YOU CAN LEARN AND EARN

MEDALS • WATCHES • TRIPS
COLLEGE SCHOLARSHIPS

This program is conducted by the Virginia Agricultural Extension Service and co-sponsored by the Westinghouse Educational Foundation and the following Electric Power Suppliers:

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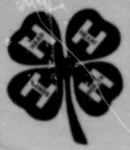
1960

VIRGINIA 4-H ELECTRIC PROGRAM



9th Annual

STATE 4-H

Electric Congress

PROGRAM

JEFFERSON HOTEL
RICHMOND, VIRGINIA

AUGUST 26-28, 1959

ANNUAL MEETING

Virginia Farm and Home Electrification Council

and the

20th ANNUAL

Virginia Rural Electrification Conference

THEME

Two Decades of Progress

JEFFERSON HOTEL

Richmond, Virginia

May 4, 5, and 6, 1959

Conference Sponsored

by

VIRGINIA FARM AND HOME

ELECTRIFICATION COUNCIL

SEITZ HALL, V. P. I.

BLACKSBURG, VIRGINIA

APPOMATTOX YOUTH NAMED 4-H WINNER

Dr. W. E. Skelton, state 4-H agent, hands Gene Carson, 20, of Appomattox county, the award as state winner at the final activities of the state 4-H Electric Congress which closed here yesterday. Carson, a junior at VPI, will receive a trip to the National 4-H Congress in Chicago this fall. Bedford county received a plaque presented for the outstanding county accomplishments in the electric program. Amherst, Roanoke and Rockbridge counties won blue ribbons for their programs. David Cassell Jr. of Bedford and Jeanette Iroler of Carroll county each received a blue ribbon for winning state level contests. Yesterday district winners reported on achievements and experiences in 4-H electric projects. Dr. Skelton gave a summary of the congress at the award luncheon.

4-H Winner

To Be Announced At Electric Meet

RICHMOND, Aug. 26 — Some deserving 4-H'ers will receive a pleasant shock tomorrow when he or she is recognized as the state winner at the 1959 Virginia 4-H Electric Congress being conducted here.

SIXTY-SEVEN counties are represented and approximately 150 youngsters will take part in the annual event. The purpose of the Congress is to recognize outstanding achievements in the 4-H electric program, to increase knowledge and understanding of the use of electricity and an opportunity for ... pating to visit ... and other ... ed.

VPI Student Is Individual 4-H Winner

An agriculture ... VPI who plans to ... missionary is the ... winner in the state 4-H ... cal project.

Gene Carson, 20, was ... for his outstanding ... period of nine ... trical pro... the ...

Tazewell 4-H Group Attending Session

TAZEWELL, Aug. 27 (Special) — ... Cassell, Tazewell County ... extension farm agent ... 4-H Club winners ... are attending ... Horse Electric ... held at Jefferson ... sponsorship of the ... in Virginia ... The county ... Estridge ... community ... Pocahontas ... Sandy. They ... witness ... tour ...

4-H Winners Are Announced At Electric Meet

RICHMOND, Aug. 27—Twelve district award winners were announced tonight at the 4-H Electric Congress being conducted at the Jefferson Hotel in Richmond.

RECEIVING GOLD WATCHES from power supplier representatives of the state were Kenneth Snodgrass, Roanoke; Connie Mae Straub, Rockbridge; Archie Jay Beebe, Accomack; W. Percy Lucado Jr., Appomattox; Willie Margaret Barkley, Lunenburg; Clyde Barrett, Tazewell; Brenda Barrett, Russell; Jerry Lee Hinter, Shenandoah; Helen Winslow, Prince William; Woody Haynes, Gloucester; Marilyn D. Louquet, York; and Patsy Overstreet, Bedford (girl at large).

The awards were made at a banquet held in the hotel's grand ballroom and presided over by Margie Vest, last year's state winner from Floyd County.

Prior to the award presentation, the 4-H'ers heard Richard ... llis Jr. of the State Chamber of Commerce discuss "My Gal ..." Speaking on a serious ... but in a lighter vein, ... pressed his listeners with ... ages offered to those ... Old Dominion.

... activities were climaxed ... "high voltage ... relay quizzes were held while ... being cleared, and round ... the ball-...

... Virginia ... delegates ... of the ...

