Market Study On The British Columbia Ratite, Waterfowl and Game Bird Industries

Final Report
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Executive Summary & Ratite Section

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EXECUTIVE SUMMARY

1. FORECAST FOR GROWTH - 2002 to 2007

The following chart outlines our forecasts for ratite, waterfowl and game bird industry growth over the next two and five years with and without the major constraints to growth being removed. These constraints are detailed within the balance of this executive summary. The growth rates are based on our impressions of the industries and our understanding of the factors that contribute to them.

Bird Type		Constraints Removed		Constraints Not Removed	
		Growth Rate			
	Current Sales	2 year	5 year	2 year	5 year
Emu	600 (e)	60%	300%	20%	100%
Ostrich	400 (e)	100%	500%	20%	100%
Ducks	N/A	20%	100%	6%	30%
Geese	N/A	10%	25%	2%	5%
Squab	500,000 (e)	30%	100%	15%	50%
Silkies	1,100,000	30%	150%	5%	15%
Japanese Quail/Quail Eggs	2,000,000 quail (e) 3,000,000 eggs (e)	20%	60%	15%	50%
Pheasant	25,000 (e)	20%	50%	5%	20%
Chukar Partridge	5,000 (e)	10%	30%	5%	10%
Partridge Tinamou	5,000 (e)	100%	1000%	50%	100%

The production figures included in this chart are estimates (e) derived from discussions with the industry and available statistics. Ducks and geese do not have production numbers as although Statistics Canada collect the slaughter numbers by province they do not report them as such due to confidentiality issues. The total slaughter of ducks and geese in Canada in 2000 was approximately 4,500,000 birds.

While this chart indicates that all of the bird types included in the study will increase production over the next few years, production will increase to a much greater degree if the constraints are removed. Some, such as tinamou, have a very low base to start from so an increase of only 50 birds per week is a 50% increase in production. This is also true of ostrich and emu. Others, such as silkies and squab, have grown very quickly already and will need additional markets in order to maintain their growth trend. Silkies, as well, will be dependent on policies regarding production for export markets.

Ducks and geese are very dependent on the opportunity for marketing beyond provincial boundaries in order to grow while pheasants could also benefit from the development of such markets. The other bird types continue to show growth with the constraints having a minimal effect.

2. RESEARCH AND ROLES - AVIAN RESEARCH CENTRE

The following are recommendations for research to be conducted and roles to be undertaken by the Avian Research Centre. These arose from the interviews with the industries and the review by the consultants and steering committee. They are aimed at removing some of the constraints to achieving the industry growth required.

Ratites

- Expanded efforts on hatching and chick growth keying on feed and feeding regimes to build sturdy legs, a major key to productive stock
- Development of recognized genetic strains for emu, as such do not exist today, and further development of ostrich strains for meat production
- Research into the use of fat soluble vitamins to enhance growth and productivity
- Determine the reasons for chick mortality
- Use of diatomacious earth to provide trace minerals and treat worms (nematodes)
- Investigate the best types of grasses to grow for palatability and nutrition for ostrich grazing
- Study feed cost versus production efficiency for both breeds
- Investigation into breeder feeds to maximize viable egg output
- Determination of the reasons that emu oil works on the various ailments and investigate reported therapeutic properties of ostrich oil
- Undertake emu oil studies specific to the medical profession, especially with dermatologists for skin problems, and work to determine the effect on cholesterol levels, Crohn’s disease, ulcers, the use of oral oil capsules for arthritic pain and for radiation burns
- Create standardized oil products
- Develop additional value added emu and ostrich meat products

- Serve as a conduit or clearinghouse for production and marketing information and as a catalyst for development of a producer organization for the ostrich industry

Waterfowl
- Assistance in the development of programs supporting the promotion of ducks and geese among consumers
- Development of production regimes for alternative products such as fois gras and magret
- Assisting in the development of innovative value added products for the industry
- Serving as a catalyst for development of a producer organization and as a conduit for production and marketing information

Game Birds (all types)
- Serve as a catalyst for development of a game bird producer organization or organizations and act as a conduit for production and marketing information for these groups.

Squab
- Identification of meat production blood lines and hybridization opportunities
- Investigation of breeding success, chick mortality and disease control
- Development of robotic feeding systems for young squab to increase production per breeding pair

Silkies
- Investigation of hybridization and cross breeding for silkie to improve production numbers and size

Japanese Quail and Quail Eggs
- Development of genetic strains and hybridization to increase the numbers and size of the finished product
- Development of value added products using quail eggs

Pheasant
- Research on production methods for pheasants which would work in wet weather
- Development of innovative value added pheasant based products

Chukar Partridge
- Development of value added products

Partridge Tinamou
- Ongoing research on tinamou on production problems and efficiencies
- Identification of clientele and marketable characteristics

DETAILED SUMMARY

1 BACKGROUND

This report reviews the current supply and demand situation for ratites, waterfowl and game birds as it affects the BC industries. An assessment has been made of the competitive situation and the nature of potential market opportunities.

The report covers the following bird types:

Waterfowl	Game Birds	Ratites
Ducks (Pekin & Muscovy for meat)	Squab (includes breeder pigeons)	Emu (oil, meat, leather)
Duck eggs	Silkie chickens	Ostrich (meat, leather)
Geese	Japanese quail (meat & eggs)	
	Pheasant	
	Chukar partridge	
	Partridge tinamou	

The study also provides a framework for setting development and research priorities for the industry and the Avian Research Centre at the University of British Columbia (ARC). The findings support a level of assurance to industry, government and funding agencies that monies spent in the area of production research will contribute to industry expansion.

2 DEMOGRAPHICS

It is generally conceded that for many of the species included in this study that the primary markets revolve around the demand created by Chinese and South Asian ethnic groups in North America. The exceptions are ratites, pheasants and partridge which are used primarily by European style restaurants and, to a lesser extent, geese which have a European tradition for holiday use. Ratite meats and oils also appeal to health conscious consumers of all ethnic backgrounds.

An increasing Asian origin population is anticipated to drive the demand for most of these commodities in North America. The rate of growth of these ethnic communities provides some insight into the potential market growth for the game bird and waterfowl products.

- The Asian origin population in the US has increased 44% in the 1990-1999 period and now comprises about 11 million people

- The largest concentrations of Asian ethnic population in the US are in California, New York and Hawaii

- The US Asian population is growing very rapidly in the US South (e.g. Texas, Arizona), the Eastern seaboard and Northeast (e.g. New Jersey)

- The Canadian Asian origin population is comprised of approximately 2.3 million people of which almost a million speak various Asian languages at home. The largest component of this subgroup is Chinese speaking. Of these, 47% (276,000) reside in Ontario (86% in Toronto) and 35% (205,000) are situated in BC (93% in Vancouver).

- The flow of Asian origin immigrants into Canada has dropped off substantially in the last few years. The economic climate in BC has not been supportive of Asian immigration in the last 2-4 years. This is expected to improve as the economic conditions improve, taxes are reduced and BC presents itself as a more friendly environment for international business interests.

- The base population of Asian immigrants already established in BC, Canada and North America is sufficient through its internal expansion to provide a growing market for many of these bird types.

3 RATITES

3.1 Emu

3.1.1 Products and Markets

Emu is a native of Australia where the first commercial farms began in the 1980's. There are now emu farms throughout the world. Although the meat, and to a lesser extent, leather, eggs and feathers are sold into mainly local markets, the primary output from emu production is the oil made from the back fat of the bird. This fat is high in oleic acid and omega 3 and omega 6 essential fatty acids and is used for a range of skin conditions and its anti-inflammatory properties.

Emu oil is receiving broad exposure within the health food industry although the total sales and growth in the market is slow. There are a few medical doctors who have embraced it’s therapeutic attributes along with a number of sports trainers and injury specialists. The report contains information on a number of studies which have been done to determine the therapeutic actions of emu oil on a number of conditions.

There are no global statistics for farmed emu but the limited information available supports the conclusion that farmed emu numbers in the USA now exceed those in Australia.

Marketing of emu products, especially the oil and oil products, are carried out through health food and wellness stores and retail health food departments. In addition a large number of producers are marketing direct to consumers and over the internet. Meat is handled primarily through local meat markets and HRI (hotel, restaurant and institutional) distributors. Leather and leather products in Canada are usually direct marketed by the producers.

3.1.2 Industry Growth Trend

Emu ventures in various countries have gone through, or are going through, development phases that virtually all new commodity enterprises experience on their way to becoming established industries. At the embryonic stage, emu farms were started by hobby producers. Increasing interest in the new enterprise lead to the speculative phase where the economics of the industry were largely lead by the escalating prices obtained for hatching eggs and breeding stock. Production of stock increased without the corresponding development of the markets for the products (meat, oil, hides, eggs and feathers), resulting in a collapse of the breeding stock market and rapid declines in the numbers of growers. In the commercial phase, which those remaining emu producers are currently experiencing, the birds are being produced and sold based on returns that reflect the value of the end products in the market place. This restructuring is resulting in industry growth again, albeit slowly.

- Emu producers are primarily looking to oil for development of market demand for emu. While there is interest in developing markets for the leather, most of the sales by producers are in finished leather craft products that they have made or have had produced
- Emu oil is developing markets slowly as the anti-inflammatory and other therapeutic properties of the oil are becoming recognized by segments of the population
- The markets for emu meat are primarily local in nature but are growing slowly as producers and local meat markets develop a loyal clientele for the products

3.1.3 Industry Strengths

- The industry has maintained its organization and that has assisted in transferring production and marketing information between the growers
- The emu industry has continued to pursue and develop the market for emu oil with a number of producer/distributors expanding their markets in the BC and Canadian markets
- Emu product distribution systems are developing through wholesalers, direct to health food stores and health food departments in grocery or department stores, direct from the producer/marketer, and over the internet. Some producer/marketers are now buying product, both oil and meat, from other producers to supplement their own production

3.1.4 Industry Weaknesses

- The size of the industry does not support the promotional efforts necessary to obtain rapid growth
- The acceptance of emu meat within the hotel and restaurant sectors is low

3.1.5 Industry Opportunities

- Some producer/marketers are building markets for the emu products of sufficient size that they will required emu from other producers
- Those producers willing to put the time into direct marketing of their emu products appear to have significant opportunities for local markets of oil, meat and leather products

3.1.6 Industry Constraints

- Enormous time and effort required to develop markets for the oil
- Cost of medical research to support and promote the therapeutic aspects of the oil
- Limited funding for research on production and genetic factors which are responsible for creating oil with the highest therapeutic levels
- Negative response of some health food stores to products derived from animals
- The problem in obtaining economical slaughter of the birds within reasonable transportation distance and the certification of the slaughter plants which determines where the end product may be marketed

3.2 Ostrich

3.2.1 Products and Markets

Ostrich is a native of Africa and has been farmed in South Africa since the 1860's. The industry was originally based on feathers but declined in the early 1900's. In the late 1960's, demand for ostrich leather revived the industry although the leather market grew slowly during the 1970's and 1980's. However, in Australia, New Zealand, USA, Canada, Europe and China the market for ostrich leather has increased since the late 1980's. During the latter 1990's the other ostrich product, meat, became the primary production with demand peaking in Europe with the problems they experienced with diseases in European beef cattle.

3.2.2 Industry Growth Trend

In North America, New Zealand and Australia, the production of ostrich went through an expansionary phase, based on inflated breeder pricing and then a contraction as sales began to reflect the value as a meat and leather producer. Today production is starting to rebuild for those regions that can ship into the EU, based on the expanding markets or alternative meats in the aftermath of the European BSE and hoof and mouth cattle disease outbreaks. BC production is rebuilding more slowly as it is based on the growth in consumption within the province, almost exclusively through the restaurant sector.

South Africa, the US and Israel have been the main producers of farmed ostriches. In 1999, it appears that US ostrich numbers may have overtaken South African numbers. Most recently, the

Australian ostrich population has also become significant. The numbers of birds slaughtered world-wide has risen from about 82,000 in 1987 to 500,000 in 2001, yielding about 15,000 tonnes of ostrich meat.

- The cattle disease problems in Europe and their search for alternative red meats has created awareness of ostrich meat as one option. This concern also appears to have developed in North America
- The ostrich industry is growing slowly as the meat becomes accepted within the restaurant and hotel sector as a profitable menu addition
- A few meat markets are experiencing growing sales of ostrich meat to health conscious consumers
- Ostrich producers are also beginning to market ostrich oil, suggesting that it too has some therapeutic properties, similar to emu oil
- The ostrich leather market is well established, having trade in the skins themselves, and has historically determined the ostrich slaughter. Meat demand has now replaced leather in this role
- Ostrich feathers are no longer a fashion novelty although they do still have limited use in costume manufacture

3.2.3 Industry Strengths

- The increasing demand for ostrich meat globally due to the European disease crises has created increased awareness in the BC and Canadian markets

3.2.4 Industry Weaknesses

- Problems in obtaining economical slaughter of the birds
- BC slaughter plants are not EU or Canadian federally approved, which would allow them to access European or other Canadian and North American markets
- There is an absence of any organized producer group resulting in little production and marketing information being shared or promotion of the industry to governments and user groups

3.2.5 Industry Opportunities

- The presence of an EU approved processing plant would permit opportunities for meat sales into Europe
- With constant production at steady competitive prices, more restaurants and food service outlets will be inclined to use ostrich as a regular item on their menu

3.2.6 Industry Constraints

- Knowledge limitations regarding nutrition, productivity and herd management
- The problem in obtaining economical slaughter of the birds within reasonable transportation distance and the certification of the slaughter plants which determines where the end product may be marketed

4 DUCKS (PEKIN & MUSCOVY) AND GEESE

4.1 Products and Markets

Ducks and geese have been produced for meat and eggs for centuries and are known throughout the world. Muscovy is the most versatile type of duck to prepare with consistent quality and availability while Pekin is characterized by medium size and light flavour and has been the primary breed used in Asian cooking. Goose is generally used at special events such as holidays, is usually a good buy and generally underutilized by restaurateurs.

