

CHRONOLOGICAL HISTORY OF HORTICULTURE  
AT OREGON STATE UNIVERSITY, 1872-1967

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A chronology of horticulture at Oregon State University begins approximately three years after Corvallis College was designated the "Agricultural College of the State of Oregon" in 1868-1869. On page 16 of the Catalogue of Agricultural College 1872-1873 (1), under the heading Special Studies of Agriculture, is the following quoted statement:

"The general principles of Agriculture are taught in the Chemical Department. The following special studies are taught: Composition and analyses of soils; preparation of soils, manures, modes of drainage, etc. Methods of preparing farm buildings, stock raising, fruit culture, and as soon as possible the Special Geology of Oregon."

The textbooks listed for these special studies include "Downing on Fruit Culture" and "at an advanced point in the course Kemp's Landscape Gardening." Since these agricultural studies were taught in the Chemistry Department, and with a total faculty of the College of six members, the assumption might be made that B. L. Arnold, President of the College and Professor of Physics, may have taught these special studies (The School of Physics at that time included three departments--Chemistry, Natural Philosophy, and Biology).

The appendix to the Governor's message of the Seventh Regular Session (1872) contained a report of the Agricultural College including the following on pages 9 & 10:

Freshman Class. Agriculture--Theory and Practice of Agriculture, Principles of Tillage, Drainage, Landscape Gardening.

Sophomore Class. Agriculture--Theory and Practice of Agriculture, Horticulture, Farm Implements and Drainage, Stock Breeding.

Junior Class. Agriculture--Theory and Practice of Agriculture, Training and Culture of Fruit Trees, the Vine, Small Fruits, Culture of Flowers.

Senior Class. Agriculture--Theory and Practice of Agriculture, Laying out of Lawns, Ornamenting Grounds, etc.

1874-1885. B. J. Hawthorne, Professor of Languages, taught the first class in horticulture at Oregon State (2,3). This course was entitled "Fruit Culture", the textbook used was Downing's Selected Fruits, the course was taught principally by lectures, and the leading subjects were as follows:



1. Production of new varieties of fruit
2. Duration of varieties
3. Propagation of varieties, grafting, budding, cuttings, layers, and suckers
4. Pruning
5. Transplanting
6. General remarks on insects
7. The best varieties of apples, cherries, pears, currants, gooseberries, strawberries, grapes, peaches, melons, raspberries, blackberries, and plums.

Professor Hawthorne's personal comments regarding his teaching responsibilities were as follows: "I would respectfully state that I have actually taught classes in all the above subjects (English, German, French, Latin, and Greek) for the last two years. This has compelled me to labor at least ten hours a day. And in addition to all this work, I teach a class in Botany and also one in Fruit Culture" (2,3). Professor Hawthorne resigned his position in 1883 to accept a position at the State University. The records show he continued the above indicated teaching responsibilities until his resignation.

In 1885 the Oregon Horticultural Society was formed. From the beginning to the present time the staff of the Horticulture Department has been closely associated with this organization. For many years and up to the present time (1967), the secretary of this society has been the extension horticulturist, and the departmental staff is involved in the educational and business affairs of the society.

#### 1888-1905

##### The First Seventeen Years

1888-90. President B. L. Arnold's 1888 report (4) made reference to the need for horticultural buildings, and "in the horticultural department" for orchards, nurseries, and experimental land for "testing, improving, and adapting fruit trees, vines, nuts, and vegetables." In this same report Professor E. R. Lake made a brief report under "The Horticultural Department." In the 1888-1889 catalogue (5) E. R. Lake is listed as Professor of Botany and Horticulture and Horticulturist of the Oregon Agricultural Experiment Station. The course of study for the State Agricultural College included:

2nd year, Spring Term - Horticulture  
 3rd year, Winter Term - Orchards & Gardens  
 Post Graduate Year - Landscape Gardening & Floriculture

In the first annual report in 1889 of the Oregon Experiment Station (6), E. Grimm, Director of the Experiment Station reported:

"The Chemist and Horticulturist of the Station were not elected till August, 1888, and entered upon their duties the September following,



under the then existing circumstances no work of an experimental nature could, at that time, be entered upon, for the reason that there was absolutely nothing to commence such work with. The work of the year is therefore largely preparatory. Rooms had to be fitted for laboratory use, supplies and apparatus ordered, and the farm put in condition, before any experimental work could be commenced."

"Professor Lake has had charge of the Departments of Horticulture, Botany and Entomology during the year. Experiments have been made in this department with insecticides and testing the germinative qualities of seeds, reported in Bulletin No. 2. A large variety of vegetables, small fruits, and ornamental shrubs have been planted in the garden and on the grounds."

It is thus clear that a Department of Horticulture (or a joint Department of Botany and Horticulture) was established in 1888 and that Professor E. R. Lake was its first Head. It is of interest also that Experiment Station Bulletin No. 2 of the college, on horticulture and prepared by Professor Lake, was published in 1889; Experiment Station Bulletins No. 4 and No. 7 were published in 1890 and were also on horticulture. Details of these three bulletins can be found in the 1890-1891 Annual Report of the State Agricultural College (9).

The status of the Horticulture and Botany Departments, as separate entities or joint departments during the period 1890-1905 is somewhat vague, since available records show them listed separately in some years and as a joint department in other years. During this period the records show that Professors Moses Craig, U. P. Hedrick, E. R. Lake, and perhaps George Coote were in charge of the Horticulture Department or the Department of Botany and Horticulture. During the periods 1895-1897, and 1897-1904, U. P. Hedrick and E. R. Lake served, respectively, as Head of the Department of Botany and Horticulture.

In 1890 facilities for "the practical study of horticulture" were constructed--this included a 25' x 16' forcing house with a potting shed and a work room attached. In 1891 a 39' x 20' greenhouse was added, and plans were being developed for 10 acres of orchard (9).

In 1892 a 30 x 40 foot, 2-story building was constructed primarily for the Horticulture Department. This building was located north of Benton Hall and west of Apperson Hall. The first floor was fitted for a classroom for horticulture and floriculture, and the second floor was arranged for a photographic gallery and class instruction (10,11,12). This building was located immediately adjacent to the Horticulture Department's forcing structure and greenhouse, built in 1890. An additional 20 x 50 foot greenhouse was also constructed in 1892 making a total greenhouse area of 2,500 square feet for horticulture.



1892-1894. Mr. George Coote, Instructor in Horticulture, reported the horticultural activities of the college during this period (7,8,11,12). Four new bulletins had been written, all by Mr. Coote:

Experiment Station Bulletin	No. 12	Strawberries (1891)
"	"	"
"	No. 15	Horticulture (1892)
"	No. 22	Results of four years of experimental work on small fruits and vegetables (1893)
"	No. 29	Notes on vegetables, fruits, and pruning (1894)

In the 1892-1893 catalogue (10) Mr. Coote explains the instruction responsibilities of the department as follows:

"The purpose of this department is to instruct the student in the most practical manner in the science of horticulture and floriculture. Among the subjects taken up for the study are: the different modes of propagating large and small fruits; the planting and cultivation of young orchards; the renovation of old orchards; root and top grafting; budding and the after-care in the nursery; the raising of trees and plants from seeds and cuttings, layers and in-arching; the training of fruit trees, such as single and double cordons, pyramidal and bush form, also espalier; and the different modes of pruning to secure each form; the management of the vegetable garden; the harvesting and care of fruits and vegetables.

This department is well prepared to offer excellent advantages for the study of floriculture in every line. The greenhouse is large and is well supplied with many varieties of choice plants.

Attention is given to landscape gardening and the decoration of ornamental grounds.

The regulations respecting student labor are the same in this department as in the Agriculture Department. Students are required to work five hours a week without pay; other student labor is paid at the rate of fifteen cents per hour."

1895-96. The course of study in Agriculture and Household Economy was increased to a 4-year study. The Agriculture curriculum included the requirement of two terms of Horticulture and one term of Landscape Gardening. The Household Economy curriculum included the requirement of two terms of Floriculture (13). U. P. Hedrick was in charge of the Department of Botany and Horticulture and George Coote was his assistant in horticulture.

1896-1897. In the 1896-1897 catalogue (14) Moses Craig is listed as Professor of Botany and Theoretical Horticulture; George Coote is listed as Professor of Practical Horticulture. This catalogue also stated that Master of Science degrees were available in Agriculture, Botany, Chemistry, Economics, Horticulture, and Zoology. The Horticulture Department course offerings, taken practically verbatim from this catalogue,



were as follows:

Four phases of Horticulture are taught, viz: Vegetable gardening, fruit growing, floriculture, and landscape gardening. The following is the arrangement of studies for terms and years:

Freshman Year - First Term - Vegetable Gardening

In this term's work Green's "Vegetable Gardening" is used as a text book. Classroom and out of door lectures are given on practical points on the subject. All vegetables suited to this climate are grown in the college gardens and will be aids in securing for the student practical experience.

Junior year - First Term - Fruit Growing

The Agricultural students, this term, are given instruction in budding, grafting, pruning, tilling, harvesting, drying, and marketing fruit. Thomas' "Fruit Culturist" is used as a textbook; lectures are given as well; and it is intended that the various operations shall be performed by the students as far as possible. This method of instruction is considered the better.

Junior Year - First Term - Floriculture

Under this, head instruction is given to the students in Household Science in the propagation and cultivation of flowers, indoor and out. The subjects of testing seeds, forcing vegetables, and hothouse culture are also treated. Henderson's "Practical Floriculture" is used as a textbook, but as in the previous studies, lectures are given and much made of practical work in the greenhouse.

Senior Year - First Term - Horticulture

Lectures and recitation. Horticulture as a profession, its departments and relation to other sciences. Choice of a location, capital needed, and farm accounts. Fertilizers, draining, marketing, weeds, plant diseases, etc.

Senior Year - First Half of Third Term - Landscape Gardening

Instruction is given in lectures in which Landscape Gardening is treated as a fine art. Introductorily the arts of design in general is discussed. This is followed by lectures on the principles, aims, and methods of artistic gardening. The principles, when once understood, are applied to the embellishment of home grounds, cemeteries, parks, highways, etc. The student is also given instruction in making drives, walks, and all phases of art out of doors.



### Senior Year - Second Half of Third Term - Plant Breeding

The work in this study will consist of lessons in Bailey's "Plant Breeding" supplemented by lectures. Attention will be given to such subjects as variation of plants, plant improvement, effects of environment, breeding new varieties, and cross-pollination.

The botanist and horticulturist for the Experiment Station reported a survey of Eastern Oregon--Walla Walla Valley, Grande Ronde Valley, Eagle Valley, and the valleys of the Snake, Powder, Burnt, John Day, and Butter Creek rivers. The purpose of the survey was "to get a clear comprehension of obstacles to the development of the fruit industry in Eastern Oregon and disseminate horticultural knowledge" (15).

That extension activities had become a normal part of the departmental schedule is indicated in Professor Craig's report (15) when he stated "I attended and read papers at four Institutes, one in Benton and three in Linn Counties. I read a paper on Plant Hygiene before the Northwest Fruit Growers' Association. I gave ten lectures on Structural and Economic Botany at the Chautauqua in July and twenty four on Botanical and Horticultural subjects before the short courses in January and February."

1898-1899. E. R. Lake again is listed as Professor of Botany and Horticulture and George Coote is listed as Florist and Gardener, both in the Department of Botany and Horticulture (16). For the first time course offerings were systematically designated by other than title only as follows:

- Course A Plant Propagation
- Course B Plant Growing
- Course C Floriculture
- Course D Plant Improvement (Bailey - Plant Breeding)
- Course E Landscape Gardening (Maynard's Landscape Gardening)
- Course F Evolution (Bailey - Evolution of Native Fruits)

1901-1905. The records for this period are somewhat sketchy although brief reports in the annual catalogues and annual reports of the College and Experiment Station are available. E. R. Lake continued as Professor of Botany and Horticulture. George Coote through this period was listed as Professor of Floriculture and Gardening. The two departments of Botany and Horticulture were variously listed as follows:

- In 1901-1903 - two departments (1) Botany and Horticulture
- (2) Floriculture and Gardening

- In 1903-1904 - two departments (1) Botany and Horticulture
- (2) Horticulture and Olericulture

The involvement of the horticulturist and botanist in extension activities was becoming more obvious and the annual reports of the college regularly contained information regarding the short courses and



the involvement of horticulturists in the programs. Actually the short courses appeared to evolve from the "Farmers Institutes" which began in 1889 and involved the horticulturists from its inception. Most of the bulletins to date of the horticulturist were in fact "extension-type" bulletins.

#### 1906-1920

##### National Leadership in Pomology - Gained and Lost

The appointment of C. I. Lewis as Professor of Horticulture and Head of the Horticulture Department in May 1906 marked the beginning of a new era for the Horticulture Department at Oregon State. Professor E. R. Lake, long associated with the combined Departments of Botany and Horticulture, was made Head of the Department of Botany and Forestry in 1905-06. In the annual report for the year ending June 30, 1906 (18), newly appointed Professor Lewis made this statement "Since so little has been done in the horticultural department of the station for a number of years, the time is exceedingly opportune to launch immediately upon a vigorous campaign of investigation and cooperative experimental work."

