A successful case study:

Project Title: Demonstration and Commercialisation of a Biorational Pheromone-based Male and Female Attract and Kill System for the Successful Control of Fruit Flies in Asia and Africa

Innovate UK project No: 102028

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Project partners

Project has been led by Russell IPM Ltd who worked with 10 partners in Tanzania, Kenya, Nepal and Bangladesh:

1. Russell IPM Ltd - the Lead Partner
2. Elgon Kenya Ltd
3. ICIPE, Kenya
4. Bytrade Tanzania Ltd
5. Association of Mango growers Tanzania
6. Bangladesh Agricultural Research Institute (BARI)
7. ACI Formulations Limited, Bangladesh
8. EPRC, (NGO, Bangladesh)
9. Nepal Agriculture Research Council (NARC)
10. Dahal Trading Concern, Nepal
11. TITAN, (NGO, Nepal)
Russell IPM - Overview

- Russell IPM is one of the leading manufacturers of semiochemical (pheromone) based monitoring and control products in the UK and one of the largest in Europe.
- We produce safe, smart and sustainable solutions for the agricultural, public health and pest control markets.
- Russell IPM is an innovation-led company, with Research and Development at the heart of what we do.
- The company possesses a great deal of specialised knowledge, which is used for both internal product development and collaborative projects.
Russell IPM

• Russell IPM markets products to over 35 countries worldwide and has a number of subsidiaries globally.

• As recognition of our outstanding performance Russell IPM has been awarded the Queens award for Enterprise: **International trade** in 2011 and the Queens award for Enterprise: **Innovation** in 2012.
As a company, Russell IPM has always invested heavily in R&D to support viability and sustainability in agriculture.

The company possesses a great deal of specialised knowledge, which is used for both internal product development and collaborative projects.

Russell IPM has been a commercial partner with DEFRA Link projects, Innovate UK Technology Strategy Board (TSB) projects, Knowledge Transfer Partnerships (KTP) and FP7 (EU) projects.

These university-business links ensure Russell IPM’s objectives are translated from research and company ambitions into real solutions for the agricultural sector.
Safe, Smart & Sustainable

Environmentally sensitive pest control through pheromone, biorational and digital innovations.
Fruit Fly Damage

- **Fruit flies** cause both direct and indirect damage to horticulture crops worldwide.
- **Direct damage** has been reported up to 70-80% in mango.
- **Indirect damage** including Quarantine restrictions and **Interceptions** in the EU have been on the rise.
- Trade barriers – due to possibility of invasive species penetration
- **Socio-economic implications:** food insecurity, loss of jobs, income and employment etc.
- A serious pesticide penetration risk to the food chain.
**Limitations:**
- Limited efficacy – control only male fruit fly.
- Labour intensive
- Lures need to be changed every 4 weeks.
- 3 applications.
- Trap servicing every week – provides 50-60% control.
Advanced improved technology

Male and female attract & kill method in bitter gourd & mango

Innovative system and key advantages:
- One off application.
- Season long protection.
- Labour and servicing savings.
- Over 95% protection of fruit and vegetable crops.
Table 6. Efficacy of attract and kill trapping method compared to untreated control treatments in bitter gourd at BARI, Gazipur, Bangladesh throughout summer.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Trap catch (Mean of 08 observations)</th>
<th>% fruit infestation during harvest</th>
<th>% healthy fruit number increase over untreated control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>IPM</td>
<td>47.8 b</td>
<td>5.5 b</td>
<td>2.8 b</td>
</tr>
<tr>
<td>Untreated control</td>
<td>165.5 a</td>
<td>16.5 a</td>
<td>34.7 a</td>
</tr>
</tbody>
</table>
Key Achievements

Product has been approved by Local Agriculture Authorities:

The fruit fly control system has been officially approved by regulatory authorities in:

1. Tanzania
2. Nepal
3. Bangladesh

The registration process has been Fast-Track in Tanzania, Nepal and Bangladesh. Approval has been achieved after less than one year. The process generally takes 2-3 years following testing over two seasons and in two locations.

Commercial sales has started immediately after project completion, from May/June, 2016.
Due to outstanding performance of the project, the Nepalese government has approved a new pilot project in 500 hectares of citrus crops.

Similarly, in Bangladesh BARI are coordinating a fruit fly control project funded by the Bangladesh government. The fruit fly control system will be distributed by 1000 IPM clubs throughout the country.

Biorational fruit fly control systems provide an alternative to chemical pesticide and significantly reduce the use of conventional toxic chemicals.

