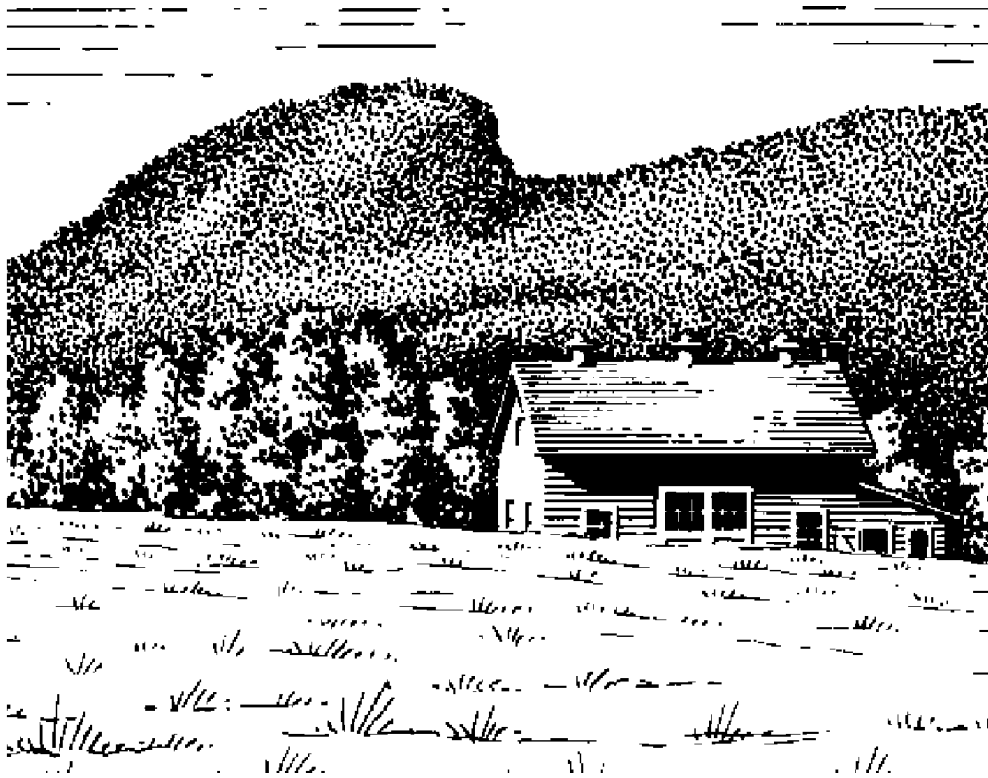




Plant Science Day

The Johnson Lecture • Short Talks • Demonstrations
Field Experiments • Nurserymen's Plant Discoveries
Century Farm Award • Barn Exhibits



*Lockwood Farm, Hamden
August 1, 2001*

THE SAMUEL W. JOHNSON MEMORIAL LECTURE

The Station Board of Control established the lectureship to further discussion of issues of concern to Connecticut residents and the Station. Professor Johnson was director of the Station from 1877 to 1900 and was a leader in the establishment of American agricultural experiment stations.

ANSWERS TO YOUR QUESTIONS

Staff in the question-and-answer tent are prepared to give information on identification of insects, plant disorders, soils and their management, and other problems of growers and gardeners.

CENTURY FARM AWARD

The Century Farm Award goes to a farm that has been in family operation for more than 100 years. The recipient is selected by the Connecticut Agriculture and Natural Resources Association.

FRINK HIGHLAND FARM, STERLING

In 1696, Sergeant John Frink was granted 200 acres of land in Voluntown for services rendered during King Phillip's War. The land has remained in the Frink family since that time and is presently owned and operated by Albert Frink and his son Timothy, the fifth generation to have worked this land. John Frink's grandson, Zachariah was probably the first to live on the land atop Ekonk Hill. Town records indicate that in 1788 Joshua Frink served as representative to the State Legislature.

The original farmhouse built four generations back still looks out over the rolling countryside. In those days a pair of oxen pulled the plows. The next generation farmed with horses. In 1922 Herman Frink took over the farm and was the first generation to work with a tractor. By 1967, Frink's Highland Farm sent two tons of milk in a tank truck to the Hood Plant each day.

In addition to his dairy farming career, Herman was also a cattle dealer, auctioneer, businessman, state representative, judge, and justice of the peace. His son Albert was recognized as an Outstanding Young Farmer in 1968 as he farmed 400 acres in corn, hay and silage for the herd of 107 Holstein cows. Albert extended himself in the community through leadership in the Ekonk Grange, Farm Bureau, and Danielson Lodge of Elks. He has served as Justice of the Peace and a member of the Democratic Town Committee in Sterling.

Today, Albert's son Timothy Frink lives in his great-great-great grandfather's farmhouse and continues to be sustained by the farmland that has withstood the challenges of time and nature and man.

STATION WEB PAGE

The Experiment Station has a world wide web page at: WWW.CAES.STATE.CT.US

After the lecture, visitors may remain in the tent for lunch. Coffee and cold drinks are free.

PLANT SCIENCE DAY

THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION

LOCKWOOD FARM August 1, 2001

MAIN TENT, 11:30 A.M.

John F. Anderson—PRESIDING

CENTURY FARM AWARD

David Schreiber—PRESENTER

THE SAMUEL W. JOHNSON MEMORIAL LECTURE

Terry Jones

Jones Family Farms, Shelton

Blending Land Conservation with Economic Development: Compost for a Growing Community!

REMARKS

Edmund Tucker

President, Experiment Station Associates

SHORT TALKS

- 10:45 *West Nile Virus: Where is it Going?* Theodore G. Andreadis
The impact and spread of West Nile virus in the United States since 1999 and research, surveillance, and an update on virus activity in the state will be discussed.
- 1:15 *Plants that Attract Butterflies to Your Garden* Carol R. Lemmon
Plants that attract butterflies to a garden will be discussed. Some plants are important food sources and some flowering plants and shrubs provide nectar for adults.
- 1:45 *Testing for E. coli O157:H7 in Deer* Douglas W. Dingman
A two-year study shows that deer are an incidental host for the *E. coli* O157:H7 bacterium and not a long-term carrier. However, precautions on the preparation of deer meat are required to minimize the likelihood of infection.
- 2:15 *Lyme Disease Prevention Programs* Kirby C. Stafford III
The emphasis for tick control methods in Connecticut has shifted to community-based programs, integrated tick management, and host-targeted methods.

DEMONSTRATIONS

- 10:15 *Starting Plants in Hydroponics* Martin P.N. Gent
The germination and growth of lettuce in water solution as well as the germination and growth of tomato in water solution and rock wool, an inert medium used in greenhouse tomato production, will be discussed.
- 2:45 *Pruning of Ornamental Trees and Shrubs* Sharon M. Douglas
This demonstration will focus on why, how, and when to prune. Tree anatomy, tools, pruning cuts, and specialized techniques for woody shrubs and trees will be discussed.

THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION

The experiments exhibited here depict only a portion of the work of Station Scientists. In addition to Lockwood Farm and Laboratories in New Haven and Windsor, Station Scientists use state forests, private orchards, and farms for their experiments. Experiments and surveys of problems are conducted in many towns of the state.