Fresh duck eggs are currently being marketed through the Chinese communities however another egg product showing considerable growth are duck baluts or hot vit lon. These are partially incubated duck eggs sold as a snack delicacy in Filipino and Vietnamese communities.

4.2 Industry Growth Trends

Global production of both ducks and geese are growing at a steady pace with production spread through most of the world. Canadian and BC production reflects this trend. A very high percentage of duck and goose meat utilization is within Asian communities and this is reflected in the markets for the products within Canada and the USA.

Much of the increased demand is for the larger, leaner Muscovy ducks for both the large traditional Asian markets and for European style restaurants which are purchasing Muscovy duck breasts in greater numbers. Pekin duck continues to have the largest production with most of the product going into Asian restaurants. An large Ontario producer/processor has recently taken steps to expand this market, however, through the use of innovative technology to develop and market fully-cooked duck entrees to upscale international customers.

The duck industry in Canada is composed of a few large commercial producers of Pekin ducks with many small operators supplying product such as Muscovy ducks to processors or direct to restaurant or retail outlets.

- The largest Canadian duck producers are located in Ontario and Quebec and have developed international markets for their products
- Goose production is centred in Manitoba
- BC production is located in the Lower Mainland and services the BC market. This is

expected to expand, however, as the largest BC duck producer and processor has applied for federal inspection which will allow shipment beyond provincial borders

- The BC industry are producing duck baluts or hot vit lon with much of the product going to US markets
- Internationally the market for goose is growing well, primarily in Asian countries
- Local markets for geese appear to be quite static and holiday specific
- Although there was little statistical data, it appears from industry discussions that there are also increasing markets for top quality fois gras and magret which increasingly being produced from Muscovy or Moulard ducks as compared to geese

4.3 Industry Strengths

- Duck production and marketing in BC is well developed with one major and many smaller producers serving the BC market
- Quality of the BC product has been consistently high with good market acceptance
- Some duck products such as baluts and hot vit lon are already entering the US market, paving the way for additional duck products when the BC processor becomes federally inspected

4.4 Industry Weaknesses

- There is a deficiency in BC Muscovy duck production to serve the BC markets

4.5 Industry Opportunities

- There are opportunities to increase the supply of Muscovy or similar style ducks in order to supply the BBQ duck and duck breast market
- There is potential to produce fois gras and magret to replace imported product currently coming in from the US and Europe
- Markets outside the province have promise once the full federal plant is in place to service them

4.6 Industry Constraints

- While a change to full federal inspection is said to be imminent, the major BC duck producer/processor has been operating under federal/provincial certification which does not allow the sale of product beyond provincial

5 GAME BIRDS

5.1 Squab

5.1.1 Products and Markets

Squab is young pigeon which is fed by its parents and slaughtered before leaving the nest, at about 4 weeks of age. Squab usually dress out at about 75% of body weight or 1 lb. This meat product has been used extensively in Asia and Europe as well as the Middle East and North Africa. Squab meat is moist, dark and tender, with a mild flavour.

Global production of pigeon meat is centered in Egypt with 76% of the world production. Despite that overwhelming level of production, Egypt is not a major player in world trade in pigeon meat. Europe is the largest exporter of pigeon meat while Asia, particularly China, is the largest importer.

5.1.2 Industry Growth Trend

The trend in global production of squab has been positive with FAO data reporting a 25% increase between 1991 and 2000. North American production is a very small portion of the total and is not represented in the statistics.

Canadian production of squab has increased dramatically over the past few years with BC having the largest production followed by Ontario. BC squab finds its way into markets in eastern Canada with a small amount going to the Western US, as well as supplying a large proportion of the BC market. The US is a major North American producer with production centered in California and South Carolina.

In North America, squab is sold primarily into the Chinese Asian markets as well as upscale European style restaurants. Per capita consumption of squab by Chinese in the BC market is approaching that of Hong Kong, a benchmark market with the largest per capita consumption of squab in Asia.

With the main demand for squab coming from the ethnic Chinese restaurant trade, the growth in the markets reflect the demographics of the Chinese communities and the acceptance of squab as a menu item. Production in BC has grown from about 80,000 birds in 1995 to 500,000 birds in 2000 whereas Ontario, with a larger Chinese community, is hovering at the 200,000 bird level.

5.1.3 Industry Strengths

- A good structural base with three processors and markets which continue to accept the product in increasing amounts
- The favourable exchange rate differential between Canada and the US has also allowed movement of squab into US markets

5.1.4 Industry Weaknesses

- There is little market development activity within the European style restaurant market which would allow squab to be introduced to a much larger demographic
- There is no effective producer organization for promotion of greater cooperation and sharing of information on production and marketing

5.1.5 Industry Opportunities

- Expansion of sales into other Canadian cities as per capita consumption of squab within the Chinese community in those cities increase
- Aggressive development of markets for squab with European style restaurants

5.1.6 Industry Constraints

- There are a number of production problems such as chick mortality, feed conversion and disease control which serve to reduce production to sub-optimum levels
- Additional markets will be required in order to maintain the growth levels that they are experiencing
- Lack of funding for production related research aimed at increasing the production per breeding pair and decreasing the cost of getting a squab to market weight

5.2 Silkie Chickens

5.2.1 Products and Markets

Silkies are an ancient Chinese breed of bantam chickens having very fine fluffy feathers and a black or blue skin and meat. They are used by Chinese, predominately those from Mainland China, for their meat and are considered medicinal. Silkies fall within the Gallus genus, which has implications for their production and marketing in Canada.

The level of global production of silkies is not known as they are not differentiated from other chickens in the data although in 2001 BC produced approximately 1,100,000 of these birds. In North America, the primary consumers of these bantam chickens are the Chinese origin population. North American production is primarily in California, South Carolina, and British Columbia. The major markets for silkies are in cities with larger Chinese populations, such as New York and Los Angeles in the US and Vancouver and Toronto in Canada.

5.2.2 Industry Growth Trend

The demand for silkies is growing due to increases in numbers of Chinese in the North American markets and as existing markets are further penetrated with lower priced product. Product distribution is primarily through distributors serving the Chinese-origin retail trade.

There is currently an a substantial market for BC silkies within the US West Coast states, primarily California, due to the differential between the US and Canadian dollars. There appear to be further opportunities for market penetration both in eastern Canada and elsewhere in the US, according to industry sources. The incentive for BC producers to take advantage of these market opportunities is tempered by the requirement for producers to purchase production quotas under the poultry supply management scheme in order to legally grow silkies.

5.2.3 Industry Strengths

- The BC silkie industry is well established with a number of substantial growers and processors
- There are well developed markets in both Canada and the US
- The current favourable exchange rate

5.2.4 Industry Weaknesses

- There are claims that some of the product being sold as silkies is in fact product produced from a silky/broiler chicken cross
- The lack of an industry association to work with the BC Chicken Marketing Board in the development of industry policies which would allow the development of additional markets

5.2.5 Industry Opportunities

- Expansion of existing markets and entry into additional markets within the US

5.2.6 Industry Constraints

- The control of new silkie production by the BC Chicken Marketing Board through the requirement for purchase of existing quota is a cost that has the potential to limit production for emerging markets.

<u>5.3 Japanese Quail/Japanese Quail Eggs</u>

5.3.1 Products and Markets

Japanese quail or coturnix have been domesticated since the 12th century and are grown for:
- the production of meat throughout Asia (including India), Europe and North America.
- animal research
- hunting, in many countries
- eggs which are used for fresh and processed products

These are small birds producing a 120 to 180 gram eviscerated carcass at 7 to 7 ½ weeks. Quail eggs are used wherever chicken eggs are but are most often pickled.

5.3.2 Industry Growth Trend

The production of Japanese quail as a meat bird developed over the past century with major expansion in the past decade. In North America, commercial production is concentrated on a few large farms in the US and Canada. BC has one large producer and production in the order of 2,000,000 quail per year. In addition there is significant production of quail eggs which are sold in consumer markets.

The market for quail is expanding, primarily into the restaurant and food service trade, as the industry produces a very consistent portion controlled product. A considerable part of this market is located in California with much of the BC production going there. In addition the BC market for quail eggs is over 3,000,000 eggs per year.

Immunoglobulin fraction (IgY) is being derived from the egg yolk of the Japanese quail egg in experimental work. The product superior to mammalian IgG and is expected to be produced and sold commercially for medical use.

5.3.3 Industry Strengths

- BC has one large quail producer who has developed markets both in BC and in the US. This operation continues to expand

5.3.4 Industry Weaknesses

- There is little known about the markets for quail and quail eggs as the information is proprietary

5.3.5 Industry Opportunities

- The portion of the quail demand in BC which is currently supplied from eastern Canada could be replaced by BC production

5.3.6 Industry Constraints

- Local markets which are not being served by BC product

<u>5.4 Pheasant</u>

5.4.1 Products and Markets

Pheasant is a traditional game bird originally used mainly for hunting but now raised for both meat and hunting preserve use. For the most part the breeds used for commercial production and hunting preserves differ. A native of Asia, pheasant found fame in Europe as a hunting and eating bird. Pheasants have a dressed weight of about 1.2 kg and reach market weight at about 20 weeks. Most pheasant are raised in large fully enclosed outside pens with one main crop per year.

The global market for pheasant is very thin with most of the product being used in up-scale restaurants. North American production is centered with a few large producers and many hobby farmers. In addition there are a considerable number of hunt clubs, in jurisdictions where they are approved, which produce pheasant for use on their properties as well as for release on public lands. This sector of the business produces much lower numbers and usually use different types of birds.

5.4.2 Industry Growth Trend

The demand for pheasant in European style restaurants has been relatively stable over the past three years. Increased demand within the US for Canadian product has been bolstered by the exchange rate of the Canadian dollar although the Canadian industry, primarily in Ontario, has also developed an international reputation for a quality product in recent years. The US remains a much larger producer of pheasant, however.

The BC pheasant industry at present is composed of one large commercial producer plus a number of other producers who have produced pheasants in past and have intentions to do so in the future. In addition there are a few hunt clubs and their suppliers. BC production has been stable for a number of years and appears to be in balance with the local markets although there is eastern pheasant coming in as not all customers purchase from the one distributor handling the BC grown product.

5.4.3 Industry Strengths

- The BC production is mainly produced by one grower who sells through one distributor. This has lead to stable prices and usage. Export is used to balance inventories

5.4.4 Industry Weaknesses

- The ease of producer entry and exit to the industry can lead to rapid changes in production levels and corresponding de-stabilization of prices
- The current industry composition with only one producer selling through one distributor limits market penetration as not all restaurants purchase from that distributor
- There is no industry strategy to systematically develop domestic or export markets

5.4.5 Industry Opportunities

- Export development into the US
- Development of value added pheasant products
- Replacement of pheasant currently coming in from eastern Canada

5.4.6 Industry Constraints

- The BC industry is based on whole bird sales whereas other Canadian and US producers are also marketing value added pheasant products
- The ease of producer entry and exit exposes the industry to rapid movements from under to over production and widely fluctuating farm gate returns

5.5 Chukar Partridge

5.5.1 Products and Markets

Chukar partridges originated in Asia and were brought to North America in the late 19^{th} century. They thrive in dry arid and semi-arid regions of the western US where they have been used primarily for hunting. Over the past century, Chukars have been domesticated for meat consumption in the restaurant market. Chukars are from the pheasant family and are about 60% the size of pheasants, about 1 to 1 ½ lbs. live weight. In the US they are one of the most commonly kept and bred of all game birds, most often for hunting reserves and release.

Chukar partridge does not appear to be a global industry. Within the US and Canada most of the production is used locally, either for hunting or offered along with other game birds as a frozen product. Demand in the restaurant trade is said to be low and quite seasonal with production geared to the cooler months.

5.5.2 Industry Growth Trend

The market for chukar partridge is very thin and seasonal with limited movement in demand. There are significant problems in balancing over and under production as the markets are very price sensitive to this. Production is sporadic, depending on whether the producer feels that the time is right to make a profit and there is barn space available.

