Observers:
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Disclaimer:
The FABRE-TP SRA has been drawn up through a collaborative effort by a group of experts representing a wide range of stakeholders. It is neither exhaustive nor comprehensive and covers only selected aspects of broader issues. The FABRE-TP SRA, views and information expressed in this document are those of this group as a whole and do not necessarily reflect the opinion of any single contributor, their organisation, or the European Commission.

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Three types of activities have been undertaken to accomplish the SRA: expert group discussions, horizontal activities, and country discussions.

FABRE TP country discussions have been held in all EU countries, plus Iceland, Israel, Norway, Russia, Turkey and Switzerland. The country meetings, to which all local interested stakeholders had been invited, gave an opportunity to numerous governmental, funding, research, and industry bodies to express their opinions and influence the SRA process.

The finalisation of the FABRE TP SRA has been co-ordinated by an advisory council which includes representation from a wide range of stakeholders. The active, continued involvement of EU Member States will be through national “mirror groups” which will maintain dialogue with the SRA. The detailed work of defining the SRA has been undertaken by Steering panels, often supported by specialised working groups.

Annual Added Value of Animal Breeding in the EU/Europe
Economic gain (cumulative, permanent)
- € 1.99 billion
  - of which
    - Dairy cattle: € 430 million
    - Beef cattle: € 70 million
    - Pigs (Europe): € 520 million
    - Sheep/goats: € 166 million
    - Broilers (Europe): € 610 million
    - Layers (Europe): € 125 million
    - Salmon/rainbow trout/seabass/seabream/turbot: € 86 million

Animal Production in the EU
Annual Value (€, 2003)
- € 132 billion
  - 40 %

Agri-Food sector in the EU
Number of farms (EU25)
- 17 million
Number of jobs
- 15 million fte
Annual turnover Agri-Food industry
- € 600 billion
Number of jobs
- 2.6 million fte

Demand-driven livestock sector renovation
Annual increase animal consumption (coming 15-20 years)
- 7 %

European Animal Breeding in a Global Context
- Many farm animal breeding and reproduction organisations all over Europe play an important role in the diversity and distinctiveness of European animal production and the European landscape and culture.
- In all species, the aspects of environmental footprint (e.g. efficient use of inputs, reduction of waste) and the consideration of animal welfare and health are critical features of the breeding process.
- Major breeding organisations with global business are based in Europe or are European-owned.
- Farm animal breeding takes place where high-level research takes place. The application of expensive breeding and reproduction technologies is likely to continue to be applied first by larger companies.
- A sustainable, strong, broad and competitive breeding sector in Europe includes both large and small breeding structures.
- Once ideas and techniques are developed, they will be used by smaller breeding companies working with species or breeds of lesser economic importance, to develop diversity and distinctiveness.

Acknowledgements photos cover:
- Fish: Vidar Vossvik for Nofima
- Pig: Caroline van den Ham
- Dog: Caroline van den Ham
- Sheep: Gert Nieuwhof MLC
- Goat: UNCEIA
- Cow: Jan-Erik Kjaer Geno
Opportunities

- Competitiveness against imported food.
- Response to a changing environment.
- Maintenance of leading position in animal breeding.
- Emphasis on animal welfare.
- Management of biodiversity and optimisation of land use.
- Promote breeding of animals resistant to zoonotic diseases.
- Response to demand for affordable, high quality and distinctive food products.
- New scientific knowledge in biology for the benefit of agriculture, environment and society.
- Benefits of new technologies.
- Maintain coordination, synergy and critical mass already present in Europe.

Key Priorities for a Sustainable European Farm Animal Breeding and Reproduction Industry:
1. Profitability
2. Food Safety & Product Quality
3. Environmental Impact
4. Breeding Technology
5. Consumer Demand

Worldwide structural changes in animal production require Europe to continue expanding the range of instruments to include new issues as well as new forms of cooperation. The FABRE TP aims to make a decisive contribution to promote the animal breeding and reproduction sector as a modern concept by mobilising the appropriate resources to maintain and improve the sustainability of the European livestock sector.
The Importance of European Animal Breeding and Reproduction

With an annual value of over €130 billion (equivalent to 40% of the total European agricultural production) and over 35 million jobs, animal production plays an important role in European society. It also supports the agrifood industry which supplies a further 2.6 million jobs and has an annual turnover of €600 billion.

The European Technology Platform on Sustainable Farm Animal Breeding and Reproduction (FABRE TP) is a partnership led by the European industry to enhance the sustainability of animal production in (and outside) Europe through development and uptake of better approaches to animal breeding and reproduction.

