



VETERINARY
INFECTIOUS
DISEASE
ORGANIZATION

VIDO

**1980-81
ANNUAL REPORT**

VIDO's sixth year has just ended. Before we begin the seventh year, perhaps we should ascertain where we have come from, determine where we are now and endeavor to map our course for VIDO's seventh year, and perhaps some time after that.

Perhaps we would ask questions — of ourselves, of the livestock producers whom we serve, and we must not forget to pose a few questions to the people who do the actual work.

To the Board members I would ask the single question: Has VIDO been true to its motto of "Serving the Livestock Industry through Research"? The answer is a resounding **YES**. To fail in this regard would risk the loss of producer support.

To livestock producers I would first ask: What does VIDO mean to you and further, is VIDO addressing the infectious-disease areas of concern to you?

To many cattlemen, VIDO is the outfit that developed 'VICOGEN' the **E. coli** scour vaccine. Some may also identify VIDO as the group carrying out the shipping fever feedlot study. I think all cattlemen agree that these two disease targets are still of critical importance to the industry.

To hog producers, VIDO is identified as the organization which is grappling with the mysteries of enzootic pneumonia. They may know as well of the study on the effects of different management regimes in the nursery. These problems are costly to the hog industry and more research is mandatory.

We know what the turkey producers think of VIDO. VIDO is the research facility that gets results. After seeing the successful development of VICOGEN, turkey producers have commissioned VIDO to develop a vaccine for hemorrhagic enteritis, a viral infection of turkeys. VIDO has taken up this mandate and is pressing ahead with the research.

All livestock producers agree that, in this time of escalating costs and uncertainty, VIDO's research dollars have been well spent.

So we can be proud of what VIDO is doing and what it has done. But VIDO didn't just happen, a visionary dreamed a dream, and walked an extra mile — many extra miles. I'm talking of course, of Dr. Chris Bigland, whose contribution was recognized this year by his peers. He was presented an award for Distinguished Contribution to the Veterinary Profession by the Ontario Veterinary Association.

When ranchers think of VIDO they also remember another man. This fellow travelled Alberta a decade ago in a trailer assessing calf scour problems. Dr. Steve Acres went on to collaborate on the development of VICOGEN. He has been with VIDO since its inception and is now its Research Director. He served as Acting Director during Dr. Bigland's six month sabbatical this past year. These two men have been both inspiring leaders and dedicated workers in VIDO. From Dr. Bigland, and Dr. Acres, and their staff we ask for continued guidance in fulfilling our roles as the VIDO Board.

I am grateful for the support of Board members who have given so freely of their time and expertise. Particularly, I would mention those who are leaving us. Dr. Ernie Pallister has served VIDO well, first as Chairman of the Board of Advisors, during VIDO's formative years and last year in the capacity of a member of the Board of Directors. His thoughtful counsel and encouragement were among VIDO's most valued resources during the development of the organization. Also on behalf of the Board I extend thanks to Mr. Orest Lukey, who served both on the Governing Committee and the Board. I must thank as well Mr. Jim McCague and Dr. Hugh Vance, who served on the Board of Directors. These gentlemen contributed greatly to the Board and they will be missed.

I should at this time welcome our new Board members, Mrs. C. Teichrob, Dr. C.L. L'Ecuyer, Mr. P. Moncrieff, Dr. A. Olson, and Mr. B. Peterson. We look forward to their perspectives on the challenges we face.

Report from the Board of Directors



Ben E. Thorlakson, Chairman



1980-81 Board of Directors

(Left to Right — Top Row) H.N. Vance, C.H. Bigland (Director), B.E. Thorlakson (Chairman), J.Y. McFaul, W.C. Weir, P.G. Hodgman (Executive Officer), O.E. Lukey

(Bottom Row) — N.O. Nielsen, P.V. Riese (Vice-Chairman), S.D. Acres (Deputy Director - Research), J.A. McCague, A.E. Pallister, C. L'Ecuyer

(Missing) — C. Leask, L.F. Kristjanson

What lies ahead for VIDO? In year number seven we will continue to forge ahead on four major research fronts: neonatal diarrhea, bovine respiratory disease, swine respiratory disease, and avian adenovirus (hemorrhagic enteritis). To adequately address this long term work, VIDO must be assured of core funding. Producer organizations from every sector of the livestock industry have been generous in their support. We earnestly hope that the public sector will acknowledge the importance of this work and assist us further with our needs.

One important part of disease control is the use of vaccines against specific organisms. To discover and develop effective vaccines, good testing facilities are essential. These include the ability to challenge animals with disease organisms but prevent spread of the disease to neighboring animals. In order to obtain animals free of some of the widespread disease organisms, with which we are working, it may be necessary to derive and maintain specific pathogen free (SPF) animals and poultry. To further this work an animal vaccine testing facility is now an absolute necessity.

VIDO people have worked hard to bring this organization to where it is today. The future is challenging and we have the team to do the job.

