

RECOMMENDATIONS ON DAIRY BREED QUALITY IMPROVEMENT AND MANAGEMENT IN HCMC

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1. Achievements of dairy husbandry in HCMC

Dairy husbandry sector in HCMC in particular and in the whole Vietnam in general, has come into being before the 1960s. However, it has been paid full attention and begun to develop significantly since the late 1990s. According to statistics, the annual average increase in the HCMC dairy herd is about 15% in recent years, and at the end of 2002, it included over 36,000 head accounting for 70% of the whole Vietnam dairy cows whose figure was about 54,000 head.

Proper attention has been paid to the task of improving breed quality by importing good quality breeds and frozen semen from developed countries and by using artificial insemination technology for lifting the quality of local herd.

Dairy herd in HCMC has sharply increased in recent years, which reached the figure of 36,000 in late 2002, accounting for 70% of the total number nationwide. A number of high quality dairy semen has been imported and used to reproduce cows for breed and genetic improvement. However, there are many problems facing the dairy stock, especially breed quality management, which need to be solved for completing the City dairy development target in year 2005. A strong integrated set of breed management measures is suggested and should be implemented.

In the years 1965-1985, more than 1,500 dairy cows of high-quality Holstein Friesian breed (HF) from China and Cuba were imported into Vietnam. In 2001, the "National Dairy Breed Development Project" imported 100 high-productive HFs from the USA and in 2002, over 3,000 tropical pure breeds of HF from Australia were imported, 800 of which came to HCMC.

To improve the dairy quality, HCMC Government plans to import from now to 2005 about 3-5,000 tropical pure HF cows whose average milk yield is higher than 5,000 liters per milking cycle (305 days). From 1993 to 2001, Saigon Dairy Company, a state company of HCMC, imported more than 70,000 doses of frozen semen from Canada, Australia, Spain, Holland, etc., for artificial insemination (AI), which gave birth to some 20,000 good heifers. Beside the Saigon Dairy Company, many other companies along with research institutes, universities and international cooperation projects have also imported a big quantity of semen for AI purposes. (Table 1 see next page)

The AI service in HCMC has been established and staffed by some 50 technicians who have been trained by experts from Cuba, Belgium, etc. With the good facilities and equipment, these technicians have provided relatively good services for the herd.

2. Shortcomings of dairy breeding management

a. Lack of dairy breeding management system

There are over 36,000 dairy cows in HCMC kept mainly individual peasants in suburbs and rural areas, to the size of 3-5 cows per household. However, there are no breeding management systems. Almost dairy cows have no individual records for keeping track of their performance information and milk production during their lives. There are no organizations responsible for closely following up, managing and evaluating breed quality, and genetic progress transferring from generation to gen-

Figure 1: The HCMC dairy herd in 1996-2002

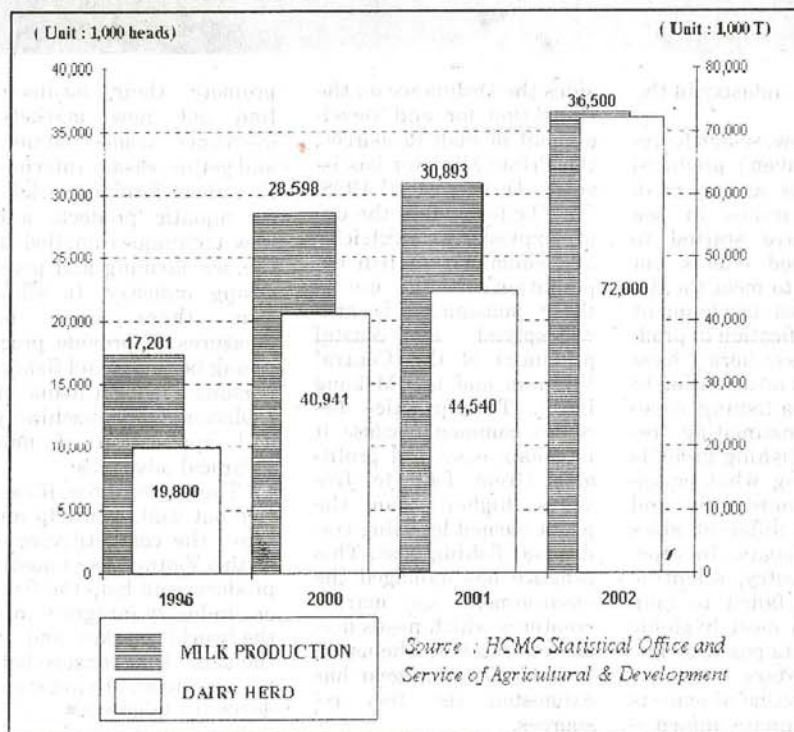


Table 1: High quality semen imported and inseminated in HCMC in the years 1993-2001

(Unit: dose)										
Country	1993	1994	1995	1996	1997	1998	1999	2000	1 st half of 2001	Total
Holland	4,600	2,610	5,276	7,550	10,677	11,847	10,546	4,663	-	57,759
Spain	2,413	3,718	-	-	-	-	-	6,421	-	12,552
Australia	-	-	264	1,072	85	-	-	-	-	1,421
Others	-	-	-	-	-	-	-	-	4,676	4,676
Total	7,013	6,328	5,540	8,622	10,762	11,847	10,546	11,084	4,676	76,408

Source: HCMC Dairy Company, 2001.

eration. As the result, there are no precisely decided strategies and policies to apply useful technologies for taping and exploiting genetic potentiality of every breed or individual cow of specific outstanding characteristics. Also, it is not able to provide them with suitable care and feeding schemes for earning high productivity, especially when the dairy husbandry sector is in the process of step-by-step modernization and industrialization.

