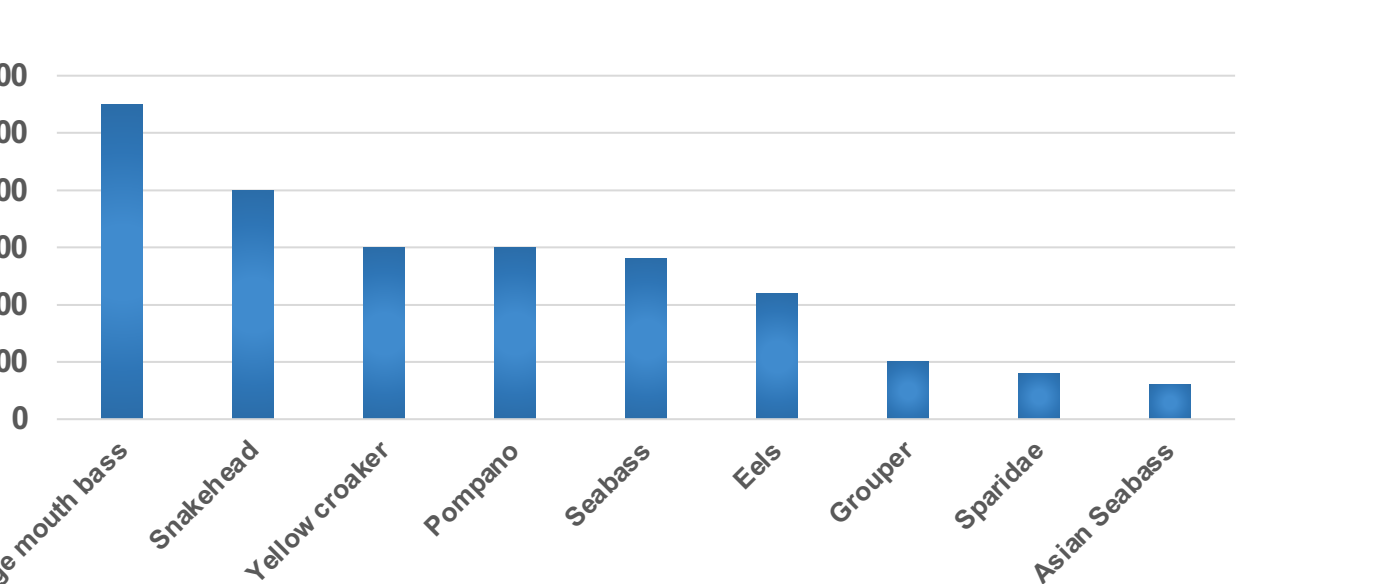
Tilapia: important growth in Bangladesh –Goal 2021–

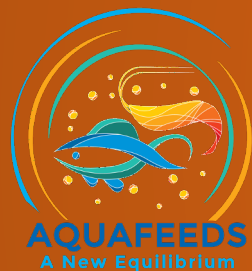


Pangasius & catfish (ktons/year)



Species diversification– China 2020 (ktons/year)





Part III: Impact on Feed mill

Purchasing

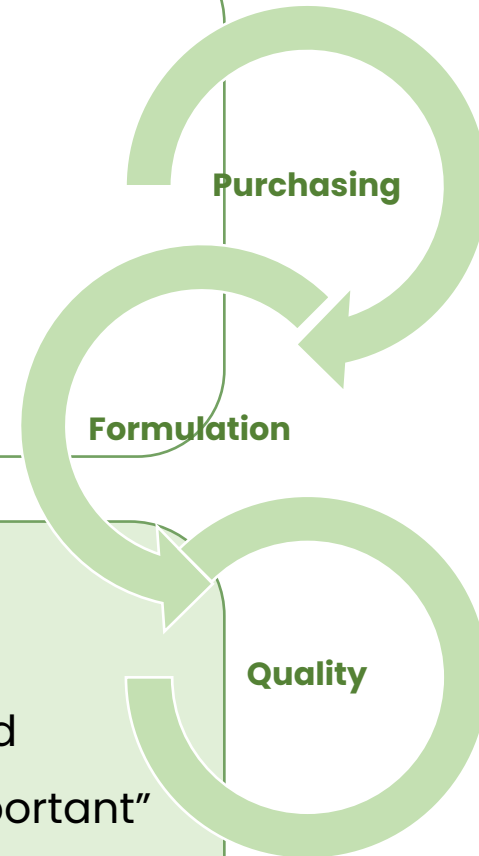
Understand the dynamics of strategic suppliers.

