

Chapter 21

Extension Horticulture

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The information that follows focuses on some of the educational activities and programs in Extension Horticulture. It should not be viewed as a totally comprehensive review.

Scope of Extension Horticulture Program

The Horticulture program in Extension developed into six phases. They were:

- 1) Commercial Fruit Production.
- 2) Commercial Vegetable Production.
- 3) Home Gardens.
- 4) Floriculture.
- 5) Landscape Architecture.
- 6) Nut Tree Production.

Extension work in horticulture is nearly as old as Kansas State University. Records show that a Horticulturist was included among the early members of the faculty.

The Kansas State Horticultural Society, established in 1869, has a history dating back to that of the Kansas State Agricultural College established in 1863.

Horticulture in Farmers' Institutes—1868

Members of the Kansas State Agricultural College faculty discussing horticulture practices were among the speakers on early Farmers' Institute programs.

Faculty members interested in fruit, vegetable and tree growing meetings of the Horticultural Society also attended. This same close association was maintained through the years.

A Manhattan newspaper, the *Manhattan Standard*, frequently made reference to Farmers' Institute programs. The following extracts from the *Manhattan Standard* indicate the early relationship between the college Horticulturists, the Farmers' Institutes and the Horticultural Society:

June 6, 1868 - The Union Agricultural Society has been organized in Kansas 'to promote by exhibits and by exchange of opinions and experiments the pursuits of horticulture, agriculture, and arboriculture.'

October 31, 1868 - Agricultural Institute - It is proposed to hold an agricultural institute in connection with the Horticultural Society on Saturday, the 14th of November.

November 7, 1868 - Farmers' Institute - Arrangements have been made to hold a Farmers' Institute in connection with the next regular meeting of the Union Agricultural Society. The exercises will occur in the county hall in Manhattan, November 14, 1868.

The subjects to be discussed were announced as: tree borers, culture of fruit trees, and economy on the farm.

December 5, 1868 - Farmers' Institutes: The Union Agricultural Society met in the county hall in Manhattan, November 14, 1868, at 10:00 A. M. and was called to order by President J. S. Hougham.

The first business was an address by President Joseph Denison of the Agricultural College. His theme was "The Relation of the College to the Agricultural Interests of the State." This was followed by discussion.

The next was a lecture by Professor B. F. Mudge on tree borers, followed by discussion. In the afternoon there was an address by Reverend Elbridge Gale on fruit-tree culture, followed by a lecture on economy on the farm, by Professor Hougham.

Titles, meeting places, and attendance were indicative of good interest in all subjects relating to horticulture. Considering many later problems encountered due to introduced hazards, it appears that late 19th century horticulture was most successful in all respects.

Early Research in Horticulture—1867

Early provisions were made for experiment station work in horticulture to provide answers for questions received over the state. The following paragraph was taken from *A History of Agricultural Education in the United States, 1785-1925*:

Experimental work was begun early in the history of the College. In 1867, 500 forest trees, 200 apple trees, and small numbers of other fruit trees were planted on the college farm. By 1873 the experimental forest contained 36,370 trees and there were many varieties of fruits being tested.

The 1909 report by C. V. Holsinger, the first Extension Horticulturist, showed 37 demonstration orchards under his direction. These were largely on pruning and soil management.

Pioneer Kansas Horticulturists

Following the employment of the first County Extension Agents from 1912 to 1915, Agents and many leading horticulturists contributed their time and finances to develop a strong horticulture program.

Some of these were:

Atchison County—F. O. Kincaid, Walter Braun, T. V. Trent, A. B. Stannard.

Cowley County—Ralph Dixon, Dr. C. A. Martin, Wilmer & Hilfinger, George Hafer, Albright Family, Snyder Brothers.

Doniphan County—George Groh, George Kinkead, W. R. Martin, Sr., V. Wakeman, Lambert Libel, Dubach Brothers, Taylor Bauer, Roy Carter, Frank Aberle, Frank Kotch, Dick Stahl, Lou Strong, Judge C. V. Ryan, Hunt Brothers, John Norman, and Cy Leland, Sr.

Douglas County—Green Brothers, Heck Brothers, Pine Brothers, Ed Garrett, Mr. Stiner.

Franklin County—Frank Pyle.

Harvey County—Fred Hasler.

Jackson County—Frank Dixon.

Jefferson County—J. Rees and Sons, Marion Glyn, Garrett Trant.

Leavenworth County—The Geyer Family, Fred

Baurre & Sons, Sam Parisa, O. O. Browning, Carl Holman.

Montgomery County—Sebastian Hahn.

Morris County—James Sharpe.

Reno County—Judge Martin, Jim Farley, Basil Retchel, Ed Yaggey, Harold Pennington.

Riley County—Art Travis, A. L. McGehee.

Sedgwick County—Ed Hoover, George Blood, Emmett Blood, Kirby Brothers, Joe Lohkamp.

Shawnee County—M. T. Kelsey & Son, Cochran Family, Williams and Haney.

Wyandotte County—Herman Theden, Mr. Vining, Speakers Brothers, Paul Mellott, Edwin Taylor.

Commercial Fruit Production

Fruit production dealing with both tree and small fruit was the principal content of the early horticulture program. Much of the work was arranged around a Farmers' Institute.

Local groups promoted meeting attendance, provided local expenses and justified the use of a group of speakers from the College.

A wide variety of programs were handled in those meetings, with plays and other productions handled on the same program with subject matter talks.

Family Fruit Supplies

Much of the emphasis in earlier Extension horticulture dealt with the small or home plantings in existence, and contemplated the establishment of many more plantings in order that every farm family might have family fruit supplies available at first hand.

Later, by the 1920's, there was a swing away from that objective due to an increase in insect and disease hazards. The home orchard, however, was a long time feature of the program.

From the very first, the subject matter content included pruning, orchard soil management, storage, marketing, grading, top-working and topics of this type. The demonstration program included tree and small fruits.

Freeze Destroys Fruit Trees—1940

On November 11, 1940, a hard freeze did tremendous damage to commercial as well as home fruit plantings in Kansas. Sour cherry and peach trees were generally destroyed. Apple trees suffered heavy damage.

More than half the trees were lost in Northeast Kansas. In Central Kansas all fruit trees were killed. Due to the freeze and the war years that followed many orchards were not replanted. Many of the fruit growers were older men who were not willing to wait a sufficient time for a new orchard to come into bearing.

In the 1947 annual report, W. G. Amstein, Extension Horticulturist, commented:

Kansas bearing apple trees number not over 30 percent of the number that existed previous to the Armistice Day freeze of 1940.

New fruit tree plantings, principally peaches, were made after 1948. New varieties of peaches which were well adapted to Kansas conditions were an incentive for increased acreages.

In addition to plantings in the usual fruit tree areas of Central and Northeast Kansas, a number of new peach growers in Stafford, Pratt, Ford, Kiowa, Clark, Gray and Meade counties established orchards under irrigation conditions during the early and mid-1960's.

These irrigation farmers were looking for high-income producing crops. However, the new peach trees soon showed the effect of iron chlorosis.

Commercial Strawberries—Post WWII

Commercial acreages of strawberries gained in importance following World War II. This trend continued through 1961.

In their 1961 report, William Amstein and Clarence Roberts, Extension Horticulturists (appointed November 1, 1954) stated:

Increased size of fruit plantings is in evidence. Good growers are increasing in volume whereas poor growers are getting out of the business. New recommendations are being followed.

Many commercial strawberry and apple growers are using herbicides for weed control. New spray schedule recommendations are being followed closely.

Demonstrations using various iron compounds have been established in an effort to educate growers on iron and allied deficiency problems.

A "Grow Strawberries" program organized in 1980 by Extension Fruit Specialist Frank Morrison, emphasized the production of this crop in farm diversification. The acreage increased from about 80 to nearly 400 acres, and the per acre yield increased about 15 percent.

This increased the total production in Kansas from about 400,000 pounds in 1980, to approximately 2 1/2 million pounds in 1985, with a crop value of \$1.4 million.

A program to promote Kansas strawberries statewide included news released to food editors by the Marketing Division of the Kansas Board of Agriculture, a directory of Kansas strawberry growers, and a Governor's proclamation "May is Strawberry Month in Kansas."

The "Kansas Strawberry King" award was sponsored by the Kansas Fruit Growers Association and presented to the commercial grower with the highest strawberry yield.

The 1981 award was won by David Fieser, Kingman, with a yield of nearly 13,000 pounds per acre.

Use Extension Methods

The methods of communication used by the early Extension Horticulturists were primarily winter meetings, orchard pruning demonstrations followed by discussion of insect and disease control, cultural problems, variety selections and marketing questions. Members of the Department of Horticulture often assisted with those meetings.

By 1920, tours had been developed as a means of showing growers the results of recommended practices being used under field conditions.

Later the radio was used to supplement news stories and bulletins.

In the 1950's, television became available to several areas of the state and the Extension

Specialists made guest appearances on many programs.