Professor Lewis came to Oregon State in the middle of a historical tree fruit orcharding boom--it has been estimated, for example, that 600,000 acres of apples were planted in Oregon and Washington during the period 1900-1914. Certainly by 1919 there were 100,000 acres of apples in production in the Willamette Valley alone. The initiative, comprehension, and energy of Professor Lewis combined with the very rapid development of commercial tree fruit and nut industries in the state resulted in the development of a research and teaching staff in the Department of Horticulture during the period 1906-1920 that has seldom been equaled by any Horticulture Department at any institution. Most of the staff of this period and many of the graduate students studying under these staff members became the recognized leaders in their professional fields. Much of the horticultural research in the United States and the world, both basic and applied, undertaken from 1920 to the present time had as its foundation the research initiated by the staff members of the Horticulture Department at Oregon State during the period 1906 to 1920. By 1920 most of this group had resigned to accept similar or better positions at other institutions in horticulture. Thus the horticultural departments of other institutions reaped the harvest of initiative and energy generated in the Horticultural Department here at Oregon State. National leadership in horticultural research at Oregon State all but vanished with the exodus of these men to other institutions.

##### Personnel Changes in the Horticulture Department 1906-1920.

Much of the information regarding the personnel of this period comes from records in the Department of Horticulture, from personal acquaintance with many of the individuals, from the American Men of Science, and from citations (17) through (42).



C. I. Lewis. (At Oregon State 1906-1919). Head of the Department of Horticulture 1906-1919, and from 1913-1919 Vice Director of the Oregon Agricultural Experiment Station. He received a B.S.A. degree from Massachusetts Agricultural College and a B.S. degree from Boston University in 1902, and the M.S. degree from Cornell University in 1906. Professor Lewis resigned in 1919 and became Organization and Publicity Manager for the Oregon Growers Cooperative Association. Later he became Managing Editor of the American Fruit Grower, a trade journal of national scope. He died in 1922. When Professor Lewis resigned, Dean A. B. Cordley made this statement regarding him (40): "During the fifteen years that he was Professor of Horticulture, Professor Lewis by his energy, his organizing ability, and his quick comprehension of horticultural problems, had developed a department which has done work of immense value to the state and which ranked high among similar departments throughout the country."

A.G.B. Bouquet. (At Oregon State 1906-1950). Professor Bouquet retired in 1950 and currently is Professor Emeritus of Horticulture. Professor Bouquet's principal interests were in the teaching of courses related to the production of vegetable crops. He wrote many "popular" Extension and Experiment Station publications on vegetable crops, and with the exception of one year during the 1920's and one during the 1940's was the only staff member involved in teaching, research, and extension in the specialized horticultural area of vegetable crops until 1949. Professor Bouquet received his B.S. degree at Oregon State in 1906 and his M.S. degree at Cornell in 1930.

George Coote. (At Oregon State 1888 to 1908). Mr. Coote was first listed in the 1888-1889 catalogue as "Foreman of Horticultural Department" (5). As indicated previously he served in many capacities as Instructor in Floriculture, Professor of Horticulture, etc. Evidently he had considerable responsibility for ornamental plantings on the campus during these years. He was trained in England where he had been an independent gardener and nurseryman. It is believed that he had little or no formal college training. Mr. Coote died November 12, 1908.

W. H. Wicks. (At Oregon State 1905-06). Assistant Horticulturist.

C. A. Cole. (At Oregon State 1907-1910). Instructor in Horticulture and later Assistant Professor of Pomology.

Ralph W. Allen. Assistant in Horticulture, 1907-1909. In 1909 he was appointed Superintendent of the Umatilla Branch Experiment Station at Hermiston that was established the same year.

Arthur L. Peck. (Horticulture Department staff member 1907-1932). Professor Peck came to Oregon State as an Instructor in Floriculture and Landscape Gardening. Later he became Professor of Landscape Gardening and Floriculture and Superintendent of Campus and Greenhouses. He developed the Floriculture and Landscape Gardening curricula and course offerings within the Department of Horticulture and was responsible for

much of the site planning and plantings on the campus today. In the 1930's a Lower Division Department of Landscape Architecture was created and the Landscape courses were transferred to this new department and Professor Peck was placed in charge. The curriculum in Landscape (now called Landscape Construction and Maintenance) however, was, and is today, the responsibility of the Horticulture Department and the degree designation is Horticulture--Landscape Construction and Maintenance. Landscape Architecture became the responsibility of the University of Oregon in the 1930's.

C. C. Vincent. Assistant in Horticulture 1908-1909. Professor Vincent became Head of the Horticulture Department at the University of Idaho. He died in 1934.

E. J. Kraus. (At Oregon State 1909-1919). Dr. E. J. Kraus was appointed as an Assistant in Horticulture in 1909. In 1918 he resigned as Professor of Horticulture to become Dean of the Service Departments at Oregon State. (These included the Departments of Art and Rural Architecture, Bacteriology, Botany, Chemistry, English, Entomology, History, Mathematics, Modern Languages, Physics, Public Speaking, Zoology, and Physiology). In 1919 he resigned this position to accept the position of Applied Botany at the University of Wisconsin. He later became Head of the Department of Botany at the University of Chicago. In 1938 the honorary degree of Doctor of Science was conferred on Dr. Kraus by Oregon State College. The citation included "whose career, both as a man and a scientist, exemplifies the integrity of character and the unselfish virtues that are the distinction of the creative scholar." Michigan State conferred the same degree on Dr. Kraus in 1949. After retirement from the University of Chicago he returned in 1948 to the Horticulture Department at Oregon State as Visiting Professor of Horticulture, and remained here until his death in 1960. Dr. Kraus completed his Ph.D. at the University of Chicago in 1917 while on a leave of absence from Oregon State. His Ph.D. dissertation and that of H. R. Kraybill of the Agricultural Chemistry Department of Pennsylvania State College were published jointly as Oregon Agricultural College Experiment Station Bulletin 149, entitled Vegetation and Reproduction With Special Reference to the Tomato. Without doubt, this publication, relating the internal biochemistry of plants to their vegetative growth and reproductive development was, and is, the foundation and basis of much of the basic and applied research in the field of plant (crop) physiology from that time until today. This monumental work was begun at Corvallis prior to its completion at the University of Chicago. Few individuals in any walk-of-life have had as many personal honors bestowed upon them as a result of his research efforts at Oregon State and at the University of Chicago and his training and development of graduate students working under him.

Ralph W. Rees. (At Oregon State 1910-1912). Research Assistant in Horticulture.



V. R. Gardner. (At Oregon State 1911-1918). Professor Gardner was 26 years of age when he came to Oregon State in 1911 as Associate Professor of Horticulture from the University of Maine where he was professor and Acting Head of the College of Agriculture. He resigned his Professorship at Oregon State in 1918 to accept a similar position at the University of Missouri. He was Head of the Horticulture Department at Michigan State from 1922 to 1945 and Director of the Michigan Agricultural Experiment Station from 1928 to 1949 when he retired. An acknowledged administrator, teacher, and scientist, he authored several books at least two of which are used today as an undergraduate text (Basic Horticulture) and an advanced undergraduate and graduate text or reference (Fundamentals of Fruit Production). He contributed much to basic fundamental knowledge of horticulture while at Oregon State as well as later in his career.

F. C. Bradford. (At Oregon State 1911-1914). Research Assistant (Instructor) in Horticulture. Professor Bradford resigned this position in 1914 becoming a Headmaster in a New Hampshire High School. In 1919 V. R. Gardner was responsible for his moving to the University of Missouri as Assistant Professor of Horticulture. Again, V. R. Gardner, as Head of the Department of Horticulture at Michigan State, employed Professor Bradford as Associate Professor of Horticulture. In 1937 Professor Bradford accepted the position of Senior Horticulturist, Plant Exploration and Introduction Station, USDA, in Maryland. He served in this capacity until his death in 1950. Professor Bradford was co-author of the text previously mentioned--Fundamentals of Fruit Production. Basically, he was a teacher and trainer of horticulturists both at the undergraduate and graduate level, and left an indelible mark on undergraduates, graduates, and colleagues.

F. V. Tooley. (At Oregon State 1911-12). Orchard Foreman and Instructor in Horticulture.

J. M. Speidel. (At Oregon State 1911-14). Instructor in Horticulture.

C. L. Flint. (At Oregon State 1911-12). Instructor in Landscape Gardening.

F. R. Brown. (At Oregon State 1911-15). Orchard Foreman in 1910, Research Assistant in Horticulture 1911-15. Was dropped from the staff in 1915 because of repeal of Experiment Station funds by the State Legislature.

James A. Gilkey. (At Oregon State 1911-12). Greenhouse Foreman and Research Assistant in Horticulture.

A. F. Lafky. (At Oregon State 1912-14). Orchard Foreman and Instructor in Horticulture.

David Masterton. (At Oregon State 1912-1917). Instructor of Landscape Gardening.



G. S. Ralston. (At Oregon State 1912-14). Research Assistant in Horticulture.

W. P. Tufts. (At Oregon State 1913-15). The 8th Edition of the American Man of Science shows that Dr. Tufts was an Instructor in Economics at Oregon State in 1913 and an Instructor in Pomology in the Department of Horticulture at Oregon State in 1914-15. He received his M.S. degree in Horticulture at Oregon State in 1914. He then became a staff member of the Pomology Department of the University of California. After completing his Ph.D. at Wisconsin he was made Head of the Department of Pomology, University of California at Davis, in 1933; Dr. Tufts became Emeritus Professor of Pomology at the University of California in 1956.

A. M. Woodman. (At Oregon State 1914-15). Orchard Foreman and Instructor in Horticulture.

Walter S. Brown. (At Oregon State 1914-1942). The record shows that Professor Brown was the first Extension Specialist in Horticulture at Oregon State (30), being appointed to this position in 1914. Professor Brown was the Extension Horticulturist from 1914-1919. At that time C. I. Lewis resigned and Professor Brown was appointed as Head of the Department of Horticulture in 1919-20 in his place. He served in this capacity until his death in 1942. Professor Brown had a B.S. degree from Alfred University, a B.S.A. degree from Cornell University, and a M.S. from Wisconsin University. In 1931 Alfred University conferred on Professor Brown the D.Sc. degree.

A. F. Barss. (At Oregon State 1914-1918). Instructor in Horticulture and Assistant in Horticulture 1914-17; Assistant Professor of Horticulture 1917-18. M.S. degree Oregon State 1914, Ph.D. in Botany at the University of Chicago in 1929. Dr. Barss became Head of the Department of Horticulture at the University of British Columbia in 1926, retiring in this position in 1954 as Emeritus Professor. Dr. A. F. Barss' brother, H. P. Barss, was a Plant Pathologist in the Department of Botany and Plant Pathology at Oregon State from 1912-1934 and from 1915 to 1934 he was Head of the Department of Botany and Plant Pathology.

John R. Magness. (Oregon State Staff member 1914-17). Research Assistant in Horticulture 1914-16 and Assistant in Horticulture 1916-17. Dr. Magness obtained his B.S. (1914) and M.S. (1916) degrees at Oregon State, his Ph.D. at the University of Chicago (1923) in Botany. He was Head of the Horticulture Department at Washington State in 1927-29. He was Physiologist, Principal Pomologist and ultimately Head Horticulturist in Charge Division of Fruit and Vegetable Crops and Diseases of the Agriculture Research Service of the U.S.D.A. He retired in 1959. One of the best known and highly respected pomologist in the world--for his scientific horticultural publications and his administrative ability as Chief of the Division indicated above.



H. D. Locklin. (At Oregon State 1917-1919). Instructor of Horticulture.

M. D. Butler. (At Oregon State 1917-18). Instructor of Horticulture.

F. E. Denny. (At Oregon State 1918-19). Research Assistant in Horticulture.

A. E. Murneek. (At Oregon State 1918-1923). Dr. Murneek received his B.S. degree at Oregon State in 1917, his M.S. at Iowa State in 1918, and his Ph.D. at Wisconsin in 1925. As a staff member at Oregon State he was Assistant in Horticulture Research 1918-19 and Assistant Professor of Horticultural Research 1918-19 and Assistant Professor of Horticulture 1919-1923. He was Research Associate of Horticulture at Wisconsin University 1923-25 and Associate Professor and Professor of Horticulture at Missouri University 1925-56. A research horticulturist-physiologist of world wide reputation his principal research efforts involved the physiology of reproduction in plants including photoperiodism.

Carl E. Schuster. (Oregon State Staff member 1919-29, at Oregon State 1919-1948). Professor Schuster received his B.S. (1914) and M.S. (1916) degrees from Oregon State University. He was appointed as Extension Specialist in Horticulture for the period 1919-1920. He was Assistant Professor and later Professor of Horticulture 1920-1929. In 1929 he accepted an appointment as Horticulturist with the USDA-ARS under a cooperative agreement with the Oregon Agricultural Experiment Station to conduct research on the breeding of small fruits at Oregon State. In 1930 a second cooperative agreement position at Corvallis was created to conduct research on filberts and walnuts and Mr. Schuster was transferred to this position. He served in this capacity until his death in 1948.

E. M. Harvey. (At Oregon State 1919-31). Dr. Harvey received his A.B. degree from Friends University in 1910, his Ph.D. from the University of Chicago in 1914. He came to Oregon State from the USDA-Bureau of Plant Industry as Professor of Horticulture in 1919 and resigned this position in 1931. From 1931 to 1958 he served as Physiologist and Senior Physiologist of the Agricultural Marketing Service of the USDA and was located in California. While at Oregon State his research interests centered on chemical and physiological factors associated with tree fruit bearing and cultural practices such as pruning; he was responsible for much of the teaching of horticulture courses at the graduate level. Later with the USDA-AMS his research involved principally the physiology of citrus fruits in storage and transit. He was a horticulturist, a physiological chemist, and a plant physiologist, and as such was a recognized authority as a result of his research efforts. He retired in 1958 and died in 1959.

