

# Collection Policy: HORTICULTURAL SCIENCES

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## 1.0 TEACHING, RESEARCH AND EXTENSION PROGRAMS

Horticulture at Cornell is divided among three academic departments (including Geneva) and is comprised of three graduate fields: [Floriculture and Ornamental Horticulture](#) (FOH), Pomology, and Vegetable Crops. All three fields offer M.S., Ph.D., and M.P.S. (Agr.) degrees. Cornell was the first institution in the U.S. to offer a Ph.D. in vegetable crops. FOH is a CALS department; Pomology and Vegetable Crops were combined into the CALS [Department of Fruit and Vegetable Science](#) in 1990. Research at the [Department of Horticultural Sciences](#) at the Geneva Experiment Station is coordinated with that of the Department of Fruit and Vegetable Science in Ithaca. In horticulture, Geneva concentrates on fruit breeding and physiology, orchard management in pomology, and research in processed and fresh vegetable crops. All research is coordinated with the Ithaca campus.

Under the leadership of Liberty Hyde Bailey, Cornell pioneered in the application of the principles of science (biological and physical) to horticulture. While there is a strong emphasis by Cornell University on horticultural crops of commercial interest in New York State, research and instruction interests are international in scope and encompass virtually every aspect of modern horticulture.

### *1.2 Faculty research*

Horticulture, as defined departmentally above, includes 37 faculty and up to 5 research associates. The research projects and interests of individual faculty are described in a set of departmental brochures on file in the collection development office. The range of horticultural research interests is fairly represented in section 2.2 below.

### *1.3 Graduate program*

There are about 61 graduate students with a major in Horticulture, about 40% of which are foreign students. The graduate field of Floriculture and Ornamental Horticulture is subdivided into the following concentrations: floriculture crop production, horticultural physiology, landscape horticulture, nursery crop production, nutrition of horticultural crops, plant materials and horticultural taxonomy, plant propagation, turfgrass science, urban horticulture, and weed science. The graduate field of Vegetable Crops is not divided into formal concentrations.

### *1.4 Undergraduate program*

There are currently about 58 undergraduate majors, of which two-thirds are in the landscape horticulture concentration of FOH. In addition, some students with declared majors in Plant Sciences focus their coursework in horticultural science.

### *1.5 Extension activity*

Vegetable extension emphases include muck and other vegetable production, weed science, postharvest physiology, potatoes and bean production, and 4-H and home gardening. Fruit extension deals with tree fruit production, small fruit farming and weed science. FOH extension specializes in turfgrass science, nursery crops, floricultural science, landscape horticulture, urban horticulture, 4-H and youth work, consumer homes and grounds, and weed science.

### *1.6 Noteworthy facilities (e.g. unique classrooms, laboratories, farms, etc.)*

Facilities utilized in research include, for Vegetable Crops, the Freeville farm and Homer Thompson Lab, the Guteman Greenhouses, growth chambers, and lab and the East Ithaca farm. Fruit Science uses the Cornell Orchards, the Lansing orchard, the Long Island lab, and, in Geneva, the Highland and Fredonia Labs. Floriculture and Ornamental Horticulture uses the Kenneth Post Laboratory and Greenhouses, the test garden and nursery, the turfgrass research field lab, the Riverhead Lab, and the Minns Garden.

## 2.0 SUBJECT DESCRIPTION AND GUIDELINES

## ***2.1 Subject definition***

Horticulture is the growing of flowers, fruits and vegetables, and of plants for ornament and fancy. Incident to the growing of the plants are all the questions of plant-breeding, variation of plants under domestication, the bearings and applications of many biological and physical sciences, and the manufacture of many products. From: Liberty Hyde Bailey Standard Cyclopedia of Horticulture, 1925. In more contemporary parlance, horticulture is defined as the intensive cultivation of plants for food or aesthetics.