THE EXPERIMENT STATION HAS A WEB PAGE

The address of the web page is <http://www.caes.state.ct.us>

TO RECEIVE A COMPLETE LIST OF STATION SPEAKERS: inquire at the Publications table in the barn or write to: Publications; The Connecticut Agricultural Experiment Station; P.O. Box 1106; New Haven, CT 06504-1106

TO RECEIVE A COMPLETE LIST OF AVAILABLE STATION PUBLICATIONS: Inquire at the Publications table in the barn or write to: Publications; The Connecticut Agricultural Experiment Station; P.O. Box 1106; New Haven, CT 06504-1106



BARN EXHIBITS

DIETARY AND NON-DIETARY PESTICIDE SOURCES

Department: Analytical Chemistry

Principal investigator: Walter J. Krol. Assisted by Terri Arsenault

Market-basket pesticide testing illustrates exposure to pesticides from dietary sources and a summary of non-dietary sources and research is presented.

GENETIC ENGINEERING OF PHOTOSYNTHESIS

Department: Biochemistry and Genetics

Principal investigator: Richard B. Peterson

About 100 genes make products that participate directly in the photosynthetic conversion of CO₂ and water to carbohydrate in leaves. New strategies for improvement of photosynthetic efficiency implemented through genetic engineering could have enormous effects on crop productivity and global ecology.

AERIAL DISPERSAL OF PLANT PATHOGENS

Department: Plant Pathology and Ecology

Principal investigator: Donald E. Aylor. Assisted by Peter Thiel and Steven M. Bernacki

The Station is developing a mathematical model for the aerial transport of spores to estimate the relative danger of infections from spores both within and outside a cropped area. The aim is to predict the probability of disease spread between fields and to use this information to reduce pesticide use.

EXOTIC WEEDS THREATEN OUR LAKES

Department: Soil and Water

Principal investigators: Gregory J. Bugbee and Jason C. White. Assisted by Jessica Dombrowski and Lydia Wagner

Non-native aquatic plants spread rapidly because of few natural controls. These weeds can limit recreation, crowd out native vegetation, disrupt water supplies, and decrease property values. The Station is investigating spot applications of herbicides to control aquatic weeds.

WHITE GRUBS IN TURF

Department: Entomology

Principal investigator: Richard S. Cowles

White grubs, the larvae of scarab beetles, can cause serious injury to turf. The four species normally found in Connecticut vary in their susceptibility to available chemical insecticides and biological control materials.

WINE GRAPE CULTIVARS

Department: Forestry and Horticulture

Principal investigator: Richard K. Kiyomoto. Assisted by Joan Bravo

Wine grape cultivars are being identified which grow best under different environmental and cultural conditions in Connecticut.