Diversify suppliers & origins (local)

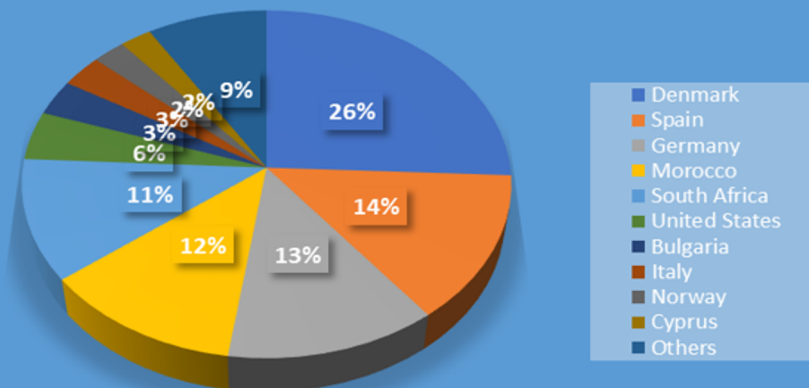
Interaction between Purchasing- Formulation- Quality

Use of **integrated software programs** to plan & purchase better

Network & relations: Reach out to brokers& distributors.



2020 Fish meal Imports into Greece



"In a very paranoid, insecure and up & down market the role of the brokers and distributors have become even more important"

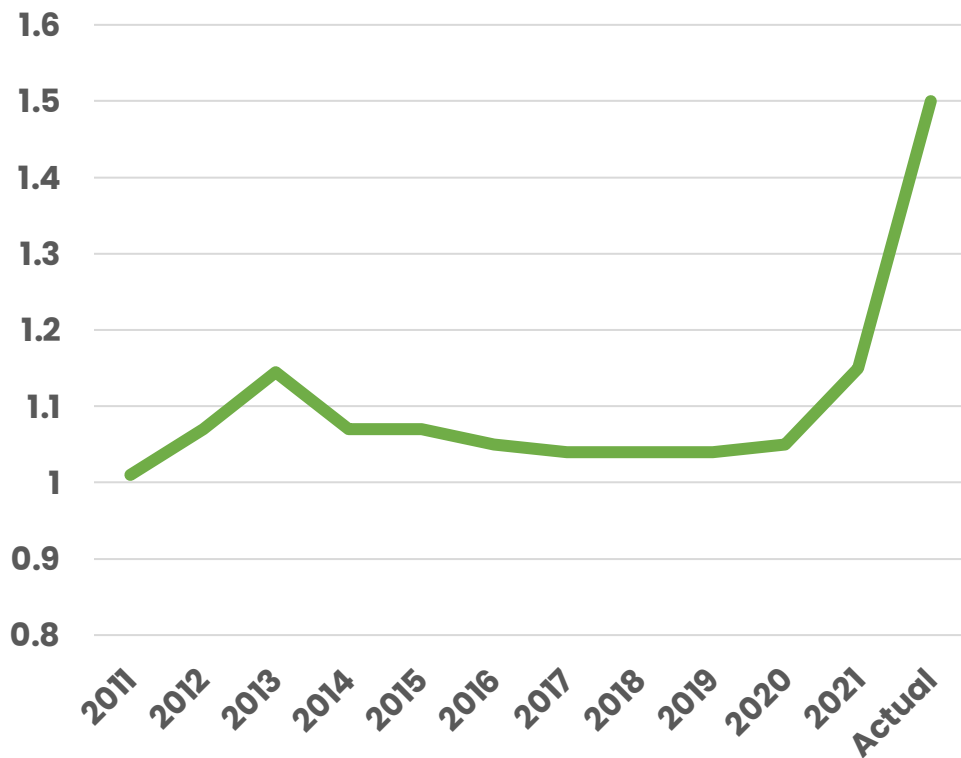
- Jesper Blachkorsholm , Christian Friis & Co.-