5.5.3 Industry Strengths

- Within BC there are a number of producers who have the expertise to produce the product

5.5.4 Industry Weaknesses

- Inadequate market development within existing restaurant markets to encourage additional demand

5.5.5 Industry Opportunities

- Development of value added products to extend the marketing season and range of potential users

5.5.6 Industry Constraints

- Seasonal demand
- Little or no communication between producers

5.6 Partridge Tinamou

5.6.1 Products and Markets

Tinamou is a partridge that is native to Chile and which has been developed experimentally for commercial production by the University of British Columbia. There are currently two flocks, one at UBC and one with a producer. The birds finish at about 350 grams dressed at 13 weeks as compared to quail which finish at 5 ½ to 6 weeks at 160 to 200 grams.

Development of production and markets for this product is in its infancy, not only within BC but in world production and markets. It is primarily known as a wild bird in South America, suitable for hunting.

5.6.2 Industry Growth Trends

BC is attempting to introduce tinamou to the marketplace so that it can secure a portion of the markets that are being developed for game birds. BC is presently producing about 100 tinamou per week with the product moving slowly into selected restaurants.

5.6.3 Industry Strengths

- Local BC production with a dedicated producer
- UBC research facility to assist in developing production efficiencies

5.6.4 Industry Weaknesses

- The current cost of production is resulting in non-competitive wholesale pricing

5.6.5 Industry Opportunities

- There appears to be some differentiated consumer demand for tinamou

5.6.6 Industry Constraints

- Current costs of production which lead to a higher price in the markets than other similar products
- Lack of knowledge of consumer preferences and reasons for appeal of the product

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1.0 INTRODUCTION

This report assesses industry characteristics, by bird type, in the BC game bird, waterfowl and ratite industries. The data and information presented represents "best efforts" to compile industry statistics, conduct assessments of market trends and identify industry constraints and opportunities. The primary purpose of the study is to compile information from various jurisdictions to develop a framework for both industry and the Avian Research Centre at UBC (ARC) to identify:

- industry needs
- priority areas for promoting industry growth
- priorities for production level research

The study provides a framework for setting development and research priorities for the industry and ARC. There are indications of real potential within industry sub-sectors and it is imperative that limited research resources be placed where they can have the greatest impact and provide positive return on research investments.

The BC game bird, waterfowl and ratite bird types investigated in this study are listed in Table 1-1.

Table 1-1
Bird Types of Game Birds, Waterfowl and Ratites Examined in this Report.

Waterfowl	Game Birds	Ratites
Ducks (Pekin and Muscovy for meat)	Squab (includes breeder pigeons)	Emu (oil, meat, leather)
Duck eggs	Silkie chickens	Ostrich (meat, leather)
Geese	Japanese quail (meat & eggs)	
	Pheasant	
	Chukar partridge	
	Partridge tinamou	

Ratites include ostrich, emu, rhea, kiwi and cassowary. The term ratite is used to describe flightless birds having sternums without a keel. These birds have no common ancestry.

Although some of these bird types such as pheasant, ducks and geese have been produced in BC for several decades, others are relatively new to the Province. Squab has been produced commercially in the Lower Mainland and Vancouver Island for over ten years while ostrich, emu and silkies were introduced in the early 90's. Partridge tinamou is currently in the early stages of commercialization with flocks located at the University of British Columbia (UBC) and in the Fraser Valley.

Characterized with new products serving new and emerging markets, these various alternative poultry industries are constrained by an absence of industry strategy and lack of funding for production and marketing research. In many cases, these industries have not reached production levels that lend themselves to production efficiencies that could enable market expansion. This does not necessarily mean that the products cannot grow into larger production over time, but simply that they are in an initial growth phase where production, processing and marketing constraints still abound. If these alternative poultry industries are able to address development constraints and attain large enough production levels to create a "critical mass", support for ongoing research will be forthcoming. At the present time, with limited resources it is difficult for the alternative poultry industries to fund the research needed in both marketing and production to allow expansion to take place.

This report provides an indication of the competitive situation and the nature of potential market opportunities. It also provides a level of assurance to industry, government and funding agencies that monies spent in the area of production research will lead to industry expansion.

1.1 Critical Success Factor Checklist

The following listing developed by an Australian consultant[1] outlines the development phases that virtually all new commodity enterprises go through. Understanding these phases will provide insight into the continued development of the game bird, waterfowl and ratite sectors.

1.1.1 Embryonic Stage

- discovery of new enterprise
- developed as a hobby or adjunct to a commercial farming operation
- individual private research
- generates local interest

1.1.2 Speculative Stage

- attract public funding
- attracts quick buck entrepreneurs
- no commercial production, productive units are used to service the demand for breeding stock
- large number of small operators
- prices drop once demand for breeding stock becomes saturated (3 to 4 years)

1.1.3 Commercial Stage

[1]David McKenna et al Pty Ltd. 1999. Marketing of new animal products. A report prepared for the Rural Industries Research and Development Corporation. Australia. Pub. No. 99/53. April.

- new entrants that get in early and don't pay exorbitant prices for stock
- emphasis on adopting farming practices to improve productivity and product quality
- government takes notice and begins to support the industry
- farm gate returns fall as production increases and demand is oversupplied
- less efficient operators leave the industry
- most efficient are able to generate acceptable returns

1.1.4 Maturity

- characterized by stagnation in production levels and consolidation in the number of farms
- exhibits commodity cycles and mixed profitability
- industry is well organized with good links with government
- involvement of large corporate farms with large production units, processing, value adding and trading arm

1.1.5 Crunch Time

- always in the transition period between speculative and commercial
- venison, emu and ostrich industry have fallen on difficult times
- Tasmanian aquaculture has been much more successful
- key factor was the ability of government to control production through the management of breeding stock and control of farming leases

1.1.6 Australian Ostrich Example

- managing the price adjustment that occurs when the price of production units reflects its commercial value rather than its speculative value
- if speculative prices remain high, only poor quality birds are culled, resulting in insufficient product to support a commercial slaughter facility and inferior product quality
- lack of available product restricted essential market development and commercialization functions, such as product tasting, cooking trials, testing and evaluation
- as a result, demand did not develop at the rate required to absorb production increases
- transition occurred overnight, with predictable price drop and financial ruin to many investors

1.1.7 Problem Solving

- Need to understand the concept of critical mass requirements re:
  - volume to support an economical processing and value adding infrastructure
  - volume to support economical trading and distribution networks
  - volume to support an effective market development and promotional program
  - volume to provide administrative support and to finance long term development

- chicken and egg situation in which volumes have to reach levels to support adequate product and provide resources to support necessary systems and programs. At the same time, in order to get volumes up to threshold levels, the systems and structures need to be in place.

1.2 Demographics & Relationship to The Industry

It is generally conceded that for many of the species included in this study that the primary markets revolve around the demand created by Chinese and South Asian ethnic groups in North America. The exceptions are ratites, pheasants and partridge which are used primarily by European style restaurants and to a lesser extent, geese which have a European tradition for holiday use. Ratite meats and oils also appeal to health conscious consumers of ethnic origins across the spectrum.

Nevertheless, Asian origin demographics in Canada and the US are anticipated to drive the demand for many of these commodities and growth of these ethnic communities is expected to provide some insight into the potential markets for the game bird and waterfowl products.

1.2.1 Canadian Demographics

Tables 1-3 and 1-4 present breakouts of selected Canadian components of the population by selected home language, visible minority and province. Tables 1-5 and 1-6 show the percentage representation on the selected visible minorities in relation to the provinces and Canada, respectively.

In 1996, Canada's population of visible minorities originating from Asia was 2,315,000, or 8.1% of the total Canadian population. Of these, 858,625 people, or only 3%, spoke various Asian languages at home although Asian "ethnic" eating habits do not appear to be dependent on this. Indeed our growing cosmopolitan culture suggests that Asian dishes are now being enjoyed by many people of European extraction.

Based on the presence of the unofficial language spoken at home, these ethnic groups are spread across Canada, but concentrated in BC and Ontario with 29% and 48% of the total subgroup, respectively.

Within the subgroup, the largest ethnic component is the Canadian Chinese-speaking population, representing 2.1% of the Canadian population, and consisting of about 587,000 persons. This group is concentrated as follows:

- Ontario - 46.7% - of which 86% reside in the Toronto area
- BC - 35.3% - of which 93% reside in the Vancouver area
- Alberta -9.6% - of which 49% are located in Edmonton and 43% are in Calgary

The second and third largest ethnic components of potential interest to the game bird industry are Vietnamese and Arabic speaking, each with under 100,000 in population, nationally. Although the largest proportion of Vietnamese resides in Ontario (47%), about 21% of Canadian Vietnamese-speaking citizens are located in Quebec, 15% in BC and 13% in Alberta. The bulk of Arabic-speaking Canadians are located in Ontario (49%) and Quebec (39%).

National immigration trends are indicated in Table1-7. Before 1961, fully 61% of Canadian immigrants came from western Europe, principally the UK, Germany and the Netherlands. In the 1991-1996 period, this earlier pattern changed as immigration from Hong Kong, the People's Republic of China and Taiwan rose dramatically, accounting together for 44.6% of the total immigration (216,615 persons) in the period. After 1996, Asian-origin immigration continued to increase until recently.

1.2.2 US Demographics

Table 1-8 breaks out the US Asian population trends from the total US population for the 1990-1999 period.

While the US total population has grown 9.6% in the 1990-1999 period, the Asian segment has increased 44%, or from 3% to 4%, comprised of about 10.8 million persons in 1999.

Table 1-8 shows present statistics on the US Asian population broken out by four regions. While the West region, comprised of Mountain and Pacific zones, has been the area of greatest concentration of Asian origin US citizens, the proportion of Asians in the West Region has declined in the period from 56% to 52.4% of the total US Asian population. The Northeast and South represented 19% and 18% of US Asian population in 1999, respectively, and the population in these regions has grown faster than in the West and Midwest (i.e. 51.8% and 67.5% compared to 35.7% and 49.4%).

The major US centres of Asian population are also shown in the Table 1-8. The state of California accounted for 37.3% of the total US Asian population in 1999, followed by New York (9.5%), Texas (5.3%), New Jersey (4.3%) and Illinois (3.9%). In 1999, California is home to about 4 million US Asian citizens. Other states with Asian populations over one quarter million are New York (1 million), Hawaii (750,000), Texas (577,000), New Jersey (469,000), Illinois (426,000), Washington (344,000), Florida (281,000) and Virginia (258,000).

In the 1990 to 1999 period, the Asian population in the US has increased most rapidly in the states of Georgia (109%), North Carolina (99%), Florida (80%), Arizona (76%), Texas (74%) and New Jersey (70%). Growth in largest Asian population states in the period has been significant but somewhat slower (e.g., California (36.8%), New York (44.5%)and Hawaii (8.3%).

In summary, the Asian population is spreading out in the US. Traditional areas of concentration have been California, New York and Hawaii. More recent growth areas are the South (Texas, Arizona and the eastern seaboard) and the Northeast (e.g., New Jersey).

1.2.3 Comparative Demographics, Canada and the US

- The US Asian-origin population (approximately 11 million) is about equal to the population of Ontario
- The Canadian Asian population component in 1996, (Asian language speaking at home) was about the same size as the population of Asian origin in Texas (577,000) in 1999.
- The Chinese-speaking population in BC in 1996 (207,000) was about equal to the Asian-origin population of Pennsylvania or Maryland in 1999.

Table 1-3
Canadian Population by Selected Home Language, 1995.

	BC	Alberta	Saskatchewan	Manitoba	Ontario	Quebec	Rest of Canada	Canada
Total Canadian Population	3,689,755	2,669,195	976,615	1,100,290	10,642,790	7,045,080	2,404,400	28,528,125
Arabic	2,355	6,000	330	435	44,850	35,565	2,040	91,575
Chinese	207,255	56,590	4,560	7,570	273,955	33,760	3,115	586,805
Korean	13,160	2,845	105	665	22,650	2,345	215	41,985
Persian	9,745	1,185	250	390	26,280	6,355	280	44,485
Vietnamese	13,950	12,050	1,185	1,670	44,000	20,045	875	93,775
Subtotal of the Above	246,465	78,670	6,430	10,730	411,735	98,070	6,525	858,625
All Other	3,443,290	2,590,525	970,185	1,089,560	10,231,055	6,947,010	2,397,875	27,669,500

Source: Statistics Canada. 1996 Census.

Table 1-4
Canadian Population by Selected Visible Minority, 1995.

	BC	Alberta	Saskatchewan	Manitoba	Ontario	Quebec	Rest of Canada	Canada
Total Canadian Population	3,689,755	2,669,195	976,615	1,100,290	10,642,790	7,045,080	2,404,400	28,528,125
South Asian	158,435	52,565	3,795	12,110	390,055	47,585	6,045	670,590
Chinese	299,860	90,480	8,830	12,340	391,090	50,360	7,190	860,150
Korean	19,050	4,705	305	1,045	35,400	3,925	410	64,840
Japanese	29,815	8,280	420	1,670	24,275	3,030	645	68,135
Southeast Asian	25,355	20,295	2,920	4,520	75,905	42,130	1,640	172,765
Filipino	47,080	24,380	2,920	25,910	117,365	14,815	1,725	234,195
Arab/West Asian	20,090	17,830	1,185	1,890	118,660	79,705	5,305	244,665
Subtotal of the Above	599,685	218,535	20,375	59,485	1,152,750	241,550	22,960	2,315,340
All Other	3,090,070	2,450,660	956,240	1,040,805	9,490,040	6,803,530	2,381,440	26,212,785

Source: Statistics Canada. 1996 Census.

