ANNUAL REPORT FOR FISCAL YEAR 2000/2001

OMAFRA-FUNDED RESEARCH, EDUCATION AND LABORATORY SERVICES PROGRAMS

Integrated Education, Research and Laboratories Programs
Serving Ontario's Agriculture and Food Industries

July 31, 2001

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Background

This is the fourth Annual Report on the Enhanced Partnership submitted to the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) by the University of Guelph under the Memorandum of Agreement (MOA) that came into effect April 1, 1997.

This report covers the activities, expenditures and performance measures for all of the programs covered by the MOA for the fiscal year May 1, 2000 to April 30, 2001. The program areas are research, education and laboratory services and each area has its individual report in this document.

Summary of Activities and Results

In the year 2000/2001 there were many positive developments. Total revenues were $70.5 million, including $50.5 million in Ministry transfer payments plus revenues generated within the contract. Revenues were up 14% over the previous year and were earned mainly from the sale of goods and services, including laboratory services, diploma and continuing education fees, and the sale of farm products such as milk, meat and eggs produced within the research programs. Support for the programs within the contract from external sources also increased by 19%.

Total funding from outside sources increased over the previous year from $52 to $61 million. There was a 26% increase in support from Business and Industry. Seed royalties increased 21%, up to $680,000. In 2000/2001, there were over a million dollars in non-seed technology royalties, mainly on vaccines, diagnostic technologies and livestock breeding lines. There was a large increase in presentations on the Internet. In an innovative program, SPARK (Students Promoting Awareness of Research Knowledge) students helped to circulate 27 articles about research activities.

Total diploma enrolment at the three Colleges and at Guelph increased by 1.9% over the previous year. There were 369 graduates in diploma programs with close to 100% employment reported. Continuing Education programs at the three Colleges generated revenues that increased by 5% over the previous year.

Laboratory Services provides analytical and diagnostic services to government, the University of Guelph, the veterinary industry and the agri-food industry. Revenues were up 33% over the previous year. Over $2.0 million in new equipment was purchased, new tests have been introduced and new accreditations have been earned. A new Laboratory Information Management System (LIMS) was installed, which will improve sample tracking and timely reporting of test result information.

The Veterinary Clinical Education Program (VCEP) continued to provide support for Veterinary Teaching Hospital Clinics, externship programs for 100 fourth year veterinary students and advanced training for selected graduate students.

There were significant changes in the management of the OMAFRA contract during the 2000/2001 year. Dr. Rickey Yada was named as the Assistant Vice-President (Agri-Food) at the University of Guelph. During the year there was an extensive search for a new VP Research to replace Dr. Larry Milligan. Just after this fiscal year concluded, Dr. Alan Wildeman was appointed as the new VP Research, effective July 1, 2001.

Sincere thanks are extended to Dr. Milligan for his long and effective tenure as VP Research at the University of Guelph, and his commitment to the Partnership.

Research

During the year, the seven (7) sub programs of the Animal Program were reviewed by ARIO (advisory to the Ministry). The Pork Program was reviewed in November of 2000, the Poultry and Equine Programs were reviewed in March of 2001, and the Beef and Aquaculture Programs were reviewed in April of 2001. ARIO recommended that the past programs be accepted and the future programs be approved in principle. In June 2001, the Dairy and Sheep Programs were reviewed. The overall budgets for the Animal Program will be presented in October of 2001.

Research performance measures are listed on pages 16-18. There was a 19% increase in outside dollars supporting University research. Business and industry support increased by 26%, and there was a substantial increase in royalties, particularly from technologies such as vaccines and diagnostic kits. The only significant decrease in external funding occurred from Federal Government Departments. There were large Canadian Foundation for Innovation grants during 1999/2000 which decreased slightly during 2000/2001.

The transfer payment from OMAFRA was $50.5 million, of which $34 million ($37.6 million with revenue) provided direct support for 335 research projects. Additionally, non-agreement sources that funded University Research increased from $52 million in 1999/2000 to $62 million in 2000/2001.

The University of Guelph had a difficult time in 2000/2001 meeting the $3.5 million reduction in its budget within the Enhanced Partnership. There also have been no inflationary increases in the past four (4) years, even though research costs continue to rise. As in 1999/2000, there were no minor capital funds for replacement of facilities at research stations, and deferred maintenance is becoming a problem.

Education

Introduction

- Employment opportunities for graduates of the Associate Diploma in Agriculture programs offered at the regional University of Guelph Colleges (Ridgetown, Alfred, Kemptville) and the main Guelph campus continue to be excellent, nearing 100%.

- The colleges continue to be challenged to maintain or increase enrolment in order to satisfy industry demand for more graduates. Static or declining enrolment is a situation faced by agricultural colleges across the country.

- Diploma program directors began preliminary work to determine, in consultation with the agr-food industry, if a need existed for a three year 'technical' or 'applied' degree in agriculture, to bridge the skills and knowledge gap between a two year associate diploma and a three year B.Sc. (Agr).

- Certificate and short courses offered in continuing education at the colleges are tailored to meet industry needs, and are extremely well attended. As regional centres of learning, the colleges offer many courses that are beyond the traditional agri-food scope to help encourage rural economic development.

- The ministry's support of the Veterinary Clinical Education Program provides externship, graduate studies and clinical opportunities for graduating students of veterinary medicine at the Ontario Veterinary College. These components are essential to the skills and knowledge of practitioners and the competitiveness of Ontario's livestock industry.

Alfred

- Enrolment at Le Collège d'Alfred was the highest since the beginning of the Enhanced Partnership Agreement with 115 full-time students (plus three full-time equivalent) on campus. This was an increase of 33% over the previous year and based on early results for the current year enrolment, a trend which seems to be increasing. Most of the increase is in agricultural technology with our lowest numbers being in Nutrition and Horticulture. This year, there were 34 graduates with an employment rate of 100%. Our greatest challenge given the limited means is in promotion particularly among high school graduates.

- Much of the College's program development has been done in cooperation with other institutions. Among new partners. Collège d'Alfred has developed working agreements with Collège Bor?al in Sudbury and in New Liskeard (vet tech), Cegep Limoilou and Algonquin College (GIS/GPS), Cegep Rosemont (distance horticulture program), La Cit? Coll? giale (horticulture), and McGill University (Food Tech).

- Over the past year, the College was able, for the first time, to receive financial assistance from the federal government under the Minority Language in Education program ($500,000). A second request was forwarded to Heritage Canada in March 2001. The funds are intended to assist with new program development initiatives in French.

- In October 2000, le Collège d'Alfred hosted an international gathering of experts on Rural Development, along with the annual meeting of the Canadian Rural Restructuring Foundation. Over 300 individuals participated with a net profit of $11,000 being generated. Proceedings will be published through Statistics Canada.

- A two-day regional agricultural technology event was organized in the Spring with over 30 suppliers in attendance.

- Alfred's international activities have continued to flourish with on-going projects in Morocco (food tech), Romania (education and agriculture), Kazakhstan (agriculture) and the Congo (agricultural education). Students from the College have also travelled to the Dominican Republic to work on projects as part of their study program. Student delegations from Romania and Mexico have spent time at the College.

- In technology transfer, the College has continued to invest in the development of the Ontario Rural Wastewater Centre, with satellite facilities in Manotick and Guelph. A number of other projects have been completed; with over $650,000 in revenues being generated by our research and technology transfer staff.

Kemptville

- The Agricultural Diploma programs have conducted an educational review, which included educators from the four Ontario agricultural colleges and industry representatives from across the province. The review confirmed that the existing diploma programs were of great value to the industry, and indicated that increased numbers of graduates were required to supply the industry with trained personnel, and that an educational program was needed that bridged the gap in skills and knowledge between the Associate Diploma and the B.Sc. (Agr).