Purchasing Example-Greece

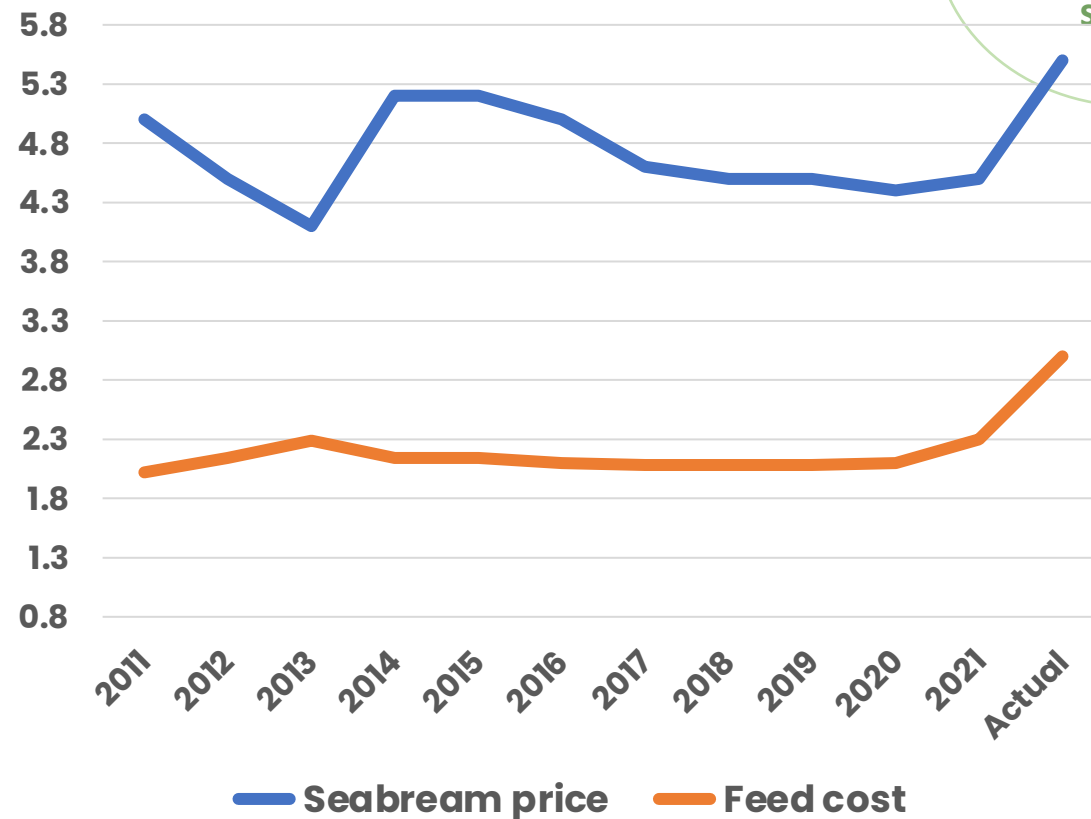
Liquidity
Stock & long term contracts
Cash payments for better prices



feed price (€/kg)
Seabream-Greece



feed cost (€/kg) vs fish price
Seabream-Greece



Nutrition and formulation

Integrate risk in feed design (price & availability, quality, nutrition, processing,...)