Table 1-5
Canadian Population by Selected Home Language, Percentages, 1995.

	BC	Alberta	Saskatchewan	Manitoba	Ontario	Quebec	Rest of Canada	Canada
				Percentage of Canadian Total				
Total Canadian Population	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Arabic	2.6%	6.6%	0.4%	0.5%	49.0%	38.8%	2.2%	100.0%
Chinese	35.3%	9.6%	0.8%	1.3%	46.7%	5.8%	0.5%	100.0%
Korean	31.3%	6.8%	0.3%	1.6%	53.9%	5.6%	0.5%	100.0%
Persian	21.9%	2.7%	0.6%	0.9%	59.1%	14.3%	0.6%	100.0%
Vietnamese	14.9%	12.8%	1.3%	1.8%	46.9%	21.4%	0.9%	100.0%
Subtotal of the Above	28.7%	9.2%	0.7%	1.2%	48.0%	11.4%	0.8%	100.0%
All Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Statistics Canada. 1996 Census.

Table 1-6
Provincial Populations by Selected Home Language, Percentages, 1995.

	BC	Alberta	Saskatchewan	Manitoba	Ontario	Quebec	Rest of Canada	Canada
				Percentage of Provincial Total				
Total Canadian Population	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Arabic	0.1%	0.2%	0.0%	0.0%	0.4%	0.5%	0.1%	0.3%
Chinese	5.6%	2.1%	0.5%	0.7%	2.6%	0.5%	0.1%	2.1%
Korean	0.4%	0.1%	0.0%	0.1%	0.2%	0.0%	0.0%	0.1%
Persian	0.3%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.2%
Vietnamese	0.4%	0.5%	0.1%	0.2%	0.4%	0.3%	0.0%	0.3%
Subtotal of the Above	6.7%	2.9%	0.7%	1.0%	3.9%	1.4%	0.3%	3.0%
All Other	93.3%	97.1%	99.3%	99.0%	96.1%	98.6%	99.7%	97.0%

Source: Statistics Canada. 1996 Census.

Table 1-7
Origin of Immigrants Arriving in Canada, By Place of Birth, Before 1961 and Between 1991 and 1996.

	Before 1961		**Between 1991 & 1996**	
	Number	%	Number	%
Hong Kong	n/a	0.0%	45,565	21.0%
People's Republic of China	6,645	3.6%	28,435	13.1%
Taiwan	n/a	0.0%	22,735	10.5%
India	n/a	0.0%	21,725	10.0%
Philippines	n/a	0.0%	15,165	7.0%
South Korea	n/a	0.0%	6,700	3.1%
UK	62,990	33.9%	6,595	3.0%
US	7,215	3.9%	6,410	3.0%
Iran	n/a	0.0%	4,780	2.2%
Viet Nam	n/a	0.0%	4,765	2.2%
Germany	23,040	12.4%	n/a	0.0%
The Netherlands	17,100	9.2%	n/a	0.0%
Italy	10,995	5.9%	n/a	0.0%
Poland	6,350	3.4%	n/a	0.0%
Denmark	5,230	2.8%	n/a	0.0%
Hungary	5,160	2.8%	n/a	0.0%
Ukraine	3,055	1.6%	n/a	0.0%

Source: Statistics Canada. 1996 Census.

Table 1-8
Population Estimates for the US of Asian and Pacific Islander Origin, By Selected State 1990, 1995 and 1999, US Census.

	1990	% of Total	1995	% of Total	1999	% of Total	Growth 1990-1999
Total US	248,790,938		262,803,276		272,690,813		9.6%
US Asian	7,466,513	3.0%	9,407,801	3.6%	10,820,421	4.0%	44.9%
		% of US Asian		% of US Asian		% of US Asian	
Northeast	1,362,178	18.2%	1,753,976	18.6%	2,067,124	19.1%	51.8%
Midwest	780,640	10.5%	995,608	10.6%	1,166,417	10.8%	49.4%
South	1,145,049	15.3%	1,572,029	16.7%	1,917,463	17.7%	67.5%
West	4,178,646	56.0%	5,086,188	54.1%	5,669,417	52.4%	35.7%
Arizona	58,362	0.8%	83,742	0.9%	102,539	0.9%	75.7%
California	2,951,722	39.5%	3,619,858	38.5%	4,038,309	37.3%	36.8%
Florida	156,444	2.1%	227,592	2.4%	281,366	2.6%	79.9%
Georgia	76,819	1.0%	119,837	1.3%	160,566	1.5%	109.0%
Hawaii	695,564	9.3%	743,058	7.9%	753,591	7.0%	8.3%
Illinois	292,421	3.9%	363,523	3.9%	426,006	3.9%	45.7%
Maryland	141,271	1.9%	179,952	1.9%	209,147	1.9%	48.0%
Massachusetts	146,030	2.0%	192,350	2.0%	233,239	2.2%	59.7%
Michigan	106,666	1.4%	134,900	1.4%	166,287	1.5%	55.9%
Minnesota	78,577	1.1%	106,666	1.1%	130,537	1.2%	66.1%
New Jersey	277,024	3.7%	378,451	4.0%	469,435	4.3%	69.5%
New York	709,127	9.5%	890,311	9.5%	1,024,625	9.5%	44.5%
North Carolina	53,102	0.7%	79,163	0.8%	105,689	1.0%	99.0%
Ohio	91,929	1.2%	113,925	1.2%	132,638	1.2%	44.3%
Oregon	70,239	0.9%	92,431	1.0%	110,015	1.0%	56.6%
Pennsylvania	139,966	1.9%	177,495	1.9%	202,969	1.9%	45.0%
Texas	331,428	4.4%	467,620	5.0%	577,306	5.3%	74.2%
Virginia	161,195	2.2%	211,935	2.3%	258,371	2.4%	60.3%
Washington	215,454	2.9%	287,332	3.1%	343,690	3.2%	59.5%
Rest of the US	771,535	10.3%	1,021,402	10.9%	1,196,635	11.1%	55.1%

Source: US Census Bureau.

2.0 EMU

Emu is a native of Australia where the first commercial emu farms began in the 1980's. There are now emu farms throughout the world. The uses of the bird include:

- meat for human consumption, sold as prime cuts, mince or prepared products such as cured sausage or jerky;
- oil, high in oleic acid and omega 3 and omega 6 essential fatty acids, used as a base for cosmetics, therapeutic rubs, ointments, and soaps;
- leather, used in the production of small fashion accessories and souvenirs
- eggs, used for artwork
- other body products, such as feet, are used by Asian nations in traditional medicinal applications

The adult emu (15 months old) weighing 45 kg carries up to 10 kg of body fat, from which 7-8 liters of thick oil is rendered and which in turn yields anywhere from 20% to 80% clear oil, depending on the bird. The carcass also yields between 10 and 14 kilograms of meat in addition to the skin and leggings which can be used for leather production.

2.1 Sector Summary

2.1.1 Production & Trends

There are no global statistics on farmed emu. The information presented in Table 2-1 has been obtained from searches of the literature and the Internet. It would seem that US emu population numbers now exceed those of Australia. Whereas Australia is focusing opportunities in hide and oil marketing, the US is also promoting emu meat.

Table 2-1
Estimated World Farmed Emu Population, 1995-1999, Various Sources.

Region	1995	1996	1997	1998	1999
Australia	450,000	886,000			50,000
Canada	<76,000				
US				500,000	
Total					

Table 2-2 presents very fragmented data on world emu slaughter. No information was found relating to the US emu slaughter, although it is likely to be the largest.

Table 2-2
Estimated World Emu Slaughter, 1995-2001, Various Sources.

Region	1995	1996	1997	1998	1999	2000
Australia				12,000		
Canada	193	1,519	5,707	4,789	3,102	1,127
US						

Emu production on a worldwide basis has gone through a period of rapid expansion with production aimed at growing breeding stock for new industry participants. More recently, there has been a period of industry contraction as farmers realized that they had not built markets for the real emu products, oil, meat and to a lesser extent, leather. This contraction has resulted in fewer producers but an industry which is now more in balance with its markets and with opportunities to begin to expand once again as the markets for oil and meat build. As well, the price of breeding stock has fallen more into line with what the prices of the consumable products can support.

2.1.2 Demand, Market and Distribution Trends

The initial markets in North America and Australia for emu products, oil, meat and leather, were primarily built through direct sale from farms and through local word of mouth promotion. Some producers have been successful in developing distribution systems for their oil and skin products through health food and cosmetic distributors while others are accessing local retails through direct contact. A large number of producers are now using the internet for marketing their products direct to consumers. The market for emu oil capsules, which are taken internally, is beginning to be developed.

In North America, there is a small amount of wholesale emu meat with some product coming into Canada from Texas slaughter facilities. For the most part, however, there is little emu meat trade beyond local butchers, farmers markets and direct off farm sale.

The demand for emu oil is building slowly as more people try the products and discover that they alleviate skin and pain conditions. The volume is at a point, however, that retailers are unlikely to carry more than one brand.

2.1.3 Marketing Issues

The main issue in the marketing of emu and emu products is the development of additional demand for emu oil, which is considered the bell weather product of the emu industry. This will require concerted effort to educate the consuming public and medical practitioners to the benefits of emu oil and products which contain the oil and ongoing research to more completely establish the nutraceutical claims. In addition those marketers who are successful will need to be supported by the rest of the industry.

Markets for meat will continue to be built locally although there are limited opportunities to replace the small amount coming in from the US. This, however, will require slaughter facilities that are federally inspected so that the product can move across provincial boundaries. Emu meat currently competes with ostrich meat but yields smaller portions of dressed meat and is therefore less desirable for food service requirements**.**

2.1.4 Structural Issues

A federally inspected slaughter facility is necessary if a larger market for emu meat is to be developed. The market for emu oil also needs industry support and development but at present most producers are attempting to market their own oil products directly. As the oil market begins to sort itself out, one or more marketers may be expected to become dominant. The industry will have to restructure itself to reflect this, with most producers growing the emu and only a few marketing the end products.

2.1.5 Industry Challenges

The challenges facing the industry are primarily in the building of effective markets for the products that will produce profits for the growers, processors and marketers. In addition there are a number of production challenges which, if solved, would make production more economical. These include:

- Development of feed and feeding regimes to build sturdy legs,
- Use of fat soluble vitamins to enhance growth and productivity
- Use of diatomacious earth to provide trace minerals and treat worms (nematodes)
- Better control of feed cost versus nutrition (the best at the lowest cost)
- Optimum breeder feed

In addition, emu meat is seen within the food service industry as being less desirable than ostrich due primarily to portion size and consistency and the leather is difficult to tan, a fact that is reflected in the prices.

A further challenge for the industry is some evidence that all emu oils are not created equal; that feed and growing conditions may have a major effect on the therapeutic factors in the oil ranging from very efficacious to having no positive therapeutic factors.

2.1.6 Industry Needs

As well as the production challenges there are a number of other needs in the industry. These include:

- Development of recognized genetic strains
- Determination of the reasons that emu oil works on various ailments.
- More oil work specific to the medical profession, especially dermatologists for skin problems, including radiation burns
- Work to determine the effect on cholesterol levels, Crohn’s disease, ulcers and the use of oral oil capsules for arthritic pain.
- Development of value added meats on a larger scale similar to the pepperoni and jerky presently being produced.

2.1.7 Recommendations

In order to develop a critical mass, the emu industry must develop promotional methods which get the story of emu oil and its benefits in front of both consumers, medical practitioners and health food suppliers. This should also be combined with work to determine which feed and environmental factors produce oil with the highest therapeutic factors.

Research on the reasons for therapeutic action of emu oil and its characteristics is required as an important prerequisite for expanded use in the medical profession as an anaesthetic carrier and for treatment of various skin, muscle, joint and circulatory problems. Oil standards for use of emu oil in the cosmetic industry require that the industry produce a consistent product of known composition and quality. Research into the impact of emu oil on skin is required.

In addition, the demand-fueled growth of the meat and, to a lesser extent, leather markets should be encouraged to ensure that economic viability of producers is maintained.

2.2 Canadian Emu Industry

Information on Canadian emu population numbers is presented in Table 2-3. Although somewhat dated, the statistics provide a historical baseline for the industry.

Table 2-3 shows that in June 1995 (i.e. the 1996 Census), the emu population was located on farms in all 10 provinces and comprised about 76,000 birds[1]. Also at that time, the Canadian population of emu/rhea was concentrated in Ontario (60%), Alberta (16%), BC (7%), Manitoba (6%) and Saskatchewan (5%).

[1] Note that emu and rhea are not separated in the Statistics Canada data.

Table 2-3
Number of Farms and Head, Canadian Ratite Industry, 1995.

