

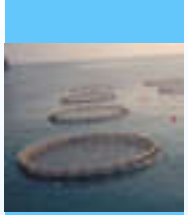
PIGMENTECH:

***A NATURAL ALTERNATIVE FOR
PROTEINS AND PIGMENTS
IN SEA BREAM FEED***

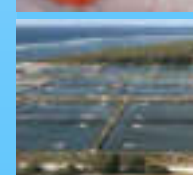
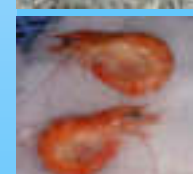
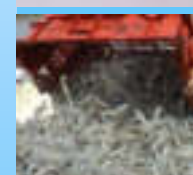
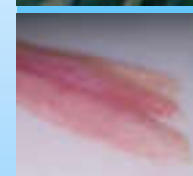
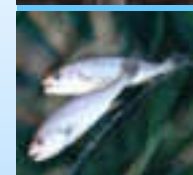
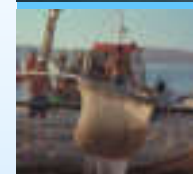
AN INTERESTING TRIAL ON MARINE FISHES

SEA BREAM TRIAL (SPARUS AURATA)

INSTITUTE OF MARINE BIOLOGY, CREETE



- **CRUDE PROTEIN** **52 %**
- **CRUDE FAT** **10 %**
- **RICH IN PIGMENTS**
- **RICH IN ESSENTIAL FATTY ACIDS**



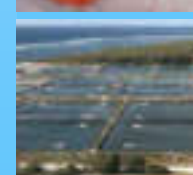
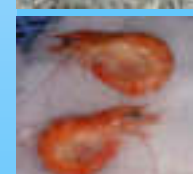
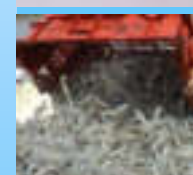
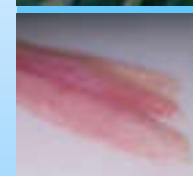
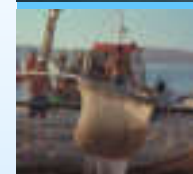
TO EVALUATE THE VALUE OF AN ALFALFA CONCENTRATE PRODUCT ,“PIGMENTECH”, ON THE FOLLOWING:

⇒ **STANDARD GROWTH RATE (SGR)**

⇒ **FEED CONVERSION RATE (FCR)**

⇒ **SKIN COLOR**

IN SEA BREAM (SPARUS AURATA), AGAINST A CONTROLLED DIET CONTAINING CORN GLUTEN MEAL (CGM).



SPECIES: *SPARUS AURATA*

INITIAL DATE : 11/04/02

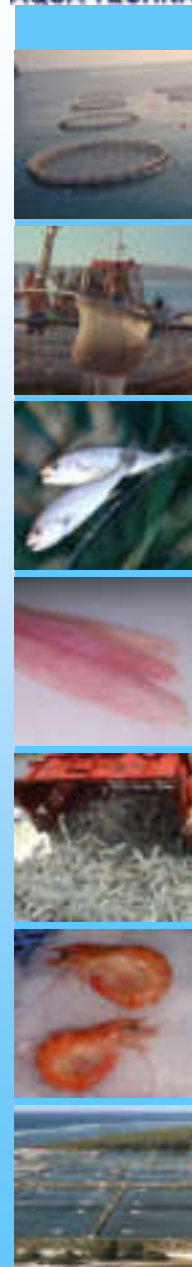
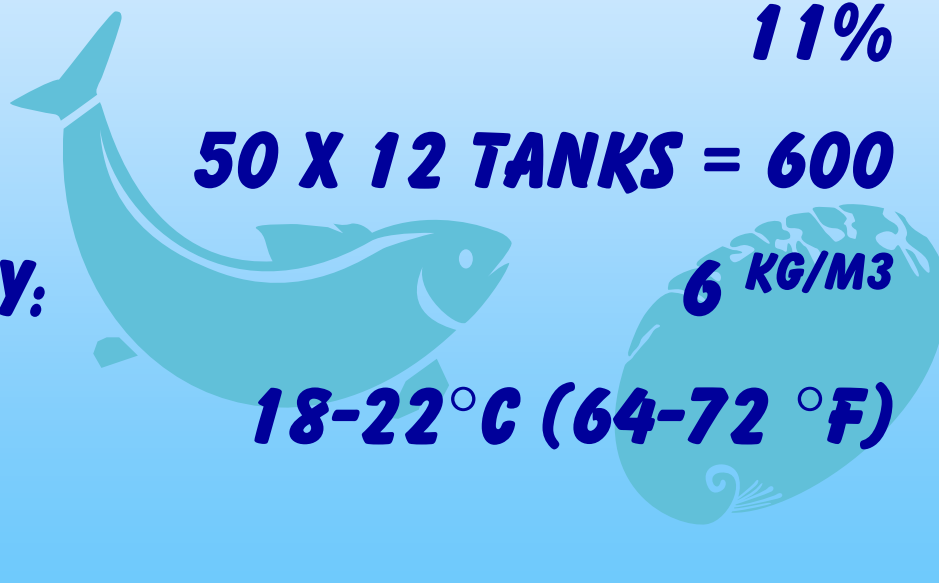
AVERAGE BODY WEIGHT : 60 G