Energy, Carbohydrate, Lipid and fatty acid nutrition

Integrated formulation software, including simulations for purchase

BESTMIX 3.37.26 - [Compound: VAN TARS22-01 - Vannamei 3P -TARS 2022 - V01]

File Edit View Tools Compound Reports Applications Help

DEVI

Compound

Header

Parameters

Compound

Ingredients in composition (100.000 %)

Rejected ingredients

All ingredients

View Standard

Composition in %

Description	Price	Lower	Upper
Soybean Meal 48%	767.000		1214.743
Whole wheat	376.000	335.630	382.859
Fish meal 60%	1264.000	1096.974	1271.230
Fish meal 65%	1364.000	1356.770	1531.026
Broken rice	288.000	281.141	331.196
Corn gluten 66%	1016.000		1633.041

Ingredients

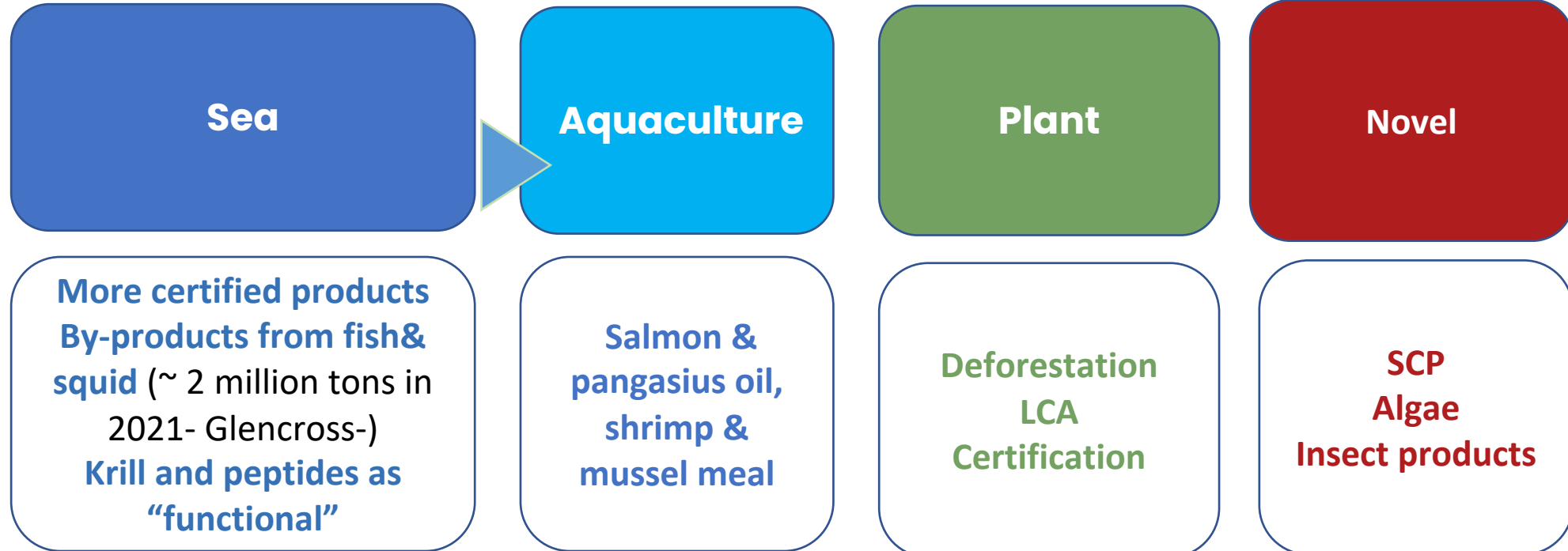
Not longer **only** focus on fish meal reduction

Know & manage the pro's and cons of wide range of ingredients

Digestibility of different ingredients for different species ???

(government) Initiatives for local production (**"Time of Food Nationalism"**)

Sustainable ingredients: "know what you buy and from whom you buy"



Hufa from algae

Global need for HUFA

One of the main bottlenecks identified in the Global Salmon Initiative

Hufa- enriched foods popular

What are the minimum and optimal requirements for Asian Species?



“Globally we have seen a very big increase in use of our Algal oil as the global fish oil price has jumped.

One of the points in our favour is **reduced risk – supply and quality**, so we do expect to see more use (in Asia) going forward”.

– Robert Redman, Veramaris–

Insect Products

Functional For aqua species?