This Strategic Research Agenda (SRA) is the key output of FABRE TP. It summarises the research and technological development (RTD) priorities for the coming 15 to 25 years, including measures for enhancing networking and clustering of the RTD capacity and resources in Europe. It is based on the vision paper “Sustainable Farm Animal Breeding and Reproduction. A Vision for 2025”, published by FABRE TP and supported by 85 organisations across Europe.

Optimised animal production systems can contribute to a safe, healthy and diverse diet, can help maintain sustainable human communities in more marginal regions of Europe and can facilitate reductions in our environmental footprint on the planet.

A vibrant and effective animal breeding and reproduction industry is essential if Europe is to meet the future challenges of animal agriculture in a rapidly changing ecological, economic and social environment. Farm animal breeding and reproduction is globally a highly competitive, knowledge intensive sector. Currently, Europe has a major influence on the genetic make up of future animals and hence on the whole of animal production. European breeding organisations are major players in the global market and therefore have a worldwide impact.

Breeding Technologies

To fully exploit new breeding technologies, an appropriate framework of enabling factors is necessary, such as education and training, together with appropriate regulatory structures that have societal support (see box).

Technical developments required in broad areas:
- Tools and resources for genetics, genomics and reproduction.
- Understanding of biology of individual traits and of livestock species and the systems in which they operate.
- Improved animal identification and traceability.
- Definition of traits and efficient collection of more precise, comparable and appropriate data and information that allows genetic change to be implemented.
- Integration of molecular genetic technologies into breeding programmes, especially for low heritability traits and traits associated with health, animal function and product quality.
- Dissemination of new knowledge, removal of bottlenecks to its utilization in breeding programmes.
The animal breeding prospects in the next 25 years

A total of thirteen expert groups, involving over 500 specialists across Europe, undertook a big exercise in defining opportunities and priorities in their field of expertise to develop the SRA with a perspective of the next 25 years. Seven groups worked on breeding aspects of the farm animal species, three groups worked on themes including safe and healthy food, animal health, and diversity and distinctiveness, while three groups concentrated on breeding and reproduction technologies and technology transfer. All the groups assessed their projections and strategy recommendations in a horizontal and societal context as defined in the table below.

### Opportunities and Implementation

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<thead>
<tr>
<th>Global Responsibility and Competitiveness (1)</th>
<th>Social Responsibility (2)</th>
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<tr>
<td>• Food Security and Sustainability</td>
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<th>A Diverse and Distinctive Europe (3)</th>
<th>Implementation</th>
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<td>• Farm Animal Genetic Resources</td>
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<td>• Cultural Values</td>
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<td>• Access to Knowledge</td>
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<td>• Data Collection and Selection Programmes</td>
<td>• Technology transfer</td>
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<td></td>
<td>• Education (post-doc and lifelong)</td>
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<td>• Socio-economics</td>
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Research programs starting today will only be implemented into breeding practice with a time lag of 5 to 15 years. Lost opportunities will delay possible improvements and progress in breeding. Therefore, experts’ outlooks for 5, 15 and 25 years describe possible future scenarios of animal production and animal breeding in detail (per species, per theme and per technology).
The Strategic Research Agenda

Key Priorities
The expert groups identified 5 key priorities for a sustainable European farm animal breeding and reproduction industry.

1. **Sustainable breeding and reproduction needs to be profitable** so that the level of livestock capital in farming can be maintained, expanded, and improved in quality over time, consistent with the needs and preferences of society.

2. **Food Safety** and **Product Quality** in a “fork to farm” production system driven by consumer needs, emphasis is to be given to safe and wholesome food.

3. Reduced negative **environmental impact** of different production systems. Animal selection needs to continue to improve feed efficiency and thus reduce the amount of feed necessary to produce a unit of animal product. This contributes to decreased negative environmental impact and Green House Gas production. Beside breeding, research on other aspects of environmentally friendly production systems and tools should be promoted.

4. The development of **breeding technologies** (reproductive technologies, phenomics, genetics and genomics) will be a high priority. It is important to support the largest breeding organisations to remain European and to benefit the locally focused breed improvement programmes and breeding goals. This will ensure that a full range of sustainability and societal needs are addressed and breeders will have access to the latest tools of breed selection and technologies.

5. **Consumer demand.** Consumption of products of animal origin changes with the changing society. In the coming years, consumers are expected to value highly aspects like safety of food, low cost, high quality, and organic products. Consumers will also wish to know that the products found in the market originate from production systems where animal welfare has been taken into consideration.