

Dept. of External Affairs Min. des Affaires extérieures

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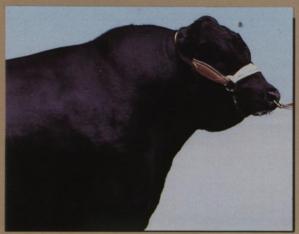
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BEEF CATTLE IN CANADA













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OBJECTIVE

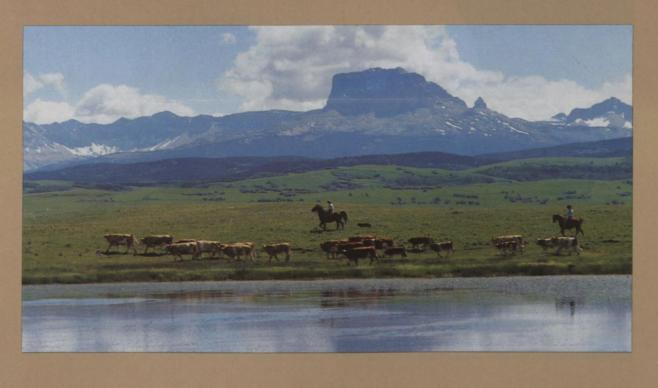
The efficient production of beef from available forage resources is a major objective of government and private planning, and in many countries of the world substantial economic gains are possible through the introduction of improved foundation stock.

The purpose of this booklet is to provide an accurate description of the economic characteristics of modern beef cattle that have been developed in Canada and that are now exported to assist in the development of more efficient beef production enterprises throughout the world.

The prime criterion in the selection of Canadian breeding females and bulls was the efficiency with which forage resources could be converted to beef. The result of this lengthy selection process is a fastmaturing, relatively large animal that is a hard-working and efficient forager, and yet one that is easily handled in confinement. The development of these qualities was necessitated by economic pressures and a need for efficient production within a wide range of climatic and managerial conditions.

Only those strains with the genetic potential to perform well were selected and propagated from the original importations of Hereford, Aberdeen-Angus, and Shorthorn. In recent years, seed stock of many other breeds have been imported and studied. Of these, the Charolais and the Simmental breeds have proved the most popular, and more recently the Limousin has also gained some prominence.

Discriminating buyers from many countries, including the United States, U.S.S.R., Czechoslovakia, Mexico, Japan, Chile, Brazil, Bulgaria, Australia, New Zealand, Britain, and Denmark have purchased Canadian foundation stock for the development of pure herds and for crossbreeding. Performance levels for future generations are set by the basic stock. It is therefore of prime importance that only select cattle from the best possible sources be considered for foundation purposes.



THE LAND

Canada is the second largest country in the world, stretching 6 440 km (4 000 miles) from east to west and 4 830 km (3 000 miles) from north to south. Of the total land area of 9 312 703 km² (3 581 809 square miles), 702 000 km² (270 000 square miles) are classed as farmland, concentrated mainly in a narrow band along the southern border.

Canada has a major resource base in the form of about 20 235 000 hectares (50 million acres) of rangeland in the west and 2 023 500 hectares (about five million acres) in the east. In addition to the rangelands, an estimated 2 428 200 hectares (six million acres) of hay, grass and corn silage and 1 618 800 hectares (four million acres) of cereal are used for beef production.

Although beef cattle are raised in most areas of the country, the largest concentrations of purebred stock are in the western provinces of Alberta and Saskatchewan, and in the Great Lakes peninsula of southern Ontario. Western herds are subject to greater climatic extremes and required to graze over wider and rougher terrains. The Ontario herds are usually found on more highly developed pastures. In the westernmost province of British Columbia, large herds thrive on the Interior Plateau and in forested areas. In the Maritime Provinces on the east coast, herds are under more intensive care in a mixed farming economy. The diverse systems of beef production in Canada have produced a type of beef animal that adapts well to widely varied environmental conditions.



PRACTICE

Canada's beef industry tends to be specialized and consists of two major components: the cow-calf producer, and the feeder. It should be noted that there are a significant number of producers that provide both the calf, and the finished animal ready for slaughter.

Approximately 5 percent of Canada's cattle population are purebred or seed stock animals. From this segment, highly selected breeding stock is developed for the commercial industry, primarily as herd sires.

The cow-calf segment of the industry is located mainly in western Canada. The established practice in commercial operations is to breed during June and July for calving in March and April. Calves are weaned at six to eight month's and may then be sold for finishing or carried over for further grazing during the following summer. Cattle are usually wintered in the shelter of trees, windbreaks or barns, and are fed hay or silage during the snow season which usually occurs during December, January and February in most areas.

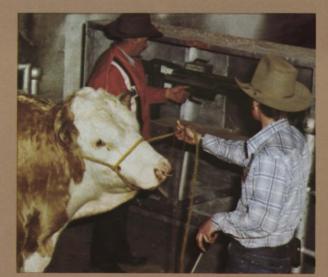
Heifers are usually bred to calve at two or three years of age. The most favourable time for shipment of pregnant heifers is during October or November.