Pruning Demonstrations

The value of demonstrations was confirmed by the results of pruning demonstrations established in young orchards and vineyards. They were largely responsible for the excellent tree framework developed in most of the orchards. The modified leader system came into general use in the late teens and early twenties.

During 1970 many pruning demonstrations were conducted for commercial as well as fruit-gardener audiences. Training fruit trees in the early years of development was emphasized.

Skinner Nursery, Topeka, provided branched one or two-year-old nursery trees to be used at indoor meetings to demonstrate pruning and training young trees.

Long cane grape pruning as contrasted with the spur system was demonstrated in the early twenties. Records secured from increased yield amply justified the work done on this phase. Reports showed that about 75 percent of the grape acreage was converted to the long cane system.

Grape Production

Grape acreage in Kansas was estimated at 4,600 acres in 1900. Prohibition in 1880 caused a dramatic decrease in grape acreage, and the Armistice Day freeze in November of 1940 virtually eliminated vineyards in Kansas.

The lowest production period for over one and one-half centuries was in the 1970's with less than 30 acres of grapes.

Persistent and persuasive efforts in the legislative halls by Harvey county physician and grape grower, Dr. Robert Rizza, was a major factor in the passage of the Kansas Farm Winery law passed in 1985, to permit wine making in Kansas. The first winery to be licensed under the law was the Fields of Fair vineyard in 1988.

Recovery of the industry was very limited. Individuals interested in wine making began planting vineyards that included some varieties for table grapes, but the predominant interest was in grapes for wine.

Near the end of the 1980's the reemerging industry included growers producing for wine, juice, jelly, and table grapes. By December, 1988 approximately 80 acres of grapes were planted with over 50 per cent of the vines in the non-bearing age range.

One-Acre Orchards—1914

A "One-Acre Orchard" plan was developed by George O. Greene, Extension Horticulturist from September 1, 1912 to April 1, 1918. The plan was published in December 1914 as Volume 6, Number 11 of the monthly publication entitled *Agricultural Education* published by the Division of Extension.

The 1921 report indicated there were more than 100 one-acre orchard demonstrations. Many of these were started in 1919.

The one-acre orchard was intended to provide a wide variety of fruit for family use and also some for sale.

For a few years the project met with good success but as insect and disease problems accumulated and adverse weather conditions were encountered, the percentage of trees surviving gradually lessened.

By 1930 most of the demonstrations had been badly injured. By 1950, very few one-acre orchards remained.

Orchard Contest—1928

In 1928, L. C. Williams and William Martin, Extension Horticulturists designed a contest for orchardist participation. A score card was checked by an Extension Specialist for each orchard entered in the contest.

In commercial orchards one-acre plots were measured out to be used as the entry in the contest. As many as 75 entries were made some years. Close to 1,000 bushels of fruit were harvested on some measured acres.

The contest was started in Doniphan and Atchison Counties. A few other counties became interested later.

Due to a lack of funds and poor crops, the contest terminated in 1931. Banks, Chambers of Commerce, newspapers and commercial orchard supply companies supported the contest.

Improved Orchard Practices—1950's-60's

In the late 1950's and early 1960's, changes made in operation procedures by fruit growers, included new modern pruning and spraying equipment and new chemicals for insect control.

For example, Emmett Blood, Sedgwick County, began using a pneumatic pruner and saw and a speed sprayer.

Dieldrin, Guthion and Seven were recommended for control of peach tree borer, codling moth, mites and similar insects as these newer

chemicals were giving better control than the older chemicals such as parathion and DDT.

Marketing Problems—1950's

Commercial fruit growers had marketing problems in any year of good production. One development toward the solution of the marketing problem was given in the 1959 report by W. G. Amstein and Clarence Roberts:

The Peach Growers Association in Sedgwick County after its organization in 1958 continued an advertising and marketing program for their home grown peaches. The organization pooled resources and used television and radio advertising to sell their peaches.

The group adopted a peach symbol which is painted on the roof tops or sides of barns on the farms of each of the members to help advertise peaches. The growers in the Sedgwick County area are marketing their peaches on the "pick it yourself" basis.

Sedgwick County Extension Agent, Don Ingle, has been very instrumental in helping dispose of large quantities of peaches by giving timely talks on radio and television. The location of the various orchards in the county and the varieties of peaches available in each orchard were given.

This information reached more than 8,000 farm homes in south central Kansas as well as many urban homes. Over 100 cars are often parked near one of these peach orchards as their occupants harvested tree-ripened fruit.

Apple/Peach Production—1960's

During the 1960's, apple and peach production were in a decline compared to the volume of production in the 1950's. However, a significant volume of apples were still grown in the northeast Kansas counties, and apples and peaches were grown in the lower Arkansas River Valley.

Retirements, poor health, and deaths continually reduced the number of growers, especially operations of 40 acres and over.

New fruit plantings were established during the 1970's. New plantings increased faster in the 1980's as some traditional farmers diversified their farming operations, and as operators of small size farms planted high value crops.

In many instances, the new fruit growers were unfamiliar and inexperienced in fruit growing. Special programs were developed to support the commercial fruit industry.

Fruit Quality Clinics—1968

Fruit quality clinics were initiated in 1968 to provide information concerning new pest control

chemicals and growth regulators available to commercial fruit growers.

Commercial fruit spray schedules were developed, revised yearly and discussed at winter meetings. The pest control programs were discussed by Extension Horticulture, Entomology, and Plant Pathology Specialists in the various fruit districts, with the cooperation and assistance of the respective County Extension Agents.

Fruit Pest Monitoring—1978

Commercial fruit growers in Kansas depended upon a preventative pest control program with pest control applications at the early stages of the disease or insect development, and immediate chemical controls as pest problems developed.

An expanded fruit pest monitoring program was organized in 1978, through a cooperative program by Extension Specialists in horticulture, entomology, and plant pathology; County Horticultural Agents; and the inspection division of the Kansas State Board of Agriculture.

Pheromone traps were used to monitor two major fruit insects and these helped to develop a more intensive pest monitoring program.

Ten different monitoring stations were used in pest sample collection for positive identification of specific insects and diseases. Weekly newsletters were sent to fruit growers informing them of the current status of pests.

As a result of the program, potential pest problems were identified in the early stage of develop-

ment for growers, heavy insect infestation spots in orchards were located, and pesticide applications were altered or eliminated, based on the monitoring information.

Harvest Labor Recruitment—1960's

The absence of an adequate labor force for apple harvest in Northeast Kansas became progressively more critical through the late 1960's. Housing for migrant harvest labor was very limited.

A labor recruiting program was initiated through the cooperation of the Kansas Fruit Growers Association (KFGA), the Kansas Farm Labor Department (KFLD), and the KSU Extension Service.

The Extension Fruit Specialist and the KFGA representative contacted growers to determine crop size and the labor requirement. The projected need in Doniphan County for 1969 was 200 pickers for 30 days and 100 apple packing shed workers for 45 days.

Migrant labor recruitment was handled by KFLD. Personal contacts were made with crew leaders of migrant groups. In addition, public service announcements were prepared at KSU and distributed to Northeast Kansas and Northwest Missouri radio stations to alert potential local workers about employment opportunities.

In both 1968 and 1969, the recruitment program was beneficial in locating sufficient workers for the apple harvest and packing operations.

Commercial Vegetable Production

The commercial vegetable program was developed in 1924 but little specialist time was devoted to it until 1929. After 1935 increased attention was given to the program.

Plot and field demonstration work with Irish potatoes, sweet potatoes, watermelons, tomatoes, and later beans and cabbage were featured. Varieties, fertilizers, cover crops, disease resistance, and other related items were considered. Much of this work was coordinated with the Extension Plant Pathology Specialist.

Dr. O. H. Elmer, Plant Pathologist, Kansas State University, contributed greatly through the years in the development of the Irish and sweet potato program.

Potato Emphasis

The Kaw Valley potato growers were active in maintaining group interest following the establishment of Cooperative Extension Service.

Annual tours close to the time of harvest included visits to demonstration plots and a review of the season's plans as a regular feature.

During the early winter a two-day educational program was held in one of the principal Kaw Valley cities to bring growers together for a discussion of research and demonstration results.

Exhibits of Irish and Sweet potatoes and educational exhibits stressing related foods were an established feature of the two-day schools.

WW II War Effort—1940's

During the 1940's, commonly referred to as the war years, food production was the main item emphasized. Extra effort was made to assure that there would be sufficient vegetable acreage in commercial areas of the state.

Influence of Irrigation—1950's

Increased use of irrigation during the 1950's brought an expansion of the commercial vegetable areas of the state. Up to this time the primary commercial vegetable production was in the Kaw River Valley and Sedgwick and Reno Counties.

Commercial melon growers from Arizona moved into Grant County and soon this interest spread into Stanton, Ford, Finney and Wichita Counties in the western part of the state. In addition to melons, that area began to produce onions, cabbage, head lettuce and others.

