

**NATIONAL RESEARCH-DEVELOPMENT INSTITUTE
FOR ANIMAL BIOLOGY AND NUTRITION
(IBNA)**

**INSTITUTIONAL DEVELOPMENT PLAN
FOR 2012-2015**

1. SCIENTIFIC SWOT ANALYSIS.

Main results of the institute's scientific SWOT are presented in the next paragraphs. Some of the identified points are not directly related to the scientific activity but has **strong impact on its volume, efficiency and results** and were therefore included in the analysis:

Strengths:

- one of the highest degrees of integration into ERA among Romanian agricultural research units;
- high experience in the IBNA's current fields of activity (nutrition, feeds safety, feed and food quality and chemistry, breeding, animal health, etc.);
- well trained core scientific staff: 40% trained abroad in PhD and post-doc stages good international experience able to be successful project writers and very good trainer for the early career researchers; well-trained auxiliary research staff (technicians, ...);
- good working environment, stimulating the research activity (= good infrastructure, high number of projects, good supervisors, intense national and international collaborations, etc.);
- highly utilized infrastructure, rich methods portfolio and easiness in developing new ones; well-established / standardized working procedures (e.g. ISO 9001, ISO17025);
- high working efficiency and ability to perform various tasks in very short time (speed of reaction – e.g. within project proposals);
- ability to constantly adapt the research directions / subjects in order to be stakeholders-oriented and fit the national and international priorities;
- very good national and international visibility which makes easier initiation of collaboration of all kind - from FP projects to on-farm demonstrations and services to the private sector (IBNA is a well-known brand within agriculture sector);
- no debts of the institute, high capacity to attract funds for research activity;
- high international presence.

Weaknesses

- heterogeneous capacity of IBNA scientists to produced ISI articles;
- undergoing rehabilitation (perturbing the activity for ~one of the next four years);
- not enough research staff to cover all research directions needed by the animal science sector;
- auxiliary departments not fully reformed;
- from time to time cash-flow problems;
- agricultural institutes have no direct PhD supervision (within a formal system).

Opportunities

- opening of Romania toward European priorities (initiated before EU integration and likely to continue);
- increasing interest of general public in the quality and safety of food (animal products) and growing interest for public health, environment, welfare, etc;

- new generation of farmers, with modernized farms, open to applying new knowledge, able to absorb research results (growing demand for innovation);
- huge need of continuous education of farmers, leading also to the need of appropriate scientific information;
- interest of some actors from developed countries and pan-European structures in Eastern Europe agriculture / RD;
- overall weakness of the Romanian agricultural RD.

Threats

- scarceness of sources of good human resources;
- unexpected budgetary cuts; unpredictability of the main financing source for public research (public funds);
- high bureaucracy in interactions with the authorities (leading to high useless, non-scientific workload);
- abrupt and unexpected reduction of overall budget for research (national-wide) – e.g. no major calls for proposals;
- national funds for consultancy are directed elsewhere, not to the research units.

Following the identification of the strengths, weaknesses, opportunities and threats we may conclude that IBNA: (i) has one of the highest degrees of integration into ERA among Romanian agricultural research units; (ii) well trained core scientific staff; (iii) highly utilized infrastructure, rich methods portfolio; (iv) ability to constantly adapt the research directions / subjects in order to be stakeholders-oriented and fit the national and international priorities; (v) very good national and international visibility; (vi) high capacity to attract funds for research activity.

This should enable the institute to perform good quality research activity within the directions listed in Chapter 3 and to easily adapt to new research directions.

In order to maintain and strengthen the leading position in the Romanian agricultural research, IBNA can take the following measures, derived from the SWOT analyses:

- increase the absorption level of the European funds for research by own proposals within the European programs and development of close relations with prestigious partners from foreign countries;
- intensify publishing the research outputs in ISI-rated journals;
- draw national private funds by diversifying the research topics in agreement with the requirements of farmers and the business environment;
- fortify the research collective by employing researchers with a solid professional training/expertise;
- modernize the research equipment after the rehabilitation of the headquarters is completed;
- adapt the management in ensuring a working environment proper for a higher quality of the research activity.