Other countries in Asia and Africa showed interest in promoting it as a national programme including Nigeria, Uganda, Gambia, Senegal, Ghana, Butan, Pakistan, Afghanistan, Sri Lanka and Cambodia.
1. The technology has been promoted through digital and print media including a popular television show, radio jingle, advert in local newspaper and trade magazines.
2. The TV programme in Bangladesh was viewed by over 10 million people.
3. Generate awareness on safe agricultural technology.
4. Digital advert was run in African key trade magazine websites.
5. Technology has been promoted through social media.
6. Attended local and national agricultural exhibitions where technology was publicised to grass root level fruit and vegetable growers.

https://mme6.whatsapp.net/d/b4q0EvzOWGAW16BpL8AEXlbUJo8/AsY8pzh0CzVpEtKsNtOb-rBDT_zqwag3ow6umyK1Wmo.mp3?x=2
1. News articles have been published in Kiswahili, Bengali and Nepali languages
Training and Marketing
Growers are excited about the attract and kill system due to the reduced labour and servicing time for repeat applications.

Above shows one of the model farmer’s (Mr Ngare) sharing his experiences of the attract and kill system for the suppression of fruit flies in mango orchards with other growers in the community.
1. **49 Trials have been** conducted in Asian and African territories in Mango, Guava, citrus, avocado, cucurbit vegetables and melon.

2. **12 Seminars** have been conducted in Bangladesh, Nepal, Kenya and Tanzania.

3. 10 high level meetings have been organised with policy makers, plant protection experts and government advisors.

4. **12 meetings** were organised with local business’, distributors and retailers’ in order to gain significant market share with four countries.

5. **8 hands-on training sessions** were organised with progressive farmers and trainers to further promote the technology.

6. **15 Farmer’s days** were organised with a view to raise awareness of the technology.

7. Our technology has been well received in all territories. However, challenging issues prevail to market the product in Kenya.
The project had a significant impact on Russell IPM’s business and market growth. We are expecting over 1-2 Million GBP business from the sales of fruit fly technology in next 3 years. The possible projection is as follows:

<table>
<thead>
<tr>
<th>Country</th>
<th>Possible Sales in 2016</th>
<th>Possible Sales in 2017</th>
<th>Possible Sales in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nepal</td>
<td>130,000</td>
<td>200,000</td>
<td>350,000</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>300,000</td>
<td>500,000</td>
<td>1100,000</td>
</tr>
<tr>
<td>Tanzania</td>
<td>200,000</td>
<td>450,000</td>
<td>800,000</td>
</tr>
<tr>
<td>Kenya</td>
<td>20,000</td>
<td>100,000</td>
<td>500,000</td>
</tr>
</tbody>
</table>

Total grant received from **Innovate UK** was: **£185,948** and Russell IPM’s first year projection is **£650,000** which is around 3 times more than the grant.

It will subsequently increase in second and third year and after 3 years we are expecting direct business from project territories to reach **over 2 million**. Providing very good value for money.

Without Innovate UK’s help this growth would never be possible.
Why you should apply for the grant

1. To promote British exports in developing counties and accessing new markets.
2. To expand export opportunities in developing counties rather than only focusing on the highly competitive European market.
3. To create stronger trade links with emerging and pre-emerging markets.
4. To understand the potential of, and the constraints of, the export market.
5. To gain regulatory approval with a less expensive data package.
6. To establish relationships with local businesses, grower organisations and policy makers to promote British goods.
7. To contribute to reducing poverty in developing countries through adopting/ promoting innovative agricultural technology, which will increase farmer incomes.
1. Lead partner should have some sort of hands-on experience in overseas market.
2. It is important to build a strong consortium.
3. Should focus on well thought-out technology or concepts which are competitive and affordable in developing counties.
4. Projects should deliver problem-solving and sustainable solutions to disadvantaged farmers.
5. Project out-put should improve the livelihood of farmers and women in developing counties.
6. Technology should ensure food safety as well as food security.
1. Market information can be achieved through participation in local and regional trade shows, agricultural exhibitions and agricultural workshops.

2. Through UKTI trade missions in developing countries – including briefing by British High Commission, group meetings with private companies, government institutions, state-owned enterprises and potential agents and distributors.

3. UKTI export events and International communication master classes.

4. UKTI runs a fee paid service - Overseas Market Introduction Services (OMIS) to find the right partner. Which can help your business at any stage of exporting - from finding opportunities to setting up in another country.

Benefits
- OMIS puts you in touch directly with a partner/agent in overseas markets.
- It can help you to access the right international partner and support on the best way to do business in specific market.

For more information click the link below

https://www.gov.uk/guidance/overseas-market-introduction-service
1. It is vital that overseas partners are fully committed to project work packages and project expenditure.
2. In Agri-tech projects, overseas partners get paid in arrears, unlike other funding projects such as Horizon 2020, USAID, UNDP and other donor agencies.
3. It would be helpful if the overseas partner could be paid up front.
4. Lead partner should help overseas partner with the organising of quarterly reports, project completion reports and financial statement submission.
5. All partners should keep a close eye on project finance.
Thanks for your attention