Newer varieties with greater disease resistance, higher quality and production ability were adopted in all commercial vegetable production areas.

Vegetable Research—1961

Research developed additional information about the kinds and amounts of fertilizer to use, methods and amounts of applying irrigation water, and the use of the newer chemicals for insect and disease control.

A fertilizer demonstration conducted on the farm of Howard Caldwell, Desoto, in 1961, showed that the use of potash increased sweet potato yield 123 bushels per acre. An excellent quality sweet potato in 1960 was the variety Lakan, while Kande was considered the leading yielder.

In the Kaw Valley and around Wichita and Hutchinson, chain food stores provided the principal market for commercial vegetables. In the western counties of Kansas the produce was trucked to central markets.

A growing interest in vegetable production was indicated by an increasing number of growers who were farming only a few acres. In 1987 the size of approximately 570 producing units, which did not include dry beans, pop corn, sweet potatoes, or Irish potatoes, was:

Less than 1 acre	- 9 percent
1-5 acres	- 32 percent
5-15 acres	- 36 percent
15-25 acres	- 5 percent
More than 25 acres	- 3 percent

Dry beans and popcorn were produced in western Kansas. Over 90 percent of the remaining vegetables were produced in the eastern one-half of the state. Many of the farms were located within 25 miles of the major population centers of Hutchinson, Kansas City, Topeka, and Wichita.

Vegetable Production Schools—1980's

Grower production schools were held in the Kansas City and Wichita areas. The Kansas Vegetable Growers Association and KSU hosted an annual meeting each year for grower in-depth discussion and growers participated.

Visits made through the growing season, in cooperation with Plant Pathology and Entomology, to "troubleshoot," provided additional opportunities for grower contacts.

An interest in tomato production, combined with the promotion of commercial hydroponic greenhouses resulted in a Greenhouse Tomato Growers Workshop in 1967.

Jim Cuday, C. R. Roberts, and Extension Plant Pathology and Entomology Specialists presented the information to interested growers.

Vegetable Workshops—1980's

Extension Specialist Chuck Marr, in cooperation with the Kansas Vegetable Growers Association, presented a Greenhouse Vegetable Growers Workshop in 1982.

Over 75 producers from Kansas, Oklahoma, Missouri, and Colorado, participated in the program.

Greenhouse specialists were featured from Texas A & M University and from KSU horticulture, entomology, and plant pathology Extension Specialists.

At one point during the program one out-of-state producer stood up and blurted out, "I just want you people at K-State to know how much we appreciate your interest in organizing this session. I wish our University would do something like this, but they don't seem to care."

This comment emphasized that "minor" agricultural producers also needed assistance and attention to their problems.

Vegetable production programs were developed to encourage small scale producers in many Kansas counties to expand commercial production of selected vegetable crops.

Special emphasis workshops were organized by Extension Specialist Charles Marr on sweet corn and asparagus.

As a result of a 1985 asparagus workshop, 85 acres were established at a potential market value of \$85,000.

Also, a sweet corn workshop was conducted after which 125 additional acres were planted with a potential value of \$165,000.

Additional assistance included the establishment of crop production costs as a template for a computer spreadsheet. It allowed for a rapid analysis and adjustment by County Extension Agents to personalize grower production information.

Horticulture in Agriculture Diversification

Overproduction of traditional field crops, and low prices for the crops in the late 1970's and 1980's resulted in commercial agricultural producers searching for a greater diversification of crops in their production programs.

A statewide telenet program addressing alternative crops in farm diversification was televised in 1988. Considerations for growing fruit and vegetable crops were discussed.

To provide guidelines for producing horticultural food crops (vegetables and fruits), and to answer questions about growing these crops, 14 different commercial production guides were developed by Extension Horticulture Specialists.

These included steps in commercial production for apples, asparagus, blackberries and raspberries, cole crops, melons, peaches, strawberries, snap beans, and other fruit and vegetable crops.

In addition, useful information for growers searching for diversification resulted from adaptive research plots and tours of different fruit and vegetable operations with growers discussing problems and experiences among themselves.

Various workshops were conducted for individual commodities, such as apples, sweet corn, grapes, and tomatoes. The workshops included fruit pest management and drip irrigation.

Information for these in-depth meetings was presented by Extension Specialists from KSU and other states, growers and industry personnel.

Annual grower meetings, grower tours, and newsletters were used to present information to assist growers who were not familiar with production requirements of the various horticultural food crops.

Marketing Fruits and Vegetables

Fruits and vegetables were sold by growers using various retail marketing methods. On-farm market sales by growers through pick-your-own, or a farm market operated by growers, were the most popular marketing methods.

Some growers delivered and sold to retail outlets such as restaurants and grocery stores.

Farmers Markets

Farmers' Markets provided an additional outlet for fresh produce. These weekly markets, some bi-weekly, were especially suited to small scale growers.

Some Chambers of Commerce promoted the markets to help attract buyers and sellers into their towns. By 1988, there were 43 Farmers Markets operating in Kansas.

County Extension Agents worked closely with local organizations such as Chambers of Commerce to help locate sites, get local growers or-

ganized to participate in the market, and promote sales at the market.

Direct Marketing Act—1976

To promote direct marketing of horticultural products, KSU Extension personnel from the departments of Horticulture and Agricultural Economics worked with the Marketing Division of the State Board of Agriculture in a program funded by the Direct Marketing Act of 1976.

Direct Marketing Grant

Emphasis was placed on educational and promotional work, such as the following:

At a conference of 300 Kansas home economics Teachers, 2,700 Extension bulletins regarding nutritional value, selection, and use of fruits and vegetables were distributed.

Information regarding the Wathena apple crops was presented to meetings of 410 school food service personnel in western Kansas. The audi-

ence was encouraged to consider buying directly from the Wathena growers or to ask their wholesalers to supply Kansas apples.

Consumers guides to fresh fruit and vegetable sources in Kansas were prepared. The guides included information about Kansas growers/re-

tailers, harvest seasons of area-grown produce, and harvest tips.

Approximately 17,000 copies were distributed through County Extension offices, horticultural businesses, county and state fairs, and the *Wichita Eagle Beacon*.

Home Gardening Program

The home garden program was given attention as early as 1923.

Five-Year Garden Program

The Five-Year Garden Program was the first activity sponsored by Extension Horticulturists that had a place on every farm in Kansas.

The first two years of the five-year program were devoted to vegetables.

Included were varieties, rates and dates of planting, insect and disease control, plant production, storage, rotation, succession plantings, windbreaks and irrigation.

The third year was devoted to small fruit growing. The fourth year to tree fruits. The fifth year was used to review, with some time devoted to special crops.

This program was presented through leader-training meetings, with leaders from each of the home demonstration units in each county, and the 4-H club garden leaders.

Extension Entomologists and Plant Pathologists assisted with those phases of the five-year program.

Each year, 15 counties of the state carried either the first, second, third, fourth or fifth year of the program. They then repeated the series with new and up-to-date information.

Victory Gardens—1940's

The Victory Garden Program was carried in every county during the war years of the 1940's. Teaching was done by all methods available, including newspapers, radio, posters, bulletins and other media.

Enrollment in 4-H club garden projects, including potatoes, contributed greatly to increased home food production.

Urban families found many small areas in their back yards that were put into a home garden.

A three-year rotation plan for training garden leaders was devised during the war years of the

40's and after the war. The first year was devoted to insect and disease control. Training that year was given by the Extension Entomologist and Plant Pathologist.

The Extension Horticulturist gave training the second year on vegetable gardening. The third year was devoted to training in fruit growing. This three-year training program was continued into the 1960's.

Coordination with Suppliers—1950's

During the early 1950's, the value of close cooperation with seed dealers, greenhouse owners and fertilizer dealers became evident. Extension Specialists and County Extension Agents arranged meetings and schools with these commercial interests.

A mutual understanding was reached on recommended varieties, cultural practices and the selection and application of fertilizers for vegetables and small fruits.

As a result of this effort all of the recommended varieties were made available by the seed dealers and greenhouse operators. Fertilizer dealers also were recommending the same use and application of fertilizers as the Agents and Specialists.

4-H Home Gardens—1961

In 1961, more than 4,000 4-H Club members were enrolled in some project involving home gardens. The 4-H enrollment gave Extension Specialists and County Extension Agents an excellent opportunity to extend the educational program in home gardens.

Garden tours and garden shows gave club members and their parents an opportunity to observe the value of recommended production practices.

Home Gardens—1960's

County Extension Agents from 93 counties reported in 1960 that 126,440 home vegetable gardens were planted. Sixty-six counties reported that 6,213 home fruit plantings were made.

Home Horticulture—1970's-80's

A strong interest by home horticulturists in growing horticulture plant materials resulted in many questions for County Extension Agents, State Extension Specialists, nurserymen, and garden center operators.

A program using various media was developed to answer home horticulture questions.

Garden Calendar

A Kansas Garden Calendar was offered during a special Horticulture series presented on three Wichita television networks.