The Connecticut Agricultural Experiment Station

Plant Science Day 2001 Lockwood Farm

MAIN TENT

Century Farm Award
Johnson Lecture
Short Talks
Demonstrations

BARN A

Information
First Aid

BARN B

Barn Exhibits

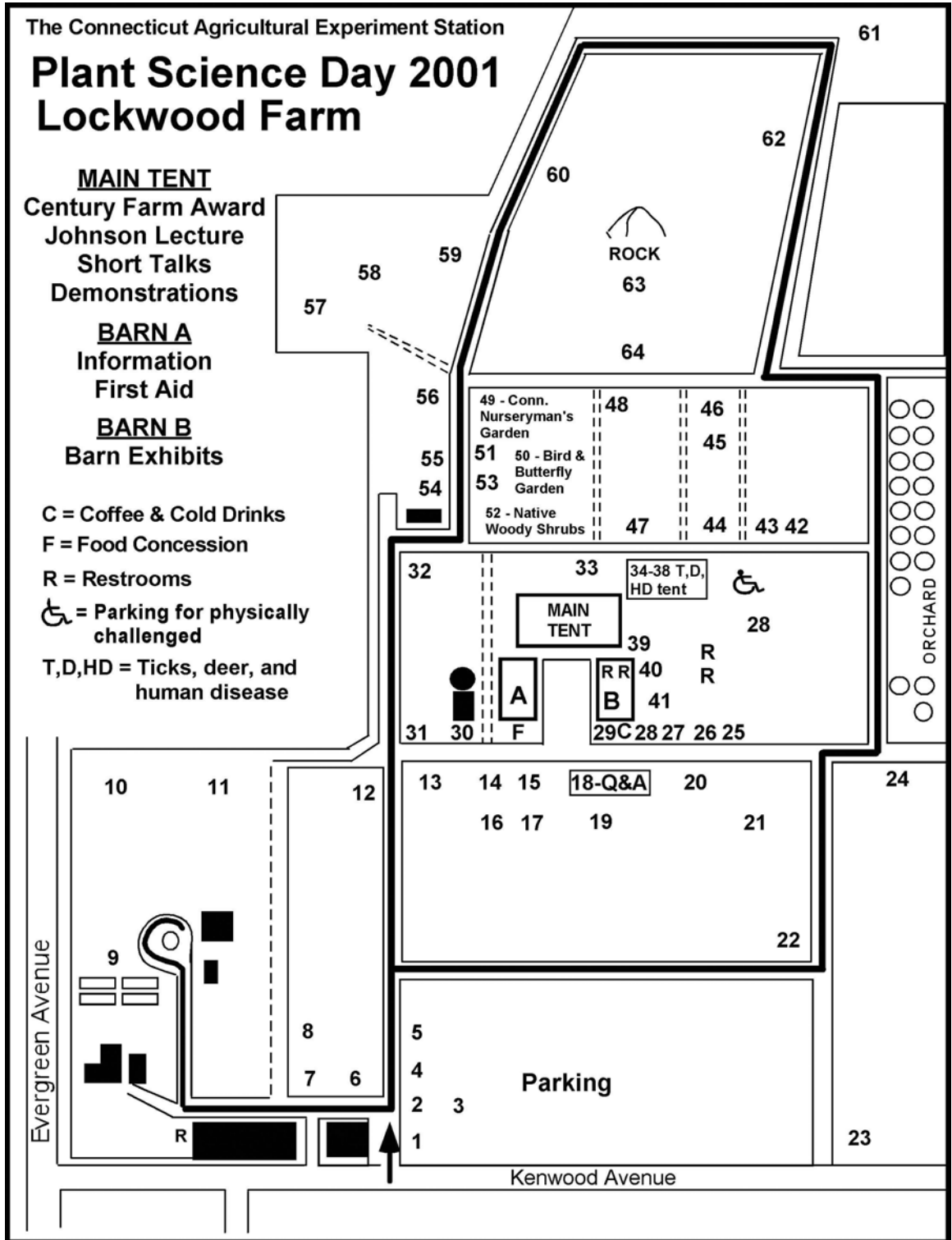
C = Coffee & Cold Drinks

F = Food Concession

R = Restrooms

♿ = Parking for physically challenged

T,D,HD = Ticks, deer, and human disease



Map Not to Scale

FIELD PLOTS

1. Chinese Chestnut Trees
2. Sheet Composting with Oak and Maple Leaves
3. Grape Tomato Trials
4. Annual Culture of Globe Artichokes
5. Utilization of Compost in Butternut Squash Production
6. Calabaza Squash Trials
7. Sweet Potato Trials
8. Biological Control of Crown and Root Rot of Asparagus
9. Hydroponic Greenhouse Tomatoes
10. Biological Control of Hemlock Woolly Adelgid
11. Disease-Resistant Apple Trial
12. Mushroom Compost in Container Media for Chrysanthemums
13. Wine Grape Trials
14. Evaluation of Asparagus Cultivars for Connecticut
15. Composting Leaves with the Static Pile Method
16. Control of Blight on American Chestnuts
17. New Hybrid Chestnut Orchard
18. Question and Answer Tent
19. Canola and Kale as Green Manure Crops to Control Verticillium Wilt
20. Introduced Insects that Threaten Landscape and Orchard Plants
21. Raspberry Trial
22. Hop Pest Tolerance Trial
23. Orchard of Nut Trees
24. Phytoremediation of Agricultural Soils Contaminated with DDE
25. Connecticut Fund for the Environment
26. Biological Availability of Chemicals in Soil
27. Experiment Station Associates
28. Spiders of Connecticut
29. Mosquito Surveillance for West Nile Virus
30. Bell Atlantic Telephone Transmission Silo
31. Sampling and Analysis of Pesticides in Air
32. Minimum Fertilization for Home Gardens Amended by Leafmold
33. Influence of of Development on White Cedar Wetlands
34. Lyme Disease in Ticks from Connecticut Citizens

35. New Ehrlichia Discovered in Connecticut
36. Deer-Vehicle Collisions in Connecticut
37. Methods of Estimating Deer Population Size in Suburbia
38. Host-Targeted Control of the “Deer” Tick
39. Connecticut Weeds and Wild Plants
40. Plant Health Care for the Connecticut Nursery and Landscaping Industries
41. Utilization of Compost in Cut Flower Production
42. Environmentally Friendly Controls of Powdery Mildew on Pumpkin and Muskmelon
43. Spread of Septoria Leaf Spot in a Linear Planting of Tomatoes
44. Utilization of Compost in Root Crop Production
45. Biological Control of Fusarium Rot of Gladiolus
46. Fusarium Wilt of Basil
47. Effect of Trellising on Severity of Tomato Powdery Mildew
48. Effect of NaCl on the Rust Disease of Asparagus
49. Connecticut Nurserymen’s Garden
50. Butterfly Garden and Bird Garden
51. The Gypsy Moth Fungus
52. Native Woody Shrubs
53. Nursery and Bee Inspections
54. Rotation Crops to Reduce Lesion Nematodes and Potato Early Dying Disease
55. Susceptibility of Chestnuts to Powdery Mildew
56. Chestnut Species and Hybrids
57. Dense Planting of American Chestnuts
58. Dwarf Hybrid Chestnut Trees
59. Apple Cultivar Trial
60. Nectria Canker of Black Birch
61. Japanese Plum Variety Trials
62. Rocky Hill American Chestnut Trees
63. NE-183 Apple Variety Trial
64. Cover Crops and their Effects on Pest Management

FIELD PLOTS

The plots at Lockwood Farm are planted and maintained by Experiment Station scientists with the help of Farm Manager E. Naughton, and his staff, R. Cecarelli and R. Hannan, and the following summer workers: C. Bellmore, N. O'Brien, and M. Nacca.

1. CHINESE CHESTNUT TREES

S. Anagnostakis

These Chinese chestnut trees, planted by Donald Jones in 1941, were selected by chestnut grower W.C. Deming of Litchfield and grafted by the Hartford Park Department. The second tree from the gate is a graft of the cultivar 'Bartlett' that was developed by the Bartlett Tree Co. in Stamford. All have been used by the Experiment Station and The American Chestnut Foundation in crosses with American chestnut trees to produce blight-resistant forest and orchard trees.

2. SHEET COMPOSTING WITH OAK AND MAPLE LEAVES

A. Maynard

Many homeowners have a predominance of oak trees in their backyards. Oak leaves are known to be more resistant to decomposition than maple leaves. This experiment is investigating whether this difference in the rate of decomposition leads to decreased yields in soils amended with oak leaves compared to maple leaves and unamended controls. Undecomposed oak and maple leaves were layered about 6 inches thick in the falls of 1995-2000 and incorporated into the soil by rototilling. Lettuce, tomatoes, eggplant, and peppers were grown from transplants and all plots received the same amount (1300 lb/A) of 10-10-10 fertilizer. Yields from plots amended with oak leaves were compared to plots amended with maple leaves and the unamended controls. There have been no significant differences in yields of any of the crops with any of the treatments.

3. GRAPE TOMATO TRIALS

D. Hill

"Grape" tomatoes are becoming more popular than the larger cherry tomatoes according to crop reporting services and could eventually replace them. The appeal lies in their smaller size, sweetness, thin skin, and firmer texture compared to cherry tomatoes which often cannot be eaten in one bite. We are testing six cultivars for yield, resistance to cracking, sweetness, and texture.

4. ANNUAL CULTURE OF GLOBE ARTICHOKES

D. Hill

Connecticut lies at the center of one of the largest artichoke-eating populations in the United States. Fully 40% of California's crop, which accounts for 95% of the nation's supply, is sold through regional markets from New York City to Boston. Annual production is triggered by the use of artificially induced vernalization (refrigerated cool, moist treatment) and the use of gibberellic acid, a natural plant hormone. The Green Globe variety requires such treatments to produce edible buds in early July. New cultivars Amethyst and Imperial Star have been selected by growers in Southern California and Arizona because they require only 250 hours of temperatures below 50F, which can be accumulated in a cold frame. In our trial, yield and timing of production of these new cultivars are being compared with Green Globe which normally requires artificial inducement of budding. In 2000, Imperial Star produced 5.0 buds/plant with an average weight of 6.1

ounces/bud. Although Emerald produced fewer buds/plant (3.8) their average weight was greatest (6.5 ounces) among all cultivars tested. Green Globe averaged 5.7 buds/plant but only 72% of the plants were productive under natural vernalization.

5. UTILIZATION OF COMPOST IN BUTTERNUT SQUASH PRODUCTION

A. Maynard

Virtually no research has been done utilizing compost on crops with long-term fertility requirements such as winter squash. Although encouraging data exists on the benefits of using compost, most growers want data that is local and specific to the type of crops they are growing. To determine the rate of inorganic fertilizer needed with leaf compost for optimum production of butternut squash, I am comparing yields of butternut squash being grown under three leaf compost/fertilizer combinations to an unamended control fertilized at the full rate of 10-10-10 fertilizer (1300 lb/A). These treatments will be repeated for three consecutive years to observe any cumulative effect.

6. CALABAZA SQUASH TRIALS

D. Hill

Calabaza squash, also known as tropical pumpkin, is grown mostly in tropical and semi-tropical climates. Calabaza is highly prized by consumers of Hispanic origin in Connecticut. It was identified by a Connecticut Department of Agriculture survey as one of the most sought-after vegetables at Connecticut's farmers markets. The vines of this tropical squash are up to 30 feet long and require large amounts of space. In this trial, we are testing new varieties that require less space. In preliminary trials in 2000, a variety that requires 18 square feet of space produced the most fruit (5.6/plant) and the heaviest fruit (6.9 lb/fruit)

compared to plants that required 12 square feet or 30 square feet.