2. STRATEGIC SCIENTIFIC OBJECTIVES AND DIRECTIONS

While **maintaining its current** scientific objectives and directions, proved to be appropriate for this period, the institute **will adapt them** in order to meet the **priorities identified at both European and national level**.

Actually, **it is not a matter of option, as the research has to be stakeholders-oriented**, but a matter of **effectively identifying the current and future research needs**. For this, two distinct strategies will continue to be used in the next four years:

1. strategy to meet the research priorities of EU and national research programs
2. strategy to meet the research needs of the animal science sector

First strategy consists in:

- involvement of **several IBNA's scientists** in the building of the research programs: SCAR, ETP (Food for Life, FARBRE, etc.), dedicated FP support projects (like FeeSEG, FoodSEG);
- maintaining high connection with foreign research teams: **at least 5** international projects, **joint RD activities with at least 20 international partners**, etc.;
- maintaining high level of specialization stages abroad (**at least 5 researchers** will undergo medium and long-term stages abroad).

Second strategy consists in:

- ensuring an **effective feed-back system**, involving the **potential beneficiaries of research results** (using questionnaires, debates, exploratory workshops, etc.) at an appropriate level;
- involvement of private sector as project partners (**participatory research**);
- intense collaboration with professional associations and similar bodies (at least 10 direct collaborations implemented)

Up to now, the following **objectives** and **directions** were identified. They **remain open** in order to ensure **flexibility** and **RD market-orientation**.

Scientific objectives for 2012-2015:

- increase the **production of ISI articles** with 50%, which means 4 to 6 accepted articles / year;
- increase the number of results that can be patented, leading to at least 4 patent requests / year;
- consolidate **Archiva Zootechnica journal** (enlarging the editorial board with well-known scientists, enlarge coverage, etc.) and submission for ISI coverage;
- increasing the **research capacity** of the IBNA in terms of human resources, infrastructure, attracted funds, etc.;
- addressing both European research priorities (partly matching with those of PNDCI) and priorities issued from the needs of Romanian animal science sector;
- contribute to the research challenges identified within SCAR / KBBE / etc. foresight exercises;
- contribution to the build of the future research programs (FP8, national programs), through specific means;
- consolidate the position of IBNA in South-Eastern Europe as reliable RD partner in animal science field.

Scientific directions identified as suitable for 2012-2015:

- Producing new scientific knowledge on the by-products issued from the emerging food and non-food plant processing industries (efficiency, biologically-active compounds, etc.)
- Feeding strategies for better quality animal products contributing to the public health (PUFA profile of animal products, organic production systems, etc.) and fulfillment of the needs of niche consumers (eco, metabolic diseases, etc....)
- Improve the efficiency of dietary nutrients' utilization;
- Development of new physical and chemical methods to evaluate feed and food quality and safety;
- Development of food fitting the principles of sustainable development and food safety;
- Decrease the environmental impact of animal production;
- Use of experimental animal models to study the nutritional diseases in humans;
- Identifying the mechanisms that modulate the effects of nutrition at gut level
- Assessment of the contaminant (mycotoxins) effect at the gut level-local immune response;

- Nutritional strategies to mitigate the adverse effect of Fusarium mycotoxins;
- Immunological characterisation of new sources of feed;
- Monitoring of the small populations in order to maintaining the biodiversity;
- Development of new methods for milk recording in ruminants;
- Integrate of DNA Technologies in breeding programmes ;
- Estimation of the genetic parameters and prediction breeding value for populations with normal status.
- Development of feeding technologies for farm animals relying on the efficient conversion of domestic raw materials (ecological and conventional) into functional animal products;
- Producing and testing of biotechnological products (probiotics from selected strains of lactic acid bacteria) as alternatives to antibiotics and coccidiostatics, as growth promoters in order to improve the immune system and alleviate the adverse environmental impact;
- Development of natural biological conservatives for ensiling with positive effects on forage quality and on milk production;
- Identification and characterization of new drought-resistant feed sources and their proper utilization;
- Increasing competitiveness of animal production and improving animal welfare by using innovative feeding technologies.

