

APPENDIX 1

MINUTES OF WEED CONTROL CONFERENCE HELD AT CORNELL UNIVERSITY ITHACA, N.Y.

February 18-19, 1947

February 18 - A.M. - Room 325 Warren Hall
Acting chairman - R.D. Sweet
Call to order, 10:00 a.m.
Welcome by Director C.E.F. Guterman, Cornell

The entire morning program was devoted to reports by Experiment Station representatives and others as follows:

MAINE

Weed Control in Maine, - Dr. Alton E. Prince, Maine Agr. Exp. Sta., Orono, Maine.

Recent work on weed control at the Maine Station has been headed by Dr. George P. Steinbauer who has just left us to accept a position at Michigan State. His successor, who has not as yet been found, and I will continue the work.

Dr. Steinbauer and Dr. Steinmetz have published bulletins on the identification and eradication of poison ivy and poison sumac (Extension Bul. No. 321), the identification and control of some field weeds in Maine (Extension Bul. No. 301) and the eradication of certain weeds as an important step in the control of potato diseases spread by aphids (M.A.E.S. Misc. Publ. No. 602). Dr. Steinbauer and Mr. Clapp recently published a bulletin on the preparation, care and weed control in lawns (Extension Bul. No. 349).

There are two weed control projects in progress. One, a Bankhead Jones Project on the control of Stachys palustris, woundwort, locally called mint, Cyperus esculentus, the northern nutgrass. The mint which has an underground rhizome from pencil size to the size of your thumb in diameter and up to 10 or more inches long is a serious weed in some fields in Aroostook county. One application of 2,4-D at 1000 ppm. is enough to control this weed. Another very local problem in Aroostook is the common horseradish (Radicula armoracia) which has escaped cultivation in some places and can be a real pest. It also can be effectively controlled with one application of 2,4-D at 1000 ppm. the nutgrass is a pest in some fields where sweet corn for canning is grown in the western counties of the State.

We do not have an answer for this one yet, but it is getting some attention and we are hopeful.

The second project concerns weed control in blueberries. Now to a potato grower, every plant in the field that is not a potato is a weed, likewise to the blueberry grower, every plant that is not a blueberry bush is a weed even though they are dealing with the wild forms. In these areas of the eastern coastal counties of the State weeds include not only herbaceous species like the brake fern, grasses and clovers, but also shrubs and small trees such as alders, maples, oaks, willows, sweetfern, bayberry, wintergreen and so on. It takes no imagination to see that we have some very interesting problems here.

The results of about ten years investigations on weed control in blueberries by Fred C. Clandler and I. Clandler and I. C. Mason, formerly of the Maine Station were published last summer as a station bulletin. The new selective herbicides have somewhat outdated their work, but nevertheless some of their findings are very useful. One season's work with the 2,4-Ds indicate that the blueberries along with alders, some willows and sweetfern are killed while others like the oaks, maples and bunchberry seem very resistant. A considerable amount of effort will go toward the control of weeds in blueberries especially since the growers are now taxing themselves and turning the money over the Station for research on blueberries and since we have a new blueberry experimental farm at Jonesboro, Maine.

In addition to these projects we have a graduate student working on weed control in millet as related to the potato rotation.

MARYLAND

C.E. Minarik, Camp Detrick, Maryland

Work at the Camp Detrick is progressing along the same lines it followed during the war and includes fundamental studies as well as practical. Among the subjects being investigated are the following:

1. Persistence of 2,4-D and related herbicides in soils.
2. Carriers of 2,4-D - oil and water.
3. Droplet size of sprays.
4. Absorption through roots and shoots.
5. Effects of growth regulators on soil microflora and vice-versa.
6. Histological and cytological changes induced by plant growth regulators.

MASSACHUSETTS

Cranberry Bog Weeds - Dr. Chester E. Cross, Cranberry Exp. Sta., East Wareham, Mass.

Selective herbicides used on cranberry bogs.

Ferrous sulphate - 50 lbs. per sq. rod will kill many ferns, asters, Bidens sp., Apios, etc.

Ferric sulphate - 15 lbs. per sq. rod will kill many ferns, asters, Eleocharis sp., Leersia, Equisetum sp., etc.

Paradichlorobenzene - used under sand at 7 1/2 to 10 lbs. per sq. rod kills Apios tuberosa, Rhus toxicodendron, Pyrus molanocarpa, Scirpus americanus, viola lanceolata, etc.

Copper sulphate - 20 lbs. in 100 gals. H₂O at 400 gals. per acre kills Polytrichum, Cyperus dentatus, Bidens sp., and algal scum in flood waters.

Hold flood waters into late spring -- best control for Rubus sps.

kerosene - 400-800 gals. per acre will kill most grasses, sedges and rushes, Lysimachia terrestris, socus sps. of Rubus, Equisetum arvense and others without killing cranberry vines.

MICHIGAN

Dr. B.H. Grigsby, Dept. of Botany, Michigan State College, East Lansing, Michigan.

Work in Progress:

1. Onion
 - a. Pre-emergence methods (flame, chemicals)
 - b. Selective methods - Di-nitro compounds, Acids, Salts
2. Carrots and related crops
Stoddard solvent - Time, rate. Effective portion (fractionation studies)
3. Asparagus
During cutting season - Flame, Chemicals
4. Beets, table and sugar
Pre-emergence, Selective
5. Peas
Di-nitro

Field Crops

Corn - Annual and perennial weeds
Small grains, oats in particular
Mustards, Bindweed, Canada Thistle
Pasture weed and bush control
Lawn weeds - 2,4-D - Lime and formulations.
Miscellaneous weed plant control

Rag weed - city property, Roadside, Farm crops, corn and beans
 Poison Ivy - Poison Sumac - 2,4-D, Ammate, Borax
 Lake and stream weed control.
 Forest tree nursery
 Strawberry

NEW HAMPSHIRE

Prof. P.T. Blood, New Hampshire Exp. Sta., Durham, New Hampshire
 New Hampshire Station has been studying eradication of pasture and field weeds by chemical methods since 1942.

Buttercup - (Ranunculus acris) - Ammonium sulfamate, 3 ounces per gallon of water gives good control when applied at maturity.

Canada Thistle - Amate gave good control at maturity.

Devils Paint Brush - both sulfamate and 2,4-D gave good control.

Wild Morning Glory - 2,4-D effective

Yellow Rocket - 2,4-D effective.

Sweet Fern - 2,4-D effective.

Hard Dock - Borax, 1 pound per 1,000 sq. ft. effective - 2,4-D effective.