7. SWEET POTATO TRIALS

D. Hill

A survey by the Connecticut Department of Agriculture of consumers who purchase native-grown vegetables at the 65 farmers markets and the 120 growers who supply these markets identified sweet potatoes as one of the most popular specialty vegetables. They are one of the most nutritious vegetables and are available throughout the year by curing and long-term storage. In this trial we are evaluating the yield and quality of six cultivars grown from vegetative slips. Short-vined Vardaman and Bunch Porto Rico may be appealing to home gardeners because they conserve space. In 2000, Beauregard, Georgia Jet, and Jewel produced over 415 40-lb crates of marketable roots (Jumbo and U.S.#1). Total yield of Georgia Jet would have been much greater, but 46% of the roots were split and unmarketable. Despite 130 days of growing weather (10 more than normal), 68% of Bunch Porto Rico and 63% of Vardaman roots failed to reach U.S.#1 size and were graded as canners when planted on May 28. This year we planted earlier (May 18) to increase the yield of U.S.#1 grade for these late-maturing cultivars.

8. BIOLOGICAL CONTROL OF CROWN AND ROOT ROT OF ASPARAGUS

W. Elmer *Assisted by* E. O'Dowd and L. Ferraro

A soilborne disease called Fusarium crown and root rot destroyed commercial asparagus production in Connecticut during the 1950s and 1960s. Applications of NaCl will suppress this disease and increase yields. It is also known that early root colonization by beneficial organisms, like mycorrhizae, can increase the longevity of the planting. These plots were designed to evaluate a

product that enhances mycorrhizal root colonization with and without NaCl for their long-term effects on Fusarium crown and root rot and yield. The planting was established in June 1999. In the spring of this year, we observed significant yield increases in plots treated with the mycorrhizal-enhancing products and in plots treated with NaCl when compared to untreated plots. When treatments were combined, the amount of yield was additive.

9. HYDROPONIC GREENHOUSE TOMATOES

M. Gent *Assisted by* M. Short

A wide variety of fertilizer combinations have been recommended for producing greenhouse tomatoes. It is not clear which combination is best in the Northeast. The recommendations differ in concentrations of nitrogen, particularly in the fruit production stage, and also in the ratio of nitrogen to potassium. Experiments in 1999 showed that additional nitrogen in the form of ammonium nitrate lowered yield and weight per tomato. However, experiments in 2000 showed additional nitrogen in the form of magnesium nitrate increased yield compared to the normal concentration. This year, we are comparing both supplements in the same experiment, along with a potassium carbonate supplement. These amended nutrient solutions are compared to a control solution with standard concentrations of nitrogen and potassium. The plants grow in hydroponics using a rock-wool root medium. Twelve different cultivars or varieties are included in the trial. We compare how different fertilizer regimes affect growth, nutrient uptake, and the yield and quality of fruit, and determine how the cultivars differ in their response to fertilizer.

10. BIOLOGICAL CONTROL OF HEMLOCK WOOLLY ADELGID

M. McClure and C. Cheah *Assisted by*
M. Klepacki and S. Lamoureux

During the past 6 years we have reared and released more than 180,000 adults of the ladybird beetle, *Pseudoscymnus tsugae* Sasaji and McClure, an important predator of the hemlock woolly adelgid in Japan, in 19 hemlock forests in Connecticut, one in New Jersey, and two in Virginia to evaluate *P. tsugae* as a biological control agent. Initial results were encouraging, because adelgid numbers were reduced 47-87% on release branches after only 5 months. However, infested hemlocks generally declined during 1996 to 1999 because of drought and relatively mild winters which enhanced the survival and growth of adelgid populations. Following several days in January 2000 when temperatures fell below 0F, more than 90% of the adelgids in northern Connecticut died while *P. tsugae* survived the cold weather. With greatly reduced adelgid numbers, hemlocks flourished during the cool, moist spring and summer of 2000 and abundant new growth was evident in spring 2001. Although milder temperatures during winter 2000-2001 allowed about 60% survival of adelgids, pest densities remained low during spring 2001.

11. DISEASE-RESISTANT APPLE TRIAL

R. Kiyomoto *Assisted by* J. Bravo

This planting represents a comparison of disease-resistant cultivars released by the New York State Agricultural Experiment Station in Geneva. The planting of disease-resistant apples can drastically cut the use of fungicides. The cultivars are planted in four replications with four trees of each cultivar. The only commercial disease-resistant New York cultivar in this study is Liberty, which performs well but is susceptible to sooty blotch late in the season. Several next

generation disease-resistant cultivars such as Redfree, Dayton, and Enterprise from the Purdue-Rutgers-Illinois breeding program have been planted in the border row and represent an improvement over the earlier releases.

12. MUSHROOM COMPOST IN CONTAINER MEDIA FOR CHRYSANTHEMUMS

G. Bugbee and P. Johnson *Assisted by* J. Dombrowski.

This experiment is designed to determine if biosolids compost from Franklin Mushroom Farms can be used as a substitute for conventional potting media in the culture of chrysanthemums. Two varieties of chrysanthemums are being grown in media containing 0, 25, 50 and 100% mushroom compost.

13. WINE GRAPE TRIALS

R. Kiyomoto *Assisted by* J. Bravo

Wine grape cultivars have been tested in Connecticut to identify which are hardiest and of acceptable quality for producing fine wine. This replicated planting compares the cultivars Chambourcin, Villard Noir, Seyval, and Villard Blanc. Past yield trials have shown that the same cultivars planted in Windsor matured earlier. Current research is attempting to find the balance between yield and acceptable quality for each cultivar.

14. EVALUATION OF ASPARAGUS CULTIVARS FOR CONNECTICUT

W. Elmer *Assisted by* E. O'Dowd and L. Ferraro

Many different asparagus cultivars have been developed for different climates around the world. These plots were established to examine the performance of six cultivars that are advertised as being suitable for the New England climate. The planting was established in June 1999. Plots were

harvested for marketable yield eight times in 2001. 'Jersey Supreme' and 'Mary Washington' had the highest yield. 'Watham' had the lowest yield due to poor crown establishment.

15. COMPOSTING LEAVES USING THE STATIC PILE METHOD

A. Maynard

Since the 1991 ban on disposing leaves in landfills, large-scale leaf composting has spread throughout Connecticut. Some 84 municipalities are currently composting their leaves. In static pile composting, leaves are piled and the internal temperature of the pile is monitored. As the leaves decompose, the temperature in the center of the pile reaches a temperature of about 140F. When the temperature decreases, the pile is turned and fresh material is introduced to the center of the pile. Turning also aerates the pile. Leaf compost is seen here in various stages of decomposition. The finished compost is used in experiments here at Lockwood Farm and at the Valley Laboratory in Windsor.

16. CONTROL OF BLIGHT ON AMERICAN CHESTNUTS

S. Anagnostakis *Assisted by* P. Sletten

These American chestnut trees were planted in 1976 when they were 3 years old. Chestnut blight cankers were treated for 4 years, from 1978 to 1981, with our biological control using hypovirulent strains of the blight fungus. The control is working well to keep the trees alive and fruiting. Some of the trees are growing better than others. We do not know which trees were from seed collected in Wisconsin and which were from Michigan. It is possible that the difference in their ability to thrive in the presence of blight and hypovirulence indicates differences in resistance. The grafted tree in the center of the east row is from an "American" chestnut in Scientist's Cliffs,

MD, and the original tree resisted blight for many years (it may be a European hybrid). It definitely has some resistance, and is the best looking tree in the plot. Two grafted trees at the southeast corner are (*Chinese X American*) X *American* (cultivar 'Clapper') and have intermediate resistance to blight.