- The Equine Diploma, through industry consultations and internal modifications, is preparing a proposal to offer a seamless type of education for the Standard Bred industry which would consist of a Certificate level, Diploma level and possibly an applied degree type.

- The Food and Nutrition Management Diploma is undergoing its regular accreditation review, and has also been in consultation with the agri-food industry and the University of Guelph concerning the proposed development of an applied degree.

- Kemptville College, in cooperation with the Upper Canada District School Board, has initiated an Ontario Youth Apprenticeship Program (OYAP) on campus to offer the Motive Power Common Core Program in the following trades: Automotive Service Technician, Truck and Coach Service Technician, Farm Equipment Mechanic, Heavy Duty Equipment Mechanic and Lift Truck Technician.

- In addition to the certificate and apprenticeship programs, the Business Development Centre has offered 54 short courses ranging from the Oil Burner Technician, which is 440 hours offered over 11 weeks, to Basic Small Engine Repair, a 35 hour program, to one day Municipal Backhoe Evaluation programs and a variety of evening and weekend courses to meet industry requirements.

Ridgetown

- Ridgetown College graduated 121 students in 2000 from the three diploma programs in Agriculture, Horticulture and Veterinary Technology with excellent employment opportunities. The Summer Veterinary Technology Diploma program that was initiated in the Fall of 1998 is currently in its third cycle with 61 students currently enrolled as Intermediates or Seniors. In addition there are 66 students in the regular diploma program. The summer program was developed and initiated as a way to accommodate additional students to this extremely popular program. The first graduation for this program will take place in September of 2001.

- The Client Services unit at Ridgetown successfully initiated a number of new programs in 2000/2001 including Excellence in Identity-Preserved Crop Production, Excellence in Soybean Production Management and Excellence in Weed Seedling Identification. This group also successfully bid on the administration of the Livestock Medicines Training and Licensing program. The Veterinary Medical Receptionist Certificate introduced in 1998 has offered five classes to date (65 graduates) and based on feedback from the industry is expanding the program to 8 months starting in the Fall of 2001. A new community calendar and information service - *AgriLink* - originally introduced for the 3-county area around Ridgetown College using facsimile, email and Internet technologies has been expanded to seven (7) southwestern counties.

- Ridgetown College staff were involved in many technology transfer activities in 2000/2001, which included a two-day 500 professional training session known as Diagnostic Days. The South West Ag. Conference attracted a record attendance of over 1,400 with 90 speakers and 162 exhibitors, sponsors and Summerfest a public open house with over 1,200 visitors. In addition to these major programs College staff participated in over 1,000 meetings, seminars or presentations related to their research and educational programs. A new weed management web-site has been added to the College site. The site includes a very comprehensive listing of herbicide options in corn, soybeans and wheat as well as seedling identification and herbicide damage pictures. There has been a significant increase in the international recognition of the College since the inception of the enhanced partnership with a number of staff visiting a wide range of countries including China, Chile, Holland, Denmark, UK, Colombia, Brazil, and others. Staffer Ken McEwan testified twice in the USA Congress on the results of his work in price differentials between Canada and the USA, Peter Sikkema was invited to participate the USDA workshop that established the research priorities for weed science in the USA for the next five years and Gary Ablett presented a paper on Canadian research directions in soybean oil quality at an international conference held in Kyoto, Japan.

Laboratory Services Division (LS)

- The Laboratory Services Division (LS) provides analytical and diagnostic services to government, the University of Guelph and to the veterinary, agri-food industry. LS supports OMAFRA's regulatory and disease surveillance programs. LS is expected to use the assets provided under the Partnership to create funds for the renewal of its infrastructure.

- During 2000/2001, activities focused on developing business systems, attracting external revenue and operational improvements. The results demonstrate that LS can create new value for the Partnership from the assets provided.

- As part of LS's strategy to become financially self-sustaining we concentrated on marketing testing services to new clients in the veterinary, agriculture and food industries. As a result external revenue increased by $500,000.

- LS was able to generate net income to make major reinvestments in equipment in order to replace an aging infrastructure and improve the ability to meet the changing needs of OMAFRA's regulatory and disease surveillance programs. This represents a reinvestment of $2 million. A portion of the reinvestment was financed by a planned carry forward from the previous year.

- A new laboratory information system (LIMS) was purchased for the Analytical and Regulatory Units. The LIMS will automate lab processes and enhance electronic reporting capabilities. The LIMS will be integrated with OMAFRA data management systems to form a seamless information system.

- Quality improvements included the extension of ISO certification to the Animal Health Laboratory and preliminary GLP recognition for pesticide testing.

Media Coverage

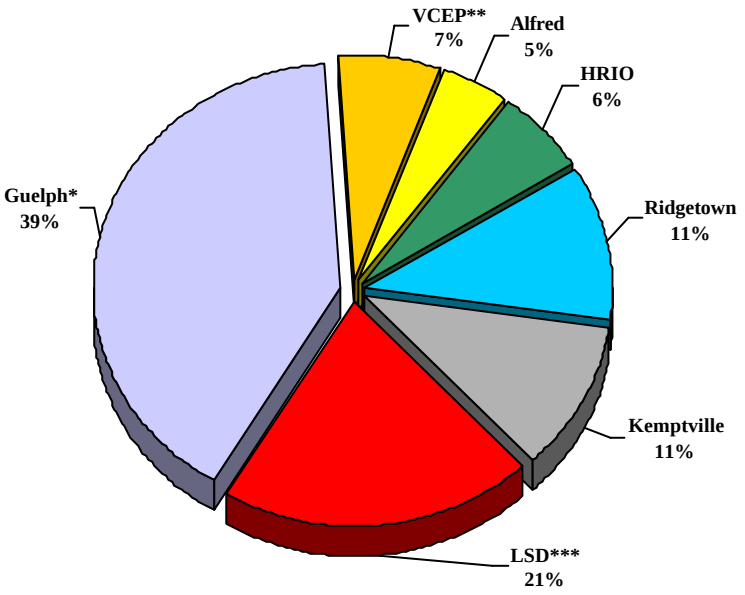
Listed in this report are the media articles and media pick-ups that were written by the Office of Research's communication unit. The articles are about research conducted by the colleges and their affiliated research stations, Laboratory Services Division and the former Horticultural Research Institute of Ontario. These articles were featured in research magazines, University of Guelph news releases, @Guelph, the Guelph Mercury, various agri-food publications and Canadian Press member newspapers.

1. INTRODUCTION

Under the Memorandum of Agreement (MOA) between OMAFRA and the University of Guelph, effective April 1, 1997, the transfer payment to the University totalled $54.0 million ending March 31, for each of, 1997/1998, 1998/1999 and $53.7 million for 1999/2000 fiscal years.

The figures in this report are for the University of Guelph's fiscal year from May 1, 2000 to April 30, 2001 with a $50.5 million transfer payment.

OMAFRA Contract: Fiscal 2000/2001
Actual Results - $70.5 million (revenues and expenses)



* Includes Research Stations and all on campus research and diploma education activity.
** Veterinary Clinical Education Program
*** Laboratory Services Division

Table 1-1: **2000/2001 Budget and Actual Expenditures ($ M) by program/institution are detailed. Actual expenditures are listed beside the budgets for comparison purposes.**

	OMAFRA Transfer Funds			Revenues * (non-OMAFRA)			Total Expenditures (OMAFRA & Revenues)		
	99/00 Actual	00/01 Budget	00/01 Actual	99/00 Actual	00/01 Budget	00/01 Actual	99/00 Actual	00/01 Budget	00/01 Actual
Guelph Research	23.2	24.4	23.8	3.0	1.1	3.4	26.2	25.5	27.2
OAC Diploma	0.4	0.2	0.1	1.3	1.4	1.4	1.7	1.6	1.5
OVC – VCEP	4.7	5.0	4.7	--	--	–	4.7	5.0	4.7
Alfred College	2.4	1.9	2.0	1.2	1.3	1.1	3.6	3.2	3.1
Kemptville College	4.1	4.0	4.0	3.1	4.0	3.7	7.2	8.0	7.7
Ridgetown College	3.9	4.7	4.0	3.6	4.3	3.8	7.5	9.0	7.8
HRIO (Research)	3.8	4.0	4.0	0.1	--	–	3.9	4.0	4.0
Lab Services	8.2	10.5	10.1	3.3	4.1	4.4	11.5	14.6	14.5
TOTALS	50.7	54.7	52.7	15.6	16.2	17.8	66.3	70.9	70.5

* Note: Revenue generated by sale of milk, diploma tuition fees, etc. Expenditures are based on OMAFRA funds plus revenue.