Poison Ivy - Amate

Weeds in carrots - Stoddard solution.

NEW JERSEY

Dr. G.H. Ahlgren and Prof. D.E. Wolf, New Jersey Agricultural Exp. Sta., New Brunswick, New Jersey.

Four departments are doing some work in this general field. Vegetable Gardening concerned mostly with flame burners and oil treatments on the truck crops. Plant Pathology is doing some work on effect of 2,4-D on ornamental trees and shrubs, and of top-killing materials for potato vines. The Farm Crops Department is concerned with turf, small grains, corn, and the hay and pasture crops. The Department of Entomology is doing some work on drainage bank weed control.

The early work included such chemicals as Sinox, sodium arsenate and sodium chlorate. also the use of ammonium sulphate and borax on undesirable woody plants such as poison ivy.

Recent emphasis has been on the 2,4-D weed killer. Tests on many different weeds have included rates of application, time of application and forms of 2,4-D.

The turf weeds have been studied most intensively and this work has now been de-emphasized. The yellow flowered weeds, wild mustard and water cress, are being studied in small grains. Pre-emergence studies in corn are going on. Pasture and hay weeds such as wild onion and curled dock are under observation.

Various perennial weeds have been studied as to their response to 2,4-D, of these, the most important are horsenettle, hedge bindweed, and Canada thistle.

In tests using corn hybrids and inbreds, definite differences were noted as to susceptibility both in pre-emergence dust and spray, and in foliage spray treatments.

NEW YORK

Prof. A.M.S. Pridham, Department of Floriculture and Ornamental Horticulture, Cornell University, N.Y.

A. Lawn weeds comparison of effectiveness of 2,4-D with other weed killers, including time, method, and quantity of applications. Combination treatments of 2,4-d and fertilizers have been carried out.

B. Soil treatment - effectiveness of chemical weed killers in pre-emergence soil treatments, also studies to determine the persistence of materials in the soil.

C. Volatilization of 2,4-D. Studies to determine the degree of volatility of various forms of 2,4-D and its effect on woody ornamentals, greenhouse crops, etc.

D. Woody weeds in mixed populations - Effectiveness of chemicals, mulch, grubbing, and flaming to control woody weeds. Also supplementary studies on foliage deformation.

E. Ragweed control - effectiveness of time of application, quantity, etc. on growth, pollen shed, and eradication.

F. Persistence of chemical materials, delayed 2,4-D reactions in woody materials and persistence of 2,4-D in F₁ beans (parents sprayed during fruit formation).

Dr. Robert D. Sweet, Department of Vegetable Crops, Cornell, Ithaca, N.Y.

The Department of Vegetable Crops has been working on soil and seed treatments as well as selective herbicides for direct application to crop plants. Emphasis has been placed on the following types of materials: (1) petroleum products including many specific hydrocarbons as well as commercially available mixtures, (2) nitrogenous fertilizer materials, (3) growth regulators such as 2,4-D and naphthalene acetic acid, and (4) di-nitro compounds.

Soil treatments have included the above mentioned materials and

have been applied at various times: (1) after plowing prior to fitting, (2) after fitting prior to planting and (3) after planting prior to crop emergence. About 10 different vegetable crops have been included in one or more of these tests. Persistence of growth regulators in the soil also is being studied.

Tests involving toxicity of specific hydrocarbons on both crop and weed seeds are being conducted under laboratory conditions.

Prof. O. Curtis, Jr., Dept. of Pomology, New York State Agri. Experiment Sta., Geneva, New York.

The Present concern is with control of all weeds in vineyards and in orchard and nursery plantings of deciduous fruits. The di-nitro sprays and fuel oils have consequently received particular attention.

Philip Gorlin, Dept. of Health, New York City, Bureau of Sanitary Engineering, Weed Control Unit, New York, New York - Ragweed Control Program.

Numerous attempts in the past to enforce city laws requiring property owners to destroy ragweed and other noxious plants growing on their land proved ineffective and time-consuming. Many property owners could not be located, others could not be induced to eliminate the weeds in time to prevent the shed of pollen. Sporadic campaigns to eradicate the weeds by cutting, grubbing and treating with caustic chemicals failed chiefly because of the exorbitant cost of manpower and materials; and the areas disturbed produced even a more dense growth of ragweed when the projects were abandoned. Cutting ragweed plants too early permits new growths from the same stem. Pulling them disturbs the soil and uncovers dormant seeds which thus have an opportunity to germinate. Ragweed seeds are very viable; they may germinate after being buried in the soil for as long as 40 years.

Following a period of investigation and experimentation, the Department of Health, after consultation with representatives of the Department of Parks and the Brooklyn Botanic Garden, decided that ragweed could be controlled economically and effectively by spraying all infested areas within the city with a solution containing 0.1% 2,4-D (2,4-dichlorophenoxyacetic acid), thoroughly wetting the foliage. Pollination is prevented and the plants are readily killed when spraying is done during June and July. If spraying operations are delayed until the ragweeds come into bloom, the plants may not wither for several weeks, but the flowers are so affected that pollination is inhibited and practically no seeds are produced.

In the six weeks of the campaign, about 3,000 acres of ragweed two to 12 feet tall were sprayed; approximately 850,000 gallons of 2,4-D

solutions were consumed. Cost accounting has not yet been completed, but the approximate cost of the project was \$33,000, of which \$17,500 was for labor, \$14,000 for chemicals, \$1,400 for conversion material and material expended.

According to the National Pollen Survey Committee of the American Academy of Allergy, the 1946 ragweed pollen count in New York City was the lowest since 1937. The limited data available indicate that similar low pollen counts prevailed in many areas throughout the northeastern states. The elimination of more than 3,000 acres of an estimated 10,000 acres of ragweed the past season undoubtedly reduced the atmospheric ragweed pollen in New York City.

Conrad B. Link, Brooklyn Botanic Garden, Brooklyn, New York.

Weed control at the Brooklyn Botanic Garden was demonstrated with a test plot established of alternate plots of various lawn grasses and weeds. These were sprayed at intervals with 2,4-D used at a rate of 1:1000 to show its use on lawn grasses and effect on weeds common in lawns and gardens. In a practical way we have used 2,4-D in controlling weeds in certain areas of the garden and to a limited extent on the lawns. Complete herbicides have been used along fences and on unpaved walks. 2,4-D has been used with partial success in the control of Water Poppy (nymphoides) on a small lake. Our studies and observations have given first hand information on weed controls and have aided greatly in keeping the public informed on methods and products used for weed control. The staff has aided the New York City Department of Health in its ragweed control problem and interest has developed to the extent that the New York University in cooperation with the New York City Health Dept. and the Brooklyn Botanic Garden are offering a course in weed control to be held in March and April. Also the Botanic Garden is holding a conference on "The control of Plants Harmful and Annoying to Man", on April 16, 1947, with the program directed to what the individual and the community can do in the control of these plants.