17. NEW HYBRID CHESTNUT ORCHARD

S. Anagnostakis *Assisted by* P. Sletten

These small trees were planted as seedlings in 1990 to 2001. All are hybrids of American chestnut trees and blight-resistant Chinese, Japanese, or hybrid trees. They will be grown to evaluate their blight resistance in the presence of the biological control that we assume will move over from the adjoining plot. The trees that look most like American chestnut trees and have good blight resistance will be used in future crosses for timber trees. Others will be developed as orchard trees for Connecticut growers. The paper bags on the trees cover hand-pollinated flowers from this year's crosses.

18. QUESTION AND ANSWER TENT

S. Douglas, T. Rathier, K. Welch, M. Inman,
G. Ridge-O'Connor, and J. Winiarski

Ask questions about plants, soils, and insects here.

19. CANOLA AND KALE AS GREEN MANURE CROPS TO CONTROL *VERTICILLIUM WILT* OF TOMATO, EGGPLANT, AND POTATO

F. Ferrandino

The chemical breakdown products of members of the cabbage family can be lethal to certain soilborne pathogens. In this plot, various solanaceous vegetables are planted in soil previously infested with *Verticillium dahliae*,

which causes *Verticillium wilt* on these crops. Portions of the field were treated last year by incorporating kale and canola plant residues into the soil. No additional treatments were applied this year. Plant growth, wilt symptoms, and yield will be monitored over the growing season to see whether or not beneficial effects are still present.

20. INTRODUCED INSECTS THAT THREATEN LANDSCAPE AND ORCHARD PLANTS

C. Maier *Assisted by* T. Zarrillo and A. Szewczak

We are studying the seasonal activity, host range, distribution, and damage of three exotic insects to evaluate their potential to become serious pests in Connecticut. The small Japanese cedar longhorned beetle, *Callidiellum rufipenne*, attacks stressed coniferous landscape plants, such as arborvitae. The eastern Asian apple tortrix, *Archips fuscocupreanus*, and the Eurasian green pug, *Chloroclystis rectangulata*, are caterpillars that eat the leaves and blossoms of apple and other orchard plants.

21. RASPBERRY TRIAL

R. Kiyomoto *Assisted by* J. Bravo

The goal of the raspberry trial is to identify varieties which will be productive, of good quality, and extend the harvest season in Connecticut. The newer cultivars in the trial being compared for yield this year are Caroline, Anne, Polana, Lauren, NY7, and NY1009.

22. HOP PEST TOLERANCE TRIAL

R. Kiyomoto *Assisted by* J. Bravo

This planting was installed in Spring 1998. It includes three of the most productive hop cultivars, Nugget, Cascade, and Galena from a previous trial, 1995-97, which included 10 cultivars. The purpose of these limited trials is

to identify cultivars which are most tolerant to the principal pests in Connecticut.

23. ORCHARD OF NUT TREES

S. Anagnostakis *Assisted by* P. Sletten

This orchard of grafted nut trees was planted by Richard Jaynes in the spring of 1981. There are several named cultivars of chestnut included. Last year and this year we planted several new chestnut cultivars that we want to test for their production potential in Connecticut.

24. PHYTOREMEDIATION OF AGRICULTURAL SOILS CONTAMINATED WITH DDE

J. White *Assisted by* L. Wagner

Field experiments are being conducted to investigate the effect of common cucurbits (squash, pumpkin, melon, cucumber) on the fate and behavior of weathered residues of *p,p'*-DDE. DDE is the main breakdown product of DDT and both compounds are persistent organic pollutants (POPs). Preliminary data has suggested that these crops vary greatly in the amount of weathered pesticide residues absorbed into their roots and translocated throughout their shoots. If certain plants can remove enough of the pollutant, phytoremediation, or plant-assisted cleanup of these residues, may be of practical use for field contaminated soils.

25. CONNECTICUT FUND FOR THE ENVIRONMENT

Learn about how this organization advocates solutions for protecting our natural resources.

26. BIOLOGICAL AVAILABILITY OF CHEMICALS IN SOIL

J. Pignatello, W. Braida, and D. Zhao

Many chemicals find their way into the soil where they may pose a risk to people or other organisms that come in contact with the contaminated soil. This risk is expected to be lessened by the chemical's tendency to bind (adsorb) to soil particles. A number of initially sterile soils were exposed to a common pollutant, phenanthrene, for about 6 months. As experiments on various soils were then carried we found that both desorption and biodegradation were initially fast and then continued at a slow rate. Bio-availability is clearly limited by the rate of desorption from the particle into water. A small fraction remained bound to the soil even after extremely long desorption times and this fraction is completely unavailable to a *Pseudomonad* bacterium used as a indicator of its bio-availability.

27. EXPERIMENT STATION ASSOCIATES

Information is available on this organization formed to help the Experiment Station.

28. SPIDERS OF CONNECTICUT

C. Vossbrinck

Connecticut has a wide array of native spider species from hunting spiders like wolf spiders to orb weaving spiders which build elaborate webs in forests and fields. There are three spiders commonly found in the home; the comb footed spider, *Arachearanea tepidariorum* (the house spider), responsible for the "cob webs" in your house; a greenish-yellowish hunting spider, *Chiracanthium mildei*, which may, on rare occasion, be responsible for spider bites; and the long legged cellar spider, *Pholcus phalangoides*, seen in basements and garages. While we all have a certain amount of "arachnophobia", the spiders

of Connecticut are generally harmless and helpful creatures. Nearly all spiders have a venom which they can inject into prey insects such as flies, moths and beetles to stun or kill them. If the venom of a particular spider species is toxic to humans it is termed poisonous. Only one spider found rarely in Connecticut, the black widow, *Lactrodectus mactans*, is poisonous.

29. MOSQUITO SURVEILLANCE FOR WEST NILE VIRUS

T. Andreadis, J. Anderson and C. Vossbrinck
Assisted by J. Shepard, M. Thomas, B. Hamid, A. Rahmann, M. Baron, E. Banach, E. Calandrella, J. Duarte, J. Capotosto, L. Graham, D. Henderson, K. Jones, C. McGee, L. Mickowski and A. Pennell

In 2000, The Connecticut Agricultural Experiment Station trapped and tested over 137,000 mosquitoes for West Nile (WN) virus as part of a state wide Mosquito Management Program. Fourteen isolations of the virus were made from four species of mosquitoes trapped at 11 locations in eight communities in Fairfield and New Haven counties (Greenwich, Stamford, Norwalk, Westport, Fairfield, Milford, Shelton, and Meriden). Over 1000 birds (mostly crows) in 109 communities tested positive for WN virus, and seven horse cases were recorded in Danbury, Newtown, Milford, Cheshire, Middlefield, Glastonbury, and Hebron. One human case from Norwalk was reported to the Department of Public Health. Nationwide, the virus spread from the tri-state area (CT, NY, NJ) in 1999 to 12 states (NH, VT, MA, CT, RI, NY, NJ, PA, DE, MD, VA, NC) and the District of Columbia in 2000. Since the virus could re-emerge anywhere in Connecticut in 2001, the mosquito trapping program has been expanded to 91 locations, and trapping is being conducted from June through October.

30. BELL ATLANTIC TELEPHONE TRANSMISSION SILO

Learn about the new cellular transmission silo.

