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FOREWORD

The European feed sector is the major supplier to livestock farmers and a key actor in the animal production chain. The quality and safety of animal feed is a key factor within an integrated European approach for the supply of sufficient, safe, high-quality and healthy foods based on products from animal origin (egg, milk and meat). In addition, feed and feed production technologies also need to be sustainable and environmentally friendly. By valorizing certain byproducts from the food industry as feed ingredients, the feed sector already plays a crucial role in preventing that these byproducts become a waste and a burden to the environment. This latter can also contribute to the production of affordable feed for the farmer and food for the consumer.

Various challenges lay ahead for the European feed industry. By taking up these challenges and by identifying opportunities for e.g. technological innovation, the sector can increase its competitiveness and strengthen its essential role towards the farmers as a supplier but also as a user of agricultural products such as cereals. Furthermore the industry can continue to contribute significantly to the supply of animal food products that fully meet the various expectations of the consumer (quality, safety, affordability & health) and the social expectations of the citizens in Europe.

Three words capture the vision of the animal feed sector in order to reach this ambitious objective: **innovation**, **internationalization** and **talent**.

An intensified Research and Technology Development – based on an **innovative** approach – will be crucial in order to provide solutions to diverse challenges, to remain competitive and permanently at the cutting-edge in terms of technology and to meet the increasingly demanding legal EU standards. At present, animal feed producers from all EU member states are confronted with these challenges. Mutual challenges, which are in general too big for SME's to address on their own. For that reason, an **international** cooperation between various European stakeholders representing all links of the feed chain is desirable.

A lot of **talented** and **competent** people are active in the entire animal production chain. This talent – in combination with passion and vigor – is undeniably also very present in companies producing animal feed. In order to assist this talent to fully develop, adequate training and education are an essential component.

In order to realize this vision, several feed industry organizations across the EU decided to establish the **EUFETEC** or European Feed Technology Center, in close collaboration with the academic world and research institutes. This EUFETEC has the ambition to initiate and coordinate a European response to priority industry challenges in areas such as Sustainable Feed & Environment, Feed & Food Quality and Safety, and Production Unit Management. This response will focus on harmonized and cross border innovative RTD, the subsequent development of practical guidelines, training and service provision. Through this sustainable and structural collaboration - also with relevant European Technology Platforms - a competitive European feed industry can continue to play its various roles within the European market and society.

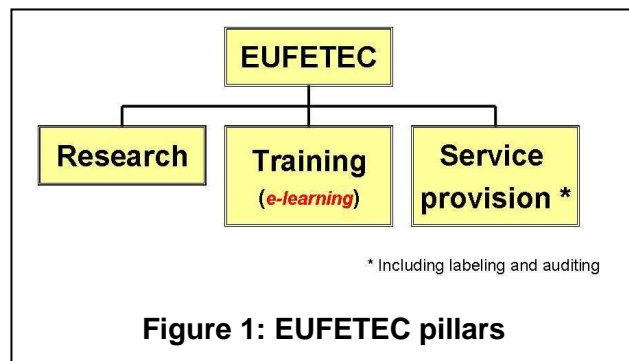
Brussels, 1th of September 2009

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EXECUTIVE SUMMARY

The **EUROPEAN FEED TECHNOLOGY CENTER (EUFETEC)** has the vision and the ambition of harmonizing European technological research for sector-bound topics in the animal feed sector and related sectors, converting the results of this research into practical guidelines and subsequently helping to implement the latter in practice by means of a clearly defined service provision (including labeling and auditing). Hence, the three pillars on which the EUFETEC is built can be summarized as follows: innovative technological research, training and service provision (figure 1). This approach will significantly contribute to sustained competitiveness of the EU feed and livestock industry and the provision of food products that meet the various expectations of the EU citizen and consumer.



innovative technological research, training and service provision (figure 1). This approach will significantly contribute to sustained competitiveness of the EU feed and livestock industry and the provision of food products that meet the various expectations of the EU citizen and consumer.

The EUFETEC has set up a cooperation with various national and international partners from the feed industry, the academic community and the research world. In the first instance, the cooperation was developed operationally with a limited number of partners. Nine **key-stakeholders** have been identified in order to give the project sufficient chances of successes: BEMEFA (Belgium), CESFAC (Spain), FRANA / FEFANA (Belgium / EU), IFF (Germany), Sacred Heart Catholic University of Piacenza (Italy), TECALIMAN (France), University Association Ghent / ILVO (Belgium), University of Nottingham (United Kingdom) and Wageningen University and Research Centre (The Netherlands). Furthermore FEFAC (EU) participates in the EUFETEC as a **key observer**.

Once cruising speed has been attained, the number of partners (stakeholders and observers) will grow steadily and gradually. It is the intention to work closely with relevant European Technology Platforms, but also with various governmental bodies, so that the research results are accepted by the competent authorities (e.g. agencies for feed and food safety and authorities for the environment or occupational health). The aim of the EUFETEC is to create a reference center for private and official bodies.

The **strategy** is to :

- Call as much as possible on existing know-how and infrastructures;
- Ensure optimal use of existing resources and to avoid duplication as far as possible;
- Enhance cooperation;
- Respect the intellectual property and know-how of every stakeholder;
- Bundle the financial input as far as possible based on know-how;
- Harmonize output as much as possible in an operational way;

The **working areas** that are put forward are:

- Sustainable Feed & Environment:
- Feed & Food Quality and Safety
- Production Unit Management (e.g. dust explosion and safety at work)
- Communication, technology transfer and training on above working areas

The identification and prioritization is based on an EU questionnaire.

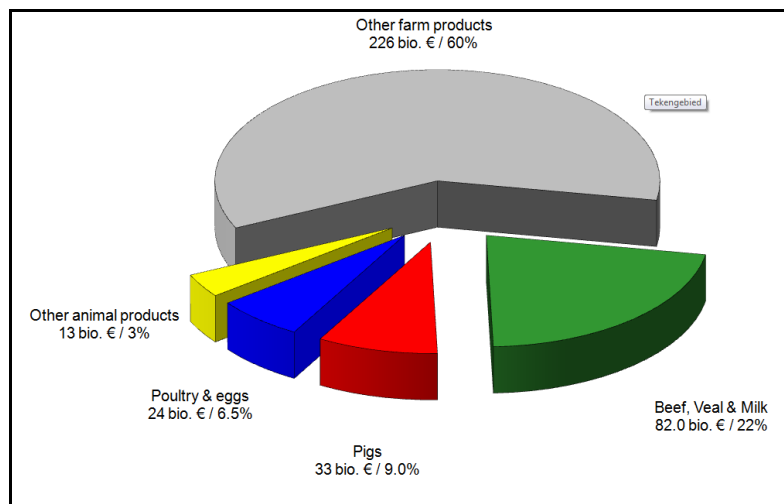
1. INTRODUCTION

A. The EU Livestock and Feed sector: some figures

(Source: FEFAC and European Commission)

The **business branch** that constitutes the object of the EUFETEC is primarily the compound feed, premixtures and additives sector. However, other business branches (eventually represented in European Technology Platforms) are so closely related to feed manufacturing activities that it may be assumed that a mutual interest for collaboration can be expected between the feed sector and other branches (food sector, biofuel, animal breeding and health, aquaculture, etc). A close collaboration with national and European policymakers will be sought in order to be able to concretize the realizations and research outputs.