4-H AWARD WINNERS—Gold wrist watches last night were presented to 4-H Club members for their projects presented at the ninth State 4-H Electric Congress here. Winners included (front row from left) Connie Mae Straub, Rockbridge; Willie Margaret Berkley, Lunenburg; Helen Winslow, Prince William; Marilyn D. Louquet, York; (back row, from left) W. Percy Lucado Jr., Appomattox, and Woody Haynes, Gloucester.

Electricity Use on Farm Is Displayed

Carliss East

Sherry Williams

Patrick Youths Win Trip to 4-H Congress

STUART, July 29—Sherry Williams and Carliss East won first prizes in the 4-H electrification contest in Patrick County. With winners from other counties, they will be awarded all-expense paid trips to the 4-H Farm and Home Electric Congress in Richmond, Aug. 26-28.

James Reid, assistant county agent, will accompany the first-prize winners to the Electric Congress, where district and state winners will be announced. He said more than 70 counties will send delegates to Richmond.

Sherry, daughter of Mr. and Mrs. Virgil Williams, did an outstanding job with her electric work although this was her first year in the electric project. In addition to her project work, she gave demonstrations on different electric problems to her local club members.

CARLISS, SON of Mr. and Mrs. Emmitt East of the Red Bank community, has been active in club work for four years. He has given demonstrations in his local club and in the county. He won first place in the county contest and second place in the West Central District Contest, at which time he gave a demonstration on "Starved Electric Motors."

The district winners will receive watches while the state winner will receive a trip to the National 4-H Club Congress in Chicago later in the year. Other awards to be given at the Richmond meeting include the plaque to the county judged to have the most outstanding 4-H electric projects. Also, 12 cash awards will go to the counties preparing the top exhibits for the congress.

The congress, sponsored by the power suppliers of the state of Virginia, has a three-fold purpose—information, instruction and recreation. More than 10,000 Virginia 4-H Club members took part in the program conducted by the Virginia Agricultural Extension Service. This gives Virginia the highest enrollment in the nation in the 4-H Electric Project.

LeRoy Jones (left), Robert Frost Inspect Electric Motor

School Held On Electricity At Fincastle

FINCASTLE, March 1—About 75 4-H Club members attended an electric school at Breckinridge gym Saturday.

Extension agents were assisted by representatives from Appalachian Power Co., Roanoke, and Virginia Electric and Power Co., Clifton Forge.

DEMONSTRATIONS ON the use and care of electrical appliances were presented by 4-H Club members.

Films and charts were shown by the power companies demonstrating safe and adequate wiring, proper lighting and better living with electricity. A workshop was held in making lamps, light, heavy extension cords and brooders.

FEMALE EDISON?—Kay Simpson, a seventh grade student at Check school and top-notch 4-H Clubber, is installing a floodlight for the recreation area at her parents' home in Floyd County.

It has been found desirable to shake the windrow peanuts again one or two days after digging. This practice results in faster field drying. A special machine has been designed for this purpose. It lifts the peanuts from the windrow, shakes them and deposits the crop in a loose, fluffy, wide windrow. Under favorable weather conditions the peanuts will usually be dry enough for combining from 5 to 7 days after digging.

Peanuts Need Artificial Drying

Virginia studies show that peanuts should not be left in the windrow until they are dry enough for market. Some varieties of peanuts produced in other states have been allowed to dry in the windrow, but this practice is not recommended for Virginia conditions. Mechanical drying equipment must be used to reduce the kernel moisture to 9 or 9 per cent.

Drying equipment for corn, small grain and hay can be adapted for drying peanuts. This permits greater use of drying facilities and thereby reduces the total drying costs for a single crop.

Two types of drying systems being used are the bin and the wagon method. The drying equipment must have enough capacity to handle the output of a combine. Four drying bins are recommended for this method, each containing 300 sq. ft. of floor area or a total of 1,200 sq. ft. For wagon drying, it is necessary to provide at least 6 and preferably 8 wagons with beds designed for drying purposes.