Weaned calves will weigh 230 kg (525 lb) at 6 to 8 months and are often introduced to heavy feeding at this age to finish for slaughter at 455–544 kg (1 000–1 200 lb) at 12 to 14 months. Calves which are carried through the winter months on hay and turned out for further grazing in the spring will weigh 363–455 kg (800–1 000 lb) at 17 to 19 months. For the Canadian meat trade these cattle are usually finished on grain for 90 to 120 days before slaughter at 544 kg (1 200 lb). A heavy fat cover is discouraged by the Canadian trade through a lower grade and price.

PERFORMANCE

High performance in beef cattle herds involves efficiency in reproduction and the conversion of fodder resources to beef. Improvement within a breed requires the gradual development of a superior genetic make-up to conform to these needs.

The traditional concept of animal breeding is the establishment, by individual breeders, of fixed desirable characteristics within a family or herd, using their own selective breeding techniques. This concept has been broadened in Canada by the adoption of a National Record of Performance (ROP) Program. This is a program sponsored by the federal and provincial departments of agriculture.



CANADA'S BREED

IMPROVIEMIENT PROGRAMS

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The objective of the Record of Performance Program is to genetically improve the population for traits of greatest economic importance. Performance testing of these traits is a process that distinguishes genetic differences among animals by measuring the performance of an individual or an individual's offspring. In the first case, genetic differences are identified by the relative difference of the individual's performance compared with its contemporaries. In the latter case, an individual is evaluated genetically by the performance of its progeny compared with progeny of other bulls or cows. The individual performance test is generally favoured for traits that can be easily measured and have relatively high heritability. The individual performance test also allows more rapid genetic evaluation.

The progeny test is useful for the evaluation of imported or other untested bulls and for the evaluation of traits of low heritability. It can also serve to monitor the performance of calves of previously proven bulls and over the years to provide more accurate information on sires.

The National ROP Program for beef cattle encompasses three levels of testing: home testing, station testing of bulls, and progeny testing (which is the basis for the Sire Monitoring Program). The overall governing body of the ROP Program is a National Advisory Board for Beef Cattle Improvement. It includes federal and provincial government personnel, purebred and commercial producers, and researchers and representatives from other segments of the beef cattle industry, such as meat packers.

HOME TESTING

The home test evaluates the performance of animals in a producer's herd. This program provides producers with an objective basis for within-herd selection of both male and female breeding stock. In smaller herds, it pertains primarily to the selection of females, as male selection is much more limited.

The traits that are recorded and evaluated on the Home Test Program are as follows:

1. MATERNAL AND REPRODUCTIVE TRAITS

calving interval

cow defects

- calving ease
- calf condition at birth

2. GROWTH TRAITS

- birth weight
- adjusted 200-day weight
- average daily gain (birth to weaning)
- average daily gain (on 165-day feeding period)
- adjusted 365-day weight

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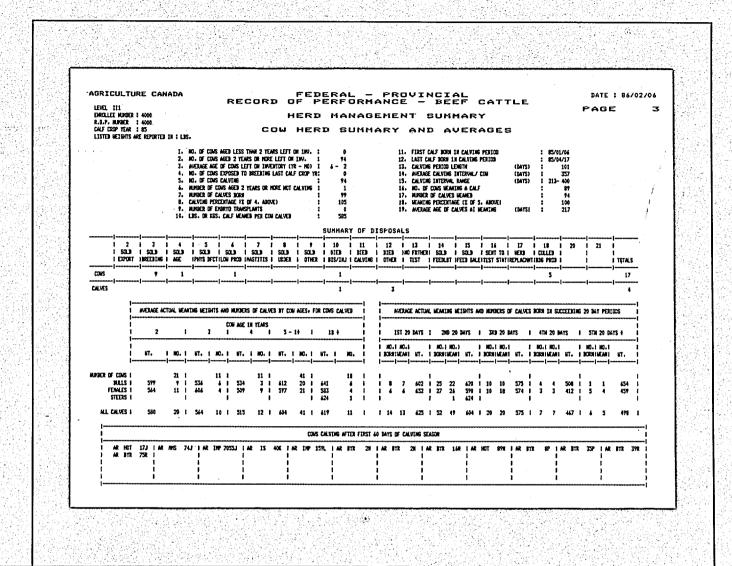
In addition, several key herd management statistics are recorded based on analysis of data provided by the producer. Very strong emphasis is placed on the reproductive management of the herd.

The Home Test Program includes evaluations of maternal, reproductive and growth traits. Growth traits are the most useful in a performance test due to high heritability and accuracy of measuring the traits. Maternal and reproductive traits are the most important in commercial beef production, but do not respond well to selection and are difficult to precisely determine. However, they enable producers to improve management practices and are extremely important for progeny testing of artificial insemination (AI) sires.

The breeder receives two processed reports — a Birth and Weight Report and a Herd Management Summary. All reports contain summarized data on the individual animal, each sex-group of animals, and each herd sire. These records provide the necessary data to assist producers in making selection decisions. In addition, if requested, a "Cow Production Certificate" that includes the records of a particular cow's progeny is provided. This certificate is especially useful for culling unproductive cows from the herd.

