




Public Engagement Report

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Scope	This document reports the dissemination activities for the FP7 PROteINSECT project.
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Title: Enabling the exploitation of Insects as a Sustainable Source of Protein for Animal Feed and Human Nutrition. Acronym: PROteINSECT Grant Agreement Number: 312084	
	
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Introduction

This 'Public Engagement Report' provides an overview of the whole dissemination and communication activities achieved in the first 18 months of the project to support the success of the PROteINSECT project as laid down in the project's "Description of Work".

This deliverable does not confine itself only to those activities that engage directly with the public (despite its title). However the Report distinguishes between activities and events for 'the public' and those that have been designed and delivered for identified stakeholder groups.

The deliverable also reports on the channels and materials that have been designed, delivered and utilised to drive and support dissemination activities.

In the absence of specific results from the scientific work packages suitable for wider communication, during this period dissemination activity has been led primarily by the project's own activity at conferences and events, issue of materials such as a video, engagement with the public via a survey, traditional and social media activity.

Events open to the public, as well as those organised for specific target audiences such as feed producers and farmers, were expected in all member countries in order to raise awareness of the topic, record reactions and perceptions and to improve knowledge and understanding.

Media communication and social media was initiated, utilising specific project collateral and events as appropriate, to further raise awareness and increase knowledge and understanding amongst both specialist audiences as well as the general public.

Evaluation of dissemination activity has been achieved utilising quantitative indicators (e.g. growth in number of hits on and unique visitors to the website, press articles with reports including feedback) .

Abbreviations list

DP – Dissemination Plan

EC – European Commission

EU – European Union

GA – Grant Agreement

R&D – Research and Development

RTD – Research and Technological Development

Short Project Overview

The livestock industry is the industrial sector with one of the lowest budgets for R&D in Europe. What counts first is production – the readiness to test innovations such as new processes, products and technologies is limited. Introducing novel research findings and technologies into new markets or even existing markets in the livestock area is therefore always a challenge for research and technology providers.

PROteINSECT will target various stakeholders and address them in the optimal way.

PROteINSECT will analyse methods for knowledge and technology transfer and define best practice. PROteINSECT focuses on production of fly larvae, as they are the most versatile protein source for animal feed in two respects. Firstly, fly larvae grow on various substrates ranging from vegetable wastes to manure. Secondly, the protein composition of fly larvae is likely to be an efficient feed source for various monogastrics, such as fish, poultry and pigs.

PROteINSECT will be involving various players in the process; RTD providers (Research centres, Universities, Industry, etc.), policy makers, farmers and consumers (end users). More information can be found on the PROteINSECT website: www.proteinsect.eu

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Dissemination Aims and Objectives

1. Dissemination Strategy Overall

An integrated dissemination strategy is fundamental to communicating the benefits and positive impact of the uptake of knowledge generated by PROteINSECT to stakeholders. The PROteINSECT project has a strong dissemination dimension as a substantial part of its key activities are concerned with spreading research results (a realistic assessment of the state of the art), supporting a realistic appraisal of the legislation and regulation, and bringing new knowledge about and potential acceptance of the innovation processes across the spectrum of knowledge sources (research centres, RTD intensive companies and universities) to end users (farmers and consumers). Last but not least, public dissemination of the project results is important for two reasons (1) gaining the understanding and sustained support of tax payers for publicly funded research and technology development in Europe. (2) Assessing consumer opinion and potential acceptance of the use of protein from insects in animal feed and ultimately for human consumption.

The specific objectives of the dissemination activities are to build awareness for the project and its results. The dissemination plan lays down the foundations for an effective and diverse communication of potential benefits to interested stakeholders beyond the projects partners. As the market and regulatory frameworks may change during the course of the project, it may be necessary to consider adaptations as the project progresses.

The Overall Dissemination Strategy encompasses a broad range of activities and goals:

- Raise awareness of the project itself through developing its 'brand' via a logo and project website (WP6)
- Create a platform and mechanism for all partners to communicate effectively with each other and across work packages (WP6)
- Produce appropriate materials for use in dissemination activities (leaflet, bookmark) (WP6)
- Identify all appropriate external stakeholders (national, EU and global) and the channels through which those stakeholders can be reached effectively (WP5)
- Promote and disseminate all the project materials appropriate for public dissemination to the public and to key stakeholders (since the objective of PROteINSECT is to develop novel technologies for feed and feed additive producers, some results will remain confidential)
- Inform decision-makers at policy and legislative levels and regulatory bodies of the research and development work of the PROteINSECT Consortium (WP5)

2. The Public and identified target Stakeholder Groups

The general public are important stakeholders as described above and PROteINSECT will maintain activity and develop material (in a variety of languages where appropriate) suitable for on-going engagement with an increasing number of consumers. A baseline survey of consumer perception and opinion was undertaken (Oct 2013-March 2014) and further surveys will follow. (see page 00)

The targeted stakeholder groups identified in DEL 6.1 are critical for dissemination and communications to raise awareness, develop understanding and transfer appropriate knowledge on the potential and feasibility of the use of insect protein. A database of specific contacts within these key targeted groups is being built in WP5.

Organisations, groups and individuals responsible at European and National levels (Europe and ICPC) for policy development related to nutrition, safety, health, and animal welfare are primary targets to instigate dialogue, debate and discussion (WP5).

Pig, poultry and fish producers and also feed millers and distributors are also important stakeholders for engagement and are included in all dissemination activity.

3. Channels and Tools – for engagement with the Public & all Target Groups

a. Website

- The PROteINSECT website is the central channel for wider dissemination, providing a window on to the project for the general public as well as all target stakeholder groups.

	Description	Due date	Delivered
Phase I	Basic website	Within 4 months after Kick off ¹	March 2013
Phase II	Website re-launch and update	After annual meeting	November 2013
Phase III	Continuous maintenance	Future meetings	Ongoing

Figure 3.1: Phased development of the project website

- The public website section covers non-confidential information and updates on the project, its objectives, project partners, as well as providing contact details for the interested parties to get in touch with the consortium. To increase traffic to the PROteINSECT website, all project partners have created links between the PROteINSECT website and their organisation and/or company websites.

¹ In accordance with the DoW

The screenshot shows the CABI website interface. At the top, there are navigation links: 'About CABI', 'Where we work', 'Get involved', 'News and blog', 'Contact', and 'Members'. Below these are three main menu categories: 'Projects' (Development and research projects including Plantwise), 'Services' (Knowledge management & microbial services), and 'Publishing Products' (Books, databases, compendia, full text publications). A search bar is located below the menus. The main content area features a headline: 'Improving lives by solving problems in agriculture and the environment...'. Below this is a breadcrumb trail: 'Home > About CABI > cabi centres > Switzerland > New CABI project investigates the use of insects in animal feed'. The article title is 'New CABI project investigates the use of insects in animal feed'. A large image of a fly is shown. The text below the image reads: 'CABI joins Fera for a new €3 million, EU-funded project, PROteINSECT, to investigate growing flies as a potential source of protein in animal feed'. The date is 'Switzerland- 29 May 2013'. The article text continues: 'With an increasing global population and a rise in per-capita meat consumption in developing countries, there is a need to investigate alternative sources of protein for use in animal feed. Europe's high demand for feed protein is currently largely met though imported soya. For generations, a variety of insects have been a valuable source of protein for both human consumption and animal feed across continents other than Europe. As consumption habits shift to pork, chicken and fish, insects have the potential to be utilised more effectively as a natural ingredient in high-protein feed.' A quote follows: 'This project is truly a global collaboration which has come together to explore one avenue to meeting the increasing demand for animal feed,' says CABI's Marc Kenis. 'We're tapping into expertise of partners in countries such as Mali, Ghana, China and here at CABI Switzerland, to see how science can offer a sustainable

Fig. 3.2 PROteINSECT link in CABI website

- Currently phase III (see fig. 3.1) is online – the website will be updated on a regular basis.
- The EC funded support action CommNet (www.comment.eu) selected PROteINSECT for one of its 15 videos supporting its work to promote the European bioeconomy sector, recommended by Minerva. CommNet produced a high quality video based on the project's visit to China with the core aspects of the project well presented. The video is prominently linked on the project's home screen (hosted on YouTube) and has been viewed over 400 times. A screenshot of the CommNet site is featured below. The master broadcast quality video has been utilised (at 31 July) by 8 European broadcasting stations.

