Growing a career in agricultural science

Dr Niall Thomson

Syngenta Ltd

Jeallot’s Hill International Research Centre, UK
Helping small and large farms meet the challenges of global food security

Our ambition

is to bring greater food security in an environmentally sustainable way to an increasingly populous world by creating a worldwide step-change in farm productivity

8M large-scale farms >100 Ha

450M smallholder farms ~2.0 Ha
Our Contribution:
With passionate people and a comprehensive capability

World-class science

Ambitious objectives

Global reach and experience
Our Contribution:
With passionate people and a comprehensive capability

$1.4 billion R&D investment in 2015 and more than 5,000 R&D staff

Over 28,000 employees in some 90 countries

$13.4bn sales in 2015
Demand for food is driven by population growth and rising calorie consumption

**World population**
> 80% of growth in emerging markets

- Developed
- Emerging

<table>
<thead>
<tr>
<th>Year</th>
<th>Developed</th>
<th>Emerging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>2.5 billion</td>
<td>2.5 billion</td>
</tr>
<tr>
<td>2011</td>
<td>7 billion</td>
<td>7 billion</td>
</tr>
<tr>
<td>2050</td>
<td>9 billion</td>
<td>9 billion</td>
</tr>
</tbody>
</table>

Source: FAO, Syngenta analysis

**World demand for grains**

- Food
- Feed

<table>
<thead>
<tr>
<th>Year</th>
<th>1970</th>
<th>1990</th>
<th>2010</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereal, rice and corn</td>
<td>1.0</td>
<td>1.5</td>
<td>2.0</td>
<td>3.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

+50%

* Cereals, rice and corn

Classification: PUBLIC
Environmental stresses are increasing

World stress map
Climate change is already reducing water and arable land

Climate change impact
- High
- Medium
- Low

requiring better use of existing farmland

1 hectare
fed 2 people
1 hectare needs
to feed 5 people

1950  2030

Agriculture uses 70% of the world’s fresh water withdrawals

Source: UNEP, Cline, Syngenta
Syngenta offers tailored agronomic solutions
The grower’s world is increasingly complex

- Future farmer
- Global financial instability
- Societal pressures
- Environmental pressures
- Value chain
- Governments and regulators
- Input costs
The Good Growth Plan

We’ve made six commitments to help grow more food using fewer resources, while protecting nature, and at the same time helping people in rural communities live better lives.

**More food**  
Less waste

- **Make crops more efficient**
  Increase average productivity of the world’s major crops by 20% without using more land, water or inputs

**More biodiversity**  
Less degradation

- **Rescue more farmland**
  Improve the fertility of 10 million hectares of farmland on the brink of degradation

- **Help biodiversity flourish**
  Enhance biodiversity on 5 million hectares of farmland

**More health**  
Less poverty

- **Empower smallholders**
  Reach 20 million smallholders and enable them to increase productivity by 50%

- **Help people stay safe**
  Train 20 million farm workers on labor safety, especially in developing countries

- **Look after every worker**
  Strive for fair labor conditions throughout our entire supply chain network

One planet. Six commitments.
Where do I fit…

- Chemical Physics Msci Glasgow University
- University of British Columbia exchange programme
- Materials Science PhD Imperial College London

Syngenta’s Largest Research centre
Employs over 700 R&D staff

Jealott’s Hill international research centre
My Career

2008
Chemist
Formulation development
Part of a project
Student supervision

2009
Senior Chemist
1st internal report
Leading a $1m project
1st direct report

2012
Project Leader
Steering team for a spin out company
Multiple reports
1st PhD student

2014
Team Leader
$3m projects
Owner of a science strategy

2016
Senior team Leader
Formulation development
Multiple big projects in team
Multidisciplinary team of 7

Classification: PUBLIC
Crop Protection formulations are:

Are ‘vehicles’ to safely deliver an active ingredient (to control a disease, pest or weed) to a crop/target in an efficient, effective and convenient way.
Why do we have to formulate?
SOLATENOL™: Application and droplet behaviour

Water on wheat leaf

SOLATENOL™ + Prothioconazole on wheat leaf

Water bouncing off leaf

Optimised formulation retaining on leaf
ELATUS™ The future of soybean rust control

A step change technology based on new SDHI chemistry

Since 2000 rust has caused over $20bn of losses

Rust control

<table>
<thead>
<tr>
<th>Product</th>
<th>Sprays</th>
<th>Interval*</th>
<th>Rust Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strobi-Triazole</td>
<td>4</td>
<td>14 days</td>
<td>70%</td>
</tr>
<tr>
<td>PrioriXtra</td>
<td>1</td>
<td>14 days</td>
<td>90%</td>
</tr>
<tr>
<td>Elatus</td>
<td>2</td>
<td>21 days</td>
<td>90%</td>
</tr>
</tbody>
</table>

*Interval between applications
Where our people are located

NAFTA ~ 5000

EAME ~12,000

LATAM ~ 5,000

APAC ~ 6,000

TOTAL = > 28,000 and growing
Where our people are located

- NAFTA: ~5,000
- EAME: ~12,000
- LATAM: ~5,000
- APAC: ~6,000

TOTAL = > 28,000 and growing

Classification: PUBLIC
Technology & Engineering - Global Function with Strong Interfaces

- Commercial
- Supply Chain
- Manufacturing
- Production
- HSE
- Procurement
- Development
- Research & Technology
Areas of work in Syngenta

- Chemistry – research, process, manufacturing, analytical, formulation.
- Biology – plant science, GM, seeds, entomology. Product biology
- Agronomy
- Engineering – production, seeds processing, pilot plant, development, project management.
- Regulatory – human, environmental, animal safety, toxicology, product registrations.
- HSE – environmental, occupational, information.
- IP
- Legal
- Business and marketing – includes supply chain, procurement, sourcing, asset planning etc.

www.syngentajobs.com
She can feed a hungry planet. We’re going to help her do it.

One Planet. Six Commitments. www.goodgrowthplan.com