Livestock production accounts for almost half (40%) of the overall EU-27 agricultural output. In 2008, 5 million farmers raised livestock with a total value of 152 billion € (figure 2).



**Figure 2 : Value of farm production In 2008 in the EU-27
(source : EUROSTAT)**

The European livestock breaks down as follows:

- 6000 million broilers,
- 370 million laying hens,
- 260 million pigs,
- 90 million bovines and
- 100 million sheep and goats

That industry supplies 490 million EU citizens with:

- 130 million tons of safe milk
- 45 million tons of safe meat and
- 7 million tons of safe eggs.

The European feed sector is an essential partner in supply to the livestock industry. Feed is the major cost factor for the livestock farmers, e.g. representing up to 85 % of the production cost for poultry (figure 3). Farm animals in the EU-27 consume an estimated 467 million tons

of feed a year, of which 150 million tons are produced by the compound feed manufacturers (the worldwide compound feed production amounts to 700 million tons: China and Brazil are developing at a very fast pace). Figure 4 gives an overview of the compound feed production of the EU-27 in 2008. These 150 million tons of compound feed can be broken down to mainly pig feed (35%), feed for broilers and laying hens (33%) and cattle feed (25%) (figure 5). The remaining is constituted of milk replacers (1%) and feed for other livestock (7%). The European feed industry is valorizing a very significant amount of byproducts from the food and biofuel industry. An average compound feed formula constitutes of 40 % of these byproducts (figure 6; by-product is biofuel industry not specifically mentioned). On top of that (figure 7), livestock farmers use approximately 228 million tons of forage and 89 million tons of feed materials (home-grown cereals or purchased feed materials).

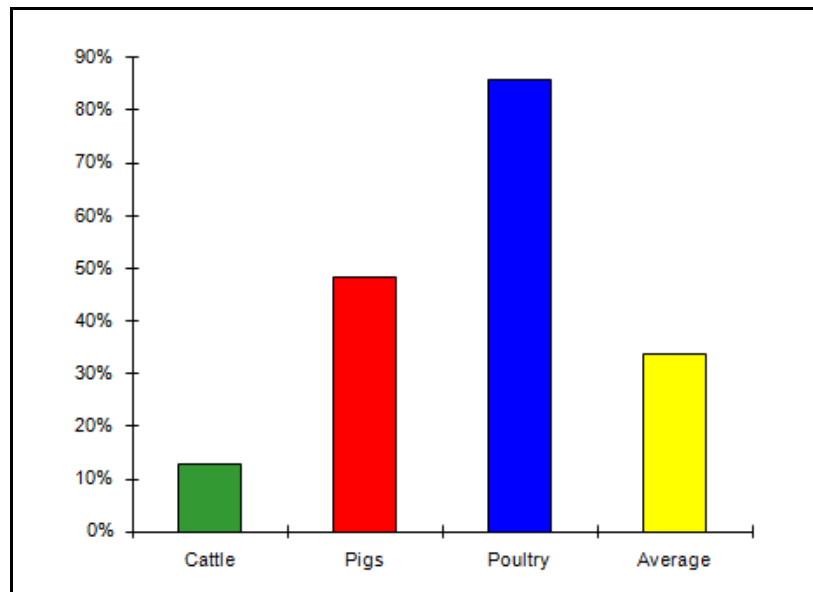


Figure 3 : Value of purchased compound feed in total animal output value in 2008 (source : FEFAC)

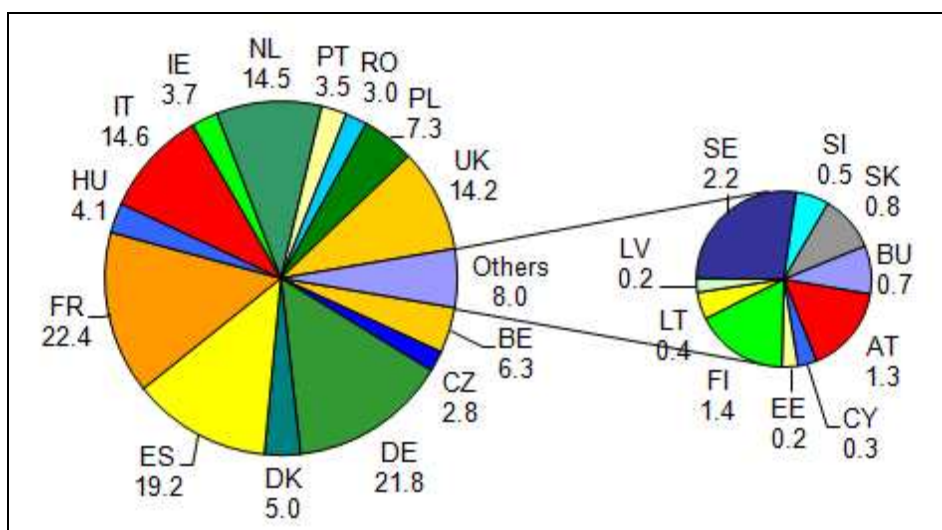


Figure 4 : EU-27 compound feed production in 2008 (150.6 mio T) (source : FEFAC)

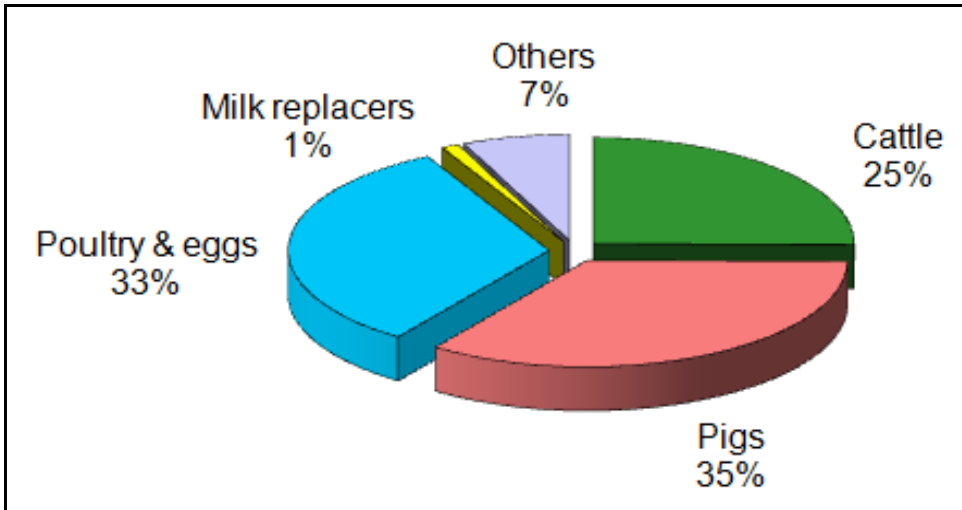


Figure 5 : Industrial compound per category in 2008 (source : FEFAC)