## ***2.2 Subject scope***

Mann Library collects at a research level in all the areas comprising horticulture. Horticulture encompasses fruit science (pomology), vegetable crops (olericulture), and floriculture and ornamental horticulture (cultivation of plants to enhance our surroundings). This latter includes floriculture (production and uses of cut flowers, bedding plants, and potted plants), ornamental horticulture/nursery production (herbaceous and woody plants for landscape plantings), and landscape horticulture, (the care of plants in the landscape). Landscape horticulture is subdivided into arboriculture, landscape construction, landscape maintenance, and turfgrass culture. All three main areas include crop production, weed science, post-harvest physiology and storage.

Publications on landscape architecture (the planning and design of outdoor space for human use and enjoyment) are collected by the Fine Arts Library, with Mann collecting materials on the actual plantings and maintenance. Park management (planning, developing, and managing public and private landscaped areas, large and small, urban and wilderness) is collected at Mann at a research level and described in the Natural Resources collection policy.

Horticulture as an art, a science, and an industry, is directly affected by contemporary economics, health and lifestyle trends, and technologies. Emerging trends include increasing globalization of commerce in agricultural products, which makes N.Y. and U.S. horticultural industries more vulnerable than ever before to competition from distant parts of the world, and the opportunities provided by export of New York State products. Much research is aimed at improving competitiveness and profitability through extending the growing season through controlled environments (improved greenhouse production, row covers, etc.), and reducing energy, labor and transportation costs.

Health and environmental concerns focus on reduction of pesticide inputs via integrated pest management and biological controls, increased breeding for qualities other than yield, and agro-ecological studies concerning the sustainability of horticultural production systems. [A more holistic approach to horticultural research is also reflected in both a popular and scientific tendency to view the principles of sustainable plant husbandry as a useful model for our stewardship of the Garden Earth itself.] Genetic regulation of plant growth and characteristics through biotechnology is a strong emphasis at Cornell, where the "gene-splicing gun" was developed by a strawberry breeder. Consumption of horticultural crops could increase with nutritional concern about, and consumer health interest in, increased vitamins and minerals via more and fresher fruits and vegetables in the daily diet. A related trend is growing and developing markets for specialty crops from Asia, and Central and South America. Popular consumer support for local small farm enterprises manifests itself in the continuing growth of farmers markets and "consumer supported agriculture" schemes. Consumer horticulture, which grows in large part out of health, environmental and lifestyle interests, is a rapidly growing area of commercial and research interest. Disposition of wastes and utilization of waste products (e.g. compost) are important issues at this time.

The following related areas are fundamental to the study of horticultural crops: agricultural economics, plant biology, food science and technology, climatology and meteorology (esp. microclimate control), plant breeding (including germ plasm), molecular genetics, plant pathology, entomology, weed science, ecology, agricultural engineering, post-harvest physiology, and storage.. In general, these topics are mentioned only very generally in the following, as they are treated in detail in separate policy statements.

### ***2.2.1 Plant biology and environmental influences***

Taxonomy, cell biology, vegetative growth and development, reproductive development, plant metabolism; developmental physiology and environmental stress physiology; root growth and rhizome sphere dynamics, influence of temperature, water, light, soils, and nutrition on plant growth and development.

### ***2.2.2 General horticultural practices, techniques, equipment and concerns***

Plant propagation (sexual and asexual techniques), apomixis, tissue culture; pruning, grafting, and growth control (physical and chemical methods); plant breeding and varietal evaluation; pest control (insects, nematodes, diseases, weeds, pesticides); production and harvest mechanisms; mechanization, energy consumption and production efficiency of cropping systems; alternative production systems; post-

harvest biology and technology; storage technology; rootstocks and compound genetic systems; seed research; seedling establishment; patent techniques; water utilization and management; growth chambers and controlled environments; greenhouse design and management; greenhouse production systems; computer applications in horticulture; commercial horticulture; marketing and food processing issues; horticultural sales and service businesses.

### ***2.2.3 Pomology***

All fruit and nut species, major and minor, including: temperate tree fruits, tropical fruit and plantation crops, subtropical fruit and plantation crops, viticulture, nuts, small fruits. Includes all general horticultural topics listed above, with special emphasis on fruit crop physiology; orchard, small fruit, and vineyard management (site selection, pruning systems, water relations, cold hardiness, fruit growth, maturity, flowering, pest control, groundcovers, soil management); fruit quality; environmental impacts of irrigation systems; sustainability of production systems; nursery management. Viticulture is primarily collected at Geneva, with economic aspects of interest to Agricultural Economics collected by Mann Library.