In 1984/85, approximately 70 000 animals from 2 300 herds were tested under this program.

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PROGENNY TESTING

Progeny testing enables producers to evaluate the genetic potential of a bull or cow based on progeny performance. It is particularly useful for evaluating mature, unproven, imported bulls for carcass traits and those of low heritability, such as the various maternal and reproductive traits. Progeny testing is the most accurate type of test provided that there are sufficient numbers of offspring. It is also more expensive and time consuming. Progeny testing of young, performance-tested bulls allows optimum genetic evaluation.

Agriculture Canada operates the Canadian Beef Sire Monitoring Program in order to evaluate the performance of progeny of sires that have calves enrolled under the Record of Performance Program or under the breed association performance programs in Canada. Because data are collected on a large number of progeny, many sires can be accurately evaluated. This applies primarily to AI bulls. The objective of this program is to routinely evaluate widely used beef sires and provide a means for producers to progeny-test individual bulls inexpensively, accurately and rapidly. The majority of progeny-tested bulls that are proven genetically superior are placed in AI Units for widespread distribution.

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STATION TESTING

Co-operation between the federal and provincial departments of agriculture has resulted in centralized station testing of bulls.

Centralized station testing of bulls allows the determination of genetic differences in growth rate under a rigidly controlled feeding and management situation. Station testing also allows accurate genetic evaluation among large contemporary groups of bulls from many herds and sires. Because environmental and management conditions are constant for all bulls in the groups, only genetic differences will be manifested. Producers can thus choose bulls based on these differences. A superior-performing bull in a test station is more likely to improve a herd than one purchased out of a small tested herd, as the latter test is based on smaller numbers and does not evaluate bulls across herds under the same environmental conditions.

Bulls are placed in stations when weaned at about 200 days of age. They are then given a 28-day warm-up period to adapt to their new environment before being tested over a 140-day feeding

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period. Average daily gain is the only trait evaluated as it is devoid of pre-weaning influences. Scrotal size measurements are also taken to assess the bull's potential for breeding. Approximately 6 500 bulls are tested per year under this program. The test station provides an ideal opportunity for the purchase of thoroughly tested, promising young bulls.

IIN/HEGRATION OF ROP PROGRAM

The three levels of testing are part of an overall breed improvement scheme for Canada and are integrated to provide optimum selection in the Canadian beef population. They also assure the foreign buyer of the genetic merit of Canadian seed stock.

RESEARCH

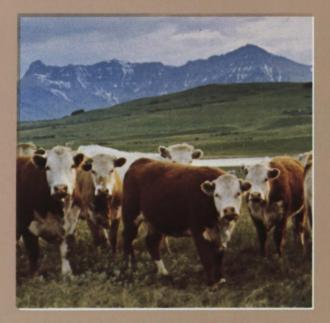
Canada's Department of Agriculture maintains an extensive program of beef cattle research. Studies in genetics, nutrition, meats and physiology continually yield new knowledge that assists in the improvement of efficiency of beef production. Research in selection, crossbreeding schemes, estimation of body composition through ultrasonics, embryo transplants, parasite control, and estrus synchronization has contributed greatly to the improvement of the Canadian beef herd.

Federal government research in beef cattle is further complemented by research being conducted among seven Canadian universities with faculties of agriculture, provincial departments of agriculture, and the private sector.

CROSSBREEDING

Controlled crossbreeding as a production technique is now widely practised and the need for selected quality in the parent stock of the pure strains used in crossing is recognized. Before truly superior performance can be achieved by hybridization, it is essential that the parent stock be of select quality. In spite of these requirements, real gains can be achieved by controlled crossing or by repeated use of high-quality bulls on native stock where it is necessary to retain certain native qualities in a cattle population.

Bulls from breeds such as the Canadian Hereford, Aberdeen-Angus, Limousin, Maine Anjou, Charolàis and Simmental are now being exported for these purposes. Pure herds of Canadian foundation stock are being established in many countries to provide the quality bulls or females necessary for a successful crossing program. The versatility of Canadian-bred seed stock allows the animals to readily adapt to many climatic and managerial situations. Their selective use on native stock allows the incorporation of genetic superiority in a large number of traits.



ANIMAL HEALTH

Canada is free from serious livestock diseases including foot-and-mouth disease and rinderpest. The Animal Disease and Protection Act and Regulations provides controls to ensure that these diseases will never become established in the country. If they should appear, the Act provides for their eradication through immediate slaughter and quarantine procedures. Quarantine stations are located at Mirabel, Quebec and Edmonton, Alberta. There is a maximum security quarantine station on Grosse Ile in the St. Lawrence River that handles cattle from high-risk countries.

Canada's national veterinary service, with approximately 7 000 veterinarians, attends to the needs of all cattle-farming areas. Agriculture Canada's Food Protection and Inspection Branch employs 500 veterinarians full time. The remainder are in private practice and ensure the Canadian farming community of up-to-date services and advice necessary to maintain day-to-day animal health.

Canada became officially free of brucellosis in 1985. Surveillance at livestock markets and abattoirs will continue until at least 1990, as will testing of milk. Canada is one of only six countries to have achieved complete eradication of brucellosis.