Henry Hartman. (At Oregon State 1919-1960). Professor Hartman was appointed as Instructor in Horticulture at Oregon State in 1919. He obtained his B.S. degree at Washington State in 1917, and his M.S. degree at Iowa State in 1922. He became Professor of Horticulture in



1927 and with the death of W. S. Brown in 1942 was appointed Head of the Department of Horticulture. He was Department Head from 1942-1955 at which time he relinquished his administrative responsibilities but continued as an active staff member of the Horticulture Department until 1959-60. He was Emeritus Professor of Horticulture until his death in October 1966. He won national recognition for his research on storage and handling of winter pears. He developed the "Hartman Wrap"-- a paper wrap still widely used on practically all Anjou pears grown in Washington and Oregon. During the fall, winter, and spring periods of 1929 to 1932 he studied marketing conditions on fruit quality of pears in the Eastern markets under the auspices of the Oregon-Washington Pear Bureau, laying the foundation for the successful development of the winter pear industry in the Pacific Northwest. He was a recognized authority on identification of the pome fruits and of roses, and until his retirement was sought after by the most progressive pear and apple growers for advice as to production problems.

E. H. Wiegand. (At Oregon State 1919 to 1952). Professor Wiegand joined the staff of the Department of Horticulture in 1919. Horticultural Products had for several years been a segment of the department's specialized curricula. By the time Food Products, as it was later called, was separated from the Department of Horticulture in 1938-39 and became the Department of Food Industries, Professor Wiegand had developed a national reputation for his research in this research area as well as in building the curricula for undergraduate training in the science of food technology.

R. E. Marshall. (At Oregon State 1914-16). The record is not clear as to whether Dr. Marshall was a full-time member of the staff or not. In the 1915-16 College Catalogue (32) he is listed as a graduate student. However, in the 1914-15 catalogue (33) and the 1916-17 catalogue (35) he is listed as a member of the staff of the department as an Instructor of Horticulture. He did receive his M.S. degree at Oregon State in 1915. Dr. Marshall completed his Ph.D. at Minnesota and in 1920 became a member of the Horticulture Department staff at Michigan State and in 1950 was made Assistant Director of the Michigan Agricultural Experiment Station. He retired in 1958 and died in 1966.

No attempt was made in this chronology to search the records of those students graduating from the Horticulture Department of Oregon State. However, the following B.S. and M.S. degree students graduating within this period of 1906-1920 gained national recognition in the field of Horticulture or related areas (the list is not complete):

W. E. Whitehouse (B.S. 1915) became Head of the Crop Development Section of the New Crops Research Branch of the USDA-ARS in 1959 and served in this capacity until retirement. A. F. Yaeger (M.S. 1916) finished his Ph.D. at Iowa State in 1936 and became Head of the Department of Horticulture, University of New Hampshire in 1939 and served in this capacity until retirement.



F. M. Harrington (B.S. 1913) completed his M.S. degree at Iowa State in 1922 and served as Head of the Department of Horticulture at Montana State College from 1921 to 1959 when he retired.  
F. A. Motz (B.S. 1917) became Commissioner, Division of Foreign Agricultural Service--Bureau of Agricultural Economics.

#### Development of Horticulture Courses and Curricula 1906-1920.

1906-1907. "The aim of this department is to give the student as thorough a training as possible within the time allowed. The whole year is given up to a study of various phases of fruit growing. Not only are the principles studied, but their direct application to the conditions on the Pacific Coast is considered. The work consists of lectures, laboratory practice, and field exercises, supplemented by reference readings from standard horticultural books and current horticultural bulletins" (20).

The course offerings in the Horticulture Department in the 1906-1907 catalogue (20) were:

Course I - Senior year. First half term - study of problems of harvesting, packing, storing, and marketing fruits. Each student is required to be able to put up a commercial pack.

Course II - Senior. A study of propagation, pruning, and orchard management problems such as site, preparation of soil, tillage, irrigation. Five hours a week.

Course III - Senior. First half - plant breeding. Second half - continuation of orchard studies. Five hours a week.

Floriculture, Olericulture, and Landscape Gardening Department. - Coote. Floriculture I, II, III.

Course IV - Senior. Five acres set apart for the growing and testing of the leading varieties of all kinds of vegetables aid materially in that the student learns "How to Grow Vegetables."

1908-1909. The annual catalogue for 1908-1909 included a list of 33 courses offered by the Horticulture Department (22) as follows:

1. Elementary Orchard Practice - 2 credits
2. Elementary Plant Propagation and Vegetable Gardening - 2 credits
3. Plant Propagation - 2 credits
4. Orchard & Garden Practice - 3 credits.  
 (Note the above all required in the curriculum in Agriculture.)
5. Practical Pomology - 3 credits. Elective for Agriculture course.
6. & 7. Orchard Practice - 2 credits. Elective for Agriculture course.
8. Floriculture - 2 credits. Required of Agriculture Juniors electing Horticulture major.
9. Grape Growing - 2 credits. Elective in Agriculture course; included By-Products.

10. Small Fruit Culture - 3 credits. Elective in Agriculture courses.
11. Nut Culture - 2 credits. Elective in Agriculture courses.
12. Landscape Gardening - 2 credits. Required of Agriculture Juniors electing Horticulture major.
13. Systematic Pomology - 2 credits. Elective in Agriculture.
14. Commercial Pomology - 2 credits. Elective in Agriculture
15. & 16. Seminar - 1 credit. Required of Agriculture Seniors and advanced students majoring in Horticulture.
17. History & Literature of Horticulture - 2 credits. Elective in Agriculture.
18. Plant Breeding - 4 credits. Elective in Agriculture.
19. Sub-tropical Pomology - 2 credits. Elective in Agriculture.
20. Principles of Vegetable Gardening - 4 credits. Elective in Agriculture.
21. Greenhouse Construction - 3 credits. Elective in Agriculture.
22. Forcing Vegetables - 4 credits. Elective in Agriculture.
23. Systematic Olericulture - 1 credit. Elective in Agriculture.
24. Truck Gardening - 5 credits. Elective in Agriculture.
25. Annuals & Perennials - 3 credits. Elective in Agriculture.
26. Forcing Flowers - 4 credits. Elective in Agriculture.
27. Plant Materials - 2 credits. Elective in Agriculture.
28. & 29. Theory & Design - 3 credits. Elective in Agriculture.
30. Field Practice in Landscape Gardening - 2 credits. Elective in Agriculture.
31. Floriculture - 3 credits. Required of Domestic Science and Art majors.
32. Landscape Gardening - 3 credits. Required of Domestic Science and Art majors.
33. Vegetable Gardening and Small Fruit Culture - 3 credits. Elective in course in Domestic Science.

The Agriculture curriculum at this time included a 4-year course leading to a B.S. in Agriculture, and a 2-year course called Elementary Agriculture.

Thus, the scope of the course offerings in horticulture were quite broad, including courses in Pomology, Olericulture, Floriculture, Landscape Gardening. The students were prepared after two years of introductory work to enter upon advanced work in the junior year in any of these specialized areas.

1911-12. The annual catalogue (27) now lists 56 course offerings in horticulture. First mention is made of students majoring in Pomology, Vegetable Gardening, Landscape Gardening, or Floriculture. About one-third of the students time was to be devoted to the sciences related to agriculture, one-third to technical agricultural subjects, and one-third to non-technical subjects "such as English, Mathematics, History, Economics ...."

The horticulture course offerings and their specific instructors were:



- A. Elementary Orchard Practice, 2 credits, Mr. Speidel
  - B. Elementary Orchard Practice & Vegetable Gardening, 2 credits, Mr. Speidel
  - 1. Plant Propagation, 2 credits, Mr. Speidel and Mr. Tooley
  - 2. Orchard and Garden Practice, 3 credits, Mr. Speidel and Mr. Tooley
  - 3. Floriculture I, 2 credits, Mr. Flint
  - 4. Landscape Gardening, 2 credits, Mr. Flint
- (Above 4 courses required of all Horticulture majors)

#### Pomology

- 11. Practical Pomology, 3 credits, Professor Gardner
- 12. Orchard Practice I, 2 credits, Mr. Speidel and Mr. Tooley  
(A Saturday morning course--so indicated)
- 13. Orchard Practice II, 2 credits, Gardner, Speidel, and Tooley
- 14. Orchard Practice III, 2 credits, " " "
- 15. Grape Growing, 2 credits, Professor Gardner
- 16. Small Fruit Culture, 3 credits, Mr. Speidel
- 17. Nut Culture, 2 credits, Professor Gardner
- 18. Systematic Pomology, 3 credits, Professor Gardner
- 19. Commercial Pomology, 2 credits, Professor Lewis
- 20. Seminar I, 1 credit, Professor Lewis
- 21. Seminar II, 1 credit, Professor Lewis
- 22. History & Literature, 2 credits, Professor Lewis
- 23. Plant Breeding, 3 credits, Professor Gardner
- 24. Advanced Plant Breeding, 3 credits, Professor Gardner
- 25. Sub-tropical Pomology, 2 credits, Professor Lewis
- 26. Advanced Pomology, 3 credits, Professor Lewis

#### Vegetable Gardening

- 31. Principles of Vegetable Gardening, 3 credits, Mr. Bouquet
- 32. Forcing Vegetables I, 2 credits, Mr. Bouquet
- 33. Forcing Vegetables II, 2 credits, Mr. Bouquet
- 34. Systematic Olericulture, 1 credit, Mr. Bouquet
- 35. Truck Gardening, 3 credits, Mr. Bouquet
- 36. Commercial Truck Gardening, 3 credits, Mr. Bouquet
- 37. Practical Vegetable Growing, 3 credits, Mr. Bouquet

#### Landscape Gardening

- 41. Annuals & Perennials I, 3 credits, Mr. Flint and Mr. Masterton
- 42. Annuals & Perennials II, 3 credits, Mr. Flint and Mr. Masterton
- 43. Plant Materials, 2 credits, Mr. Flint & Mr. Masterton
- 44. Plant Materials, 2 credits, Mr. Flint & Mr. Masterton
- 45. Theory & Design I, 3 credits, Mr. Flint
- 46. Theory & Design II, 3 credits, Mr. Flint
- 47. Field Practice in Landscape Gardening, 2 credits, Mr. Flint



### Floriculture

51. Greenhouse Construction, 3 credits, Mr. Flint
52. Forcing Flowers, 3 credits, Mr. Flint and Mr. Gilkey
53. Floriculture II, 2 credits, Mr. Flint and Mr. Masterton
54. Vegetable Gardening & Small Fruit Culture, 3 credits,  
Mr. Bouquet.

The required horticulture courses for majors in the junior and senior year were:

#### A. Pomology

Junior year	Hort	3	Floriculture
	"	4	Landscape Gardening
	"	12	Orchard Practice I
	"	13	Orchard Practice II
	"	13	Practical Pomology
Senior year	Hort	18	Systematic Pomology
	"	20, 21	Seminar
	"	19	Commercial Pomology

#### B. Vegetable Gardening

Junior year	Hort	31	Principles of Vegetable Gardening
	"	37	Practical Vegetable Growing
	"	4	Landscape Gardening
	"	3	Floriculture
	"	51	Greenhouse Construction
Senior year	Hort	35	Commercial Truck Gardening I
	"	36	Commercial Truck Gardening II
	"	34	Systematic Olericulture
	"	20,21	Seminar

#### C. Floriculture

Junior year	Hort	41,42	Annuals & Perennials I & II
	"	3	Floriculture
	"	51	Greenhouse Construction
	"	4	Landscape Gardening
Senior year	Hort	52,53	Forcing Flowers I & II
	"	32	Forcing Vegetables
	"	22	History & Literature of Horticulture

#### D. Landscape Gardening

Junior year	Hort	41,42	Annuals & Perennials I & II
	"	3	Floriculture
	"	4	Landscape Gardening
Senior year	Hort	43,44	Plant Materials I & II
	"	45,56	Theory & Design I & II
	"	47	Field Practice



The 1910-12 biennial report of the Board of Regents (26) indicated that the number of students taking horticulture courses was increasing quite rapidly:

1910-11	-	245	students	taking	horticulture
1911-12	-	273	"	"	"
1912-13	-	381	"	"	"

The number of sophomores taking horticulture courses increased from 59 to 160 in the period 1911-12 to 1912-13, an increase of 171%.

1913-14. As early as 1910-1912 the Biennial Report of the Board of Regents (26) mentions the heavy interest in "Horticultural By-Products." Heavy correspondence was reported from students requesting courses of instruction in this field, and from industries in Oregon interested in the utilization of culls and other waste products. In regard to the Horticulture Department, A. B. Cordley, Dean of the School of Agriculture, stated the following: "The Department of Horticulture with the addition of Associate Professor Peck now has one of the strongest, best balanced facilities of horticulture to be found in any institution. Courses offered are not excelled if equalled, elsewhere."

The 1913-14 catalogue (30) records a number of new horticulture courses added to those listed in the previous catalogue as follows:

#### Hort courses added in Landscape Gardening

Hort	39	Tree Surgery, 1 credit
"	40	Tree Surgery, 1 credit
"	48	Field Practice in Landscape Gardening, 3 credits
"	49	History & Literature of Landscape Architecture, 2 credits
"	50	Town Planning, 3 credits

#### Courses added in Floriculture

Hort	55	Landscape Gardening, 2 credits
		Also another semester of Forcing Flowers, 3 credits

#### Horticulture By-Products (new)

Hort	61	Horticultural By-Products, 1 credit
"	62	Dried Products, 3 credits
"	63	Canning, 3 credits
"	64	Fruit Juices, 3 credits

#### Research (new)

Hort	71	Research Work for Seniors, 3 credits
"	72	Research Work for Seniors, 3 credits
"	73	Advanced Thesis & Research Work, 10 to 20 credits, for graduate students only.
"	74	Advanced Thesis & Research Work, same as No. 73.
"	75 & 76	Methods of Research, 1 credit each semester for seniors or graduate students.