### ***2.2.4 Vegetable Crops***

All temperate, tropical and subtropical annual and perennial vegetable crop species, including potatoes and dried beans, are of interest. Includes all general horticultural topics listed above, with special emphasis on: vegetable production systems (including economics and sustainability), vegetable crop physiology; varietal evaluation; mechanizing vegetable production; and vegetable crop management (site selection, cropping systems, water relations, cold hardiness, maturity, flowering, pest control, groundcovers, soil management).

### ***2.2.5 Floriculture***

Includes the biology, management, production, harvesting, storage, marketing and sales of: cut flowers, potted plants, bedding plants, hanging baskets, and foliage plants. Flower design and arrangement (popular literature collected very selectively); craft use of dried flowers (collected selectively), interior design with plants; language of flowers;

### ***2.2.6 Ornamental/landscape horticulture***

All aspects of nursery management, including: in-ground and container plant production; and soil mixes. Horticultural sales and services businesses, e.g., garden centers, retail florist and nursery stores, wholesale marketing operations, mail-order businesses, mass markets, interior and outdoor landscape services. Landscape construction methods and materials; selection of plant materials; landscape maintenance. Sod production and turfgrass management; fate of fertilizers, pesticides and herbicides in the soil. Arboriculture; pruning; special planting situations; Urban horticulture. Home gardening and landscaping; perennial borders; ground covers; garden furniture, structures and design. Substantial and technically sound popular gardening books, especially encyclopedias and handbooks, are purchased fairly comprehensively in English. However, the second tier of popular gardening material is only collected selectively, the purpose being to represent in the collection all significant gardening methods and theories, fads and fancies, while avoiding titles which apparently contain only redundant information with no significant new perspective on or fresh approach to the garden subject at hand.

### ***2.2.7 Miscellaneous topics***

Tropical horticulture; horticultural education; extension work in horticulture; sociohorticulture; psychological benefits of plants; economic benefits of gardening and landscaping; horticultural therapy; herbs, spices and medicinal plants; lists of plants suited to specific conditions; school gardening; community and urban gardens; biodiversity of horticultural crops. Restoration of degraded ecosystems with horticultural techniques. Natural history of famous parks (scientific, not popular, works). Histories of horticultural societies at a State level. History of horticulture.

### ***2.2.8 Exclusions***

Nature crafts using plants (e.g., herbal gifts, pressed flowers, cosmetics)  
Outdoor furniture construction  
Reminiscences of famous gardeners

## ***2.3 Emerging trends in the subject area***

Restoration of degraded ecosystems, biotechnology for improved plants, greater emphasis on taste and flavor, the anti-cancer properties of

plants.

### **3.0 SPECIAL INFORMATION NEEDS AND RESOURCES**

#### ***3.1 Special information needs of those working in this subject area.***

- Plant selection software.
- Networked information resources for cooperative extension
- HortBase, when it is completed by the AHS
- AGRICOLA
- BIOSIS
- CAB

#### ***3.2 Special collections or noteworthy resources in the field***

#### ***3.3 Endowment funds or special funding arrangements***

- Mann Endowment -- general biology
- Minns -- floriculture
- Burnham -- botany
- Ferguson -- botany
- Bertelle Mills -- gardening

### **4.0 TYPES OF MATERIALS**

#### ***4.1 Priorities for types of materials***

See [Priorities Table](#).

Conference proceedings, even those which are several years old, are often useful as an overview of research. They are often the only source available for work in Africa. The International Society of Plant Propagators and its local chapters publish valuable proceedings.

#### ***4.2 Format***

#### ***4.3 Geographical guidelines***

Global, but chiefly temperate. Works on home gardening are limited to the Northern temperate U.S.

#### ***4.4 Language guidelines***

Primarily English. Major works in French, Spanish, and German.