Above mentioned directions are **carefully based on current expertise**, staff **background** (previous projects, articles, etc.), available **infrastructure** (existing / planned to be purchased), **portfolio of research methods**, national & international **collaborations** (existing / new ones). These directions **will be implemented through a portfolio of project proposals** which will be submitted within future calls for proposals (**at least 10 proposal / call are envisages**).

3. THE HUMAN RESOURCE STRATEGY.

An efficient human resources strategy, adapted to the Romanian realities and fitted to the institute's objectives, **was developed in the last years and proved to be effective**. This strategy **will continue, while new levers will be added**. The general goal is to develop the research capacity while maintain overall financial sustainability. Human resource strategy which will be applied in the next period has two pillars:

- a **constant increase** of the number of researchers (correlated with the financial situation and development of research directions) and their degree of specialization. The recruiting plan will be revised every year;
- a set of **mechanisms ensuring suitability of human resources**, comprising:
 - careful **recruiting policy** (high filtering criteria, spotting and appointing good graduates / researchers) with two directions: (i) **graduates** who will be formed in IBNA and (ii) **researchers with good background** (project management experience, ISI articles, etc.) – including even foreign researchers (on-going discussion with some promising researchers from Syria, Turkey, South Africa);
 - “**welcoming package**” for newly employed research staff. This comprise inclusion in an active team, active working environment (on-going projects, functional equipment, methods and procedures portfolio, consumables & reactive, etc.), specific logistics (own computer & Internet, appropriate software), trainings for professional improvement and up-dating (local/national/international), and friendly environment. IBNA is proud to offer a good working environment for the newcomers. Experienced scientists will have to developed/consolidate research directions and produce scientific results, continually valorised their results in peer-review journals, open and maintain collaborations/partnerships by writing and managing research projects;

- research activity of researchers and teams will be submitted to an **internal evaluation** every year (using an evaluation sheet in line with the policy of the national authority for research), allowing easy and non-equivocal identification of strengths and weaknesses;
- a **bonuses system** allowing high correlation between researchers' performances and incomes (even now, within the same scientific degree, the income may vary from simple to almost double);
- maintaining a relatively **high level of staff incomes**, in order to avoid brain-draining;
- formal or informal collaboration with field universities in order to systematically attract master and PhD students in the research activity;

This strategy will be continuously adapted to the changes affecting the labor market and IBNA's environment (financial, social, legal, etc.).

4. MECHANISMS FOR STIMULATING THE APPEARANCE OF NEW RESEARCH DIRECTIONS.

The mechanisms **will be implemented in the following frame**: most of the research activity is performed through **projects won within** national and international project **competitions**, the important calls for proposals (in terms of funds) are setting **broad topics, leaving to the participants the choice of the projects' subjects**. Of the IBNA's 31 scientists, 18 have experience in writing project proposals, and they will be the vector ensuring the appearance of new research directions.

In this context, the mechanisms for stimulating **new research directions** will be:

- ensuring high **interactions** of the project writers with the international scientific environment (involvement in projects, specialization stages, intense participation to congresses, etc.);
- **implementing a system** to continuously identify and collect research needs (which can be transformed in project ideas) from the private sector, using diverse approaches (from questionnaires, SWOT analysis, debates etc. to on-line collection);
- **increase the IBNA's capacity** of elaborating and submitting project proposals (correlated with the human resources, infrastructure and partnerships strategies);
- **encouraging interdisciplinarity**, both within the institute (e.g. no scientific boundaries between laboratories) and with potential project partners (e.g. organizing reciprocal visits between IBNA and other research units from human medicine, environment, food processing, socio-economics – already practiced in previous period);
- scientific **debates and brainstorming** sessions;
- active presence in bodies involved in **research programming** (European Technology Platforms, SCAR, various working groups, etc.).