CV% : 11%

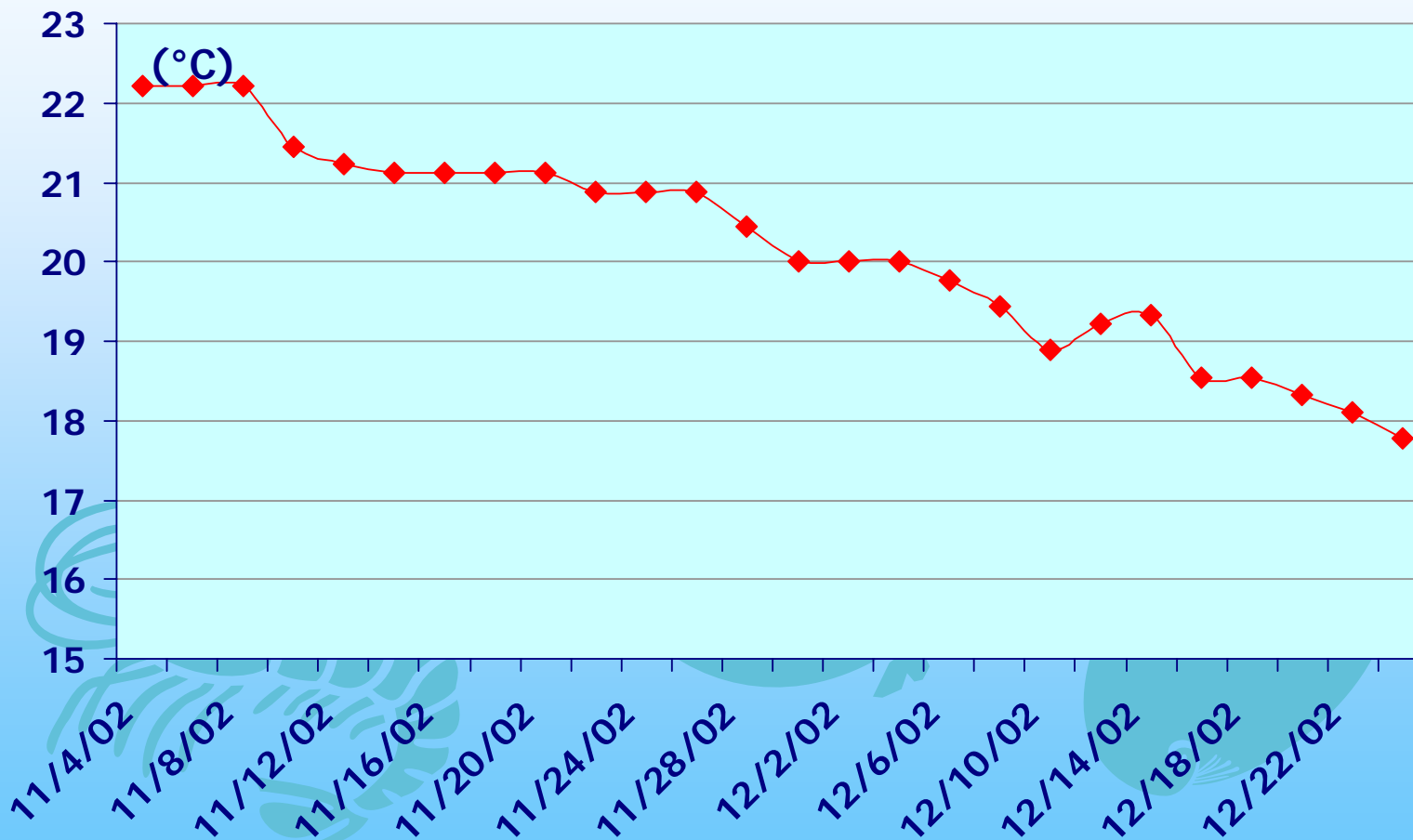
FISH NUMBER: 50 X 12 TANKS = 600

INITIAL DENSITY: 6 KG/M³

TEMPERATURE: 18-22°C (64-72 °F)



WATER TEMPERATURE



- **DIETS FORMULATED (6) :**

- **ISO PROTEIC** **46%**
 - **AMINO ACID FORMULATED (LYS, MET)**

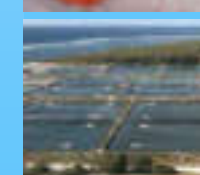
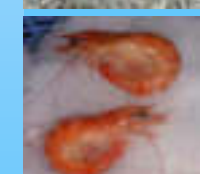
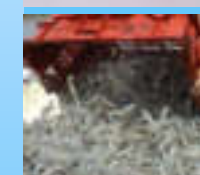
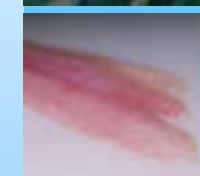
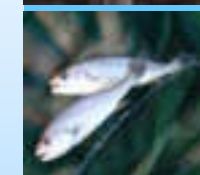
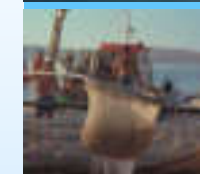
- **ISO LIPIDIC** **15%**

- **COMPOSITION :**

- **FISH MEAL (37 – 40 %)**
- **FISH SOLUBLE**
- **SOYA BEAN MEAL (\pm 25 %)**
- **WHEAT (\pm 15 %)**
- **FISH OIL (8 %)**
- **SOYA OIL**
- **MINERALS / VITAMINS / AMINO ACIDS**