1914-15. It is to be noted that the course offerings in Horticulture By-Products and in Research broadened the scope of this department's teaching responsibilities, recognizing the need for specialized courses in these two areas. 1914-15 horticultural courses were renumbered, each course designated by a 3-digit number. All courses in Pomology were designated by numbers in the 100's, all courses in Vegetable Gardening by numbers in the 200's, Landscape Gardening courses by numbers in the 300's, Floriculture courses by numbers in the 400's, Horticultural By-Products by numbers in the 600's and Research Courses by numbers in the 700's.

1919-20. In 1919 the academic year was changed from a semester basis to a quarter basis (40). For the first time, in the 1919-20 catalogue (38), the course offerings in horticulture were listed with a definite abbreviation (Hort) and the 3-digit system whereby the first number designates the year in which the course was normally taken, the second number referring to a group of related courses and the third number designating the sequence. As indicated in the complete listing of courses that follows, there were two exceptions to this 3-digit system--those horticulture courses offered in the area of "Vocational Horticulture" and "One Year Vocational Curriculum in Vegetable Gardening":

#### Pomology

- Hort 311 Practical Pomology, 3 credits, Brown.
- Hort 313 Pruning Principles and Practice, 3 credits, Brown.
- " 313,315,316 Orchard Practice, 1 credit each term, Brown.
- " 414 Commercial Pomology, 5 credits, Lewis.
- " 312 Sub-tropical Pomology, 3 credits, Lewis.
- " 412 Systematic Pomology, 5 credits, Lewis.
- " 413 Advanced Pomology, 3 credits, Lewis.
- " 414 Viticulture, 3 credits, Locklin.
- " 415 Small Fruit Culture, 3 credits, Locklin.
- " 416 Nut Culture, 3 credits, Brown.
- " 417 Advanced Orchard Practice, 3 credits, Lewis.
- " 418 Plant Breeding, 3 credits, Brown.
- " 419 Advanced Plant Breeding, 3 credits, Harvey.
- " 361 History and Literature of Horticulture, 3 credits, Locklin.
- " 481,482,483 Seminar, 1 credit each term.

#### Vegetable Gardening

- Hort 221 Vegetable Growing, 2 credits, Bouquet.
- " 321 Vegetable Seed Production, 3 credits, Bouquet.
- " 322 Principles of Vegetable Gardening, 3 credits, Bouquet.
- " 323 Practical Vegetable Gardening, 3 credits, Bouquet.
- " 421,422,423 Vegetable Forcing, 2 credits each term, Bouquet.
- " 424 Systematic Olericulture, 1 credit, Bouquet.
- " 425,426,427 Commercial Truck Gardening, 3 credits, Bouquet.



### Landscape Gardening

- Hort 231 Landscape Gardening, 3 credits, Peck.  
 " 331,332,333 Plant Materials, 3 credits, Peck.  
 " 337 History & Literature of Landscape Gardening, 3 credits, Peck.  
 " 431 Theory & Design, 4 credits, Peck.  
 " 434,435 Field Practice, 4 credits each term, Peck.  
 " 437 Town Planning, 4 credits.

### Floriculture

- Hort 241 Plant Propagation and Greenhouse Practice, 3 credits, Peck.  
 " 341 Greenhouse Construction, 4 credits.  
 " 441,442,443 Greenhouse Crops, 3 credits each term, Peck.

### Horticultural Products

- Hort 351,352,353 Hort Products, 3 credits each term, Wiegand.  
 " 451,452,453 Hort Products, 3 credits each term, Wiegand.

### Research

- Hort 491,492,493 Investigative Work for Seniors, 3 credits each term, Harvey.  
 " 494,495,496 Methods of Research, 1 or 2 credits each term, Harvey.  
 " 691,692,693 Advanced Thesis & Research Work, 10-20 credits each term, Harvey.

### Vocational Horticulture

- Hort 11,12,13 Orchard Management, 5 credits each term, Locklin.

### One Year Vocational Curriculum in Vegetable Gardening

- Hort 21,22,23 Vegetable Gardening, 3 credits each term, Bouquet.

### Physical Facilities 1906-1920.

Land: Information as regards availability of land for horticultural research and resident instruction activities is neither systematically nor completely recorded. In 1906-1908 the Board of Regents report (19) indicated that the permanent land for the Horticulture Department consisted of 5 acres. In 1908-09 the report of the President and the Board of Regents (23) included a statement concerning the leasing of the "Meeker Orchard" for horticultural and entomological work, and recommended the purchase or lease of "river bottom land" for work in market gardening and the experimental growing of small fruits. In the 1910-11 report of the Board of Regents (41) it was stated that twenty acres of land had been set aside for horticultural teaching and research work.



In 1910-12 the Board of Regents report the purchase of 115 acres of land for \$27,000. Thirty acres of this was for horticulture (26). It is assumed that this land is what is commonly referred to as the South Farm. (The South Farm is that area of land on which the present Western View Junior High School is now located.) Extension included in its report (26) the fact that two demonstration orchards, one at Estacada and one at Molalla were being operated by the Horticulture Department. The Extension Service recognized at an early date the contributions of research and teaching personnel to its activities. In the 1915-16 catalogue (32) the Extension Service staff listed Professors Lewis and Bouquet as well as Professor Brown (Extension Horticulturist). Whether Professors Lewis and Bouquet were "officially" employed by the Extension Service at that time is not clear.

Buildings and Greenhouses. As late as the 1908-1909 catalogue (22) the original Horticultural Building was still listed as the offices and laboratories of the Horticulture Department with the greenhouses and forcing structures adjoining. There were seven full-time staff members in the department at that time. The Board of Regents indicated in their 1906-08 report (19) that plans for the new Agricultural building included a south wing for horticulture and greenhouses to be built south of this wing. The Experiment Station Report of the Director (41) in 1910-11 stated that the Horticulture Department was moving into new laboratories, one of which was to be equipped for research only .... "it is provided with water, has electricity, a splendid collection of microscopes, microtomes, ovens, balances, and other apparatus." The 1910-11 catalogue (25) described the newly constructed greenhouses for horticulture: 3 even-span 90 x 20 foot, 2 even-span 33 x 20 foot greenhouses; one of the latter designated for research; the greenhouses to be heated by hot water, sectionally. In the 1910-12 Report of the Board of Regents (26) the completion of the Horticulture Building was indicated at a cost of \$45,701. Actually, this was then and is today the South Wing of Agricultural Hall. The Horticulture Department occupied the entire first two floors (basement and 1st floor) plus space on the third floor. The arrangement was as follows (26):

Basement - Laboratories for plant propagation, spraying, vegetable preparation, and fruit packing. Also general storage rooms for the department and rooms adapted for storage of fruits.

First Floor - Offices of the staff of the department, the research laboratory, systematic pomology laboratory, and three lecture rooms.

Third Floor - Horticultural museum and herbarium, photographic room, large lecture rooms and drafting rooms and office of the Landscape Gardening section of the department. (The next move of the Horticulture Department was to take place in 1957-1958 when it was moved to the North Wing of Cordley Hall.)

The same Board of Regents report proposed a Horticultural By-Products building of "considerable size"--a total of \$15,000 to be



expended for building and equipment. The Biennial Report for 1914-16 (34) again expressed the need for a special building for horticultural by-products and for instruction in horticultural by-products. This building was constructed sometime during the period 1917-18 for a cost of \$15,332, although a considerable part of the interior work was unfinished.

#### Research Activities of the Department 1906-1920.

No attempt is made in this entire chronology to record the details or the major achievements of the research efforts of the staff of the Horticulture Department at any period in time. These are recorded in the hundreds of Experiment Station publications and technical papers published by these staff members. Where available in the records the extent and scope of the research during a given period will be given.

In the 1910-12 report (26) the following were reported as research projects under way by the station horticulturists:

1. Pollination - studies of fruitfulness in tree fruits
2. Irrigation - in Rogue River Valley ( 5 years work to date)
3. Strawberry variety tests
4. Strawberry breeding investigation (begun in 1910)
5. Loganberry fertilizer investigations (since 1906)
6. Orchard cover crop investigations (since 1908)
7. Nut variety investigations
8. Pruning investigations
9. Cherry, prune, and apple breeding investigations
10. Vegetable growing investigations
11. Frost investigations--at Riddle, Oregon

The 1914-16 Biennial Report (34) included the following research projects of the Horticulture Department:

Pollination of the Apple  
 Orchard Irrigation Investigations  
 Pruning as a Factor in Bud Differentiation  
 Critical Temperatures Relating to Fruit Products  
 Investigations to Determine the Best Prune Stock to Use Under  
     Various Soil Conditions  
 Investigations to determine best depth of planting young trees  
 Influence of fertilizer on bitter pit  
 Orchard management investigations  
 Prune standardization  
 Loganberry pruning and fertilizer investigations  
 Loganberry By-Products  
 Pollination of Drupaceous Fruits  
 Plant breeding investigation with apples, prunes, cherries, pears,  
     and strawberries  
 Onion fertilizers  
 Bean studies  
 Greenhouse investigations with tomatoes, lettuce, etc.



The 1916-18 Biennial Report (39) indicated that the following research was being carried out by the Horticulture Department:

Pruning investigations	Onion fertilizer trials
Strawberry breeding	Broccoli investigations
Apple breeding	Fruit products experiments
Cherry breeding	Orchard fertility experiments
Nut variety trials	
Depth of planting investigation	
Pear harvesting and storage investigations	

Three Branch Stations that had applied horticultural research as their primary responsibility were established during this period. The Umatilla Branch Experiment Station at Hermiston was established in 1908-09. R. W. Allen, Assistant Horticulturist at Corvallis since his graduation in 1907 was this station's first superintendent. The Southern Oregon Branch Experiment Station at Medford was established in 1911-12. The Experiment Station had maintained a representative in the Rogue River Valley for 2-3 years (23). F. C. Reimer was the first superintendent at this station. He had received his M.S. degree from the University of Florida in 1905. He remained in this position until his retirement. The Hood River Branch Experiment Station was organized in 1913. An experiment station representative had also been located in the Hood River Valley several years prior to the establishment of the station. C. C. Starring was the appointed horticulturist when the station was organized. Mr. Starring resigned in 1915-16 to accept a position at the Montana Experiment Station at increased salary (34). Gordon G. Brown was appointed horticulturist at this Branch Station in 1916 and continued in this capacity until his retirement in 1952. Mr. Brown received an A.B. degree from Pacific University in 1910 and a B.S. degree in Agriculture at Oregon State in 1912.

#### 1921-1931

##### Diversification of Research and Resident Instruction

This period of time for the Department of Horticulture was characterized by (1) a decline in the total numbers of students in Agriculture and Horticulture, (2) a pronounced increase in research and teaching activities of that section of horticulture called Horticultural Products under Professor Wiegand, (3) a change in emphasis in course offerings in which Landscape Gardening became Landscape Architecture, and Floriculture almost ceased to exist, and (4) few changes in research and teaching faculty (after the heavy loss of key personnel just prior to 1920) in the specialized horticultural areas of pomology and vegetable crops. From the national standpoint this period was, of course, marked by agricultural depression and in 1929 the beginning of the "great depression."



1920-21. J. C. Bell (B.S. Montana State, M.S. Oregon State) listed as Research Assistant in Horticultural Products and Instructor in Horticulture (Horticultural Products), (44). His name appears in the annual college catalogues through 1927-28. A Mr. Walter J. Kocken is listed in the 1920-1922 and 1922-24 biennial reports of the Board of Regents (44,46) as an Instructor in Horticulture; no further explanation has been found in the records as to his responsibilities.

1921-22. Clayton L. Long appointed as Extension Specialist in Horticulture. Professor Long received his B.S. and M.S. degrees from Ohio State (43). He remained in this position until 1930-31. L. P. Wilcox appointed as Instructor in Horticulture in 1921, resigning in 1925, (44,45).

1922-24. The biennial report of the Board of Regents for this biennium (46) included a report of the Dean of the School of Agriculture showing a sharp decline in the number of students in agriculture as follows:

1920 -	928	degree	students	in	Agriculture
1921 -	708	"	"	"	"
1922 -	582	"	"	"	"
1923 -	389	"	"	"	"

The 1922-23 catalogue shows 11 courses in Horticultural Products (47); there were only 6 in the 1919-20 catalogue. Dr. A. E. Murneek was listed as on leave of absence in 1923-24 catalogue (48); whether he returned to Oregon State after that time is not recorded but he did receive his Ph.D. at Wisconsin in 1925 and the American Men of Science indicates he was Research Associate at the University of Wisconsin in 1923-25. Note should also be made that the record shows that W. T. Pentzer received his B.S. degree in horticulture in 1923. Mr. Pentzer later became a well known professional horticulturist and retired in 1966 as Director of the Market Quality Research Division of the Agricultural Research Service of the USDA.