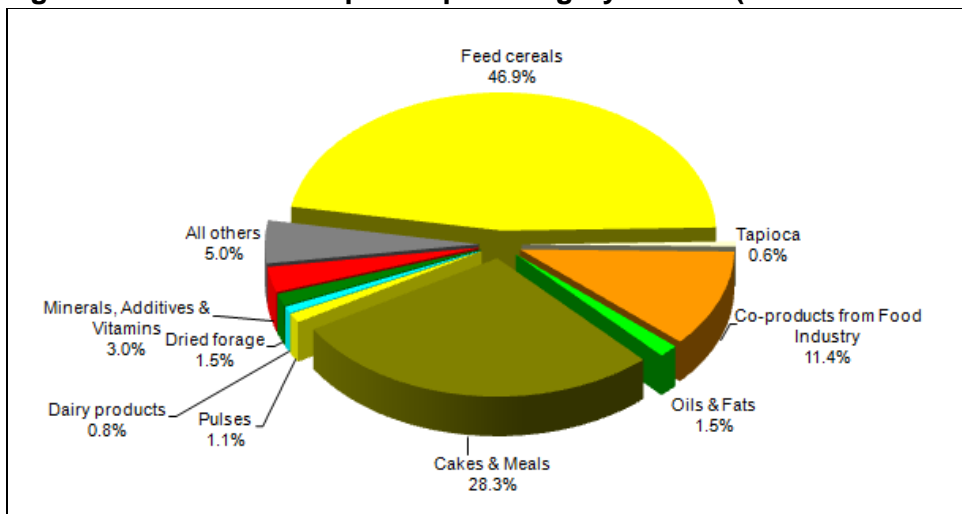


Figure 6 : Feed material consumption by the compound feed industry in 2008 in the EU-27 (source : FEFAC)

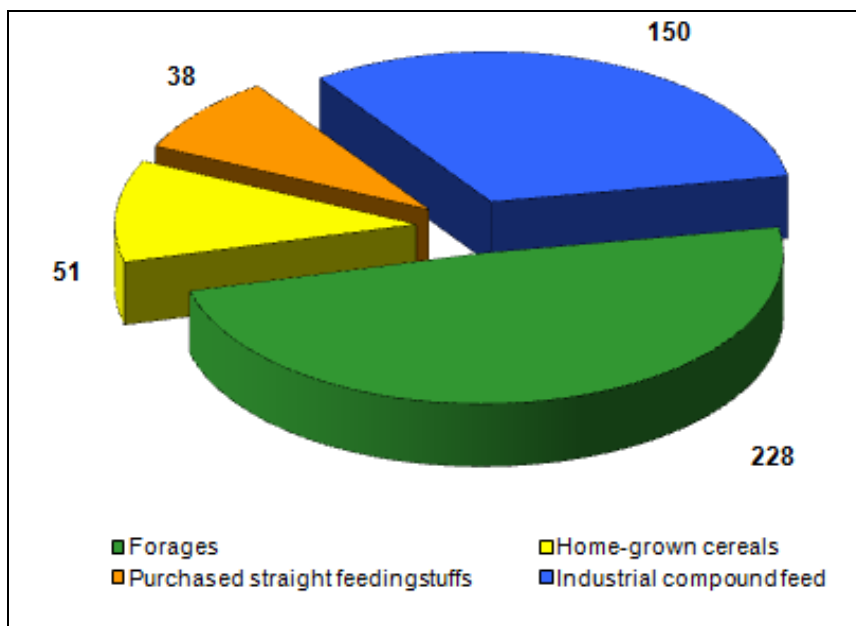


Figure 7 : Livestock sourcing (in mio T) in feed in the EU-27 in 2008 (source : FEFAC)

The European compound feed industry is a growing industry and turnover is now estimated at 50 billion € (excluding pet food and not accounting the feed material business). It offers direct employment for approximately 110000 people in approximately 4500 plants. Many of these plants are situated in rural areas, which offer few employment opportunities. Most (85%) of the (compound) feed plants are small or medium size (SME) enterprises, with in 2008 an average annual production of 42.000 tons of compound feed per plant (figure 8).

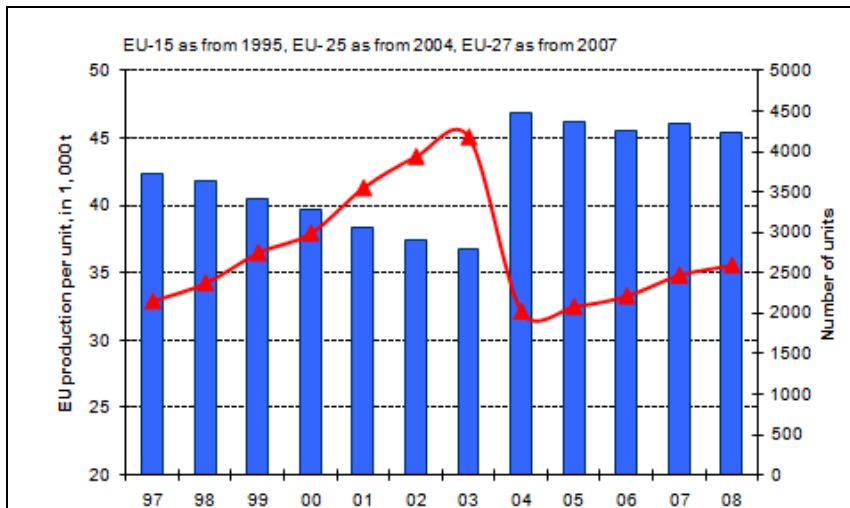


Figure 8 : Number and average size of feed production units in the EU-27 (2008) (source : FEFAC)

The other important feed area is pet food. About 62 million EU households have pets (e.g. 60 million cats and 59 million dogs). The size of the EU market is estimated to be about 6 million tons of pet food, produced by around 450 companies, and worth some 9 billion € a year. Direct employment is estimated to be 21000 people and indirect 30000 people.