Animals are inspected for tuberculosis at routine slaughter, and herds of origin are traced from animals with lesions. If the disease is found, affected herds are completely depopulated. Canada expects to be free of tuberculosis by the end of 1986.

All testing required by countries importing cattle from Canada is performed by Agriculture Canada's veterinarians or veterinarians accredited by that department's Food Production and Inspection Branch, with samples and specimens tested at a federal Animal Pathology Division laboratory.

This painstaking application of modern veterinary science enables the most discriminating importers to buy from the Canadian herd with complete / confidence in the health of their purchases.

BRIEFED ORGANIZATIONS

The breeder of purebred cattle in Canada performs a distinct function. In contrast to the commercial cattleman who is primarily interested in the production of cattle for slaughter, the breeder is concerned with the development and improvement of high-performance cattle to meet the demands of the modern beef enterprise.

The breed associations are mainly concerned with the improvement and development of their breeds combined with the administration of issuing pedigrees. The activity of these organizations is controlled by the Animal Pedigree Act, an act approved and administered by the Government of Canada since 1900. It specifies conditions for the formation and operation of breed associations, as well as their powers and responsibilities. Under the Act any misrepresentation of ancestry, misuse of registration certificates, or sale of unregistered animals as purebred is strictly prohibited. A blood group testing laboratory is maintained by Agriculture Canada for parentage testing of cattle. Tests are run on a spot-check basis. on cattle due to be registered, on bulls before semen can be collected, and on other animals to verify their parentage.

The Act is designed to ensure the credibility of Canada's purebred livestock industry.

Many breed associations in Canada have their pedigrees processed and maintain their books of record through a central organization located in Ottawa — the Canadian National Livestock Records. Some breed associations such as the Charolais, Simmental, Limousin, and Hereford conduct registrations and maintain books of record in their head offices. These same associations also have their own performance evaluation programs that assist the breeder in the management and selection of breeding stock within his or her herd and selection of breeding stock from other breeders.

Most breed associations have monthly magazines that provide information on breed improvement programs, sale reports, and superior animals. Provincial, and in many cases regional, breed clubs are organized to assist breeders in the improvement of their herds. All breed associations are equipped to advise buyers and to work with competent livestock exporting firms in handling export orders. Addresses of the Canadian associations are listed on the last page of this booklet.

BEEF CATTLE REGISTRATIONS

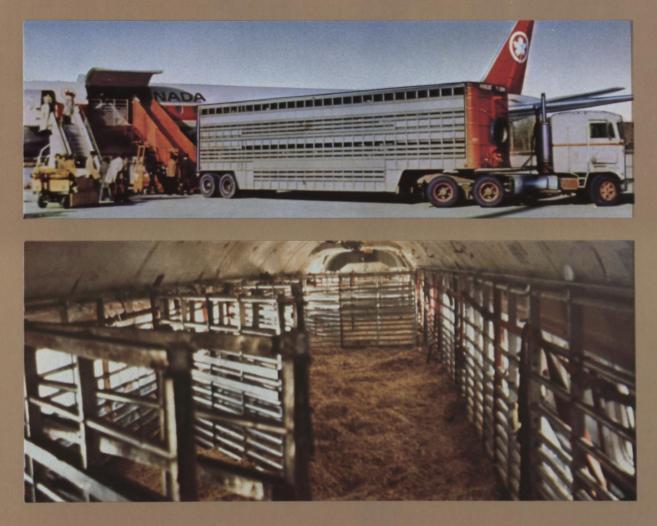
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EXPORT TRADE SERVICES

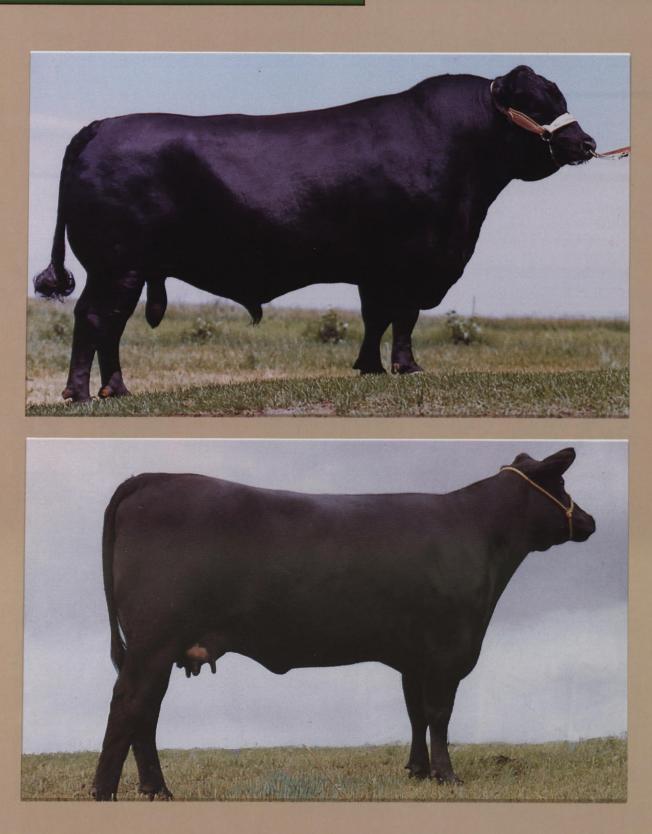
Canadian government trade representatives are located at all Canadian embassies and high commissions throughout the world. These officers welcome enquiries and are prepared to offer sound advice on trade facilities, recommend contacts with the Canadian industry and make travel arrangements.