Upscaling speeding up

Promising R&D results on
fish and shrimp on
performance and functional
properties

Press releases 05/04/2022

ADISSEO & ENTOBEL JOIN FORCES ON ALTERNATIVE INSECT PROTEIN DEVELOPMENT

Entofood and Veolia joined forces to contribute to providing a sustainable solution enhancing the circularity in the Food Chain in the Year 2017.

ADM, InnovaFeed announce construction of world’s largest insect protein facility in Decatur, Illinois

Innovafeed and Cargill extend their partnership to bring healthy novel ingredients to aquafarmers

Additives

Apart from health Improvement,
Additives that can help us getting more out of the available ingredients.

Need for liquid application systems in feed mills

Attractivity-palatability

Health

Feed Quality

Digestibility

Nutritional complements

Aroma's, flavours,

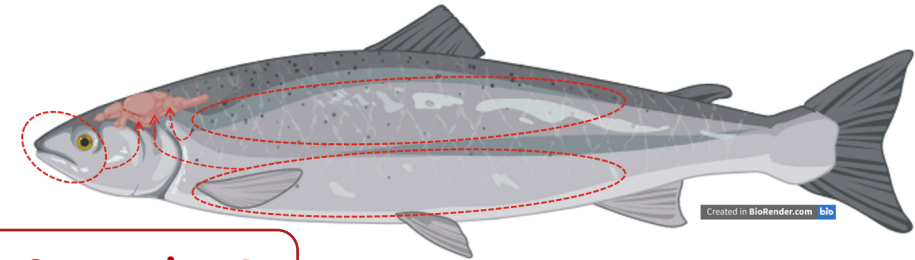
Feed probiotics,
nucleotides

Anti-oxidants,
Mycotoxin binders

Enzymes, Emulsifiers

Premix, complements

Inputs controlling feed intake



**Sensory input
Short term**

**Peripheral-GIT
Short term**

**Peripheral
Long term**

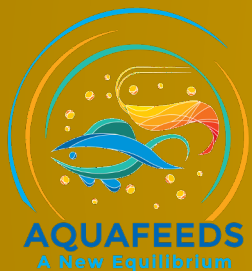
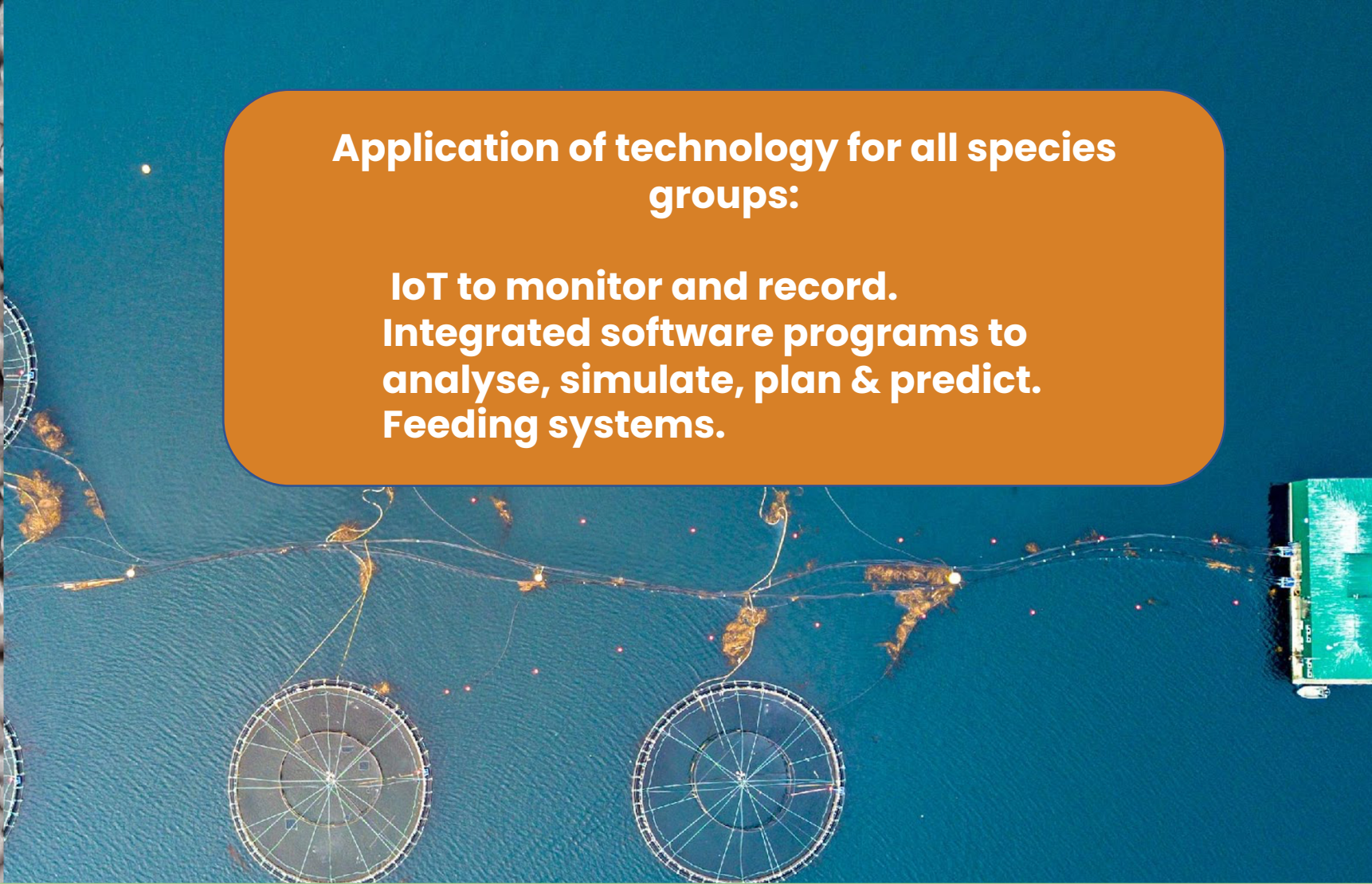
-courtesy from Lucta-