B. EUFETEC business profile

The EUFETEC **mission** (figure 9) is to support feed sector-bound and sector-steered technological innovation through:

- Harmonized, innovative (technical) research;
- Development of practical guidelines and organizing training to help companies with the implementation of these guidelines;
- Setting up service provision to help the companies with practical implementation;

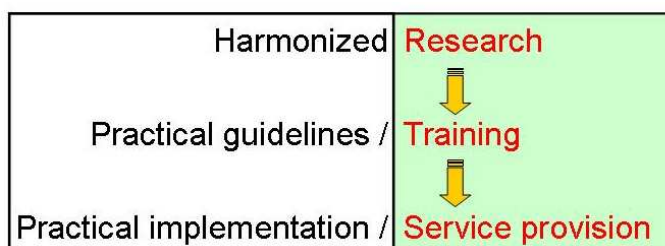


Figure 9: EUFETEC Mission

General and specific EUFETEC business objectives: the EUFETEC has the ambition to become a world-wide acknowledged EU reference center for research in the animal feed sector with Brussels, the capital of Europe, as location.

The specific EUFETEC business objectives are the milestones that mark the progress on the way to the general objective. Priorities will have to be set as regards topics and expansion of the activities to other European member states.

EUFETEC Business philosophy: the EUFETEC’s business philosophy is primarily to select activities that serve sector interests and nothing but sector interests.

The EUFETEC “products” and services will be offered to all enterprises (EU member states that support the EUFETEC project).

EUFETEC partners (figure 10): as was stated in the previous paragraph, the animal feed chain has different links. There is the production, trade and transport of feed materials, (feed) additives, premixtures, compound feed and medicated feed. At this stage, BEMEFA, CESFAC, FEFAC and FEFANA / FRANA represent the animal feed industry within the EUFETEC. From the side of the Universities and University Colleges, the departments or units involved in animal feed of the University Association Ghent (in collaboration with ILVO) – GEFETEC - and the Universities of Nottingham and Piacenza and the Wageningen University and Research Center are represented. The research centers in the area of feed technology and nutrition that are part of the EUFETEC are IFF and TECALIMAN.

Key Stakeholders

– Feed Industry BEMEFA (BE), FRANA / FEFANA (BE / EU), CESFAC (ES)

– Academic community AUGent / ILVO (BE), Wageningen (NL), Piacenza (IT), Nottingham (UK)

– Research centers TECALIMAN (F), IFF (DE)

Key Observer

FEFAC (EU)

Figure 10: EUFETEC Partners

Once cruising speed has been attained, the number of partners will grow steadily and gradually (e.g. since May 2009 the Institute for Food Technology (FINS) from the University of Novi Sad, Serbia, is a stakeholder of EUFETEC). Likewise, project-based initiatives are to be launched, whereby contribution of suppliers to the animal feed sector might be required to help underpin and support these projects.

C. Strengths and opportunities of EUFETEC

At the startup, EUFETEC – as an emerging initiative and new on the market – will of course have strong and less strong points. The fact that the topics that are to be addressed within the EUFETEC are determined by the entire feed industry and have a common European basis, is unarguably a key strong point. Also, the international orientation of the EUFETEC and a representation within the EUFETEC of internationally reputed federations, universities,

university colleges and research institutes, is a strength. A central location such as Brussels is also an asset for the Center. The fact that the target group is highly specific makes it a unique corner of the market. Interactivity can be very great and current needs can be rapidly capitalised on.

2. CHALLENGES FOR EU FEED SECTOR

A. Introduction

The European livestock industry is facing several challenges:

- To meet EU and global consumer’s expectations vis-à-vis EU produced animal products in terms of quantity, quality, safety and other social concerns such as animal welfare, and this at an affordable price.
- To be efficient, i.e. to produce the quantity of animal products demanded by consumers with the minimum impact on natural resources, in particular feed, taking into account the increasing competition for agriculture products between food, feed and biofuel;
- To reduce the impact of livestock production on the environment.

In other words, the EU livestock industry must be sustainable. This supposes for instance that cost effectiveness and technology are addressed proactively through innovative research. The EU is already ahead of most countries worldwide. For example, thanks to technological progress, improvements in farm management and innovation feed conversion ratios have continuously decreased: to produce 1 kg of egg in 1968, 3.1 kg of feed were necessary whilst in 2001 it was only 1.9 kg. In addition to the economical benefit there is also less effluents (carbon dioxide, nitrate, ammonia) per production unit. However there is no room for self complacency and any area for improvement must be investigated, which research shall support.

B. Assessment of feed sector needs and priorities

In the beginning of 2008, the EUFETEC started with the development of a questionnaire which was designed to get a perception of what the key priorities for research, training and service provision are for producers of (feed) additives, premixtures and compound feed (see the questionnaire in annex A). The EUFETEC should provide innovative answers to these

contamination studies / residues
safety at work
dust explosion
analysis methods
cross contamination
environmentally friendly feeds
ammonia emission
sustainability
alternative protein sources / sustainability
energy management
emerging contaminants
feed hygiene / autocontrol

EU-basis



key priorities through a structural and sustainable cooperation between several European stakeholders (feed industry, academic world, research centers, etc.). In a first phase this questionnaire was conducted in Belgium and in a second phase the questionnaire was conducted among feed producers in Europe. Twelve challenges in three areas of interest have been addressed in the questionnaire: Feed & Food Quality and Safety, Sustainable Feed & Environment, and Production Unit Management. All these 12 topics have a common

Figure 11 : twelve common challenges for the EU feed industry

European legislative basis or represent common challenges to all European feed producers. For the data obtained from the Belgian questionnaire, it was possible to do a weighing based on the production capacity of the respondents. Hence eventual differences in response between SME's and larger companies can be detected if present and extrapolated to the EU response.

For example :

Dust explosion :

- **ATEX 95** or **Directive 94/9/EC** of the European Parliament and the Council of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres.
- **ATEX 137** or **Directive 1999/92/EC** of the European Parliament and of the Council of 16 December 1999 on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.

Ammonia emission :

- **Directive 2001/81/EC** of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants

Feed Hygiene / autocontrol :

- **Regulation (EC) No 183/2005** of the European Parliament and of the Council of 12 January 2005 laying down requirements for feed hygiene.