The Colleges at Alfred, Kemptville and Ridgetown are funded for three primary functions: namely, diploma education, applied research and continuing education and services. Table 1-2 breaks down the expenditures by program.

Table 1-2: 2000/2001 Colleges Expenditures ($ =000)

	Alfred		Kemptville		Ridgetown		Total	
	99/00	00/01	99/00	00/01	99/00	00/01	99/00	00/01
Diploma Education**	1,623	1,642	2,210	2,268	2,557	2,613	6,390	6,523
Research**	137	292	2,986	3,315	3,003	2,880	6,126	6,487
Continuing Education**	910	655	1,670	1,676	1,509	2,027	4,089	4,358
Services: (flow through funds)								
- cafeteria	73	102	390	407	325	346	788	855
- utilities	450	466	0*	0	0*	0	450	466
Total	3,193	3,157	7,256	7,666	7,394	7,866	17,843	18,689
Expenditures covered by revenues	893	1,139	3,156	3,685	3,494	3,843	7,543	8,667
OMAFRA support	2,300	2,018	4,100	3,981	3,900	4,023	10,300	10,022

* Utility costs paid by Ontario Realty Corporation

** Includes overhead costs

Note: Program costs ***include*** allocated administrative costs

2. Research Program

2.1 Budget

Funds for research were allocated to five commodity/discipline areas in the 2000/2001 budget. All research expenditures (Faculty FTE and program overhead costs) at all locations are included in Table 2-1.

Table 2-1: 2000/2001 Research Budget and Actual Expenditures ($ =000)

	HRIO		Alfred		Kemptville		Ridgetown		Guelph		TOTAL		
	00/01 Budget	00/01 Actual	00/01 Budget	00/01 Actual	00/01 Budget	00/01 Actual	00/01 Budget	00/01 Actual	00/01 Budget	00/01 Actual	99/00 Actual	00/01 Budget	00/01 Actual
Plants	2,069	2,080	--	2	719	726	1,378	1,317	5,021	5,110	9,004	9,187	9,235
Animals					436	422	243	205	5,814	5,777	6,256	6,493	6,404
Food									1,117	1,065	1,010	1,117	1,065
Resources*					99	90	295	269	2,384	2,247	2,526	2,778	2,606
SRC**					14	11	18	19	306	290	237	338	320
Res. Stns.	1,363	1,502	174	181	1,052	1,292	631	557	5,919	6,685	8,926	9,139	10,217
I & S***			83	78	88	85	119	181	(19)	(49)	934	271	295
Sub-Total	3,432	3,582	257	261	2,408	2,626	2,684	2,548	20,542	21,125	28,893	29,323	30,142
Overhead	557	616	29	33	384	447	296	304	6,079	6,079	7,939	7,345	7,479
Total	3,989	4,198	286	294	2,792	3,073	2,980	2,852	26,621	27,204	36,832	36,668	37,621

* Resources Management and Environment
** Sustainable Rural Communities
*** Infrastructure and Support
Note: Breakdown of costs includes revenues and year-end carry forwards.

2.2 Accomplishments in 2000/2001

Research Projects Conducted in 2000/2001 and Approved for 2001/2002

	2000/2001		2001/2002		
Programs	**# Projects Active**	**# Projects Completed**	**# Proposals Received**	**# Proposals Approved**	**# Projects Active**
Animals	155	58	72	59	156
Plants	92	2	12	3	93
Resource Management and Environment	49	12	16	6	43
Food	24	2	4	3	25
Sustainable Rural Communities	15	5	2	2	12
Total	***335**	**79**	**106**	**73**	**329**

* Adjustments were made to the 2000/2001 Annual Report figures.

Management Accomplishments

?? Five of the seven species programs of the Animal Research Program were recommended for approval in principle by ARIO during the year. (Swine and Dairy pending).

?? The Food Program, which was recommended for approval by ARIO in April of 2000, was implemented at the beginning of the year. There has been a rapidly increasing cluster of research capability at Guelph related to Food Safety. A new building to house the Canadian Research Institute for Food Safety (CRIFS) is being built. A new program in conjunction with the Canadian Food Inspection Agency (CFIA) has been inaugurated, in which CFIA is helping to fund the research and training of future replacement employees.

?? The Business Plan for the Sustainable Rural Communities Program was recommended for approval by ARIO during the past year. The Sustainable Rural Communities Program has continued to grow in both importance and profile. Research relationships with other organizations have developed, particularly with The Ontario Rural Council (TORC).

?? Dr. Michael Goss, who is the Research Program Director for the Resources Management and Environment Program, spent a substantial amount of time as an expert witness for the Walkerton inquiry. Dr. Goss, along with Ken McEwan, from Ridgetown College and Dr. Kim Rollins, also prepared the background paper for the inquiry in the area of pollutants from animal agriculture operations.

?? Dr. Goss has also implemented changes in the management of the Resources Management and Environment Program so that there is considerably more collaboration across the areas of Animal, Environment, Agricultural Economics and Rural Economic Development Research.

?? In the Plant Program, resources were diverted to assist with a serious outbreak of Plum Pox Virus in the Niagara Peninsula. A new mother block of disease-free budwood is being established at the Simcoe Station, so that it will be isolated from the outbreak in the Niagara Region. This mother block will serve as a source of new, disease-free scions.

?? In the Plant Program, as in other programs, there have been a number of new faculty hired to fill retirements or new positions such as those in Genomics. The calibre and qualifications of the new faculty provide promise for future excellence in research.

Highlights of Research Accomplishments

?? Researchers have contributed testimony and issued papers to the Walkerton Commission of Inquiry. A research project completed by Ken McEwan at Ridgetown concluded that total manure production in Ontario decreased 7.5% between 1986 and 1996, contrary to popular belief that manure volume is growing. This was an important study because the issues of toxin-producing organisms and nitrates in fecal bacteria have stimulated intense scrutiny on the impacts of animal agriculture on the environment.

?? In a collaborative program with Health Canada, a vaccination strategy was developed to reduce the shedding of *E.coli* 0157:H7 by market cattle.

?? A state-of-the-art technique called 'ribotyping' was used to characterize micro-organisms using fragments of genetic material. Seventy-five percent of the *Salmonella* strains tested were assigned to the correct serovar. Work was also conducted to optimize digestion protocols for *E.coli* strains. Work will continue to extend databanks for both *Salmonella* and *E.coli*. These advanced typing methods are important for rapid detection and identification of sources of microbial contamination throughout the food system.

?? A weather-based *Fusarium* prediction model was developed at Ridgetown College. *Fusarium* disease is a major cause of toxins in wheat and corn. This improved *Fusarium* disease forecasting technique will identify the critical period for infection and timing of spray applications.

?? The manure management decision support program developed in the Resources Management and Environment Program was fully integrated with OMAFRA's NMAN nutrient management planning program to produce a single suite of linked programs.

?? Research has identified the potential for using ground-penetrating radar to quantify preferential flow paths through soil. These pathways are important in the transport of pathogens and other contaminants.