"What is worth mentioning is
the increase in both
prevalence and average
concentrations of storage
mycotoxins"
-Michele Mucio, DSM-



Application of technology for all species groups:

**IoT to monitor and record.
Integrated software programs to
analyse, simulate, plan & predict.
Feeding systems.**



**Part IV: Feed & Farm
Reducing FCR& sustainability**

Fresh water Fish



Challenge to work with low cost ingredients and still have performance

Low spec Feeds:
20% P and 3% fat
Feeds to supplement with a locally available ingredients
Polyculture feeds



Profitability & liquidity
Stock or not stock ?
Polyculture as a buffer on price drops of one species (eg Indonesia& India)?

Vaccines
Low vaccination rate for Tilapia in Asia

Environmental concerns
Restrictions on floating net cages in reservoirs & lakes (Indonesia& china)
In pond race way systems



Picture from Undercurrent news

Tilapia selection for different traits than growth (environmental conditions and resistance against streptococcus)

Genetics is now more accessible and affordable than ever
-Ian Johnston, Xselect-

Sustainable cost-effective breeding program for Rohu Carp



Marine Fish



“feed mills and farmers make efforts to **maintain product quality** and pass on the additional costs to their clients. And that’s the right thing to do, instead of offering a poor quality product.”
–Feedback from Greece, Stavros Chatzifotis, HCMR–

Feed Specifications for culture under tropical conditions?
Stage specific feeds
Maintenance feeds

Liquid application and precision oil coating

Hold fish in the cages in anticipation of better prices, but feed prices increased

Environmental concerns
Ban on trash fish in China

Floating closed containment systems (SGP)
RAS and land based salmon production (SGP, China)



Genetic improvement is bottleneck

Health bottleneck
Parasite/ bacteria/ virus in sea cages
Vaccines



Shrimp



Feeds

Debate on **extruded Feed**

Liquid applications

Functional Feeds:
Instructions for use
and proof of concept
Probiotic coated feed



Shrimp probiotic feed - Improving pathogen inhibition

by Marc Campet, Asia Aquaculture Business Development Director & Cuong Tran Huynh, Asia Aquaculture Technical Manager, ADM Animal Nutrition

Farming& Health

Varying crop succes of
P.vannamei in Asia
(WSSV, AHPND, EHP)

Build in security along the
supply chain (breeders,
pls,..)