Foreign dairy industries always develop systems for managing breeding locally and nationally. The breeding management system divides the dairy herd into 3 main groups based on their productivity. The first group, and the biggest, is raised mainly for the purpose of commercial milk production, which has an average milk yield about 5-8,000 liters per milking cycle (305 days). The second group, also called Association Herd, is raised for double purposes: to produce qualified heifers to replace the old stock in the first group and provide calves for domestic and foreign markets. Normally, this group accounts for 20% of the herd and has the milk yield 8-10,000 liters per cycle (Australia) or 11,000 liters per cycle (South Korea, Japan...). The third group is the core group accounting for about 3-5% of the whole herd, having an average milk productivity of over 12,000 liters per cycle. Usually, this group is strictly controlled by national institutes or professional research centers and aims at producing super-quality males and females for semen and embryo exploitation purpose. In the process of management and selection, exchanges and supplementation among groups take place frequently. The cows in the core group which have poor genetically competence are disqualified and expelled while the excellent ones from the outside are chosen and moved in. Thank to this management system, the poor quality individuals are gradually replaced by the excellent ones and then, the quality of the total

herd improved year by year to reach the planned strategy targets.

b. Weakness in evaluation and selection of breeding males and dependence on imported semen

Progeny of most dairy males kept by individual peasants and males producing frozen semen aren't examined to evaluate the ability to transfer good genetic characteristics to the next generation. There is still a lack of high quality dairy males for semen production. As a result, many organizations, research centers, companies, etc. in HCMC and other provinces have to import more than 100,000 doses of semen a year, some 20,000 of which are imported by HCMC, from many countries without a common plan and management. This results in being unable to control the origin and quality of semen used and to know exactly blood lines of the herd. A number of dairy cows have been exposed to the risk of inbreeding problems, displaying the signs of quality degradation, infertility, weak viability, etc. which cause huge losses not only to peasants but also to the national economy.

c. Shortage of and poor control over AI technicians

In HCMC toodday, there are about 50 AI technicians working for different organizations, part of them are self-employed. Most of them, especially the self-employed technicians, are unmanaged. Their technical skills have never been examined and their sense of responsibility is quite poor. They are just carry out their work ignoring their most important duty that is to exploit and to enhance the genetic potentiality for the herd. They don't keep essential records such as semen names used, the dairy cows' performances, the offspring's records etc. which are the data needed for processing and evaluating the genetic result and progress. Up to date, there are no organizations officially responsible for controlling the army of AI technicians for the purpose of developing dairy breeding.

d. Lack of consistent and transparent dairy breeding direction

Up to date, the long-term direction for development of dairy breeding in HCMC and other provinces is controversial. Some people are of the opinion that the standard dairy breed should be a crossbreed of F2 containing 75% of HF. Some suggest that Vietnam can develop high productive and pure HF breed because many new HF breeds, nowadays, have been improved and adapted themselves to tropical conditions like North Australia, Israel. Others comment that the climate in Vietnam is diverse. Many regions have temperate climate (Đà Lạt and Mộc Châu for example) where high pure productive HF breed could be raised. Generally, it has no clearly and transparently targeted direction of dairy breeding management given by the Government yet. This leads to the lack of investment in facilities needed for realizing targets of long-term strategies. The excellent bulls are deficient and the selection activities quite limit. Related authorities haven't paid full attention to the task of training technicians for the dairy industry.

3. Tasks required for dairy breeding management

a. Cows' individual records and quality evaluation at farmers' household basis

The first thing to do in controlling breeding is to establish cows' individual record and quality evaluation on farm basis. All dairy cows of HF and sindhi crossbreed cows kept by farmers must have individual recording cards. All data relating to the cows during their life such as reproduction, milk quantity, AI, etc. must be gathered regularly and written down on their cards which are kept by the cows' owner, the HCMC Center for Management and Testing Seeds and Animal Breeds (SAMTESTCEN) and a central organization involving in animal breed research and management.