The **scientists who will write project proposals** in the following four years **will take into account the research directions** mentioned in Chapter 2, will prepare a **project proposals portfolio** and will **submit their projects within suitable calls for proposals**.

5. FINANCIAL SWOT ANALYSIS

Strengths

- high capacity to attract funds for RD activities;
- efficient system for monitoring expenditures serving as a base for rapid decisions (cross-checking between project-level and institute's level of monitoring; periodic analysis, etc.);
- IBNA has no debts (among few units within AAFS network that never had debts);
- excedentary financial exercise continually;

- the institute has good image (IBNA is a well-known and respectable brand);
- presence of development department (which is self-financed) and ensures support for some of research activities (elaboration of experimental feeds, etc.) and compensate the cash-flow irregularities;
- all-inclusive facilities for R-D activities, which contributes to the rate of success of the project proposals.

Weaknesses

- low financial reserve to buffer fluctuations of the incomes;
- incomes are not constant along the year.

Opportunities

- overall development of the Romanian animal production;
- increasing proportion of modern farms, able and willing to pay for research services (testing products, etc.);
- increasing degree of regulation in animal science sector, leading to the need for feed analysis (additional incomes for the institute);

Threats

- frequent changes in legislation that applies to the institute;
- scarceness of public funds for research;
- national calls for proposals are organized irregularly (low predictability).

Several measures can be drawn from this financial SWOT:

- IBNA will take advantage of the development of Romanian animal production and evolution of farms by valorizing its capacity to attract funds (non-public, in this case) and more intense activity of the IBNA's development department;
- IBNA will valorize the research opportunities derived from the national-wide implementation of new legislation specific to animal production sector through new project proposals, by using its good research capacity;
- if needed IBNA will continue to counteract the fluctuations of incomes by using a credit line;
- IBNA will counteract the scarceness of the public funds by increasing its competing capacity for research funds.

Overall, IBNA will apply a strategy of prudent (gradual, step-by-step) development while maintaining its high adaptability and diversifying its sources of financing and appropriate valorization of the research results, as regulated by the current legislation.

6. INFRASTRUCTURE: INVESTMENT PLAN AND STRATEGY

IBNA strategy is to focus on continuously modernize its research and development infrastructure, using various financing sources. Within the context of MAKIS project, to which own sources of funds (e.g. projects) will be added and within the scientific directions mentioned above, IBNA intend to procure equipment in order to continue the modernization of the existing laboratories:

Thus, for the **Laboratory of chemistry and physiology of nutrition**, the place of birth of the modern Romanian system of farm animal nutrition and the unit which generated much of the recent results of the institute, many of the equipment proposed to be procured are unique in Romania and quite rare in Eastern Europe: •*system for continuous pH determination*, •*in vitro system for ruminal fermentation simulation*, •*automatic feeders with continuous measurement of the feed intake*,

•equipment for the metabolic chambers and for the environmentally controlled chambers, •HPLC for multipurpose use – e.g. determination of the purinic bases, •GC for analyzing fermentation gases, •GC with mass spectrometer SQ-GS/MS, •GC-ICP-MS, •Ion-chromatograph for nitrates/nitrites (HPLC/IC), •High pressure autoclave, •Ultracentrifuge, etc,

This equipment is needed in order to consolidate some significant directions in terms of European research priorities and in terms of the regulations imposed to animal husbandry sector following the European integration: minimize the environmental impact of animal production, animal welfare, increased efficiency of nutrient utilization to increase animal farm competitiveness etc.