In the calendars the Extension Horticulture Specialists suggested timely tips, such as when to seed a lawn, and when to fertilize various plants.

County Extension Agents used the calendar as a reminder and source of information for their radio programs and newsletters.

Weekly Horticulture Newsletter

One of the most effective educational tools developed was a weekly newsletter, *Current Problems on Horticultural Plants*. Each newsletter included topics relating to different types of horticultural plants.

Over 2,200 copies of the newsletter were distributed each week to County Extension Agents, nurserymen, garden store operators, farmer cooperatives, and other farm stores.

Radio Tips on Horticulture—1971

Daily radio programs, "Horticulture Hints," were prepared by State Extension Horticulture Specialists through the KSAC radio station. These were started in 1971 and were continued through the 1980's.

A weekly news column, "Landscapes, Lawns, and Gardens," and bimonthly television programs were used to present information.

All counties in Kansas received horticulture information, so a high percentage of Kansas residents benefited from this Extension horticulture information.

Horticulture Fact Sheets

Requests for printed information increased greatly over previous years. To meet the requests and stay within printing budgets, Extension Horticulture Specialists emphasized the development of four page "Fact Sheets" in place of multi-page circulars.

A common format was used for the Fact Sheets in the different commodity areas resulting in an

attractive publication displayed at County Extension offices, in garden centers and nurseries that purchased the publications, as well as on tables and racks for individual pick-up at public events.

Examples of fact sheets developed for different subject areas were:

Planting Your Lawn.

Watering Your Lawn.

Fall Gardens.

Tomatoes.

Planning Your Fruit Garden.

Fruit and Nut Varieties for Kansas.

Home Care of Poinsettias.

Perennial Vines.

Food Gardening Preservation—1970's-80's

Home growing and preserving of food increased markedly during the 1970's. Many "first time" or inexperienced gardeners were unfamiliar with soil preparation, seed planting, transplanting, pruning, and other aspects of growing fruits and vegetables.

Vegetable garden workshops, fruit pruning demonstrations, and fruit garden clinics were scheduled in a high percent of Kansas counties.

Fall Gardening Program—1983-84

In 1983-84 a Fall Gardening Program was initiated to lengthen the vegetable gardening season. The program included the development of a fact sheet "Fall Garden," special emphasis during vegetable clinics as well as news stories and radio programs. Many County Agents used the materials developed to present Fall Gardening Programs.

A computerized gardening program was developed in the 1984-85 period, to assist in garden planning and to determine the economic returns for individual vegetable choice, and potential dollar savings by growing selected vegetables.

In addition, special emphasis-topics, such as early training for strong structure of fruit trees and canning tomato slices, were featured in public meetings and in the mass media.

The public event activities were supplemented with radio, television, and newspaper stories, plus the distribution of Horticultural Fact Sheets relating to fruit and vegetable gardening.

Thirty-eight county workshops on vegetable gardening were held throughout Kansas in 1978. The workshops included information on planning, soil improvement, cultural practices, and crop problems and solutions.

These activities were supplemented with radio, television, newspaper stories, and other media information distribution.

One highlight featured was a process for canning tomato slices that received widespread media coverage throughout the state and was enthusiastically attempted by many Kansas homemakers who "home processed" tomatoes.

In 1978, for example, 23 fruit tree pruning demonstrations, eight fruit garden meetings, and eight pecan grafting demonstrations were conducted.

Special emphasis was placed on pruning young fruit trees to encourage proper training in the early growth stages.

Floriculture

Following World War II, County Extension Agents and Specialists began to receive requests for assistance and information on flower growing and care from members of home demonstration units, garden clubs, flower societies and individual flower enthusiasts.

Specialist in Floriculture—1953

On September 1, 1953, Arthur Gaus was appointed Extension Horticulture Specialist to work with W. G. Amstein.

Gaus developed an educational program to respond to requests for assistance. The first materials covered the care and culture of annual and perennial flowering plants, roses, and house plants.

The subject matter included information on where and how garden flowers fit into the general landscape pattern and when to plant, how and what to plant, fertilizers to use and how to protect against insects and diseases.

Visual aids were prepared to illustrate the many different kinds of flowers considered in the discussions.

Clarence Roberts succeeded Arthur Gaus on November 1, 1954.

In 1956, 238 garden clubs in the state reported a membership of 7,104. The floriculture program was in demand from many urban people as well as rural families.

Clarence Roberts enlisted the assistance of the Extension Entomologist and Plant Pathologist for leader training and preparation of educational materials for publication.

Floriculture Bulletins—1957-58

The Experiment Station published a bulletin on "House Plant Culture" in 1957 and one on "Growing Roses in Kansas" in 1958. Printed and mimeographed handout materials were prepared and made available to the public.

Floriculture Interest—1960

In his report for 1960, Roberts, Extension Horticulture Specialist, included this summary:

12,254 4-H Club members growing flowers in 101 counties.

77,716 persons planting flower gardens in 97 counties.

315 garden clubs in 82 counties with a membership of 9,307.

Nematodes were becoming a problem for commercial flower growers especially on peonies. Some assistance was being given commercial growers in cultural practices, disease control, late information on plastics for greenhouse covers, air conditioning, etc.

Extension Floriculture—1960's-80's

The floriculture program in Kansas was active and research-teaching staff members gave the industry support. However, among the various horticultural commodity areas, floriculture received the least support through Extension programs.

The only two Extension Specialists who had professional training in commercial floriculture were Drs. Odom and Wootton, but neither remained on the staff for an extended period of time.

Larry Leuthold serviced home floriculture and house plant questions, conducted programs, and helped develop publications.

Flower trials were started in 1965 at the Colby and Hays Experiment Stations, then expanded to the stations in Garden City and Mound Valley. The trials generated strong public interest in selecting cultivars adopted to the different areas of the state.

Greenhouse Growers Association

The greenhouse and bedding plant industry made rapid growth during the 1970's and 80's. In

1984 the Kansas Greenhouse Growers Association was formed.

In 1976 a request for training garden store personnel was made by the Alco garden store manager of Duckwalls Inc.

This training continued annually and the meeting evolved into formation of the Kansas Greenhouse Growers Association with annual training meetings.

Landscape and Environmental Horticulture

No landscape work was conducted before the Smith-Lever Act of 1914, according to available reports.

After 1914, M. F. Ahearn, professor of landscape gardening, and Albert Dickins, head of the Department of Horticulture, Kansas State Agricultural College, appeared on Farmers' Institute programs and did other landscape work in various parts of the state.

Charles Scott, State Forester, prepared several publications on trees and their use in landscaping work.

Landscape Gardening Specialists—1925-1929

Ray Wick was appointed Landscape Gardening Specialist, February 1, 1925 and served until June 30, 1925. At that time there was no organized landscape program and no printed subject matter except for a few government bulletins.

The Extension Specialist worked with County Extension Agents who called meetings and arranged with cooperators for demonstrations in tree planting, walk building, drive construction, or some phase of landscape improvement.

Some demonstrations were given on city properties. High school grounds were considered in every county visited.

Following Ray Wick's short period of employment, Professor Wm. S. Wiedorn, instructor in landscape gardening, Department of Horticulture, and Professor Arthur Helder responded to many calls for assistance in the state.

During 1928 and 1929, Earl Litwiler was drafted from the Department of Home Study to devote two months each year to the Extension Landscape Gardening program.

He developed a program for Landscape Gardening in Floriculture with a subproject in Home

Interstate Floriculture Programs

Interstate floriculture programs were initiated between Kansas and Missouri Extension Floriculturists to eliminate duplication of efforts and strengthen programs for commercial florists, especially in the Kansas City area.

A committee consisting of members from florist associations of both states was formed to plan programs. Both states pledged financial support to obtain outstanding program speakers.

Beautification. Earl Litwiler was to devote two days to meetings in each county, with at least five home ground demonstrations, on a five-year program.

Home Demonstration Units' Role

Close cooperation was developed with Home Demonstration Units by the Extension Horticulturists. Home study reading courses were prepared for distribution by project leaders.

Clay, Franklin and Kingman counties developed extensive landscape programs with a total of 25 demonstration homes.

Extension Horticulturists and members of the staff of the Department of Horticulture carried on the landscape gardening program as best they could during the absence of an Extension Specialist in this field.

Climate Control—1930's

During the 1930's, "Climate Control Through Planting" became a concern and a part of the program. This was an idea developed by Professor L. R. Quinlan, instructor in landscape architecture, Department of Horticulture.

Shelterbelts and farmstead windbreaks were planted throughout Kansas for this purpose. During the depression of the 30's, a "How To Propagate" program helped to answer the needs of the landscape project.

Landscape Program—Late 1930's

Lloyd Copenhafer succeeded Henry Gilbert on October 1, 1938. He was called into military service August 16, 1941 and resigned upon his return to accept a position with the Kansas Highway Commission.

Beginning in 1935 and during the World War II years, W. G. Amstein, Extension Horticulturist, maintained the landscape program.