1924-26. A rough idea of the extent of the horticultural industry in Oregon at this time is contained in the biennial report of the Board of Regents 1924-1926, (45). Although obviously incomplete, the total annual horticulture income (farm level) in 1926 was estimated at \$20,000,000 with incomplete acreage figures of 50,000 bearing acres of apples, 57,000 bearing acres of prunes and 4,200 acres of vegetables--mainly cabbage, cauliflower, broccoli, celery, lettuce, onions. Since the South Farm had proven to be unsuitable for fruits, W. S. Brown, Head of the Department of Horticulture recommended in this same report the following land needs for the department:

For Resident Instruction - 141 acres

65	acres	for	fruit	trees	and	nuts	-	production	and	management
60	"	"	"	"	"	"	-	variety	plots	
20	"	"	"	"	"	"	-	commercial	production	
5	"	"						vegetable	gardening	
1	"	"						flowers	and	bulbs



For Experiment Station purposes - 76 acres

20	acres	- small fruits
15	"	- tree fruit and nut variety testing
35	"	- miscellaneous fruit and nut problems
5	"	- vegetable crops
1	"	- flowers and bulbs

1926-28. For the first time in many years the Extension Horticulturist was no longer listed under Horticultural Faculty (49). In 1928 a new range of greenhouses (the present East Greenhouse Range) was completed (50) at a cost of \$62,050.45 and comprising 21,000 sq. ft. for research and instruction. One house (33 x 100 feet) was for teaching, the remainder for research; how much of this range was assigned to Horticulture is not clear in the record. At this same time it was reported that a committee had studied the feasibility of offering graduate work leading to the Ph.D. degree and this action was so recommended by the Dean of the School of Agriculture. It was to be several years, however, before this request was to be granted. The Board of Regents also recommended the purchase of 168 acres of upland and 65 acres of river bottom soil for the Horticulture Department.

The extent and scope of the research program in horticulture in 1927 can be obtained from the 1927-28 general catalogue (49) as follows:

1. More complex phases of pruning including (a) relation of the nitrogen-carbohydrate rates to pruning practices, (b) relation of carbohydrates and nitrogen to behavior of apple spurs, and (c) chemical and physiological factors in growth correlations of apple fruits.
2. Pollination of the filbert and cherry.
3. Strawberry variety tests.
4. Breeding investigations with apples, prunes, and strawberries.
5. Vegetable gardening investigations in (a) field irrigation, (b) seed strain trials, and (c) miscellaneous greenhouse crops.
6. Investigations with the by-products of fruit and vegetables in (a) standardization of dried prunes, (b) relationship of going-in syrup to cut-out in canned fruits.
7. Harvesting and storage investigations with pears, apples, cherries, and prunes.
8. Elimination of undesirable spray residues from fruits.

1928-1930. Beginning in the 1927-28 general catalogue (G) and (g) were first used to designate graduate credit in Horticulture courses below the 500 course series. Although in 1929-30 there were further course changes in Horticulture in which Landscape Architecture course offerings were further increased and Floriculture offerings were further decreased (53), the 1928-29 catalogue (51) best indicates the changes that had taken place in recent years. The complete list is as follows:



- ## Floriculture



### Hort Products

- Hort 351 Principles of Canning Fruits
- " 352 Principles of Canning Vegetables
- " 353 The Canning Plant and Its Equipment
- " 363 Food Products
- " 371 Dehydration of Fruit and Vegetables
- " 381 Pickles, Relishes, and Condiments
- " 451 Fruit Juice and Vinegar Manufacturing
- " 453 Carbonated Beverages and Crushed Fruits
- " 462 Commercial Jams and Jelly Manufacturing
- " 473 Preserves, Glazed Fruits and Candied Fruits
- " 487,488,489 Special Problems (G)

### Research Courses

- Hort 491,492,493 Investigative Work for Service in Horticulture
- " 691,692,693 Thesis & Graduate Study (G)
- " 694,695 Methods of Research (G)

Dr. W. P. Duruz, who received his Ph.D. from Stanford was appointed as Professor of Horticulture (Pomology) in 1929. He remained on the staff until 1951 when he went with the Foreign Agricultural Service on an extended leave of absence; he resigned his position in the Department in 1955. C. E. Schuster resigned his position as Professor of Horticulture in 1929 and was appointed USDA Horticulturist at Corvallis under a cooperative agreement with Oregon Agricultural Experiment Station to conduct research on the breeding of small fruits. In 1930 a second U.S.D.A. position was created. G. M. Darrow took over the small fruit research and Schuster initiated research on walnuts and filberts. Thomas Onsdorff was appointed as Instructor in Horticultural Products in 1928. H. R. Sinnard and F. A. Cuthbert were appointed as Instructors in Landscape Architecture in 1929 and 1928 respectively. W. D. Enzie was an Instructor of Vegetable Crops in the Department during 1929-30 while Professor Bouquet completed his M.S. degree at Cornell. Mr. Enzie received his B.S. degree (1929) and his M.S. degree (1939) from Oregon State. He became and is Manager of Horticultural Research, Birdseye Division, General Foods Corporation.

It is of considerable interest to note that during this period (1928-30) three Teaching Fellows Received their M.S. degrees in Horticulture at Oregon State who became well known professional horticulturists at other institutions including the U.S.D.A. Those are: C. E. Russell (M.S. 1928) who became Professor of Horticulture at Michigan State University and as a teacher became well known to many undergraduate and graduates of that institution; A. L. Ryall (M.S. 1928) and J. M. Lutz (M.S. 1929) who are now, respectively, Chief and Assistant Chief of the Market Quality Research Division, Agricultural Research Service, of the U.S.D.A.



1930-31. Another unit of the East Greenhouse was completed in 1930-31. Space in the Horticulture wing (South Wing) of Agricultural Hall was at a premium. It was reported (55) that six advanced staff members in Horticulture had one laboratory between them for research, and three State and USDA research staff and one clerk were officed in one room. The staff at this time included:

W. S. Brown (Dept. Head)	-	Horticulture
H. Hartman	-	" (Pomology)
W. P. Duruz	-	" (Pomology-Nursery Management)
E. M. Harvey	-	" (Pomology)
A.G.B. Bouquet	-	" (Vegetable Crops)
C. E. Schuster	-	USDA Horticulturist (Pomology-Tree Nuts)
G. M. Darrow	-	" " (Pomology-Small Fruits)
E. H. Wiegand	-	Horticultural Products
T. Onsdorff	-	" "
A. Peck	-	Landscape Architecture
H. R. Sinnard	-	" "
F. A. Cuthbert	-	" "
O. T. McWhorter	-	Extension Horticulturist

Mr. McWhorter replaced Mr. C. R. Long as Extension Horticulturist sometime during 1930-31. Mr. McWhorter had been a County Extension Agent in the State of Washington; he had a B.S. degree from Washington State. He occupied this position until his death in 1945. In 1931 Dr. E. M. Harvey resigned to accept a position as Physiologist with the Agricultural Marketing Service, USDA. Professor Hartman had since 1929 spent the whole years (excepting the summer months) studying marketing and fruit quality of winter pears in the East under the auspices of the Oregon-Washington-California Pear Bureau. Thus by 1931 there was little resemblance remaining of the pomology group that attained national recognition for Oregon State, horticulturally speaking, during the 1906-1920 era.

Course offerings in Horticulture were redesigned and the area of specialization re-defined (54). All were a part of the Horticulture Department but were now designated as follows:

#### General Horticulture & Floriculture

All courses designated Hrt and included:

Hrt 200 Elements of Horticulture  
 " 341 Plant Propagation and Greenhouse Practice  
 " 441,442,443 Greenhouse Crops (Duruz & Peck)

#### Pomology

All courses designated as Pom and included:

Pom 312,313,362,412,413,414,415,417,418,481,482,483,484,485,486  
 (Brown and Duruz)



### Vegetable Gardening

All courses designated VG and included:

VG 222,321,323,421,422,423,424,425,426,427,428,429 (Bouquet)

### Landscape Architecture

All courses designated LA and included:

LA 130,131,133,134,135,231,232,233,234,235,236,237,238,239,  
331,332,333,334,335,336,337,431,432,433,434,435,436,437,  
438,439 (Cuthbert, Sinnard, and Peck)

### Hort Products

Courses designated HP and included:

HP 251,252,353,363,371,381,451,452,453,473,487,488,489  
(Wiegand and Onsdorff)

### Graduate & Research Courses

Designated Hrt and included:

Hrt 621,622,623,625,627,628,629,651,652,653,684,685,691,692,  
693,694,695,696 (Harvey and others)

### 1932-1945

#### Reorganization of Research and Resident Instruction Responsibilities

This period is characterized by (1) the changes in Horticulture curricula that came about as a result of the creation of the State System of Higher Education, (2) the loss of departmental personnel when the Departments of Food Products and Landscape Architecture were created, (3) the changes resulting from the creation of a Plant Industries Division, administratively responsible for the Departments of Horticulture and Farm Crops and Soils. From the national standpoint this period included the depression years of the 1930's and the World War II years of the 1940's.

1932-33. The Ph.D. degree is listed in the 1932-33 general catalogue (56) as being offered for the first time by the School of Agriculture. It was to be another 18 years before the first Ph.D. in Horticulture was awarded.

With the development of the State System of Higher Education, far reaching changes were made in Landscape Architecture. Landscape Architecture was made into a 5-year curriculum, the student spending the first two years at the University of Oregon then one year at Oregon State, then 2 final years at the University of Oregon. H. R. Sinnard was listed as the advisor for Landscape Architecture in Eugene and



Arthur Peck the advisor in Corvallis. A Landscape Architecture Department was created at Oregon State and all Landscape courses were transferred to that department from the Horticulture Department. However, a new curriculum was created in Horticulture--Landscape Horticulture. Students took the common freshman year School of Agriculture courses, then a common Landscape Horticulture course-year as sophomores. The "Object of the curriculum in Landscape Horticulture is to train students for the practical application of landscaping principles to problems in the field, as in management of estates, superintendency of cemeteries and parks, ornamental nursery stock industry, seed and bulb business, teaching the practical phases of ornamental gardening, maintenance of golf courses, contracting and construction on new properties, and in other similar occupations." Thus the Landscape Architecture curriculum became the responsibility of the University of Oregon. Landscape Horticulture remained in the Horticulture Department, with the required Landscape Architecture courses offered by a Landscape Architecture Department at Oregon State. Essentially this same curricular arrangement exists today (1967) except that Landscape Horticulture is now called Landscape Construction and Maintenance. These changes resulted in the loss of three staff members from the Horticulture Department.

The Horticulture curriculum was listed as a separate curriculum (56). The Horticulture curriculum was listed under "Curricula in General and Specialized Agriculture and Plant and Soil Sciences." There was also three other general curricular headings in Agriculture--a curriculum in Agricultural Engineering, a curriculum in Horticultural Products, and a curriculum in Agricultural Technology.

The 1931-32 biennial report (57) records the fact that one of the major curricula in Agriculture now established was Plant and Soil Science; this major curricula included Farm Crops, Horticulture, Landscape Horticulture, Pomology, Vegetable Crops, and Soils curricula. This report also contained the fact that W. A. Schoenfeld had been appointed as Dean of the School of Agriculture and that the faculty of Oregon State voluntarily proposed a salary reduction for themselves amounting to a total of \$693,309.

George F. Waldo (at Oregon State 1932-1965) replaced G. M. Darrow as USDA Horticulturist in the Department of Horticulture in 1932, responsible for the small fruits breeding research program. Mr. Waldo received his B.S. degree from Oregon State (1922) and his M.S. degree from Michigan State.

1933-35. A Division of Plant Industries was created encompassing the Departments of Horticulture, Farm Crops, and Soil Science (58). G. R. Hyslop, Professor of Agronomy was put in charge of this division. This administrative structure was to exist until 1949. The exact status of the Department Heads under this administrative structure is not clear from the written records available. Previously, W. S. Brown had been listed as Head of the Department of Horticulture and Chief of the Division of Horticulture (within the Experiment Station); in the 1933-34 general catalogue W. S. Brown is listed only as Professor of Horticulture and Horticulturist. Some of the later publications do refer, however, to the Head of the Department of Horticulture; the 1933-34



biennial report (59) explains this consolidation and others (involving 9 departments) as being due to--"drastically reduced income imposed on the agricultural division" and "partly in response to the general demand throughout the country that the administration of higher education be simplified and unified." This same report indicated that higher education income in Oregon between 1930-31 and 1934-35 was reduced by 41.2%--primarily by salary and staff reductions. One quarter of the teaching and research staffs (FTE) in the School of Agriculture were eliminated by these cuts; reduction in faculty salaries between fiscal 1932 and 1934 amounted to \$1,020,000 at Oregon State.

By the 1934-35 academic year course offerings in Horticulture were as follows (60):

#### General Horticulture

Hrt	111	Elements
"	311	Propagation
"	312	Greenhouse Construction & Maintenance
"	313	Greenhouse Crops
"	314	Greenhouse Crops Practices
"	316	General Floriculture
"	405	Special Problems in Horticulture
"	407	Seminar
"	411	Methods of Research
"	501	Graduate Research
"	503	Graduate Thesis

#### Horticultural Products

HP	250	HP	341
"	251	"	351
"	252	"	352
"	311	"	353
"	331	"	361

#### Pomology

Pom	312	History and Literature of Horticulture
"	313	Commercial Pomology
"	321	Sub-tropical Pomology
"	341	Small Fruits and Grapes
"	415	Fruit Production
"	417	Systematic Pomology
"	419	Spraying

#### Vegetable Crops

VC	321	Principles of Vegetable Production
"	322	Vegetable Crops for Canning
"	323	Vegetable Growing Practices
"	325	Vegetable Forcing
"	423	Vegetable Varieties
"	424	Vegetable Marketing



1935-36. A course in Nursery Management (Hrt 320) appeared in the catalogue for the first time (61). Horticultural Products again was listed as a curriculum in Horticulture. Landscape Horticulture had been renamed Landscape Maintenance. No staff changes were noted. Enrollment in the School of Agriculture had increased by 45% over the preceding biennium (62).

Elmer Hansen was appointed Assistant in Horticultural Research in 1935. With a B.S. and a M.S. degree from Oregon State, he obtained his Ph.D. degree from the University of Chicago in 1946 in Botany. Dr. Hansen is currently (1967) on the staff of this department. He gained national and international recognition in the field of post-harvest physiology of fruits.