OHIO

Dr. C.J. Willard, Dept. of Agronomy, Ohio State University, Columbus, Ohio.

Work at Wooster on lawn weeds and some field weeds has been carried on by Dr. F.A. Welton. Some general work by H.A. Runnels at Columbus. Brown of Horticulture has done work with petroleum products, including pure hydrocarbons and also 2,4-D. Willard has used 2,4-D on lawns, poison ivy, Canada thistle, bindweeds and miscellaneous weeds.

PENNSYLVANIA

Professor H.B. Musser, Dept. of Agronomy, Pennsylvania State College, State College, Pennsylvania.

- I. Selective treatments on established turf
Three series of experiments:
 - a. Evaluation of 2,4-D formulation on Kentucky Blue grass turf under different systems of management.
 - b. Tests of dry applications of 2,4-D with fertilizer.
 - c. Trials of 2,4-D on creeping bent turf at fairway height.
- II. Effects of 2,4-D on weed and crop seed incorporated in the soil under varying moisture and soil reaction conditions.
- III. Effects of di-nitros and 2,4-D on seed setting in grasses.
- IV. Cultural practices and chemical control tests (combinations)
- V. Di-nitros and 2,4-D for weed control on canning peas.
Concentration and environmental relationships.
- VI. Tests of petroleum derivatives on carrots.

RHODE ISLAND

Dr. J.A. DeFrance, Dept. of Agronomy, Rhode Island Agr. Exp. Sta., Kingston, Rhode Island.

Vegetables

Carrots - with oils. Potatoes - crabgrass and top-kill problems.

Turf

2,4-D and di-nitros for broadleaf weeds. Water soluble mercurials for crabgrass.

Compost

Destruction of weed seeds. Publication, Misc. #31.

Field Soil

Pre-seeding treatments to kill weed seeds and fertilize the seed bed in one operation. Exp. Sta. Contribution #690.

Quackgrass

Method of control.

Poison Ivy

Method of control.

TENNESSEE VALLEY

T.F. Hall, Associate Botanist, Tennessee Valley Authority, Wilson Dam, Alabama. (On leave doing graduate work, Dept. of Botany, Cornell University, Ithaca, New York) - Summary of the Relation of Plants to the Control of the Malaria Vector in the Tennessee Valley.

Plants play an important role in relation to the production of the malaria vector (Anopheles quadrimaculatus) on impounded water projects in the Tennessee Valley. If plants continuously intersect the water surface for a period in excess of the duration of the larval stage during the mosquito breeding season, an increase in anophelism results. The intersection of plant, air, and water borders has been termed the intersection line and as a general rule the density of anopheline larvae varies directly as the extent of the intersection line. This so-called intersection line is of importance because it provides food and shelter for the larvae and favorable conditions for oviposition of the adult anopheline mosquito by breaking the water surface up into a number of quiet "cells". Thus the intersection line provides food, shelter, and facilities for reproduction or the three fundamental basic requirements for the continued propagation of the species. The proper management of the intersection line is of major importance in controlling the malaria vector on impounded water projects.

Water level management is the backbone of the malaria control program of the Tennessee Valley Authority. Water level management is used as a tool to limit the invasion of the more objectional marginal plants which would create a favorable habitat for the larvae of the vector (Anopheles quadrimaculatus) and as a means of disrupting the intersection line at appropriate intervals in order to secure larval control. The water schedules employed on main river reservoirs limit the lakeward extent of all species but do not delay the development of certain emergent aquatics. As in these types of plants larval control is not obtained by water level management, the plants must be controlled by either mechanical or herbicidal measures in order to reduce or eliminate the intersection line to secure effective control of the larvae. Among the herbicides particular attention has been given to 2,4-D formulations, methods of application, and the development of the use of high concentrates of 2,4-D. Readily susceptible species were effectively controlled with sprays applied at rates as low as 2 1/2 gallons per acre "by hand" from a pump-up can equipped with a nozzle rated at 2 gallons per hour at 40 psi. Effective use of high liquid concentrates of 2,4-D coupled with low volume of discharge led to the development of airplane distribution of sprays of growth regulating substances for plant control. A readily susceptible species such as lotus was controlled at discharge rates as low as approximately one pint per acre and with treatment rates approximating 24 acres per minute.

VIRGINIA

Dr. G.M. Shear, Dept. of Biology, Virginia Agricultural Exp. Sta., Blacksburg, Virginia

The most extensive weed control work that has been done by the

Virginia Station is with tobacco plant beds, carried on under the direction of Dr. R. G. Henderson. Either cyanamid or uramon at the rate of one pound per square yard or a combination of the two at the rate of three-fourths of a pound of each per square yard of plant bed have given good weed control. Varying rates of application of 2,4-D both alone and in combination with the above materials are being used in this year's tests. The materials are worked into the soil in October and the beds are seeded in February.

Some work has been done on the control of duckweed in watercress beds. Copper sulphate and di-nitro have been tried. A saturated solution of copper sulphate will give fairly good control of *Lemna minor* if applied after cutting the cress.

Encouraging results from preliminary tests of 2,4-D during 1946 on the control of some serious pasture weeds have been obtained and this work is being expanded during 1947.

Brief statements of fields of interest were made by representatives of industry.

12:25 p.m. - Adjournment for picture taken in front of meeting hall and for lunch. (8 x 10 prints available at 50 cents)

2:00 p.m. - Reconvened - R.D. Sweet, acting chairman

Industry statements continued.

Discussion regarding program for remainder of the conference. Two principle views were for continued joint program and for separate sessions based on crop interest. After much comment on both proposals a vote was taken and the result was an overwhelming a majority for continued joint sessions.

It was decided to start with a discussion of 2,4-D physiology.

Dr. Minarik stated that 2,4-D is absorbed by the roots of grasses and through the leaves of broadleaves and thus grasses are susceptible to 2,4-D when they are germinating.

Dr. Griffiths reported that highly volatile, high aromatic oils did not work well in increasing the toxicity of 2,4-D to poison ivy.

