

Centre de Recherche en Horticulture at Laval University

ORIGIN

The Centre de Recherche en Horticulture (CRH) was officially recognized by Laval Univ. in Jan. 1990. The CRH was created by fusing two complementary groups, the Specialization Center for Greenhouse Production and the Fruit and Vegetable Conservation Research Group. The CRH also is involved in continuing the research program on greenhouse productivity. The success of this program enabled Laval Univ. to appoint three new professors. Other professors have joint industry-Natural Sciences and Engineering Research Council of Canada positions or regular university positions in microbiology, soil physics, integrated insect and disease control, postharvest technology, turf management, and greenhouse engineering.

MISSION/MANDATE

The CRH'S mission is, above all, to train researchers and specialists working in diverse disciplines of horticultural science. Researchers trained at the doctoral level are employed in private and public research and teaching institutions in Canada and overseas. Specialists at the masters level usually act as horticultural advisors in public and private organizations.

The CRH'S second goal is to increase knowledge in the horticultural sciences and the various contributing disciplines, such as crop physiology and management, cytology, chemistry, genetics, computer and engineering science, soil microbiology, physics, and plant pathology and entomology.

The third goal is to meet the requirements of the horticultural industry in Quebec and Canada by finding ecologically sound, high-performance alternatives to current technology, thus increasing competitiveness and the quality of products for consumers.

MODERN INFRASTRUCTURE

The members of the CRH have made great efforts to obtain modern research facilities. These facilities now include 24 experimental greenhouses, totaling 4000 m², constructed

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Professor and Chair.

The Envirotron was built with financial support from the Quebec and Canadian governments, Provigo Distribution, ICG Propane, Daishowa Inc., a group of small enterprises involved in Quebec horticulture, and Laval Univ.

during 1985-91; the Joseph-Rhéaume Experimental Farm obtained in 1991 and improved and enlarged in 1992 to a total area of 140 ha; scientific equipment worth several hundred thousand dollars; and the Envirotron containing specialized laboratories, controlled-environment chambers, and office space. The CRH'S efforts have provided Laval Univ. with research facilities worth \$15,000,000. The Envirotron was built with financial support from the Quebec and Canadian governments, Provigo Distribution, ICG Propane, Daishowa Inc., and a group of several small enterprises involved in horticulture.

HUMAN RESOURCES

In parallel to the improved infrastructure, the CRH has increased personnel and improved the scientific program. Today, the CRH includes 20 professors; 77 doctoral and masters level students; six postdoctoral researchers; and 20 research assistants, technicians, and support staff. Salary and other financial support come from grants and research contracts awarded to full and associate members of the CRH. The expertise acquired by the CRH'S administrative and scientific personnel over the past 7 years ensures better supervision for the students and higher quality research.

SCIENTIFIC PROGRAM

The scientific program, initially based on increasing the availability of high-quality fruit, vegetables, and floral crops, has progressively

expanded to all horticultural products with increased emphasis on the environment. Reduced pesticide use, more ecological fertilizer use, horticultural development of various types of biomass, and the quality of urban life have become priorities. Relevance and socioeconomic impact remain high priorities in CRH research.

The research conducted from 1985 through 1990 was generally applied in nature because it fell within the priorities of a Ministry of Higher Education and Sciences structural program aimed at re-establishing applied research. More recently, the appointment of new professors, increased doctoral student enrollment, more postdoctoral researchers, and scientific exchanges with international researchers through the Quebec-France, Quebec-Belgium, and Quebec-USA exchange programs have encouraged more fundamental research and the emergence of research in biological control, plant biology, ornamental horticulture, and computer sciences.

SCIENTIFIC PRODUCTIVITY

Training specialists and researchers

Over the past 3 years, CRH professors have supervised 123 masters students, 36 doctoral students, and nine postdoctoral researchers. Sixty-six have graduated from the various masters programs, 16 have graduated from the doctoral program, and three have left the Faculty of Agriculture and Food after postdoctoral studies. All Québécois masters graduates have found work in specialized horticultural enterprises; the foreign students generally have returned home to work as agricultural advisors. Several doctoral students have been employed as researchers, and others are currently completing postdoctoral studies outside Quebec.

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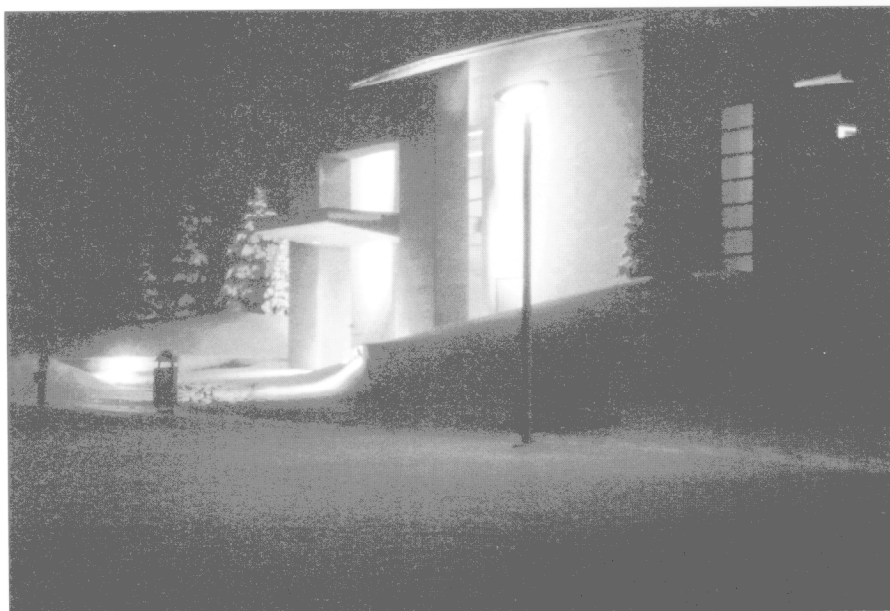