?? A comprehensive Risk Reduction Strategy Report developed for processing vegetables formed the basis for an On-Farm Food Safety Handbook, which is HACCP-based. It focuses on the development of recommended operating procedures for risk and hazard reduction.

?? It was discovered that the shelf life of fresh fish can be significantly extended with the combination treatment of ethanol and the natural antioxidant catechol, which together reduced microbial growth and lipid oxidation.

?? The table egg industry has been presented with technology which makes possible nutritional enhancements of the egg, through poultry manipulation of diet. These premium “designer eggs” are aimed at specialty niche markets.

?? Mosaic arthroplasty in horses has been developed and appears to be a surgical treatment alternative for joint injuries that in past, resulted in permanent lameness. Resurfacing of cartilage injuries in horses with osteochondral grafts is also a new technology recently developed in the program. This technique also appears to have application in human medicine.

?? Soft cover housing as summer shade and winter shelter for newborn dairy calves housed in hutches has been evaluated at Kemptville College over 2 years. Shade is beneficial during hot, sunny weather but does not appear to be of benefit in other seasons. In fact, unsheltered calves in hutches had slightly better gains in other seasons.

?? ‘Spinosad’, a product formed by the fermentation of naturally occurring bacteria, received Canadian registration for insect control in apples. This environmentally friendly, biological insect control product, which received the U. S. President’s “Green Chemistry Award” for new technology, can potentially be used on up to 170 different crops.

?? A sheep biosecurity program was developed which gave producers and veterinarian’s strategies to improve the health and productivity of the flocks and an enhanced product quality.

?? Experiments were carried out to determine the bioavailability and metabolism of very long chain fatty acids and sphingolipids. These components are found in milk and soybeans and have potential to become nutraceutical products for the soy and dairy industries.

?? A fair pricing system for Ontario-grown fresh processing pears was developed and accepted by the Ontario pear industry. With the new system, growers will not be required to pre-sort pears which will be a savings of time and money.

?? The New Liskeard Agricultural Research Station has demonstrated the viability of soybean production in Temiskaming and Nipissing districts. Crop insurance was also available to northern soybean growers for the first time.

?? Six validation studies of commercial-type meat products were conducted to assist Ontario meat processors in complying with CFIA validation procedures.

?? Research was completed on policy aspects of reducing greenhouse gases from agriculture.

?? Kura clover has provided good forage yields and shown remarkable winter persistence on the flat, clay soils at the Winchester Research Station in Eastern Ontario.

?? Seven research reports on municipal re-structuring and economic development were produced.

?? Links were activated with The Ontario Rural Council for dissemination of research results.

2.3 Performance Measures

Objective	Measure/Activity	Result
Increase funding in support of research under the OMAFRA contract from outside sources	Increase total funding from outside sources relative to the base funding from OMAFRA.	Granting Councils $ 17,289,890 Federal Gov't 10,721,704 Ont. Gov't (non-MOA) 11,558,803 Business & Industry 15,449,519 Charitable Organizations 4,345,577 Other Gov'ts 923,892 Private donors 215,887 Networks of Centres of Excellence 956,861 **Total : 2000/2001 $ 61,462,133** 1995/1996: $ 32.7 m 1996/1997: $ 33.0 m 1997/1998: $ 40.8 m 1998/1999: $ 38.0 m 1999/2000: $ 52.0 m Notes: The 2000/2001 total is 19% higher than the previous year. The increases were in every category except Federal Government Departments. This decline was mainly due to a large number of successful CFI grants in 1999/2000. The Federal Government Departments total no longer includes the Networks of Centres of Excellence, which was included in previous years.
	Increase total number of organizations providing funding.	Organization / Business and Industry 1998/1999: 490 / 264 1999/2000: 576 / 331 2000/2001: 416 / 236 Part of the explanation is a change in procedures within the University. Previously, contributors were counted when an agreement was in place. Beginning in 2000/2001, contributors were counted when funding was received. Some of the discrepancy occurs because of payments received after the research is completed, which may carry over into the next year. In addition to the above change in procedures, rationalization continues to occur throughout the agri-business sector.
	Increase the number of repeat contributors.	1998/1999: 316 1999/2000: 300 2000/2001: 281 Some of the reasons for the decline are rationalization within agri-business industries and the change in accounting procedures.
	Increase funding from business and industry, in particular.	The funding in the Business & Industry increased by $3.25 m or 26%. This increase occurred despite the decrease in the number of supporting organizations. 1997/1998: $ 9.9 m 1998/1999: $12.0 m 1999/2000: $12.2 m 2000/2001: $15.4 m

Objective	Measure/Activity	Result
Licenses and Patents, Royalties	Increase from 70 agreements in 1997/1998.	1997/1998: 70 1998/1999: 80 1999/2000: 115 2000/2001: 119 The number of licensing agreements on patents increased from 21 in 1998 to 30 in 2000. There were 30 new patents issued to the UofG in 2000, with 143 applications in process.
	Increase seed royalties from approximately $600,000 in 1997/1998 to $1 million by 2002. 1997/1998: $600,000 1998/1999: $800,000 1999/2000: $590,000 2000/2001: $680,000	Seed royalties in 2000/2001 were up 21% from 1999/2000. The increase is mainly due to increasing royalties from widely used spring canola inbreds. Other technology royalties to the University were $1,142,184, which was a large increase from previous years. The royalties were mainly from vaccines, diagnosis technologies and livestock breeding lines. The seed and technology royalty total of $1.8 million already exceeds the target for 2002.
Technology Transfer	Number of peer-reviewed journal publications. (Target approximately 350 papers per year; one paper per $25,000 of operating funds).	1998/1999 – 369 plus 21 books and 45 chapters in books 1999/2000 – 381 plus 29 books and 16 chapters in books 2000/2001 – 326 plus 7 books and 40 chapters in books Analysis: Operating funds decreased from 1999/2000 to 2000/2001. Another factor may have been that, in the animal program, some researchers had to report before the end of the year because the first presentations to ARIO occurred in November of 2000.
	Number of scientific conference papers.	1998/1999 – 521 1999/2000 – 540 2000/2001 – 454 This decrease reflects tighter operating budgets, smaller travel budgets and large increases in travel costs.
	Number of reports.	1998/1999 – 220 1999/2000 – 277 2000/2001 – 373 The large increase in outside funding requiring more reports.
	Number of software products.	1998/1999 – 7 1999/2000 – 2 2000/2001 – 1
	Number of presentations in media.	1998/1999 – 446 1999/2000 – 323 2000/2001 – 307
	Number of presentations on the internet.	1998/1999 – not reported 1999/2000 – 11 2000/2001 – 111 This change may explain some of the decreases occurring in other presentations.
	Number of presentations at meetings and conferences.	1998/1999 – 850 1999/2000 – 624 2000/2001 – 538 The difference between the 2 years is the same as for scientific conference papers, suggesting farm meeting presentations were equal.
	Number of provincial/national agri-food committees on which UofG faculty participate.	1998/1999 – 194 1999/2000 – 190 2000/2001 – 250 This is a substantial increase after several years of gradual decline. The reasons may be related to increasing emphasis on food safety, environment and rural economic development.