He continued to train Home Demonstration Unit leaders, prepared and distributed printed materials, and helped write the leaflet "Landscape Calendar," which had wide usage.

Linus Burton served temporarily as Extension Landscape Architect from September 15, 1941 to August 15, 1942. Fremont Baxter served from May 20, 1946 to June 30, 1947.

Landscape Architect—1935

Henry W. Gilbert was employed December 1, 1935 and given the title of Landscape Architect. This more fully reflected the objectives of this program—design, selection, and planting.

Henry Gilbert used local leaders extensively, gave them training and supplied them with written materials for distribution.

Landscaping was no longer treated as plants and their culture alone. Arrangement of outdoor space for greater use and beauty was emphasized. This involved grading for drainage and yard arrangement for utility and beauty.

Landscape Architect Position—1949

Charles Parks, a graduate of the University of Illinois, became Extension Landscape Architect on July 1, 1949 and continued until September 1, 1966.

Because of the building boom following World War II, the demand for Extension work in landscape architecture was greater than ever. Charles Parks, W. G. Amstein and Paul Collins, Extension Forester, designed and placed into operation a three-year program for covering the state with leader-training schools and landscape plan preparation clinics.

This coordinated landscaping and forestry program continued in full swing for at least six years until each county had from five to eight days assistance from the Extension Specialists. More time was given the more urban areas.

The program was designed to show the importance of preparing and following plans. Planning was taught as a coordinated activity that embodied architecture, landscape architecture, forestry, farm structures, horticulture and other phases.

In 1945, County Extension Agents reported that 2,553 families were following a definite landscape plan. The number had increased to 26,869 by 1957.

A "Home Ground Beautification" project was developed for 4-H club members with 2,206 boys and girls enrolled in 1961.

Balanced Farming/Family Living—1940's

Requests for Extension Specialist assistance for the families enrolled in the Balanced Farming and Family Living Program in the late 1940's became so great that county visits were scheduled for giving assistance to those cooperators and, indirectly, to train County Extension Agents in the fundamentals of landscape architecture.

The demand upon Extension Specialist's time became greater than the time available. Planting demonstrations were then initiated by the Specialist to teach how the "plan and plant" demonstrations would be handled.

The Extension Specialist designed and personally planted those demonstrations. One-half day was used to plan and one day to plant the demonstration materials.

Agent Training in Landscaping—1957

Because of continued demand for this kind of work a plan was devised to train the County Extension Agents in Landscape Architecture as most of them had received little or no training in this field during their college work.

Two-day agent-training schools were started in the western counties of Kansas in 1957. Landscape design or landscape planning and ornamental plant identification were emphasized in the training school curriculum.

Typical planning or design problems were presented for study. Potted plants, balled and burlapped plants, and slides were used to help teach plant identification. Nurserymen cooperated in furnishing the plant materials for study.

Landscape architecture instruction was also included in a training program for new County Extension Agents in 1959. This inservice agent-training continued until all Agents in the state had received training.

As a result of their training in this field, Agents reported that they personally set up county demonstrations, talked to more garden clubs on landscaping, gave television programs, and felt confident as they counseled with public officials on plantings for public buildings.

By 1961, County Extension Agents reported that they had prepared 759 landscape plans during the year.

Urban Work/Public Buildings—1961

Landscape work with urban families, and on public buildings, developed a broader program potential. In his report for 1961, Parks stated:

The Specialist believes the potential for community development work through the landscape architecture project to be good. As the complexion of Extension work swings into community and resource development, this project can be used as a tool to initiate the planning concept and the Extension method into urban areas.

This project receives much attention by urban residents at present through community improvement projects and through demonstration. A very high percentage of the County Agent's time in the more urban areas is spent answering inquiries and making home visits concerning landscaping.

A new bulletin, "What Shall I Plant?", prepared by Professor L. R. Quinlan, professor of landscape architecture, and Charles Parks, Extension architect, was distributed in February of 1961.

Timely newspaper releases, leaflets, radio and television programs were used to carry the landscape program to the maximum number of people. Nurserymen cooperated generously in providing technical information and plant materials for teaching and demonstrational uses.

Homeowners Landscaping Workshops—1969

In the early Extension programs in landscaping, landscape plans for home and commercial landscapes were drawn by the Extension Specialists and County Extension Agents.

With continued educational programs, landscape workshops let homeowners draw their own plans. During 1969-70, 22 workshops were conducted by Jim Nighswonger and County Extension Agents, with an enrollment of 330 families.

The potential increase in home values resulting from completing the landscape plans and improvements was estimated to be \$1,237,500.

Training for Professional Landscapers

The training of landscaping professionals was emphasized by Extension Specialist Gus van der Hoeven. During the period 1980 to 1988 approximately 10 landscape training workshops were conducted with over 100 landscape professionals attending. Information was presented about site development, plant material selection and landscape consultation.

A major benefit of the program was the emphasis placed on selection of adapted plant materials, and their functional use in developing landscape plantings. This audience serviced the public, thus multiplying the value of the training.

The Extension Specialist provided assistance and educational programs for landscape designers employed by garden centers and retail nurseries.

He was a resource person for landscape architects, helping to solve Kansas landscape problems.

Special landscape workshops were held to train County Extension Agents to increase their confidence and ability to identify and solve the day-to-day landscape design problems they encountered in their work.

With increased demand for information on ornamental horticulture, a growing awareness for the need of landscape design became obvious.

Extension Methods in Landscaping

Gus Van der Hoeven, Extension Specialist, initiated an educational program in cooperation with KSNT-TV in Topeka. Landscape workshops were held at the county level to provide both urban and rural home owners with an educational package that would help them solve home landscape problems in a creative way.

Twelve TV programs were presented in which landscape development was discussed. The tapes were made available to the specialist. Copies of the tapes were prepared and made available in each area Extension office as well as through the KSU Extension Media Center. Other video tapes were developed as resources for Extension agents to use.

Emphasis was placed on aesthetically pleasing, functional landscape designs, plus energy conservation and low water use, through selection of adapted plant material and climate control.

Residential Landscaping Emphasis—1980's

The overall approach was to improve the quality of living for all Kansans. The educational package for residential landscaping consisted of an extensive series of video tapes, Extension publications, and slide sets for home viewing.

Emphasis was also placed on creating awareness of community landscape issues, and ways of solving landscaping problems on projects such as downtowns, public buildings, schools, parks, retirement communities and nursing homes.

In addition, the importance of regional landscaping increased significantly with an increased interest in Kansas tourism.

The dollar value of this continuing and expanding program of landscape design was con-

siderable. The results were improved property values, energy conservation, and improved Kan-

sas communities that provided a better quality of living for Kansans.

Grounds Management

The growth of the horticulture industry stimulated the development of a rapidly growing grounds management industry.

Grounds management developed as an integrated industry, consisting of lawn care, landscape maintenance, landscape design and construction, and Arboriculture.

New Management Industry—1970's

This was a very diverse and complex industry which enjoyed very rapid growth from the mid 1970's. The growth of grounds management contributed to the economy by providing jobs, using goods of supporting industries, and increasing the value of consumer properties.

However, its emergence was accompanied by a rapid growth and proliferation of new firms with problems. People with sufficient technical training and professional availability were not always available to meet demands.

Many new firms were started by people without the necessary education and training to be successful. Education was needed at both the industry level and the consumer level.

Needed technical support encompassed design, cultural practices, business management, personnel management, and marketing.

Ground Management Workshops

Institutional, public and private grounds were viewed, used, and enjoyed by many people. Attractive lawns, trees, shrubs, and flowers are not evaluated in terms of monetary value because their benefits to people were not in those terms.

Extension Horticultural Specialists Larry Leuthold, Charlie Long, and Gus van der Hoeven,

plus Extension Specialists from supporting departments, conducted workshops throughout the state that covered cultural practices, planting design, business management and marketing.

County Extension Horticultural Agents participated in the training, and some Agents formed teams to conduct the training in their counties.

With the high turnover of new and untrained workers providing the service, continued emphasis was required to maintain an acceptable level of expertise within the landscape management industry.

A series of programs to accomplish this training included eight 2-day workshops and three 1-day workshops held throughout the state in 1977.

A special session on turf only was conducted in conjunction with the annual turfgrass conference at KSU.

Participants included employees from the State Capitol grounds at Topeka, the U.S. Penitentiary at Ft. Leavenworth, Fort Riley, the National V.A. Center and Cemetery at Leavenworth, the Kansas State Penitentiary, the Kansas Correctional Institute for Women, Kansas University, Wichita State University,

Ft. Hays State University, Emporia State University, Haskell Indian Institute, St. Mary's College, junior colleges, elementary, secondary and vo-tech schools, park systems, apartment complexes, nurseries, professional arboriculture crews, golf courses, and other professional grounds.

The workshops provided practical, authoritative information based on research to help interested, dedicated workers provide more attractive grounds for people to enjoy.