The following project proposals, already envisaged, will use of this equipment:

- Optimizing the use of protein rich by-products in ruminant feeding, based on the effects of their processing conditions on rumen metabolism and quality of their rumen by-pass;
- Development of sheep's wool blocks to be used for greenhouse cultivation currently under evaluation;
- By-products of vegetal origin used as antioxidants in feed of poultry (laying hens and broiler chickens) fed with rations enriched with omega-3 polyunsaturated fatty
- Assessment of heavy metal accumulation in soil-plant-animal-food chain on grassland from polluted area;
- Innovative feeding solutions for layers, aiming to promote low cholesterol eggs on the Romanian market.

For the **Laboratory of animal biology** the equipment to be procured will be grouped in two directions:

- (i) modernization of the **Compartment of feed safety and immunonutrition**, very productive in terms of international publications (ISI included) and participating in many international projects;
- (ii) modernization of the **Compartment of animal genetic resources management**, stipulated to develop as new laboratory. This compartment has a well defined niche both within the national priorities (the collective includes the national responsible with the animal genetic resources and the FAO focal point for animal genetic resources management) and within the international priorities (biodiversity etc.).

The equipment required for both compartments will complete a PCR system (already acquired from other sources): •NanoDrop ND-1000spectrophotometer, •DNA/RNA bioanalyzer, •gel reading system, •chemoluminescence, etc and to cell culture studies: •ultracentrifuge, •imagistic Western Blotting reader, •flow cytometer, •dedicated HPLC for mycotoxins.

The following project proposals, already envisaged, will use this equipment:

- Studying the toxicity of zearalenone, natural contaminant of food using tools of nanotechnology;
- Nutritional solution, easy to use, in counteracting the ochratoxin A, frequent contaminant of feed and food;
- Safety and tolerability of calcium and iron-enriched oats containing gluten-free diet;
- New methods for inflammatory pathologies characterization in dairy cattle as molecular tools for health status assessment;
- Novel technologies to reduce harmful effect of mycotoxins in natural feed;
- Active conservation and taxonomical classification of the Rusty Tsigai using classical and modern methods of molecular phylogeny;
- Use of molecular markers in improvement programs for the Romanian livestock;
- Genetic evaluation of the domestic breeds of economic interest for the preservation of biodiversity;
- Research for the identification and characterization of the kinship relations between the local varieties of sheep breeds Tsigai and Tsurcana using molecular markers.

For the **Laboratory of animal nutrition and biotechnology**, which will address more applied

research, infrastructure plan focuses on the following equipment •*various devices for bulk forage cultivating, processing and handling*; •*experimental facilities for controlled-conditions research studies on cattle, sheep, pigs and poultry (automatic feeders, etc.)*; •*portable equipment for monitoring microclimate conditions*; •*eco-graph*; •*automatic milk analyzer*, •*autoclaves*, •*CO₂ incubator*, •*sample shakers, etc.*

This equipment will be valorized within the following project proposals / subjects (already envisaged):

- potential of protein synthesis in poultry meat;
- testing the bio productive potential of new non conventional feed sources on cattle, sheep, pigs and poultry;
- nutritional requirements optimizations in accordance with different environmental changes
- enlarging the panel of probiotics (various combinations of bacteria strains, more adapted to the target farm animal species);
- diversifying the use of probiotics and natural ensiling additives.

The enhancement of the research infrastructure capacity will contribute, besides accomplishing the main goal (increased competitiveness of the animal husbandry sector; diminish the impact on environment, animal products that are more adapted to the consumers requirements, etc. by **making use of the research results**), to solve general objectives of the **development of the Romanian research system**: increased participation in FP projects; formation of the future generations of researchers; attraction of foreign researchers.

7. TECHNOLOGY TRANSFER AND THE ATTRACTION OF NON-PUBLIC FUNDS.

IBNA will continue to apply the system of technology transfer built in the last years (proved to be very successful), using **two main pillars**: flux of advanced scientific results **toward scientific environment** (universities, other research, institutes, etc.) **and a flux of technical, more applied, results toward** the actors linked to the **animal production sector**.