Objective	Measure/Activity	Result
Client (OMAFRA) Satisfaction	Percent of projects completed on time and budget and project milestones delivered (target is 95% or more complying).	1998/1999 – 96% 1999/2000 – 96% 2000/2001 – 95%
	Deliverables identified in MOA available on time and deadlines met.	Achieved.
	Delivery of project/program milestones.	Accepted.
	Impact and significance of research programs	Some examples of significant impacts include: ?? An affordable food supply and an outstanding record in Ontario for food safety. ?? Ontario agri-food exports have tripled since 1988. ?? University of Guelph royalties on technology and seed have tripled in the last 4 years. ?? Techniques developed for cartilage replacement in the joints of horses are being adopted for joint repair in human medicine. ?? There have been rapid advances in the ability to identify micro-organisms suspected of causing production of toxins. ?? Soybean varieties from public breeding programs in Ontario have 40% market share, which is a much higher share than for public breeding programs in any U.S. state. ?? In co-operation with OMAFRA, development of a single suite of software to guide nutrient management planning. ?? An increasing number of food products on the market with documented nutraceutical or health-promoting properties (e.g. Omega-3 eggs, DHA milk). ?? Data were collected to show that the Enviro-Pig does reduce the amount of phosphorus in manure. ?? Co-operative research with a number of life sciences companies located in Ontario who are working to bring new products to market. ?? Understanding of the underlying reasons behind leading and lagging rural communities.
Impact of Research	Number of studies conducted (target is to review the economic impact of five projects per year).	Projects within animal species were grouped together for analysis rather than investigating individual projects. Swine research was evaluated in 1999/2000. In swine, the benefit:cost ratio was 22:1 (value of benefit to society divided by cost of doing research). In 2000/2001, chicken research was studied to develop a predictive model for the benefit:cost ratios of various types of research. In an earlier study, the benefit:cost ratios for broilers and eggs were 27:1 and 23:1, respectively. (As Per G. Brinkman's Report).
	Develop tools to measure impact of research.	Tools for measuring the impact of research continue to evolve. Dr. George Brinkman reported in 2000 on a Building Block Approach to identifying and measuring performance and calculating rates of return to public programs.

3. EDUCATION PROGRAM

Three educational components are included in the Contract:

- ? ? Veterinary Clinical Education Program (VCEP) at OVC
- ? ? Diploma programs at Alfred, Kemptville, Ridgetown and OAC
- ? ? Continuing Education programs at Alfred, Kemptville and Ridgetown

The Diploma Program Instructors and Directors held numerous meetings with industry partners, recent program graduates and in-course students to ascertain interest in the development of 3-year Bachelor of Agricultural Technology programs. Interest has been keen and development is ongoing in a number of areas. The first of the proposals is expected to be put forward for University Senate approval in Fall 2001.

3.1 The VCEP Agreement

An Overview

The VCEP agreement provides annual base funding to the Ontario Veterinary College (OVC) to:

a) "meet the continuing need for veterinary graduates who have a high level of appropriate clinical experience in veterinary medicine to service Ontario animal owners",
b) "meet the continuing need for an animal referral hospital which will service satisfactorily Ontario's veterinary practitioners and animal owners".

In 2000/2001, base funding supported the three approved programs: a) Clinical Education; b) Externship; and c) Doctor of Veterinary Science (DVSc).

VCEP funding is critical to the overall operations of the College. It complements the budget received from the MTCU and allows the College to sustain the quality of its clinical teaching and service programs.

Objectives of the Program

a) continue to meet the accreditation requirements of the Canadian and American Veterinary Medical Associations as well as the College of Veterinarians of Ontario;
b) provide the clinical education component for approximately 100 veterinary students in the final year of the four year Doctor of Veterinary Medicine undergraduate program;
c) continue to operate the Veterinary Teaching Hospital clinics including large animal, small animal, field service and diagnostic laboratories;
d) continue to offer a one-year post-graduate Veterinary Internship Program in the large animal and small animal clinics for approximately four veterinarians annually;
e) continue to offer an advanced clinical training program of approximately three years duration entitled doctor of Veterinary Science for approximately twenty-eight post-graduate students in various medicine and health maintenance disciplines;

f) continue to offer to approximately 100 fourth year veterinary students, and externship program of no less than eight weeks of approved clinical experience with a private veterinary practitioner or a relevant public/private sector agency;
g) continue to offer referral and emergency veterinary services to Ontario veterinary practitioners and the animal-owning public. These include medicine and health maintenance services.

Resource Allocation

2000/2001 Budget and Expenditures

As of April 30, 2001, expenditures totalled $4,709,572 leaving a surplus of $69,952. The table provides details on the break down of budget and expenditures across the Clinical Education, Externship and DVSc programs.

VCEP Expenditures, Revenues and Budget
May 1, 2000 to April 30, 2001 ($'000)

VCEP Source of Funding	Vet Teaching Hospital	Dean's Office/ Reserves	Pathobiology	Clinical Studies	Population Medicine	Total VCEP
DVSc		470				470
Externship				288		288
Clinical Education	2,683		41	722	506	3,952
Total Expenses	2,683	470	41	1,010	506	4,710
Available Budget	2,682	461	42	1,036	559	4,780
Surplus (Deficit)	(1)	(9)	1	26	53	**70**

Table from VCEP Annual Report, 2000/2001 (page 3)

3.1.1 Budget

Table 3:1-1: Diploma program budgets and actual expenditures, 2000/2001 ($ '000)

Program	Alfred			Kemptville			Ridgetown			OAC			Totals		
	99/00 Actual	00/01 Budget	00/01 Actual	99/00 Actual	00/01 Budget	00/01 Actual	99/00 Actual	00/01 Budget	00/01 Actual	99/00 Actual	00/01 Budget	00/01 Actual	99/00 Actual	00/01 Budget	00/01 Actual
Agriculture	561	730	666	404	449	452	913	836	847	1,087	1,044	950	2,965	3,059	2,915
Horticulture	227	175	205	370	336	338	500	501	518	704	728	687	1,801	1,740	1,748
Food & Nutrition Management	195	163	137	452	366	369	–	--	--	--	--	--	647	529	506
Equine	--	--	--	515	667	670	–	--	–	--	--	--	515	667	670
Vet Tech	--	--	--	--	--	--	853	763	950	--	--	--	853	763	950
Overhead	640	620	634	469	428	439	291	378	298	573	567	409	1,973	1,993	1,780
Totals	1,623	1,688	1,642	2,210	2,246	2,268	2,557	2,478	2,613	2,364	2,339	2,046	8,754	8,751	8,569

3.1.2 Performance Measures

Enrolments

Table 3.1-2: Diploma Program Enrolments 1996/1997 – 2000/2001 (F-T students)

	Alfred	Kemptville	Ridgetown	OAC	Total	Change
2000/2001	118	238	323	381	1,060	2.3%
1999/2000	87	251	348	350	1,036	-8.7%
1998/1999	94	293	347	392	1,126	0.2%
1997/1998	112	272	316	424	1,124	1.8%
1996/1997	111	295	297	401	1,104	8.2%

Graduation Statistics

Table 3.1-3: 2000/2001 Graduates

	Alfred		Kemptville		Ridgetown		OAC		Total	
	99/00	**00/01**	**99/00**	**00/01**	**99/00**	**00/01**	**99/00**	**00/01**	**99/00**	**00/01**
Agric.	23	22	31	27	61	56	106	99	221	204
Hort.	3	12	9	13	24	17	44	53	80	95
Food	6	1	20	7	–	--	--	--	26	8
Equine	--	--	24	28	–	--	--	--	24	28
Vet Tech	--	--	--	--	36	34	--	--	36	34
Totals	32	35	84	75	121	107	150	152	387	369

Attrition Rates for 1999 and 2000 Cohorts

Table 3.1-4: 1999 Cohort

	Alfred	Kemptville	Ridgetown	OAC	Total
# Enrolled in Fall >99	45	142	155	189	531
# Enrolled in Fall '00	45	99	126	182	452
# Graduated	35	75	107	152	369
Attrition in Year 1	0%	30%	19%	4%	15%
Attrition in Year 2	22%	24%	15%	17%	18%
Total Attrition	**22%**	**47%**	**31%**	**20%**	**30%**

Table 3.1-5: 2000 Cohort

	Alfred	Kemptville	Ridgetown	OAC	Total
# Enrolled in Fall 2000	77	139	139	199	554
# Enrolled in Fall 2001	62	108	121	153*	444
Attrition Year 1	19%	22%	13%	23%*	20%

* Projection based on incomplete numbers from pre-registration in core course DAGR 3100. Registration numbers will be available September 2001.