1981-82 Board of Directors

Mr. Ben Thorlakson, Chairman
Thorlakson Feed Yards
Airdrie, Alberta

Mr. Paul V. Riese, Vice-Chairman
Karmona Stock Farms
Selkirk, Manitoba

Dr. L.F. Kristjanson, President
University of Saskatchewan
Saskatoon, Saskatchewan

Mr. Charlie Leask
Director of Livestock Division
Saskatchewan Wheat Pool
Regina, Saskatchewan

Dr. Conrad L'Ecuyer
Director General Operations
Directorate

Health of Animals Branch
Agriculture Canada
Ottawa, Ontario

Dr. Jack Y. McFaul
Manu-Life
Saskatoon, Saskatchewan

Mr. Patrick Moncrieff
Senior Manager
Agriculture Department
Bank of Montreal
Toronto, Ontario

Dr. N.O. Nielsen, Dean
Western College of Veterinary
Medicine

University of Saskatchewan
Saskatoon, Saskatchewan

Dr. Art O. Olson
Assistant Deputy Minister
Alberta Agriculture
Edmonton, Alberta

Mr. Barrie Peterson
Agassiz, British Columbia

Mrs. Carol Teichrob
Saskatoon, Saskatchewan

Dr. Walter C. Weir, Director
Veterinary Services Branch
Sask. Dept. of Agriculture
Regina, Saskatchewan

The year April 1, 1980 to March 31, 1981 was a year of expansion of research in VIDO. Highlights of this and other areas of progress are as follows:

1) Personnel

In addition to the appointment of Dr. Stephen D. Acres as Deputy Director (Research), newly appointed scientific staff were Dr. Philip Willson, a veterinary-epidemiologist; Dr. Jan van den Hurk, a virologist who is working on hemorrhagic enteritis of turkeys; Dr. Lionel Fillon, a veterinary immunologist; and Dr. Susan Wilson, a veterinary-epidemiologist who is working out of Edmonton in close association with Dr. Terry Church, Alberta Agriculture, on the epidemiological studies of shipping fever. Dr. Neil McKenzie, a veterinary surgeon, was on temporary appointment for three months.

Dr. Lorne Babiuk is VIDO's first joint-appointment with the Western College of Veterinary Medicine. He will work half-time for VIDO and is the program leader in bovine respiratory disease research.

Dr. Lyall Petrie, a veterinarian from the University of Glasgow, was a Burroughs Wellcome visitor to VIDO for three months.

Dr. Roy Kelly, a graduate student with Dr. Otto Radostits of the Western College of Veterinary Medicine, is housed at VIDO and participates in the swine disease program.

We regret the resignation of Dr. Tony Forman which will take effect in July. We wish him well in his new assignment at the Australian National Animal Health Laboratory.

Dr. Bob Begg and Mr. Jack McFaul will be recipients of Honorary Doctorate degrees in May 1981. We are proud that they have been part of VIDO's administrative boards.

Mr. Jack Pringle, University of Saskatchewan Vice-President, and Dr. Larry Smith, former Dean of the Western College of Veterinary Medicine, have announced their retirements. Both have been extremely helpful to VIDO.

The technical and secretarial staff now number 18. An additional senior technician was appointed in bacteriology, Mrs. Gloria Falk.

I was privileged to have a six-month sabbatical leave from July, 1980 to January, 1981. In my absence, day-to-day operation of VIDO was capably continued under Dr. Stephen Acres, Deputy Director (Research), and Mr. Paul Hodgman, Executive Officer. I would like to express my thanks to them, the whole staff of VIDO, and the Board of Directors for this opportunity. The leave was spent writing a draft of "The History of the Western College of Veterinary Medicine". The book at present consists of four major chapters. Revisions and additions will continue with the collaboration of Dr. D.L.T. Smith, co-author.

2) Board of Directors

This is the first full year under the new Constitution and By-laws of VIDO, and under the direction of the new Board of Directors. This Board consists of five members appointed from the livestock industry, two (from business) at-large, three from governments (Saskatchewan, Alberta, and Federal), and two from the University of Saskatchewan. I appreciate the Board's interest and acceptance of responsibility for VIDO in the area of fund raising, research direction, and administration.

3) Research Plan

A new ten year research plan was approved and research enlarged to include the disease targets of: neonatal diarrhea, shipping fever of cattle, mycoplasma pneumonia, and atrophic rhinitis of swine, and hemorrhagic enteritis of turkeys.

Report from the Director



Dr. C.H. Bigland, Director

4) Symposia

Two major international symposia were held: the First International Symposium on Hemorrhagic Enteritis in Turkeys on May 6, 1980, and the Third International Symposium on Neonatal Diarrhea on October 6-8, 1980.

5) Financial

In view of approximately \$1.7 million remaining in the VIDO Research Trust Fund at the end of the fiscal year, VIDO is in steady financial shape at present. However, this figure represents a reduction in reserves of \$166,500. This year's budget of \$1.2 million was underspent by approximately \$77,000 due to delayed recruiting of professional staff. The new budget for 1981-82 is \$1.3 million, representing an expansion of VIDO research activities of 8.5%.

VIDO is considering changing its year end from Mar. 31 to Sept. 30.

6) Funding

This is the first year that VIDO has "stood alone" without the support of funds from the Devonian Group of Charitable Foundations. Core funding is still critical and relies primarily on support from governments and the livestock industry. The Saskatchewan Government reduced their contribution to \$200,000 from \$250,000; the Government of British Columbia continued their program of matching funding donated by the British Columbia livestock associations, totalling approximately \$20,500. This year the Manitoba Government made its first donation of \$20,000. No core funding was received from the Government of Alberta although we did receive project support from this province. In spite of renewed overtures to the Federal Government, no core funds were received from this source.

The livestock industry continued their generous support totalling \$106,300 from organizations across Canada.

Support for specifically designated projects was received from the Alberta Farming for the Future, Alberta Agricultural Research Trust, the Saskatchewan Horned Cattle Trust, and the Saskatchewan Agricultural Research Fund. For the first time, a Federal contract (Canada Agriculture through a D.S.S. Grant) is being negotiated to fund neonatal diarrhea research at the Melfort Research Station.