Province	Ostrich		Emu & Rhea	
	# of Farms	# of Head	# of Farms	# of Head
Nfld.	0	0	3	8
PEI	2	X	36	967
NS	3	32	8	115
NB	2	X	15	497
Quebec	101	1,471	79	2,865
Ontario	87	1,179	356	45,674
Manitoba	71	1,330	117	4,774
Saskatchewan	87	1,822	77	3,691
Alberta	341	7,696	190	12,119
BC	139	1,972	86	5,100
Canada	833	15,502	967	75,810

Source: Statistics Canada. 1996. Agricultural Census.

Table 2-4 contains the Canadian slaughter statistics for emu in the 1993-2000 period. The Canadian slaughter increased dramatically in 1997 and 1998 with reductions in 1999 and again in 2000 as the total emu population contracted. In 2000, emu slaughtered in Canada are estimated to have yielded a dressed weight of about 13,500 kilograms and raw oil production of 8,450 litres.[2]

Trade in live emu, hatching eggs and meat is presented in Tables 2-5 and 2-6. Table 2-5 indicates that imports and exports of hatching eggs peaked between 1995 and 1997, although a break out of ostrich and emu eggs is not available. The number of live emu imported into Canada peaked in 1995 and declined through 1998. Small numbers of live emu exports occurred in 1996 and 1998.

[2] This estimate is based on an average dressed weights per carcass of 12 kilograms for emu and raw oil production of 7.5 litres per bird.

Table 2-4
Head of Emu and Other Ratites Slaughtered in Federally and Provincially Registered Plants, Canada, 1993-2000.

Year	Ostrich	Emu	Rhea	Ratite NES*	Total	# of Provinces Slaughtering
1993	5	6	0	0	11	1
1994	47	12	0	0	59	4
1995	349	193	28	187	757	7
1996	1,935	1,519	117	727	4,298	7
1997	4,738	5,707	100	2,473	13,018	7
1998	3938	4,789	160	6,301	15188	9
1999	4545	3102	1300	717	9664	6
2000	3250	1127	1946	2824	9147	7

Source: Agriculture and Agri-Food Canada. 2001. CFIA Inspected Establishments. Meat Hygiene Condemnation Statistics and Provincial Governments.
Note: NES* = Not elsewhere specified. Not all provincial establishments collect weights and/or differentiate between ratite types.

As Table 2-6 shows, overall emu meat imports into Canada have been negligible in the 1995-2000 period. In comparison, emu meat exports began in 1998 and have increased to their highest level in 2000, i.e., about 8,400 kgs.

Table 2-5
Trade in Ratite Hatching Eggs, Live Emu and Other Live Ratites, Canada, 1989-1998.

Year	Exports	Imports	Exports			Imports		
	Hatching Eggs		Ostrich	Emu	Rhea	Ostrich	Emu	Rhea
	#'s		Head			Head		
1989	n/a	n/a	8	0	0	47	0	29
1990	n/a	n/a	9	0	1	153	0	44
1991	n/a	n/a	0	0	16	536	0	24
1992	n/a	n/a	0	0	0	315	8	48
1993	n/a	n/a	123	4	12	965	488	345
1994	0	203	454	0	0	1185	475	133
1995	928	535	701	0	0	1358	3577	369
1996	1936	303	179	224	0	6054	1529	388
1997	1387	610	987	0	0	838	1718	0
Jan-Oct 1997	1387	610	795	0	0	829	1718	0
Jan-Oct 1998	88	103	234	199	0	108	198	0

Source: Agriculture and Agri-Food Canada. 1999. CFIA Meat Hygiene Export Database, and Port of Entry Database.

Table 2-6
Canadian Trade in Emu and Other Ratite Meat, Kilograms, 1995-2000.

Year	Ostrich		Emu		Rhea	
	Exports	Imports	Exports	Imports	Exports	Imports
1995	0	708	0	0	0	0
1996	2,404	1,617	0	33	0	0
1997	326	10,272	0	0	0	0
1998	4,642	3,918	3,441	6	0	0
1999	7,531	20,973	4,376	N/a	0	N/a
2000	24,937	N/a	8,390	N/a	0	N/a

Source: Agriculture and Agri-Food Canada. 1999. CFIA Meat Hygiene Export Database, and Port of Entry Database.

2.2.1 British Columbia

BC has seen a decrease in emu production over the past few years just as other provinces and countries who expanded production quickly in the early 1990's. The emu industry appears to be at a juncture where they now should experience an increase in production after years of production consolidation. With the decrease in growers and stock over the past few years, there was a lot of fat and meat in freezers. Those still in the industry suggest that most of that is now gone and it is time to increase production again to meet the markets which have already been developed and those which will be developed.

The BC industry currently has about 20 producers with 130 breeders producing 600 emu. The emu are being grown primarily in flocks on the facilities where they are hatched. Many growers believe that emu cannot be moved effectively without losses but it is generally known that emu chicks can be the exception to this. One producer is presently hatching his chicks in BC and growing out the emu in Saskatchewan.

The primary product from emu is still the oil which is a product that is growing steadily but slowly in sales. Most of the sales are taking place through direct contact between grower/marketers and the public, either through the internet, farmers markets or retail outlets such as health food stores. One producer reported 40% internet sales and 60% through their distributor and direct to store. A Vancouver Island producer said that when they first put up their web site selling oil that there were only 6 sites on the web. Today you will find over 2000 selling oil and oil products.

Sales, however are still slow as reported by both health food stores and distributors. Most health food stores carry one line of products only and are not interested in more because it moves slowly. Some health food stores do not carry the oil and in these cases it is strictly because it is an animal product and therefore they will not carry it.

The key to increased oil sales is promotion, usage and repeat usage. As one distributor said “Just get it on the TV show ‘Oprah’ and the industry will take off.” This was borne out by two occasions when a grower who also happens to be an MD was on a radio talk show. Local health food stores reported considerable interest in the two weeks after the event and then a return to the previous level of consumption. The other factor that will help drive sales is the internal use of emu oil where emu oil capsules are ingested on a daily basis. Some producers have already begun to package their product this way with good results.

Another marketing method that is working very well for some producers is direct marketing through farmers markets. One producer moves 99% of his meat and crafts plus a high percentage of his oil through a year round market. He also sells large quantities of soaps both through the market and through distributors, moving over 9000 bars in the past year.

On the meat side most of the utilization is through local sales of cuts, mince, pepperoni, sausage and jerky. Those growers who have been selling to restaurants have reported diminished interest and this has been confirmed by the largest exotic meats distributor. They report that a number of restaurants are using ostrich but that emu is not carried. On the other hand those who have been selling meat locally have been able to move most, if not all, at fairly reasonable prices. One BC producer purchased an additional 40 carcasses to meat his demand at the local, year round farmers market. His prices for ground emu are $6.00CAD/lb. with most of the meat going into an exotic sausage line at much higher returns. Another producer sells through a local meat market that has built up the emu business to 2 or 3 birds per month.

2.2.2 Ontario

Emu slaughter in Ontario for the period 1995 - 2000 is presented in Table 2-7. It should be noted that these statistics are incomplete and should be used with caution as the largest reporting category is “unspecified ratites”.

A co-operative group of 197 producers in Ontario has taken a different approach to selling their meat. They have formed an alliance with a veal processing plant and are producing emu burgers made with veal trim. These they have been selling since June, 2001 through a 58 store chain for $3.99CAD/lb. retail. The uptake has been very slow although where they have done instore demos it has gone better, however, to date their distributor reports that the total movement is only about 300 - 12lb. cases from June to September 2001.

The other initiative of this group is an alliance with a small Ontario pharmaceutical company. They have created a line of value-added lotions and moisturizers using emu oil as a base and are reported to have penned sales deals with a couple of major Canadian retailers. This was done with the assistance of the Ag Canada Canadian Adaptation and Rural Development Fund (CARD), as reported by Minister Vanclief in late 2000.

The production of emu for leather really is an afterthought for the industry although some of the producers have had hides tanned and sell a range of leather goods. A leather company in Deep River, Ontario has tanned ratite hides in past and are reported to no longer be tanning but continue as a leather goods manufacturer, using ratite leather. The only natural vegetable tannery in Canada appears to be one located in Unity, Sask. This tannery, which has been in operation for 7 years tans ostrich, emu and rhea hides as well as a number of hair on hides. Ostrich is the only hide that they purchase with all others done on a custom basis. Tanning for emu hides is a flat $50CAD per hide.

There have been reports of Korean buyers interested in large quantities of emu and ostrich hides for use in their tanning and leather goods industry. There is no indication of the economic viability of supplying that market, however.

Table 2-7
Number of Ratites Processed for Meat in Ontario, Federal/Provincial Combined Statistics.

Species	1995	1996	1997	1998	1999	2000
Emu	107	103	427	1,308	362	NA
Ostrich	16	91	151	0	0	NA
Unspecified Ratites	166	566	2,547	5,721	4,581	2,824
Total Ratites	289	1,760	6,725	7,029	4,943	2,824

Source: Ontario Ministry of Agriculture, Food and Rural Affairs
Note: Does not include the number of each species processed during the 2000 year in federally inspected plants.

2.2.3 Alberta

Although there are no official statistics on emu in Alberta, there are estimates that there are about 1500 mature emu on about 50 ranches.

Although Alberta has two slaughter facilities that are full federal and EU approved neither kill emu although both will process ostrich for both their own account and on a custom basis. This leaves emu producers in Alberta in a similar situation to other provinces with no federal inspection meaning that the meat cannot be shipped out of the province where it is slaughtered. Alberta information reports that there is a rendering plant in Mirror, Alberta however industry contacts report that they believe that the firm is no longer in business.

2.2.4 Saskatchewan

There are probably no more than 500 emu in Saskatchewan. Saskatchewan producers have recently formed a cooperative which will assist in the international marketing of the products. This development was undertaken with assistance from the Saskatchewan government

The largest Saskatchewan emu producer has developed a rendering plant near Carlyle, Saskatchewan and is working with the Saskatchewan Ostrich Producers Association and others such as wild boar, sheep and goat producers to develop a full federal and EU slaughter plant near Saskatoon. The Saskatchewan government is supporting this proposal through providing the assistance of a development officer at the University of Saskatchewan.

The largest Saskatchewan emu producer is actively marketing their oil direct-to-consumer, through trade shows throughout the prairies, and has distribution throughout Canada. This firm rendered about 12,000 lbs of fat in 2001. The company will be rendering emu oil in 2002 and will also try some ostrich oil as they feel that there may be some synergy between the two oils.

2.3 Products

The industry has produced a full range of oil products with pure oil, both topical and in gel caps, being the highest seller along with face and skin creams, lotions, moisturizers, soaps and lip balms. In 1996 a major US based cosmetics firm started to use emu oil in its products and said that it would take over the cosmetics industry.

There is a need for more scientific study to determine the true therapeutic effects of emu oil and the active ingredients that support those effects. There are, however, a number of scientific studies that support the trans-dermal and anti-inflammatory attributes of the oils. Many researchers believe that even if all of the active ingredients in emu oil are discovered, that it is the synergy between them that causes the positive results.

2.4 Studies on Therapeutic and Cosmetic Values

There have been a number of studies done on emu oil. These include:

- "*Effect of Emu Oil on Auricular Inflammation Induced With Croton Oil in Mice*"
  American Journal of Veterinary Research, December 1999, Vol. 60, No. 12 pp1558-1561

  This work done in PEI by the University; Atlantic Veterinary College and the Prince Edward Island Food Technology Centre concluded that topically applied emu oil significantly reduced the severity of acute auricular inflammation induced by croton oil in mice.

- *"Moisturizing and Cosmetic Properties of Emu Oil: A Double Blind Study"*
  AEA National Convention, Nashville, Tennessee, August 1994
  Alexander Zenstov, MD, N.S., Indiana University School of Medicine; Monica Gaddis, Ph.D. & Moralvo-Lugo, M.Ss, Ball Memorial Hospital

  The cosmetic and moisturizing properties of emu oil were assessed in comparison with mineral oils with emu oil found to be more acceptable with better skin penetration/permeability and moisturizing properties.

- *"The Evaluation of Emu Oil in Lubrication and Treatment of Healed Burn Wounds"*
  Abstract from the American Burn Association, Presented in Chicago, Illinois,, March 18-21, 1998 by M. Penturf, S. O'Banion, and J. Griswold, Texas Tech University Health Sciences Centre, Lubbock, Texas

  This experiment evaluated emu oil as a lubricant and aid in reducing scar formation in healed burn wounds. Emu treated areas healed significantly better than control areas that received a placebo.

- *"The Anti-Inflammatory Action of Emu Oils in Rats"* by L.M. Snowden and M.W. Whitehouse, Dept. of Medicine, Queesland, Princess Alexandra Hospital, Brisbane, Queensland, Australia.

Inflammopharmacology, 1997: 5: 127-132

The anti-inflammatory activities of five different preparations of emu oil, applied topically, were examined using an experimental polyarthritis in rats. These were compared to orally administered ibuprofen (40mg/kg). The study found that oil applied topically to one part of the body (back) can work on another part (paws); that oils rendered using different methods from emu from different geographic regions have differing therapeutic effects; and that two of the five topically applied oils equaled the effect of ibuprofen while one oil exceeded it.