#### ***4.5 Chronological guidelines***

Current.

### **5.0 OTHER RELATED LIBRARY COLLECTIONS**

Fine Arts Library collects in landscape architecture and in famous or historic gardens. The Bailey Hortorium collects plant systematics and botanical illustration.

**6.0 POLICY QUESTIONS, COLLECTION NEEDS, FUNDING PROBLEMS OR OPPORTUNITIES**

Mann and the Fine Arts Library need to discuss the division of collection responsibility between FAL and Mann in relation to landscape architecture. Currently, Fine Arts collects on a large scale, Mann on a smaller scale, emphasizing practical projects.

Ken Mudge should be consulted re online resources.

**7.0 PRINCIPAL LC CLASSES**

SB317.5-479  
 SB998.N4

**8.0 RELATED COLLECTION POLICIES**

- o ABEN
- o AGRO
- o [ARME](#)
- o [ENTO](#)
- o NATR -- park management
- o NUTR
- o PLBI
- o PLBR
- o PLPA
- o TOXI -- effects of chemicals on plants

**Priorities Table for Horticultural Sciences**

Code	IMPORTANCE/INTENSITY CODES DEFINITIONS
<b>NA</b>	Not applicable to the discipline.
<b>0</b>	Ephemeral; of insufficient value to be provided by library.
<b>1</b>	Of short term interest, but with little or no enduring value; very selectively acquired; retained, uncataloged, for limited duration only, e.g. newsletters in newly emerging, poorly documented areas, and manuals or pamphlets for reserve reading.
<b>2</b>	Limited scholarly interest or utility; collected very selectively, but not of high priority.
<b>3</b>	Important for research and/or instruction; should be well represented, but collected selectively rather than intensively.

4	Very important for faculty and/or students; intensively collected, i.e. every effort is made to provide as deep coverage of this literature as possible.
5	Essential to work in the discipline; the most important type of material for research or instruction purposes. Ensuring the highest possible coverage should be the library's top priority in this discipline.

Code	SERIALS	Notes
5	Journals, scholarly	-
5	Journals, technical	-
-	Journals, other (describe)	-
5	Annual reviews, advances in...	-
5	Scientific and technical reports and research bulletins of major academies, learned societies, professional research and educational organizations and government agencies	-
5	Proceedings, of international congresses and symposia	-
4	Proceedings, national or local	-
3	Statistical series	-
3	Trade journals and periodicals	-
2	Popular periodicals, hobby	-
4	Popular periodicals, semi-technical	-
4	Popular periodicals, farm press	-
1	Newsletters/newspapers	-
0	Proceedings of legislative bodies	-
2	Student publications	-
1	Administrative publications of major academies, learned societies, professional, research and educational organizations and government agencies	-
1	Corporate annual reports	-

3	Yearbooks	-
1	Press releases	-
3	Lists	variety lists of current and historical interest
0	Working papers	-
<b>Code</b>	<b>MONOGRAPHS</b>	<b>Notes</b>
5	Major scholarly monographs	-
5	Professional and technical	-
4	Subject histories	-
4	Textbooks, upper division, graduate	-
3	Biographies	-
2	Popular monographs	-
3	Technical reports	-
3	Government reports	-
4	Proceedings, international	-
4	Proceedings, other	-
0	Theses and dissertations (outside CU)	need to be able to access on demand
0	Festschrift	-
0	Patents	-
0	Corporate histories	-
0	How-to books & lab manuals	Send to faculty
0	Pamphlets	-
1	Ephemera (describe)	-
4	Maps	weather and climate, soils, vegetation, hardiness zones

3	Technical bulletins/handbooks/compendia	-
<b>Code</b>	<b>ELECTRONIC INFORMATION</b>	<b>Notes</b>
3	Applications programs	-
5	Bibliographic databases	-
3	Bulletin boards	-
3	Fulltext files	-
3	Geographic information systems	-
4	Numeric/statistical files	NYS and National Agriculture Statistics, Agricultural Service Statistics
-	Other (describe, taking as much space a necessary)	-

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