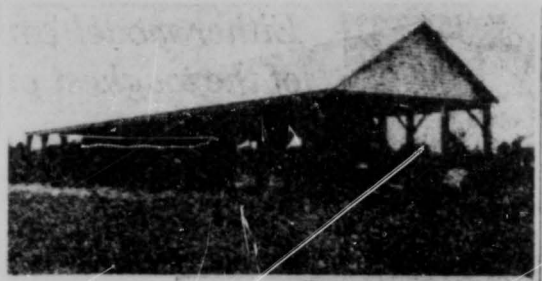
The drying unit should be capable of raising the temperature of the drying air from 10 to 20 degrees. Portable crop driers and gas furnaces are being used for this purpose. *The temperature of the air entering the peanuts should not exceed 95 degrees.* Peanuts dried at higher temperature may have bad flavor and split and skin easily when shelled.

Cost of Mechanical Harvesting

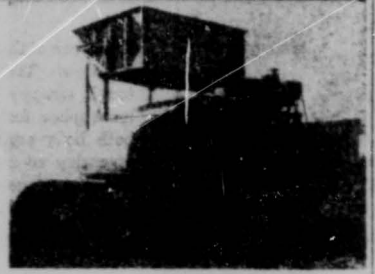
What about the cost of mechanical harvesting? The capital investment is greater for the combine-drier method than for the stack pole method of harvest. Comparative costs of the new methods indicate that farmers should consider mechanical harvesting if they grow more than 25 or 40 acres of peanuts. For smaller acreages, harvesting costs may favor the stack pole method.

At least four manufacturers have developed peanut combines which are adapted to Virginia conditions. They are pictured here. The capacity and efficiency of peanut combines have been improved greatly in recent years. Other field equipment used in mechanized harvesting has also undergone changes. Much has been learned about drying procedures. But, in spite of this progress, many mechanized peanut harvesting and drying problems have not been solved.

Field experience shows that good management is the key to success with mechanized harvesting. With these facts in mind, farmers will want to study all phases of the problem carefully before converting to this new method.



Above: A wagon drying system for peanuts. A portable crop dryer forces warm air through the peanuts thus removing the excess moisture.



Right: This peanut combine is made by Benthall Machine Co., Inc., Suffolk, Va., the nation's peanut capital.

HARVESTING PEANUTS

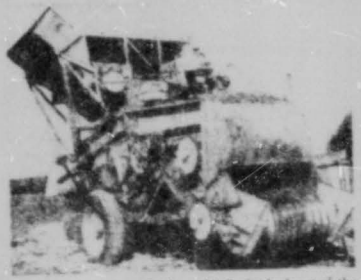
(Continued from page 10)

nuts are delivered to a belt or a bagging attachment on the machine. The vines are returned to the field.

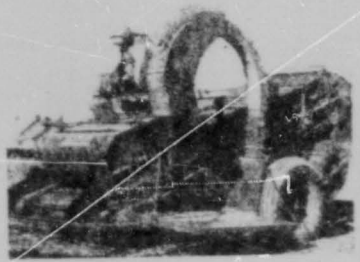
Under favorable conditions, present models of combines will harvest about 200 bags of peanuts per day. Since combined peanuts contain too much moisture for safe storage, it is necessary to provide mechanical drying equipment.

It was necessary to develop other field equipment for efficient harvesting. Conventional peanut diggers distribute the vines over the land in such a manner that tractor and implement wheels injure the nuts. They also leave considerable soil clinging to the roots and the nuts are covered by the vines which causes slow drying.

To overcome these problems a digger-shaker-windrower was developed. In a single operation this implement digs two rows of peanuts, shakes soil from the roots, partially turns the vines upside down, and places the peanuts in a windrow. The nuts are then exposed to sunlight and air for more rapid drying. Space is left between the windrows for tractor and equipment wheels. The machine removes soil from the vines which helps reduce the amount of foreign material that passes through the combine.



Long Mfg. Co., Inc., Tarboro, N. C., in the heart of the peanut belt, makes this combine for harvesting peanuts.



This peanut combine is produced by Lilliston Implement Co., Albany, Ga., and distributed throughout the South.

Roanoke-Harrington Mfg. Co., Lewiston, N. C., has put this peanut combine on the market in Eastern Carolina.

Mechanized Peanut Harvesting

By J. L. CALHOUN

Mr. Calhoun

A NEW method of harvesting peanuts requires only about one-sixth as much labor as the stack pole method. Machines are used to replace hand labor. There is growing interest among peanut growers in mechanized harvesting.