Dr. Musser believes that different responses of bent grass to 2,4-D may be at least partially explained on the basis of differences in carrier.

Dr. Pridham stated that the time or speed of action of 2, 4-D could be stepped up by adding a di-nitro or a fertilizer.

Dr. Yowell remarked that the methyl and ethyl esters of 2,4-D were more volatile than the sodium and ammonium salts.

Dr. Grigsby asked how to get 2,4-D out of a greenhouse, but received no satisfactory answer.

Results of flaming weeds were presented in detail by Prof. F.B. Wright, (Copies available on request).

To facilitate the workings of the conference a plan was developed whereby a nominating committee consisting of Benjamin Wolf, A.M.S. Fridham, and J.A. DeFrance would choose a slate of officers.

A procedure committee consisting of Alton E. Prince, Chairman, H.B. Musser, Dale Wolf, R.A. Grigsby, Lawrence Southwick, C.S. Harris, and R.D. Sweet was appointed to develop a program for Wednesday.

The group decided the principal objectives of the organization are as follows:

1. To facilitate the exchange of information on weed control between research workers.
2. To plan and coordinate weed research.
3. Education (to be developed at a later date).

It was further agreed that the group would strive for the closest possible cooperation between industry and station workers in all three of the above fields of activity.

5:30 p.m. Adjournment.

February 19 - 9:35 a.m. - Convened in Warren Hall Seminar Room.

The nominating committee proposed Dr. G.H. Ahlgren as chairman, Dr. B.H. Grigsby as vice-chairman, Dr. R.D. Sweet as secretary-treasurer. Chairman Benjamin Wolf made the report.

Officers were elected by unanimous vote.

Chairman Ahlgren then presided.

The procedure committee, chairman, Dr. Alton E. Prince gave the following report:

It is proposed that we separate into groups for today's work. A chairman of each group is suggested and he will be expected to report this afternoon for his group.

These groups are as follows:

- | | |
|--|----------------|
| 1. Turf and pastures | H.B. Musser |
| 2. Field crops | G.H. Ahlgren |
| Small grains, Field corn, Forage crops, Soybeans | |
| 3. Vegetables and potatoes | B.H. Grigsby |
| 4. Fruits | A.E. Prince |
| Small fruits, Tree fruits | |
| 5. Nursery and ornamentals | A.M.S. Pridham |
| 6. Aquatic plants | G.M. Shear |
| 7. Weed control in relation to health | C.B. Link |

It should be understood that these groups are for today's meeting only and will be changed at our next meeting to meet the demand.

It is further suggested that each chairman return with a report this afternoon that is based on the following outline.

1. Definition of the problems.
2. Current status of research.
3. Suggested action by crops including:
 - a. Materials
 - b. Methods
 - c. Equipment

His report was modified so that vegetables, potatoes and fruit met together; ornamental, weeds and health, and aquatic plants combined, and the group divided into the suggested sections.

1:30 p.m. - Conference called to order by the chairman, G.H. Ahlgren.

Reports by crop committees were as follows:

TURF AND PASTURE SECTION INCLUDING
ORNAMENTALS, AQUATICS AND HEALTH PROBLEMS

Reported by J.A. DeFrance
Dr. H.B. Musser, Chairman

1. Definition of Problem
 - A.. Evaluation of herbicidal materials and other methods by fundamental and applied research.
 - B. Evaluation of natural plant succession after treatments.
 - C. Effect of herbicides on species of weeds and crop plants at various stages of growth with regard to seed production and other relationships.
 - D. Correlation of methods with maintenance practices, such as, solutions vs. dry applications, mixtures of herbicides, and types of application equipment.

2. Current status of research

Reports as presented at this conference indicate in general the present status of research. The committee feels that within the limited time available further listings are impossible.

Suggestions: General chairman should be advised of such work and act as a clearing house to make information available with regard to type of

research. Information to be obtained from industry, experiment stations and others for dissemination.

3. Suggested action by crops, including materials, methods and equipment.

A coordination of research is suggested in order to avoid excess duplication of effort.

Work Underway				
	Turf	Pasture	Annuals	
Growth Regulators	PA, NH, NJ, NY, RI, U.S.D.A	NY, NH, PA, VA	NY, PA, VA	
Selectives	Same	Same	Same	
Complete kill and Pre-emergence	CT, PA, RI, NY	--	MI, PA, NY, VA	
Mechanical and burning	NY, NH, RI, PA	--	--	
	Perennial	Deciduous	Evergreen	Seed Production
Growth Regulators	NY	NY, ME	NY, PA	NY, PA
Selectives	NY	NY, ME	NY, PA	--
Complete Kill and Pre-emergence	NY	NY, MA, ME, RI	--	--
Mechanical and Burning	NY	NH, NY, ME	--	--

In view of the work that is underway, this section recommends that researchers in this field be urged to develop a coordinated program to avoid unnecessary duplication of effort, and further that the cooperation that is already in effect on pasture problems in the Northeastern section be extended to include herbicidal problems.

Further, we specifically recommend that certain research work be organized on a "uniform plan" for a cooperative venture in order to replicate certain data, such as, the use of herbicides plus fertilizer.

FIELD OR FARM CROPS

1. Definition of Problem

Weeds are recognized as a major problem in the production of all farm crops. Specifically in the Northeast the following problems are considered most severe:

- a. The control of weeds in field corn.
- b. The control of weeds in winter and spring seeded small grains with and without legume plantings.
- c. The control of weeds in hay fields and in the forage crops used for seed production.

2. Current status of research

Current work underway on farm crops is very limited in the Northeast. Pre-emergence work on field corn varieties underway in New Jersey. Some work and observations on weed control on the small grains is in progress in New York and Pennsylvania. Discussion of important weeds in the area indicate that many annuals infest corn fields together with hedge bindweed, Canada thistle, and quackgrass. In the small grains yellow mustard and winter cress were considered especially common. Thistle Mayweed, and hedge bindweed occur less frequently. In the hay fields, chickweed, yellow mustard and winter cress, curled dock, buckhorn and others are particularly significant.

3. Suggested action by crops including materials, methods, and equipment.

The farm crops group suggested the appointment of a research committee to suggest the most satisfactory method of approaching the farm crop weed problems in the Northeast by group action. Chairman Ahlgred accordingly appointed the following:

S.M. Raleigh	Chairman, Penn. State University
E. VanAlstine	Agronomy Dept., Cornell University
Berton C. Dickinson	Sherwin Williams Co., Bound Brook, NJ

This committee was instructed to have suggestions for methods of procedure ready by late March.