31. SAMPLING AND ANALYSIS OF PESTICIDES IN AIR

B. Eitzer

Organic pesticides can volatilize from soil. To determine their airborne concentration, pesticides are trapped in polyurethane foam by using a high volume air sampler to draw air through the foam. The foam is then extracted in the laboratory with solvent. The solvent is concentrated and analyzed using gas chromatography/mass spectrometry.

32. MINIMUM FERTILIZATION FOR HOME GARDENS AMENDED BY LEAFMOLD

A. Maynard and D. Hill

Annual amendment with leaf compost prevents compacting and crusting of the soil surface and promotes root growth and infiltration of rain. In these plots, addition of 1 inch leaf compost annually since 1982 increased organic matter from 5.9 to 12.6%. Increased root growth in the amended soil allows plants to utilize nutrients in a greater volume of soil than plants in untreated soil of greater density. We are measuring the effect of reduced rates of fertilization (2/3, 1/3, 0 of normal rates) on the yields of several vegetables by comparing them with yields achieved with normal rates of fertilization and untreated controls. We are measuring the nutrient status of the soils in each plot throughout the growing season. Each year since 1982, yields on the leaf compost amended plots under 2/3 and 1/3 fertilization have been consistently greater than on unamended plots with full fertilization.

33. INFLUENCE OF DEVELOPMENT ON WHITE CEDAR WETLANDS

J. Ward Assisted by J.P. Barsky

During 1997-2001, this study examined current and historic growth of over 2600 trees. Red maple (wet sites) and eastern hemlock (moist sites) were the most common species in both the upper and lower canopy. Cores from 1058 trees indicated that diameter growth increases were only significant for those trees that were very near to a recent development (0-15 feet from edge). Two hundred thirty two vascular plant species were found on 208 milacre plots during 1998-1999. High diversity (species richness) was observed near recent development and in areas of low conifer density. The influence of recent development extended only 60 feet into the forest. Other disturbances (well fields, infiltration beds, and drainage basins) had insignificant on diversity. The drought in 1999 reduced diameter growth of all species of all size classes on all treatments.

34. LYME DISEASE IN TICKS FROM CONNECTICUT CITIZENS

J. Anderson Assisted by B. Hamid, B. Zolla, and S. Harma

Ticks which have fed on humans are tested for the presence of Lyme disease at the request of municipal health departments. In 2000, 6,652 black-legged, or deer, ticks (*Ixodes scapularis*) were received and 6,263 of those were tested. 24% of the tested ticks carried the Lyme disease organism. Other ticks commonly found in Connecticut are the American dog tick (*Dermacentor variabilis*) and the lone star tick (*Amblyomma americanum*).

35. NEW EHRLICHIA DISCOVERED IN CONNECTICUT

L. Magnarelli, K. Stafford III, J. Anderson, J. IJdo (Yale University), and E. Fikrig (Yale University) Assisted by T. Blevins

A new human pathogen, *Ehrlichia chaffeensis*, has been detected in lone star ticks (*Amblyomma americanum*) in Fairfield County. DNA analyses of 106 adult ticks revealed an infection rate of 7.6%. The pathogenic bacterium attacks white blood cells and causes human monocytic ehrlichiosis.

36. DEER-VEHICLE COLLISIONS IN CONNECTICUT

U. Ramakrishnan Assisted by S. Williams

Deer-vehicle collisions in Connecticut have been increasing steadily over the last decade. In the year 2000, over 3,300 deer-vehicle collisions were reported in Connecticut. We examined the accident reports, and analyses revealed that most of the accidents occurred between October and December, corresponding with the deer breeding-season. Accidents were more likely to occur after dark, between 5:00 and 7:00 p.m. We also found that incidents of deer-vehicle collisions were greatest on secondary roads. The towns that recorded the highest deer-vehicle collisions included Madison, North Branford, and Groton.

37. METHODS OF ESTIMATING DEER POPULATION SIZE IN SUBURBIA

U. Ramakrishnan Assisted by S. Williams

In Connecticut, deer population sizes are generally estimated using records of road kill, records of deer harvested during the hunting season, or aerial surveys. However, these estimates are either not accurate or expensive and logistically difficult to conduct. We experimented with different census techniques to find a method

that was both affordable and accurate. Our research was conducted at Lake Gaillard in North Branford, an area of high deer density adjacent to residential communities. Three methods were tested: visual sightings along roads (road counts); mark-recapture using infrared-triggered cameras; and counting deer along a predetermined line (line-transect). The road counts seriously over-estimated the number of deer in an area. While the mark-recapture technique provided more accurate information on population structure, the density estimates were not as accurate. This technique also required substantial effort and expense. The line-transect technique provides the most accurate results at the lowest cost and least effort. It is also easy to conduct, thus information can be gathered using trained volunteers.

38. HOST-TARGETED CONTROL OF THE “DEER” TICK

K. Stafford *Assisted by* H. Stuber, J. Fengler, S. Falzone, and L. Curtis

The tick *Ixodes scapularis* transmits the agents of Lyme disease, babesiosis, and ehrlichiosis. There were 3,772 cases of Lyme disease reported in Connecticut in 2000, a new record. Host-targeted approaches to tick control may be an important tool in managing tick populations and risk of disease. Trials of a new rodent bait box using fipronil (the chemical in Frontline) were expanded in 2001 as part of Lyme disease community intervention programs. Initial studies with a fipronil bait box produced substantial reductions in the tick population. Usage of the 4-poster device for the topical application of a pesticide to white-tailed deer to control ticks remained high (>90%) during the fourth year of a regional tick control project. Live ticks are displayed under the microscope and information on tick-associated diseases, tick bite prevention, and managing tick populations is available.

39. CONNECTICUT WEEDS AND WILD PLANTS

T. Mervosh *Assisted by* D. Laiuppa

Plants found in fields and landscapes of Connecticut are displayed. Taxonomy, life cycles, and toxicity/edibility information will be presented. Special emphasis will be placed on non-native, invasive plant species. Weed control questions will be addressed.

40. PLANT HEALTH CARE FOR THE CONNECTICUT NURSERY AND LANDSCAPING INDUSTRIES

T. Abbey

Plant health care is a management strategy that includes traditional pest management, but also emphasizes proper plant selection, planting procedures, and plant maintenance (pruning, watering, etc.). Two projects started in the spring of 2001 focus on these components of plant health care. They are development of a brochure to educate consumers about non-invasive ornamental plant species and evaluation of mycorrhizal fungi, biostimulants, and planting gels on the establishment and growth of four woody ornamental plant species.

41. UTILIZATION OF COMPOST IN CUT FLOWER PRODUCTION

A. Maynard

For farmers with roadside stands or who attend farmer's markets, cut flowers are a lure which attracts people to the stand. In this 3-year experiment, four annual species of cut flowers grown under three leaf compost/fertilizer combinations are being compared to an unamended control fertilized at the full rate of 10-10-10 fertilizer (1300 lb/A). The flowers include zinnia, cosmos, snapdragon, and black-eyed Susan. Flowers are harvested weekly with data

collected on the number of stems and blooms and the effect of the treatments on diseases and insects. The experiment is also repeated at the Valley Laboratory in Windsor. Last year, with the exception of black-eyed Susan, the greatest yields were from plots amended with both compost and the full rate of fertilizer. Yield of snapdragons from compost-amended plots fertilized at half the rate was also greater than the unamended control plots. The greatest yield of black-eyed Susans was from the unamended control plots.