The centres of Canada's beef cattle population are serviced regularly by international airlines. Arrangements can be made through trade offices to have competent export representatives meet buyers and visitors and arrange itineraries to suit their needs. Interpreters can be provided when required. With these experienced guides it is possible to see, within a day, some of the finest beef cattle in the world. If cattle of a specific age or breeding are of interest, it is possible to see a wide selection in all price ranges without excessive travel.

International banking and insurance facilities, animal health inspection services, and livestock transport and documentation services are all immediately available. Canadian exporters are prepared to move cattle to any accessible point in the world. Air transport is often preferred for particularly valuable cattle, but shiploads of high-quality breeding stock also move regularly to international markets.



ABERDEEN-ANGUS



The first breeding herd of Aberdeen-Angus imported into North America was brought to Canada from its native Scotland in 1876. The progeny of these early Aberdeen-Angus imports soon attracted interest and other shipments followed. Breeders were impressed with their longevity, hardiness, and ability to produce high-quality beef - qualities that have been the prime factors in developing the breed in Canada. The Aberdeen-Angus now ranks second in popularity among Canadian beef animals. All Aberdeen-Angus are hornless, and both black and red animals are registered in the same herdbook.

There are currently more than 2 000 breeders of registered Aberdeen-Angus in Canada, and 1985 registrations were in excess of 14 000. Although the main export market has been the United States, recent shipments to Britain, Argentina and Japan have signified rising interest in the breed.

The Canadian Aberdeen-Angus is particularly noted for its increased size, foraging ability under rugged conditions, and ability to produce a high-quality carcass. These carcasses have been consistent winners at major competitions throughout Canada. Desirable conformation and excellent marbling are two of the major factors involved in this outstanding performance. These qualities, combined with good mothering ability, have made the Aberdeen-Angus popular for crossbreeding. Aberdeen-Angus bulls are in demand for crossbreeding with first-calf dairy heifers to permit breeding at an earlier age. The Aberdeen-Angus crosses, like their parents, are naturally hornless — a desirable feature.

The birth weight of an Angus calf is low - 34 kg (75 lb) - but its growth rateenables it to overcome this situation. In 1984, ROP records show that Aberdeen-Angus on the Home Test Program had an average yearling weight of about 421 kg (928 lb) for males and 327 kg (725 lb) for females. Bulls on station tests have recorded yearling weights of more than 544 kg (1 200 lb). In the same year, animals on the ROP Home Test Program had an average daily gain of 1.08 kg (2.38 lb) for males and 0.66 kg (1.45 lb) for females. Exceptional animals at test stations have recorded gains of up to 1.86 kg (4.1 lb) per day.

Some of the characteristics for which the Canadian Aberdeen-Angus is most noted are the following:

- 1) large size and ability to produce under rugged conditions;
- 2) outstanding ability to yield a carcass of superior conformation and exceptional, well-marbled muscle;
- 3) ability to produce a desirable weight carcass at an early age;
- exceptional ease of calving, excellent mothering ability, and above-average milk production;
- 5) natural resistance to sunburn, pink eye, and snow blindness; and
- 6) naturally hornless.

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CHAROLAIS





The Charolais is an ancient breed popularized in France. The first importations to Canada occurred in 1955 with a few animals from the United States. The major importation period commenced in 1965 with pure seed stock from France. From the original triple-purpose meat, draft and milk type, Canada has developed the Charolais into a specialized beef breed displaying growth, high-yielding carcasses and exceptional muscling.

In 1985, Canadian breeders of registered Charolais numbered 2 500, and registrations reached 20 000 animals. Exports have been mainly to the United States and South Korea.

In 1968, the Canadian Charolais Association introduced the "Conception to Consumer" progeny test program. It is designed to evaluate the breeding performance of Charolais sire and to make progeny information available. It stresses economically important traits such as ease of calving, pre-weaning gain, postweaning gain, and carcass merit. The program has produced an animal that has an unassisted calving rate of 98.4 percent for normally presented calves and improved weaning weights.

In addition the Canadian Charolais Association has developed the Charolais Herd Analysis and Records Management Program (CHARM). CHARM is a computer analysis program designed to simplify record keeping, provide performance information and enable comparison of specific herd performance data with the overall breed averages. CHARM allows collection and analysis of data from birth to yearling along with registration procedures. This operation, along with the Conception to Consumer Program, has enabled the Canadian breeder to more accurately select superior animals and produce breeding stock that the foreign buyer can purchase with confidence. CHEVE PROMINICALLY AND THE TANK OF THE WAY

The resultant strain of Canadian Charolais has contributed to the efficiency in beef production. Offspring resulting from the use of Charolais sires on other Canadian beef-breed females have demonstrated superior growth rates and carcass characteristics. Carcasses have minimal fat covering but dress well because of exceptionally good muscling. Charolais cattle grow well on grass and in feedlots.