It was in general felt that projects should be on a suggestive basis only and that the creative thinking of individual investigators be permitted the broadest range possible.

VEGETABLE AND POTATO COMMITTEE

Dr. H.B. Grigsby, Chairman

1. Definition of Problem

to investigate materials, time, methods and rate of application for controlling specific weeds in specific crops.

This problem falls into four phases:

- a. Screening tests of new materials
- b. Minimum concentration necessary to kill specific weed plants.
- c. Maximum concentration tolerated by specific vegetable crops.

- d. Determination of application procedures, including the influence of environmental factors.

2. Current status of research

Research at present is along the lines of pre-planting and pre-emergence soil treatments, selective treatments of growing crops, and the application of general purpose herbicides for vine killing purposes.

Weed control research is now in progress in the following crops:

1. Beans, snap and lima
 - a. Flame
 - b. Pre-planting and pre-emergence treatments with various chemicals.
2. Beets
 - a. Selective spraying with common salt.
3. Carrots
Petroleum products (Stoddard Solvent) are established practices in commercial production.
4. Corn
 - a. Considerable preliminary work with 2,4-D with emphasis on time and method of application.
5. Peas
 - a. Selective use of di-nitro compounds on canning peas.
 - b. Salt and other selective chemicals.
6. Potatoes
 - a. Pre-planting treatments
 - b. Pre-emergence treatments
 1. Flame
 2. Herbicides (Contact, Selective)
 - c. Pre-harvest treatments
 1. For weed control, especially crabgrass
 2. Vine killing (Flame, Contact herbicides)
7. Strawberries
 - a. Selective treatments.

3. Suggested action by crops including materials, methods, and equipment.

Beans - Sensitivity of bean plants to most herbicides now available indicates that the promising type of approach is either pre-planting or pre-emergence soil treatment with the acknowledged possibility of flame treatment being practical.

Cabbage and Cauliflower - The nature of these plants seems to indicate that either soil treatments or selective plant treatments with suitable

materials should be effective.

Corn - 1. Pre-planting and pre-emergence treatments offer possibilities for a degree of weed control that cannot be safely obtained by selective treatment. 2. Differences in response to applications of growth regulators, due to varieties and times of application, have been observed and should be studied under carefully controlled conditions.

Onions - While sulfuric acid has proved to be of value in the control of certain weeds in this crop, the natural reluctance of growers to use acid indicates that further search of suitable herbicides is needed.

Peas - The chief problems in weed control in peas are: 1. A search for herbicides that will be tolerated by the peas and, 2. A search for materials that will kill annual weeds without destroying clover or other crops seeded with the peas.

Potatoes -

1. Weed control while the crop is growing.
 - a. Pre-emergence. Flame treatments offer distinct possibility in this crop. Soil treatments with a large number of herbicides should be made.
 - b. Selective treatments seem to offer possibilities because of the nature of the potato plant. The possible use of growth regulators in this connection should be studied.
 - c. Vine killing and late weed control work is needed to determine whether certain undesirable effects upon tubers are due to the action of chemicals or to some physiology changes not related to the chemicals applied for vine killing purposes.

It is suggested by this group that a general research committee be appointed to assist in developing and coordinating a weed control research program.

FRUITS COMMITTEE

A.E. Prince, Chairman

1. Definition of Problem

Blueberries - Herbaceous and woody weed species compete with the wild blueberry plants for nutrients, water and light. These weeds also interfere considerably with harvesting. It is therefore desirable to at least control these weeds in the most efficient manner as to cost of materials, equipment, and labor.

2. Current status of research

The Maine Agricultural Experiment Station has recently published the results of about 10 years work on weed control by Dr. F.C. Chandler and I.W. Mason, formerly of the Station (Bulletin No. 443). This is very helpful in planning future work. We are anxious to get together with the workers of other blueberry growing areas for an exchange of ideas and methods.

Materials used: *

Chemicals

Sulfuric acid	Calcium chlorate
Kerosene	Ammate
Salt	2,4-D

*All except 2,4-D from Bulletin No. 443

Other

Cutting and pulling	Pulling
Cutting	Burning

Methods

Spraying	Burning with flame equipment
Dusting	Fire, general burning
Hand placement of chemicals	

Equipment: to date only hand operated sprayers and other hand operated equipment has been used because of the rough land, except in some field where horse or tractor drawn mowers are used.

Strawberries: Reported by O. Curtis, Jr. - The indications that 2,4-D may be tolerated by strawberries gives some hope for use of this material. Information is needed on the tolerance of the several important varieties to applications at various stages in the seasonal cycle of growth. Flowering, fruit set and yield, and runner production are responses which need particular attention. Effects on fruit quality also need observation in view of the possible formative influences and more direct effects on flavor. Studies to clarify some of these points are underway in Maine, Michigan, Ohio and Louisiana.

Winter annuals such as chickweed frequently present a most serious problem. Since these are most active between fall and spring while the strawberry is dormant there is a theoretical possibility of employing a general herbicide such as a di-nitro, without serious injury to the strawberry crop. Some study of this is contemplated at Geneva, New York.

Deciduous Orchards and Vineyards - For chemical weed control to replace or supplement cultivation and consequent soil disturbance, the general di-nitro herbicides and low priced oil fractions seem most promising. In orchards selectivity may be needed only to the extent that injury via soil penetration does not occur; resistance of trunks and older stems is desirable, but avoidance or mechanical protection is possible. Vineyard application would require in addition the resistance or protection of young

renewal shoots. Successful weed control in peach orchards with a di-nitro spray has been reported from Pennsylvania. Vineyard and limited orchard applications are under observation at Geneva, NY.

Use of 2,4-D for special weed problems such as poison ivy, and the occasional reports of severe injury when 2,4-D is used near deciduous fruits or grapes, points to a need for more information on tolerance. Both varietal and seasonal variations on tolerance need clarification.

Cranberries - Chester E. Cross. See page 2 for work under way.

General Session

Discussion

Dr. Willard discussed the research committee of the North Central Conference. He suggested we have a few uniform treatments, methods, etc. so that results can be summarized.

The group voted to have a research committee to be appointed by the chairman. The committee appointed by the chairman, G.H. Ahlgren was as follows:

H.B. Musser, Chairman	Penn. State College
Lawrence Southwick	Dow Chemical Co., Midland, MI
Alton E. Prince	Maine Exp. Sta.
R.D. Sweet	Cornell University

A program committee was appointed consisting of:

Benjamin Wolf	Seabrook Farms, Bridgeton, NJ
C.S. Harris	Shell Oil Co., Inc. 50 W. 50th St., NYC

together with the three executive officers.