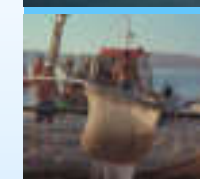
- **FACTORS TESTED:**

- **PIGMENTECH** **3 LEVELS**
- **CGM** **3 LEVELS**
- **VITAMIN A** **2 LEVELS**

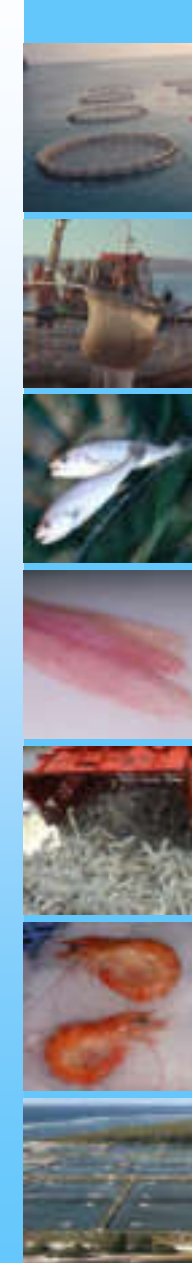
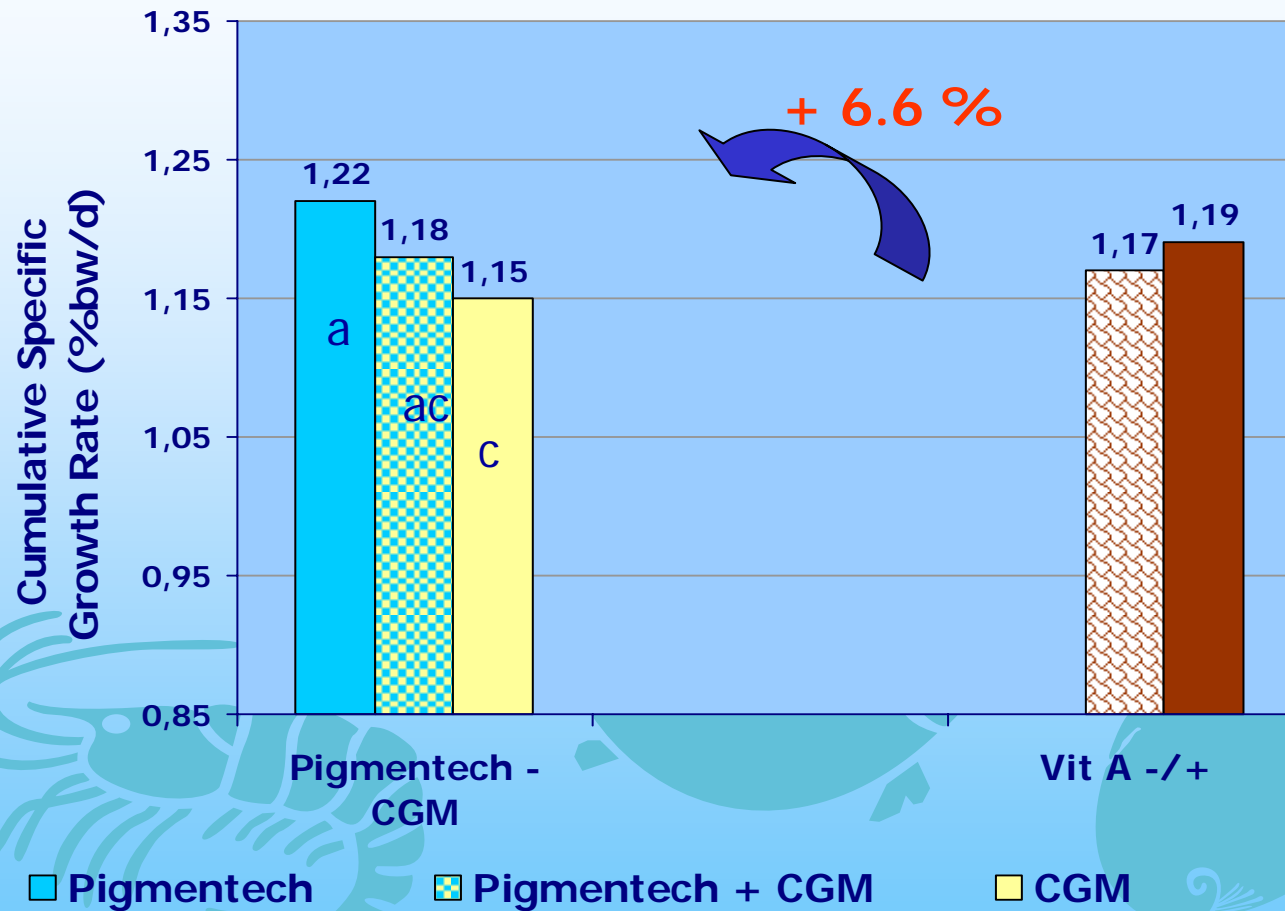