The successful project grants represent only a portion of those submitted for funding, as a number were refused,

including three applications to Natural Science and Engineering Research Council (NSERC), one application to the Medical Research Council, one to Farming for the Future, and one to the Saskatchewan Agricultural Research Fund.

7) VicoGen

VICOGEN, an *E. coli* bacterin for the control of bacterial calf scours, was licensed for sale in Canada by Connaught Laboratories Ltd. of Toronto on December 13, 1979, with sales starting December 17, 1979.

Production was started in the United States at the Connaught Laboratories Incorporated plant at Swiftwater, Pennsylvania. This was followed by testing and field trials in the United States resulting in licensing in the United States in August 1980. Sales started October 1, 1980, throughout the United States by Connaught Animal Health Incorporated of Kansas City.

Royalties accruing to VIDO from sales in Canada and the United States amounted to over \$152,000 or 12.6% of our research budget.

Reports from the field indicate that the calf scours bacterin (VICOGEN) has been successful in preventing death loss from calf scours in vaccinated herds. One graphic example was an outbreak of calf scours in a herd of mixed vaccinated and unvaccinated cows, with scours occurring only in calves from the unvaccinated cattle.

8) Building and Paddock Modifications

Some modifications to the VIDO building and livestock paddocks were made reflecting more efficient use of these areas.

9) Fund Raising

A great deal of effort and resources was expended on fund raising by: (a) contacting and reporting to various facets of the livestock industry throughout Canada, (b) contacting federal and provincial governments, and (c) writing briefs or grant applications. These activities have been beneficial to VIDO as far as obtaining funding; however, they are also beneficial to the livestock industry in that VIDO reports its activities to the various donor organizations, supplying ideas, information, and fact sheets. In this way, fund raising also becomes public relations.



The Honorable Eugene Whelan, Federal Minister of Agriculture with Dr. Steve Acres, Deputy Director (Research).

10) Patents

Two applications have been made for patents concerning animal vaccines. Letters of Assignment from the inventors to the University and to VIDO have been received.

11) Visitors to VIDO

Visitors have toured VIDO from many countries including Canada, the United States, Hong Kong, Saudi Arabia, Mexico, South Africa, New Zealand, Barbados, Australia, England, Scotland, India, Nigeria, Holland, China, Germany, Japan, and France.

Some of these were in tour groups, one of which was the Duke of Edinburgh's Fifth Commonwealth Study Conference devoted to "people in the industrial society." Other tour groups include 30 veterinary students from the University of Guadalajara in Mexico, the Canadian Charolais Association, an exchange tour of farmers from China, and those attending the Third International Symposium on Neonatal Diarrhea.

Individual distinguished guests included the Honorable Eugene Whelan, Federal Minister of Agriculture, Dr. Bob Church of the University of Calgary, Senator Sid Buckwold of Saskatoon, and Dean Doug Maplesden of the Ontario Veterinary College in Guelph.

12) Publications

The Proceedings for the International Symposium on Hemorrhagic Enteritis was circulated to persons attending the meeting and others interested. The Proceedings of the Third International Symposium on Neonatal Diarrhea consists of refereed first publication papers. This will be sold at cost for \$25 throughout the world.

13) Research Collaboration

Research endeavors are extended outside of VIDO by an excellent group of research collaborators. These include: Dr. John Robinson and Dr. Jeremy Greenfield of the British Columbia Veterinary Laboratory at Abbotsford; Dr. J.R. (Bob) Saunders, Dr. Dudley Osborne, Dr. Peter Stockdale, and Dr. James Bellamy of the Western College of Veterinary Medicine; Dr. Terry Church of the Alberta Veterinary Services Division in Edmonton; Dr. J.W. (Bill) Costerton of the University of Calgary, Dr. Wayne Martin of the Ontario Veterinary College, Mr. Duane McCartney at the Agriculture Canada Research Station at Melfort, and Dr. M. Makarechian in the Department of Animal Science, University of Alberta.

14) Board of Director Members

The new 12-man Board of Directors is functioning efficiently under the chairmanship of Mr. Ben Thorlakson of Airdrie, Alberta and the vice-chairmanship of Mr. Paul Riese of Selkirk, Manitoba. With resignations and normal turnover of the Board of Directors, we welcome the new members

Dr. Art Olson, Assistant Deputy Minister of Agriculture for the Province of Alberta; Mrs. Carol Teichrob, turkey producer of Corman Park, Saskatchewan; Mr. Barrie Peterson, dairyman of Agassiz, British Columbia; and Mr. Patrick Moncrieff, Senior Manager of the Agriculture Department for the Bank of Montreal in Toronto, Ontario. Farewell and heartfelt thanks go to the retiring members Dr. Ernie Pallister, Dr. Hugh Vance, Mr. Orest Lukey, and Mr. Jim McCague.

Future Concerns

1) Core Funding

With the phasing out of the Devonian Group of Charitable Foundations, who have been one of our major financial supporters, a factor uppermost in my mind is the cash flow of money to support the research of VIDO. Of prime concern are core funds to pay salaries, support personnel, major equipment, and supplies together with fund raising, extension, and publications. These cannot be obtained from project grants which, in themselves, presuppose that all of the foregoing are in place and functioning well. We now have to rely for core funds on our main supporters — the livestock industry, whose support is strengthening every year, and on the provincial governments in Western Canada.

Royalties from the VICOGEN vaccine have been markedly less than we had estimated. The reasons for this are thought to include:

- (a) complacency by the livestock industry because of the low incidence of calf scours in the past few years,
- (b) the low price of cattle,
- (c) excessive optimism in estimation of sales,
- (d) not convincing cattle owners and veterinarians of the exceptional value of the insurance afforded by VICOGEN, and
- (e) high cost of the vaccine.