K.S. Quisenberry, U.S. Department of Agriculture, discussed the Research and Marketing Act of 1946.

"NORTHEASTERN WEED CONTROL CONFERENCE" was voted to be the name of the organization.

Finances

The group voted to have a registration fee at the next meeting, the amount to be determined by the Executive Committee. They also voted to have a \$1.00 fee of those present to assist in carrying the organization until the time of the next meeting. Fifty-five contributed \$60.00 for this purpose. The Secretary-Treasurer was authorized to give those who had already left the conference an opportunity to contribute to the registration fund.

It was decided to have the next meeting in early February, 1948.

Summer meetings or tours were discussed but no action was taken by the group.

A resolution was unanimously adopted by the group "To express its deep appreciation and sincere thanks to Cornell for so generously providing its facilities and for so actively aiding the formation of the Northeastern Weed Control Conference".

4:00 p.m. - Conference adjourned.

APPENDIX 2

WEED CONTROL CONFERENCE REGISTRATION LIST

COMMERCIAL REPRESENTATIVES

AEROIL

F.J. Doster	Aeroil	West New York, NJ
R. Vincelette	Aeroil	West New York, NJ

AMERICAN CYANAMID CO.

Thomas R. Cox	American Cyanamid Co.	New York, NJ
L.J. Evans	American Cyanamid Co.	109 Pleasant St., Doyer-Foxcroft, ME
D.S. Fink	American Cyanamid Co.	Forest Home, Ithaca, NY
Frank Stark	American Cyanamid Co.	Stamford, CT
B.L. Walworth	American Cyanamid Co.	Stamford, CT

ASSOCIATED CHEMISTS, INC.

I. Dougherty	Associated Chemists, Inc.	N. Collins, NY
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J.T. BAKER CHEMICAL CO.

H.W. Feuchter	J.T. Baker Chemical Co.	Phillipsburg, NJ
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CHIPMAN CHEMICAL CO.

G.A. Meyer	Chipman Chemical Co.	Bound Brook, NJ
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DEERE AND CO.

Charles S. Morrison	Deere and Co.	Moline, IL
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Dow Chemical Co.

Lawrence Southwick	Dow Chemical Co.	Midland, MI
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E.I. DuPont

H.C. Bucha	E.I. DuPont	Wilmington, DE
Henry J. Eavis	E.I. DuPont	51 Maple Ave., Sodus, NY

Eastern States Farmers' Exchange

O.H. Pearson	Eastern States Farmers' Exchange	West Springfield, MA
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Esso

Norris C. Barnard	Esso Colonial Beacon Oil	50 Rockefeller Plaza New York, NY
John Newman	Esso Standard Oil Co. of NJ	New York, NY
Donald Robertson	Esso Farm News Standard Oil Co. of NJ	26 Broadway New York, NY
Howard L. Yowell	Esso Farm News Standard Oil Co. of NJ	Elizabeth, NJ

G.L.F.

J. Robert VanAllen	G.L.F.	Ithaca, NY
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GULF OIL CO.

J.W. Grumme	Gulf Oil Co.	811 W. First St., Elmira, NY
J.E. Zabriskie	Gulf Oil Co.	New York, NY

HOMESTEAD VALVE
MFG. CO.

Sam. E. Hall, Jr	Homestead Valve Mfg. Co.	Coraopolis, PA
Fred A. Rueter	Homestead Valve Mfg. Co.	Coraopolis, PA

OLDBURY ELECTRO
CHEMICAL CO.

Fred H. Berggren	Oldbury Electro Chem. Co.	19 Rector St., NY, NY
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PENNSYLVANIA SALT
MFG. CO.

Martin E. Johnson	Pennsylvania Salt Mfg. Co.	1000 Widener Bldg., Philadelphia, PA
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JOHN POWELL & CO.

H.L. Straube	John Powell & Co.	1 Park Ave., NY, NY
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DR. SALSBUY'S LAB

G.M. Eddy	Dr. Salsbury's Lab	Schenectady, NY
V.L. Fisher	Dr. Salsbury's Lab	Schenectady, NY

SEABROOK FARMS

Benjamin Wolf	Seabrook Farms	Bridgeton, NJ
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SHELL OIL CO., INC.

C.S. Harris	Shell Oil Co., Inc.	50 West 50th St., NY, NY
W. A. Kingsbury	Shell Oil Co., Inc.	1066 Madison Ave., Albany, NY

SHERWIN WILLIAMS CO.

Berton C. Dickinson	Sherwin Williams Co.	Bound Brook, NJ
R.A. Hyre	Sherwin Williams Co. Foundation	Ohio State

SOCONY VACUUM CO.

R.H. Chapin	Socony Vacuum Co.	Buffalo, NY
A.E. Griffiths	Socony Vacuum Co.	412 Greenpoint Ave., Brooklyn, NY

STAUFFER CHEMICAL CO.

J.T. Bashour	Stauffer Chemical Co.	40 Lexington Ave., NY, NY
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STATE REPRESENTATIVESMAINE

Alton E. Prince	Maine Agr. Exp. Sta.	Orono, Maine
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MASSACHUSETTS

C.E. Cross	Mass. Exp. Stat.	Amherst, Mass.
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MICHIGAN

B.H. Grigsby	Michigan State College	East Lansing, Mich.
Charles A. Stahl	Michigan State College	East Lansing, Mich.

NEW HAMPSHIRE

Paul T. Blood	N.H. Exp. Sta.	Durham, N.H.
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NEW JERSEY

Gilbert H. Ahlgren	N.J. Agric. Exp. Sta.	New Brunswick, N.J.
Dale E. Wolfe	N.J. Agric. Exp. Sta.	New Brunswick, N.J.

NEW YORK

J.S. Andrews	Soil Conservation	Cornell University, Ithaca, N.Y.
Richard Bradfield	Dept. of Agronomy	Cornell University, Ithaca, N.Y.
D.J. Bushey	Dept. Ornamental Hort.	Cornell University, Ithaca, N.Y.
William E. Chappell	Dept. Vegetable Crops	Cornell University, Ithaca, N.Y.
Solomon Cook	Dept. Vegetable Crops	Cornell University, Ithaca, N.Y.

