# MANAGEMENT OF SELECTION PROGRAMS IN DAIRY CATTLE

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## OBJECTIVE

Dairy farmers are in the business of producing milk for sale from dairy cows. They need fertile, high producing cows of good average size, with plenty of room for effective conversion of food to milk of good composition. Cows need to be of general physical make up to enable a long productive life under Australian grazing conditions and be suited to modern shed design and milking methods.

### Participation and Uniformity

To arrive at this animal, there must be a common aim in all breeding programs, be they in the registered stud herds, commercial dairy herds or A.I. Centre sire proving schemes. Optimum genetic improvement in the production of milk and its components from dairy cows must start with full participation by all dairy herds, registered and commercial, in production recording and the use of A.I. Proven Sires. Additionally, there should be a substantial level of participation in the progeny testing of young bulls to ensure intensive selection of A.I. Proven Sires.

### Co-Ordination

Achievement of this aim requires a comprehensive, co-ordinated Dairy Herd Improvement Scheme covering all sectors of the industry. It must have complete cow and herd data files and uniform standards for definition of selection traits, performance measurement procedures and assessment of data. It should be programmed to continually monitor production of cows for fat and protein, to provide Production and Breeding Indexes for cows, to provide herd breeding and farm management information to the farmer and to identify the best breeding stock in the industry for A.I. Centre use in their bull breeding programs.

## PRESENT SITUATION

In Victoria, not unlike the rest of Australia, about one-third of all dairy cows are involved in herd recording and artificial insemination services. Services are provided, separately or together, at close to cost price, by farmer controlled, co-operative type units.

## Herd Recording

In the case of herd recording, the basic identification and history data is collected manually by those responsible for collection of milk samples on farm. Most milk samples come to central testing laboratories equipped with electronic milk testing instruments. From the laboratories where milk weights and fat (and in some cases protein and cell counts) are assessed and manually recorded, information is forwarded to the Victorian Department of Agriculture's Herd Improvement Branch for introduction into the herd improvement data processing programs on the Government Computer Service. This service updates each cow's lactation production from the monthly test information. It provides each month to the farmer, an updated print-out of each cow's last test details including milk weight, fat % and butterfat production, together with updated monthly figures and a within herd production index for each cow in the herd.

Annually a farmer receives a report for each cow's yearly production in milk, fat (and protein if available) with average tests and a Production Index and Genetic Rating for each cow. Each cow's sire and dam are also listed on the report.

## Sire Evaluation

This per cow within-herd production recording benefits not only the farmer in his herd breeding program and farm management, but collectively, with other participating dairy farmers in the state, becomes the basis for providing all the information required to allow for genetic assessments to be placed on bulls according to the productive ability of their daughters. These assessments in Victoria are known as R.B.V.'s (Relative Breeding Values). This, together with the reliability figures given, indicate a bull's worth in breeding. R.B.V.'s are given for FAT, MILK and PROTEIN where available.

## Mating Data

Mating data as such, whether A.I. or natural, is recorded and analysed manually, on farm, according to individual needs. Some collection of data or conformation and workability traits occurs in sire proving schemes and through breed societies, however, these activities are unconnected and standards are not uniform.

## PROBLEMS

## Low Involvement

There is a need for all dairy farmers, both registered and commercial, to understand that to improve the production of our dairy cattle, and hence the profitability of our dairy farm enterprises, there must be sufficient participation by all farmers in herd recording and

making their herds available for breeding daughters of young bulls coming through properly arranged progeny testing programs. Arranged matings for progeny test bulls should be the best possible. It's the super sires that we look for. There is, at the moment, a shortage of progeny testing herds and of herds available for contract matings. This is partly due to a lack of understanding of the importance of such activities to every dairy farmer's herd improvement.

Gene Wastage

There is a limited number of dams available to breed bulls in a contract mating system, because of the requirement that they be registered animals and by the lack of participation by breeders of registered cattle in both herd recording and artificial insemination. During 1979/80, in the two main dairy breeds in Victoria of 112,000 registered cows, 38,000 were herd recorded. Only 7500 were herd recorded and bred by A.I. I would suggest that there may be genetically superior commercial herds with high producing females that have generations of A.I. Proven Sires in their pedigree, which must be considered in the future if breeders of registered cattle do not attempt to improve the present position.

Data Collection

The lack of breeding information available to the industry such as fertility of bulls, reproductive and general dairy performance of cows, is an area of concern and a matter that should be pursued with a view to introduction of a uniform system for definition and collection of such data.

Sire Confusion

There is concern in the area of sale publicity of the merits of the various sires available to farmers through the A.I. service. The main confusion is in the area of "external" evaluations of imported and interstate bulls in comparison to local evaluations. Reliability of bulls' assessments is another area for concern, particularly where too few daughters, in a small number of herds, makes for low reliability. What are the minimal requirements in reliability to give a farmer an assurance of above average offspring in genetic improvement? Is this an area for farmer education or should minimal standards be mandatory within the system?

FUTURE DEVELOPMENTS

National Sire and Cow Indexing

To eventually overcome the problems associated with interstate evaluations of both cows and bulls, agreement has been reached by the Australian states and development has started towards evaluation of both production and type characters for bulls and cows in the National Dairy Herd Improvement Scheme. Using BLUP procedures, a more accurate calculation method will supercede the current separate contemporary

comparison systems used now in each state. Building in ties between groups will ensure that comparisons of bulls or cows from different herds, state populations or progeny test programs are more meaningful. Coupled with these systems will be the development of a national system of identification which will ensure that individual bulls and cows can be uniquely idenitified.

Integration of Data

Efforts are being made to introduce a uniform computer recording system for dairy breed societies. It is expected, if introduced, this would link with N.D.H.I.S. production reporting system and hopefully bring uniformity in expression and assessment in type classification in the various breeds. From such a development there should be improvement in knowing the whereabouts of elite cows for the possibility of contract mating. I would expect such information to be available to the dairy industry at large and not remain only within breed societies.

Automatic Data Capture

Improvements can be expected in field data collection through the interfacing of elentronic testing instruments direct to computer programs. The Herd Improvement Organisation of Victoria has interested itself in this aspect and in the 1980-1981 year has a development project under evaluation at the Goulburn Valley Herd Improvement Co-operative. This equipment goes beyond the interfacing of electronic milk weighing scales, Milko-Scan 300 testing instrument and Fossomatic cell counter in that it allows for further data entry and print-out information required by Centre and farmers. Further development of this project could allow for inclusion of certain A.I. field data that is not now available to the industry.

Working within the reliability and accuracy required for information in making all assessments, and the cost of collection of such information, the systems, including modern technology, must be continually under review. Is it still necessary to have monthly collection of milk samples and 300 day lactations for cows?

We all know that breeding dairy animals is a long term project. Every effort must be made to bring about a better understanding and acceptance of the responsibility of all concerned in breeding animals of improved genetic merit and dairy cow characteristics to provide the dairy cow for the dairy herd of the future.