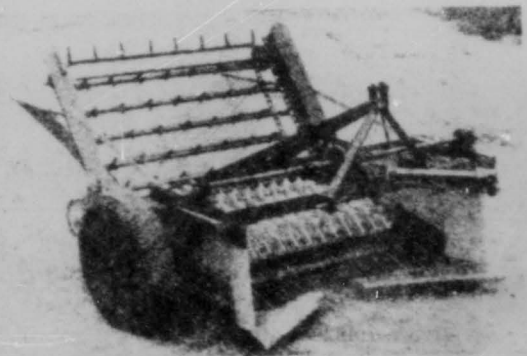
Research aimed at mechanizing the harvest of Virginia type peanuts was begun by agricultural engineers at the Tidewater Research Station, Holland, Virginia, in 1947. Similar work has been underway in other states. These studies have shown that the quality of peanuts harvested mechanically compares favorably with the stack pole method.

Combines Do Good Job

Based upon limited data, it appears that combine harvesting yields as many peanuts per acre as the stack pole method does. With proper management of mechanized harvesting and drying, there is no evidence of lower germination, field stands, vigor, or yield of seed peanuts.

The peanut combine is the heart of this new harvesting method. A picking attachment lifts the peanuts from the windrow and feeds them into the machine as it is pulled through the field. The combine separates the nuts from the vines. The

(Continued on page 23)



This two-row machine digs, shakes and windrows peanuts in a single operation. After drying 5 to 7 days, the peanuts are ready for the combine.

weather, from the heat given off by the birds and from the sun.

For the house to be well insulated it must contain three inches to four inches of loose-fill or batt insulation in the walls and ceiling or equivalent. The windows must be glass or clear plastic and of double thickness.

To give an idea of the amount of heat produced by the birds, a six pound hen will give off approximately the same amount of heat as a 15 watt light bulb. This means 100 hens will give off about the same amount of heat as a one and one-half KW electric heater. This heat is necessary to properly ventilate the house in the winter as the moisture holding capacity of warm air is much greater than cold air.

It is important that the ventilating system forces the right amount of air through the house in the winter. Too much air will cool the house below the desired 55° temperature. Insufficient air will allow moisture and ammonia vapors to become heavy.

In the coldest weather a small amount of air must be forced through the house all the time to remove the stale air and the moisture from the birds' respiration. When the weather becomes warmer additional air is forced through the house to remove the moisture from the litter.

Fans for the ventilating system in the winter are controlled by a time clock and a thermostat. In the coldest weather the time clock will allow the fans to force a small amount of air through the house. In warmer weather the thermostat will allow the fans to force larger quantities of air through the house.

For a winter ventilating system the fan capacity for a well insulated house with one bird per sq. ft. is approximately three cubic feet of air per minute per bird. Moisture is usually not a problem in the summer as the ventilating system is forcing large quantities of air through the house.

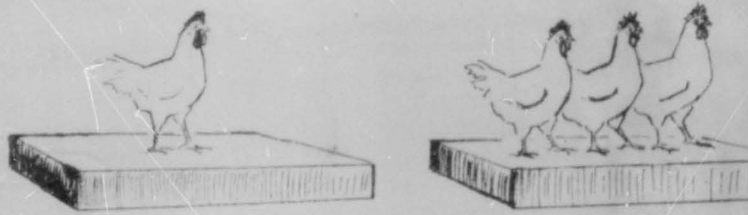
Another major problem encountered in the heavily populated houses is removing the heat from the house in the summer. A maximum temperature of 75° is desirable in the summer. In temperatures above 75° the birds will slow down in production, and will produce malformed and thin-shelled eggs. A mechanical ventilating system, forcing large quantities of air through the house, is used to remove the heat.

For a summer ventilating system the fan capacity for a well insulated house with one bird per sq. ft. of floor area is approximately six cubic feet of air per minute per bird. Houses with less insulation and less birds require more air.

The summer ventilating system is controlled by a thermostat. The thermostat should start the fans when the house temperature reaches 75°.

In general, there are two types of ventilating systems. The presurized system blows air into the house. The exhaust system exhausts air from the house. But regardless of whether pressurized or exhaust, the system will do an effective ventilating job, if properly designed.

