

Emerging Species For UK Aquaculture

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What could the future be for UK Aquaculture ?

- Offshore submersible globes or cages
- Moving existing flow through systems towards re-circulation (model trout farms in Denmark !)
- Algal production for pharmaceuticals, bio fuels, food supplements, fish food.



What could the future be for UK Aquaculture ?

- Aquaponics e.g. Tilapia/herbs, Barramundi/water lettuce



What could the future be for UK Aquaculture ?

- Multi trophic systems e.g. Canada & Wales
Finfish– Mussels – Seaweed IMTA
- Aquaculture around Wind-farm developments ?



What are the current Emerging Species for UK Aquaculture

Exotics

- Tilapia & Catfish
- Barramundi & Hybrid Striped Bass
- Prawns & Crayfish

Natives

- Halibut & Turbot
- Sea Bass & Dover Sole
- Cod & Haddock
- Sea Urchin or Abalone
- Zander or Char

Exotic Freshwater Species

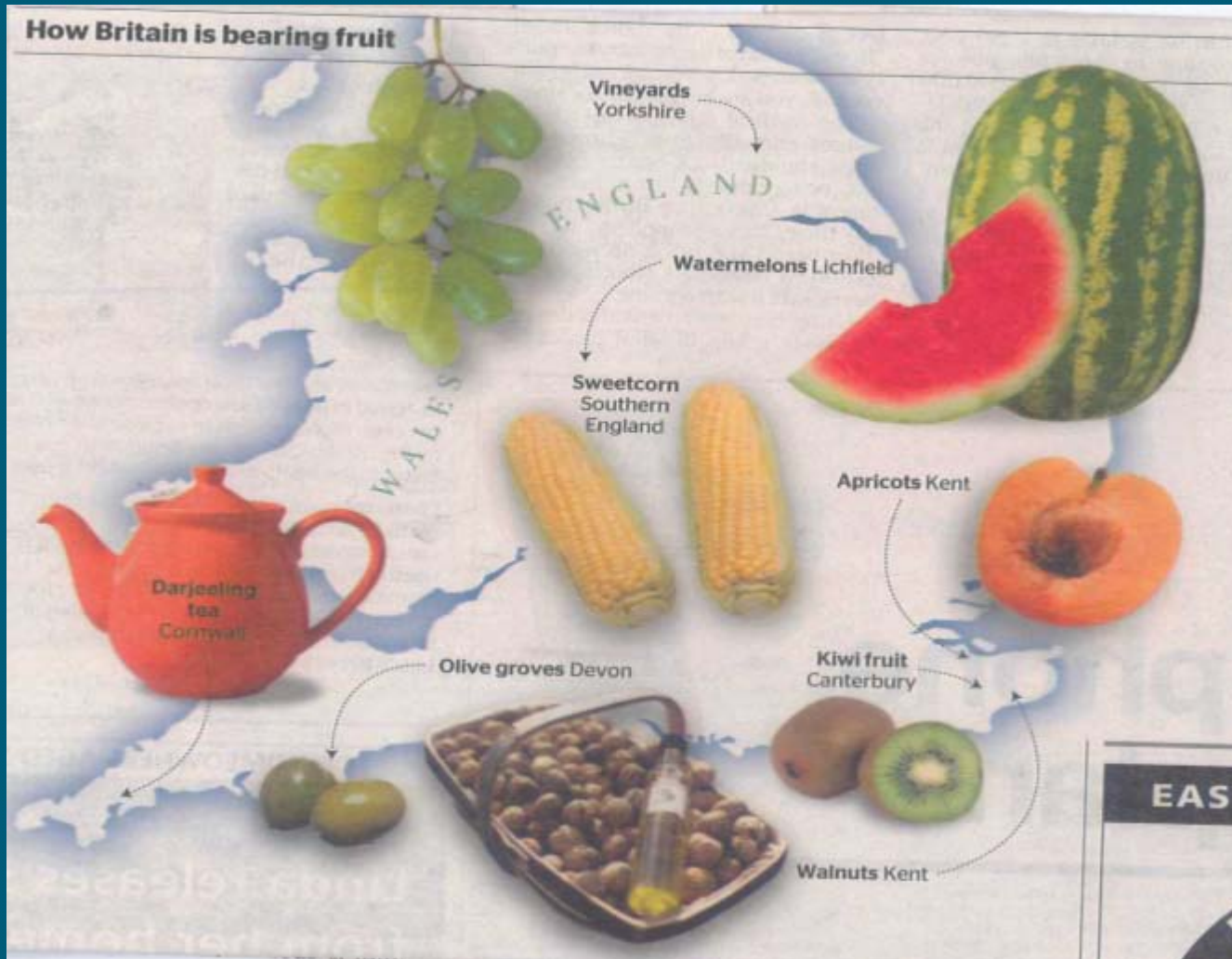
- Small but increasing interest in warm water species in land based recirculation systems
- Controlled environment, highly technical, increased set up costs.
- Lower environmental impact (minimal discharge, no escapees, bio-secure, no predator problems)
- Producers developing systems for the intensive production of species such as tilapia, catfish, striped bass, barramundi



