2011: 7 Billion

2050: 9 Billion

Diagram showing the projected increase in population from 2011 to 2050.
Bridging the gap

Characterization
Line selection
IP filing

Discovery
proof of concept

Field Trials

Regulatory
Approvals

New Product

Seed increase, marketing, distribution

2Blades Group
Universities

2Blades

Partners
Asian Soybean Rust

Dr. Cintia Kawashima
Dr. Nadine Ilk
Dr. Brian Rigney
Dr. Yogesh Gupta
Dr. Kathrin Thor
Ruud Grootens
Corn Diseases

Dr. Freddy Boutrot (team leader)
Dr. Carolina Grandellis
Dr. Marion Navarri
Lesley Milnes

In collaboration with Cyril Zipfel
A pigeonpea gene confers resistance to Asian soybean rust in soybean - pp661 - 665
Cintia G Kawashima et al

Rapid cloning of disease-resistance genes in plants using mutagenesis and sequence capture - pp652 - 655
Burkhard Steuernagel et al

Accelerated cloning of a potato late blight–resistance gene using RenSeq and SMRT sequencing pp656 - 660
Kamil Witek et al
Potato Late Blight Resistance
2Blades@Beca: Improving tomato production in East Africa
Wheat stem rust
Expert Team to deliver solutions to plant disease

Roger Freedman  
Founder and Chairman  
Gatsby Foundation  
Sainsbury Laboratory (TSL)

Diana Horvath  
Founder and President  
ATP Capital  
Rockefeller University

Lynne Reuber  
Program Director  
Mendel Biotechnology  
Harvard Medical School

Peter van Esse  
2B Group Leader UK  
Sainsbury Laboratory (TSL)  
Wageningen University

Jack Westwood  
External Affairs  
British Consulate General  
University of Cambridge

Dieuw van der Does  
Team Leader Kenya  
Sainsbury Laboratory (TSL)  
Utrecht University

14 Research Programs  
20 Technologies in Development  
Collaborators in 17 Countries  
Work Presented in 75 Publications  
21 Grants and Contracts
Our communication aims

- To raise awareness about the impact of crop disease on global food production
- To highlight science based solutions to crop disease
- To highlight the importance of investing in science to create novel solutions
- To promote 2Blades, its programs and its scientists
The Dunning-Kruger effect

Kruger and dunning, 1999, *Journal of Personality and Social Psychology*
Expert Team to deliver solutions to plant disease

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Approaches that have proved effective

- **Infographics**
  - series of infographic on soybean, wheat, and potato
  - modular design

- **Twitter**
  - mostly working well, although it is difficult to find new audiences

- **Newsletters**
  - growing list, and they seem to be well received
  - Good for driving traffic to our website.
Approaches that have proved effective

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- Technology, film, music, policy
- Speaking and networking opportunities are useful for getting the message out and reaching new people
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Discovering, advancing, and delivering genetic improvements in crop disease resistance (Image credit: The Harvesters, Pieter Bruegel the Elder)

2 Blades Foundation @2blades • 1h
Hyperspectral imaging and AI used for early detection of the devastating Xylella fastidiosa pathogen in Italian olive groves with accuracy of >90% #cropdisease

Who to follow: John Innes Centre and others, Earth Institute @Earth...

Follow @2blades
Follow @JohnInnesCentre
Follow @ScottBoden12
Tips from the expert: maximizing impacts of tweets

- Include a photo
- Make is easily understandable - no ‘in jokes’, provide necessary context.
- Include a relevant hashtag e.g. #cropdisease or #foodsecurity etc
- Create content that is valuable to your followers - make it topical and relevant and limit promotional content
- Keep tweets short - try not to use the entire character limit
- Engage with others through mentions and retweets
- Don’t be afraid to recycle content
- Think about timing - when are your followers likely to be online
- Use a service like Hotosuite to schedule your tweets for times of the day when most of your followers are online
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How we measure impact on twitter

**Followers**
- **1415 Followers** - growing at a steady rate of about 1 per day.
- We have increased our following by 5x over 2 years.

**Impressions**
- Over the past 3 months our tweets have earned almost 200k impressions (i.e. how many times our tweets have been seen).
- 300 retweets, 400 likes, 1.2k link clicks.
- Average engagement rate of about 1.2% (a rate between 0.09-0.33% is considered to be high).
Pitfalls to avoid

- Being negative
  - Especially on social media
- Just looking at the stats
  - What audience are we targeting?
  - Are we engaging with new audiences?
Approaches that have proved effective

Infographics
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Potatoes resistant to late blight disease can help fight poverty

**Most Important Food Crops In The World**

1. Rice
2. Wheat
3. Potato
4. Maize

**Late blight resistant potatoes could give a yield increase of up to**

**Late blight is a global problem**

19,000,000 people could benefit from late blight resistant potatoes, raising 700,000 out of poverty

$2,750,000,000 Annual loses in developing world due to late blight

Sources:
- http://zipotato.org/potato/
- https://research.cip.cgap.org/confluence/display/GILSEWEI/Social+Impact+and+Economic+Importance+of+Late+Blight
- http://www.rtb.cgiar.org/RTBMaps/

2blades.org
Durable resistance to soybean rust can boost global food security

Soybeans produce more protein per acre than many other foods

2X more than other vegetables/grains
10X more than milk
15X more than meat

Globally, soy production is growing faster than any other crop

130M tons 1996
206M tons 2004
278M tons 2012
540M tons 2090 (projected)

Every $1 invested in soybean research generates $46 worth of benefits

Asian Soybean Rust (ASR) can cause yield losses of up to 80%

Soy is increasingly important in Africa but production can't keep pace. ASR-resistant soybean will help boost yields and reduce dependence on imports

$13 Million 1990
$190 Million 2009
$1 Billion 2013
$3.75 Billion 2090 (projected)

Total soy consumed in Africa

Sources:
https://implant.mississippiengr.org
http://www.nra.org/soybean
http://infostat.fao.org
http://gainconsult.com/impactsoybeanimpact
http://mfenflorida.edu/content/soybean-say

2blades.org
Pitfalls to avoid

- Be careful with jargon
- Keep things simple and uniform
FAKE NEWS INVASION
How we talk about things matters
“You can beat people up with science or you can lead them to knowledge”

Jack Bobo
If people don’t trust you, science doesn’t matter
If people trust you, science doesn’t matter
We need to become better story tellers
Talk about the why and not the what