Fig. 1. The Envirotron is a new building on the Laval Univ. campus. It houses modern research facilities for the Centre de Recherche en Horticulture.

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Scientific and technical publications

Several CRH members, notably Nicole Benhamou, Richard Bélanger, Yves Desjardins, and Serge Yelle, have contributed chapters to collective publications. Their contributions to edited volumes of international standing reflect the growing reputation of the CRH and many of its members. Moreover, CRH members have published nearly 200 scientific articles in peer-reviewed journals in plant biology, engineering, food science and technology, plant pathology, and horticulture. CRH members publish in fundamental journals that are read by many researchers and in the world's best horticultural journals. CRH members will continue to submit research for publication in international journals. CRH members also recognize the importance of technology transfer and have published more than 100 technical articles over the past 3 years.

Scientific communications

CRH members present their research results in international scientific conferences and workshops. Since 1990, they have presented 202 communications and posters throughout the world, including American and Canadian conferences for horticultural science, plant pathology, plant physiology, engineering, and food science and technology, as well as specialized symposia. Moreover, more than 50 professional presentations are given each year to various groups from the Quebec and Canadian horticultural industry to promote technology transfer.

NATIONAL AND INTERNATIONAL REPUTATION

CRH faculty members have collaborated with university researchers and with organizations and institutions elsewhere in Canada and the world. The internal collaboration involves several Faculté des Sciences de L'Agriculture et de L'Alimentation (FSAA) faculty researchers in plant science, agricultural economics, agricultural engineering, human nutrition, and soil science, as well as researchers from the forestry and entomology faculties. There is widespread, diverse external collaboration, particularly with researchers from Agriculture Canada.

CRH faculty work with foreign researchers through exchange programs such as Quebec-USA, Quebec-France, and Quebec-Belgium. Other collaborative projects are underway with the Univ. of Guelph; McGill Univ.; the Univ. of Waterloo; Wageningen, Holland; France; Belgium; and the Univ. of California



Fig. 2. The Envirotron contains eight specialized laboratories, controlled-environment chambers, and office space for the Centre de Recherche en Horticulture.

at Davis. Finally, the CRH is a founder-member of the European University Greenhouse Association, which brings together the most important researchers in greenhouse production in Europe (France, Belgium, Spain, Greece, Italy, and Switzerland) and Morocco. Blanche Dansereau currently is the association's vice president.

CRH scientists also conduct numerous research projects in collaboration with the private sector. These include research with Hydro-Quebec, Osrom Sylvania Canada, Dupont Canada, ICG Propane, Provigo Distribution, Pillsbury, Nabisco, Daishowa, Monsanto, Plant Genetic Systems, Landis and Gyr Power, Plant Product, Industries Harnois, AT Plastic, Ciba-Geigy, Tourbière Premier, Fafard and Frères, Composts du Québec, Gazon Richer, Pelouse Boulet, Comptoir Richelieu, Pépinières Abbotsford, Ferme Gaétan Hamel, Quebec Multiplants, Ferme JPL, Hydronov, Serres St-Laurent, Nutrite, Texel, Fraises de l'Île d'Orléans, Aliment Carrière, Continental Mushroom, Industrie Lassonde, Titan Informatique, and several other organizations and associations.

RESEARCH ORIENTATION AND COORDINATION

CRH research is aimed at meeting the requirements of horticultural producers, organizations active in the horticultural sector, and society in general. Our research goal is to develop or adapt new technology and to increase fundamental knowledge that supports

continuing progress in horticulture. To reach these goals, the CRH has a board of directors, an advisory committee, and several working groups uniting researchers and industry representatives. We ensure greater relevance for our activities by the participation of CRH members in industry activities involving technology and information transfer, as well by the active participation of horticultural industry representatives in orienting our research.

Training specialists and researchers in the horticultural sciences is a priority to meet industry requirements and ensure that industry members remain competitive. To this end, CRH members supervise more than 70 graduate students who conduct thesis work in the various FSAA programs (plant biology, soil science, agricultural engineering, food science and technology, and agricultural economics).

The exceptional performance of CRH members in recent years has encouraged both FSAA and Laval Univ. to increase support for our activities. This is also true for principal government organizations and industry. We have the firm intention of continuing our active contribution to the development and prosperity of the horticultural industry in Quebec and Canada, and we are ready to collaborate with all parties involved in the horticultural sector.

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