2) Vaccine Testing Facility

Vaccine test facilities are imperative in the very near future as VIDO gets into expanded research on disease conditions other than *E. coli*. Since *E. coli* is not a highly pathogenic organism, except under the circumstances found by baby calves, we have been able to use test facilities borrowed from the Department of Animal Science or rented facilities at Dundurn, Saskatchewan. As we deal with more pathogenic organisms and the need for specific pathogen-free herds become more apparent. Vaccine testing facilities and high security specific pathogen free facilities, within ten miles of Saskatoon, are becoming essential. In order to have access to such facilities, two thrusts are underway:

(a) The development by the University of Saskatchewan of a separated half-section at the Goodale Farm, ten miles south of Saskatoon is under consideration. President Kristjanson is investigating funds for this development which will be shared by the Western College of Veterinary Medicine and VIDO.

(b) A proposal is being submitted to the federal Western Initiatives Fund as part of diversification and expansion in Western Canada.

3) VicoGen

As an outgrowth of our original Agreement with Connaught Laboratories concerning the production and sale of VICOGEN, it is hoped that VICOGEN will soon be available to protect calves in countries outside of North America.

4) Building Modifications

With the expansion of research and the increased number of professional and technical staff needed, office and laboratory space within VIDO is becoming overcrowded. Plans are being considered for initial development in the empty lower floor of VIDO to include a conference room, lunch room, and high security laboratory facilities for genetic engineering and other biotechnological work.



1980-81 VIDO Senior Management (l to r): P.G. Hodgman (Executive Officer), S.D. Acres (Deputy Director -Research), C.H. Bigland (Director).

Future Endeavors

In addition to the animal vaccine testing facilities and the expansion of the VIDO laboratory, other endeavors include:

1) Incorporation

The advantages and disadvantages of a separate income-producing company are being investigated by the Board of Directors.

2) VIDO Fellowship

In order to encourage Canadian scientists to complete training for research, part of the VIDO budget will be dedicated to a Fellowship for a Canadian, at DVM or MSc level, to undertake studies at a PhD level. The thesis project would be conducted at VIDO and on a VIDO targeted disease project. A post-doctoral Fellowship will also be offered for a two-year term to strengthen a chosen area of expertise of interest to VIDO.

Thanks

I would like to express my thanks to the dedicated and hard working staff at VIDO who are striving their utmost to fulfill VIDO's mandate of "serving the livestock industry through research on the common infectious diseases of food-producing animals."

I would also like to thank the Board of Directors of VIDO who bring their expertise in many areas to focus on the direction of VIDO, again with the same aims in mind as the staff.

My thanks, too, to the administrative staff at the University of Saskatchewan for the day-to-day help rendered to VIDO and especially Mr. Mac Sheppard, Mrs. Joan Watrous, Mr. Matt Webster, Mr. Henry Epp, Mr. Gary Schlichemeyer, and their respective staffs. Thanks, also, to the staff of the Buildings and Grounds Department for help in planning and maintenance.

Summary

VIDO continues in a fairly strong financial position at year end with reserves of \$1.722 million in the VIDO Research Trust. Our cash flow situation, however, instead of enlarging the fund as hoped, reduced it by \$166,500. Forecasts for 1981-82 year indicate a close balance between income and expenditures. Four new scientists have been added for the expanded research effort on our target diseases of calf scours, shipping fever in cattle, atrophic rhinitis and mycoplasma pneumonia of swine, and hemorrhagic enteritis of turkeys. Royalties from Connaught Laboratories from the sale of VICOGEN in Canada and the United States carried 12.6% of this year's research budget.

The VIDO Research Trust Fund was originally established April 1, 1978. Its purpose is:

- 1) To ensure continuity of research funding as a guarantee of security for scientific personnel.
- 2) To serve as a vehicle into which all donations to VIDO could be placed until the eventual release by the VIDO Board of Directors.
- 3) To serve as a source of additional research income through interest accumulation.
- 4) To serve as a guarantee to the livestock industry to complete research projects initiated on its behalf.

In order to meet these purposes, the objective is to have in the VIDO Research Trust Fund a maximum of \$5 million with a minimum of \$1 million.

VIDO Research Trust Fund



Dr. Ernie Pallister

Dr. R.E. (Bob) Begg

Dr. Jack McFaul

VIDO basked in the reflected glory of three honorary doctorates given to Board members recently. Dr. A. Ernie Pallister received the degree of Honorary Doctor of Science from Memorial University, Newfoundland, May 31, 1980. Dr. R.E. (Bob) Begg and Dr. Jack McFaul received Honorary Doctors of Law degrees from the University of Saskatchewan, May, 1981.

Honorary Doctorates

Auditor's Report

To the Board of Directors of the
Veterinary Infectious Disease Organization:

I have examined the balance sheets of the Research Trust Account and the Capital Trust Account for The University of Saskatchewan — Veterinary Infectious Disease Organization as at March 31, 1981 and the statements of income, expenditure and unexpended funds for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the University of Saskatchewan — Veterinary Infectious Disease Organization as at March 31, 1981 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Regina, Saskatchewan
May 29, 1981

W.G. Lutz, F.C.A.,
Provincial Auditor.