Birth weights of calves average 41 kg (91 lb) for males and 34 kg (85 lb) for females. In 1984, ROP records show that Charolais on the Home Test Program had an average yearling weight of 457 kg (1 007 lb) for males and 371 kg (818 lb) for females. In the same year animals on the ROP Home Test Program had an average daily gain of 1.16 kg (2.55 lb) for males and 0.78 kg (1.73 lb) for females. On rations at test stations, however, exceptional animals have gained 2.5 kg (5.5 lb) per day.

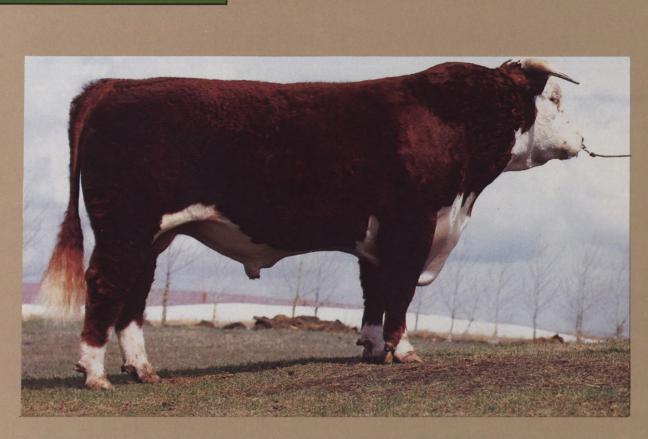
The characteristics for which the Canadian Charolais is most noted are the following:

- 1) large size and docile temperament;
- rapid growth with exceptional muscling;
- 3) production of high-yielding carcasses having a minimum of fat cover; and

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4) ease of calving.

HEREFORD





Herefords were first imported into Canada in 1860. There was a need to develop a type of beef animal that was hardy, prolific and able to graze wide areas efficiently. From the original imports, only those strains which possessed the necessary vigour and hardiness survived. From this foundation the ¹⁹ modern Canadian Hereford has been developed.

There are currently more than 7 000 breeders of registered Herefords in Canada, and annual registrations are about 42 975. In 1985, more than 976 Canadian Herefords were exported to several countries, including the United States, Australia, New Zealand, Japan, Bulgaria, Britain and Denmark.

The current overwhelming popularity of the Canadian Hereford is sound testimony to its adaptability and usefulness. In addition to purebred cattle, many large herds of straightbred but unregistered cattle are excellent sources of highperformance and practical female stock. Herefords are widely used in crossbreeding with dairy cows, and excellent semen is readily available.

Of particular interest to Hereford breeders throughout the world has been the development of an outstanding natural hornless strain in Canada. The great size and excellent performance of these animals have placed them among the most sought-after beef cattle in the world. An increasing proportion of both showring and performance test winners in Canada are of the polled strain.

The birth weight of Hereford calves is about 36 kg (80 lb). In 1984, Canadian ROP records show that animals on the Home Test Program had an average yearling weight of about 386 kg (858 lb) for males and 317 kg (700 lb) for females.

Test station bulls have recorded yearling weights of more than 544 kg (1 200 lb). In 1984, animals on the ROP Home Test Program had an average daily gain of 0.95 kg (2.10 lb) for males and 0.66 kg (1.45 lb) for females. However, on the high-protein and high-energy rations at test stations, exceptional animals gained up to 2.0 kg (4.5 lb) per day. These figures become even more significant considering that the Home Test Program feeding rations are restricted almost exclusively to forage feeds.

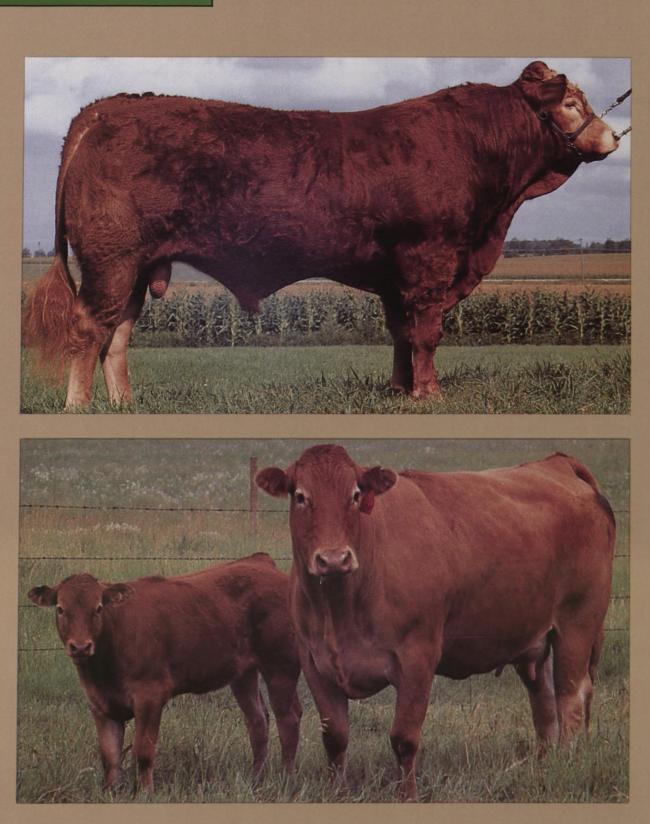
The following are the characteristics for which the Canadian Hereford is most noted:

- natural hardiness and excellent foraging ability over wide areas and rough terrain;
- unusual adaptability to a variety of climatic and forage conditions; and
- ability to reproduce effectively with a minimum of care, attention or calving difficulties.