Home Lawns and Commercial Turfgrass

Approximately \$200 million was spent yearly in Kansas to maintain turfgrass in the 1980's. Kansas is located climatically in the turfgrass transition zone which is marginal for growing either warm season or cool season grasses.

Selecting the best species and cultivars for the particular situation and following an efficient

management program is important to prevent wasted effort and money.

Turf in Public Areas

A growing interest in turf and turf management in athletic fields, parks, playgrounds, cemeteries, and other public areas prompted programs

concerned with turf in recreation areas and coping with stresses unique to turf in these areas.

Extension Horticulture Specialists Jim Nighswonger, and later Larry Leuthold, presented information about adapted varieties, renovation, compaction problems, weed control, irrigation methods, and frequency of irrigation, at educational workshops conducted at various locations, and rotated on an annual basis from location to location throughout the state.

Turf Problems for Homeowners

Turfgrass continued to be of special interest to new homeowners each year as they became intensely interested in having a good lawn with a minimum of expense.

People with existing lawns continued to have need for information that would help them solve problems, improve their lawns, or do the job more economically. Most lawn owners had a great deal of time and money invested, and they took great pride in having a nice looking lawn.

Extension continued to have a very important role in the turfgrass industry in Kansas. Most Extension agents reported that many of their horticulture contacts with their cooperators concerned lawns.

The traditional Extension approach was to hold a spring public meeting, but it did not meet the entire need. Each change of season brought on a new set of problems, so a continuing program in home lawns was necessary.

Spring meetings, when public interest was high, inspired people to use good, sound, approved practices. In late winter and early spring, dealer meetings were also valuable.

Research showed that early fall was the ideal time to plant cool season lawns, so late summer meetings emphasized lawn planting information. Fall dealer meetings highlighted chemicals and supply needs.

Afternoon or evening tours gave an opportunity to point out both good and bad lawn practices. Grasses and weeds were identified as the tour progressed. There were also opportunities to answer questions in an informal atmosphere.

Lawn Diagnostic Clinic—1970's

A recent innovation in Extension methods was the "diagnostic clinic." At Lawn Fairs or other special events, a booth was used at a suitable location at a time of the year when many lawn problems were occurring.

Cooperators brought a sample of the problem turf for diagnosis and were given the recommended treatment. Some individual on-site inspections were also scheduled.

Fall Fertilizing Program—1970's

Research in the 1970's showed that fall fertilization of turf resulted in a stronger stand with less disease problems than in spring fertilized lawns.

Subsequently, fall fertilization programs were discussed at Turf Research Field Days, Nurserymen's meetings, and similar training meetings. Over 75 percent of the Kansas nurserymen, plus many individuals in the horticulture service business, were in attendance.

Nearly all participants worked with the public and answered questions about turf care. In addition to the meetings, the professionals and paraprofessionals were supplied with eight different Fact Sheets about lawn management.

Nut Tree Production

Program planning work, beginning in the 1940's in southeast Kansas, identified the need for economic use of the strip coal pit areas and other land covered by tree growth of many kinds, including nut trees.

Definite work was started on nut tree production by the Extension Specialists in Horticulture in 1957.

Their report for 1957 included this statement:

In addition to requests for assistance with apples, peaches and strawberries, there have been requests from the southeastern area of the state for help with pecan and walnut produc-

tion. This phase of horticulture has a real economic opportunity and future in southeast Kansas.

Properly developed and handled, many farm families can utilize this opportunity for additional income. Several thousand dollars worth of pecans are marketed annually in southeast Kansas.

The nuts are harvested from native trees, growing along the river and creek bottoms, which usually overflow at some time during the year. Most of the native nut tree areas have not been developed as the trees are too close together and small producing varieties are very numerous.

The goal is to develop these native groves into high producing areas with better quality nuts.

In 1958, nine counties participated in nut tree production schools held at four locations in southeast Kansas. Cultural practices, propagation and other problems of pecan management were discussed.

The Coldkist Pecan Grower's Association of Waycross, Georgia, cooperated with the Kansas Cooperative Extension Service by holding an area-wide meeting on pecan production and marketing. Chet Freeby, manager of the Erie Dairy Cooperative, agreed to be a buyer for the Georgia Association.

The 1959 report of the Extension Horticulturists stated:

Thousands of acres are dotted with pecan and walnut trees. Most of these trees are found growing among other trees of a less desirable nature or among brush that is useless. The areas need developing into productive pecan and walnut groves.

From the experience in other states it is known that yields can be easily tripled on these native trees by proper spacing and management. Farmers in southeast Kansas are in need of a crop that fits the locality and will return a reasonably good income for his effort.

Demonstrations were established showing proper ways to top and graft existing poor quality trees. Tours were held of the result demonstrations to see the results of clearing and grafting, and to observe the new growth made by the grafted trees.

Kansas Nut Growers Association—1960

By 1960, a Kansas Nut Growers' Association with 70 members had been organized with the principal objective of promoting the development of native pecan groves. A nut show was held to promote interest in quality nuts.

Native Pecan Production—1960's

Excellent cooperation was obtained from pecan marketing organizations such as the Goldkist Pecan buyers, National Pecan Shellers and Processors Association, and Hammons Walnut Company.

It was estimated that from 600 to 1,000 acres of nut trees were cleared. A number of tractor mounted mechanical pecan shakers were built. The pecan industry had the potential to be developed into a \$4.5 million annual business.

In 1961 the Second Annual Nut Show was held at Chetopa with more than 200 persons partici-

pating. Four new leaflets were prepared. They were:

Establishing a New Pecan Planting

Propagating Nut Trees

Improving a Native Pecan Grove

Harvesting, Marketing and Storage of Pecans

A quarterly newsletter was sent to all members of the Nut Growers' Association by the Extension Horticultural Specialist who was serving as secretary.

Charley Murray of Trading Post planted 600 acres of overflow land to pecan trees to be grafted in 1962. Custom pecan spraying was initiated by Ernie Withrow of Chetopa, Kansas. The Extension Forestry Specialists also assisted with the Pecan Nut Tree program.

In the mid 1960's, there were approximately 50,000 acres with established native pecan trees, in 15 counties of southeast and south central Kansas.

The income potential resulting from native grove improvement for rural areas where the trees were growing was in excess of \$1.5 million annually.

Research projects and grower experiences provided guidelines for improving native groves. However, less than five percent of the native pecan acreage had been improved in the 1960's

The emphasis was to stimulate more rapid development of the native groves so that each county in this geographic area had at least three demonstration groves.

Pecan Demonstration Sites

Through the joint sponsorship of the Kansas Nut Growers Association (KNGA) and the Kansas Cooperative Extension Service, pecan groves in Linn, Labette, and Cowley counties were demonstration sites.

Property owners who had expressed an interest were contacted by the County Extension Agent or a KNGA director to make preliminary arrangements for grove improvements. Assistance in thinning and fertilizing was given during the winter months.

During the grafting season, the Extension Fruit Specialist worked with individual growers instructing them in grafting procedures. The growers in turn grafted named pecan varieties on young native trees throughout their groves.

Approximately 250 acres of native pecans were improved in 1972 at these demonstration sites.

A major benefit to the Kansas pecan industry was a pecan research field established near Chetopa in 1962. The development of the field has served as an example of the potential to develop native growers into an income producing crop.

By 1982, the original 80 acres of native pecan trees included 70 different pecan cultivars. The pecan field research, along with annual meetings, tours, and demonstrations, provided guidelines on how to make pecan production more profitable.

SW Area Horticulture Program—1950's-60's

Commercial vegetable and melon production in Southwest Kansas, Grant County particularly, grew during the late 1950's and early 1960's. The farmers involved asked for a more intensified educational program and some research on the problems of the area.

In the winter of 1963-64, a cooperative program developed between the following agencies:

- 1) The Division of Extension, Kansas State University.
- 2) The Agricultural Experiment Station.
- 3) The Grant County Agricultural Extension Council.

- 4) The Southwest Irrigation Association of Kansas.

Representatives of the above agencies agreed upon a program and the employment of an "Area Extension-Research Horticulturist" to be directly in charge of the program.

Interest in Horticulture—1960's

The growing interest in horticulture in the 1960's resulted in an increase in nurseries, garden stores, and discount stores selling horticultural plant materials, garden supplies, and plant protection chemicals.

This, in turn, created a greatly increased demand for a wide range of horticultural information. Many people in non-agricultural fields began asking for Extension information and assistance.

State and county staffing was increased to help meet the growing demand for horticultural information and programs.

Residents of urban, suburban, and rural areas, in a wide income range, all had interests in utilizing plant materials for ornamental, recreational, therapeutic and food purposes.

4-H Horticulture

Emphasis in society was placed on improving the environment and human nutrition, making it desirable to place new emphasis on the 4-H horticulture project.

Accordingly, in 1969, Extension Horticulture 4-H Specialists revised the project into four major sections: beauty, food, science, and landscaping.