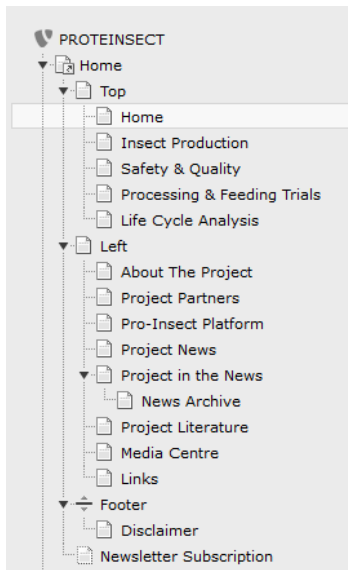


Figure 3.3: PROteINSECT website structure (July 2014) and screenshot



Figure 3.3a: COMMNET website screenshot (July 2014)

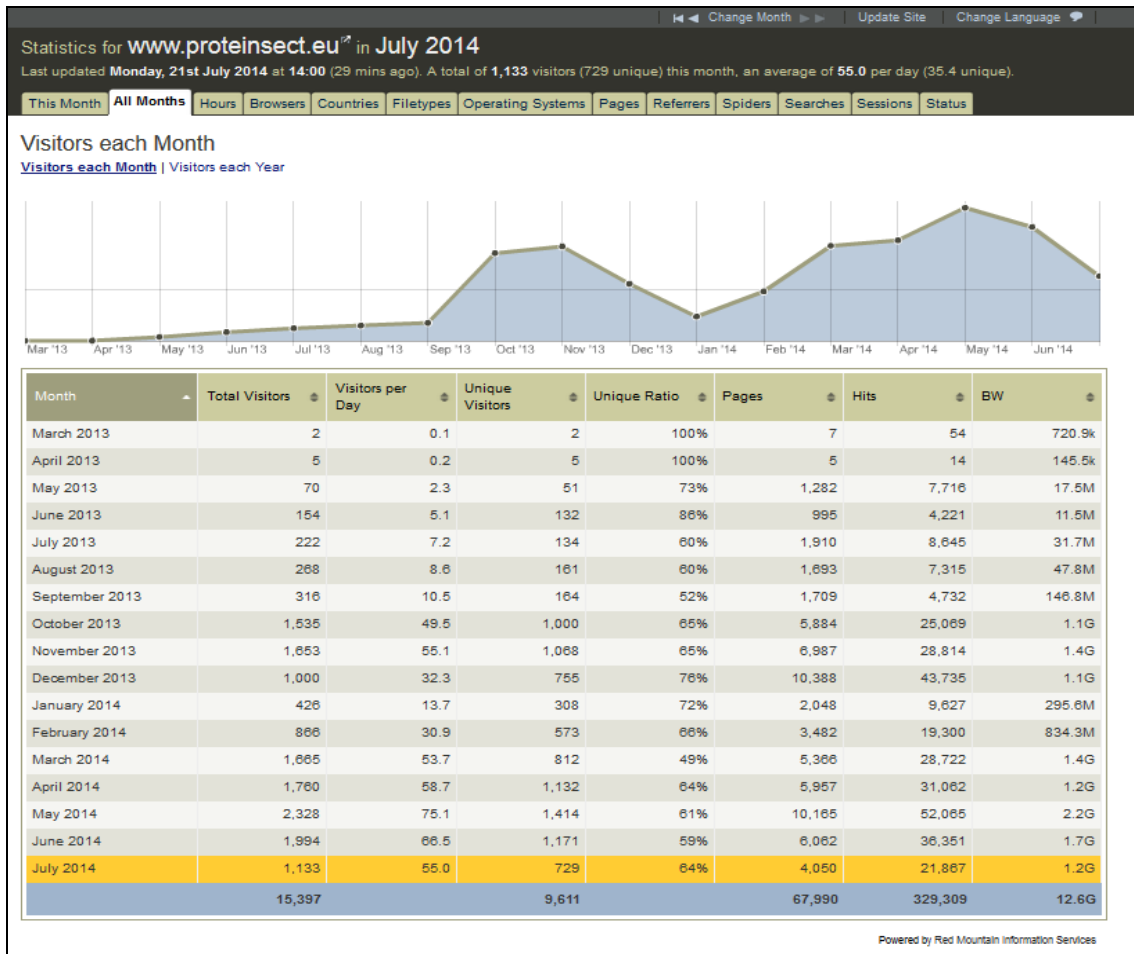


Figure 3.4: PROteINSECT website home screen and number of visitors 21.07.2014

b. LinkedIn and Social Media

- The discussion forum is based on existing networks and infrastructures, such as LinkedIn, which provides optimal tools, and a large user-base.

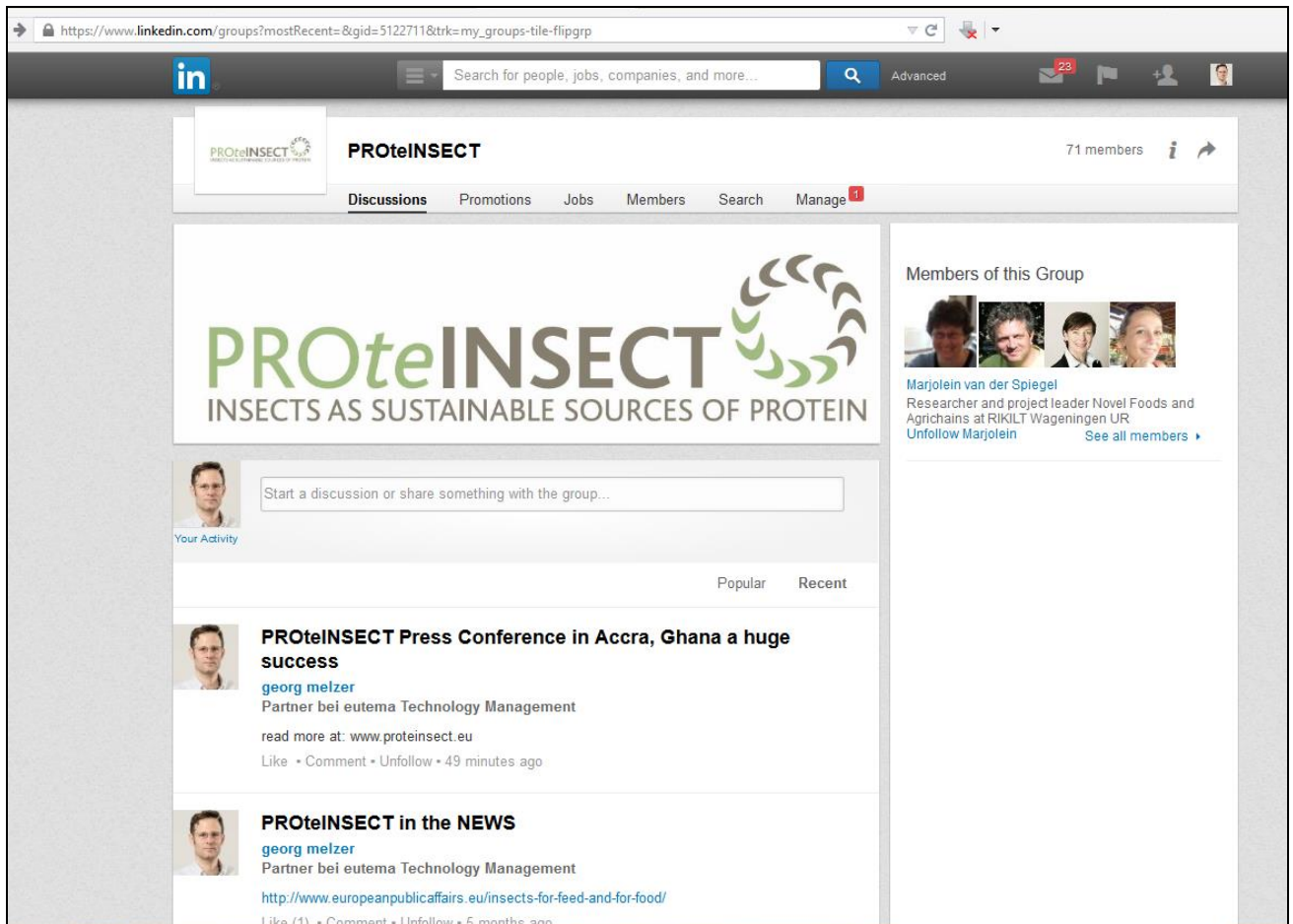


Fig. 3.5 LinkedIn Profile of PROteINSECT

PROteINSECT
SUSTAINABLE SOURCES OF PROTEIN

Proteinsect
94 likes · 5 talking about this

Community
PROteINSECT is an EU-funded project investigating how flies can contribute to the growing demand for protein in animal feed

About – Suggest Edits

Highlights

Post Photo / Video

Write something on this Page...