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LIMOUSIN



The Limousin breed was first imported into Canada in late 1968 with a reputation as an efficient producer of lean red meat on less feed. Raised on the rough terrain of the relatively isolated region of southcentral France, these range animals were bred to forage for themselves as the area produced very little in feed grains. Today the Limousin is noted for its ability to deliver a maximum yield of high-quality beef at minimal cost in labour and feed.

In 1985, there were more than 1 800 breeders of registered Limousin and registrations were in excess of 10 000. A herdbook compiled by the Canadian Limousin Association allows breeders to register all calves above 37 percent if they are sired by a registered Limousin bull. New breeders can thus start with their existing cow herds and upgrade them to purebred Limousin cattle at 90 percent. All full French cattle are identified in a separate herdbook and are the result of the mating of two parents that traces directly back to the herdbook in France.

The Canadian Limousin is particularly noted for its foraging ability under rugged conditions and its ability to produce a high-yielding and high-quality carcass. These qualities, combined with good mothering ability, have made the Limousin popular for crossbreeding. Limousin cross steers have produced high-quality carcasses that have been winners at major competitions throughout Canada.

The birth weight of a Limousin is 39 kg (86 lb) for males and 36 kg (80 lb) for females. In 1984, Limousins on the ROP Home Test Program had adjusted yearling weights of 424 kg (934 lb) for males and 337 kg (744 lb) for females. Bulls on test station rations have recorded yearling weights over 590 kg (1 300 lb). The average daily gain of animals on home test was 1.07 kg (2.36 lb) for males and 0.70 kg (1.54 lb) for females.

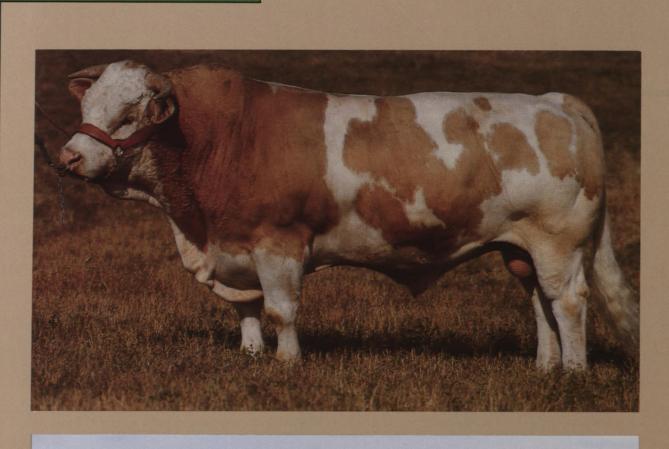
Characteristics for which Limousin in Canada are most noted are the following:

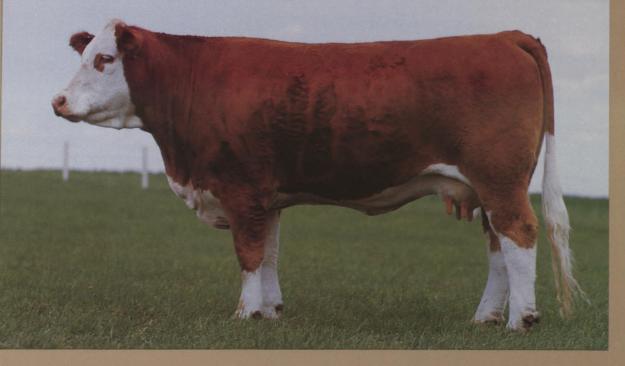
- 1) ability to produce under rugged conditions;
- ability to produce a high-quality, highyielding carcass;
- ease of calving, mothering ability and fertility; and

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4) efficiency in conversion of feed.

SIMMENTAL





The Simmental originated in Europe in the Middle Ages. As the breed spread throughout Europe it acquired a variety of names such as Pie Rouge, Fleckvieh, Austrian Fleckvieh, and Red and White. In Canada they are all considered Simmental cattle and are registered in the Simmental herdbook. The breed's universal popularity, due to its ability to produce meat and milk efficiently, resulted in its being introduced into Canada in 1967.

Currently there are about 7 000 breeders of registered Simmental cattle in Canada and pedigrees issued annually now exceed 20 000. Exports have been solely to the United States.