Beauty From Horticulture—4-H

The project acquainted 4-H'ers with plants grown for ornamental and aesthetic purposes. The project included growing flowers indoors and outdoors and lawn care.

Food From Horticulture—4-H

Mini-gardens, the family garden, and the market garden were included in this 4-H project. The mini garden was designed especially for youth who had to substitute pots, bushel baskets, or window boxes for a family garden plot.

Science in Horticulture—4-H

Science in Horticulture provided a number of experiments that young people could do with plants. A wide variety of exercises and experiments were related to plant parts, their functions,

and propagation.

Landscaping with Horticulture—4-H

A three-unit section was designed on landscaping with horticulture. The purpose was to help develop an appreciation and knowledge of good home landscape development.

A unit called "Plan and Build for Better Living" encouraged the preparation of a scale plan for home grounds. The other two units were "Plan and Plant with Shrubs," and "Plan and Plant with Trees."

A pilot project was established in 10 counties that had shown strong horticulture interests, to provide additional suggestions for improving the 4-H project and supplementing material in the project publication.

Horticulture Judging—1970's

Horticulture Judging was emphasized during the 1970's and continued as a strong program, for adults and 4-H. District and County and district training sessions were held, followed by county, state, and national judging contests.

Horticultural Therapy—1971

Horticultural therapy was a new curricula added to the department program in 1971. Horticultural therapy was incorporated into Extension programs in 1977 by Extension Horticulture Specialist Richard Wootton who was also responsible for youth programs. Responsibilities were split 50-50 for Extension and teaching.

In the mid 1970's, the Beloit Youth Center expanded its activity therapy program to include horticulture. Staff members from the Center came to KSU for training, and the Extension staff worked closely with the therapists at the Beloit Youth Center by conducting workshops for the

participants. Interest in the program continued high.

Other Extension programs in horticultural therapy evolved and were conducted to benefit patients in retirement homes, health care centers, and community gardens.

Dr. Richard Mattson, professor of Horticulture was in charge of horticultural therapy programs in the department. Through his devoted efforts the Horticultural Therapy programs complimented the University, the Extension Service, and especially the Horticulture Department.

Master Gardeners In Kansas—1980

The first Master Gardener (MG) program began in Johnson county in 1980. Sedgwick, Shawnee and Douglas counties initiated programs in the mid 1980's. In 1988 the above counties, plus Riley and Leavenworth, were training Master Gardeners.

An example of the benefits from the program were demonstrated in Johnson county where the Extension staff relied upon Master Gardeners to assist home horticulturists with questions and problems relating to plant materials.

The Master Gardener program was designed to train adult volunteers in 40 hours of Horticulture subject matter.

In return for the training, volunteers agreed to serve an equal amount of time to assist in developing and/or conducting a variety of educational horticulture events that enhanced the county Extension Horticulture program.

The MG program did not relieve the Agent of time and work. However, using MGs was an effective way to multiply assistance to clientele and to expand the educational Extension programs.

The number of educational talks to organizations were expanded considerably compared to the time available only to the Agent for the subject discussed.

During the ten years of experience with the program in Johnson County through 1988, over 200 volunteers were trained. Each year a new class of about 50 volunteers joined the Kansas MG ranks.

There were about 200 MGs actively serving in Kansas in 1988. Advanced training helped prepare some MGs for special service.

Projects and programs with which the MGs assisted included:

- 1) Assisting with Garden Shows, Lawn Fairs, and similar events.
- 2) Answering gardening questions on the garden "Hot Line."
- 3) Developing demonstration plantings.
- 4) Assisting patients in elderly homes with Horticultural Therapy programs.
- 5) Preparing promotional materials and promoting Extension events.

Public contacts through the Johnson County Extension office increased by 10-fold through the Master Gardener program. The educational and service value of the program was immeasurable.

Agent Training in Horticulture—1980's

State Extension Specialists and County Extension Horticulture Agents responded to an increasing responsibility and role in training professionals who, in turn, assisted and/or serviced lay-horticulturists.

Training meetings held in 1981 are examples of the increasing emphasis in training horticulturists who had one-on-one contact with a large number of Home Horticulturists.

As requests for assistance with horticulture problems increased from year to year, agent in-depth training programs were organized to help increase the competency and confidence of Ex-

tension Agents in horticulture subject matter. Resident staff members in the Horticulture department assisted with the training.

Training sessions were also held to discuss general horticultural plant growing problems, and questions in each Extension area. Questionnaires sent to the Agents helped identify topics in horticulture where training was most needed.

Vocational Ag Instructor Training—1969

Vocational agriculture instructors expressed interest in receiving training so they could teach horticulture in their classes. Most of the vo-ag instructors had limited training in Horticulture.

The Extension Horticulturists cooperated with the Kansas Department of Education in presenting a portion of the program at the 1969 State meeting of vocational agriculture instructors.

Educational materials prepared by Extension Specialists were used by some instructors as they

developed the horticulture curriculum.

Groundskeeper Schools—1980's

Approximately 350 individuals participated in training meetings in which establishment and maintenance of horticultural plant materials were discussed. These meetings were held in 12 different locations in Kansas to enable a high percentage of the individuals with groundskeeping responsibilities in turf, shrub and tree care to participate.

Garden Center/Nursery Staff Training—1981

Information on chemicals for pest control on horticultural plants, selection of adapted fruit and vegetable varieties, and a research update were presented in 1981 at meetings with garden store and nursery personnel.

The statewide distribution of the 200 plus attendees provided a potential to reach well over one-half of the home horticulturists in Kansas.

County Extension Horticulture Expands

County Extension Horticultural Agents in Kansas conducted a broad assortment of innovative and beneficial programs that complimented and extended many state programs in the 25 years through 1988.

The audiences for these programs were businesses, civic, or social organizations, and individuals who had little, if any other contact with County Extension offices. The breadth of the programs extended from low income, to multi-racial, to public and agribusiness clientele.

The media were used extensively to carry information to the Kansas public. Considering newspaper circulation, and radio and television audiences, the potential weekly contacts for County Extension Horticultural Agents was estimated as high as: newspapers - 500,000 people reached; radio - 250,000; and television - 100,000.

There were many similarities between county Extension programs in horticulture. These included individual office and telephone consultations, assistance in 4-H youth programs, assistance at county fairs, assistance to other staff members, i.e., teaching Extension Home Economics unit lessons, and similar cooperative efforts.

The following information briefly describes some of the horticultural programs conducted by County Extension Horticultural Agents.

Media Use for Horticulture

Video tapes. Most County Extension Horticultural Agents purchased KSU video tapes with horticulture subject matter content and made them available to view in the Extension office, or to loan to county cooperators.

Also, some Agents purchased tapes from other Universities or from commercial sources. Use of the tapes was promoted in newsletters, office signs, at public meetings, on radio programs, and in news columns.

A major benefit of the video tapes was that they provided information at the time when people were most interested. Tapes could be replayed by cooperators wishing to "fully absorb" the contents.

Slide sets. Slide sets with script were used in public meetings, and made available so clientele could view the slides in the Extension office. They were also loaned out.

Newspapers. In 1988 Kansas daily and weekly newspapers that carried County Extension Horticulture Agent's columns had a circulation of over 500,000 readers. Most of the Agents had a weekly news column in a daily newspaper.

One Agent reported that over the five years he had been writing the column there were follow-

up requests for information from over 20,000 households.

Radio. Radio programs were presented in many different ways. The potential radio audience for the different programs by County Extension Horticultural Agents was in excess of 250,000 listeners.

Programs varied from a one-minute spot of a timely "Horticulture Hint," changed four times a week; to a one hour call-in question-and-answer program; to a 4-hour radio call-in, minus news and advertisement, on a major radio station that began in 1982 and was running through 1988.

Television. One County Extension Horticulture Agent had a weekly noon spot for a three to five minute program. Other TV programs with Agents were spontaneous as news stories developed.

Horticultural Therapy

County Extension Horticulture Agents included horticultural therapy in their county programs. Examples include a County Extension Horticulture Agent who worked with interested residents in a retirement home to develop raised garden beds. Elderly people worked with handicapped children as they cared for the plantings.

In another county, raised garden beds were established at a community garden site. The Agent worked with personnel in the park department, and a special education class at the public school that assisted handicapped adults in their gardening efforts.

A Horticultural Therapy program was conducted at a State operated Honor Camp with 110 individuals assigned to the camp. The Extension Horticulture Agent worked with about one-third of the individuals, training them to grow bedding plants in the greenhouse on the camp grounds.

In 1988, 20,000 bedding plants were grown and planted in city and county public areas for public landscaping.

Dealer Meetings

Meetings were held with commercial horticulture businesses to discuss the most current recommendations, products, plant materials, and special problems relating to chemicals, seeds and plants. The meetings were a good opportunity for consultation between Agents and dealers.

Lawn and Garden Shows—1976

Four Kansas counties held annual Lawn and Garden shows as a spring educational and promo-

tional event. The County Extension Agents prepared educational displays and organized educational seminars.