Proteinsect shared a link.
27 June

It's National Insect week! Can insects become a sustainable source of feed? PROteINSECT is investigating. <http://buff.ly/1lkpJun> #NIW2014

Burgers made from bug-fed chicken coming to a supermarket near you | Horizon Magazine - European Commission
horizon-magazine.eu

Fly larvae could be an efficient source of protein.

2 Friends
Like Proteinsect

Invite Your Friends to Like this Page

Type a friend's name...

Invite

Jill Jönsson Invite ×

Elke Führer Invite ×

Sebastian Eder Invite ×

Recent Posts by Others on Proteinsect

Emilio Delosrios Ibarra
@ The Mezquite bug used to prepare a sauce in Mixquahuala...
2 July at 04:51

Institute of Aquaculture Stirling Scotland UK
@ Stirling PhD student Emile Devic at the Insects to Feed the...
17 May at 20:47

Fig. 3.6 PROteINSECT is also active on Facebook



Fig. 3.7 PROteINSECT is active on Twitter with almost 200 tweets and 310 followers

c. Networks

PROteINSECT has utilised the professional networks of both the project partners and Stakeholder Advisory Board (SAB) members existing professional networks, to maximise its reach. For example, CommNet (www.commnet.eu) for the research community has been successfully utilised to

d. Media Communications

Nine project press releases, targeted to priority media outlets and stakeholder groups communications channels have been issued since the start of the project, generating in excess of 100+ pieces of coverage on PROteINSECT itself. The tone of that coverage has been overwhelmingly positive and accurate. The Press Releases are available in the Annex.

e. PROteINSECT events

All WP5 & WP6 PROteINSECT partners have contributed to promotional events both for the public and targeting key stakeholders and multipliers. The aims are to create a dialogue, drive greater awareness and understanding, promote the project within the context of European

policies and to present project findings as they become available. Contacts generated are being collected for an e-list to which a newsletter is sent on a regular basis. The Newsletter currently has 431 Subscribers.

A report follows every dissemination activity and is available on request².

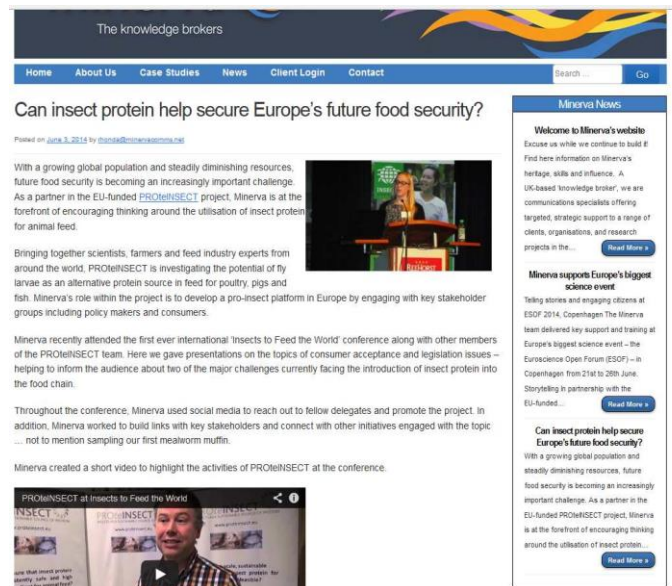
	Date	Event
1	2013 06 18	Agrivision Time to Resource (BE)
2	2013 07 07	York Insects Festival(UK)
3	2013 07 10	Overleg Insecten (BE)
4	2013 07 25	GSAP Conference (GH)
5	2013 08 13	Mali Promotion and Training tour (ML)
6	2013 09 15	IUNS 20th International Congress of Nutrition (ES)
7	2013 10 09	ISTA (IL)
8	2013 10 29	York Food Festival (UK)
9	2014 03 13	Early Nutrition 2014 – Power of Programming (DE)
10	2014 05 14	Insects to Feed the World (NL)
11	2014 05 29	VII National Meeting on animal feed, Torino (IT)
12	2014 07 16	Press Conference, Accra (GH)

² As this deliverable is a public document



PROteINSECT @ “Insects to Feed the World” Conference, WUR, Mai 2014

The conference ‘Insects to feed the world’ organized by the FAO/WUR, that took place last May in The Netherlands was a milestone in the recognition of the professional insect industry. Feed industry leaders, insect breeders, universities, NGO’s and other stakeholders gathered for the first time, with a clear message: Insects for feed and food are viable solutions for the protein deficit problem.



Minerva produced a short video teaser on PROteINSECT’s activity at the conference.



Press Conference was held in Accra, Ghana. Journalists from TV, Radio and Print interviewed PROteINSECT Project Partners from Fish for Africa, eutema, Stirling U, NUScience, Wuhan U and KUL.



York Insect festival July 2013



UOS @ 10th International Symposium on Tilapia Aquaculture Report. Jerusalem, 6-10th Oct. 2013



N'Golopé Koné (FfA) training extensionists in maggot rearing in Mali August 2013.

Insects to Feed the World Conference – Ede, The Netherlands (May 2014)

A dissemination highlight was the PROteINSECT participation at 'Insects to Feed the World' conference in May 2014. Between the 14th and 17th May 2014, the PROteINSECT consortium attended the first ever 'Insects to Feed the World' international conference in Ede, the Netherlands. The conference was jointly organised by the FAO and Wageningen University to promote the use of insects as human food and as an ingredient in animal feed as a way of assuring food security. Over 450 individuals from 45 countries participated in the conference, representing diverse areas including science, policy and industry.

The conference provided the ideal platform to share the latest results from the project with a wide range of interested stakeholders – breeders, producers, researchers, environmentalists. It also enabled us to increase awareness of PROteINSECT and explain how we are contributing to the effort to add insect protein to the permitted list of ingredients for animal feed. In addition to engaging directly with those at the conference, we were also able to promote PROteINSECT more widely via the press and social media outreach. Furthermore, it was an excellent opportunity to meet and exchange ideas with people who are working in a similar area.

It was important to ensure that PROteINSECT had a strong, visible presence at the conference and this was achieved via oral presentations, posters and the PROteINSECT stand.


Presentations

PROteINSECT was very well represented in the oral presentation sessions with a total of 7 project members giving presentations over the 3 days of the conference. On the first day, Marc Kenis from CABI discussed the prospects and constraints for the use of insects as human food and animal feed in West Africa. Additionally, Rhonda Smith from Minerva UK gave a presentation on public acceptance of the use of insects in animal feed and food. During this talk, the results of PROteINSECT's recent survey were revealed.

The majority of PROteINSECT's presentations fell on the second day of the conference. In the morning, Adrian Charlton from Fera gave a plenary lecture on the safety and quality issues associated with the use of insects in food and feed. This was followed by a talk by Rosie Pryor from Minerva UK about the legislation aspects relevant to the production and use of insect protein in animal feed.

In the afternoon, Saidou Nacambo from CABI presented an evaluation of a house fly larvae production system in Mali. Specifically, the effect of substrate type on larvae production was discussed. Furthermore, Richou Han from Guangdong Entomological Institute gave a talk describing a system for mass producing house fly larvae for waste reutilisation and as a feed for chickens and shrimps in China.


On the final day of the conference, Bart Muys from KU Leuven gave a plenary lecture on a generic life cycle assessment of protein from insects. Here, the environmental load of several insect production systems were compared with each other as well as those associated with established animal feed protein sources such as soya.



Breeding flies in Ghana: Implications of scaling up from pilot trials to medium scale production

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Introduction

Global enthusiasm for insect farming is growing as a diverse range of potential commercial and environmental benefits becomes better recognised. Fly rearing is a good example: maggots can be cultured on various organic substrates turning them into valuable products such as a high quality protein source (maggots) and nutrient rich bio-fertiliser (frass).

The primary aim of the project is to demonstrate the feasibility of producing low-cost, good quality sources of nutrients in Ghana, to support local aquaculture (tilapia farming) constrained by availability of quality feed ingredients, especially fishmeal.

The Ghanaian pilot (Fig. 1) allows the weekly production of 10kg of Black Soldier Fly (BSF) larvae (*Hermetia illucens*).