Besides establishing individual records, it's necessary to evaluate the quality of each individual cow according to criterion set by the Ministry of Agriculture and Rural Development (MARD). These main criteria include: reproductivity, growth, appearance, general health situation, etc. Each cow with a recording card has to be identified by a plastic ear number tag which carries a common national code and a local code for easy control and examination.

b. Recording cows' data and applying IT for management

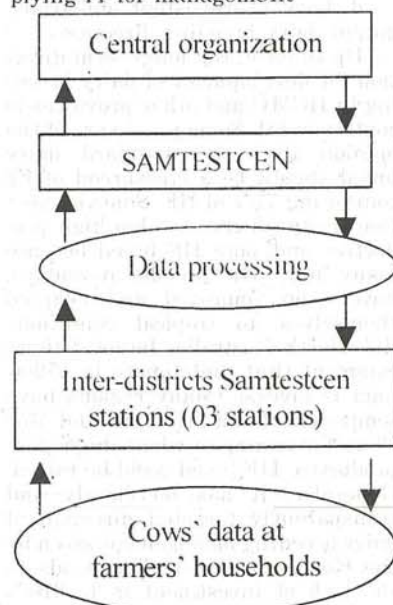


Figure 2: Data flows in herd recording in HCMC

c. Building up an open core group system (OCGS)

After evaluating individual quality and processing cow data, cows with a milk yield of 5,000 liters per cycle or higher are selected to form a dairy core group. At present, some 13% of the dairy cows in HCMC (about 400-500 cows) obtain this milk yield level. Performance of the core group must be continuously recorded in order to choose the super ones, estimated at 30-40 cows, which will be used for producing semen of high quality. In the process of individual evaluation and assessment, the individuals who degrade their genetic performances will be expelled or moved out, and the ones outside the core group, which perform their outstanding genetic features, will be selected and moved in for control. This constitutes an open system. The high productive semen that has a milk yield equal to or higher than 15,000 liters per cycle, is applied to

the core group for producing females and males supplemented to the nucleus or reproduction group and used for semen production after passing progeny and individual test (Figure 3). By developing this OCGS, the average milk yield of the whole herd is expected to increase by some 50% within ten years, which may reach at 7-8,000 liters per cycle.

d. Establishing dairy testing stations

In order to evaluate dairy cow quality, it is necessary to carry out evaluation activities composing of individual and progeny tests which are really essential for performance control of any breeding animal, especially the core group and males used for semen production. Testing activities can be preliminary carried out at private farms and at state testing stations (or ones run by research institutes or the Association of Dairy Cow Husbandry). Therefore, HCMC has to establish a dairy testing station for dairy quality testing, evaluation and certification. Up to date, there are no similar stations undertaking these tasks nationwide. Testing station needs to be well equipped for quick and accurate testing meeting the requirements posed by strategy makers and dairy breeding producers.

They should be, thus, well trained and strictly managed. Their expertise must be examined regularly and provided with AI career certification. Also, they need advanced training and access to advanced techniques to do their works better.

f. Policies to encourage production of high quality breed

Over 90% of the HCMC dairy cows rearing at privately-run small-size farms with poor equipment and conditions. In order to quickly improve their breed quality, the government should offer incentives to take part in the common effort to achieve planned strategic objectives set by the City government. These incentives may be:

- Free AI and vaccination services;
- Partly or totally support to the raising of the core group;
- Free training courses for farmers who keep high-quality cows and advanced courses for AI technicians.
- More investment in dairy testing stations, embryo technology and semen production.

4. Conclusion

HCMC has a big number of dairy cows accounting for 70% of the total dairy herd nationwide. The City plan is to raise its herd to 50,000 by 2005 and to supply 16,000 high quality

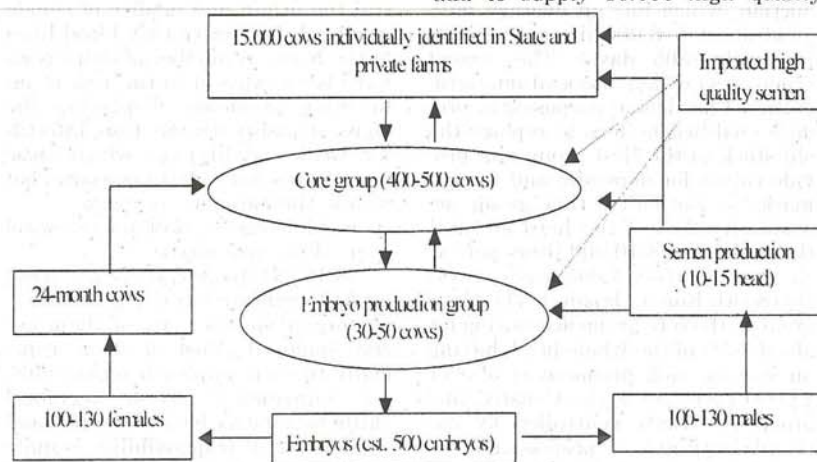


Figure 3: Diagram of an open core group system model

e. AI career management

AI has become popular in the world dairy industry. Particularly, it is a critical technique using for dairy genetic improvement and development, in which AI technicians play an important role. AI technicians with practical skills and sense of responsibility will help to achieve planned objectives by implementing highly effective AI and gathering feedback for analysis and appraisal.

young cows to farmers in whole country in the period of 2002-2005. In addition, the HCMC main long-term objective in dairy development is to produce high quality breeding dairy cattle for domestic market and export. Hence, it is required to take an integrated set of measures in breeding management for rapid improvement of the herd quality which can keep pace with advanced dairy industrial countries worldwide. ■