• TREATMENTS

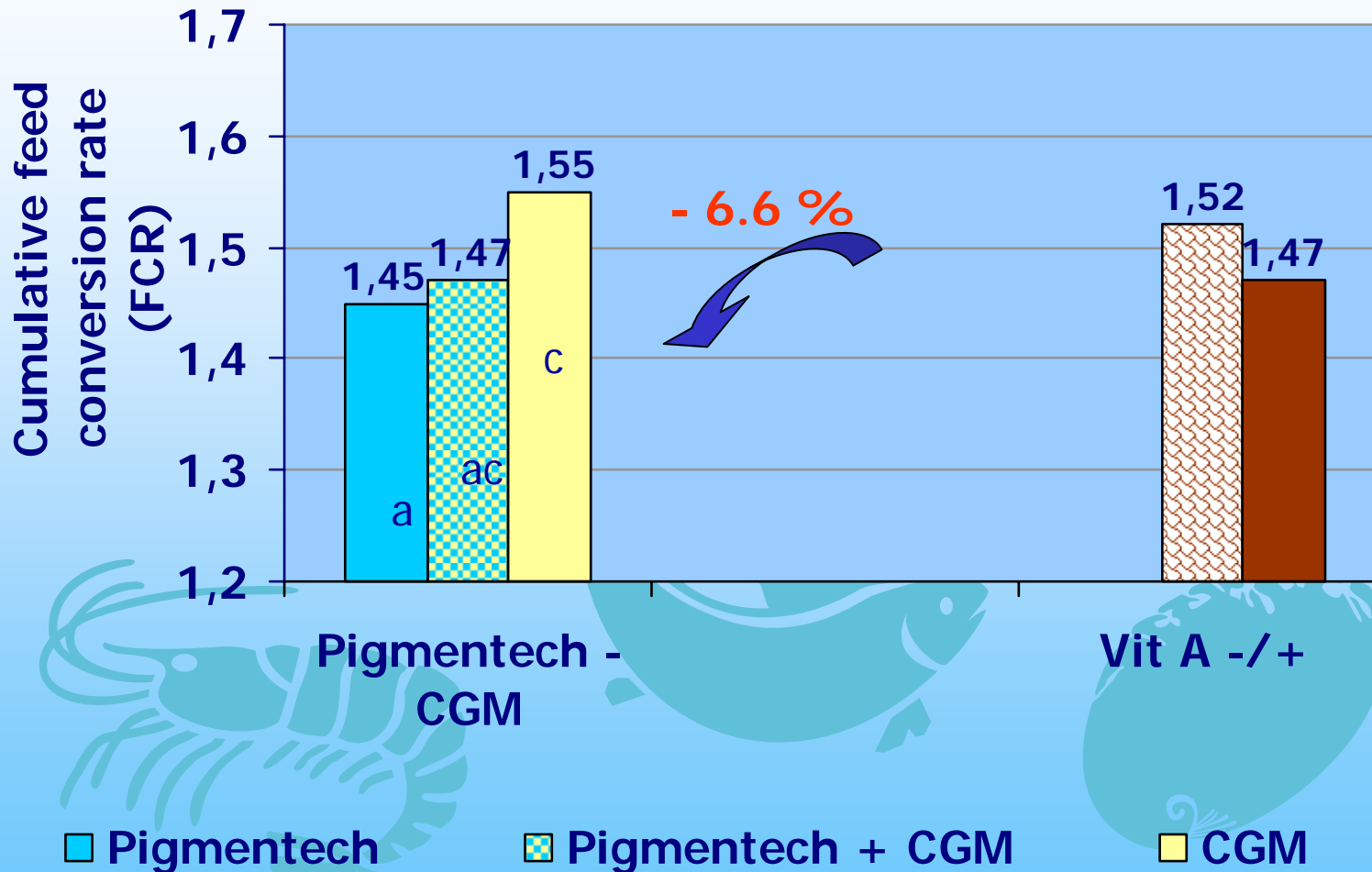
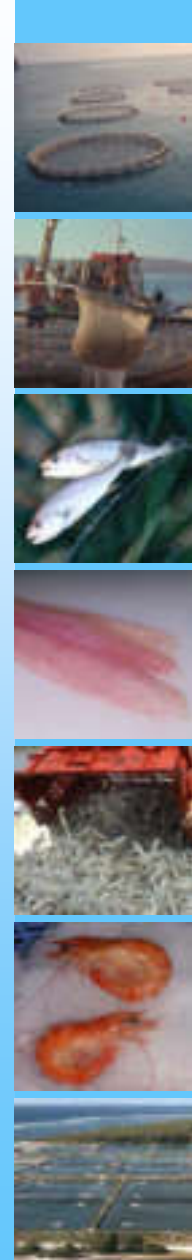
	7.2 % PX 0 % CGM	3.7 % PX 4.8 % CGM	0 % PX 7.1 % CGM
Vit A – (3 000 UI)	A	C	E
Vit A + (15 000 UI)	B	D	F