Contaminants :

- **Directive 2002/32/EC** of the European Parliament and of the Council of 7 May 2002 on undesirable substances in animal feed.
- **Commission Recommendation 2006/583/EC** of 17 August 2006 on the prevention and reduction of Fusarium toxins in cereals and cereal products

Products from animal origin :

- **Regulation (EC) No 999/2001** of the European Parliament and of the Council of 22 May 2001 laying down rules for the prevention, control and eradication of certain transmissible spongiform encephalopathies
- **Regulation (EC) No 1774/2002** of the European Parliament and of the Council of 3 October 2002 laying down health rules concerning animal by-products not intended for human consumption

Cross contamination and homogeneity :

- **Council Directive 95/69/EC** of 22 December 1995 laying down the conditions and arrangements for approving and registering certain establishments and intermediaries operating in the animal feed sector and amending Directives 70/524/EEC, 74/63/EEC, 79/373/EEC and 82/471/EEC

Safety and health of workers at work :

- **Council Directive 89/391/EEC** of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work

The response in Europe to that questionnaire was high: in total 248 feed business operators from 16 different EU member states participated in the questionnaire. The compound feed sector had 180 respondents and the premixtures and the feed additives industry each had 34 respondents (table 1).

As a **general introduction**, it can be stated that 85.9% of the respondents said it is “important” to “very important” to establish a platform such as the EUFETEC, that is aiming to establish a structural and sustainable European cooperation between various stakeholders (Q5 of questionnaire; table 2).

Table 1 : overview of respondents to EUFETEC Questionnaire (per country and per sector)

248 respondents						
-	Production of (feed) additives (A) :			34		
-	Production of premixtures (P) :			34		
-	Production of compound feed (CF) :			180		
Countries						
		<i>A/P/CF</i>			<i>A/P/CF</i>	
Belgium	77	(1/2/74)	Norway	2	(1/0/1)	
Czech Republic	2	(0/1/1)	Poland	3	(0/0/3)	
Denmark	2	(1/0/1)	Portugal	5	(0/1/4)	
France	56	(8/14/34)	Slovenia	1	(0/0/1)	
Germany	8	(5/2/1)	Sweden	1	(1/0/0)	
Ireland	8	(0/0/8)	Spain	35	(4/7/19)	
Italy	25	(3/3/19)	Switzerland	2	(2/0/0)	
Netherlands	7	(1/1/5)	United Kingdom	14	(4/1/9)	

Sustainable Feed & Environment

78.6 % of the respondents (completely) agree that the international evolution of the **feed material prices** is a threat for its feed related activities (Q9 in table 2 – see annex B). The weighted data indicates that the international price evolution (also for the energy prices – see further) especially poses a threat for the feed related activities of SME’s. Because of this increase in prices of feed materials, feed producers expect that there will be an evolution or a shift in the type of feed materials that are used for feed production. At present, 47 % of the compound feed consists of cereals (figure 6). But because of increasing competition with e.g. the biofuel and food industry, 78.6 % of the respondents (completely) agree that the **byproducts** generated by these industries will be increasingly used for feed production (Q10 in table 2). At this stage already byproducts of the food industry are valorized by compound feed producers and they constitute for almost 40 % of the formula (figure 6). This valorization is key for the sustainability of all sectors involved.

Environment is a top priority of the feed industry. European legislation with respect to nitrates and phosphates in surface and groundwater and ammonia emission is in vigor. If we wish to keep in place or allow growth of the European livestock production – with an important social role in fulfilling EU consumer demands – there is a need to find innovative solutions to these environmental challenges.

Feed & Food Quality and Safety

These issues have been vigorously addressed at a sector level and various EU member states can be proud of the creation of a robust feed-safety system. The EFMC (European Feed Manufacturers Guide) was the first European guide to be approved by the European Commission as a self-check guide. But there remains a need for the feed industry to permanently invest in food & feed safety and in quality systems through research, clear and ready-to-implement guidelines, training and service provision.

Cross-contamination, carry-over from feed to food and residues of coccidiostats and molecules of medicated feed are still seen as a problem for a majority of the feed producers who use the molecules (54.8% of the respondents (completely) agrees; Q22 in table 2). This threat is more eminent for larger producers, since they are the main users of these molecules.

Production Unit management

79.9 % of the respondents (completely) agree that the international evolution of the energy prices is a threat for its feed related activities (Q6 in table 2). Another important plant management issue is dust explosion (ATEX 95 and ATEX 137 Directive). It is alarming that only 18.10 % of the respondents (especially the larger producers) are fully aware of the content of this legislation (Q28 in table 2). More than 76 % of the respondents are not or not completely implementing that legislation (Q29 in table 2). A topic closely related to dust explosion, is employee occupational health: it is also here alarming that only 31 % of the respondents (especially the larger producers) are aware of this legislation and the different safety procedures that are to be developed (Q31 in table 2). More than 58 % of the respondents are not or not completely implementing that legislation (Q 32 in table 2).

Table 3 : EUFETEC Priorities (Q 36, Q37 and Q 38 of EU Questionnaire)

	1st priority	2nd priority	3 rd priority
Transfer of contaminants to milk, meat, eggs & residues	16,1%	14,1%	11,3%
Employee occupational health	4,8%	5,2%	6,9%
Dust explosion	3,6%	4,4%	5,6%
Analysis methods for undesirable substances	11,3%	14,5%	10,5%
Cross contamination	8,1%	10,5%	10,5%
Environmentally friendly feeds	4,8%	6,9%	6,9%
Ammonia emission	2,8%	5,2%	4,8%
Sustainability	6,5%	6,0%	7,3%
Alternative protein sources in animal feed	20,2%	8,9%	8,5%
Energy management	12,1%	10,1%	10,1%
Emerging contaminants	3,2%	6,9%	8,9%
Feed Hygiene regulation (183/2005) / autocontrol	6,5%	7,3%	8,9%
	100%	100%	100%

Table 4: Weighted EUFETEC Priorities

Transfer of contaminants to milk, meat, eggs & residues	14,65%
Alternative protein sources in animal feed	14,45%
Analysis methods for undesirable substances	12,23%
Energy management	11,09%
Cross contamination	9,27%
Feed Hygiene regulation (183/2005) / autocontrol	7,12%
Sustainability	6,45%
Environmentally friendly feeds	5,85%
Emerging contaminants	5,38%
Employee occupational health	5,31%
Dust explosion	4,23%
Ammonia emission	3,97%

(1st priority = score 3; 2nd priority = score 2; 3rd priority = score 1)

3. VISION OF THE EU FEED SECTOR

With respects to the challenges identified by the feed industry, innovative solutions (Research and Technology Development), delivering practical guidelines & training and service provision are crucial for the feed sector (and the livestock sector). Only by doing that, the crucial role with respect to food safety, social expectations of the consumers and protection of our environment can be fulfilled and keep the European feed sector at the cutting-edge of technology and hence competitive. EUFETEC chose to attribute the 12 priority areas around which the questionnaire was designed to 3 research domains: Feed & Food Quality and Safety, Sustainable Feed & Environment, and Production Unit Management.