42. ENVIRONMENTALLY FRIENDLY CONTROLS OF POWDERY MILDEW ON PUMPKIN AND MUSKMELON

F. Ferrandino

Powdery mildew is an annual problem on pumpkins, squash, and melons in Connecticut. The disease usually starts in the first week of August. Symptomatic leaves appear to be dusted with a fine white powder. This infection, which can spread to cover most of the leaf tissue, reduces photosynthesis and can reduce both the quantity and quality of the fruit produced. In this plot, we are examining the beneficial effects of spraying presymptomatic vines with 50% whole milk solution and a 1% solution of baking soda in comparison to normal chemical controls.

43. SPREAD OF SEPTORIA LEAF SPOT IN A LINEAR PLANTING OF TOMATOES

F. Ferrandino

This plot consists of three 200-ft-long tomato rows spaced 4 ft apart. At the far southern edge of this line of tomatoes, a group of thirty were close planted in a 3 X 12 foot area. These plants were inoculated with the fungus *Septoria lycopersicum* which causes Septoria leaf spot during the second week of July. As the season progresses, the spread of this disease along the tomato rows will be closely examined.

44. UTILIZATION OF COMPOST IN ROOT CROP PRODUCTION

A. Maynard

While adding 1-inch of leaf compost annually is usually not a hardship for the home gardener, for commercial growers, with acres under cultivation, obtaining and applying that amount of compost is sometimes difficult. In this 3-year experiment, four different root crops are being grown in soil amended with varying amounts of leaf compost to determine the least amount of compost that is effective. The root crops include parsnips, beets, carrots, and turnips. All plots receive the same amount (1300 lb/A) of 5-10-10 fertilizer. Germination percentage and yield from the various compost treatments will be compared to the unamended control plots. Last year, the greatest yields were from compost-amended plots with even the smallest compost application rate of 10 T/A (<1/4 inch on the surface) producing significantly higher yields compared to the unamended control plot.

45. BIOLOGICAL CONTROL OF FUSARIUM ROT OF GLADIOLUS

W. Elmer *Assisted by* E. O'Dowd and L. Ferraro

Fusarium rot of gladiolus is found wherever gladiolus are grown. The disease is caused by soilborne species of *Fusarium* and causes a corm rot. These plots are planted with the highly susceptible cultivar 'Purple Passion.' The study is designed to compare several biological control agents with chemical fungicides for their efficacy in reducing the severity of the disease and for enhancing the quality of the flowers. In 2000, the products Actinovate and RootShield reduced disease severity and the amount of corm rot.

46. FUSARIUM WILT OF BASIL

W. Elmer and G. Elliott *Assisted by* E. O'Dowd and L. Ferraro

Basil has become one of the most popular herbs grown in the United States. The seedborne disease Fusarium wilt causes major losses of basil. Almost all basil cultivars are susceptible. This experiment is studying the effects of winter and spring rotation cover crops on the suppression of Fusarium wilt. This year, we are attempting to create a field that is naturally infested with the fungal pathogen, *Fusarium oxysporum* f. sp. *basilici*. These basil plants have been infected with the fungal pathogen and the disease will be allowed to develop naturally. In September, cover crops will be planted. In 2002, plots will be replanted with basil to assess disease control of each cover crop.

47. EFFECT OF TRELLISING ON SEVERITY OF TOMATO POWDERY MILDEW

V. Smith *Assisted by* J. Canepa-Morrison

More and more tomato growers are using the trellis system to grow their crops. Trellising keeps plants growing upright and off the ground, and is considered to be easier to set up than staking. In this plot, the influence of a trellis system for tomatoes on foliar diseases such as powdery mildew, early blight, and Septoria leaf spot is being observed. 'Better Boy' tomatoes have been pruned to two or three stems, and most suckers have been removed. The trellis was introduced 2 weeks after planting. Data on foliar disease severity and fruit yield is being collected.

48. EFFECT OF NaCl ON THE RUST DISEASE OF ASPARAGUS

W. Elmer *Assisted by* E. O'Dowd and L. Ferraro

Most asparagus varieties grown in New England have tolerance to a foliar disease of

asparagus called asparagus rust. The cultivar planted in these plots is called Emerald, and it has poor tolerance to rust. Since applications of NaCl were beneficial in suppressing crown and root rot of asparagus, we have hypothesized that NaCl may reduce damage due to the rust disease. If so, NaCl applications may offer an alternative to growers in other parts of the world where rust is a constraint on production. This planting was established in May 1999, and treatments were applied this spring. Yield and disease severity will be monitored for several years.

49. CONNECTICUT NURSERYMEN'S GARDEN

E. Naughton

The Connecticut Nurserymen's Gardens are showcases of plants discovered or hybridized and introduced to the horticultural trade by Connecticut nurserymen. Similar gardens are at the Valley Laboratory in Windsor and the Main Laboratories in New Haven. All plants were donated by members of the Connecticut Nurserymen's Association and planted in 1986-87. Introductions feature evergreen and deciduous azaleas, mountain laurel, maple, pine, hosta, iris, and other flowering and foliage plants. A brochure containing maps of all three gardens and a brief description of the plants is available.

50. BUTTERFLY GARDEN AND BIRD GARDEN

Created by Landscape Designer A. Bell, *Assisted by* E. Naughton, and Lockwood Farm staff, C. Lemmon, L. Starr, J. Keegan, F. Milroyd, J. Lenart, and J. Fengler

The garden is a joint project of The Experiment Station and the Federated Garden Clubs of Connecticut. This garden was designed and planted to demonstrate plants that serve as larval and nectar food sources for butterflies. In addition

flowers and shrubs were added to attract hummingbirds and provide fruits and berries for fall-migrating birds.

51. THE GYPSY MOTH FUNGUS

R. Weseloh *Assisted by* M. Lowry

A disease of gypsy moth larvae caused by the fungus, *Entomophaga maimaiga*, is very effective at controlling this pest. There are two pathways of infection. Caterpillars can be infected by the germination of resting spores in the soil if the soil is moist and the larvae are near the forest floor. Also, if the air is very humid, larvae can be infected by spores (conidia) produced from caterpillars that have recently died from the fungus. Features of a computer program that has been developed to model these processes are explained. Results from this model compare favorably with actual infection rates of caterpillars in the forest.

52. NATIVE WOODY SHRUBS

J. Ward *Assisted by* J. Barsky

Native woody shrubs offer an alternative to exotics commonly used in landscaping. This collection of shrubs was assembled in 1962 and in 1976 it was arranged in its present form with a dry site on the gravel mound and moist site in the shallow, plastic-lined depression. Many of these shrubs flower in the spring; their flowers can be seen in the photographs. Others, such as sweet pepperbush, spiraea, and buttonbush, flower in summer. Witchhazel flowers in early autumn. Birds are frequent visitors to the garden and quickly eat the mature fruit. These shrubs survive with minimal maintenance. Occasional mowing, annual removal of dead stems, and replenishment of mulch are performed. The shrubs have never been fertilized, watered, or treated for disease.