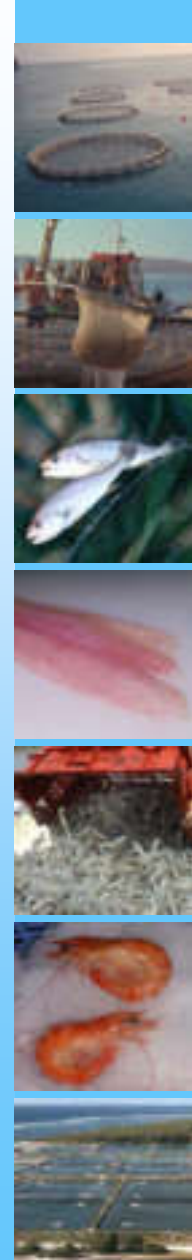
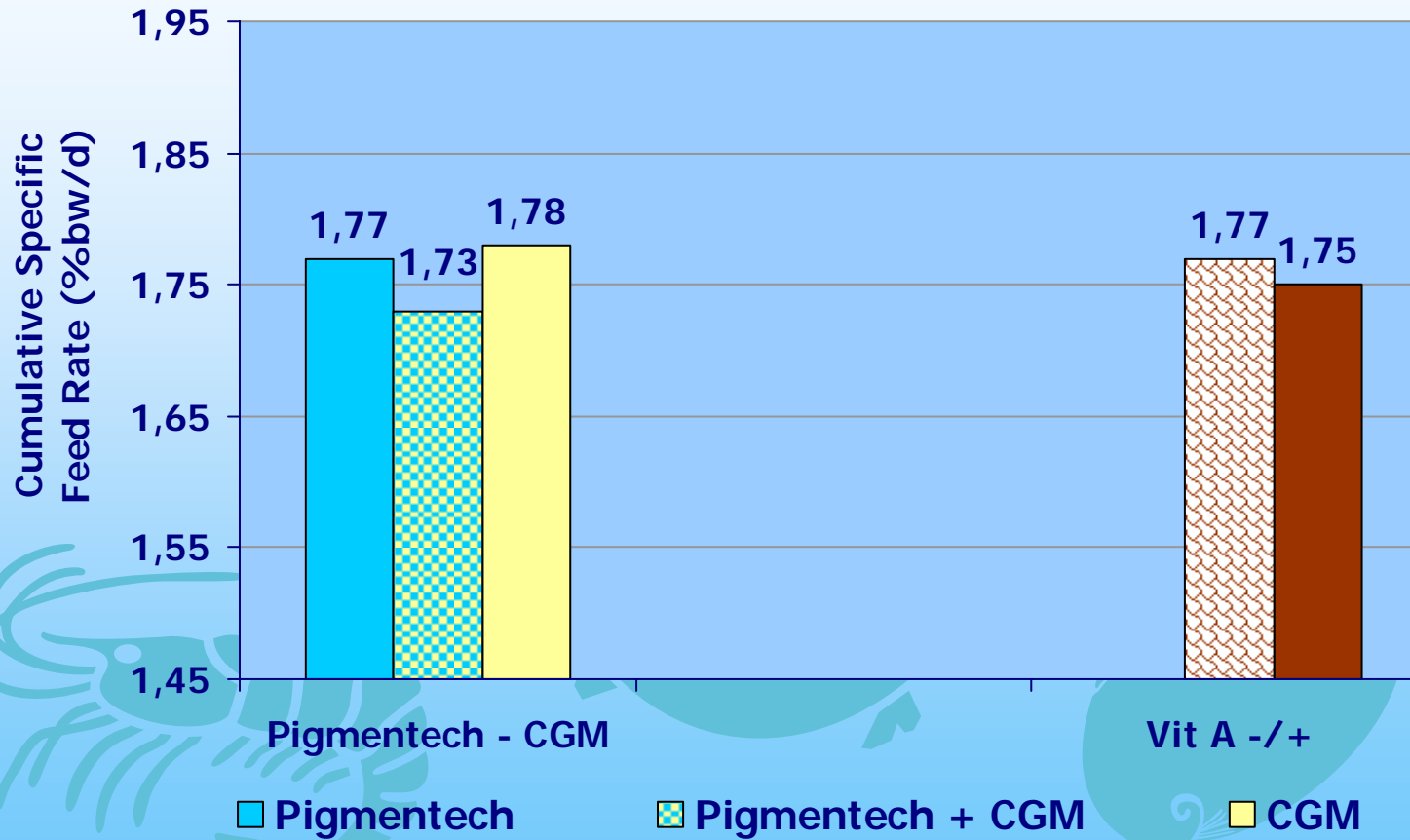
PIGMENTECH RESULTS: GROWTH



PIGMENTECH RESULTS: FEED CONVERSION

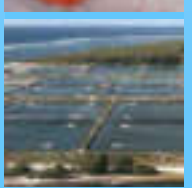
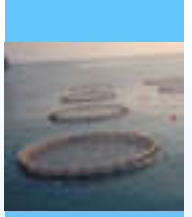
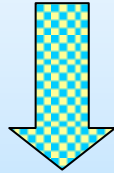