J.E. Dawson	Dept. Agronomy	Cornell University, Ithaca, N.Y.
Director, C.E.F. Guterman		
	Agricultural Exp. Sta.	Cornell University, Ithaca, N.Y.
T.F. Hall	Dept. of Botany	Cornell University, Ithaca, N.Y.
J.R. Havis	Dept. Vegetable Crops	Cornell University, Ithaca, N.Y.
W. A. Hedlin	Dept. Vegetable Crops	Cornell University, Ithaca, N.Y.
Walter C. Jacob	Dept. Vegetable Crops	Cornell University, Ithaca, N.Y.
R.F. Pendleton	Dept. of Entomology	Cornell University, Ithaca, N.Y.
A.J. Pratt	Dept. Vegetable Crops	Cornell University, Ithaca, N.Y.
A.M.S. Pridham	Dept. of Floriculture	Cornell University, Ithaca, N.Y.
C.J. Raleigh	Dept. Vegetable Crops	Cornell University, Ithaca, N.Y.
H.H. Smith	Dept. of Plant Breeding	Cornell University, Ithaca, N.Y.
William E. Snyder	Dept. Ornamental Hort.	Cornell University, Ithaca, N.Y.
Bernard B. Stangler		
	Dept. of Floriculture	Cornell University, Ithaca, N.Y.
H.C. Thompson	Dept. Vegetable Crops	Cornell University, Ithaca, N.Y.
E. Van Alstine	Dept. of Agronomy	Cornell University, Ithaca, N.Y.
Thomas C. Watkins		
	Dept. of Entomology	Cornell University, Ithaca, N.Y.
F.B. Wright	Dept. of Agr. Eng.	Cornell University, Ithaca, N.Y.
O.F. Curtis, Jr.	N.Y. Agr. Exp. Sta.	Geneva, N.Y.
C.H. Dearborn	N.Y. Agr. Exp. Sta.	Geneva, N.Y.
Philip Gorlin	NY City Health Dept.	New York, New York
Conrad B. Link	Brooklyn Botanic Garden	Brooklyn, N.Y.

OHIO

C.J. Willard	Ohio State University	Columbus, Ohio
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PENNSYLVANIA

George Berggren	Penn. State College	State College, PA.
J.S. Cobb	Penn. State College	State College, PA.
H.B. Musser	Penn. State College	State College, PA.
Charles J. Noll	Penn. State College	State College, PA.
S.M. Raleigh	Penn. State College	State College, PA.
Earle L. Wilde	Penn. State College	State College, PA.

RHODE ISLAND

J.A. DeFrance	R.I. Agr. Exp. Sta.	Kingston, R.I.
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VIRGINIA

G.M. Shear	Va. Agr. Exp. Sta.	Blacksburg, VA
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FEDERAL REPRESENTATIVES

L.W. Kephart	U.S. Dept. of Agriculture - Plant Industry Station, Beltsville, MD.
C.E. Minarik	Chemical Corps - War Department, Camp Detrick, MD.
K.S. Quisenberry	U.S. Dept. of Agriculture - Beltsville, MD.

APPENDIX 3

ATTENDANCE AND SUSTAINING MEMBERS

<u>YEAR</u>	<u>PLACE</u>	<u>NO. REGISTERED*</u>	<u>SUSTAINING MEMBERS</u>
47-48	Cornell	84	--
48-49	NYC	226	--
49-50	NYC	280	14 (exhibitors)
50-51	NYC	380	44 (exhibitors)
51-52	NYC	340	?
52-53	NYC	395	34
53-54	NYC	432	38
54-55	NYC	494	41
55-56	NYC	548	41
56-57	NYC**	667	42
57-58	NYC	574	41
58-59	NYC	564	36
59-60	NYC	615	43
60-61	NYC	655	38
61-62	NYC	682	46
62-63	NYC	607	57
63-64	NYC	677	59
64-65	NYC	742	68
65-66	NYC	767	71
66-67	NYC	659	74
67-68	NYC	716	77

*Due to differences in record keeping, there is uncertainty as to whether this is actual attendance or membership.

**NEWCC was host to the first meeting of WSA (WSSA).

<u>YEAR</u>	<u>PLACE</u>	<u>NO.</u> <u>REGISTERED *</u>	<u>SUSTAINING MEMBERS</u>
68-69	NYC	640	74
69-70	NYC	640	78
70-71	NYC	580	84
71-72	NYC	503	80
72-73	NYC	418	74
73-74	NYC	442	49
74-75	Philadephia	353	63
75-76	NYC	345	65
76-77	Boston	261	62
77-78	Baltimore	347	62
78-79	NYC	382	62
79-80	Boston	353	51
80-81	Grossingers, NY	382	40
81-82	Philadelphia	401	40
82-83	NYC	416	41
83-84	Grossingers, NY	409	42
84-85	Baltimore	424	44
85-86	Atlantic City	456	47
86-87	Boston	449	55
87-88	Williamsburg	367	54
88-89	Hartford, CT	288	38
89-90	Baltimore	414	38
90-91	Boston	340	42
91-92	Baltimore	327	35
92-93	Boston	254	45
93-94	Baltimore	315	31
94-95	Baltimore	316	32
95-96	Boston	300	37

APPENDIX 4

MILESTONES AND TRIVIA

(Readers are expected to make their own designations)

- 1947 When the invitation to meet and investigate the formation of a "weed" group was being prepared, Bob Sweet was implored by a noted botanist not to include anyone from industry because they were not professionals and were not trustworthy. The name included the word "Conference" rather than "Society" in part because Land Grant Universities severely restricted travel funds for professional meetings but not for workshops or conferences.
- 1948 The registration fee was \$2.00, which included the Proceedings. Authors sent in A.B. Dick stencils which were duplicated and assembled by Cornell staff.
- 1948 Ora Smith (deceased) a Cornell Vegetable Crops specialist presented a paper on growing potatoes and controlling weeds by applying 2,4-D and dinoseb "at cracking" and no further cultivation or hilling. A "first" for no-till?
- 1949 The Hotel New Yorker posted an armed security guard at the registration desk, and continued to do so each time we met there.
- 1950 Registration fees were to be raised in '51 to \$5.00 and the Proceedings sold separately at \$2.00.
- 1952-54 Twelve to 14 reporters registered for our meetings. Also, radio reporters taped short interviews with some speakers.
- 1953 Pres. Bob Beatty (deceased) used Amchem envelopes for a conference mailing and received strong criticism from some members.
- 1955 J.A. Noone, NACA, gave a paper on the difficulties in registering herbicides. Another "first".
- 1956 We hosted the first meeting of the Weed Society of America (WSA) which soon became WSSA. About a hundred more than our usual number attended.