1938-41. The Doctor of Science degree was conferred on Dr. E. J. Kraus by Oregon State in 1938 (63). As indicated in the 1906-1920 section of this chronology, Dr. Kraus was a staff member of the Department of Horticulture from 1909-1919.

In 1938-39 Horticultural Products, long a part of the Horticulture Department for both curriculum and research, became a separate department-- Food Products (64). Another two staff members were lost from horticulture.

From 1935 to 1940 there were no staff changes in the Department other than the loss that occurred when Professor Wiegand and Onsdorff formed the nucleus of the new Food Products Department. In 1940-41 A. N. Roberts was appointed as Instructor in Horticulture. Dr. Roberts had completed his B.S. and M.S. degrees at Oregon State (1939-1941); later, in 1953, he completed his Ph.D. degree at Michigan State University. He is currently a staff member of this department and one of the primary organizers in the development of research and teaching in Nursery Management. The Landscape Maintenance curriculum was renamed Landscape Construction and Maintenance.

The course offerings of the Horticulture Department were again revised, this time upwards due in part, at least, to increased enrollment as reported in (60) and (61). The course offerings in the 1939-40 catalogue (64) were as follows:

#### General Horticulture

Hrt 111	Elements of Horticulture	3	hours	credit
" 311	Plant Propagation	3	"	"
" 312	Greenhouse Construction & Management	3	"	"
" 313	Greenhouse Crops	3	"	"
" 314	Greenhouse Crop Practices	3	"	"
" 316	General Floriculture	3	"	"
" 320	Nursery Management	3	"	"
" 401	Research	Terms and hours to arrange		
" 403	Thesis	"	"	"
" 405	Reading and Conference	"	"	"
" 407	Seminar	1 credit/term		
" 411	Methods of Research (G)	3 credits		



Pomology

Pom	312	History and Literature of Horticulture	3 credits
"	313	Commercial Pomology	3 "
"	321	Fruits and Nuts of the World	3 "
"	341	Small Fruits and Grapes	3 "
"	413	Handling and Distribution of Fruits	3 "
"	415	Fruit Production (G)	4 "
"	417	Systematic Pomology (G)	4 "
"	419	Spraying (g)	3 "
"	431	Pruning (g)	3 "

Vegetable Crops

VC	321	Principles of Vegetable Production	3 credits
"	322	Vegetable Crops for Manufacturing	3 "
"	323	Vegetable Growing Practices	3 "
"	325	Vegetable Forcing	3 "
"	423	Vegetable Varieties (G)	2 "
"	424	Vegetable Marketing (g)	3 "

Land facilities for teaching and research programs in Horticulture had been entirely inadequate for many years. Prior to 1938 the department shared the South Farm, probably since the 1920's. It was largely unsuitable for horticultural crops. Some nursery stock had been planted in the 1930's near or on the site of the present tennis courts. Some small fruit plantings (for research) had been made at the East Farm (the Averill property). In 1938 the Millhollen Farm (immediately adjacent to the present Dixie School site) was leased with option to buy in 1938 and was purchased in 1940 (both dates approximate). This approximate 100 acres is the present (1967) site of the department's small fruits, tree fruits, and ornamental plantings for teaching and research.

1942-45. W. S. Brown, Head of the Horticulture Department since 1920, died on May 2, 1942. Previous to his appointment as Department Head, Professor Brown had been the first Extension Horticulturist at Oregon State. The 1941-42 biennial report (66) stated that he had received a D.Sc. degree from Alfred University in 1931. Professor Henry Hartman was appointed Head of the Department in 1942, serving in this capacity until 1955. During World War II one of Professor Hartman's responsibilities was the teaching of a course in Camouflage to ASTP students at the college; Professor Hartman had previously gone East to receive training at a special camouflage school.

G. R. Hyslop, Chief of the Plant Industries Division (Horticulture, Farm Crops, Soils) died in 1943. W. A. Schoenfeld, Dean of the School of Agriculture, became nominal chief of this division (67) until it was eliminated in 1949. O. T. McWhorter, Extension Horticulturist since 1930, died in October 1945.



## 1946-1955

## Re-orientation of Research and Extension Responsibilities

1946-1949. C. O. Rawlings who previously was Extension Horticulturist at the University of New Hampshire replaced Mr. McWhorter as Extension Horticulturist (Tree Fruits) in 1946. Professor Rawlings had a B.S. degree from Illinois and a M.S. degree from New Hampshire. Ralph R. Clark also was appointed as Extension Horticulturist in 1946. Professor Clark had a B.S. (1925) and a M.S. (1940) degree from Oregon State. His extension responsibilities involved ornamental crops, small fruits, and vegetable crop gardening; he occupied this position until his death December 27, 1965. Dr. W. P. Duruz who was on military leave from 1940 to 1946 returned in 1946 to the department as Professor of Horticulture. S. E. Wadsworth was appointed Associate Professor of Horticulture in September 1946. His responsibilities involved the teaching of Floriculture and the operation of the College Floriculture Greenhouses and Conservatory. He is currently (1967) on the staff with the same responsibilities. Professor Wadsworth received his B.S. degree in Floriculture from Cornell University in 1935 and had two years of graduate study from 1935-37 at the same institution. C. A. Boller is listed as Instructor and Research Assistant in Horticulture in the 1946-47 catalogue (68). Dr. Q. B. Zielinski was appointed as Associate Professor of Horticulture in January 1947. Dr. Zielinski obtained the B.S. degree from Oregon State in 1941, the M.S. degree (1942) from Ohio State and the Ph.D. (1947) from the University of Virginia.

The post-war period brought heavy enrollment increases to Oregon State and the Horticulture Department. There was considerable renewed interest in horticulture as a major subject of study and to Floriculture in particular. Major changes were made in the courses offered in the department and the courses were renumbered in such a manner that new courses could be added without it being necessary to change or re-arrange the permanent numbers. The revised course offerings in the 1947-48 catalogue (69) were as follows:

Hrt 111	General Horticulture
" 151	General Floriculture
" 253	Flower Arrangement
" 311	Plant Propagation
" 313	Greenhouse Construction & Management
" 315	Basic Horticulture
" 317	History and Literature of Horticulture
" 331	Fruit and Nut Production
" 341	Vegetable Production
" 343	Vegetable Crops for Processing
" 351, 352, 353	Commercial Floriculture
" 355	Herbaceous Plant Materials
" 361, 362, 363	Nursery Management
" 401	Research
" 403	Thesis
" 405	Reading and Conference
" 407	Seminar



Hrt 411	Methods of Research
" 413	Horticulture Plant Breeding
" 415	Spraying, Dusting, and Fumigating
" 431	Fruit Handling and Distribution
" 433	Systematic Pomology
" 441	Vegetable Handling and Distribution
" 443	Vegetable Varieties
" 445	Vegetable Growing Practice
" 447	Vegetable Forcing
" 451	Flower Shop Operation
" 453	Handling and Distribution of Florists Crops
" 501	Research
" 503	Thesis
" 505	Reading and Conference
" 507	Seminar

The course offerings were again increased in 1948-49 (70) to include four graduate courses in Horticultural Genetics (Hrt 511,512,513,514).

C. E. Schuster, USDA Horticulturist at Oregon State since 1929, died on February 6, 1948. Prior to his appointment as USDA Horticulturist he had served as Extension Horticulturist and as Professor of Horticulture (1919-1929). John H. Painter replaced Mr. Schuster in 1948. Mr. Painter obtained his B.S. degree at the University of Maryland and his M.S. degree at Oregon State (1924). Dr. O. C. Compton was appointed as Assistant Professor of Horticulture in 1947. Dr. Compton had obtained the B.S. and M.S. degrees at the University of California (1931 and 1932) and the Ph.D. at Cornell University in 1947. L. T. Blaney was appointed Instructor in Horticulture in 1948. He received the B.S. and M.S. degrees at Penn State in 1941 and 1948 respectively, and his Ph.D. at UCLA in 1955. He had been on the staff at Penn State University for 1946 to 1948. Dr. W. A. Frazier was appointed Professor of Horticulture in October 1949. Dr. Frazier came to Oregon State from the University of Hawaii. He had received his B.S. degree from Texas A & M in 1930 and his M.S. and Ph.D. degrees from the University of Maryland in 1931 and 1933 respectively. His appointment marked the beginning of a pronounced increase in research efforts in vegetable crops.

1950-1953. S. B. Apple, Jr. was appointed as Associate Professor of Horticulture in August 1950. He received his B.S. and M.S. degrees at Texas A & M in 1933 and 1936 respectively, and his Ph.D. at Washington State University in 1953. Professor A.G.B. Bouquet, since 1906 the only staff member in the Horticulture Department having any responsibility for teaching and research in vegetable crops, retired in 1950 and became Emeritus Professor of Horticulture. Since Professor Apple's responsibilities were also in the horticultural area of vegetable crops, his appointment marked the first time in the history of the department that more than one staff member was involved in research and teaching in vegetable crops at Oregon State on a permanent basis.



Significant advances in the research efforts in the areas of vegetable crops and ornamental crops were initiated during this period. Oregon's commercial vegetable crops and ornamental industries had made tremendous strides. Research efforts in vegetable crops were doubled in terms of manpower. Dr. E. J. Kraus had returned to Oregon State in 1948 after retirement from the University of Chicago. As a Visiting Professor of Horticulture he put his efforts into strengthening the research efforts of the department in the field of ornamentals.

In 1951 Dr. W. P. Duruz requested an extended leave of absence to work with the Foreign Agricultural Service. The same year Vernon A. Clarkson was appointed as Instructor in Horticulture. His responsibilities were the teaching of the two general horticulture courses Hrt 111 and 311. Also in the same year Ralph Garren was appointed as an Instructor in Horticulture. He obtained his B.S. and M.S. degrees at Oregon State in 1950 and 1954 and his Ph.D. from Purdue University in 1961.

1954-55. Henry Hartman, Head of the Department relinquished his administrative responsibilities in 1955 and S. B. Apple, Jr. was appointed Head of the Department in the same year. Professor Hartman remained active in teaching and research until 1960. Dr. Harry J. Mack was appointed as Instructor in Horticulture to replace Dr. Apple in 1955. Dr. Mack received his B.S. and M.S. degrees from Texas A & M in 1950 and 1952 and his Ph.D. from Oregon State in 1955. Dr. Duruz, on leave since 1951 with the Foreign Agricultural Service, resigned from the department in 1955.

#### 1956-1966

##### The Past Decade and the Present

1956-59. Dr. J. R. Baggett was appointed Instructor in Horticulture (Vegetable Crops) in 1956. He received the B.S. degree from the University of Idaho in 1952 and the Ph.D. from Oregon State in 1956. At this time there was some shifting of responsibilities within the department. Drs. Roberts and Blaney, and Professor Wadsworth, as a group, were assigned the research responsibilities in ornamental horticulture and floriculture within the department. Drs. Frazier, Mack, and Baggett had similar departmental responsibilities as regards the vegetable crops research program. Dr. W. P. Duruz on leave since 1951 with the Foreign Agricultural Service resigned his position in the department in 1955. C. A. Boller, Assistant Professor of Horticulture and on the departmental staff since 1946-47 resigned to go into private business in 1955-56.

In 1957 V. A. Clarkson resigned and H. B. Lagerstedt was appointed Instructor in Horticulture. His responsibilities were primarily in teaching but limited research responsibilities in the area of small fruits were assigned; Dr. Garren had already been assigned research responsibilities in this area. Dr. Lagerstedt received his B.S. and M.S. degrees from Oregon State in 1954 and 1957, and his Ph.D. degree from Texas A & M in 1965. In 1958 Dr. Garvin Crabtree was appointed as



Assistant Professor of Horticulture. Dr. Crabtree received his B.S. degree from Oregon State (1951) and his M.S. and Ph.D. from Cornell in 1955 and 1958 respectively. The rapid increase in the use of herbicides in horticultural crop production made it necessary to assign a full time man to research in this area.

The physical facilities of the department were materially strengthened during this period. For several years the vegetable crops research group in the department had only 10-12 acres of experimental land available to them. In 1957 the Stegmuller Farm of 40 acres was purchased and allocated to the vegetable crops section for research and teaching, making a total of 52 acres available to them. The department had to pay \$11,000 of the total cost of this property from its own operating budget, over a period of eleven years. In 1958-59 the first unit of a field laboratory was built on this land, and several years later (1964-65) the last unit was completed at a total cost of approximately \$35,000.

In 1957-58 the first unit of Cordley Hall was completed and the department moved into badly needed, expanded and new quarters, occupying all four floors of the North Wing of the new building. It is estimated that the useable space occupied by Horticulture in 1957 in the South Wing of the Agricultural Building did not exceed 7,500 sq. ft. In Cordley Hall the department had 20,000 square feet of space. For the first time in many years the department had adequate space to carry out its teaching, research, and extension responsibilities.

For several years plans had included the establishment of a horticultural Branch Station near the concentrated small fruits, ornamentals, and vegetable crops industries in the northern part of the Willamette Valley. In 1958 the final site (in Clackamas County) of 52 acres was selected. The Clackamas County Court financed the purchase of this property. Later in 1958, Dr. R. M. Bullock was appointed Superintendent and Horticulturist of the North Willamette Branch Experiment Station. Dr. Bullock received his B.S. degree at Kansas State in 1940 and his M.S. and Ph.D. degrees at Washington State. Dr. R. L. Ticknor was appointed as Assistant Professor of Horticulture at the North Willamette Station to conduct research on ornamentals. His B.S. degree was obtained at Oregon State in 1950 and his M.S. and Ph.D. at Michigan State in 1951 and 1953. W. A. Sheets was also appointed (1959) as a Senior Instructor at this Station to support the research of Drs. Bullock and Ticknor.