While the **first pillar** will be sustained mainly through scientific publications and communication the **second pillar** will be sustained through much more diverse actions in order to address the broad heterogeneity of the potential beneficiaries of the research results: farmers, authorities, processors, ONG, professional associations, feed producers consumers, etc. (all of them can have various backgrounds and education level). For example, we will use very different ways when addressing a small farmer, with medium level of education or, on the contrary, when addressing a farmer having hired its own nutritionist are clearly very different. In first case, processed results (in order to be simple, easy to understand and to apply) will be used; in the second case, the results can contain more technical details, the farmer can provide a valuable feed-back, etc.

The types of actions that will be used are listed below:

- organized dissemination events (round tables, workshops, etc);
- participation to professional events organized by third parties (with lectures, exhibition stands, promotion materials, etc.);
- organizing courses and training stages for farmers, but also for other categories (extension staff, students, laboratory personnel, etc);
- publishing a high number of articles in technical journals (e.g. those read by farmers);
- giving interviews in professional or general mass media;
- organizing on-farm demonstrations of the efficiency of the research results;
- appointing actors from private sector (e.g. innovative farmers) as partners in research projects (participatory research);
- good promotion of the institute's results / projects / etc.
- elaboration, publication and dissemination of leaflets, technical guides, etc.

- other means specific to the technological transfer (valorizing patents, etc.);
- ensuring a feed-back system, allowing the adjustment of the TT approaches.

Some modern approaches will also be used, such as:

- discussions forum on professional subject (e.g. poultry nutrition);
- on-line collection of research needs (e.g. from the farmers);
- on-line tools to calculate nutritive value of feeds or to calculate diets nutritive supplies;
- frequently updated website, containing research results, foreseen actions and rich technical and downloadable information (e.g. feeding recommendations, electronic versions of the institute's leaflets, guides, etc.).

These IBNA's plan is to further intensify the technology transfer and to increase the number of above-mentioned actions by 15% comparing to the period 2007-2011. This supposes to ensure a higher impact of the institute within Romanian animal science sector and an increased visibility.

Concerning the attraction of non-public funds, IBNA already runs a lot of research and services contracts with non-public bodies. As the demand for such contract is significant the institute can easily increase the volume of non-public attracted funds, provided this is correlated with human personnel strategy and the main objective (performing high quality research) is not affected.

8. STRATEGIC PARTNERSHIPS AND VISIBILITY: EVENTS, COMMUNICATIONS, COLLABORATIONS.

IBNA currently has a high number of partnerships and the potential to increase it. Many of these current partnerships can be considered as strategic (with strong research partners from Western Europe, with Romanian academic environment, with research units from other fields - e.g. human nutrition, with authorities, with relevant professional associations, etc.). IBNA has a high capacity to interact with these partners, within formal (e.g. projects, agreements) or less formal (e.g. joint initiatives) relationships. Some examples of strategic partnerships are presented below:

a) Universities

Agricultural universities from Romania: USAMV Bucharest; USMV Cluj Napoca, USAMVB Timisoara; The partnerships with the major animal science universities from Romania can take different forms:

- joint research projects (e.g. over 60% of the national projects of IBNA are done in partnership with the above-mentioned universities); joint publications (articles, books);
- PhD theses conducted under the doctoral programs of these universities, with the research part conducted in IBNA – examples: T. Panaite, E. Mircea, M. Habean, C. Ciurascu;
- training studies for the young researchers from IBNA in these universities;
- training courses in IBNA laboratories for the technical staff of the universities (ex. technicians from universities were trained in IBNA);
- practice stages of the students from these universities in IBNA.