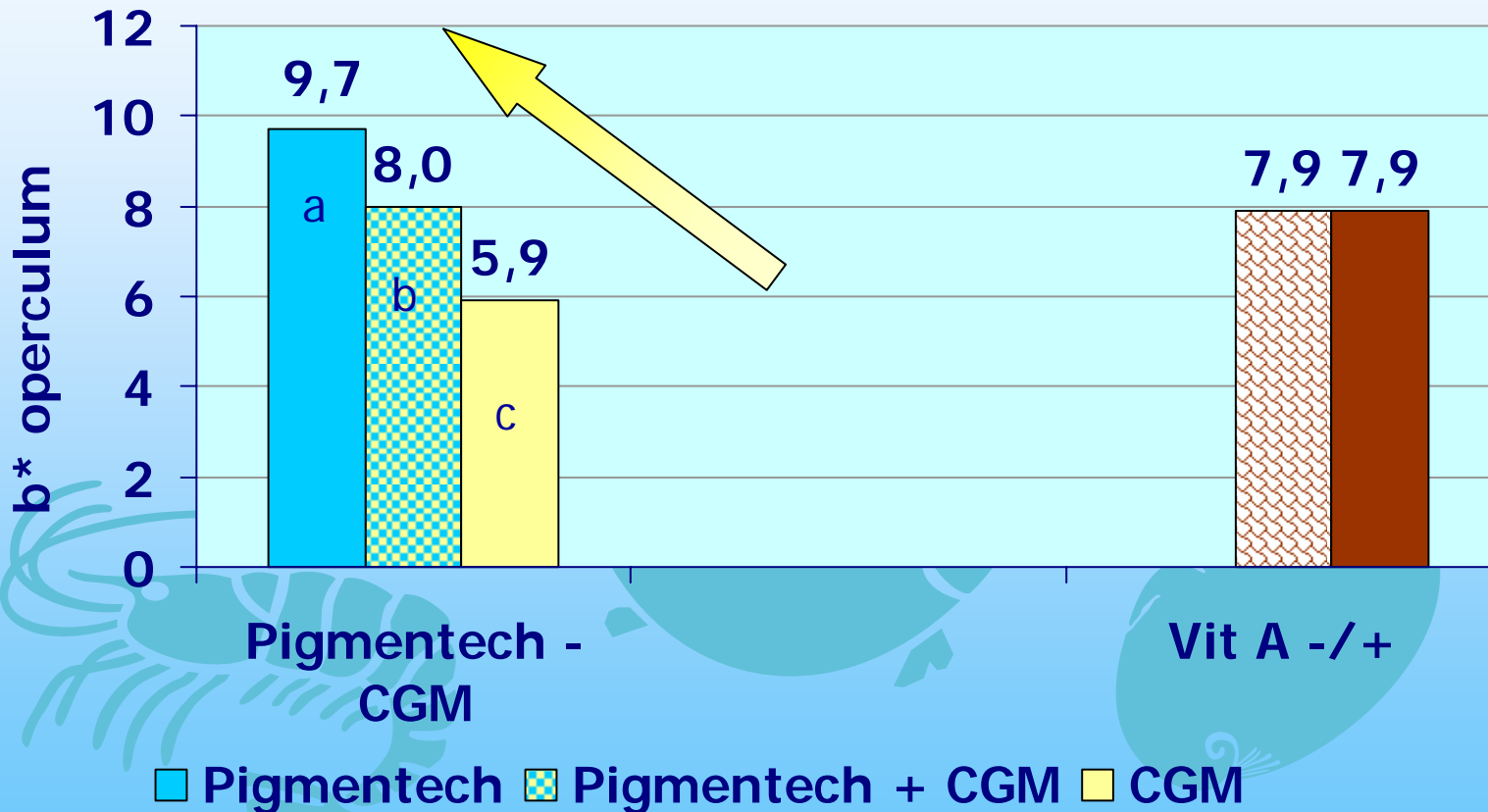
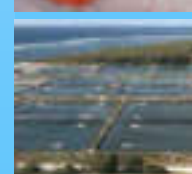
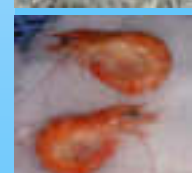
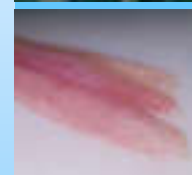
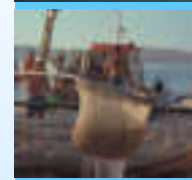
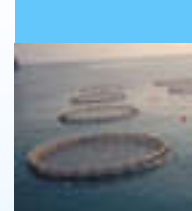
PIGMENTECH RESULTS: FEED INTAKE



PIGMENTECH

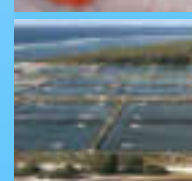
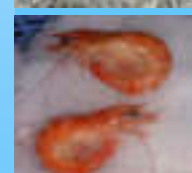
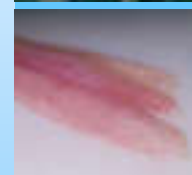
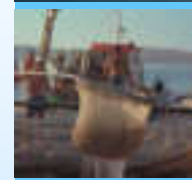
RESULTS: COLORATION