Figure 1: Fly rearing facilities, overview of the farm, Ashanti, Ghana

Methods

Phases of Development

- Grow-out/ setup & Design**
 - Space required / available
 - Environmental / local conditions & surroundings
 - Rearing strategy
- Build & Equip**
 - Adapted to local conditions
 - Sustainability
 - Space optimisation
 - Cost
- Experiment and try out**
 - Species origin
 - Evaluate facilities and equipment performance
 - Substrate selection¹
- Improve and Standardise**
 - Site & team staff required
 - Production methods
 - Planning and organisation
 - Standardisation
- Produce**
 - Day-to-day issues
 - Management issues / operations
 - Production consistency
 - Inputs supply
- Upgrade**
 - Recruit more staff
 - Invest in equipment
 - Facilities
 - Develop new techniques (mechanisation)

Criteria

- Sun, temperature & rainfall
- Farming area
- Isolation of adults (flies) & juveniles (larvae) cages
- Species requirements
- Water & electricity supply and quality constraints
- BSF biology & rearing
- Equipment – easy to handle & maintain
- Cost considerations
- No introduction (kill, trapped)
- Adaptation / survival / performance
- Identify best substrate / mix
- Bio-fertiliser / frass / substrate
- Specialised / educated staff
- Efficiency: time & productivity
- Handy / adapted equipment
- Daily operations and operations
- Problems identification and prompt resolution
- Dynamic team organisation
- Consistent production
- Avoid shortages / gaps of prod.
- Labour and strategies
- Increase production levels
- Mechanisation
- Improve productivity and storage
- Develop value-chain

Results

Challenges

- Start from scratch
- Select adapted rearing strategy
- Design system (in provision of potential limitations)
- Direct sunlight and large cages
- No electricity on site
- Water contamination (subsoils) and inconsistent supply
- Waddy structures damaged by subsoil/water insects
- Obtain first larvae / adults / rearing / eggs (in captivity)
- Substrate storage conditions
- Strategies against parasitoids, predators and competitors
- Train staff for research & prod. operations
- Share time: prod. & research
- Develop adequate equipment & technique
- Short delays to receive issues
- Limited feeder: eggs prod.
- Larvae prod. immature
- Substrate supply non-consistent
- Time-consuming methods


Outcomes

- 1 insectarium and 1 larvatum
- Culture boxes & shelves (larvae and waddy cages (adults) (Fig. 2, 3, 4))
- Using nets & water gallery (frass) and (larvae)
- 50*50*150 cm waddy cages (20)
- 40*70*15 cm wooden boxes (20) replaced by waddy boxes
- Water storage (frass contamination rates)
- Renewable energy sources
- Daily management of prod.
- Free, non-petroleum substrate (agro-industrial waste)
- Protection each stage of development
- 1 technician + 1 farmer
- Improvement, site collection and begin production
- Standardisation of production operations (quantities, duration, ...)
- Better broodstock management
- Site organisation planning and objectives
- 30% highly dependent to be weather (Fig. 4)
- Team increased (> 2 persons)
- Investment 2,000 \$ (initial cost = 4200 \$)
- Operations diversification, regular inputs supply
- Develop public acceptance

Findings:

- *Ecdysozoan* offspring pupae (Fig. 5), non-identified. Family Chalcididae, Subfamily Chalcidinae?
- Pre-pupae stage (change of pigmentation colour) reached within 14 to 15 (DPC) in larvae's gain (compared to 22 to 24 days at 27°C, on layer hens or *Callinectes* diet; Torsheim et al. 2002)

Figure 1 (left): Screenshot observed in BSF paper (Ghana); different life stages



Production process: 7-18 days

Rearing	Eggs	Larvae	Pupation	Harvest
Adults	2-4 days	4-8 days	10-15 days	16-20 days
Daily operations:	1-2000 eggs per net (20 nets)	1-1000 mg pupae per net (20 nets)	1-1000 larvae per net (20 nets)	1-1000 pupae per net (20 nets)

Substrate mix for Green-out (per ton):

- 2.01 ± 0.13 kg Brewer's grains (DM = 24.9 % - Harsh et al. 2014)
- 2.88 ± 0.11 kg DM = 80 % approx.)
- 4.5 L of water

Aim

This study describes the iterative learning-process involved in the evolution of the BSF rearing system in Ghana. It highlights the main stages of development, according to the criteria used to design the facilities, to select the appropriate substrate and standardize the production techniques. The challenges faced when obtaining day-to-day improvements of the production system lead to understand the journey and the final design.




Figure 2: Culture boxes in the larvae studied to achieve to maximize use of space and frass. BSF hatched from Top




Figure 3: BSF net waddy cages. Direct sunlight is essential to ensure rearing.

Conclusion

Potential for development in two directions:

- smaller-scale system based on limited investment, substrate and labour inputs for household-based or small-scale intensive production;
- larger-scale intensive commercial systems requiring more capital, equipment and labour, which would need to be integrated as part of a more complex emergent value-chain.

Improvement of the pilot is still in progress but technical and equipment might be managed to evolve to a commercial intensive rearing system.

Further research is underway evaluating how the resulting maggots can substitute for conventional sources of protein (fishmeal, soybean meal, etc.) in aqua feeds or be used to supplement future-tilapia diets.

Acknowledgements

This study is supported by the EC-FP7 project PROteINSECT, coordinated by the Food and Environment Research Agency (FERA), United Kingdom. www.proteinsect.com

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In addition to oral presentations, two posters were produced by PROteINSECT partners to illustrate the work that is being carried out. These were displayed throughout the entire duration of the conference and individuals were able to take a look at them during designated poster sessions and breaks.

The first poster was created and presented by Emilie Devic, from the University of Stirling, and colleagues. It showed how flies are being bred in Ghana and the implications of scaling up from pilot trials to commercial scale. The second poster was created by several individuals across PROteINSECT's partner organisations and presented by Elaine Fitches of Fera. This poster provided an overview of how the project is working to enable the exploitation of insects as a sustainable source of protein for animal feed and human nutrition.

The PROteINSECT Stand

PROteINSECT was one of the few groups at the conference that had a stand in the foyer area. This stand displayed and distributed promotional material, such as leaflets and business cards,

as well as having samples of dried insect larvae on display. There was also a large TV showing a slideshow of photos and videos of the project.

The stand was busy during all breaks and provided a great opportunity for interested people to come and talk to PROteINSECT experts and ask questions about the project. Many individuals left their contact details in our visitor book requesting to be kept in touch with the project. Those interested in evaluating PROteINSECT's upcoming engineering contest were also invited to register their interest at the stand. Finally, this area was used to conduct short video interviews with a range of people talking about their experience of the conference and their opinion on the use of insect protein in feed.

Outreach communications

The day before the start of the conference, PROteINSECT issued a press release providing information about who from the project would be giving presentations and what topics would be covered. A second press release was issued about the PROteINSECT survey results following Rhonda Smith's presentation, which revealed the key findings. These were published by the trade publications *All About Feed* and *Undercurrent News*. Several PROteINSECT team members were interviewed by journalists throughout the duration of the conference and we expect that more media coverage about the project will be published in due course.

PROteINSECT made good use of the conference's twitter hashtag (#insects2014) and contributed to the 500 tweets written about the conference in total. Twitter was used to encourage people to come and visit the PROteINSECT stand. It was also used to highlight important comments made during presentations as well as to share some photos of the edible insect appetisers being served for lunch. Our tweets were retweeted and favoured by other users and we gained many new followers during this time period, whilst simultaneously being alerted to interesting new people to follow.

The PROteINSECT engineering competition

PROteINSECT used the conference to launch its upcoming student engineering competition. The project is looking for engineering solutions to one of the most pressing production bottlenecks – the preservation of fly larvae by drying or alternative methods. The competition was advertised at the end of presentations given by members of the PROteINSECT team. Those interested in evaluating the engineering competition were invited to leave their business cards in a bowl at the PROteINSECT stand. More information on the competition will be made available on the PROteINSECT website over the next few months.

f. Benchmark Consumer Survey

A Benchmark survey was designed and uploaded to Survey Monkey to endeavour to capture consumer perception and acceptance of the use of insect protein (and particularly fly larvae) primarily in animal feed although supplementary questions were asked human consumption. It was available in English, French and German – the overwhelming majority of respondents used the English version.

Key results of the survey are a high acceptance of Insects in Feed (over 72%) and a general acceptance of insects as a suitable feed (over 65%) with an overwhelming majority (88%) wanting more information on the topic.