Birth weights of calves average about 42 kg (92 lb) for males and about 38 kg (88 lb) for females. In 1984, Simmentals on the ROP Home Test Program had adjusted yearling weights of 462 kg (1 019 lb) for males and 370 kg (815 lb) for females. Bulls on test station rations have recorded yearling weights over 635 kg' (1 400 lb). The average daily gain of animals on test was 1.1 kg (2.46 lb) for males and 0.75 kg (1.65 lb) for females.

Following are the characteristics for which the Simmental in Canada is most noted:

- 1) large size and docile nature;
- 2) heavy muscle structure;
- high growth rate and high milk production; and
- easy adaptability to wide variations in environmental conditions.

BRIHED SUIMMARY

In summary it can be stated that all the breeds of cattle described have unique qualities which make them appropriate for use under specific environmental and market conditions.

Success in beef production is achieved by the use of the kind of animal that harvests and converts the available forage resource efficiently, reproduces regularly, and yields in the end a product that best suits the requirements of the human population it serves. The pure breeds are widely adaptable, but it is not unrealistic to think in terms of combinations of breeds and characteristics. Whatever approach is taken, it is imperative that the genetic material used at the outset be carefully chosen. Its influence will be felt throughout the life of the enterprise. Canadian breeders offer the results of many years of selection based on sound practical judgment, scientific principles and, above all, the need for economic efficiency in the total enterprise from conception to carcass.

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Canadian Gelbvieh Association 165 George Graig Boulevard N.E. Calgary, Alberta Canada T2E 7H3

Canadian Hays Converter Association Mayfair Place Suite 509 6707 Elbow Drive S.W. Calgary, Alberta Canada T2V 0E5

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The Canadian Highland Cattle Society Postal Drawer 730 Mount Forest, Ontario Canada N0G 2L0

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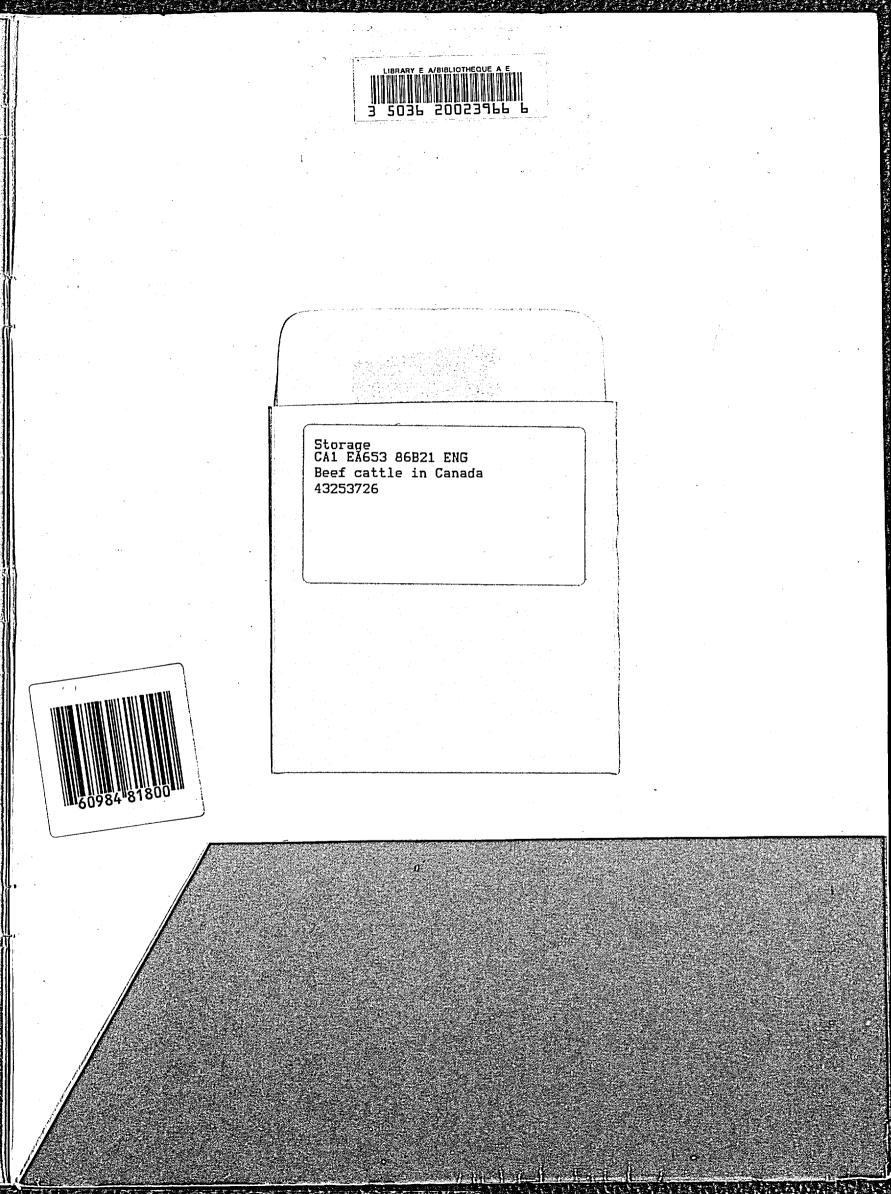
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