Ridgetown: The 1998 Cohort figures for enrolment do not agree with last year's report because we have removed the Summer Vet Tech students. The summer Vet Tech program is a three year course and the numbers cannot be included with the courses that run for only two years. The following table summarizes the fall enrolments for the two streamers of this program that are now underway.

Summer Vet Tech Cohorts

	1998	**1999**	**2000***
# Enrolled in Fall 1998	36		
# Enrolled in Fall 1999	25	40	
# Enrolled in Fall 2000**	24	34	
# Enrolled in Fall 2001		31	
Graduated	24		
Attrition in Year 1	31%	15%	
Attrition in Year 2	4%	9%	
Attrition in Year 3	0%		
Total	33%		

* No intake of new students in the Fall 2000 (due to space).
** Actual number of students versus estimated last year.

Financial Efficiency

? ? Table 3.1-6 details costs per student at the four Colleges. Total cost figures at each location were calculated on the same basis. Cost differences between locations can be attributed primarily to differences in student numbers.

Table 3.1-6: Diploma Program Costs (includes Full Time and Part Time students)

	Alfred		Kemptville		Ridgetown		OAC		Total		Average ($)	
	99/00	00/01	99/00	00/01	99/00	00/01	99/00	00/01	99/00	00/01	99/00	00/01
Total Cost/College ($ '000)	1,623	1,641	2,210	2,268	2,557	2,613	2,364	2,046	8,754	8,568		
# Students	87	118	251	238	348	323	350	381	1,036	1,060		
Total cost/student ($)	18,655	13,911	8,804	9,529	7,347	8,090	6,754	5,370			8,449	8,083
Student fees paid ($ '000)	347	464	1,037	1,165	1,185	1,241	1,667	1,404	4,236	4,274		
OMAFRA cost/College ($ '000)	1,276	1,178	1,173	1,103	1,372	1,372	600	600	4,421	4,253		
OMAFRA cost/student ($)	14,667	9,979	4,673	4,634	3,943	4,248	1,714	1,575			4,267	4,012

Table 3.1-7: 2000/2001 Value of Diploma Student Assistance

	Alfred		Kemptville		Ridgetown		OAC		TOTAL	
	99/00	00/01	99/00	00/01	99/00	00/01	99/00	00/01	99/00	00/01
Student Awards ($)	10,800	36,400	35,370	35,275	33,175	37,250	42,000	48,900*	121,345	157,825
Value of Awards ($) per student	124	317	141	148	95	115	120	128*		

* Forecast

Quality of Programs

Table 3.1- 8: Employment statistics for graduates in 2000/2001 May survey
(percentage of graduates employed)

	Alfred %		Kemptville %		Ridgetown %		OAC %	
	99/00	00/01	99/00	00/01	99/00	00/01	99/00	00/01
Agric.	100	100	100	100	97	100	85	93
Hort.	96	100	83	100	100	100	88	87
Food	100	100	86	95	--	--	--	--
Equine	--	--	86	90	--	--	--	--
Vet. Tech.	--	--	–	--	75	94	--	--

3.2 Continuing Education (C.E.)

? ? Activities for Continuing Education are almost entirely self-funded through contracts and certificate courses (including residential programs of up to one academic year).

Table 3.2-1: 2000/2001 Actual Expenditures for C.E. ($ =000)

	Alfred		Kemptville		Ridgetown		Total	
	99/00 Actual	00/01 Actual	99/00 Actual	00/01 Actual	99/00 Actual	00/01 Actual	99/00 Actual	00/01 Actual
Total Revenues	808	643	1,302	1,479	1,717	1,883	3,827	4,005
Total Expenditures	910	655	1,670	1,676	1,509	1,814	4,089	4,145
Surplus (Deficit)	(102)	(12)	(368)	(197)	208	69	(262)	(140)
Revenue Components:								
Base funding	212	298	75	75	75	75	362	448
C.E.	564	282	963	1,078	1,366	1,597	2,893	2,957
Conferencing/Facility Rentals	32	63	264	326	276	211	572	600
Total Revenue	**808**	**643**	**1,302**	**1,479**	**1,717**	**1,883**	**3,827**	**4,005**

Table 3.2-2: Student Days and Range of Fees/Student Day

	Alfred		Kemptville		Ridgetown		Total	
	99/00	00/01	99/00	00/01	99/00	00/01	99/00	00/01
# of Student Days (6 hrs/day)	6,607	7,510	19,287	16,696	18,024	18,339	43,918	42,545
Fees/day ($)	23-100	23-200	70-95	70-95	76 avg.	76 avg.	--	--
Diploma Student Equivalent*	55	62	161	139	150	153	366	354

* Calculation: divide number of students days by 120.

3.2.1 Quality Evaluation

- All training programs have participant evaluations for completion at the program conclusion.
- Standardized course assessments for similar programs.
- Needs assessment C input from agri-food sector and C.E. council, community councils.

3.2.2 Effectiveness of Program Delivery

- Client evaluations and support.
- Repeat business (returning clientele).
- Follow-up with clients of conferences.
- Joint initiatives with industry C too numerous to list, and expanding.

4. LABORATORY SERVICES DIVISION

4.1 Budget

Laboratory Services (LS) provides analytical and diagnostic services to government, the University of Guelph, the veterinary industry and to the agri-food industry. LS is structured in three main work groups to provide these services. The work groups are Analytical Services (ASU), Regulatory Services (RSU) and the Animal Health Laboratory (AHL). The following report will focus on the overall results of the division as well as highlight some significant developments in the various workgroups.

Financial Results (for the year ended April 30, 2001) ($ '000)

	99/00	00/01	00/01
Expenditures	**Actual**	**Budget**	**Actual**
Animal Health Labs	4,800	5,100	4,800
Analytical Services	1,000	1,400	1,500
Regulatory Services	2,700	3,300	3,000
I & S*	2,000	3,200	3,200
Reinvestment	1,000	1,600	2,000
Total	**11,500**	**14,600**	**14,500**
Revenue	3,300	4,100	4,400
OMAFRA Funding	9,000	9,000	9,000
Carry forward surplus & other funding	600	1,500	1,500
Net Expenses	**8,200**	**10,500**	**10,100**
Surplus/(Deficit)	1,400	0	400

* Infrastructure and Support

Laboratory Services had another successful year financially. Financial highlights include the following:

- Revenue of $4.4 million exceeded budget by $316,000 and previous year by $1.1 million
- Reinvestment totaled $2 million and exceeded Budget by $360,000 and previous year by $1.6 million
- Despite significant reinvestment of over $2 million, LS continues to operate with a surplus ($421,000 at year-end). The year-end surplus of $421,000 is committed towards the final payments of LIMS software and new Bactoscans purchased during the fiscal year. LS has generated the necessary external funding to maintain and enhance its capabilities, while ensuring it operates in a financially prudent manner.

Performance Measures ($ '000's)	98/99	99/00	00/01	% growth
Quantitative				
External funding (includes UofG revenues)	$4,000	$5,100	$5,600	10
Reinvestment		433	2,003	363
Research grants (open at year end) *		570	1,368	140
Special Purpose grants (approved at year end) **		0	484	ND
Qualitative				
Maintain high customer survey ratings (scale 1-5)		4 to 5	4 to 5	NA
Maintain & enhance external accreditations		completed	completed	NA

* Administered as research grants through the Office of Research includes Poultry Baseline Survey for $542,000

** Administered as a Special purpose grant (Enhanced AHL Surveillance Program for $484,000)

The mandate of Lab Services is to generate funds to ensure the necessary reinvestment to maintain and enhance its capabilities, while providing quality service to OMAFRA, the UofG and other customers. The quantitative measures above indicate the requisite growth in external funding and resulting reinvestment is taking place. New equipment has been purchased, new tests have been brought on-line and new accreditations earned have opened the door to offer services to new market segments. The table below details key reinvestments made in 2000/2001. The qualitative measures indicate that a "quality service" is being provided.