Universities from other fields (e.g. Faculty of Biology, Chemistry and Physics within Bucharest University, Medicine and Pharmacy University) – this ensures a high level of interdisciplinarity and diversifying the thematic area of IBNA. *For instance, the involvement of our institute in a project coordinated by the Faculty of Chemistry regarding the characterisation of molecular sensors produced from derivatives of CICLOBIS (PARAQUAT-P-FENILEN) used for the detection and identification of the local crisis-generating factors (hazardous and very hazardous substances).*

Universities from Western Europe – on the model of the former/on-going partnerships (through International projects) with Aberystwyth University, UK or BOKU University, Austria (within FP7 SOLID project), Bristol University, UK (within FP6 Feed for Pig Health project), Vienna Veterinary Medicine University (within FP6 FeedSEG project).

b) Domestic and foreign research institutes. There are many former and existing partnerships with foreign research institutes, usually within international projects but also through specialization stages of Romanian researchers or joint research stages. Only few examples of on-going partnerships: INRA France (Clermont Ferrand / Toulouse), Rostok - Germany, Nitra - Slovakia, FINS Serbia, etc. Such partnerships will be maintained at least at the same level as in the previous period.

Also, there are and will be maintained many **long-way partnerships** with domestic institutes. Some examples:

- *National Institute for Food Bioresources Bucharest* – close collaboration with IBNA both as partners in more than 10 national and international projects, and close collaboration in jointly hosting scientific events ;
- *INCDA Fundulea* and IBNA have a close and lasting collaboration due to the complementarity of their activity. For instance, the nutritive value of all the new varieties and lines of forage plants is determined by IBNA;
- *National Institute of Endocrinology C.I. Parhon* and IBNA started a close collaboration in 2005 on subjects of: (i) development of functional food having beneficial effects on consumer health; (ii) use of experimental animal models to study the nutritional diseases in humans. The collaboration between these 2 big institutes materialized in 4 projects proposals in 2007-2011; two received financing and one is under evaluation (PNII call – September 2011).

d) Professional organisations. Some of the most interesting partnerships were already initiated and will continue, e.g. with:

- Romanian Association of Goats Breeders;
- Union of the Romanian Poultry Breeders (UCPR);
- General Association of the Cattle Breeders from Romania (AGCTR);
- Romanian Association of Pig Meat Producers.

As an example of partnership, IBNA supplies them directly with information materials, or the results are published in the journals for farmers; IBNA hosts training courses for the farmers, both on IBNA premises and on the locations chosen by the association throughout the country; annual workshops at IBNA headquarters for every farm species, with the participation of the research and academic representatives, with exchange of knowledge and experience with the private environment.

e) Governmental organisations – usually for joint initiatives

- National Agency for Animal Breeding and Reproduction within the Ministry of Agriculture and Rural Development;
- counties Chambers of Commerce;
- counties Agricultural Chambers;
- technical staff of the Ministry of Agriculture.

f) Private organisations – these partnerships can take many forms usually specific to the technology transfer (described in Chapter 7). Some examples of on-going partnerships which will be applied to the new ones:

- SC Natural Research Craiova – SME which co-financed 4 projects in which IBNA was coordinator or partner. This SME is beneficiary of the formulations which include the additive PROLINBOR (created by SC Natural Research) transferred by IBNA;
- SC Hofigal SA - Bucuresti co-financed/co-finances 3 IBNA projects; one of the joint results is one patent application filed with OSIM ((11.02.2010/ A 00116), for a feed concentrate;
- SC Avicola Bucuresti SA also co-financed several IBNA projects, 3 of which during the evaluated period. The most notable result is the sale for the past 3 years on the Romanian

market of EUROU, eggs enriched in omega 3 fatty acids. The Procedure for the production of ω 3 polyunsaturated fatty acid linolenic acid-enriched eggs was transferred (technologically) by minutes no. 3559/27.06.2008 and 1398/27.06.2008 between IBNA Bucuresti and SC AVICOLA SA Bucuresti.

As shown in the self-evaluation report, IBNA has a good potential to undergo specific actions, communications and collaborations such to ensure appropriate visibility, both at national and international level.