53. NURSERY AND BEE INSPECTIONS

C. Lemmon *Assisted by* D. Brown, J. Fengler, I. Kettle, S. Sandrey, and P. Trenchard

Our personnel uphold laws enacted by the Legislature to protect Connecticut's vegetation from injurious insects and disease. Each year we inspect 9,000 acres of nursery stock grown in over 400 nurseries for insects and disease. When problems are found, control remedies are suggested. We inspect agricultural products to be shipped to foreign or interstate destinations, and we survey Connecticut's woodlands to find troublesome pests such as the gypsy moth and the hemlock woolly adelgid. Examples of insect pests and plant diseases are exhibited. Insect survey maps are shown. Connecticut has about 1,200 beekeepers tending 5,000 colonies of honey bees. A task of the Experiment Station is to seek and eliminate contagious bee diseases and parasitic mites. Insects that attack ornamentals, live honey bees, a beehive and various beekeeping equipment, and wasps and hornets and their nests are on display.

54. ROTATION CROPS TO REDUCE LESION NEMATODES AND POTATO EARLY DYING DISEASE

J. LaMondia *Assisted by* J. Canepa-Morrison and S. Lamoreaux

Early dying of potato is a complex disease caused by the wilt fungus *Verticillium dahliae* and the lesion nematode *Pratylenchus penetrans*. The effects of several green manure rotation crops on disease were evaluated in microplots at the Valley Laboratory in Windsor. Superior potato, Humus canola, Saia oat, Triple S sorghosudangrass, or Gary oat were grown for a full season in 24 replicate plots and tilled into soil. In the second year, polynema marigold replaced Saia oat. After the first year, soil was bio-assayed in the greenhouse for *Verticillium* wilt symptoms on

eggplant. In the third year, potatoes were grown and leaves symptomatic of early dying counted weekly. A single year of rotation did not affect nematode densities or *Verticillium* symptoms on eggplant. However, Saia oat/Polynema marigold and sorghosudangrass rotations reduced lesion nematode densities after 2 years. The Saia oat/marigold rotation also increased potato tuber yields by 40% and reduced early dying severity by 25%.

55. SUSCEPTIBILITY OF CHESTNUTS TO POWDERY MILDEW

V. Smith and S. Anagnostakis *Assisted by*
P. Sletten

American chestnut trees are very susceptible to powdery mildew, while Japanese, European, and Asian chestnut trees are more resistant. In this plot, various species of chestnut and their hybrids are being evaluated for level of resistance to powdery mildew. We have found that when trees have more than 50% of their genes from American chestnut, they are very susceptible. However, when crossed with Japanese, European, or Asian species, American chestnuts may gain resistance to this disease.

56. CHESTNUT SPECIES AND HYBRIDS

S. Anagnostakis *Assisted by* P. Sletten

These trees are part of the large collection of species and hybrids of chestnut maintained by the Experiment Station. Great differences can be seen in chestnut blight resistance, form, and nut production. Hypovirulent strains of the blight fungus help protect them from lethal cankers (see plot #16, "Control of Blight on American Chestnuts"). Plants of all seven species of chestnut are growing here. In 1994, two seedlings from the Caucasus Mountains of Russia that are true European chestnuts were planted. Two trees of the chinquapin native to Florida are planted across the

road. The cultivar 'Lockwood' is at the southwest corner.

57. DENSE PLANTING OF AMERICAN CHESTNUTS

S. Anagnostakis

In 1982, 300 seedling American chestnut trees from Michigan were planted in two dense plots. We treated the north plot with hypovirulence for blight control (see plot #17, "New Hybrid Chestnut Orchard"), and it looks slightly better than the south plot. P.N. Gordon from The American Chestnut Foundation is using these trees now to see the yield of nuts possible under these conditions.

58. DWARF HYBRID CHESTNUT TREES

S. Anagnostakis *Assisted by* P. Sletten

These hybrid trees were planted by Richard Jaynes from 1970 to 1973. One of the parents in the hybrids was the dwarf species *Castanea seguinii*, and the selected trees that remain produce abundant nut crops and have remained small. These are important parents in our selections of orchard-type trees for Connecticut. The cultivar 'Little Giant' (see sign) was released to the nursery industry in 1999.

59. APPLE CULTIVAR TRIAL

R. Kiyomoto *Assisted by* J. Bravo

This orchard contains approximately 84 apple cultivars replicated three times in a randomized fashion. Included are some of the newest cultivars available and older, but not antique, cultivars. The purpose of this trial is to compare disease resistance and compare the horticultural characteristics of newer cultivars with local favorites. Gala and Fuji have been consistently productive in this trial.

60. NECTRIA CANKER OF BLACK BIRCH

F. Ferrandino

A grove of black birch trees is being established at Lockwood Farm and will eventually consist of sample trees from all over the state. At present, there are 32 trees from around Lake Saltonstall in Guilford. In the future, this plot will be used to look for tolerance to disease and vigorous growth habits.

61. JAPANESE PLUM VARIETY TRIALS

A. Maynard

As wholesale marketing of major tree fruits becomes unprofitable, many Connecticut growers are turning to retail sales. For a retail operation to be successful, there must be a diversity of products. Thus, many growers are interested in growing minor fruits. We have expanded our New Crops Program to include fruits. This trial, also repeated at the Valley Laboratory in Windsor, includes eight variety/rootstock combinations of Japanese plum. In addition, two growers, one in Cheshire and one in Sharon, are growing the same varieties.

62. ROCKY HILL AMERICAN CHESTNUT TREES

S. Anagnostakis

Seed collected from selected American chestnut trees in Rocky Hill in 1985 grew into the trees planted here. They are used as female parents in crosses and are being treated with

hypovirulence (see plot #17, "New Hybrid Chestnut Orchard") to keep them alive. The white paper bags cover the hand-pollinated flowers of this year's crosses. In addition, five of the trees have been pruned heavily and we will harvest all of the nuts by cutting the burs before they have ripened. From the number of these nuts and the size of the sprouts from which they came we will estimate potential yield.

63. NE-183 APPLE VARIETY TRIAL

R. Kiyomoto *Assisted by* J. Bravo

This planting is one of over 20 in North America used to compare the same new varieties in similar plantings. Since pesticide use was restricted, the disease-resistant varieties performed best here. Outstanding for productivity and disease resistance are Enterprise and Royal Gala. Fortune and Fuji performed well among the disease susceptible varieties.

64. COVER CROPS AND THEIR EFFECTS ON PEST MANAGEMENT

K. Stoner and W. Elmer *Assisted by* E. Amezzane, T. Zarrillo, E. O'Dowd, and A. Hedberg

Vegetable growers use cover crops for a variety of purposes: nutrient management, nitrogen fixation (by legumes), erosion control, building organic matter in the soil, weed suppression, and soil-borne disease suppression. In this project we are studying the effect of four fall-planted cover crops, four spring-planted cover crops, and four summer-planted green manure crops on beneficial and deleterious insects and soil microbes.

Tents were set up and other physical arrangements were made by A. Gagliardi, R. Russell and C. Whitehead under the supervision of Bancroft Nicholson of the Maintenance Department

PLANT SCIENCE DAY is held annually in August at Lockwood Farm, Evergreen Avenue, Mt. Carmel, Hamden. Friends of the Experiment Station are invited to *Agricultural Chemistry Night* held in the autumn and *Plant Science in the Spring* held in the spring.



THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION, founded in 1875, is the first experiment station in America. It is chartered by the General Assembly to make scientific inquiries and experiments regarding plants and their pests, insects, soil and water, and to perform analyses for State agencies.

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