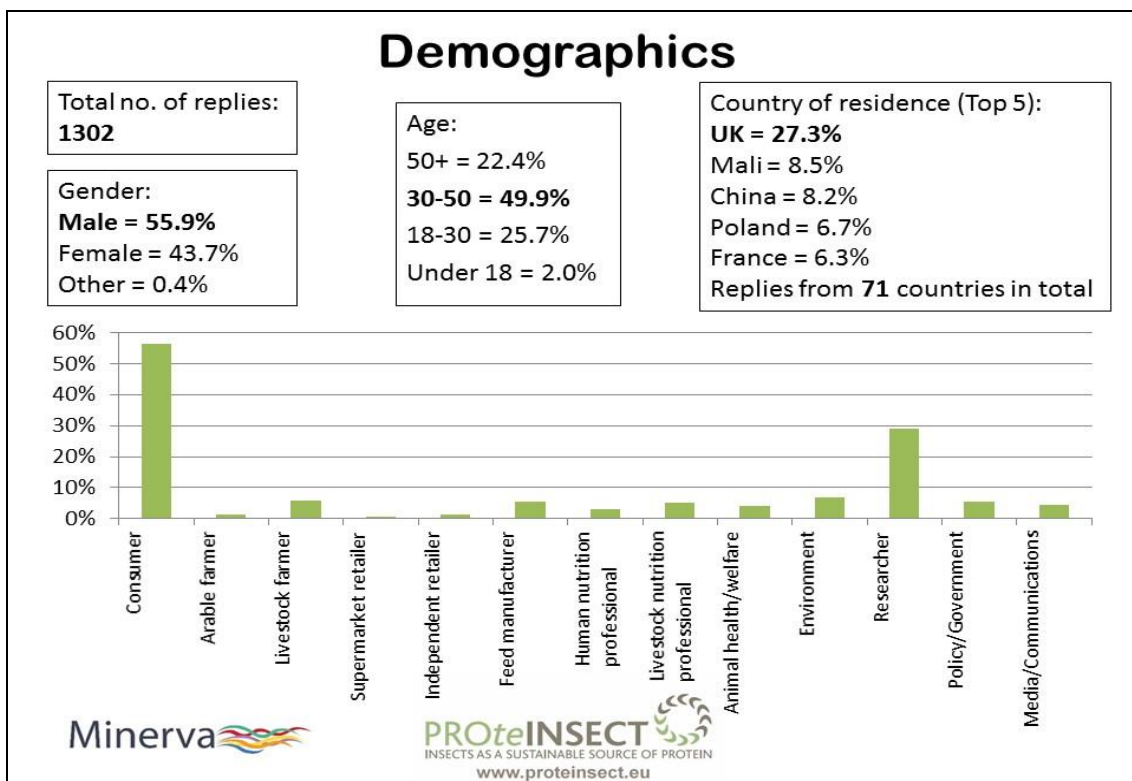
The Data from the survey was presented at the international 'Insects to Feed the World Conference' in Ede (The Netherlands) in May 2014. The survey, which was promoted across the UK, Europe and the Far East from October 2013 to March 2014, aimed to discover whether people would be accepting of using insects for animal feed and food – and if not, what


objections they raised.

Of over 1300 respondents across 71 countries, the overwhelming majority (88.2%) believed that more information should be available on the use of insects as a food source for both animals and humans. Whilst 66% said that the larvae of flies are a suitable source of protein for use in animal feed, more than half (52.4%) would be put off eating fish, chicken or pork fed on a diet containing insect protein because they don't know enough about the topic.


Addressing the assembled audience of key stakeholders, agricultural scientists and industry representatives Rhonda Smith of PROteINSECT said, "The results suggest that people are more accepting of the idea of insects in food and feed than we might have predicted. But there is a clear desire for more information on this topic to be made available– and we need continued public engagement to increase awareness."

The Survey results formed the basis of a press release which generated a significant amount of media coverage in both the general and specialist press, as well as comment online.





Insects in Animal Feed



1) *Would you eat fish, chicken, or pork that have been fed on a diet containing protein from insects?*




Yes = 72.6% No = 6.5% Maybe = 13.8% Don't know = 7.0%

2) *Do you think that the larvae of flies are a suitable source of protein for use in animal feed?*

Yes = 65.8% No = 6.1% Maybe = 16.8% Don't know = 11.3%

3) *Should chicken, fish and pork, for sale for humans, and fed on protein from insects state that clearly on the food label?*

Yes = 57.2% No = 30.1% Don't know = 12.7%

Demographics of the survey, and key results as presented at 'Insects to Feed the World'

4. Materials

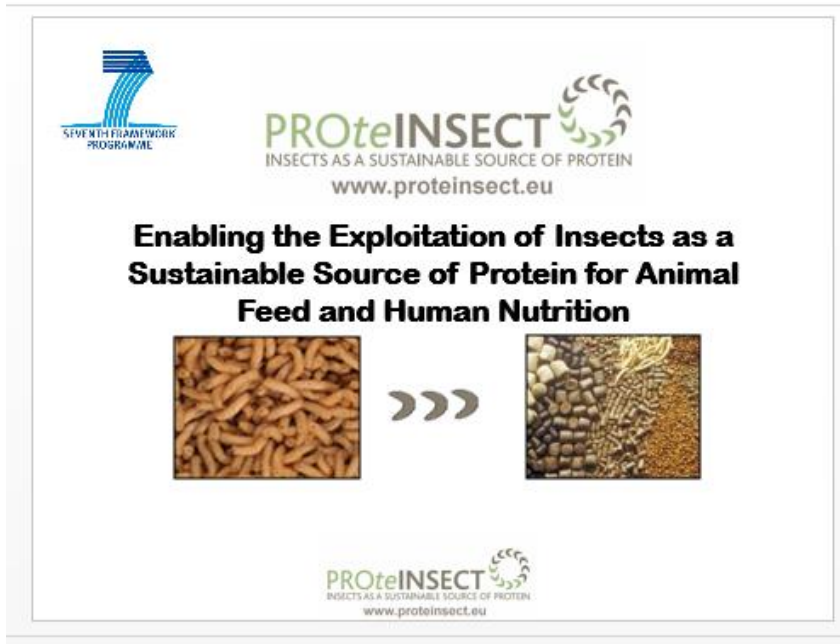
A project logo has been produced which helps readers and participants to meetings and conferences to immediately identify the project and to understand its scope. Core elements of this visual identity are:

- The logo is used for printing purposes and as well for branding implementation (e.g. PowerPoint), electronic publications and the PROteINSECT website;
- A presentation template includes the logos of PROteINSECT and FP7;
- Project materials
- The project website


a. Logo





b. Presentation template – available online



c. Poster



INSECTS AS A SUSTAINABLE SOURCE OF PROTEIN


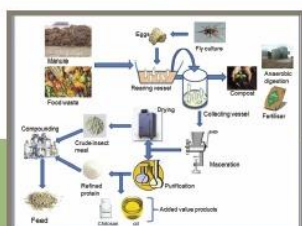



Enabling the Exploitation of Insects as a Sustainable Source of Protein for Animal Feed and Human Nutrition

Food security is a global challenge. Within the overall increased demand for food, and particularly meat production, there is also an urgent need to increase the supply of protein from sustainable sources. Currently more than 80% of the protein required for livestock rearing in the European Union is currently imported from non-EU countries. The European Parliament has recently adopted an 'own initiative' resolution with respect to the EU's protein deficit and the EU resolution indicates that urgent action is needed to replace much of the imported protein crops with alternative European sources.

The PROteINSECT project seeks to facilitate the exploitation of insects as an alternative source of protein, with focus on incorporation of insect protein into the human food chain via utilisation as a component of animal feed. Advances have been made in rearing of insects for incorporation in animal feed in countries including China and Mali. The consortium brings together expertise in these countries together with European insect breeders and feed production companies in order to optimise systems and set up pilot scale production facilities in the EU.






Enabling the Exploitation of Insects as a Sustainable Source of Protein for Animal Feed and Human Nutrition










Aims

- The co-ordinated development and optimisation of fly production methods for animal feed production in EU and ICPC countries
- Determination of safety and quality criteria for substrate and insect protein products
- The evaluation of crude and refined insect protein extracts in fish and monogastric (poultry and pig) animal feeding trials.
- The determination of optimal design(s) of insect-based animal feed production systems for both EU and ICPC countries through comprehensive ILCD assessments

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d. Project Flyer

A project Flyer (below) has been designed and printed. It was disseminated during the on-site visits and at conferences. Consortium members will present the PROteINSECT project via leaflets, posters and presentations disseminated at a number of conferences and workshops in Europe.

