



Marine Biotechnology at Work

Brandon Bioscience

- Established 1998 in Tralee
- Plant Biostimulants from Marine Bioresources
- Solutions to abiotic stress in plants
- 95% of output exported across 36 countries
- Team of 20 – 50% graduates
- Research is key to competing successfully

Brandon Bioscience

Sports Turf and Gardens



Maracana Stadium, Brazil
Allianz Arena, Munich
Croke Park, Dublin
Celtic Manor, Wales
Buckingham Palace, London

Commercial Farms



Private Farms
Corporate Farms
Size range 1 – 10,000 Ha
Tomato, Potato, Citrus, Grape
Strawberry, Melon, Papaya,
Coffee, Almond, Vegetables
Oil Seed Rape, Barley, Rice.....

Leading Manufacturers



Top 20 Ag Chem. Co's
Large Regional Distributors
Established Brands
Local Manufactures & Brands

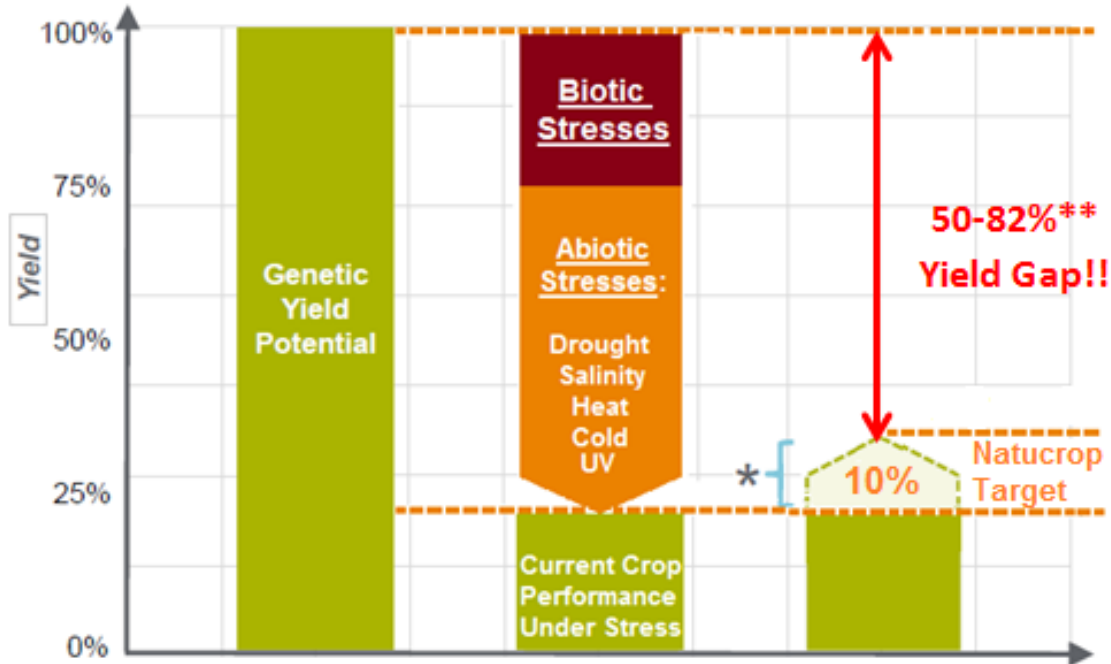
In Simple Terms



The World Bank estimates that **one hectare of land will need to feed 5 people in 2025**, whereas in 1960 one hectare was required to feed only 2 people.⁶

The Opportunity

The Opportunity: **“Bridging the Gap”**



*10% Yield increase as a result of the 3G effect.

**Boyer (1982), Bray et al (2000), Cook, (2006), Srinivasan et al (2009)

Research Funding

- Innovation Vouchers
 - Limited value, limited number, VAT
- Innovation Partnerships
 - IP protection, publications, diverging objectives
- Centre's of Excellence/Knowledge
 - SABC, Teagasc
- FP7/Horizon 2020
 - Competitive process, continuity, ridged
- International Programs
 - Science Without Borders
- Internal Resources
 - Control, costly

Brazilian Soya Trial

- Trials performed at ESALQ-USP
- Crop: Soya
- Prof. Dr. Paulo de Castro
- *Ascophyllum nodosum* (ANE)
Biostimulant



| Treatments | Pod Number | Pod Mass | Seed Number | Seed Mass |
|------------|------------|----------|-------------|-----------|
| Control | 147.286b | 83.419b | 333.57b | 57.984b |
| ANE | 225.286a | 126.091a | 488.57a | 89.191a |

The Challenges

- Measurement of 'success'
 - Patents, publications etc.
 - Competing needs
 - Smart measures
- Project duration
- Maintaining Teams/expertise
- Project management
 - Academic calendar
 - Access to facilities

The Challenges

- Regulatory Obstacles
 - EU research support but no single market
 - National agencies – same team?
- Raw Material
 - Sale of Arramara Teo disturbing
 - Need to manage resource
 - Need to guarantee access to resource
- Belief we can achieve
 - Vision/Understanding/Support