A. Sustainable feed & Environment

With respect to the increasing prices of **feed materials**, it was stated previously under chapter 2 that feed business operators expect an increasing use of **byproducts** of the food and biofuel industry as animal feed. In order to be able to continue the valorization of various byproducts of the food industry, to start the valorization of byproducts of the biofuel industry and to explore the possibilities of new feed materials, 83.4 % of the respondents (Q12 in table 2) finds it (very) important that large-scale research is conducted in order to assess the *nutritional value* of these “emerging feed materials” so that they can adequately fulfill their role as “alternative feedstuffs” without having negative effects with respect to feed conversion and productivity. Besides investigation on the nutritional value, also the *technical processibility* of these “emerging feed materials” deserves sufficient attention in a research agenda in order to investigate if – without transformation – they are suitable to be used in the current plants.

In case there was a controlled relaxation of the restrictions on the use of fishmeal and the prohibition of the use of processed animal proteins in feed for food-producing animals, this would provide potential alternatives for some feedstuffs (65 % of respondents finds this important to very important – Q14 in table 2). A better access to GM feedstuffs is considered as even more important (75.8 % of respondents finds this important to very important – Q15 in table 2). Sustainability is also becoming a more important criterion for feed producers (68.1 % of respondents finds this important to very important – Q 16 in table 2).

With respect to the **environment**, the production of feed with a lower content for some nutrients such as phosphorus or crude protein, are very efficient ways to reduce the presence of these nutrients in the environment. Almost 52 % of the respondents find this (very) important (Q26 in table 2). Also the development of innovative and creative solutions for the reduction of ammonia emission through the feed can be promising for a large majority of the respondents (Q27 in table 2; 69% (completely) agrees) and similar answers would be expected for the reduction of methane emissions. In order to offer a sustainable solution and to have an important impact, this has to be done in a controlled way so that there is no negative effect on the productivity of the animals.

B. Feed & Food Quality and Safety

Next to nutritional and technical implications of a shift in the feed formula (see 3.A), a thorough risk analysis of these “emerging feed materials” will have to be conducted for *feed and food safety* reasons (93.1 % of respondents find this (very) important; Q13 in table 2).

The following **contaminants** will – in decreasing order – become an increasing worry for the feed industry: (1) mycotoxins, (2) *Salmonella* & other microbiological contaminants and (3) heavy metals (respectively 80.6%, 77.9% and 69.4% (completely) agree; Q17, 18 and 19 in table 2). As the future EU legislations might offer an opportunity to decontaminate feed materials, research in the technical feasibility will be necessary. Rapid and reliable analysis methods in order to detect and quantify (at the level of the feed operator) these – and various other – contaminants are considered to be (very) important for 97.2 % of the participants (Q21 in table 2). Investment in the development of these methods can help the feed industry to remain proactive in the area of feed and food safety.

With respect to **coccidiostats** and **medicated feed**, 79.1 % of the respondents judges that the establishment of EU maximum limits or action limits in feed as well as in the food products (milk, meat and eggs) is (very) important (Q23 in table 2). These limits should of course be consistent with each other and hence studies and data on transfer are needed. Furthermore, the need for the development and the implementation of a EU protocol for the determination of objective parameters such as cross-contamination and homogeneity is (completely) agreed on by 81.5 % of the respondents (Q25 in table 2). This despite the fact that 65% of the respondents (completely) agrees that the methods they use for the determination of cross-contamination and homogeneity in their country are user-friendly and give reliable results (Q24 in table 2).

C. Production Unit Management

Besides a feed material prices (see 3.A), the second aspect of the evolution of international prices and competitiveness of the feed industry, are the **energy** prices. A large majority of the respondents would welcome tools and assistance to map out the use of energy by/in their plant and would – based on that analysis – welcome rationalization and optimization of their use of energy (87.1% finds this (very) important; Q7 in table 2). Undoubtedly, environmental considerations play as well play an important role in this awareness.

Coordinated research on the **dust explosion** characteristics of mixtures and ingredients is preferable for 67.8 % of the respondents (Q30 in table 2). With respect to dust explosion and also **employee occupational health**, it is clear that there is a need for assistance of the producers in the implementation of the legislation. Service provision and organization of training sessions are indispensable. Also the development of training programs for self-check and quality systems would be welcomed by an important majority of the feed operators (77.5% (completely) agrees; Q33 in table 2). The development of a multilingual and interactive e-learning tool can be a very innovative and effective medium for training of personnel, especially in SME's (58 % of the respondents [completely] agrees; Q 34 in table 2).

D. A Summary of the sector priorities

The twelve sector topics that were addresses in the questionnaire have finally been prioritized by the respondents (table 3). The respondents were invited to identify their first, second and third priority. By weighing their priorities (a score of 3 for the first priority, a score 2 for the second priority and a score 1 for the third priority), the 12 sector topics were ranked (table 4). It is clear that in the domain of **Feed & Food Quality and Safety** (though related to **Production Plant Management**), cross-contamination of certain molecules into non-target feeds in a production plant (priority 5) and the subsequent transfer of molecules from these non-target animals into the end product are an important challenge for the feed operators using these molecules (priority 1). This can be seen in relationship to the development of fast and on-site analysis methods (priority 3). In the area of **Sustainable Feed & Environment**, operators are clearly interested in the availability of alternative protein sources to feed the

animals (priority 2). In the **Production Plant Management** domain (though related to **Sustainable Feed & Environment**), operators are clearly interested in a more efficient energy management (priority 4). In that domain the organization of training courses on dust explosion and employee occupational health (via e-learning or coordinated national seminars) is also advisable.

4. EUFETEC ORGANIZATION

The day-to-day management of the EUFETEC will be entrusted to a **council** composed of experienced people from the stakeholders (figure 13). This management committee will also ensure business continuity, together with one **key observer** (FEFAC). Besides the council, a **scientific committee**, with experts and advisors from de different EU member states, will play an important role in the design of different research programs (several working groups with topics based on the feed sector needs). An **administrative committee** will ensure a good interface between the EUFETEC and representatives of several public authorities (including EFSA and EC) will form the core of the EUFETEC structure. A secretariat, based in Brussels (offices of BEMEFA) will support the tasks of the EUFETEC. Brussels comes across as the most strategic location. Mainly because of its central position: both nationally and in the European context. The offices are easily accessible: near the government, the airport, very close to public transport (tram, metro, bus) and there are parking facilities at BEMEFA and in public car parks in the immediate vicinity. Staffing of that secretariat can be limited initially to one full-time person with a university education who streamlines activities, represents the EUFETEC and coordinates the required administrative steps. This person will be assisted by a part-time administrative assistant.