Financial Statement

Statement 1

UNIVERSITY OF SASKATCHEWAN VETERINARY INFECTIOUS DISEASE ORGANIZATION (V.I.D.O.) RESEARCH TRUST BALANCE SHEET As at March 31

	<u>1981</u>	<u>1980</u>
ASSETS		
Cash In Bank	\$ —	\$ 6,016
Investments — Short term		
— At Cost	<u>1,775,000</u>	<u>1,480,000</u>
Accrued Interest Income	<u>38,543</u>	<u>24,210</u>
Contributions Receivable		
— Devonian Group of Charitable Foundations	—	212,989
— Research and Development	—	37,745
— Royalties	62,961	31,932
— Alberta Agricultural Research Trust	—	16,572
— Other Donors	<u>61,317</u>	<u>231,000</u>
	<u>124,278</u>	<u>530,238</u>
	<u>\$1,937,821</u>	<u>\$2,040,464</u>
LIABILITIES		
Bank Balance Overdrawn	\$ 60,551	\$ —
Due to University of Saskatchewan		
— Operating Fund	<u>155,202</u>	<u>151,884</u>
	<u>215,753</u>	<u>151,884</u>
EQUITY		
Unexpended Funds (Note 1) (Statement 2)	<u>\$1,722,068</u>	<u>\$1,888,580</u>
	<u>\$1,937,821</u>	<u>\$2,040,464</u>

See Accompanying Notes

Statement 2

UNIVERSITY OF SASKATCHEWAN VETERINARY INFECTIOUS DISEASE ORGANIZATION (V.I.D.O.) RESEARCH TRUST STATEMENT OF INCOME, EXPENDITURE AND UNEXPENDED FUNDS Year Ended March 31

	<u>1981</u>	<u>1980</u>
INCOME		
Grants and Donations:		
The Devonian Group of Charitable Foundations	\$ —	\$ 396,529
Livestock Industry	106,335	337,902
Provincial Governments		
— Alberta	—	1,000
— British Columbia	20,570	6,902
— Saskatchewan	200,000	250,000
— Manitoba	20,000	—
Alberta Agricultural Research Trust (Note 3)	38,225	62,049
Farming for the Future Fund of Alberta	41,600	30,700
Saskatchewan Agricultural Research Fund	32,495	—
Other Individuals and Foundations	<u>4,348</u>	<u>777</u>
	463,573	1,085,859
Research and Development		
Revenue	100,000	134,000
Royalties	152,479	88,287
Interest Income	221,584	159,507
Animal Services	18,874	34,636
Miscellaneous	—	6,000
	<u>956,510</u>	<u>1,508,289</u>
EXPENDITURE		
University of Saskatchewan (Notes 1 and 2)		
Salaries and Fringe Benefits	551,202	446,414
Materials and Supplies	202,088	184,477
Equipment (Note 1)	113,306	122,369
Travel	79,172	54,324
Animal Services	85,012	89,354
Other	<u>57,174</u>	<u>48,607</u>
	1,087,954	945,545
Alberta Agricultural Research Trust (Note 3)	20,068	33,275
Veterinary Research Committee Account (Note 6)	<u>15,000</u>	—
	<u>1,123,022</u>	<u>978,820</u>
Excess of income over expenditure	(166,512)	529,469
Unexpended funds, beginning of year	<u>1,888,580</u>	<u>1,359,111</u>
Unexpended funds, end of year (Statement 1)	<u>\$1,722,068</u>	<u>\$1,888,580</u>

See Accompanying Notes

Statement 3

**UNIVERSITY OF SASKATCHEWAN
VETERINARY INFECTIOUS DISEASE ORGANIZATION
(V.I.D.O.)
CAPITAL TRUST
BALANCE SHEET
As At March 31**

	<u>1981</u>	<u>1980</u>
ASSETS		
Current:		
Cash In Bank	\$ —	\$ 13,018
Investments — Short term		
— At Cost	135,000	160,000
Accrued Interest Income	1,953	2,040
Due from University		
— Capital Fund	—	6,174
Total Current Assets	<u>136,953</u>	<u>181,232</u>
Capital Assets (Note 1)		
Site and Improvements	133,765	133,590
Furnishings, Fixtures and		
Equipment	306,170	276,041
Buildings	<u>3,913,320</u>	<u>3,868,245</u>
Total Capital Assets	<u>4,353,255</u>	<u>4,277,876</u>
	<u>\$4,490,208</u>	<u>\$4,459,108</u>
LIABILITIES		
Bank Balance Overdrawn	\$ 6,205	\$ —
Due to University of Saskatchewan		
— Capital Fund	16,573	—
— Operating Fund	<u>840</u>	<u>12,040</u>
	23,618	12,040
EQUITY		
Equity in Capital Assets	4,353,255	4,277,876
Unexpended Funds (Note 1) (Statement 4)	<u>113,335</u>	<u>169,192</u>
	<u>\$4,490,208</u>	<u>\$4,459,108</u>

See Accompanying Notes

Statement 4

**UNIVERSITY OF SASKATCHEWAN
VETERINARY INFECTIOUS DISEASE ORGANIZATION
(V.I.D.O.)
CAPITAL TRUST
STATEMENT OF INCOME, EXPENDITURE
AND UNEXPENDED FUNDS
Year Ended March 31**

	<u>1981</u>	<u>1980</u>	<u>Cumulative Total To Date</u>
INCOME			
Grants:			
The Devonian Group of Charitable Foundations	\$ —	\$ —	\$2,180,000
Province of Alberta	—	—	1,870,000
Interest Income	<u>19,522</u>	<u>30,159</u>	<u>416,590</u>
	<u>19,522</u>	<u>30,159</u>	<u>4,466,590</u>
EXPENDITURES (Note 1)			
Sites and Improvements	175	84	133,765
Furnishings and Fixtures	30,128	27,719	306,169
Buildings	<u>45,076</u>	<u>24,361</u>	<u>3,913,321</u>
	<u>75,379</u>	<u>52,164</u>	<u>4,353,255</u>
Excess of Expenditure over Income	<u>55,857</u>	<u>22,005</u>	<u>113,335</u>
Unexpended Funds, Beginning of Year			
— As previously stated	169,192	271,197	
— Less: Retroactive adjustment	—	<u>80,000</u>	
— As Restated	<u>169,192</u>	<u>191,197</u>	
Unexpended Funds, End of Year (Statement 3)	<u>\$113,335</u>	<u>\$169,192</u>	