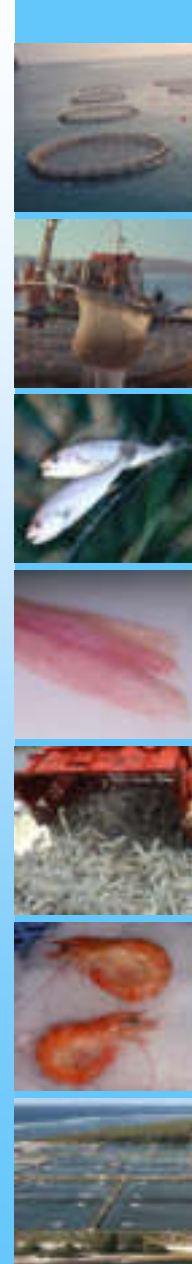
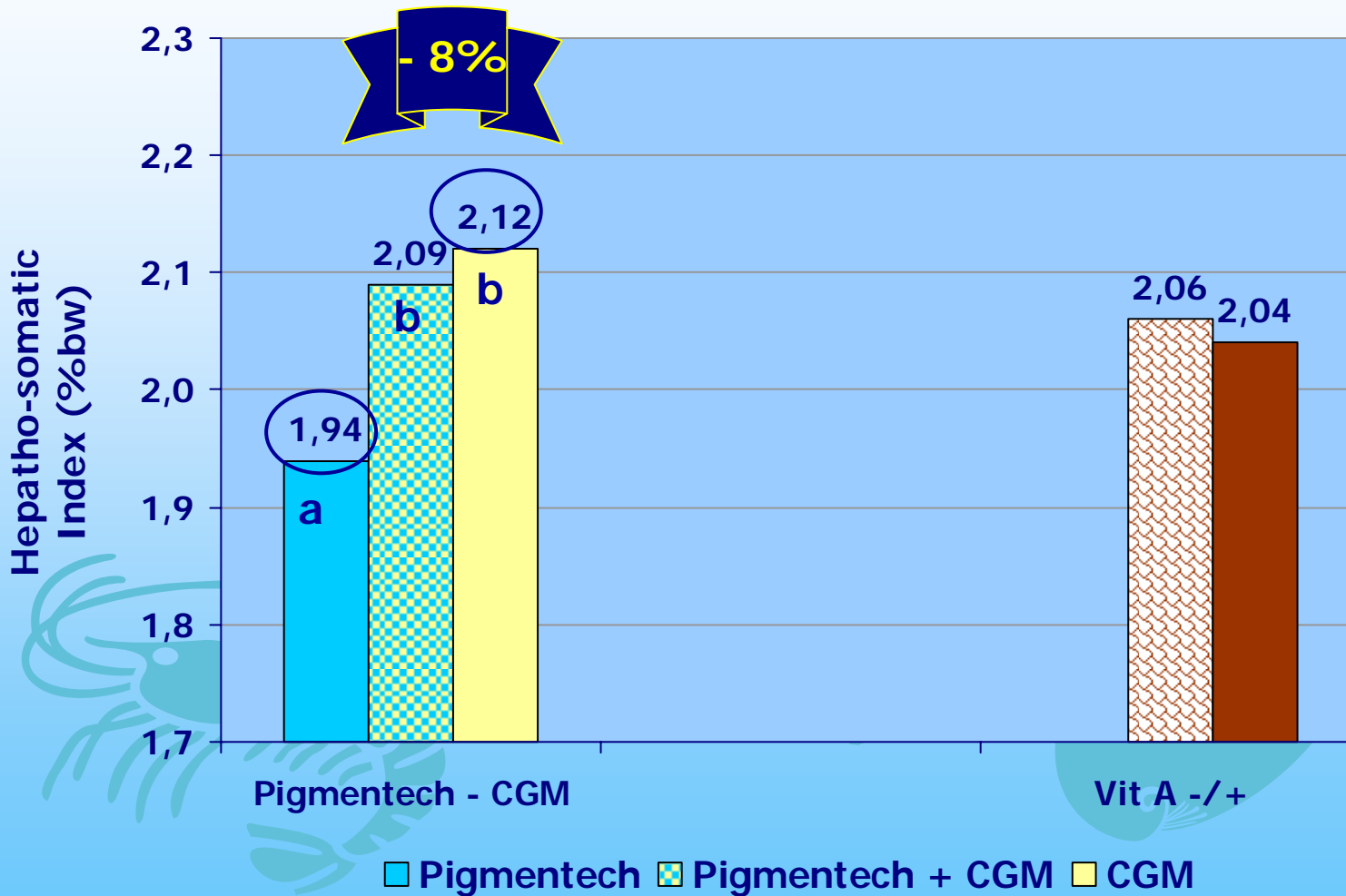




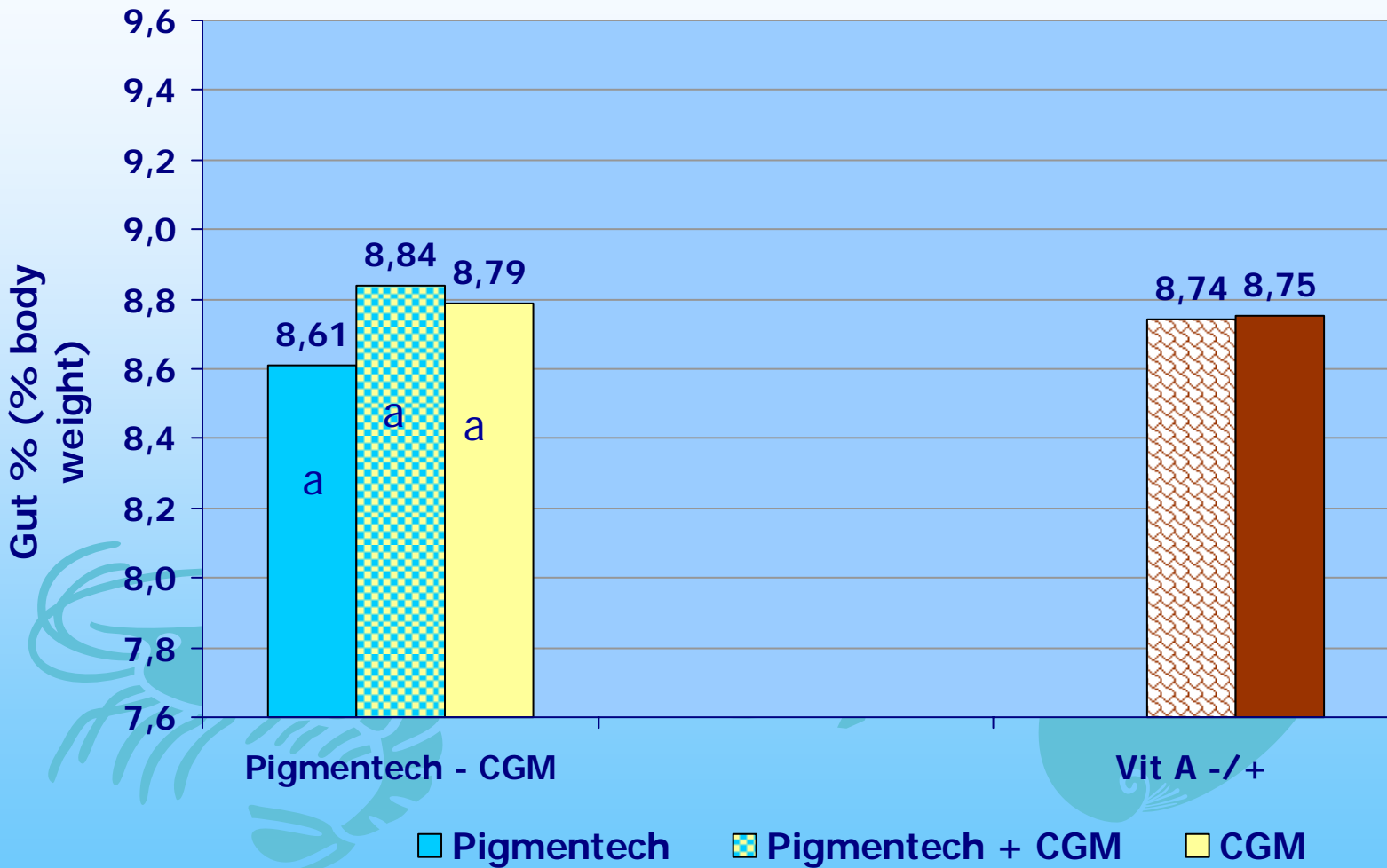
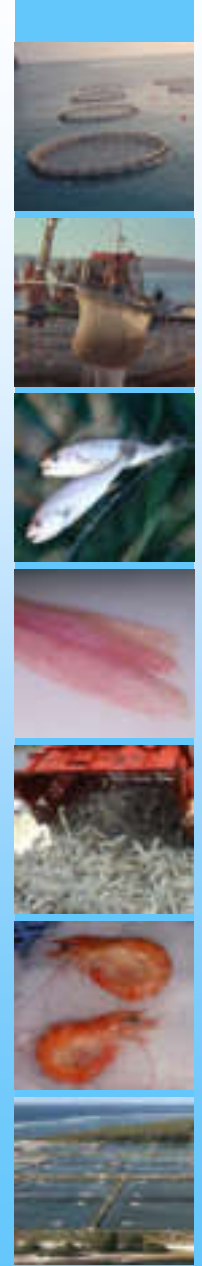
PIGMENTECH

