

Strategy Of Animal Science Research By Ias (2009-2015)

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ABSTRACT

Research on animal sciences is one of two sections of the Institute of Agricultural Science for Southern Vietnam (IAS). At the present, the Institute has 3 departments and 2 centers of livestock research. Most of the research and development goals have focused on the main following areas: animal genetics and breeding, animal nutrition and feedstuffs, animal physiology, animal health care and animal raising of pig, poultry, dairy and beef. In the future, the research strategy is aim to apply biotechnology in animal industry tending to ensure bio-security, sustainability, low production cost and high efficiency.

1. OBJECTIVES

- Building up IAS to become a strong basic and applied research institution in the South and in the whole country on animal husbandry and veterinary.
- Application of biotechnology in animal husbandry tending to bio-safety, sustainability with low cost and high efficiency of livestock industries.

2. RESPONSIBILITIES

2.1. Research on the selection, breeding to improve genetic quality and productivity of animals namely dairy, beef, pig, chicks, duck.

2.2. Research on feedstuff and animal nutrition, raising technology suitable to each breed and each agro-ecological region.

2.3. Application of bio-technology to improve animal genetics, produce bio-products for animal feed, protect animal health, conserve animal gene resources.

2.4. Implementation of technical services, transfer of new technologies into production and business on the IAS's research fields.

2.5. Building up research capacity, post-graduated training for researchers on animal sciences.

2.6. International and in-country cooperation on animal science and technology

3. ORGANIZATION & PERSONNEL

3.1. Organization

Actually IAS has 6 animal research units:

1. Department of Animal Genetics and Breeding
2. Department of Feedstuff and Animal Nutrition
3. Department of Animal Physiology
4. Department of Animal Health
5. Binh Thang Animal Husbandry Research and Training Center
6. Ruminant Research and Training Center

Other new research center may be established:

1. Gia Kiêm Poultry Breeding Center (deriving from Binh Thang Center)

3.2. Personnel: Degree researchers training and building up research capacity through daily work.

4. RESEARCH MATERIAL RESOURCES

Research department: Investment of new equipment for research laboratories meeting the modern standards.

Applied research centers: Reparation and new construction of experiment stables to meet the need of research and breeding animal production.

5. RESEARCH ORIENTATIONS

General research orientation: Actually, the animal research section is strong on

applied research but still weak on basic research. In the next time, basic research should paid more attention with the view to create a harmonious and balanced environment between basic and applied researches at the rate of 30:70 on the aspects of research subjects, budget and time.

Principle: Entrustment of the functions and responsibilities; and the development of research strategy for departments/centers should base on the following principles:

- Ensure to promote the staff ability and technical equipment resources.
- Minimize the overlapping and dispute of research contents, but the historical factor should be considered.
- Create good condition for research collaboration among research units.

5.1. Department of Animal Genetics and Breeding

5.1.1. Quantitative genetic research

a) Cattle breeding research:

- Research on the application of BLUP in the selection of beef and dairy,
- Focusing the research on the crossing formula to develop suitable crossing formula for beef and dairy breeds

b) Pig breeding research:

- Research on the application of BLUP in the selection of high genetic value of introduced pig breeding stocks and Vietnamese indigenous ones,
- Research on the statistic models suitable to genetic evaluation of pig breeding,
- Selection of specific pig lines. Research to complete the procedures of genetic evaluation by BLUP in each breeding pig farm. Research to develop the genetic value evaluation method of pig breeds by environmental interaction between breeding farms in areas, zones and regions,
- Research on the selection and development of terminal boars specifying for each ecological region. Research and development of hybrid breeding systems for different ecological zones applying

analysis technology of component heterosis,

- Research on the application of breeding management and genetic evaluation software suitable to livestock production conditions in Vietnam.

c) Poultry breeding research: Selection and development of 2 broiler breeds (color plumage) of high performance and good meat quality.

5.1.2. Research on molecular genetics

a/ Staff training on molecular genetics and skill in molecular genetic laboratories,

b/ Research on the application of breeding cattle and pig stock selection methods using genetic marker,

- Application for characters of low genetic heritability namely reproductive characteristics,

- Difficult observation characters (disease tolerance characters)

- Characters can only be observed after animal to be slaughtered (meat quality characters).

5.2. Department of Feedstuff and Animal Nutrition

Research and new technology transfer on feed and nutrition on mono-gastric animals (pig, poultry) and ruminants (cattle, buffalo, goat, sheep).