See Accompanying Notes

**UNIVERSITY OF SASKATCHEWAN
VETERINARY INFECTIOUS DISEASE ORGANIZATION (V.I.D.O.)
NOTES TO FINANCIAL STATEMENTS
March 31, 1981**

1. Summary of Significant Accounting Policies

(a) Fund Accounting

The accounts of the Organization are kept in accordance with fund accounting principles. This enables presentation of restrictions placed upon resources by contributors. Those principles require classification of resources into 'funds' to reflect the various designated uses. Two funds are presented; the Research Trust and the Capital Trust. Funds are transferred from the Research Trust as approved by the Board of Directors and from the Capital Trust as expenditures are incurred.

(b) Capital Assets

Capital assets are expensed when purchased as Capital Fund expenditures. The same assets are recorded in the Capital Fund balance sheet as assets offset by entries to the 'equity in capital assets account.'

Equipment purchased with Research Trust monies are expensed as purchased without the corresponding balance sheet entries referred to above.

The agreement referred to in Note 2 below also states that all buildings and facilities constructed for the Organization shall be used by them in accordance with the agreement and upon termination of the Organization, the buildings, facilities and equipment therein shall remain the absolute property of the University of Saskatchewan.

2. Establishing Agreement

The Organization was established by an agreement dated August 11, 1975,

between the Devonian Foundation, the Province of Alberta, the Province of Saskatchewan and the University of Saskatchewan to conduct research on indigenous infectious diseases of food producing animals.

Effective April 1, 1980 the Organization has adopted a new Constitution which replaces the agreement referred to above and the original constitution. The new constitution provides for a Board of Directors to assume the responsibilities formerly performed by the Board of Advisors and the Governing Committee.

3. Alberta Agricultural Research Trust

The research grants as received from the Alberta Agricultural Research Trust (A.A.R.T.) are transferred to the University of Saskatchewan and are administered on behalf of the grantees for purposes of research conducted by V.I.D.O. In order to receive the level of financial support as provided it was necessary for V.I.D.O. to provide industry support in the amount of \$20,068.

4. Administrative Services

The accompanying financial statements do not include expenditures for administrative services provided by the University of Saskatchewan.

5. Commitments

As at March 31, 1981 the Organization had commitments of \$46,000 in the Research Trust.

6. Veterinary Research Committee Account

This is a grant made to Dr. J. Robinson for joint research work with V.I.D.O.

Report from the Deputy Director (Research)

The past year has been one of major expansion in the VIDO research plan. Following the decision in 1979 to increase the number and spectrum of research objectives, research programs have been developed in the areas of shipping fever of cattle, respiratory diseases of pigs, and hemorrhagic enteritis of turkeys. These are in addition to the original program on neonatal diarrhea which was started in 1976 and which continues to be a major research commitment. During the past 12 months 4 new research scientists have been hired and new projects started in each of the 4 programs.

A. Neonatal Diarrhea Program

Calf scours continues to be the major target in this research program. Work is continuing on the role of enterotoxigenic *E. coli* as a cause of scours and on developing and improving methods of prevention and control. The *E. coli* vaccine VICOGEN, originally developed by VIDO and now manufactured and marketed by Connaught Laboratories Ltd. of Toronto, has been further tested under field conditions. Studies have been done showing that the original vaccination schedule which recommended that 2 injections of the vaccine should be given to pregnant cows and heifers 6 and 3 weeks before calving, can be altered. During the first year of use, 2 doses of vaccine should still be given; however, the new recommendations allow for the first dose to be administered anytime after mid-gestation (eg. at weaning) and the second dose within 6 weeks of calving. During the second and subsequent years, only one dose, administered within 6 weeks of calving, is necessary. The new vaccination schedule makes it much easier for producers to integrate vaccination with VICOGEN into their overall herd management program.

With the aid of a grant from Farming for the Future and in collaboration with Dr. Bill Costerton of the University of Calgary, studies have also been done to help define the role of capsules in intestinal colonization by enterotoxigenic *E. coli*. In addition to K99 pili which allow the *E. coli* to attach to the intestinal lining, capsules appear to help the bacteria to survive and multiply within the small intestine and further studies are being done to determine if capsules are useful as vaccines.

The role of other causes of scours, such as rota and coronaviruses, and the parasite Cryptosporidia are also being investigated. An improved diagnostic test for Cryptosporidia involving fecal

dichromate solution floatation has been developed by Dr. Philip Willson and will allow epidemiological studies to be carried out. Improved diagnostic methods are also being developed for enteric rota and coronaviruses and are being used to investigate herd outbreaks of scours. A major field study to determine the importance of some of these enteropathogens in field situations is being conducted at the Canada Agriculture Research Station at Melfort, Saskatchewan, in collaboration with Duane McCartney. Surgical derivation and rearing of germ-free calves started last year is continuing under the supervision of Margot Buckley and is an important research resource for studies involving these enteropathogenic agencies.