PROteINSECT
INSECTS AS A SUSTAINABLE SOURCE OF PROTEIN

PROteINSECT - Enabling the Exploitation of Insects as a Sustainable Source of Protein for Animal Feed and Human Nutrition

Food security is a global challenge. Due to the increased demand for food, and particularly meat production, there is an urgent need to increase the supply of protein from sustainable sources.

Currently more than 80% of the protein required for livestock rearing in the European Union is imported from non-EU countries. The European Parliament has recently adopted an 'own initiative' resolution to address the EU's protein deficit, stating that urgent action is needed to replace imported protein crops with alternative European sources.

The EC funded PROteINSECT project is facilitating the exploitation of insects as an alternative source of protein through incorporation of insect protein into animal feed.

www.proteinsect.eu

Advances have been made in rearing of insects for incorporation in animal feed in non-EU countries such as China, Ghana and Mali.

The PROteINSECT consortium brings together expertise from these countries, together with European insect breeders and feed production companies, to optimise systems and set up pilot scale production facilities in the EU and improving quality issues in non-EU countries.

Working with the black soldier fly and domestic household fly, PROteINSECT is running production and feeding trials with insect derived proteins with pigs, chicken and fish.

The project is also running safety, quality and life-cycle analyses, as well as creating a Pro-Insect Platform across Europe to support legislative and regulatory change.

Life Cycle Assessment

LCA combines methods of life cycle assessment, assessing environmental impact, life cycle costing, economic impact, lifecycle management and engineering focussing on product optimization with respect to different sustainability factors.

Insects and insect protein contribute to the natural daily diet for thousands of species of wild fish and monogastric livestock across the world.

Insects need a feed source themselves, and to avoid competing with other uses, PROteINSECT will focus on the use of waste materials for production of fly larvae.

Quality & Safety

PROteINSECT will carry out a comprehensive assessment of the quality and safety of insect derived feed components (both crude and processed) and their suitability for incorporation into animal feed.

Stakeholder Groups

Dialogue with and among producers of feed and feed ingredients, livestock and aquaculture industries and government will be encouraged by the project, essential in order to develop codes of best practice for the feed industry. PROteINSECT welcomes the participation of stakeholders.

To learn more contact us at:

info@proteinsect.eu

PROteINSECT is a 3 year EC funded project (2013-2016) co-ordinated by FERA (Food & Environment Research Agency) in the United Kingdom. The consortium has partners from Europe, Africa and Asia, ranging from feed industry multinationals, research centres and universities, to farmers and experts in policy change and communications.

Partners:

- FERA, UK
- CAB International, UK
- Nutrition Sciences NV, Belgium
- Katholieke Universiteit Leuven, Belgium
- Minerva HCC Ltd, UK
- Minerva eutema Tech. Management, Austria
- Grantbait Limited, UK
- Guangdong Entomological Institute, China
- Huazhong Agricultural University, China
- Fish for Africa - Ghana limited by guarantee, Ghana
- Institut d'Economie Rurale, Mali
- The University of Stirling, UK

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This initiative is co-financed by the EC under FP7.

PROteINSECT
INSECTS AS A SUSTAINABLE SOURCE OF PROTEIN

Insects as a sustainable source of protein

PROteINSECT is investigating how flies can contribute to the growing demand for protein in animal feed

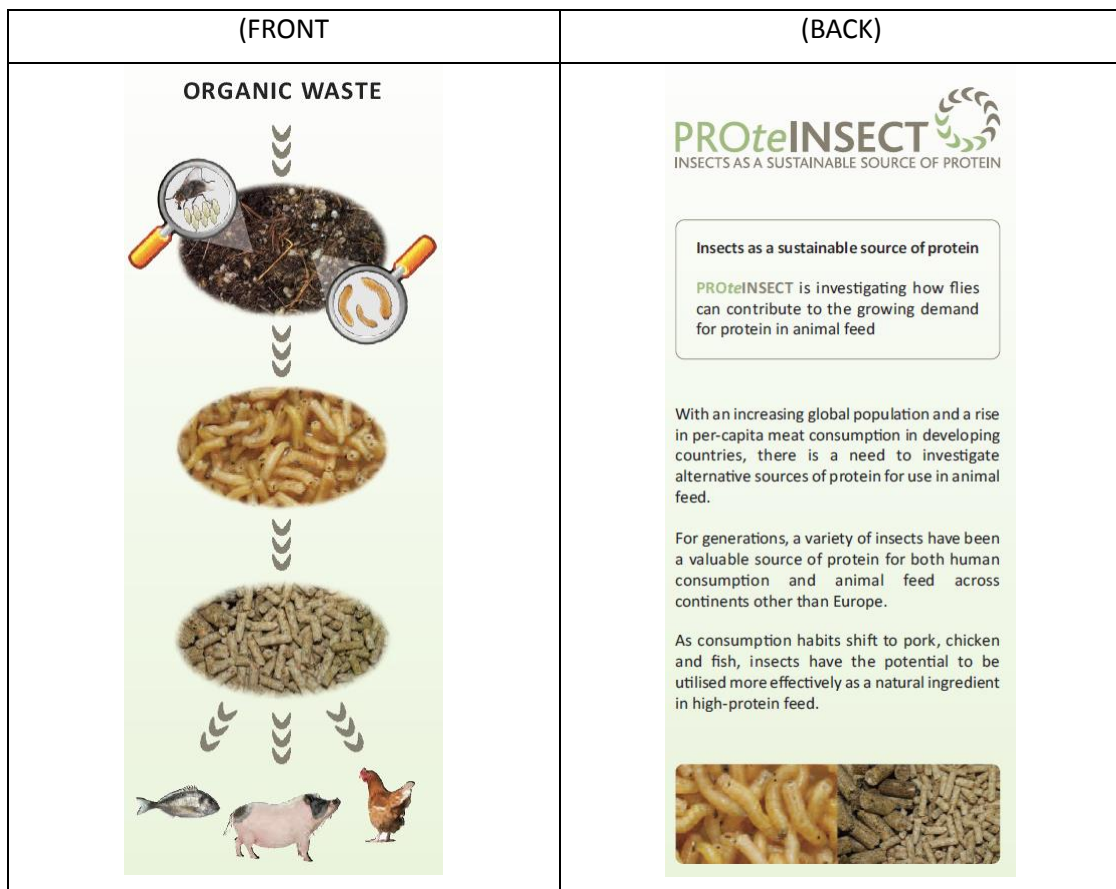
With an increasing global population and a rise in per-capita meat consumption in developing countries, there is a need to investigate alternative sources of protein for use in animal feed.

For generations, a variety of insects have been a valuable source of protein for both human consumption and animal feed across continents other than Europe.

As consumption habits shift to pork, chicken and fish, insects have the potential to be utilised more effectively as a natural ingredient in high-protein feed.



e. Bookmark - a cost effective and easy to transport and circulate 'leave piece' for all project partners



f. Roll-ups- For a clear presence at events (such as the 'Insects to Feed the World' conference in Wageningen/Ede, NL in May 2014) four roll-ups were produced.



g. Press releases

Nine press releases (homepage: Media Centre for an up to date list), have been sent out to targeted media contacts from mid-May 2013 to early July 2014, resulted in publications throughout the EU and beyond. A list of links to key coverage publications is also on the PROteINSECT homepage.

All Press Releases are available online, as well as a representative sample of media coverage (Project in the News)

Press Releases

1. July 2014: PROteINSECT Press Conference, in Accra, Ghana
2. May 2014: Over 80% of consumers want to know more about using insects as feed
3. May 2014: Knowledge shared to support legislative change and consumer acceptance of insect protein in animal feed
4. April 2014: PROteINSECT featured in Antenna magazine
5. April 2014: New film reveals insect protein in animal feed can improve the health and quality of chickens
6. March 2014: 75% of survey respondents happy to eat animals fed on insects.
7. Feb 2014 : Should we feed animals with insect protein?
Would you be happy to eat chicken reared on fly larvae?
Are you concerned about the sustainability of traditional sources of animal feed?
8. Oct 2013: Legislation across Europe must be changed if we want to allow insects to contribute to the sustainable production of livestock.
9. May 2013: A new €3 million, EU -funded project, PROteINSECT, is investigating how flies can contribute to the growing demand for protein in animal feed.

h. Media Coverage Reports

On the PROteINSECT website media coverage reports are available. These detail the media 'tone' on the issue of insects in food and feed. An excerpt is below.