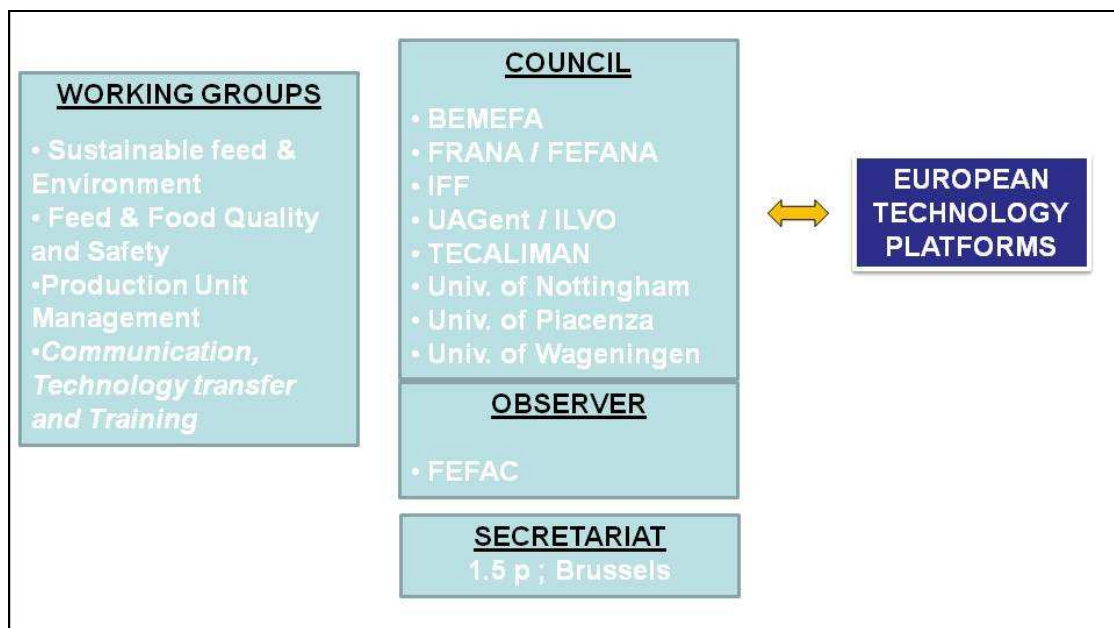


Figure 13: EUFETEC Structure

Technical working groups on “Sustainable Feed & Environment”, “Feed & Food Quality and Safety” and “Production Plant Management” are established. A cross-sectional Working group on Communication, Technology transfer and Training is also established. These working groups will have the responsibility to interact with European Technology Platforms and to develop research proposals on priority sector-bound topics.

Additionally, professional advice and support will be obtained from legal advisers, accountants and auditors of the books, as well as from mentors and other important advisers.

ANNEX A: QUESTIONNAIRE

- Q1 Name of your _____
company:
Your name: _____
Your email address: _____
- Q2 Country
- Q3 major activity:
- Production of (feed) additives
 - Production of premixtures
 - Production of compound feed
- Q4 Yearly turnover (million Euro) regarding feed manufacturing (additives, premixtures and compound feed) by your company
- INTRODUCTORY QUESTION**
- Q5 A structural and sustainable cooperation at EU level between the different stakeholders of the feed chain, research centers and the academic community in the area of research, service provision and training is:
- very important
 - important
 - no opinion
 - rather not important
 - not important
- I. ECONOMY: energy and feedstuff**
- Q6 The international evolution of energy prices (oil, electricity, gas,...) can be a threat to your activities as feed producer.
- completely agree
 - agree
 - no opinion
 - rather disagree
 - disagree
- Q7 To map out the use of energy in your company and to introduce some measures to rationalize and optimize this is :
- very important
 - important
 - no opinion
 - rather not important
 - not important
- Q8 Producing your own energy (biomass, solar energy) for your activities as feed producer will be necessary in the short term.
- completely agree
 - agree
 - no opinion
 - rather disagree
 - disagree
- Q9 The international evolution of prices of feed materials (soy, cereals, ...) can be a threat to your activities as feed producer.
- completely agree
 - agree
 - no opinion
 - rather disagree
 - disagree
- Q10 Because of the international evolution of feed material prices, by-products of the biofuel industry (DDGS, glycerol) and other alternative feed materials will play a more prominent role in the feed formula in the short term.
- completely agree
 - agree
 - no opinion
 - rather disagree
 - disagree
- Q11 Which "alternative" feed materials (except by-products of the biofuel industry) do you have in mind ?
- Q12 Research of the nutritional value (e.g. NIRS calibration curves) and technical processibility of the by-products of the biofuel industry and other alternative feed materials is for you :

- very important*
 - important*
 - no opinion*
 - rather not important*
 - not important*
- Q13 A risk analysis (undesirable substances, antinutrients) of these by-products and other alternative feed materials is for you :
- very important*
 - important*
 - no opinion*
 - rather not important*
 - not important*
- Q14 A controlled relaxation of the restriction on the use of fishmeal and of the prohibition to use processed animal proteins in feed for food-producing animals is :
- very important*
 - important*
 - no opinion*
 - rather not important*
 - not important*
- Q15 A better access to GM feedstuffs is :
- very important*
 - important*
 - no opinion*
 - rather not important*
 - not important*
- Q16 To have the possibility to use sustainable feed materials (e.g. with respect to the protection of the Amazon forest) for the production of feed is :
- very important*
 - important*
 - no opinion*
 - rather not important*
 - not important*

II. FEED AND FOOD SAFETY

Following contaminants will in the near future become an increasing worry for the feed sector :

- Q17 Heavy metals :
- completely agree*
 - agree*
 - no opinion*
 - rather disagree*
 - disagree*
- Q18 Mycotoxins :
- completely agree*
 - agree*
 - no opinion*
 - rather disagree*
 - disagree*
- Q19 Salmonella & other microbiological contaminants :
- completely agree*
 - agree*
 - no opinion*
 - rather disagree*
 - disagree*
- Q20 Any other contaminants ?
- Q21 The development of fast analysis methods in order to detect and quantify above mentioned contaminants is :
- very important*
 - important*
 - no opinion*
 - rather not important*
 - not important*
- Q22 Residues of coccidiostats or medicated feed in feed for non-target animals are a problem to your activities as feed producer.
- completely agree*
 - agree*
 - no opinion / not applicable*
 - rather disagree*
 - disagree*

- Q23 In the short term, in the EU there is a need for maximum limits or action limits for residues of coccidiostats or medicated feed in feed for non-target animals as well as in end products (milk, egg and meat). The limits should be consistent with each other.
- completely agree*
 - agree*
 - no opinion / not applicable*
 - rather disagree*
 - disagree*
- Q24 The methods that are available in your country to determine cross contamination and homogeneity are user friendly and give reliable results.
- completely agree*
 - agree*
 - no opinion*
 - rather disagree*
 - disagree*
- Q25 There is a need for a uniform EU protocol in order to determine cross contamination and homogeneity in facilities where feed is produced.
- completely agree*
 - agree*
 - no opinion*
 - rather disagree*
 - disagree*