Dr. Steve Acres, Deputy Director
(Research)



Dr. Philip Willson

B. Bovine Respiratory Disease

The Bovine Respiratory Disease Program is a major joint effort at the University of Saskatchewan between researchers in VIDO and the Department of Veterinary Microbiology and is co-ordinated by Dr. Lorne Babiuk. Various members of the Campus research team are also collaborating with researchers at the Canada Agriculture Animal Disease Research Institute (Western) at Lethbridge, Alberta, the Preventive Medicine Branch of the Veterinary Services Division of Alberta Agriculture, and the Ontario Veterinary



Dr. Lorne Babiuk

College. The main emphasis in the program is towards developing methods of preventing shipping fever and projects are underway on the bacterial, viral, immunological, and epidemiological components of the disease.

A major study was started during 1980 to identify the epidemiological risk factors which contribute to the occurrence and severity of shipping fever pneumonia in feedlots in Alberta. This project is being supervised by Dr. Susan Wilson who is working closely with Dr. Terry Church, Head of the Preventive Medicine Branch of the Veterinary Service Division of Alberta Agriculture. The project, which is funded by a grant from Farming for the Future, is expected to continue for 3 years and will focus on identifying sequences of managerial and environmental events which increase or decrease the level of shipping fever in feedlots.



Dr. Susan Wilson

A second project started this year involves evaluating various commercially available vaccines against bovine respiratory disease in calves shipped from Saskatchewan to Ontario for fattening. Calves were vaccinated before weaning with combinations of several different vaccines against clostridial diseases, *Pasteurella* species, **Hemophilus somnus**, and infectious bovine rhinotracheitis (IBR). They were identified with special ear tags and traced to feedlots in Ontario where their health status and progress were monitored by Dr. Wayne Martin and his group of collaborators at the Ontario Veterinary College. Only calves given one of two types of intranasal IBR vaccine had a significantly lower treatment rate than unvaccinated control calves. Plans are to continue this study again in the fall of 1981 and to include a larger

number of animals.

In the VIDO laboratory studies were initiated to further define and quantitate some of the immune mechanisms in cattle lungs which prevent shipping fever pneumonia. Some of these mechanisms appear to be overwhelmed in calves which develop shipping fever but the reasons for this are unknown. A major component of this study is to determine the effect of infection with IBR virus on the ability of alveolar macrophages to prevent infection with ***Pasteurella hemolytica***. This work has been directed by Dr. Tony Forman who resigned his position at VIDO effective July 7, 1981 to take up a post in his native Australia. Studies on immune mechanisms of the bovine lung will be continued by Dr. Leo Filion who joined the staff in May, 1981.



Dr. Tony Forman



Dr. Leo Filion

C. Swine Respiratory Disease Program

This Program, which is co-ordinated by Dr. Harold Fast, also includes a number of laboratory and field research



Dr. Harold Fast

projects. Studies are underway on commercial pig farms to test and evaluate nursery systems for newly weaned pigs. On one 100-sow farm a 3-room nursery has been designed and built and is being compared to the more traditional raised flat-deck system. Each room in the nursery holds 6 litters, each in separate pens, and is operated on an all in - all out basis. Preliminary results indicate that pigs raised in this type of a nursery have a faster rate of gain and higher feed

conversion than those raised in the traditional system. In addition, "Thompson box" nurseries are being evaluated in 2 smaller 70-sow herds. Thompson boxes are self-contained units built inside an existing barn and each box is designed to hold 10-15 newly weaned pigs. This work is supported by a grant from the Saskatchewan Agricultural Research Fund.

The Swine Technical Group, which was started last year, continues to be very active and productive under the leadership of Harold Fast. This Group is comprised of swine producers, agricultural engineers, economists, nutritionists, and swine veterinarians working together to define practical problems for the swine industry which require multidisciplinary input. They were instrumental in designing the room nursery system which is now being tested and have prepared a set of detailed construction plans for producers wishing to build nurseries. These plans are available from VIDO. Several producers in the Group are also monitoring the post-weaning performance of their pigs using the TI-59 calculator program described below. The Group has now turned their attention to evaluating breeding barns and to identifying methods of determining and assessing the cost of shortfalls in production. In addition, a sub-group has been established in Manitoba and it is hoped that one or more similar groups will be established in each of the other Western Provinces.

A number of producers and swine veterinarians are now testing a system developed at VIDO during the last year for analyzing records stored on sow cards. Three programs have been written for the TI-59 hand-held calculator which allow producers to monitor production performance in their herd quickly, easily and cheaply. The 3 programs are: 1) Herd Production Summary which provides information on reproductive and pre-weaning mortality, 2) A Sow Location Summary and Analysis which relates breeding problems, litter Sow Location Summary and Analysis which relates breeding problems, litter size, and baby pig mortality to the location of sows in the dry sow or farrowing barns, and 3) Boar Performance Analysis and Comparison which compares the breeding performance of up to 8 boars. In addition, two other programs have been developed which calculate the growth rate and feed conversion of groups of pigs. The first program calculates average daily gain and feed conversion, while the second will predict the weight of pigs at various ages. These were developed in collaboration with Dr. Roy Kelly. The TI-59 calculator can be purchased from retail outlets for approximately \$600. The programs and instructions for use are available from VIDO. They should be of benefit to swine producers and veterinarians when designing and implementing herd health programs.

A project to develop a challenge model for *Pasteurella pneumonia* of pigs was also started. Germ-free pigs raised in isolation are being challenged with different strains of *Pasteurella multocida* to attempt to develop a model which mimics the occurrence of *Pasteurella pneumonia* in the field. In addition, field trials are underway to evaluate two of the commercially available *Pasteurella-Bordetella* vaccines which are available for pigs and these studies are expected to continue into next year.