Media Coverage

2nd Quarterly Review

(Jan – March 2014)

The media coverage was mostly positive (41.5%) or neutral (56.1%) in tone when discussing insects as a food or feed ingredient. Again, many articles highlighted the environmental and nutritional benefits associated with entomophagy. Only 3 articles, accounting for 2.4%, presented the topic in a negative tone. Two of these articles expressed doubt that there is a food scarcity issue, and thus a need for insect protein, whilst the other described insect snacks as unappealing.

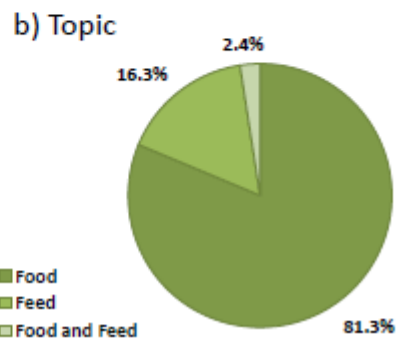
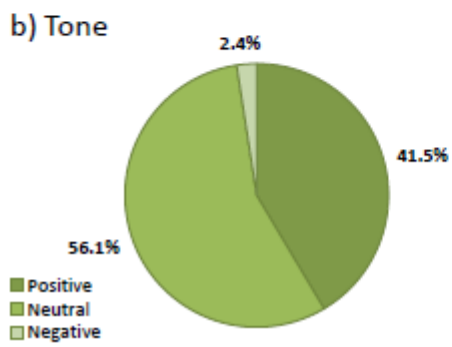
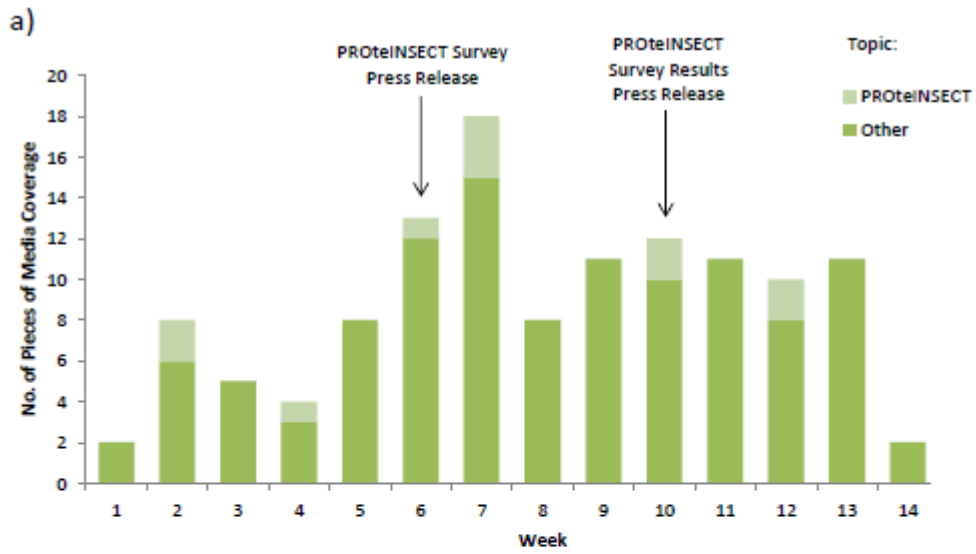
With regards to the subject matter of the media coverage, 81.3% was focused on the idea of insects being used as food for human consumption whereas only 16.3% discussed the potential of insect protein in animal feed. The remaining 2.4% of media coverage referenced insects as both a food and feed source. Furthermore, 78.9% of media coverage was aimed at

the general public, whilst only 21.1% was aimed at a specialist audience – typically those working in the food or agriculture sectors.

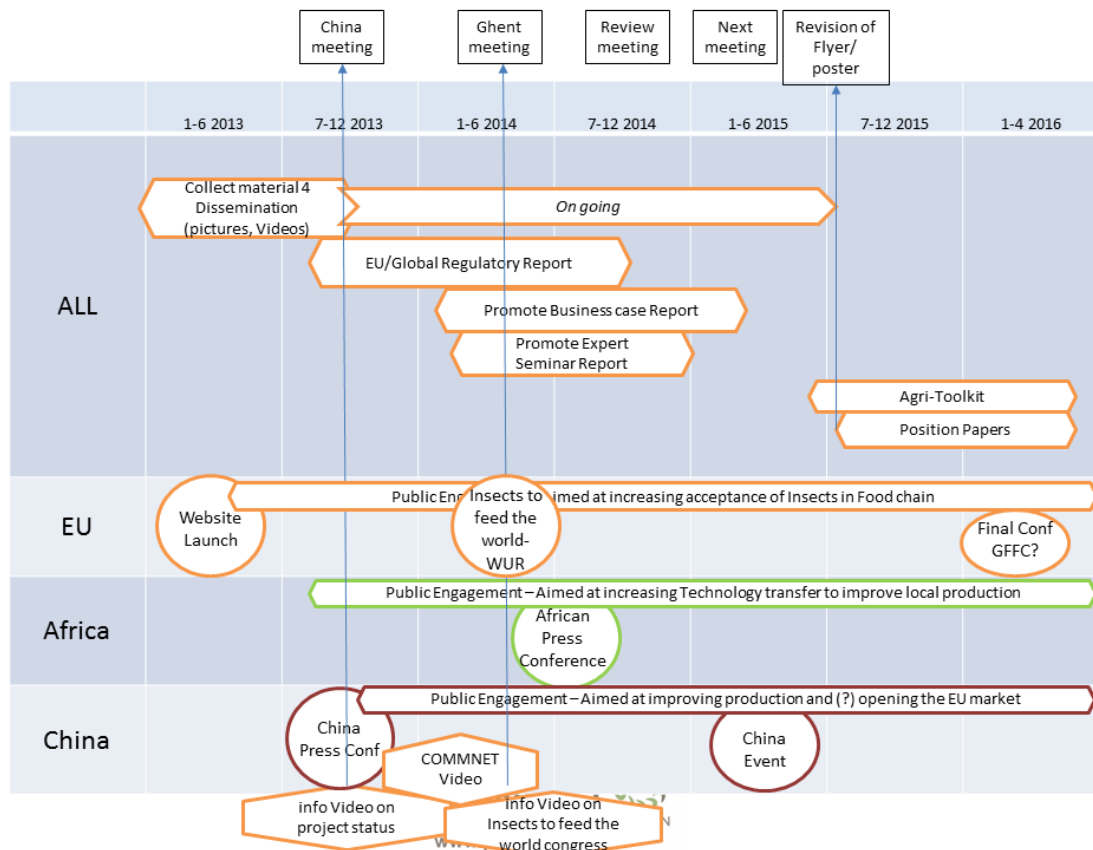
As found in the previous quarter, media coverage on the use of insects in food and feed came from sources all around the world. Overall, 17.9% of pieces came from international media outlets. The USA was responsible for the highest amount of coverage with 39%, whilst 15.4% of coverage came from UK sources. A smaller proportion of identified articles, accounting for between 4.9% and 0.8% each, came from sources based in the following countries: China, Canada, France, India, Australia, Spain, Belgium, Zimbabwe, Nepal, Switzerland, Ireland, Uganda, Indonesia, Thailand, Chile, Russia, Slovakia and Vietnam.

Summary table:

		This Quarter	Last Quarter
General	No. of articles	123	141
	No. of articles about PROteINSECT	11	48
Tone	Positive	41.5%	67.4%
	Neutral	56.1%	31.9%
	Negative	2.4%	0.7%
Topic	Food	81.3%	50.4%
	Feed	16.3%	49.6%
	Food and Feed	2.4%	0%
Audience	General	78.9%	58.9%
	Specialist	21.1%	41.1%



5. Activity Plan (Overview)



The updated Overview Activity Plan covers activities that are relevant to all project participants, as well as activities that are relevant at a certain time in a certain region. The plan accounts for the difference in activities necessary per geographical area. Several stakeholder activities have already been completed.

6. Evaluation Strategy

In line with the strategic impacts described in the Annex I 'Description of Work', of the Grant Agreement, the dissemination plan provides a series of indicators of the dissemination performance of the PROteINSECT project. These have been created to provide a check on how successful the project is disseminating knowledge to identified key stakeholders, together with engagement with the wider public to raise awareness and drive positive perception of the use of insect protein.