The educational events were very timely as it was spring, people were thinking gardening since it was spring, and generally were interested in the information available.

Commercial displays by garden stores, nurseries, garden equipment vendors, and similar horticultural businesses provided an incentive for attendance. The total attendance at the Lawn and Garden shows in 1988 was about 100,000 individuals.

The Topeka Flower, Lawn and Garden Show was unique in that it was sponsored by the Kansas State Horticultural Society and Kansas State University. Proceeds from the show went to the KSU Horticulture Department each year for scholarships and grants.

The County Extension Horticulture Agents were responsible for organizing the educational seminars and displays. The show provided an opportunity for the Agents to work closely with most of the horticultural businesses in the county.

Landscape Workshops—1970's-80's

Landscaping workshops were conducted by most of the County Extension Horticultural Agents, as well as by some other Extension Agents in Agriculture and Home Economics.

The workshops conducted by Extension Horticulture Agents were held one or two times each year, depending upon requests of clientele and the Agent's time. During the two to three hour sessions, landscaping video tapes were frequently used for part of the training. Ten to 15 households were usually represented in a workshop series.

Societies/Commodity Groups—1980's

Several horticultural commodity groups that were still active in the 80's were organized under the parent organization, The Kansas State Horticultural Society. Each of these organizations and the Kansas Extension Service interacted in educational programs.

Yearly educational meetings and/or tours were held by the fruit growers, arborists, Christmas tree growers, florists, nurserymen, nut growers, turf, and vegetable growers associations.

Quarterly newsletters were published by the florists, fruit growers, nurserymen, and turf associations with Extension Horticulturists serving as organization editors, co-editors, or secretaries.

The most recent group to organize prior to 1989 was the Kansas Greenhouse Growers Association which organized in 1984.

The affiliate organizations in 1988 were:

Kansas Arborists Association
Kansas Christmas Tree Growers
Kansas Federation of Garden Clubs

Kansas Florists Association
Kansas Fruit Growers Association
Kansas Greenhouse Growers Association
Kansas Nut Growers Association
Kansas Turfgrass Foundation
Kansas Vegetable Growers Association
Kansas Association of Nurserymen

State Staff Changes—1964-1988

Charles E. Parks, Landscape architect, was on sabbatical leave for graduate study from October 1962 to October 1963. He transferred to teaching in 1966.

Clarence R. (Dick) Roberts was appointed Extension Specialist, Horticulture in November 1954. He was on sabbatical leave, then leave without pay from October 1961 to November 1963 to complete requirements for a Ph.D. degree from Texas A & M University.

In 1969 he resigned to become Extension Vegetable Crop Specialist at the University of Kentucky.

Charles W. Basham was appointed in a new position of Area Extension Horticulturist that was developed to conduct research and Extension programs in vegetable crops in the southwest Kansas area.

Basham was appointed to the position in June 1964, then resigned in August 1965 to join the teaching staff at Colorado State University.

Richard E. Odom was appointed Extension Specialist, Ornamental Horticulture in July 1965 and in June 1966 transferred to full-time teaching in the Horticulture and Forestry Department, KSU.

Frank D. Morrison was appointed Extension Specialist, Fruit Crops in June 1966. He became Section Leader in 1968. In 1970, the title was changed to State Leader, Horticulture Programs.

Morrison was on sabbatical leave from June through November, 1980, to tour Land Grant Universities and commercial fruit growers in the midwest and north-west U.S.

Morrison received his B.S. and M.S. degrees from the Univ. of Idaho and was Extension 4-H agent, then County Agricultural Extension Agent in Idaho for 10 years before getting his Ph.D. degree in Horticulture from Michigan State University in 1966.

When appointed as Extension Specialist in Kansas, Morrison worked closely with commercial fruit producers in developing new fruit plantings. He was secretary of the Kansas Nut Growers Association for 10 years, and for the Kansas Fruit Growers Association for over 22 years, through 1988.

He also served as editor or co-editor of the newsletters for each organization. Newsletters, summer tours

and winter meetings were developed to provide a range of production and marketing information to growers.

Larry D. Leuthold was appointed Extension Specialist, Ornamental Horticulture in July 1966. His title and responsibilities changed to Extension Horticulturist, Turfgrass and Home Floriculturist in 1984.

Leuthold received his B.S. degree in Agriculture Education from Kansas State College in 1959, then taught vocational agriculture in Kansas until 1964 when he returned to graduate school. He received his M.S. degree in Horticulture from KSU in 1966.

As an Extension Specialist, Leuthold was well known for his expertise in woody ornamentals, house plants and home floriculture and turfgrass.

Utilizing research information he initiated a statewide extension program for fall fertilization of lawns. He participated in many programs in the Midwest discussing aspects of turfgrass culture.

Milam T. Jones was appointed Area Extension Specialist, Vegetables, in July, 1966. He had an Extension-research appointment in commercial vegetable production with headquarters in Ulysses. He resigned in April, 1973 to work in private industry.

James J. Nighswonger received his B.S. degree in horticulture in 1960, was Johnson County Extension Horticulture Agent from July, 1961 to 1964, then was appointed Extension Specialist, Landscape Architect with responsibilities in turfgrass, in October 1966.

Nighswonger conducted many landscape workshops throughout Kansas with Extension personnel and homeowners.

In 1971 he transferred to the Forestry Department as Extension Specialist, Landscape and Environmental Forestry.

Charles W. Marr was appointed Extension Horticulturist, Vegetable Crops, in August of 1970. He received his B.S. and M.S. degrees from the University of Southern Illinois and his Ph.D. from the University of Tennessee.

Marr worked for the Illinois Department of Agriculture before coming to Kansas State University.

In his vegetable garden program emphasis was placed on fall gardens, resulting in many gardeners being

organized so fall gardens were planted after early vegetables were harvested. He also developed a computer program for planning family gardens.

4-H horticulture judging was promoted by Marr and he assisted many 4-H judges to prepare for district, state and national judging trips. He served as Secretary-Treasurer for the Kansas Vegetable Growers Association.

Gary L. McDaniel was appointed Extension Landscape Horticulturist in September 1971 after receiving his horticultural degrees from Iowa State University. He resigned in September 1971 to join the Tennessee teaching-research horticulture department staff in 1973.

Gustaaf A. van der Hoeven joined the staff as Extension Specialist, Landscape and Environmental Horticulture, in April 1974.

Dr. van der Hoeven was born in Holland, received an agricultural degree in Australia, and his B.S., M.S. and Ph.D. degrees from Virginia Polytechnic Institute. With his Dutch accent and environmental interests, he was a popular speaker throughout the state.

He initiated a series of landscaping television programs which included discussions and illustrations of a wide range of horticultural plants in a landscape.

These programs were made into a video tape series for educational use in landscaping workshops and meetings.

Dr. van der Hoeven also presented weekly radio

programs under the by-line of "Stop, Look, and Listen" and discussed the many landscaping scenes throughout Kansas.

Robert McNeil was appointed to a new position that was half-time Extension and half-time teaching. The Extension responsibilities included 4-H and youth programs.

He was appointed in 1975 and resigned in 1977 to teach horticulture at the University in California in San Louis Obispo.

Richard D. Wootton received his Ph.D. degree from the University of Maryland, was an Extension agent, then joined the KSU Extension Horticulture staff with responsibilities in 4-H and youth programs.

He also helped to incorporate horticultural therapy into Extension programs. He was appointed in June, 1977 and resigned in January, 1981 to join the Maryland Cooperative Extension Service.

Charles E. Long was appointed Extension Horticulturist, Crop Protection, in July, 1978. He transferred from the horticulture research-teaching staff.

Long received his B.S. and M.S. degrees from Oklahoma State University and his Ph.D. degree from KSU. In 1985 his responsibilities were altered to include time to assist the commercial nursery industry.

Long was responsible for developing training materials used in pesticide applicator training relating to horticultural plant materials.

County Extension Positions

During the 1960's a significant growth of Horticulture programs resulted from the establishment of County Extension Horticultural Agent positions.

The more metropolitan counties led the way: Johnson and Sedgwick in 1961, and Barton, Shawnee and Wyandotte in 1967.

Harvey county added a horticulture agent in 1976, Butler in 1977, and in 1978 a multi-county horticulture position was supported by Cherokee, Crawford, Labette, and Montgomery. Labette discontinued its support in 1988.

Additional County Extension Horticultural Agent positions were added by Reno and Ellis in 1979, Saline in 1980, and McPherson in 1983. McPherson county discontinued support in 1987, then resumed support in 1988 with a split position. The Extension Agent became responsible for both horticulture and home economics.

Contributing Author. The primary contributing author to this summary of the Cooperative Extension Service educational programs and activities in Horticulture, from 1965 through 1988, was Frank G. Morrison, Extension State Leader, Horticulture Program.

A complete list of personnel involved in Extension Horticulture is listed in Volume II, Chapter 6, Extension Personnel, pp. 72-74.