Reinvestment ($'000's)

Reinvestment Expenditure	Work Group	Amount
LIMS for 95 Stone (phase 1) *	Division	$625
DNA Synthesizer	ASU	164
Simultaneous ICP	AHL	163
Computer upgrades	Division	134
Bactoscans (1st payment)	RSU	119
ASE extractor	RSU	85
HPLC	RSU	74
HPLC	ASU	60
Tissue processor	AHL	56
Spectrofluorophotometer	AHL	52
Other	Division	471
Total		**$2,003**

* LIMS – Laboratory Information Management System

The above reinvestment expenditures are a combination of replacement of aging core scientific equipment as well as investment in new technology which allows LS to extend its capability in providing analytical and diagnostic services. The LIMS project will be completed in the 2001/2002 fiscal year and it provides customers with improved sample tracking and timely reporting of test result information. In addition the new LIMS will also be integrated with OMAFRA's food safety data management systems.

Highlights – Quality Assurance

A very busy year for LS in enhancing our quality recognition. Successful audits were completed by the respective accreditation bodies resulting in the following:

- Expanding the scope of our ISO 9002 quality system for all labs at AHL
- Obtained preliminary GLP recognition for the Trace Organic & Pesticides section (full recognition pending an audit of completed GLP study)

The QA unit conducted its annual survey of its customer base (OMAFRA & external clients) on performance measures such as turn around time, reporting efficiency etc. The survey rated LS service very highly with the majority of scores in the 'very good to excellent' range (scores 4 - 5 on a 5 point scale).

Highlights – Regulatory Services

Adapting to changing OMAFRA needs, new tests (e.g. Carbadox) and extended hours have been introduced to provide the service required.

Significant growth in external revenues of more than $300,000 versus previous year.

Highlights – Analytical Services

The Molecular Biology section has enhanced its DNA synthesis service to better address the current and future needs of both academic and industry researchers working in the biotechnology field. The addition of more advanced instrumentation, along with a new direct on-line ordering system, will deliver faster turn-around times and more cost-effective support to these clients.

To help keep pace with the rapid evolution of the natural health products sector in Ontario, the Functional Food section has worked to expand its laboratory capabilities. In order to meet the changing needs of producers and processors, a broader scope of analytical services is now available along with increased sample handling capacities.

A new package of specialized analytical services was brought on-line by the Food and Dairy Chemistry section, that will address the requirements under the up-coming Nutritional Labeling regulations for pre-packaged foods. A full array of tests for both mandatory and additional permitted nutrient label claims have been developed to support the food industry's renewed need for these laboratory services.

Highlights – Animal Health Laboratory

AHL - Testing	99/00	00/01
Cases	37,783	40,121
Procedure counts	648,626	637,780

Cases submitted and test procedures conducted were relatively constant over the past several years, as evidenced in the above table.

The AHL operations were centralized during the year by closing the AHL-Ridgetown lab, downsizing the AHL-Kemptville lab, and redeploying resources to the AHL-Guelph lab. As part of the consolidation, we extended our operating hours in Guelph to provide more evening and Saturday service.

New tests offered to clients in Ontario, included: polymerase chain reaction (PCR) tests for bovine viral diarrhea virus (BVDV) typing, pathogenic leptospires, *Clostridium perfringens*; immunoperoxidase testing for transmissible gastroenteritis virus (TGEV); ELISA testing for *Sarcoptes* and for *Clostridium difficile* toxin.

A new AHL User's Guide was published to aid clients in their use of AHL services. AHL also keeps clients abreast of lab activities and disease trends through quarterly issues of the AHL Newsletter.

Highlights – Marketing

During the year, LS successfully bid and delivered 176 commercial-based fee-for-service projects, a significant portion were with new clients to LS.

In the upcoming year the Marketing unit will continue to broaden our client base as well as strengthen it with repeat business.

Highlights – Teaching & Research Activities

Research projects at LS are designed to enhance the analytical and diagnostic services provided by the division in areas of plant and animal health, food and agriculture. As evidenced by the research grant information in the "Performance Measures", LS scientists have been very successful in competitive research activities submitted during the year.

In the 2000/2001 fiscal year, LS scientists provided training for 19 undergraduate students, supervised or co-supervised 8 graduate students and 5 post-doctoral fellows, authored or co-authored 8 publications in peer reviewed journals, articles in newsletters and research magazines, published and presented 8 abstracts in scientific meetings. LS scientists gave 26 presentations in various workshops, industry meetings and scientific conferences. A total of 25 research projects currently in progress were initiated within the last two years and approximately half of these were initiated within the last fiscal year. OMAFRA and the Food Industry funded more than 70% of these projects. Research program at LS provides training opportunities for post-doctoral fellows, graduate and undergraduate students. Currently, there are 3 Ph.D. students, 3 M.Sc. students, and 10 undergraduate students working on research projects and special projects for analytical services

5. MEDIA COVERAGE

Students in the SPARK (Students Promoting Awareness of Research Knowledge) program in the Office of Research, University of Guelph helped to circulate 27 articles about research activities at Laboratory Services, Ridgetown, Kemptville and Alfred Colleges, and the Simcoe, Vineland, Bradford and New Liskeard research stations in 2000.

Cooperative efforts continued between the SPARK program and OMAFRA's *Agri-Food Research in Ontario* magazine. Students in the SPARK program wrote articles in the Magazine's Spring 2001 issue focusing on clean water research, and will continue to write for upcoming issues of the magazine.

Another new development involves the posting of SPARKplugs, a research column in the Guelph Mercury, also found on the University of Guelph home website. The columns are posted on a weekly basis at –http://www.uoguelph.ca/Research/, which will expand coverage for these columns, also circulated by the Canadian Press wire service.

All media articles about the enhanced partnership are listed in detail below:

Laboratory Services: (9 articles)

"Pinpointing the culprit in water contamination"
SPARKplug - *Guelph Mercury* - Sept. 30, 2000 - (Joseph Odumeru - researcher)

"Animal Health Lab is too centralized"
May 2, 2000 - UofG news release - (Pat Collins - LS general manager, Grant Maxie - AHL manager)

"UofG hosts conference on advances in agri-food technology"
Oct. 16, 2000 - UofG news release - (John Lynch - researcher)

"Spoilage takes a nose dive?"
Spring 2000 - *Research* magazine, pg. 6 - (Joseph Odumeru - researcher)

"One-stop chemistry shop"
Spring 2000 - *Research* magazine, pg. 33 - (Tope Ayanbadejo - researcher)

"Healthy animals; safe food"
Spring 2000 - *Research* magazine, pg. 40 - (Grant Maxie, Beverly McEwen - AHL manager, researcher)

"Monitoring milk"
Spring 2000 - *Research* magazine, pg. 45 - (John Lynch, Louise Spilsbury - researchers)

"A winning platform"
Spring 2000 - *Research* magazine, pg. 49 - (Shu Chen - researcher)

"A soybean a day"
Spring 2000 - *Research* magazine, pg. 38 - (Chung-Ja Jackson - researcher)

Collège d'Alfred (3 articles)

"Morrocan food for markets afar"
Spring 2000 - *Research* magazine, pg. 44 - (Charles Goubau)

"New centre ensures clean water for quality food production"
Spring 2000 - *Research* magazine, pg- 46 - (Anna Crolla - researcher)