D. Avian Adenovirus Program

The emphasis in this Program is on hemorrhagic enteritis of turkeys and research was started in October 1980 following the arrival of Dr. Jan van den Hurk. The objective is to develop a system whereby the hemorrhagic enteritis virus (avian adenovirus type II) can be cultured. Hopefully this will provide a basis for developing a vaccine against the virus. Studies are underway to identify the type of cell which the virus infects in the spleen of affected birds and to determine if the virus will infect and multiply in these

cells when grown in tissue culture. In addition, a project was also started by Dr. John Robinson at the Abbotsford



Dr. Jan van den Hurk

Veterinary Lab to establish the serological types of adenoviruses present in chicken flocks in Western Canada and to determine whether the presence of any specific serotypes correlate with the occurrence of disease.

Concurrent with the expansion of the VIDO research programs there has also been an increase in the number of research collaborators both at the University of Saskatchewan and at other institutions. The scientific staff at VIDO

feels very fortunate in being able to interact and collaborate with leading scientists in other organizations. VIDO research collaborators are as follows:

- F. Baldwin — Department of Veterinary Anatomy, Western College of Veterinary Medicine, Saskatoon
- J.E.C. Bellamy — Department of Veterinary Pathology, Western College of Veterinary Medicine, Saskatoon
- T.L. Church — Head, Preventive Medicine Branch, Veterinary Services Division, Alberta Department of Agriculture, Edmonton
- J.W. Costerton — Department of Biology, University of Calgary, Calgary
- J. Greenfield — Veterinary Laboratory, Abbotsford, B.C.
- E. Janzen — Department of Veterinary Clinical Studies, Western College of Veterinary Medicine, Saskatoon
- G.R. Kelly — Department of Veterinary Clinical Studies, Western College of Veterinary Medicine, Saskatoon
- M. Makarechian — Department of Animal Science, University of Alberta, Edmonton
- S.W. Martin — Ontario Veterinary College, University of Guelph, Guelph
- D. McCartney — Canada Agriculture Research Station, Melfort, Saskatchewan
- V. Misra — Department of Veterinary Microbiology, Western College of Veterinary Medicine, Saskatoon
- A.D. Osborne — Department of Veterinary Microbiology, Western College of Veterinary Medicine, Saskatoon
- M. Perry — National Research Council, Ottawa
- J. Robinson — Veterinary Laboratory, Abbotsford, B.C.
- J.R. Saunders — Department of Veterinary Microbiology, Western College of Veterinary Medicine, Saskatoon
- P. Stockdale — Chairman, Department of Veterinary Microbiology, Western College of Veterinary Medicine, Saskatoon

Dr. Robert Abernethy
B.C. Veterinary Medical Assoc.
Vancouver B.C.

Mr. Harold Allison
Executive Member,
B.C. Cattlemen's Assoc.
Abbotsford, B.C.

Dr. R.J. Avery
Director, Veterinary Services
B.C. Ministry of Agriculture & Food
Victoria, B.C.

Dr. Albert Bildfell
President, Alberta Veterinary
Medical Assoc.
Vegreville, Alberta

Mr. Murray Brown
Chairman, Alberta Turkey Growers
Marketing Board
Acme, Alberta

Dr. Herb Carlson
Poultry Commissioner
B.C. Ministry of Agriculture & Food
Victoria, B.C.

Dr. Bill Costerton
Dept. of Biology, Univ. of Calgary
Calgary, Alberta

Dr. Duncan Currie
Director, Frontier Sciences
Edmonton, Alberta

Dr. William Dorward
Director, Animal Pathology Lab
Vancouver, B.C.

Mr. Howard Falkenberg
President, Unifarm
Edmonton, Alberta

Mr. Ron Gordon
Alberta Sheep & Wool Commission
Athabasca, Alberta

Dr. Lorne Greenaway
MP
Ottawa, Ontario

Dr. Jeremy Greenfield
B.C. Veterinary Laboratory
Abbotsford, B.C.

Mr. Dave Guichon
General Manager, Alberta Egg &
Fowl Marketing Board
Calgary, Alberta

Dr. Doug Hawkins
Regional Veterinary Director,
Canada Agriculture
Vancouver, B.C.

Mr. Maurie King
B.C. Ministry of Agriculture & Food
Victoria, B.C.

Dr. Chris Krishnamurti
Dept. of Animal Science,
University of B.C.
Vancouver, B.C.

Dr. Gordon MacEachern
Assistant Deputy Minister, B.C.
Ministry of Agriculture & Food
Victoria, B.C.

Dr. Alistor Matheson
Chairman, Dept. of Biochemistry &
Microbiology
University of Victoria,
Victoria, B.C.

Dr. Jim O'Donoghue
Deputy Minister, Alberta Agriculture
Edmonton, Alberta

Mrs. Martin Luther Olsen
Victoria, B.C.

Mr. Mike Oswell
Executive Director,
Production, Services
B.C. Ministry of Agriculture & Food
Victoria, B.C.

Mr. Stan Price
Chairman, Alberta Pork Producers
Mktg. Bd.
Acme, Alberta

Mr. Jack Reams
President, B.C. Hog Commission
Abbotsford, B.C.

Dr. John Robinson
B.C. Veterinary Laboratory
Abbotsford, B.C.

Mr. Harke van der Meulen
Chairman, B.C. Dairy Committee,
Federation of Agriculture
Dairy Commission
Victoria, B.C.

Mr. Floyd van Slyke
Chairman, Alberta Egg & Fowl
Marketing Board
Red Deer, Alberta

Guests to VIDO Board Meetings 1980-81