III. ENVIRONMENT

- Q26 Production of feed low in content for some nutrients such as P, Crude Protein, Zn, Cu is :
- very important*
 - important*
 - no opinion*
 - rather not important*
 - not important*
- Q27 19. The possibility to tackle the ammonia emission problem through the feed can be interesting :
- completely agree*
 - agree*
 - no opinion*
 - rather disagree*
 - disagree*
- Q28 Do you know the legislation regarding dust explosion (based on ATEX 95 and ATEX 137 Directives) that came into effect recently ?
- yes, completely*
 - yes, partially*
 - no*
 - not applicable*
- Q29 Do you manage to implement the legislation regarding dust explosion (zoning, documentation regarding protection against dust explosion) in your company ?
- yes, completely*
 - yes, partially*
 - no*
- Q30 There is a need for coordinated research regarding the dust explosion characteristics in mixtures and ingredients relative to your activities as feed producer.
- completely agree*
 - agree*
 - no opinion*
 - rather disagree*
 - disagree*

IV. OTHER SUBJECTS

- Q31 In the field of employee occupational health, do you know the welfare regulation and the different procedures which need to be developed (e.g. "work subcontracted to third parties") ?
- yes, completely*
 - yes, partially*
 - no*
- Q32 Do you manage to implement the legislation regarding employee occupational health in your company ?
- yes, completely*
 - yes, partially*
 - no*
- Q33 It is suitable to organize training sessions on the practical implementation of the Feed Hygiene (183/2005) legislation and (if applicable) national codes to good practices.
- completely agree*
 - agree*

- no opinion*
 rather disagree
 disagree
- Q34 I would prefer to follow such a training course on my pc in the form of distant learning (at home or at my company, alone or with colleagues) :
- completely agree*
 agree
 no opinion
 rather disagree
 disagree
- Q35 The development of a digital application in order to be able to trace through the animal feed chain (replacing paper invoices) is :
- very important*
 important
 no opinion
 rather not important
 not important
- Q36 Which of these themes, referred to within the questionnaire, should according to you get the highest priority within EUFETEC ?
- Transfer of contaminants to milk, meat and eggs & residues*
 Employee occupational health
 Dust explosion
 Analysis methods for undesirable substances
 Cross contamination
 Environmentally friendly feeds
 Ammonia emission
 Sustainability
 Alternative protein sources in animal feed
 Energy management
 Emerging contaminants
 Feed Hygiene regulation (183/2005) / autocontrol
- Q37 Which of these themes, referred to within the questionnaire, should according to you get the second highest priority within EUFETEC ?
- Transfer of contaminants to milk, meat and eggs & residues*
 Employee occupational health
 Dust explosion
 Analysis methods for undesirable substances
 Cross contamination
 Environmentally friendly feeds
 Ammonia emission
 Sustainability
 Alternative protein sources in animal feed
 Energy management
 Emerging contaminants
 Feed Hygiene regulation (183/2005) / autocontrol
- Q38 Which of these themes, referred to within the questionnaire, should according to you get the third highest priority within EUFETEC ?
- Transfer of contaminants to milk, meat and eggs & residues*
 Employee occupational health
 Dust explosion
 Analysis methods for undesirable substances
 Cross contamination
 Environmentally friendly feeds
 Ammonia emission
 Sustainability
 Alternative protein sources in animal feed
 Energy management
 Emerging contaminants
 Feed Hygiene regulation (183/2005) / autocontrol
- Q39 Are there other themes which you think EUFETEC could address and propose services for to feed companies ? If yes, which themes ?

ANNEX B: RESULTS OF THE EUFETEC QUESTIONNAIRE (TABLE 2)

Question (for details see ANNEX A)										
1. Introductory Question										
	VI	I	NO	RNI	NI	CA	A	NO	RNA	NA
Q5	31,50%	54,40%	10,10%	4,00%	0,00%					
2. Economy										
	VI	I	NO	RNI	NI	CA	A	NO	RNA	NA
Q6						33,90%	46,00%	4,80%	14,10%	1,20%
Q7	39,10%	48,00%	5,20%	7,70%	0,00%					
Q8						8,10%	23,40%	29,80%	30,60%	8,10%
Q9						38,70%	39,90%	3,30%	14,10%	4,00%
Q10						27,00%	51,60%	11,30%	7,70%	2,40%
Q12	30,60%	52,80%	7,70%	5,60%	3,30%					
Q13	54,00%	39,10%	2,80%	2,50%	1,60%					
Q14	31,90%	33,10%	17,30%	10,80%	6,90%					
Q15	40,70%	35,10%	12,90%	8,10%	3,20%					
Q16	25,40%	42,70%	21,80%	6,90%	3,20%					
3. Feed & Food Safety										
	VI	I	NO	RNI	NI	CA	A	NO	RNA	NA
Q17						22,60%	46,80%	17,30%	11,70%	1,60%
Q18						37,10%	43,50%	7,70%	10,50%	1,20%
Q19						33,50%	44,40%	6,90%	14,10%	1,10%
Q21	54,00%	43,20%	2,00%	0,80%	0,00%					
Q22						25,00%	29,80%	25,00%	12,10%	8,10%
Q23						42,40%	36,70%	16,90%	3,20%	0,80%
Q24						11,00%	54,00%	14,90%	17,30%	2,80%
Q25						34,30%	47,20%	12,50%	4,80%	1,20%

4. Environment										
	VI	I	NO	RNI	NI	CA	A	NO	RNA	NA
Q26	10,90%	40,70%	35,50%	11,70%	1,20%					
Q27						22,20%	46,80%	22,60%	7,70%	0,70%
						YC	YP	N	NA	
Q28						18,10%	49,70%	26,20%	6,00%	
						YC	YP	N		
Q29						23,20%	50,20%	26,60%		
	VI	I	NO	RNI	NI	CA	A	NO	RNA	NA
Q30						20,60%	47,20%	27,90%	3,40%	0,90%
5. Other subjects										
						YC	YP	N		
Q31						31,00%	57,70%	11,30%		
Q32						41,50%	50,00%	8,50%		
	VI	I	NO	RNI	NI	CA	A	NO	RNA	NA
Q33						28,30%	49,20%	16,50%	4,80%	1,20%
Q34						15,30%	42,70%	25,40%	13,80%	2,80%
Q35	26,20%	42,70%	20,60%	7,70%	2,80%					

(VI = Very Important; I = Important; NO = No Opinion; RNI = Rather Not Important; NI = Not Important)

(CA = Completely Agree; A = Agree; NO = No Opinion; RNA = Rather Not Agree; NA = Not Agree)

(YC = Completely Agree; Y P = Yes Partly; N = No; NA = Not Applicable)