"Collège d'Alfred receives funding for wastewater centre"
May 25, 2000 - UofG news release - (Gilbert Héroux, college director)

Kemptville College: (3 articles)

"Hemp finds a home in northern climates"
SPARKplug - *Guelph Mercury* - Feb. 6, 2000 - (Gordon Schiefele - researcher, Thunder Bay)

"Growing strawberries in Ontario's far north"
Spring 2000 - *Research* magazine, pg. 24 - (Becky Hughes - researcher, New Liskeard)

"Bagels and horse shampoo take top honours at Project SOY"
April 10, 2000 - UofG news release - (Sabrina Desjardins, Jessica Peltzer - students)

Ridgetown College: (3 articles)

"Top-grade tomatoes"
Spring 2000 - *Research* magazine, pg. 28 - (Steve Loewen - researcher)

"Field trials for transgenic plants underway at Guelph"
July 11 - UofG news release

"Water, with a twist"
Spring 2000 - Dairy Research *Pipeline* - (Vern Osborne - researcher)

Vineland Research Station: (5 articles)

"The fruits of their own labour"
Spring 2000 - *Research* magazine, pg, 27 - (Lisa Skog - researcher)

"Apple trees under construction"
Spring 2000 - *Food Inventory, (Research* magazine), pg. 12 - (John Cline, Mary Byl - researchers)

"A sweet deal for peach processing"
Spring 2000 - *Food Inventory, (Research* magazine), pg. 12 - (Neil Miles - researcher)

"The cherry that tops them all: Tehranivee"
Spring 2000 - *Food Inventory, (Research* magazine), pg. 13 - (Bill Lay - researcher)

"Van and Stella ... a tasty twosome"
Spring 2000 - *Food Inventory, (Research* magazine), pg. 13 - (Bill Lay - researcher)

Simcoe Research Station: (4 articles)

"Award-wining project evaluates the best apple varieties"
Nov. 14, 2000 - UofG news release - (John Cline - researcher)

"Exotic nuts from domestic places"
Spring 2000 - *Food Inventory, (Research* magazine), pg. 6 - (Alan McKeown - researcher)

"Currants make disease-resistant comeback"
Spring 2000 - *Food Inventory, (Research* magazine), pg. 11 - (Adam Dale, Sam Wong - researchers)

"Sweet potatoes sprout in the tobacco belt"
Spring 2000 - *Food Inventory, (Research* magazine), pg. 17 - (Alan McKeown - researcher)

MEDIA PICK UP:

Articles that received strong media pick up in 2000 included.

"A sweet deal for peach processing"
Spring 2000 - *Food Inventory, (Research* magazine), pg. 12 - (Neil Miles - researcher)
Newspaper circulation topped 650,000

"Bagels and horse shampoo take top honours at Project SOY"
April 10, 2000 - UofG news release - (Sabrina Desjardins, Jessica Peltzer - Kemptville college students)
Newspaper and Broadcast News circulation topped 150,000

"The fruits of their own labour "
Spring 2000 - *Research* magazine, pg. 27 - (Lisa Skog - researcher)
Newspaper circulation topped 200,000

"Pinpointing the culprit in water contamination" SPARKplug - *Guelph Mercury* - Sept- 30, 2000 - (Joseph Odumeru - researcher)

APRIL 2001
6. EQUIPMENT INVENTORIES (INCLUDING LIBRARY HOLDINGS)

The following summary of estimated equipment replacement values is submitted in compliance with the requirements of the Memorandum of Agreement (1996) and includes the following institutions which became part of the University of Guelph as of April 1, 1997:

Laboratory Services Division
Alfred College
Kemptville College
Ridgetown College
Horticultural Research Institute of Ontario

	Cost Value	($ '000) Estimated Market Value or Acquisition Cost	($ '000) Estimated Replacement Cost
Alfred College		1,521	4,600
Kemptville College		3,982	5,600
Ridgetown College	4,926	2,789	4,900
Horticultural Research Inst.		2,303	6,900
TOTAL			**22,000**
Lab Services Division		13,153	26,000
Research Stations Operations - Guelph			
- Owned equipment			12,900
- Leased equipment			2,100
			15,000
Total			**63,000**

Note: Estimated Replacement Cost = Acquisition Cost x 2
Estimated Replacement Cost = Market Value x 3

APRIL 2001

7. INVENTORY OF DWELLING HOUSES, RENTS, AND ACCOUNTS STATUS

	# Units		
Kemptville College			
Kemptville	1		
New Liskeard	3		
Total	4		
Revenue		13,204	
Expenses		8,924	
Account balance: Opening			**17,743**
Closing			**22,023**
Ridgetown College			
Ridgetown	2		
Cedar Springs	1		
Total	3		
Revenue		16,242	
Expenses		6,798	
Account balance: Opening			**31,097**
Closing			**40,541**
Guelph Stations			
Ariss	3		
Cambridge	1		
Alma	1		
Hall House	1		
Ponsonby	1		
Arkell	3		
Simcoe	1		
Vineland	2		
Total	13		
Revenue		70,100	
Expenses		141,915	
One Time Removal		200,000	
Account balance: Opening			**250,327**
Closing			**(21,488)**

Note: January 1999 ORC/UofG "M" lease expired. Negotiations are continuing with ORC regarding a new "M" lease.

APRIL 30, 2001

8. LIVESTOCK INVENTORIES

	OPENING MAY 1, 2000	SOLD	DIED *	TRANSFERRED		BORN OR ACQUIRED	CLOSING APRIL 30, 2001
				IN	OUT		
ALFRED							
DAIRY	74	36	9	--	--	37	66
KEMPTVILLE							
DAIRY	130	150	19	44	14	134	125
NEWLISKEARD							
BEEF	301	181	1	--	--	151	270
SHEEP	508	140	168	106	157	685	834
RIDGETOWN							
DAIRY	73	33	2	14	13	36	75
BEEF	109	95	3	2		11	24
SWINE	555	1,240	114	1,814	1,976	1,343	382
GUELPH							
ARKELL EQUINE	56	4	27	22	15	19	51
ARKELL POULTRY	6,231	4,803	9,177	--	--	14,670	6,921
ARKELL SWINE	2,115	4,315	2,644	--	441	6,247	962
ALMA AQUA	129,000	98,900	39,700	25,600	28,400	131,800	119,400
CLINICAL RESEARCH (SWINE)	--	--	--	250	250	--	--
CLINICAL STUDIES (DAIRY)	44	10	3	46	10	--	67
ELORA DAIRY	295	67	17	41	101	132	283
ELORA BEEF	531	339	17	4	33	327	473
PONSONBY DAIRY	98	25	12	33	65	67	96
PONSONBY (GAF)**	220	109	5	108	190	54	78
PONSONBY SHEEP	422	182	22	--	35	154	337

* These figures include animals that are born dead and those which are euthanized for humane, disease and research reasons.

** General Animal Facility

ACRONYMS

AAFC	Agriculture and Agri-Food Canada
AHL	Animal Health Laboratory
ARIO	Agricultural Research Institute of Ontario
CFI	Canadian Foundation for Innovation
CFIA	Canadian Food Inspection Agency
CRIFS	Canadian Research Institute for Food Safety
GLP	Good Laboratory Practices
HRIO	Horticultural Research Institute of Ontario
ISO	International Standards Organization
LIMS	Laboratory Information Management System
LS	Laboratory Services
MOA	Memorandum of Agreement
OAC	Ontario Agricultural College
OASIS	OMAFRA Agreement Information System
OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs
ORC	Ontario Realty Corporation
OVC	Ontario Veterinary College
OYAP	Ontario Youth Apprenticeship Program
RSO	Research Stations Operations
TORC	The Ontario Rural Council
VCEP	Veterinary Clinical Education Program