Recirculation systems



Why exotics



Why Tilapia, Catfish, Barramundi & Hybrid Striped Bass ?

- Tried and tested & availability of Fry
- Growth rate and crop time (2) & Technology (YY)
- Fresh water option Agricultural farmers looking to diversify
- Tolerance (Catfish & Tilapia)
- US Tilapia popularity (TGIs)
- Increasing diverse market less conservative eating habits
- Barramundi and hybrid striped bass higher value products
- Tilapia are herbivorous Biofloc

Prawns and Crayfish

- Pilot, Recirc, IMTA, Pig farmer
- Potential *C. Quadracarinatus* Polyculture recircs IMTA (Land based)

Ecological Footprint, CO2 etc

- Space, habitat
- High production from small area.
- But heating costs ? (insulation etc)
- But electricity costs ? (alternative energy sources)
- CO2 footprint - Dutch study Pangas V's Clarias
- Dutch recircs still face stiff competition
- 6% non natives introductions successful / problematic
- Less likely to survive our winters than temperate non-natives

Alien Species in Aquaculture

EU Legislation already exist

Defra draft Statutory Instrument

Reducing the risk of Non Natives in aquaculture impacting on native species

Introductions and farms with Alien species must be risk assessed

Expert committee (farmer pays ££)

Key Points

FHI hope that indoor warm water 'closed facilities' with no risk of escape to wild waters = authorization by FHI = no expensive risk assessment.

Cefas (FHI) want successful industry with minimal environmental impact

Importers / new industry should think bio-security (BMP's)

Emerging native Species

Halibut & Turbot

Markets, Culture, Investment and Maturity.



Sea Bass & Dover sole

• High value, demand, crop time in recirc
Pump ashore recirculation & SOLEA project.



Cod & Haddock

• Price of wild Cod, Press coverage.
• Economics, Some technical issues,



Sea Urchins & Abalone

High value, SUDAVEB, Feed supplies, IMTA .

Zander or Char

Why not stick to a few species ?

- Risk
- Minimises cyclical supply / demand
- Freshwater as well as marine
- Our own freshwater species?
- Choice, Diversification
- Blue-house technology – need alternative species

Bigger picture

Socio – economic arguments

Why can't we have food security through imports ?

- Smacks of being Nimbys ? Its not food security !
- What about their environment - Ha's Delta, Wetland.
- What about their ecology, non native issues.
- They will want to feed themselves with the good stuff as wealth increases.
- Do they have the same level of regulation and environmental protection ?
- Carbon footprint.

Food security and political drivers serious issues

Key messages

- Re-invigorate sustainable aquaculture research helping UK aquaculture businesses
- Encourage Investment and Finance
- Increase production across a selection of emerging species taking industry to maturity.
- Mitigate against and find solutions for environmental problems
- Minimise risks to the environment and only use precautionary principle when necessary
- Some environmental bodies should stop saying why we can't and engage in dialogue of how we can.

Proposal

We can easily double production of several of the emerging species by 2020 and with a can do attitude and stakeholders working together we can achieve a doubling of UK aquaculture production.