At the time that the Department of Horticulture moved to new facilities in Cordley Hall, Associate Professor Roland H. Groder, Extension Marketing Specialist-Fruit and Vegetables, was assigned headquarters in the department. Professor Groder obtained his B.S. degree at the University of Maine in 1950 and his M.S. degree at Cornell in 1960. He had come to Oregon State in 1950 as Marketing Specialist but until 1957-58 was more closely associated with the Department of Agricultural Economics. His close association with the staff of this department and the horticultural industries in the State, as a result



of this move in 1957-58, has been a significant factor in his successful educational marketing activities in fruits and vegetables.

On July 1, 1958, Dr. Andrew A. Duncan was appointed as Extension Vegetable Crops Specialist. This was the first time that Extension education was extended to the multi-million dollar vegetable crops industry although an Extension Horticulturist (Pomology) position was established in 1914. Dr. Duncan received his B.S., M.S., and Ph.D. degrees at the University of Maryland in 1950, 1952, and 1956 respectively. He had for several years been Extension Vegetable Crops Specialist at the University of Maryland.

1960-62. Professor Henry Hartman retired in 1960 as Professor Emeritus. He was replaced by Dr. M. N. Westwood, who received his B.S. degree at Utah State in 1932 and his Ph.D. at Washington State in 1956. Dr. Westwood was appointed Associate Professor of Horticulture (Pomology).

C. O. Rawlings, Extension Horticulturist (Pomology) since 1946, retired October 31, 1960. He was not replaced until June 1, 1962 when Robert L. Stebbins was appointed to this position. Assistant Professor Stebbins received his B.S. degree from Colorado State in 1955 and his M.S. degree from the University of California in 1959. Prior to coming to Oregon State he was a research horticulturist at the Western Slope Experiment Station (Colorado).

One other significant event in the history of the Horticulture Department occurred in 1961. Miss Nina Rebman, Departmental Secretary of the department since January 15, 1918, retired on March 31, 1961. Thus 43 years of service to one department was completed. Miss Rebman served as Departmental Secretary under all the department heads since the department had become larger than a one-man department. She was (and still is for that matter) friend and confidant of practically every undergraduate and graduate student and every staff member of the department since 1918.

1964-65. On December 27, 1965, Ralph R. Clark, Extension Horticulturist (Small Fruits and Ornamentals) died. He had served as Extension Horticulturist since 1946. George F. Waldo, USDA Horticulturist, located at Oregon State since 1932 when the small fruits breeding program that he was responsible for was just beginning, retired in December 1965. Nationally and internationally known as a plant breeder of small fruits, Mr. Waldo was responsible for the naming and introduction of 14 strawberry, blackberry, and red raspberry varieties that are grown commercially in the Northwest and to some extent in California. The list and the date of each introduction is as follows:



<u>Name</u>	<u>Type of Fruit</u>	<u>Date Introduced</u>
Brightmore	Strawberry	March 1942
Pacific	Blackberry	April 1942
Cascade	"	" "
Willamette	Red raspberry	" "
Chehalem	Blackberry	November 1947
Olallie	"	January 1950
Canby	Red raspberry	April 1953
Siletz	Strawberry	October 1955
Marion	Blackberry	November 1956
Molalla	Strawberry	June 1961
Fairview	Red raspberry	September 1961
Aurora	Blackberry	" "
Hood	Strawberry	April 1965
Vale	"	September 1966

In September 1965 Dr. Francis J. Lawrence was appointed to replace Mr. Waldo and continue the USDA-Oregon Experiment Station cooperative research program in the breeding of small fruits. Dr. Lawrence had been on the staff at the University of Maryland just prior to this appointment. He received his B.S., M.S., and Ph.D. degrees from the University of Maryland in 1951, 1958, and 1965 respectively.

1966-67. Ninety five years have now elapsed since "fruit culture" was listed as a special study of the "Agricultural College of the State of Oregon" (1); ninety two years have elapsed since the course "Fruit Culture" was first taught as a regular course (2,3); and seventy eight years have elapsed since a brief report of the "Horticultural Department" was made in the 1888-89 College Catalogue (5) and E. R. Lake was listed as Professor of Botany and Horticulture and Horticulturist of the Oregon Agricultural Experiment Station. The growth and development of the present Department of Horticulture has to a considerable extent paralleled the growth of the commercial horticultural industries in the state. The gains have been primarily in those research and extension programs and personnel that are closely oriented to the needs of the multi-million dollar horticultural industries in the state. In recent years there has been little change in the total numbers of students (undergraduate and graduate) majoring in horticulture, thus, no increase in staff personnel in resident instruction.

With the exception of the Extension Horticulturists, all the present departmental staff hold joint appointments in Resident Instruction and the Oregon Agricultural Experiment Station. To some extent at least, all are involved in Extension activities related to their research responsibilities. The full-time staff members for 1966-67, their academic rank, highest degree received, and date of first appointment is given in Appendix A. The current research program of the Horticulture Department is broad in scope, primarily "oriented" research--both basic and applied. This research program is given in detail in Appendix C.



The Horticulture Department's research programs are closely integrated with the research programs of those Branch Experiment Stations involved primarily in horticultural research. These Branch Stations and their Research Horticulturists are listed in Appendix B.

The current physical facilities of the Horticultural Department at Corvallis, in addition to the approximate 20,000 square feet of office, laboratory, and classroom space in Cordley Hall, includes two resident instruction-research farms of a total of 170 acres, and resident instruction-research greenhouse space of approximately 30,400 square feet (includes 1,500 sq. ft. of headhouse space and 2,250 sq. ft. of plastic greenhouse). In addition a small Field Research Laboratory is in operation at Brookings, Oregon. In addition to the faculty personnel listed in Appendix A, the permanent staff of the department includes 7 secretaries (includes Extension and USDA), 4 farm personnel, and 11 field and laboratory technicians.

Records of the Horticulture Department show that a total of 85 M.S. degrees and 17 Ph.D. degrees have been awarded since the first M.S. degree was awarded in 1909. This first M.S. degree was earned by Clarence C. Vincent in 1909 and the title was Pollination Studies. Mr. Vincent later became Head of the Horticulture Department at the University of Idaho. The first Ph.D. was earned by W. B. Date in 1950 and the title was Physical and Biochemical Changes in Pears During Ripening. Dr. Date returned to India, his native home, to carry out research for the Indian Government.

Approximately 610 B.S. degrees have been earned by students majoring in Horticulture since the department has been in existence. In an analysis made in 1962 the occupational breakdown of these students indicated the following:

<u>Occupation</u>	<u>Percent of Total</u>
1. Farming	11
2. Public Service (Teaching, Extension, Research, Inspection & Quarantine Service, USDA)	31
3. Military	3
4. Private Employment (Nurserymen, Landscape, Flower Shops & Greenhouse Operators, Real Estate, Electricians, Insurance, etc.)	39
5. Business (Salesmen, Bank Employees, Fieldmen, Orchard Managers, Newspaper work, State Highway, Land Assessors & Appraisal, City Planning)	16
Total	<u>100</u>



## SOURCES OF INFORMATION

A. Non-cited

Includes personnel and other records of the Horticulture Department, personal knowledge of events and personal contacts with many of the professional personnel involved, departmental and personal correspondence, and editions of American Men of Science.

B. Cited

1. Catalogue of Agricultural College 1872-1873.
2. Report of the State Agricultural College, Ninth Regular Session 1876.
3. Biennial Report, State Agricultural College 1876.
4. Fifteenth Biennial Report of the Oregon State Agricultural College to the Legislative Assembly 1888.
5. Calendar and Catalogue of the State Agricultural College for 1888-1889.
6. First Annual Report of the Oregon State Agricultural College Experiment Station 1889.
7. Catalogue and Calendar of the State Agricultural College of Oregon for 1892-1893.
8. Annual Report of the President of the Board of Regents of the State Agricultural College to the Governor of Oregon for the Year Ending June 30, 1892.
9. Annual Report of the State Agricultural College to the Governor of Oregon for the Year Ending June 30, 1890-1891.
10. Catalogue and Calendar of the State Agricultural College of Oregon 1893-94.
11. Annual Report of the President of the Board of Regents of the State Agricultural College to the Governor of Oregon 1895.
12. Oregon State Agricultural College Catalogue and Calendar 1894-95.
13. Oregon State Agricultural College Catalogue and Calendar 1895-1896.
14. Catalogue Oregon Agricultural College 1896-1897.
15. Annual Report of the Oregon Agricultural College and Experiment Station for the Year Ending June 30, 1897.
16. Oregon Agricultural College, 1898-99.
17. Annual Catalogue for 1905-1906.
18. Annual Report of the Oregon Agricultural College and Experiment Station for the Year Ending June 30, 1906.
19. Oregon Agricultural College, Biennial Report of the Board of Regents 1906-1908.
20. Annual Catalogue for 1906-1907.
21. Report of the President of the Board of Regents of the Oregon Agricultural College and Experiment Station for 1907-1908.
22. Catalogue of the Oregon Agricultural College for 1908-1909.
23. Bulletin of the Oregon Agricultural College, Annual Report, of the President and Board of Regents 1908-1909.
24. Catalogue of the Oregon Agricultural College for 1909-1910.
25. Catalogue of the Oregon Agricultural College for 1910-11.
26. Oregon Agricultural College, Biennial Report of the Board of Regents 1910-1912.

27. Catalogue of the Oregon Agricultural College for 1911-1912.
28. Catalogue of the Oregon Agricultural College for 1911-1912.
29. Catalogue of the Oregon Agricultural College for 1912-1913.
30. Catalogue of the Oregon Agricultural College 1913-1914.
31. Oregon Agricultural College, Biennial Report of the Board of Regents 1912-1914.
32. Catalogue of the Oregon Agricultural College for 1915-1916.
33. Catalogue of the Oregon Agricultural College for 1914-15.
34. Oregon Agricultural College Bulletin. Biennial Report of the Board of Regents 1914-1916.
35. Oregon Agricultural College Bulletin. Annual Catalogue 1916-17.
36. Oregon Agricultural College Bulletin. College Catalogue 1917-18.
37. Catalogue of the Oregon Agricultural College for 1918-19.
38. Catalogue of the Oregon Agricultural College for 1919-1920.
39. Biennial Report of the Board of Regents 1916-1918. Oregon Agricultural College Bulletin 297. 1919.
40. Biennial Report of the Board of Regents 1918-1920. Oregon Agricultural College Bulletin 345. 1921.
41. Bulletin of the Oregon Agricultural College, Annual Report, of the President and Board of Regents 1910-1911.
42. Catalogue of the Oregon Agricultural College for 1920-21.
43. Catalogue of the Oregon Agricultural College. General Catalogue 1921-1922.
44. Biennial Report of the Board of Regents 1920-1922. Oregon Agricultural College Bulletin.
45. Biennial Report of the Board of Regents 1924-1926. Oregon Agricultural College Bulletin. 1926.
46. Biennial Report of the Board of Regents 1922-24. Oregon Agricultural College Bulletin.
47. Catalogue of the Oregon Agricultural College. General Catalogue 1922-23.
48. Catalogue of the Oregon Agricultural College. General Catalogue 1923-24.
49. Oregon State Agricultural College. General Catalogue 1927-28.
50. Biennial Report of the Board of Regents 1926-28. Oregon State Agricultural College. 1928.
51. Oregon State Agricultural College General Catalogue 1928-1929.
52. Oregon Agricultural College. General Catalogue 1926-27.
53. Oregon State Agricultural College General Catalogue 1929-30.
54. Oregon State Agricultural College General Catalogue 1930-31.
55. Oregon State Agricultural College Biennial Report for 1928-1930.
56. Oregon State System of Higher Education Bulletin. General Catalogue 1932-33.
57. Oregon State System of Higher Education Bulletin. Biennial Report 1931-32. 1932.
58. Oregon State Agricultural College Catalogue 1933-34.
59. Oregon State System of Higher Education Bulletin. Biennial Report 1933-34.
60. Oregon State Agricultural College Catalogue 1934-35.
61. Oregon State Agricultural College Catalogue 1935-36.



62. Oregon State System of Higher Education Bulletin. Biennial Report 1935-1936.
63. Oregon State System of Higher Education Bulletin. Biennial Report 1937-1938.
64. Oregon State College Catalogue 1939-40.
65. Oregon State Agricultural College Catalogue 1936-37.
66. Oregon State System of Higher Education. Biennial Report 1941-42.
67. Oregon State College Catalog 1944-45.
68. Oregon State College Catalog 1946-47.
69. Oregon State College Catalog 1947-48.
70. Oregon State College Catalog 1948-49.