- 1959 S.M. Raleigh proposed we meet only every other year because WSSA was doing well. Voted down about 99:1.
- 1961 We published a pamphlet about ourselves, which erroneously states that we did not adopt a name at the 1947 meeting.
- 1962 We gave an award for an outstanding paper to authors that never had registered.
- 1963 We had a running quarrel with the electrician's union in New York City because they wanted to provide and operate all slide projectors. Usually we were able to bring in our own and our members operated them. This year they got even. There was both 60 cycle and 25 cycle current in the hotel but we burned up three projectors before we learned which outlets were which. No labels!
- 1964 A fire occurred in the hotel a few days before our meeting, but it did not damage the facilities we needed. Bob Sweet was on assignment in the Caribbean and missed the only meeting before or since.
- 1965 There were 767 registrations, our highest number. The hotel did not believe we actually started the section programs at 8:00 a.m., so rooms were not ready. However, the members took over and all sessions were underway no later than 8:15.
- 1966 G.D. Hill gave the first official presidential address, and past president C.L. Hovey reviewed our first 20 meetings.
- 1967 President R.D. Inicki pointed out the great need for better P.R. This theme with appropriate modifications has been echoed since then by many presidents.
- 1967 Twenty years, and D.A. Shallock, Secretary, was the first officer to die.
- 1968 President John Gallagher urged university researchers to put more effort into weeds and also environmental concerns. They were very active regarding weeds, but 5 years later administrators cut off funding for this line of endeavor and asked that more important areas be researched.

- 1969 We scheduled an outreach program for highschool teachers of biology. It was a dismal failure; only a handful came, and they left early.
- 1970's There was a steady rapid decline in attendance from the 600's to a low of 261 in 1976, and then back to the low 300's, where it has remained.
Sustaining membership reached a high of 84 in 1970-71 and then has gradually dropped to the current mid 30's.
Many business meetings included heated debates as to the propriety of a professional organization engaging in activities that tried to influence laws and regulations of herbicides.
- 1970 Our name was changed to the Northeastern Weed Science Society.
- 1971 A paper was given by J.C. Cialone which encouraged members to get started now in learning to utilize electronic methods and equipment for data gathering and processing.
- 1972 It was voted to change data reporting in our Proceedings from the English system to metric as soon as possible. (See 1980)
- 1972 There was a strong feeling that we had become an organization run like an "old boy's club". This reflected the wave of emotion in society as a whole that youth should be served. After a highly charged business session on the matter, a major change was made regarding the formation of the nominating committee. Three of the five members were to be selected from the floor at the business meeting. This unique procedure has been retained to the present because it works well.
- 1972 President George Bayer posed 6 questions that needed answers as we looked to the future. They were very good questions because 3 or 4 are still being debated.
- 1973 Anonymous remark at a suite. "How can anyone do research on a pile of rocks like Bob Sweet calls a gravel soil?"

- 1974 Our publication on responses of crops and weeds to herbicides had been gradually losing support from the members and was dropped.
Our choice of hotel in Philadelphia proved to be a poor one. The staff seemed to begrudge our presence. The hotel garage required leaving the keys with them. Judging from reports, this procedure fostered a well organized theft ring.
- 1976 The last year that 'aquatics' papers were presented.
- 1977 R.H. White-Stevens (deceased) of Am. Cy. gave a talk at the general session which rivaled those of Winston Churchill in both English accent and quality.
President Marrese pointed out the many new ideas and concepts people in the Northeast had contributed to weed science. He also admits Roberts Rules took a beating when he presided at the business meeting.
- 1978 We voted to join CAST (Council for Agricultural Science and Technology). This took effect in 1979.
- 1980 We voted to change our instructions to authors and encouraged them to use English not metric.
- 1981 A speaker at the general session classified people as to their perspectives on "environmentalism" and its proponents. He challenged weed scientists to classify themselves. I recently reviewed his paper and found it valid still. (Readers who are curious see Supplement No. 34 page 35).
- 1983 Plans were announced for the first collegiate "Weed Meet" sponsored by NEWSS.
- 1987 The weather was so great at Williamsburg that many "Northerners" thought spring had come. So much so, the general session was poorly attended. The Williamsburg banquet was the scene of our first embarrassment as an organization. People at two tables drank too much and caused a "mess". President McCormack was billed by the hotel for the damage. The culprits eventually paid.

1988 The Horticulture section was finally changed to "Vegetables and Fruit", a much more descriptive title. Turf and Ornamentals, important branches of horticulture, had had separate appropriately named sections for 15-20 years, why were vegetables and fruit discriminated against? Was it an agronomist plot?.

1989 Rich Bonanno became our legislative representative and got constructive action underway at once.

1980's-90's

The Executive Committee had three interesting experiences as they visited potential meeting sites.

In Boston the sales staff hinted special "live entertainment" could be made available if it would help us make a favorable decision for their hotel.

In Norfolk, the front desk was in disarray the morning of our arrival even though very few people were checking in our out. How could they handle several hundred?

In Philadelphia we were housed on the 22nd floor. About 2:00 a.m. the fire alarm went off and continued to sound in all rooms for about one half hour. After repeated calls to the front desk went unanswered, Stan Pruss ran down to the lobby. He joined several hundred guests who were all asking the same question, "is there a fire?" There was no management person on duty anywhere. Eventually a security guard reported it was a false alarm. Stan returned via the elevator with the good news.

1990 Robin Bellinder made the first ever major change in the format of our Proceedings and Supplement by combining them and saving a general mailing. Many years earlier the change from stencils to "copy ready" had dramatically reduced labor for publications.

Changes are continuing. Updated lists of past presidents, award winners, etc. are now included. Also, the index format now closely mirrors the program.

Still unresolved is the question of papers received late. They are put in the supplement and thus are a year late. Some members feel that if authors cannot even prepare an abstract on time it should be rejected.

- 1991 Ed Beste initiated a "Sustainable Agriculture" section but it lasted only one year.
- President Jack Dobson claimed he "still had a worm in his apple". Readers are referred to his address at the general session for clarification.
- 1992 The section on "Ecology, Physiology, and Soils", which had been active since 1965, was discontinued.
- 1993 Past President Gary Schnappinger organized a major outreach effort with representatives of Agri-business in the mid-Atlantic region.
- 1995 President-elect Tom Vrabel and others organized a well coordinated program featuring our "environmental" theme. Also a special outreach program was conducted for turf management specialists in agribusiness and the golf industry.