5.2.1. Research on animal feeding

a/ Determination of chemical compositions and nutrient values of local available and imported feedstuff.

b/ Research on the roles and effects of nutrients to the growth and development of animals.

c/ Determination of optimal nutrient requirements of energy, protein, total amino acids, digestible amino acids, vitamine, macro and micro minerals.

5.2.2. Research on animal raising techniques

a/ Research on the raising techniques of each animal kind with the view to obtain

high productivity with low feed conversion ratio.

b/ Research on the raising techniques of each animal kind provide that enabling to obtain safety food.

5.2.3. Research on feed processing and storage

a/ Research on the production technique of premix-vitamine, minerals, concentrate and mixed feeds, for pigs, poultry and cattle

b/ Research on the processing, storage and conservation methods in order to improve nutrient value of roughages, agro-industrial by-products for ruminants.

c/ Research on the new feedstuff resources,

5.2.4. Research on the application of micro-biotechnology in animal feed production

a/ Research on the isolation and culture of micro-organisms to produce digestive enzymes and probiotic in animal feeding.

b/ Research of the isolation and culture of micro-organisms for green feedstuff storage.

5.3. Department of Animal Physiology

a/ Research on animal digestive physiology
b/ Research on animal reproductive physiology: Focussing on the research of reproductive physiology, hormone analysis, artificial insemination of dairy, beef, pig and poultry. Research on ruminant reproductive physiology including traditional methods (artificial insemination, stimulating hormones, synchronising ovulation) and advanced technologies (embryo transfer, *in-vitro* embryo production by sexed-semen, starts to research on animal cells).

c/ Research on raising techniques, production scale for each kind of animals. Establishment of raising techniques for dairy and beef with the trend of farm development and utilization of new feedstuff resources.

d/ Research to reduce environmental pollution

e/ Research on the non-traditional animals: focussing on growth physiology, blood

physiology, behavior and technical packages to improve productivity of the animals => to set up raising techniques.

5.4. Department of Animal Health

a/ Research on the technical measures to improve animal health and disease tolerance. In collaboration with IAS's research departments to establish technical packages for safety animal production zones.

b/ Research on the epidemiology of disease incidence and infection, and control methods.

c/ Research on the disease diagnosis applying biotechnology in clinical and non-clinical diagnosis (ELISA, PCR), culture and isolation Establishment of laboratory for disease diagnosis focussing, in the short term, on the existing danger diseases (bird flu, foot and mouse disease, PRRS).

d/ Research on disease treatment therapy.

e/ Application of reproductive biotechnology for animal reproductive health and animal reproductive disease treatment and management.

5.5. Binh Thang Animal Research and Training Center

a/ Pig breeding research: Selecting and breeding high performance pure pig lines, improving growth and reproductive performances (genetic evaluation, establishment of selection indexes, development of nucleus stock, pair-crossing), developing terminal boar of high performance and brand gilts. Conservation of gene resources, multiplication and development of indigenous pig breeds (Cổ, Sóc) for genetic materials.

b/ Poultry breeding research: Research on the improvement of poultry breed quality, development of high performance hybrids between imported and local breeds (Tàu vàng, Gà Chọi, Gà Tre), and commercial crossing systems between high performance and good quality breeds/lines. Conservation of gene resources, multiplication and development

of indigenous poultry breeds for genetic materials.

c/ Feeding, housing and livestock waste treatment: Feeding techniques for breeding stocks and commercial herds of high economic efficiency. Livestock waste treatment to minimize environmental pollution.

d/ Research to improve disease tolerance: Preventing procedures for some danger diseases with the trend to minimize vaccination (PRRS, cholera, foot and mouse disease...)

e/ Producing and supplying breeding pigs and poultries.

f/ Construction of new poultry breeding center in Gia Kiệm, Đồng Nai province.

5.6. Ruminant Research and Training Center

a/ On dairy: Selection and breeding of elite dairy cows.

b/ On beef: Production and supplying of breeding beef in the country (males, females and straw semen) by crossing to produce F1 between Brahman and Lai Sind (Crossed Sindhi) for the development of three-way crosses or 75% exotic genetics. Completes technological procedures on feeding for crossed beef groups.

c/ On pasture: Selection of high productivity grass varieties, production of good quality grass seeds, research on the cultivation and reservation techniques, establishment of intensive rotational pasture.

d/ New technology transfer: Collaborating with local authorities to establish pilot models of technological application on livestock production (concentrating in Highlands and Southeastern Region) .