**RESULTS: COLORATION
OPERCULUM : GOLD-YELLOW**





PIGMENTECH RESULTS: GUT %



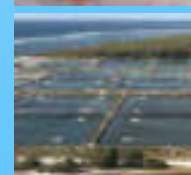
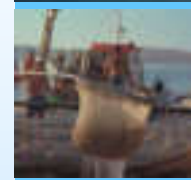
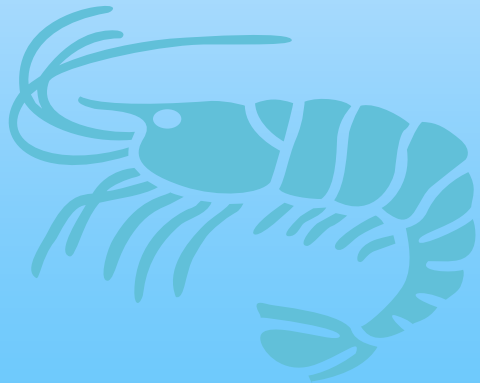
PIGMENTECH CONCLUSION

INCLUDING 5-7% OF PIGMENTECH IN SEA BREAM FEED:

⇒ IMPROVES FCR BY 5-7% EVEN IN HIGH QUALITY FEED

⇒ IMPROVES GROWTH (SGR) BY 5-6%

⇒ BRINGS GILTY YELLOW COLOR OF OPERCULUM



PIGMENTECH CONCLUSION



ECONOMY (Greek prices January 2003)

5 % PIGMENTECH

CONTROL

Gutted fish sold (kg)	1000	1000
Gut %	8.6 %	8.8 %
Live fish produced	1 094 kg	1 096 kg
Feed conversion rate	1.45	1.55
Feed consumed	1 586 kg	1 700 kg
Raw material cost (€/t feed)	636 €	622 €
Raw material cost	1 008.97 €	1 057.13 €
Gutted fish price (€/kg)	3.50	3.50
Gutted fish sales (1 000 kg)	3 500.00 €	3 500.00 €
Earnings	2 491.03 €	2 442.87 €
Extra gain (€/t gutted fish)	48.16 €	
Extra gain (€/t feed)	30.35 €	



PIGMENTECH CONCLUSION

• OPTIMIZATION OF SEA BREAM GROWER FEED AT THE SAME COST

45/20 PROTEIN/FAT

CGM INCLUDED

ME = 16.4 MJ/KG

RMP : 622 €/T

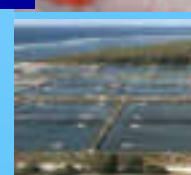
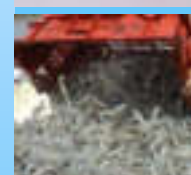
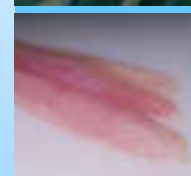
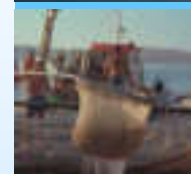
- INCLUSION OF 5%
PIGMENTECH**

- NO ADDITIONNAL COSTS**

⇒ **SAVINGS OF PROT/FAT :
(44,5 / 19)**

➤ **PIGMENTS : + 55 PPM**

➤ **3-4% BENEFICIAL GROWTH**



⇒ **ANTIOXYDANTS (XANTHOPHYLLS, VITAMIN E,...)**

⇒ **FATTY ACID (LNA)**

⇒ **NON GMO**

⇒ **WELL BALANCED PROTEINS (AMINO ACID PROFILE)**