Evaluating the success of dissemination efforts is an iterative process as dissemination is not a one-time activity; rather, it is a long-term relationship with our target interested parties that will deliver impact and implementation. However, indicators help keep track of the project's progress.

Indicators	Method	Success rate (M36)	Actual Delivered in M18	Y/N
Number of unique visitors to the project website	Collection of data including time on site, pages visited	1,000 by month 12 5,000 by month 36	9,611 Unique Visitors as at 21.07.2014	Y
Number of participants in project Surveys		250 - 500 base number in consumer 100 in specialised groups	1302 Results: ~750 Consumers, ~300 Researchers. From a total of 71 countries.	Y
Number of own public engagement events organised	Numbers attending Detailed reporting with quotes and photos Feedback received	10 events 100 participants at each event positive feedback	Cooperating with existing events offers better value for money. Organising "our own" event have been held in the first M18, and may be held for the duration of the project. PROteINSECT has had a strong presence at 12 Events.	Y
Number of external events attended	Numbers involved Feedback received	10 500 overall positive feedback received		
Press releases issued in English	Circulation reports Coverage achieved - articles/online	No of releases - 8 in total positive tone and supportive content Use of quotes and photos	9 Press Releases issued to date -with high coverage	Y
Press releases translated in other languages	Circulation reports Coverage achieved - articles/online	No of releases positive tone and supportive content No of languages covered	The translations were done on an individual basis, and only when having an EU/ Global scope. Local PR were not translated.	Y
Number of participants at final conference	Registration procedure + attendance control	200 attendees positive feedback	Not yet held	

In summary, it can be said the PROteINSECT project has already achieved the 36-month targets in only 18 months. The Consortium will continue to deliver high impact dissemination activities throughout the life of the project.

7. ANNEX I

A. Project in the News (a small sample)

1 **BBC Look North, (This is TV not radio) UK; April 16th 2014**

A piece on PROteINSECT was picked up by local BBC news. It features an interview with Elaine Fitches at Fera and a look at Grantbait's maggot farm. The item appeared on BBC Look North (North East & Cumbria) and Look North (Leeds). A shorter piece also appeared on national BBC Breakfast coverage. The piece is no longer available online.

2 **Burgers made from bug-fed chicken coming to a supermarket near you, Horizon Magazine, (online); 23rd June 2014**

Researchers are preparing to conduct field trials of house fly larvae as a protein-rich supplement to animal feed made of cereals and corn. House flies can convert manure into protein faster than most other insects, and they're already present all over the world. That's why researchers at the EU-funded PROteINSECT project are working out how to produce and process them so they can be safely fed to pigs and poultry.

3 **Die madige Revolution, Der Standard, AT; May 28th 2014**

Forscher suchen nach Wegen, wie man Insekten möglichst effizient züchten kann, um sie zu Viehfutter zu verarbeiten - Das hätte mehrere Vorteile: Maden sind billig, und sie können mit Abfall gefüttert werden Wien - Fliegen fressen alles, und sie fressen immer: Gammelfleisch, Hühnermist, verrottendes Obst. Täglich nehmen sie das Doppelte ihres Körpergewichts zu sich.

4 **Are insects the super food of the future?, Mirror, UK; May 20th 2014**

Deep within a sprawling hi-tech government research complex, there's a room that looks like something out of a horror movie. The cramped, humid lab is lined with white tents containing thousands of buzzing flies. The stench is stomach-churning.

5 **Consumers curious about using insects as feed all-about-feed, (online); May 16th 2014**

Results from a survey carried out by the EU-funded PROteINSECT, show consumers want more information on the potential use of insects as a protein source in animal feed.

6 **Survey: Over 80% of consumers want to know more about using insects as feed, under-current-news (online); May 14th 2014**

Results of a European survey show consumers want more information on the potential use of insects as a protein source in animal feed.

7 **Insects for feed... and for food?, European public affairs (online); 14 February 2014**

Keys to understand the still very unlikely Insects' single market. The demand for food is growing, in parallel to the increase in the global population and the expansion of the middle class in emerging economic and demographic potencies. As a result of that, meat consumption has increased 20 fold over the past 40 years. This trend is expected to accentuate, as it is estimated that, by 2030, there will be around 9 billion human beings on our small planet. How can food security be ensured in these circumstances?

8 **Krijgen vliegen sleutelrol in eiwittransitie?, Vilt, BE; 9 January 2014**

In hoeverre kunnen vliegen als eiwitbron dienen voor veevoederproductie? Dat is de centrale vraag van het PROteINSECT-project, een internationaal en multidisciplinair onderzoeksproject waar ook onderzoekers van de KU Leuven aan meewerken

9 **Des asticots comme source de protéine (Maggots as a protein source) RTN, CH; 21 December 2013**

Un projet novateur en partie développé dans le Jura. L'organisation internationale CABI (Centre for Agriculture and Biosciences International), basée à Delémont, est spécialisée dans la recherche en biologie. Son équipe de scientifiques travaillent actuellement sur le projet PROteINSECT.

10 Be careful eating wild insects, Guangdong Institute Seminar- safe to eat insects; 4 November 2013

11 insects as an alternative source of protein, CORDIS; 11 November 2013

The use of insects as an alternative source of protein in animal feed is becoming more globally appealing. However, EU law currently prohibits including protein derived from insects in animal feed - with the exception of feed intended for fish or shellfish.

B. Press Releases (active links)

- 1 [July 2014: PROteINSECT Press Conference, in Accra, Ghana](#)
- 2 [May 2014: Over 80% of consumers want to know more about using insects as feed](#)
- 3 [May 2014: Knowledge shared to support legislative change and consumer acceptance of insect protein in animal feed](#)
- 4 [April 2014: PROteINSECT featured in Antenna magazine](#)
- 5 [April 2014: New film reveals insect protein in animal feed can improve the health and quality of chickens](#)
- 6 [March 2014: 75% of survey respondents happy to eat animals fed on insects. Do you agree? Have your say now!](#)
- 7 [Feb 2014 :Should we feed animals with insect protein? Would you be happy to eat chicken reared on fly larvae? Are you concerned about the sustainability of traditional sources of animal feed?](#)
- 8 [Oct 2013: Legislation across Europe must be changed if we want to allow insects to contribute to the sustainable production of livestock.](#)
- 9 [May 2013:A new €3 million, EU -funded project, PROteINSECT, is investigating how flies can contribute to the growing demand for protein in animal feed.](#)

Also available for download at: www.proteinsect.eu "Media centre"

C. PROteINSECT News (sample)

1 PROteINSECT Press Conference in Accra, Ghana



On the 16. June a Press Conference was held in Accra, Ghana. A room full of Journalists from TV, Radio and Print interviewed PROteINSECT Project Partners from Fish for Africa, eutema, Stirling U, NUScience, Wuhan U and KUL.

The Press Release can be Downloaded [here...](#)

2 Visiting the "Maggot Factory" near Accra, Ghana

Thousands of Flies, Millions of Maggots, and still a great place to visit!



3 PROteINSECT partners meet in Ghent at Nutrition Sciences for project meeting



PROteINSECT participants from China, Africa, Belgium, Spain, England & Scotland met for a two-day project meeting (12/13 May) hosted by project partner Nutrition Sciences. As well as providing a timely update on scientific progress on production & processing of fly larvae, partners discussed plans for the imminent safety & quality testing, the newly announced engineering competition and the forthcoming industry & consumer surveys. Also high on the agenda was final arrangements for PROteINSECT's presentations and presence at the *Insects to Feed the World Conference* at Ede, The Netherlands (14-17 May).



Historic Ghent in the rain - Workshops at the Project Meeting - Lab visits at Nu Sciences

4 PROteINSECT presents the case for fly larvae protein at 'Insects to Feed the World'



PROteINSECT participated in force at the recent Conference in Ede, The Netherlands, with presentations on media coverage, consumer surveys, current European legislation, safety & quality testing, life cycle analysis, and production systems in China and Africa. The project provided an information stand, presenting videos, stills photos and the opportunity for visitors from across the Insect food and feed sectors to speak with PROteINSECT experts. Over 100 delegates signed up to receive more project information, with some expressing particular interest in the soon to be announced Student Engineering Competition.

5 [Download: PROteINSECT at 'Insects to Feed the World'](#)



Presentation on production in Mali – Debates at the stand – Safety first, says PROteINSECT