Multi-phase farming and
cost reduction

Cucial role of **changing
culture environment**

Ras
Super Ras and Phyto Ras in
Thailand

Feeding:
Autofeeder& aeration
Monitoring behaviour

(Almost) **All male
Macrobrachium pls**

Genetics

Enhanced tolerance &
robustness
Growth vs survival vs
balanced traits ?

Interactions:
Genetics& Environment
Genetics & nutrition

**“Evidence of increased
methionine dietary
requirement for
litopenaeus vannamei
genetically selected high
growth lines”**

Joe M. Fox, Addison L. Lawrence, and
David D; Kuhn.-2012

Industry interaction

A lot of communication within the sector to explain the challenges and impact of Covid and rising costs



Collaboration based on a Pre-competitive model
Organise to get things done on a sector level

"By agreeing to work pre-competitively to mitigate environmental impacts, the GSI will help push the entire industry toward sustainability at a much quicker rate than would otherwise be possible."

*-Jason Clay, Senior Vice President of
Market Transformation, World
Wildlife Fund (WWF)-*



มหาวิทยาลัยเกษตรศาสตร์
มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี



ศูนย์ส่งเสริมและพัฒนา
การผลิตปศุสัตว์และโคนม



มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี



มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี

» สัมมนาวิชาการ

เทคโนโลยีการดูแลโคนม

วิกฤติการณ์อาหารสัตว์ 2566

Feed crisis 2023



22 ก.ย. 2565



สองรอบวัน 11.30 น.
ถึงงานประชุม
เวลา 12.45 - 16.00 น.



ณ ห้องประชุมประชุมสภามหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี



Feed Outlook and Global Crisis

ดร.พิเชต พิเชษฐนุกุล
นายกสมาคมผู้ผลิตอาหารสัตว์ไทย



Alternative Feed Ingredients and Additives

ดร.พิเชต พิเชษฐนุกุล
นายกสมาคมผู้ผลิตอาหารสัตว์ไทย



Feed Quality Management

ดร.พิเชต พิเชษฐนุกุล
Top Feed Mills Co., Ltd



Quantitative Nutrition

Approach and Management

ดร.พิเชต พิเชษฐนุกุล
อดิเรกสมาคมผู้ผลิตอาหารสัตว์ไทย



สถานที่จัดงาน "เวทีอาหารสัตว์" ภายใน 18 กรกฎาคม 2566 ภายในงานมีกิจกรรมมากมาย เช่น การเสวนาเกี่ยวกับสถานการณ์อาหารสัตว์ การเสวนาเกี่ยวกับเทคโนโลยีการผลิตอาหารสัตว์ และการเสวนาเกี่ยวกับสุขภาพโคนม