- *"Promotion of Second Intention Wound Healing by Emu Oil Lotion: Comparative Results with Furasin, Polysporin, and Cortisone"* by M.L. Politis , Ph.D., D.V.M. and A. Dymytrowich, Saskatoon, Sask.

  This study evaluated the healing attributes of the various treatments on an individual animal with the emu oil group showing a 55% reduction in wound size, only slightly slower than the cortisone and much faster than the other treatments. It was especially effective when applied after the initial inflammatory stages, in this scenario being 24 hours.

In addition to the studies conducted, there are numerous testimonials and anecdotal reports that point to its effectiveness in pain relief and healing. The Aborigines were the first to use the oils for medicinal and healing purposes and today it is used as an anti-inflammatory, moisturizer, cholesterol reducer, a bacteriostat, penetration enhancer, wound healing agent, keloid scar reducer, anti-arthritic and emulsifier. In addition there are a whole range of industrial uses for the oil that have only been scratched. These include using it as a cutting oil for fine metal cutting work. Although it is more expensive than other oils, those who have used it have found it to be economic due to reduced wear on the cutters and improved end products. Other uses are as a superior leather conditioner or use in specialty turbines.

2.5 Health Food Store Interviews

Interviews were undertaken with a total of 83 stores represented throughout BC and over 90% located in the Lower Mainland and Vancouver Island. Of these, 60 stores or 72% currently carry emu oil, usually from only one emu oil supplier with the product purchased through an existing health and natural products cosmetics distributor who also supply many of their other products. Many of these stores are members of a franchise or chain store concept. The other 23 do not carry emu oil with 5 stores citing a conflict with animal rights values, as it is an animal product, and the other 18 stores reporting lack of demand. In some cases these stores have stocked the products in past but dropped the line due to poor sales.

All stores carrying the product report slow though steady sales with sales spikes occurring when there is local promotion for the products, often through interviews with producers or medical experts on talk shows.

2.6 International Emu Production and Marketing

2.6.1 Australia

Emu are farmed to some extent throughout most of the world. Australia, being the native home of the animal, was one of the first to commercialize its production. Western Australia was the first state to legalize commercial emu farming in 1987 and Australian commercial production is entirely from farmed emus. The industry remains fragmented, however, with state industries evolving independently. In the mid 90's the industry saw a rapid growth in bird populations however efficient processing systems and receptive markets had not been developed with the result that the industry found itself in economic trouble. Participants ballooned to over 1,000 in the speculative phase. In 1999, only one quarter of these remain in the industry and none of those reported a profit from their emu operations in that year.

Statistical Thumbnail
- 450,000 birds in 1995, 886,000 birds in 1996
- in 1999, approximately 50,000 farmed birds remained
- In 1992, 22% of producers had tourist enterprises linked with emu production
- in 1997, there were approx. 20 processing facilities. Processing revolves primarily around meat production, but some abattoirs also harvest skins and oil.
- skins and oil are sent for processing to tanneries and oil rendering facilities. With low prices, some producers are bypassing the abattoir and concentrating on skin and oil.

Markets
- the majority of emu meat has been sold in the domestic market
- small quantities have been on trial in Taiwan and Thailand
- there is potential for expanding meat exports to the US. However, the US is expanding its own production and has the world's largest emu population

Overall, Australia sold the US 500 tonnes of emu meat in 1995, making the country Australia's largest single emu meat export market

Australian emu oil exporters associated with Mt. Emu Romance Oil established a $5 million AUD deal in 1995 with a French company "France Autruches". The US is also a major market for emu oil.

The US and Hong Kong are major export markets for emu skins. Prices for skins have dropped from $60AUD to $25-$30AUD in 1999.

The domestic market for meat is based around the food service sector where the product is cooked similar to beef. A limited small goods market exists, with product sold through gourmet butchers and in specialist retail outlets. Very little product is being moved with restaurants, which are showing more interest in kangaroo and ostrich meat.

The largest commercial emu farm in Australia which was funded by venture capital under taxeffective investment schemes, folded in March, 2001. Problems contributing to the company's demise included inadequate cash flow generation and failure to construct an abattoir. In 2001, about 25 emu farms operated in New South Wales.

2.6.2 United States

The American emu industry began in the late 1980s as a breeding enterprise strongly driven by investment opportunity. A shake-down occurred in the mid-1990s when production outpaced consumer demand. Today the industry has fewer, more dedicated participants

- In July, 2000 the Texas Farm Bureau created the Ratite Commodity Division and a ratite advisory board
- In April, 2001, the Virginia governor proclaimed an Emu Awareness Week in Virginia
- The American Emu Association (AEA) has 1,700 members
- In 1998, the US emu industry was comprised of 5,000-6,000 farms in 48 states tending about 500,000 birds. The majority of birds/farms are located in Texas, Oklahoma and the Southeast US (e.g., Virginia, Missouri)
- In 2001, the Emu Oil Certification program has been launched. This program does not certify the oil but that the oil has been tested by an AOCS certified chemist and the oil meets the AEA fully refined trade rules specifications at the time of processing.
- The US industry is promoting the benefits of using emu oil to combat skin problems that accompany seasonal temperature changes, particularly dry and cracked skin in more northerly climes.
- Research on emu oil is being conducted at the Occupational Dermatology Laboratory of the University of Texas Medical School in Houston, Texas.
- A 10,000 sq.ft. emu processing plant in Coke, Texas, capable of processing 7,000-8,000 emus and ostriches per month, is the flagship processing facility in the US, producing, further processing and packaging meat into steaks, snack sticks, smoked meats and sausage. In 1998, it was processing 50 birds weekly.
- A Crockett, Texas firm is the second largest custom processor of emu and other ratites. The facility can handle up to 30 birds per day with a turn around of approximately 10 days.
- A processing facility for emu is located in Oklahoma and emu are being trucked from as far away as Massachusetts for slaughter, then being brought back for sales to markets in the EU. There is a closer facility in New Jersey, but the facility does not process the whole bird and in particular, the fat and hide.
- One of the problems has been the wait for the USDA to come up with emu-meat inspection guidelines and to make it a mandatory inspection meat. Only until receiving the USDA stamp of approval can producers sell to supermarkets instead of just farm direct.
- Access to EU markets has been restricted by the low number of US plants that are approved for export to the EU

2.6.3 China

In anticipation of increasing Chinese demand for red meat, a Peruvian firm is in the process of setting up a demonstration emu farm in China, farming emu egg layers in Peru and purchasing emu farms in North America for egg production. The plan is to supply the Chinese farm with emu eggs on a year round basis from Peru and Canada. These eggs will be incubated, hatched and the chicks raised to slaughter weight for processing at the Chinese facility.

2.7 Implications for the Canadian Emu Industry

Emu production world wide in the late 1980's and early 1990's went through a period of rapid expansion based on inflated prices for breeding stock which was not reflected in the values of the output products from emu production. This lead to a major reduction in growers and production in the late 1990's while at the same time a dedicated group composed of some original producers and a few newcomers have steadily built the markets for emu oil and meat while leather production and marketing appears to be lagging.

With the development of secure ongoing markets for the oil and to some extent, for the meat, we will see the production of emu start to rise again in tune with the increase in oil usage via word of mouth promotion and increases in oral consumption of the product. Any rapid uptake in emu oil usage will require a major promotional effort, such as exposure on the TV show “Oprah”. In the meantime the current producers appear to have developed marketing methods and channels which meet their requirements, although additional markets would always be appreciated.

2.8 Recommendations for Investigations by the Avian Research Centre

The following suggestions were received from respondents.

- expand efforts on hatching and chick growth keying on feed and feeding regimes to build sturdy legs, a major key to productive stock
- development of recognized genetic strains as such do not exist today
- use of fat soluble vitamins to enhance growth and productivity
- use of diatomacious earth to provide trace minerals and treat worms (nematodes)
- determination of the reasons that emu oil works on the various ailments that it is used for. (A grower knows it works on psoriasis as he has it and uses it. He would like to know why. The same goes for its anti-inflammatory properties).
- feed cost versus nutrition (the best at the lowest cost) with consideration of the optimum feed and feeding levels for maximum fat and meat production over the shortest time.
- Breeder feed - what is the best feed to produce maximum viable egg output? Is the Roger Haley formula a good basis simply requiring a rework?
- More oil work specific to the medical profession, especially dermatologists for skin problems and work to determine the effect on cholesterol levels, Crohn’s disease, ulcers and the use of oral oil capsules for arthritic pain. Others are the application of the oil for radiation burns, an area where there is currently good anecdotal evidence. (Anecdotally one grower says that from his customers he is seeing 100% benefit for burns, especially sunburn, 90% success for excema and about 50% success with psoriasis.)
- Work on value added meats on a larger scale similar to the pepperoni and jerky presently

being produced.

3.0 OSTRICH

Ostrich is a native of Africa and has been farmed in South Africa since the 1860's. The industry was originally based on feathers but declined in the early 1900's. In the late 1960's, demand for ostrich leather revived the industry although the leather market grew slowly during the 1970's and 1980's. However, in Australia, New Zealand, US, Canada, Europe and China the market for ostrich leather has increased since the late 1980's. During the latter 1990's the other ostrich product, meat, became the primary production with demand peaking in Europe with the problems they experienced with diseases in cattle.

The primary products of the ostrich industry are:

- Meat, approximately 40 kg. per bird
- Leather, approximately 14 sq.ft. per bird
- Oil
- Feathers, approximately 2 lbs. per bird
- Eggs, up to 50 per bird with 35 being fertile, each equaling 24 chicken eggs in size
- Breeders
- Offal, such as heart, liver and gizzard, which is marketed in Asia because of perceived health, therapeutic or spiritual benefits.

Ostrich is one of the those meats for which there are no religious, social, cultural or traditional limitations on consumption. In 1997, nomenclature for the different parts of the ostrich and description of the meat cuts from the bird was developed and accepted by the industry as the international standard.

3.1 Sector Summary

3.1.1 Production & Trends

The world ostrich market was based almost entirely out of South Africa for over 100 years, with the primary product starting as feathers then moving to leather. In the past decade other countries have become ostrich producers originally based on leather production and more recently with the prime product becoming meat. This movement has been primarily due to the European problems with BSE and, more recently, hoof and mouth disease, and the resulting search for replacements for beef.

In North America, New Zealand and Australia the production of ostrich went through an expansionary phase, based on inflated breeder pricing and then a contraction as sales began to reflect the value as a meat and leather producer. Today production is starting to rebuild based on the expanding markets for the meat, particularly for those regions that can ship into the EU. BC production is rebuilding more slowly as it is based on the growth in consumption within the province.

South Africa, the US and Israel have been the main producers of farmed ostriches. In 1999, it appears that US ostrich numbers may have overtaken South African numbers. Most recently, the Australian ostrich population has also become significant. Table 3-1 presents ostrich population numbers in various countries in the period 1995 to 1999.

Table 3-1
Summary of Estimated World Farmed Ostrich Population, 1995-1999. (000's)

Region	1994	1996	1997	1998	1999
UK			37,540		
Australia			120	150	200
Canada	16	15			
USA	200-220			450-500	
Israel					
Namibia					
Zimbabwe					
RSA	250-260		500	335-375	
Total					

Source: van Zyl. 1997.

As indicated in Table 3-2, global ostrich meat production has risen dramatically. Numbers of birds slaughtered world-wide has risen from about 82,000 in 1987 to about 500,000 in 2001 (yielding about 15,000 tonnes[3]). Ostrich meat production is currently centred in the US, South Africa and Australia. Based on ostrich populations, the US may have overtaken South Africa as the largest producer of ostrich meat. Elsewhere, the required infrastructure for production, processing and marketing has not developed concurrently with increases in bird numbers, (e.g., in Europe, Canada, and New Zealand). Foot and mouth and BSE diseases discovered in cattle in Europe have spurred the market for ostrich and other exotic meat products.

[3] Adams, J. and BJ Revell. 1998. Ostrich farming: - A review and feasibility study of opportunities in the EU. School of Management. Harper Adams University College. Newport, Shropshire, UK.

Table 3-2
Estimated World Ostrich Slaughter Numbers, 1995-2001. (000's)

Region	1995	1996	1997	1998	1999	2000	2001
Europe		4					
Australia	0.040	0.654	5	14-17	40-50	50-60	
Canada	0.349	1.925	4.738	3.938	4.545	3.25	
USA	15	30	100	160			
Israel	6	13	12				
Namibia	8	17.5					
Zimbabwe	8.064	9.393					
RSA	175.081	273.607	300	240	120-180		
Total	213.285	346.353	400	320	300		500

Sources: van Zyl. 1997; Adams and Revell. 1998; Raines, A. 1999.

3.1.2 Demand, Market and Distribution Trends

Global production of ostrich meat was about 15,000 tonnes in 2001. The largest market for ostrich meat is Europe, where the demand has increased from approximately 800 tonnes in 1994 to a potential 8,000 tonnes in 2000. In 1998, the US exported about 85% of its ostrich meat and leather with most of the meat going to Europe and the Pacific Rim. The export destinations for meat from South Africa and Zimbabwe are in Europe, although access has been restricted by the presence of Newcastle disease and Congo fever in flocks in these countries. Demand for ostrich meat in the Pacific Rim is becoming significant in Japan, Singapore, Taiwan, and Malaysia. Other destinations for ostrich meat exports include Bulgaria and Czech Republic (supplied from Australia).