# APPENDIX A

## 1966-67 Full Time Faculty of the Horticulture Department

<u>Name</u>	<u>Academic Rank</u>	<u>Highest Degree Received</u>	<u>Date of 1st Appointment</u>
<u>Resident Instruction &amp; Experiment Station</u>			
S. B. Apple, Jr.	Dept. Head & Prof. of Hort.	Ph.D.	1950
J. R. Baggett	Associate Professor	Ph.D.	1956
L. T. Blaney	Professor	Ph.D.	1947
A.G.B. Bouquet	Professor Emeritus	M.S.	1906
O. C. Compton	Professor	Ph.D.	1947
G. Crabtree	Assistant Professor	Ph.D.	1958
W. A. Frazier	Professor	Ph.D.	1949
R. Garren	Associate Professor	Ph.D.	1951
E. Hansen	Professor	Ph.D.	1935
H. Hartman*	Professor Emeritus	M.S.	1918
H. B. Lagerstedt	Assistant Professor	Ph.D.	1957
H. J. Mack	Associate Professor	Ph.D.	1955
A. N. Roberts	Professor	Ph.D.	1940
S. E. Wadsworth	Associate Professor	B.S.	1946
M. N. Westwood	Associate Professor	Ph.D.	1960
Q. B. Zielinski	Professor	Ph.D.	1947

### Extension Horticulturists

A. A. Duncan	Professor	Ph.D.	1958
R. H. Groder	Associate Professor	M.S.	1950
R. L. Stebbins	Assistant Professor	M.S.	1962
_____**	_____	_____	_____

### USDA Horticulturists

F. J. Lawrence	Assistant Professor	Ph.D.	1965
J. H. Painter***	Professor	M.S.	1948

\* Deceased October 1966

\*\* Made vacant by death of R. R. Clark in December 1965

\*\*\* Retired December 30, 1966

## APPENDIX B

### Branch Experiment Stations Primarily Involved in Horticultural Research

#### Mid-Columbia Branch Experiment Station

W. M. Mellenthin, M.S. - Superintendent and Horticulturist

#### North Willamette Branch Experiment Station

R. M. Bullock, Ph.D. - Superintendent and Horticulturist

R. L. Ticknor, Ph.D. - Associate Horticulturist

#### Southern Oregon Branch Experiment Station

Porter Lombard, Ph.D. - Superintendent and Associate Horticulturist



## APPENDIX C

Horticulture Department  
Oregon Agricultural Experiment Station  
Research Programs  
1966

Introduction, Testing, Breeding, Selection of  
Horticultural Crops

A. Small Fruits

1. Strawberries

- (a) Breeding, selection, testing for combined resistance to diseases, improved horticultural characters. USDA (Coop.)
- (b) Maintenance of clonal stocks of commercial varieties and selections as free from diseases and pests as possible. USDA (Coop.)

2. Caneberries

- (a) Breeding, selection, testing for resistance to diseases and improved horticultural characters including yield, quality, thornlessness. USDA (Coop.)
- (b) Maintenance of clonal stocks of promising selections and virus-free material that may be available. USDA (Coop.)

3. Blueberries & Grapes

Maintenance and evaluation of a limited number of clonal stocks of commercial varieties and promising introductions.

B. Tree Fruits

- 1. Breeding and variety evaluation of sweet cherries for virus resistance, hardiness, self-fertility.
- 2. Breeding and variety evaluation of pears for late winter maturity, new russeted and red colored types, and processing qualities.
- 3. Testing and evaluation of peach and apricot varieties for seasonal adaptation, hardiness, leaf curl resistance, and suitability for canning and freezing.
- 4. Testing and evaluation of plum varieties for climatic adaptation, maturity, yields, fresh and processed fruit qualities.
- 5. Performance and climatic adaptation of selected new varieties and strains of apples and pears for the Mid-Columbia and Willamette Valley areas.
- 6. Testing and evaluation of walnut and filbert varieties and selections for adaptability to rootstocks, yield, kernel quality, and oil content. USDA (Coop.)
- 7. Studies on Speciation in Pyrus.



### C. Vegetable Crops

1. Asparagus - variety testing and evaluation.
2. Snap beans
  - (a) Over all improvement for pod quality, habit, combined resistance to root rot, rust, yellow mosaic, common mosaic, halo bacterial blight. Pole and bush Blue Lakes, wax pod bushes, and Romano bushes.
  - (b) Nature of resistance to root rot and association with economic characteristics.
3. Broccoli - variety testing and breeding for improved horticultural characters and resistance to club root and mildew.
4. Brussels sprouts - variety testing.
5. Beets - initial selection and testing of resistance to damping off and rust.
6. Cabbage - variety testing and club root resistance.
7. Carrots - variety testing and initial stages of inbreeding and hybridization for improved color, resistance to cracking, and better shapes for specific purposes.
8. Onions
  - (a) Varietal tests of white processing types.
  - (b) Developing northern storage types, especially Danvers, via inbreeding for pink root resistance and yield.
9. Peas - breeding for combined resistance to wilt, near wilt, root rot, enation, mildew, streak, and improved horticultural characters.
10. Sweet corn - variety testing every other year, maintenance of a limited number of tender pericarp inbreds.

### D. Ornamental Crops

1. Azaleas: Breeding, selecting, and testing of greenhouse azaleas for improved horticultural characters and forcing qualities.
2. Clematis: Breeding, selecting, and testing of large-flowered forms with superior horticultural characters.
3. Crabapples: Collecting and evaluating species and cultivars for disease resistance and selection of best for Northwest conditions. Maintenance of true-to-type collection for nurserymen.
4. Easter Lilies: Breeding, selecting, and testing for combined resistance to diseases and improved horticultural characteristics both in field and greenhouse culture.
5. English Holly: Evaluation of commercial cultivars and certain selected chance seedlings for commercial cut holly use.
6. Rhododendron: Breeding, selection, and testing of dwarf types and those with heat and cold resistance. Garden azaleas are included in this selection program.
7. Rose Rootstocks: Selection and testing of superior clones of R. multiflora for garden rose rootstock purposes and maintenance of these as foundation stock for nurserymen.



Growth and Development as Influenced  
by Physiological, Cultural, Chemical, and Environmental Factors

A. Small Fruits

1. Further studies of storage and handling procedures for strawberry and caneberry plants for transplanting.
2. Induction and stimulation of root development in transplanting strawberries and caneberries.
3. Potential phytotoxicity to plants due to nutrient element excesses and other applied agricultural chemical excesses.
4. Chemical methods of determining and evaluating effect and extent of freeze damage to small fruit plants.
5. Effect of growth regulators and other chemicals on fruit bud development, fruit set, and cane and runner development.
6. Time and methods of effective propagation of difficult-to-propagate and nematode-free clonal planting material of caneberries.
7. Investigation, identification, and control measures for the several causes of the "crumbly berry" problem in caneberries.
8. Time and method of training, pruning, bud thinning, on growth and productivity of small fruit crops.
9. Chemical and radiation effects on morphogenesis and growth rates of small fruits.
10. Yield and plant performance (growth and development) of strawberries as influenced by chemical control of root weevils.

B. Tree Fruits

1. Apple and Pear

- (a) Studies on the effect of weather and wetting agents on the action of chemical thinners.
- (b) Studies on the effect of chemical thinning (dinitros, Sevin, and growth regulators) on fruit quality, size, and alternate bearing habit.
- (c) Effect of exogenous growth substances and climate on the shape of apple fruits.
- (d) Studies on the effects of environment, mechanical treatment, and growth regulators on flowering and productivity.
- (e) Effects of fruit seedlessness on subsequent seasonal fruiting potential.
- (f) Morphological and physiological effects of radiation induced changes in pear trials.
- (g) Studies of cultural practices as related to pear tree decline.
- (h) Planting densities and cultural practices to promote maximum production in commercial pear orchards.
- (i) Studies of the chilling requirements of pyrus species.
- (j) Cultural problems (spacing, training, etc.) in filberts.  
USDA (Coop.)

### C. Vegetable Crops

1. Differential flowering and pod set behavior of certain bean breeding lines to moisture and temperature stress under field and greenhouse conditions.
2. Bush bean growth, pod maturation rate, and yields as influenced by differential row spacing and planting dates.
3. Effect of plant populations on growth and yield of bush beans, sweet corn, and table beets.

### D. Ornamental Crops

1. Use of differences in pattern of dry weight distribution to various parts of lily plant as measure of plant responses to seasonal climatic differences and development of maturity.
2. Study of influence of leaves on flower initiation, flower development, stem elongation, "sprouting" and daughter bulb development in the lily.
3. Study of influence of soil temperature at various stages of development before and after bloom in "triggering" summer sprouting in Croft and Ace lilies.
4. Study of field factors influencing the development of dormancy in the Easter lily plant and the nature of the vernalization response used in hastening growth and development following storage.
5. Study of relationship between flower production and unit bulb weight in lily.
6. Detailed growth analysis of flowering and non-flowering shoots of several rhododendron cultivars and establishing time of floral initiation.
7. Study of the influence of scales of several ages in relation to perception of vernalization and subsequent growth and flowering of Easter lily.
8. Study of factors influencing growth rate of forced Easter lily.

## Nutrition and Moisture

### A. Small Fruits

1. Evaluation of the relation of growth, yield, quality, and plant composition of small fruits to the base saturation--cation exchange capacity and mineral element balance in soils.
2. Growth, yield, and quality of small fruits as related to amount, rate, and frequency of irrigation, and interactions between irrigation, fertilization, plant population, and environment.

### B. Tree Fruits

1. Investigation of the cause and control of the "rosette" disease of sweet cherry, a possible boron-virus relationship.
2. Determination of the borax-potash-nitrogen requirements of Italian prune and sweet cherry.



3. Response of prune trees to manganese and dimethylsulfoxide.
4. Effect of nitrogen level and liming on the growth and yield of the Bartlett pear.
5. Leaf analysis survey in 160 prune orchards in Polk, Marion, Yamhill, and Washington Counties; prune orchards 10 years old and older.
6. Effects of rootstock on mineral nutrient uptake in pears.
7. Effects of fertilizers on yield and growth of filberts and walnuts. USDA (Coop.)

#### C. Vegetable Crops

1. Frequency and amount of irrigation and nitrogen rates on the yields and quality of bush beans on Chehalis, Woodburn, Amity, and Dayton soils.
2. Effects of magnesium, zinc, and sources of potassium on plant composition and yield of bush beans and broccoli.
3. Effects of nitrogen and boron on yield and composition of table beets and sweet corn.

#### D. Ornamental Crops

1. Study of importance of placement in field P fertilization of lilies.
2. Determination of patterns of distribution and redistribution of major nutrient elements in lily plants during the course of their development.
3. Study of seasonal distribution and subsequent redistribution of major nutrient elements in 1, 2, and 3-year old leaves and developing berries of English holly.
4. Study of factors influencing 'leaf scorch' of Easter lily.

### Handling, Harvest, and Storage of Horticultural Crops

#### A. Tree Fruits

1. Controlled atmosphere storage requirements for commercial varieties of pears intended for fresh market.
2. Control of scald on Anjou pears by use of anti-oxidant chemicals used as a dip, spray, or incorporated in fruit wraps.
3. Use of plastic films and CO<sub>2</sub> absorbents for providing modified atmospheres in individual boxes of pears.
4. Effect of modified atmospheres on metabolism of pears during storage.
5. Studies on physiology and biochemistry of ripening of pears, especially factors associated with loss in ripening ability during storage.
6. Influence of seasonal temperature variations and certain other climatic factors on fruit development rate of maturation, and quality of pears and apples in the Mid-Columbia area.



## B. Ornamental Crops

1. Sequence of preheating and precooling treatments in storage regimes for lily bulbs harvested at various stages of maturity.
2. Study of influence of time of harvest on ability of bulbs to withstand flower destroying action of storage.
3. Evaluation of packing materials and methods for handling bulbs in storage.

## Fluorine

The determination of the effects of airborne fluorides on pollination, fruit set, fruit development, and yields of sweet cherry trees.

## Rootstocks

### A. Apple

1. Growth, flowering, and fruiting as influenced by dwarfing interstocks under differing climatic and soil site situations.
2. Management changes (spacing, pruning, trellising, irrigation, etc.) required in utilizing high density plantings of dwarf and semi-dwarf trees.

### B. Cherry

1. Evaluation of tree size and yield of sweet and/or sour cherry on seedling vs. clonal lines of Mahaleb and Mazzard cherry.
2. Testing of several Mahaleb x Mazzard hybrid rootstocks for growth control performance.

### C. Pear

1. Studies on the effect of more than 150 species and types of rootstocks on tree decline and productivity.
2. Studies on the effects of numerous rootstocks on fruit quality and storage behavior.
3. Effect of rootstock on bud dormancy and rest period in orchard trees.
4. Management of dwarf trees on quince root for maximum cropping in high density plantings.

### D. Prune

1. Evaluation of tree size and yield of Italian prunes on seedling peach (Lovell) and the best available clonal plum rootstocks.

## Weed Control

1. Primary screening of essentially all new herbicides on a wide spectrum of plant species.



2. Evaluation of new herbicides for:  
Carrots, sweet corn, broccoli, gladiolus, strawberry
3. Field performance of previously evaluated and promising herbicides and herbicide programs:  
Bush beans, green peas, table beets, lima beans, strawberry
4. Long term chemical weed control program for perennial horticultural crops:  
Apples, pears, cranberries, filberts, rhubarb
5. Selected herbicides and possible residue problems.

### Propagation of Horticultural Plants

#### Ornamental Crops

1. Study of scale propagation in lily as means of invigorating planting stock and "growing away" from virus inclusions.
2. Detailed study of growth and development of flowering and non-flowering shoots of rhododendron in order to relate time of maximum rootability to leaf age, leaf position, and time of floral initiation.
3. Influence of R. multiflora selections on nursery and garden performance of garden roses.

#### Soil Fumigation

1. Evaluation of type, method and time of application, and economy of soil fumigants on the growth and productivity of strawberries and caneberries.
2. Evaluation of certain soil fumigants as related to efficiency of mineral uptake of certain small fruits.

#### Mechanical Harvesting

1. Selection, pruning, training, fruit maturity studies of caneberries in relation to adaptability to mechanical and semi-mechanical harvesting devices.
2. Evaluation of mechanical and semi-mechanical harvesting devices in relation to economy, efficiency, quality of harvested fruit, and plant condition.
3. Row spacing and other cultural practices as related to the efficiency of various bush bean mechanical harvesters in harvesting various varieties of bush beans.