สนใจสมัครงานภายใน 18 กรกฎาคม 2566 โทร. 092-5458888 Email: info@knu.ac.th



ลงทะเบียน



<p>วันศุกร์ที่ 22 กรกฎาคม 2565</p> <p>กำหนดการสัมมนาเชิงวิชาการ</p> <p>ครั้งที่ 8</p>	<p>ลงทะเบียนพร้อมรับของที่ระลึก</p> <p>สนทนาเครือข่ายผู้สื่อข่าวไทย พจนานิก โดย คุณกรรณิศา เบนะรัช นายนกนาคมนตรีข้าราช พิเศษชาวไทย</p> <p>"ศึกทางฟ้าไทย" โดย ศก.ดร. ชวลี สรุธรรม พิธีเปิด</p> <ul style="list-style-type: none"> กล่าวเปิดงาน โดยท่านสภิตชัย เลิศโกวิทศรีนคร ชัยวงศ์กรมเศรษฐกิจพิเศษ กล่าวต้อนรับ โดยนายชัชวาลย์ นิตโต สุราษฎร์ธานี จังหวัดสุราษฎร์ธานี กล่าวรายงาน โดยคุณชัชวาลย์ นิตโต สุราษฎร์ธานี สภกรณีสื่อเพื่อท้องถิ่นท่ากอไผ่ <p>ประธานและผู้ร่วมงานร่วมรับประกาศการ พร้อมมอบเงินรางวัล</p> <p>ประธานและคุณผู้ชมมอบรางวัลแสดงสินค้าของผู้นำ ชุมชนเกษตร</p> <p>"ก้าวร่นฟ้าไทย จากฟ้าดิน สู่อวกาศออร์" โดยคุณสุพิศ พิเศษ</p> <p>"ตลาดอาหารไทย ยกระดับพร้อมเมือง" โดยคุณสุพิศ พิเศษ พร้อมนักชม และคุณผู้ชมพร้อมมอบรางวัล</p> <p>"วิถีการเกษตรไทยพอ เกษตรกรอยู่ดีต่ออาหาร" โดย คุณพรพจน์ ยุทธรักษาคุณ หัวหน้าผู้กำกับด้าน อาหารสัตว์</p> <p>"เปลี่ยนเรียนรู้ กับ การจัดการน้ำ" โดย พศิต ชื่น รองประธานกรณีสื่อ ผู้สื่อข่าวเพื่อท้องถิ่นท่ากอไผ่</p> <p>ร่วมงานถึงส่งรางวัลพร้อมมอบเกียรติ "โลภ-โลภ"(เต็มวง)</p>	
<p>08:30- เป็นต้นไป</p> <p>09:30- 10:00</p> <p>10:00- 11:00</p> <p>11:00- 12:00</p> <p>12:00- 13:00</p> <p>13:00- 14:00</p> <p>14:00- 14:30</p> <p>14:30- 15:30</p> <p>15:30- 16:30</p> <p>16:30- 17:30</p> <p>18:00- 23:00</p>	<p>08:30- เป็นต้นไป</p> <p>09:30- 10:00</p> <p>10:00- 11:00</p> <p>11:00- 12:00</p> <p>12:00- 13:00</p> <p>13:00- 14:00</p> <p>14:00- 14:30</p> <p>14:30- 15:30</p> <p>15:30- 16:30</p> <p>16:30- 17:30</p> <p>18:00- 23:00</p>	

สับลมดาววิชาการ

" ฝ่าวิกฤตทุ่งปี 2565 "

20 กรกฎาคม 2565

ณ บ้านระเียบีโรงนา
อ.ดอนยายหอม จ.นครปฐม

ดร.ธ. ฉล. สันดุรงก์

กำหนดการสัมมนา

08.30 - 9.00 น.	ลงทะเบียน
09.00 - 9.30 น.	ถวายผ้า กฐนริสา ประทานธรรมะ เปรี๊ยะ โสภะ พิธีก่อตั้งมูลนิธิ สมุทรสาครราชภัฏรำไพพรรณี
09.30 - 11.00 น.	โครงการจัดการฝึกอบรมแผนพัฒนา โรงเรียน (บรรยายโดย ดร.ธ. ฉล. สันดุรงก์)
11.00 - 11.20 น.	พิธีมอบประกาศนียบัตร
11.20 - 11.40 น.	เปิดงานวันแม่ด้วยการผูกพวง
11.40 - 12.00 น.	(บรรยายโดย นายสมศักดิ์ พิเศษกิจกุล)
12.00 น.	กิจกรรมจัดการเลี้ยงอาหารกลางวัน บนแพสนามหญ้า (บรรยายโดย นายธีรวิทย์ ธีร- วิทย์) รับประทานอาหารกลางวันและรับรางวัลของ สมทบทุน






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The banner image for the Global Salmon Initiative (GSI) features a scenic view of a fjord. In the background, steep, snow-capped mountains rise from the water's edge. The water is calm, reflecting the light. In the foreground, several circular salmon farming cages are visible, floating on the water. The overall tone is serene and natural, emphasizing the connection between the environment and sustainable salmon farming.