The primary demand for ostrich meat within Canada is from the restaurant sector with only limited exposure through consumer markets carrying a range of game and exotic meats. The market for the product is building slowly with more restaurants trying the products and those that have continuing to use it on their menu. The same is true for those meat shops that carry the product for direct sale to consumers. Distribution is still quite local although with the surpluses of the recent past disappearing product is now moving longer distances.

Recently, some birds have been exported from the UK to other countries in which the market for breeder birds has not been developed to the point of saturation. The largest UK producer exported 5,000 birds to fifteen countries in 1997/98. These areas include South America, the Far East and European countries such as Denmark, Spain, Italy and Greece. These opportunities are related to supplying good breeders in the aftermath of the pyramid selling of highly questionable stock in the preceding decade.

The demand for ostrich leather continues to be strong for boots and accessories however the increased meat production to satisfy the European market is also creating additional leather supplies, resulting in some price depression. Ostrich hides are traded from the main areas of production, such as the US, South Africa and Australia, to tanneries in the US, South Africa, the Pacific Rim, Mexico and Italy. The primary markets for ostrich leather are Europe, Japan and North America. Canada has one tannery specializing in ostrich leather with its product being sold throughout North America and the Far East.

There are the a few producers who are now starting to develop a market for ostrich oil although it is much less developed than emu oil.

3.1.3 Marketing Issues

Fundamental shifts in the global industry have occurred within the last 3 or 4 years.

- South African producers previously derived over 80% of their sales value from ostrich leather. The meat is no longer sold in the European market at disposal prices as a byproduct of leather.
- The prices of breeding stock have dropped into line with their economic value in producing slaughter birds
- The marketing of ostrich meat in its own right has only recently occurred in most of the world, although South Africa started moving in this direction in the 1940's.. The cattle disease outbreaks in Europe and food safety concerns elsewhere have created rapid increased demand in the past few years.

The primary marketing issues for BC ostrich products primarily revolve around structure as many markets are not readily accessible to BC producers. There are the beginnings, however, of a producer/marketer differentiation in the sector, a positive sign for the development of a more mature industry in the future. There continues to be local producer/marketers who have developed a comfortable niche selling all of the ostrich products, often in conjunction with other enterprises.

3.1.4 Industry Structure Issues

The primary structural issue is the lack of an EU approved, federally inspected slaughter plant easily and economically accessed by BC producers which would allow them to access the European market. The same applies to a full federal plant, required if the ostrich meat is to be marketed outside the provincial boundaries.

Another issue that appears to be an impediment to growth is the lack of any organized producer group resulting in a little production or marketing information being shared.

3.1.5 Industry Challenges

The primary challenges are increasing the markets for ostrich products at a similar pace to increasing production and vice versa. In addition the current global population of ostriches is a cross-bred array of varieties resulting from indiscriminate sales of all sub-species from Africa during the industry expansion and is of undetermined genetic predisposition for meat and/or hide production. This is further compounded by the fact that reproductive performance in farmed ostriches is highly variable worldwide.

3.1.6 Industry Needs

The ostrich industry requires promotion to develop markets for its low fat red meat and research to determine the best feeding regimes within the BC climate. In addition the sector requires work on ostrich oil to determine its value within the marketplace.

3.1.7 Recommendations

Efforts should be made to provide some organization within the industry sector in order to better share production and marketing information and begin to develop a critical mass which would encourage full federal and EU approved slaughter and processing facilities.. This should also be combined with work to determine feeding and management regimes that produce meat, leather and oil in the most profitable manner.

3.2. Canadian Ostrich Industry

Information on the Canadian ostrich population numbers is presented in Tables 3-3 and 3-4. Although somewhat dated, the statistics provide a historical baseline for the industry

In 1994, Canadian ostrich producers were located in 7 provinces with total registered stock numbering about 17,000 (see Table 3-3). The Canadian population of ostriches was concentrated in Alberta (51%), BC (31%), Manitoba (6%) and Saskatchewan (6%).

Table 3-4 shows that in June, 1995, the ostrich population had declined marginally, but also included farms in 10 provinces and relatively significant numbers in Quebec.

Statistics for Alberta suggest that number of ostriches and producers in Alberta in 1998 declined by 40% and 57%, respectively from 1996. This situation may be reflected throughout Canada.

Table 3-3
Registered Canadian Ostrich Population, November, 1994.

Province	Breeder Females	Breeder Males	Yearlings	Under One Year	Total
Atlantic	10	8	50	100	168
Quebec	180	170	50	100	500
Ontario	15	1	95	150	261
Manitoba	109	101	284	580	1,074
Saskatchewan	104	96	270	552	1,022
Alberta	725	471	1,390	5,963	8,549
BC	435	283	834	3,578	5,130
Total	1,578	1,139	2,973	11,023	16,713

Source: Agriteam Canada Consulting Ltd. 1994. Canadian Ostrich Association Market Research and Strategic Marketing Plan Study. Phase One: Analysis of the Canadian Ostrich Industry. Cited in: Alberta Agriculture. Revised 2001. Commercial Ostrich Industry. Agdex 484/830-1.

Table 3-5 contains the slaughter statistics for ostrich in the 1993-2000 period. The Canadian slaughter of ostrich increased dramatically in 1996 and1997 and again in 1999 and 2000 (almost 11,000 head in 2000). In 2000, the dressed weight of ostrich slaughtered in Canada is estimated to have been in the range of 435,000 kilograms.[1]

Table 3-4
Number of Farms and Head, Canadian Ratite Industry, 1995.

Province	Ostrich		Emu & Rhea	
	# of Farms	# of Head	# of Farms	# of Head
Nfld	0	0	3	8
PEI	2	X	36	967
NS	3	32	8	115
NB	2	X	15	497
Quebec	101	1,471	79	2,865
Ontario	87	1,179	356	45,674
Manitoba	71	1,330	117	4,774
Saskatchewan	87	1,822	77	3,691
Alberta	341	7,696	190	12,119
BC	139	1,972	86	5,100
Canada	833	15,502	967	75,810

Source: Statistics Canada. 1995. Agricultural Census.

[1] Statistics in some provinces are not broken out by ratite type.

In 1994, Canadian consumption of ostrich meat was estimated to be around 4,000 lbs (1.8 tonnes or 50 birds). The largest market was "up-scale" restaurants featuring ostrich on a gourmet menu.

Table 3-5
Numbers of Ostrich and Other Ratite Slaughtered in Federally and Provincially Registered Plants, Canada, 1993-2000.

Year	Ostrich	Emu	Rhea	Ratites NES*	Total	# of Provinces Slaughtering
1993	5	6	0	0	11	1
1994	47	12	0	0	59	4
1995	349	193	28	187	757	7
1996	1,935	1,519	117	727	4,298	7
1997	4,738	5,707	100	2,473	13,018	7
1998	3,934	4,789	160	6,301	15188	9
1999	4,545	3,102	1,300	717	9,664	6
2000	3,250	1,127	1,946	2,824	9,147	7

Source: Agriculture and Agri-Food Canada. 2001. CFIA Inspected Establishments. Meat Hygiene Condemnation Statistics and Provincial Governments.
Note: NES* = Not elsewhere specified. Not all provincial establishments collect weights and/or differentiate between ratite types.

Trade in live ostrich, hatching eggs and meat is presented in Tables 3-6 and 3-7. Table 3-6 indicates that imports and exports of hatching eggs peaked between 1995 and 1997. The largest number of live ostriches was imported into Canada during the same period. Live ostrich exports only occurred in 1996 (see Table 3-6).

Table 3-6
Trade in Ratite Hatching Eggs, Live Ostrich and Other Live Ratites, Canada, 1989-1998.

Year	Exports	Imports	Exports			Imports		
	Hatching Eggs		Ostrich	Emu	Rhea	Ostrich	Emu	Rhea
	#'s		Head			Head		
1989	n/a	n/a	8	0	0	47	0	29
1990	n/a	n/a	9	0	1	153	0	44
1991	n/a	n/a	0	0	16	536	0	24
1992	n/a	n/a	0	0	0	315	8	48
1993	n/a	n/a	123	4	12	965	488	345
1994	0	203	454	0	0	1185	475	133
1995	928	535	701	0	0	1358	3577	369
1996	1936	303	179	224	0	6054	1529	388
1997	1387	610	987	0	0	838	1718	0
Jan-Oct 1997	1387	610	795	0	0	829	1718	0
Jan-Oct 1998	88	103	234	199	0	108	198	0

Source: Agriculture and Agri-Food Canada. 1999. CFIA Meat Hygiene Export Database, and Port of Entry Database.

As Table 3-7 shows, overall ostrich meat imports into Canada have exceeded exports in the 1995-2000 period. However, ostrich meat exports have risen to their highest historical level in 2000 (almost 25,000 kilograms)[2] and greater than any previous level of historical imports.

Table 3-7
Canadian Trade in Ostrich and Other Ratite Meat, Kilograms, 1995-1998.

Year	Ostrich		Emu		Rhea	
	Exports	Imports	Exports	Imports	Exports	Imports
1995	0	708	0	0	0	0
1996	2,404	1,617	0	33	0	0
1997	326	10,272	0	0	0	0
1998`	4,642	3,918	3,441	6	0	0
1999	7,531	20,973	4,376	N/a	0	N/a
2000	24,937	N/a	8,390	N/a	0	N/a

Source: Agriculture and Agri-Food Canada. 1999. CFIA Meat Hygiene Export Database, and Port of Entry Database.

3.2.1 British Columbia

There are currently about 15 BC ostrich producers producing 400 ostrich from 80 breeders. Ostrich are being processed in a number of federal/provincial plants throughout the province, with some also handled through a Lower Mainland full federal plant. Hides are being tanned by a firm in Unity, Sask. and fresh and blown eggs, feathers, and crafts are being sold locally.

The market for ostrich has expanded quickly on a world wide basis with the advent of hoof and mouth in Europe with ostrich seen as a safe meat. One New Zealand producer who had been killing 30,000 lbs per year is now said to be doing that per month, with most of the production going to Europe. BC producers confirm that they are also being approached to enter that market but are unable to, even if they had the product, as we do not have full federal slaughter plants for ostrich that are EU approved.

The lack of a provincial producer body was evident in the contacts that have been made to date in that no one producer seems to know who else is out there and what they are doing. The restaurant industry is now purchasing ostrich on a regular basis but much of the product has been coming from the prairies. A local meat market who used to sell one carcass every three months or so is now selling 1 to 2 per month plus another exotic meat distributor indicated that he was looking for a regular supply as his had dried up.

The industry has bottomed out and appears to be starting to mature. Breeding pairs are still relatively inexpensive ($1,500CAD to $ 4,000CAD) compared to $50,000CAD at the peak of the frenzy but production numbers are starting to go up again. One fact that held production down

[2] It should be noted that in 1999, no data were collected from Newfoundland and PEI or from provincial plants in Quebec and Alberta. In 2000, no data were collected from Newfoundland or Quebec, no data from provincial plants in Quebec or Ontario (but see Table 3-8, below) and August is missing from Alberta provincial data.

for a few years was the amount of meat in freezers, especially on the prairies. It appears that most of this has now been used up and production can rise to meet the demand that is here. Compared to beef the demand is small but it appears that ostrich will take its place in the game industry along with products such as buffalo, wild boar, etc.

Another positive sign for the industry is the fact that one BC producer and distributor is now making arrangements with other growers to purchase their product hot weight on the rail. The current price is said to be $3.00CAD/lb. for a 125+ lb. #1 carcass, sufficient to provide a return on growing out the bird for 12 month period. This producer, with 50 breeding pairs, is the largest producer in BC at this time. Last year they grew out between 175 and 200 slaughter birds.

Pricing for cuts has moved to levels that appear to be competitive with other similar products. All sellers report a price of about $18.00CAD/lb. for tenderloin, down from $30CAD/lb. a few years ago (a price that did not move much product). Lesser cuts bring lower amounts with burger patties going about $6.00CAD/lb.

The other factor of the ostrich industry is the sale of hides. The prices for green hides appear to be in the range of $100CAD to $110CAD from the Saskatchewan firm although some producers have been able to secure higher prices elsewhere. The firm buys quality hides to meet their markets for tanned ostrich hides for fashion items as well as boots. This market may come under pressure as world production of ostrich increases to meet the European demand. The New Zealand producer mentioned above is now shipping his hides to the international “Shoe Capital” in Leon, Mexico in container loads of 5,000. This is providing significant price pressure for the North American tanned ostrich leather market.

The other approach to ostrich production which is successful is selling the products, including meat, ostrich leather items, blown eggs, ostrich oil, feathers, craft items, etc. from local markets and direct from the farm.

Although ostrich oil is thought not to have all of the therapeutic components of emu oil, it has been shown that it does have a number of desirable qualities Ostrich oil, which has omega 3 and omega 6 essential fatty acid content and high levels of palmetic oil, is starting to be marketed by a number of producers.

3.2.2 Saskatchewan

There are somewhere in the order of 300 ostrich breeders in the province with about 4000 to 5000 birds, about double the 2000 birds reported in 1997. The birds are being killed at provincial plants as the closest full federal plants are at Winkler, Manitoba and in Alberta. Saskatchewan producers are unable to sell ostrich processed in Saskatchewan outside the province. The producers are, however, working with the emu and wild boar growers along with a consultant, working under contract for the provincial government at U of S, and a Berkshire hog producer, to build an EU approved full federal plant near Saskatoon. The plant is projected to have two killing lines, one of which will kill only Berkshire hogs with the second killing a range of game animals and ratites. They are moving ahead slowly but hope to have it in place in 2002. If they can bring it on stream the ostrich growers say that they will have contracts for ostrich production for two years ahead.

The University of Saskatchewan has a small food processing facility which can prepare further processed products to EU standards. This is of little use to the Saskatchewan ostrich industry however as the cost of transporting birds to Fort McLeod, Alberta or Edmonton, Alberta and then back to Saskatoon for further processing consumes much of the potential profit. The growers require a full federal plant so that they can access other markets as it's difficult to convince Saskatchewan residents to eat ostrich when beef is readily available. The Saskatchewan ostrich producers see the Vancouver or Eastern Canadian markets as being more receptive and are anxious to try marketing into Europe.

The ostrich growers feel that ostrich and emu compliment each other as although both produce meat, oil and leather that in each case the products are quite different and have different properties. It appears that the ostrich growers will be rendering ostrich fat through the new rendering plant at Carlyle in the coming year.

3.2.3 Ontario

As Table 3-8 indicates, ostrich and unspecified ratite slaughtering in Ontario between 1995 and 2000 peaked in 1998, although the data are incomplete (see Note to Table 3-8).

An Ontario processor and distributor indicated that they are currently killing ostrich and selling the meat with good success, to the extent that obtaining sufficient birds is now a problem. They have not had requests for emu meat and are not pursuing that market. The main reason is the cost of killing an emu and the low amount of end product that results after slaughter. Ostrich provides much more meat (3-4 times) per bird. This is similar to the fallow deer/red deer situation where fallow deer prices continue to fall as it costs almost as much to handle a fallow deer as compared to a red deer while the red deer produces four times the end product.

Table 3-8
Number of Ratites Processed for Meat in Ontario, Federal/Provincial Combined Statistics.

Species	1995	1996	1997	1998	1999	2000
Emu	107	103	427	1,308	362	NA
Ostrich	16	91	151	0	0	NA
Unspecified Ratites	166	566	2,547	5,721	4,581	2,824
Total Ratites	289	1,760	6,725	7,029	4,943	2,824

Source: Ontario Ministry of Agriculture, Food and Rural Affairs
Note: Does not include the number of each species processed during the 2000 year in federally inspected plants.

3.3 International Ostrich Production and Marketing

In 1994, annual global production of ostrich products consisted of:
- 1,200-1,500 tonnes of meat
- 150,000 - 180,000 leather skins
- 160,000 kilograms of feathers

The world market consists of South Africa and Israel supplying meat, hide and feathers to European countries, Japan and North America. Switzerland and Belgium are the largest importers of ostrich meat while Japan and the US are the biggest importers of tanned ostrich hides. By 1997, the value of the meat had become as important as the value of the hide.

However, the market for ostriches in Europe still is mainly for breeder birds. Only recently has a population size been reached that will support some slaughtering for meat. Demand for ostrich meat is predominantly met through imports from outside the EU.

The hide is the product for which an established market exists, primarily in the Far East. The meat market in South Africa has never developed except for some local specialty. Ostrich meat is not eaten in Israel because it is not kosher.

3.3.1 South Africa & Zimbabwe

- There is much anticipation of ratite meat growth opportunities related to foot and mouth disease however South African access to the large EU market has been limited by outbreaks of newcastle disease.

- Zimbabwe has developed a niche market for ostrich meat by harmonizing its leather and meat supply procedures and standards with EU requirements. The industry is heavily investing in ostrich rearing, slaughterhouse and meat processing facility. However, social unrest problems are creating uncertainty in land tenure. In 2001, an Indonesian investor threatened to abandon an $11 million USD ostrich project in Zimbabwe , initiated under a Zimbabwe-Indonesia trade agreement, because the government would not remove war veterans from his property. The skins currently being exported are to be sold in the US and Korea, with the meat products going to Belgium, Holland and Switzerland

- South Africa exported 250 ostriches to a Malaysian ostrich producer in 2000 under a Malaysian government Ostrich Share Breeding Program umbrella plan, the objective of which is to raise at least 10 million ostriches by attracting investment into the industry

3.3.2 United States

- the US ostrich industry began in the late 1980's

- American Ostrich Association was founded in 1988 by ostrich producers in Texas and Oklahoma. The association currently represents producers, processors, and supporting industries across the US and 9 foreign countries
- Number of birds slaughtered in the US:

1995	15,000
1996	30,000
1997	100,000
1998	160,000

- In 1998, there was an estimated 450,000-500,000 birds owned by 3,500 to 4,000 producers
- Most ostrich producers are small family farms with an average of about 10 hens
- Although the number of producers and production declined in 1999, overall production potential did not
- In 1998, about 85% of all US-produced ostrich products (i.e. meat and leather) were exported to countries in Europe, South and Central America, and the Pacific Rim. Most of the meat goes to Europe and the Pacific Rim. Most of the hides go to Mexico, Italy and the Pacific Rim
- Wide scale importation of South African hides has caused a decline in prices of domestic hides. For example in 1996, US producers were getting between $300USD and $400USD per green hide. In 1999, these hides were bringing in $80USD.
- Traditionally, US hides have been considered inferior to South African hides; US hide quality is now improving
- Mexico has poultry regulations concerning influenza control that has stopped the importation of hides, even though chemical treatment of the hides make it a remote possibility that they may transmit influenza. This was disruptive since most of the hides were going to Mexico to be tanned, before coming back to the US or being exported to other countries
- Some countries refuse to import ostrich because their policy makers consider ostrich an exotic species, even though the US product sold is raised domestically
- There are three major tanners in the US, located in New York, Louisiana and Iowa. There are not enough tanneries to support the industry in the US since the implementation of the Mexican regulation restricting importation of hides
- The industry has progressed from a voluntary meat inspection system in 1995 to a mandatory inspection in 2001
- The AOA (American Ostrich Association) is in the process of establishing standards for meat quality for the American industry under a developing Certified American Ostrich program. Similarly, Genuine American Ostrich Leather standard will guarantee quality leather products in its “Beyond the Boot” initiative.
- “The market for exotic meat is rapidly expanding in the upper Midwest since products such as ostrich mignon and grilled restructured beefsteak are low in cholesterol and considered “health-conscious” products. Ostrich meat has particular appeal since it contains less fat than chicken, turkey or beef”.
  Source: The Team Canada Market Research Centre. 1999. The Retail Grocery Market in the US Upper Midwest. FaxLink no. 34949. February.

3.3.3 Taiwan

- The Canadian Trade Office in Taipei reports that there are 20,000 ostrich being raised domestically with about 300 farmers.
- A large ostrich farm in Taiwan is about 300 - 400 birds. To date there has been no recorded slaughter of ostrich in Taiwan which suggests that any ostrich meat produced is being used directly off farm.
- The Taiwan Ostrich Farmers Assn. has plans to start to market meat officially next year.
- Import of ostrich meat is currently running about 10 tons per month and is usually sold at retail sliced and seasoned.

3.3.4 China

- Information from China indicates that ostrich production is being encouraged. The town of Qi Shi in Guangdong province takes pride in the fact that it has attracted foreign venture capital enterprises such as ostrich raising and pigeon production.

3.3.5 Japan

- Ostrich production has been promoted in Japan and some of those farms developed under investment plans are now succeeding.

3.3.6 Brazil

- A Brazilian web site www.aravestruz.com.br reports that ostrich raising started in Brazil in 1996 and there are presently about 15,000 birds with most still being used for breeding purposes.
- Brazil is the largest importer of ostrich plumes in the world, 40 tons/year, hence the interest.
- Brazil also has a well developed leather goods industry that is presently importing ostrich leather.
- With its large consumption of red meat, Brazil is a natural for use of ostrich meat.

3.3.7 Australia

Australia first farmed ostriches in the 1880's, acquiring stock from South Africa, North Africa and Zimbabwe. The industry collapsed and the ostriches were released into the wild. In the 1980's, interest in the ostrich was revived and the Australian Ostrich Association (AOA) grew to over 3000 members. This development was associated with the importation of eggs from Zimbabwe and birds from Canada, sourced from South Africa. A firm created for marketing the products, ran into financial difficulties and closed down.

- In 2000, there were about 350 serious farmers left in Australia. Current production is 50,000 to 60,000 birds annually. There has been little success in establishing a domestic market for ostrich, and all production is exported.
- Australian targets for ostrich meat are Europe and Asia. The US is also a target for leathers. Australia has also developed a range of ostrich-oil cosmetics.
- In March, 1997, about 120,000 ostriches were farmed in Australia. About 5,000 birds were processed in 1997 and 1998 estimates were for the processing of up to 30,000.
- Australia is leading in the development of ostrich processing technology
- The average ostrich farm had 49 breeding hens in 1998/99, running on 61 ha of grazing land.

3.3.8 Israel

Israel slaughters about 12,000 birds per year, representing 1,000 to 2,000 tonnes of meat The industry has until recently been supported by government.

Israeli operations have farmed ostriches primarily for their hides since 1983. Low fertility rates and poor meat quality currently characterize the Israeli industry.

3.3.9 United Kingdom

The British industry is represented by the British Domesticated Ostrich Association. In 1997, the ostrich population stood at 10,000 to 12,000 birds, including about 2,000 breeding females.

Retail demand for ostrich in the UK, which was expected to increase dramatically in response to the BSE scare in 1989 and 1996, actually only took off when the hoof and mouth outbreak took place in 1999-2000. As result several large retailers started to market ostrich products.

- *Tesco* was the first to introduce ostrich in 300 stores by mid-1996. The meat was sourced from the US. The company ceased carrying the product after beef demand recovered.
- *Sainsbury* established a small demand for ostrich products, primarily due to its company labelling on a range of exotic meats. The meat is marketed in about 200 of its 400 stores and originates from the US. The company sent a food technologist to the US to verify that the supply came from a region where climatic conditions were similar to the natural environment and that rearing and slaughter was conducted with due concern for animal welfare.
- *Asda* introduced ostrich steak in 1995, but subsequently pulled the product off the shelf. The company sells smoked UK ostrich products.
- *Somerfield*, *Safeway* and *Co-op* decided not to stock the meat.
- *Marks and Spencer* continued to review the market and now stock smoked ostrich products from birds reared in the UK.
- *Waitrose* was trialing the product (in 1998) at selected stores.
- 1997 - The advent of BSE has increased demand for exotic meats such as ostrich, emu, crocodile and kangaroo. Figures from the “Game Marketing Executive” from supermarkets Asda, Sainsbury’s, Safeway and Waitrose indicated sales of all game meats,

including ostrich and emu, had grown by over a third. These increases consisted of Safeway (+40%), Asda (+37%), Sainsbury's (34%) and Waitrose (+33%).[3]

- Sausage is enjoying a resurgence in the UK and exotic meats are being processed into some of these.

3.4 Implications for the Canadian Industry

The ostrich industry, although a lot older than the emu industry, went through many of the same growth and contraction phases in the 1990's. The increasing demand recently for ostrich meat in the EU has had a major effect on the focus of the industry, moving from leather to meat in a very short time.

It appears that, as with emu, the Canadian industry has contracted to the point that production and demand are quite close to balance. This will allow the industry to grow at the same pace as the demand, in this case for the meat. On the domestic basis that growth will be relatively steady as ostrich gains a small but stable portion of the restaurant and specialty meat trade. On the international basis it could lead to significant production, but only if slaughter facilities built to EU standards are put in place. In this regard Alberta, with two EU processing plants, Manitoba, with one EU plant and Saskatchewan, with a potential EU plant on the drawing board, appear to be in much better position to access that market. On the other hand BC has a much more developed domestic market for ostrich meat and is prepared to support local production.

3.5 Recommendations for Investigations by the Avian Research Centre

- Chick mortality - This has always been somewhat of a problem.
- Nutrition - There is a custom ostrich blend available but it appears that there is a lot that isn't known. A second producer mentioned this as well as every cent that can be gained in feed costs while maintaining overall growth and quality will be important in creating an ongoing, viable industry. With the industry starting to mature into producers and marketers this will be possible.
- Best types of grasses to grow for grazing - As the ostrich is a grazing animal it would be beneficial to determine the types of grasses which are both most palatable to them and which provide the highest level of nutrition.
- Properties of Ostrich Oil - Although there are suggestions that ostrich oil is not as therapeutic as emu oil, there does not appear to have been any work done to prove or disprove this. Anecdotal evidence from a producer tells of a customer who has been using it to control his Multiple Sclerosis with good results.

3.6 Sources

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