Mechanical pit cleaners are used to remove the droppings from houses daily. In some houses the feeders and waterers are placed three tiers high over the pit.



MORE BIRDS ON THE FLOOR

The New Trend In Laying Houses

by J. H. Strickler

VIRGINIA poultrymen are thinking in terms of better control of environment inside poultry houses and better methods of saving labor.

From looking over the new poultry houses in Virginia, it looks as if the trend is definitely toward better insulated houses with labor saving equipment and mechanical ventilation.

The recommendation for floor space for conventional poultry houses is three to four sq. ft. of floor area per bird. In recent years it has been found that egg production and general health of the birds can be maintained by placing one bird per sq. ft. of floor area.

However, it is necessary to remodel the house to include insulation, mechanical ventilation and manure removing equipment. This means that three times as many birds can be placed in his existing houses.

Many poultrymen are considering expanding their operations; however, the cost of new buildings is high and many think it more economical to remodel their old buildings to take care of more birds than to build new ones.

ABOUT THE AUTHOR

There are two major problems encountered in placing more birds in existing houses. The first problem is removing the moisture from the house to maintain dry litter.

The sources of moisture in the house are the droppings and vapor from the birds' breathing, and water spilled at the waterers. One hundred five pound layers will give off about 45 pounds of water in 24 hours through droppings. They will also give off approximately seven pounds of water through respiration.

This means there are 52 pounds or more than six gallons of water given off every 24 hours per 100 hens. In addition, there is water spilled around the waterers which adds to the problem. This moisture must also be removed if dry litter is to be maintained.

Some of the moisture in the dropping may be removed with a mechanical pit cleaner. The pit runs the length of the house and is eight ft. to 10 ft. wide. It is usually located in the middle of the house and is covered with wire. Most of the feeders and waterers are placed over the pit. Droppings fall in the pit, and are removed by the mechanical pit cleaner daily. In some houses the feeders and waterers are three tiers high.

The rest of the moisture must be removed by mechanical ventilation. In the winter it is desirable to maintain a temperature of 55° inside the house if possible. This temperature can be maintained in a well insulated house, except in extremely cold

CONTESTANTS AND COACHES (CON'T)

North Carolina - Thomas D. Smitherman, Route 2, East Bend, North Carolina (Ferguson 35)
R. M. Bowden, Assistant County Agent, Yadkinville, North Carolina

Pennsylvania - Tom Brown, Route 1, Tunkhannock, Pennsylvania (Ford 800)
Burton Horne, Extension Agricultural Engineer, University Park, Penn.

Rhode Island - John A. Marshall, Newport, Rhode Island (Ford)
Philip H. Wilson, Extension Agricultural Engineer, Kingston, Rhode Island

South Carolina - Johnny Watt, Jr., Route 5, Sumter, South Carolina (Ford 860)
T. B. Tillman, Assistant County Agent, Sumter, South Carolina

Tennessee - Jimmy Jacobs, Route 6, Murfreesboro, Tennessee (Ford)
Ben Powell, Assistant County Agent, Murfreesboro, Tennessee

Virginia - Gerry Watts, Keysville, Virginia (Ford 641)
Kermit Barbour, Assistant County Agent, Charlotte Court House, Virginia

West Virginia - Randall Reeder, Route 1, Buckhannon, West Virginia (Ferguson 35)
Ancil Cutlip, Associate County Agent, Weston, West Virginia

AWARDS

Awards: An appropriate trophy will be awarded the first place winner. Each contestant will be awarded a wrist watch. A $25.00 cash award to the winning contestant in each phase of the contest - examination, safety, operation, and belting.

Donor: American Oil Company

Ribbons: A blue "Award of Merit" ribbon will be awarded the first place winner.
A red "Award of Merit" ribbon will be awarded to all other contestants.

Certificate: a "4-H Certificate of Recognition" to each contestant.

Belting

Kenneth DeBusk, Assistant Specialist in Agr. Engineering, New Brunswick, N. J.
Waldo E. Bell, Extension Agricultural Engineer, Morgantown, West Virginia
Ben Powell, Assistant County Agent, Murfreesboro, Tennessee

Safety

Edward O. Eaton, 4-H Agricultural Engineer, Ithaca, New York
J. W. Sjogren, Prof. Agricultural Engineering, Blacksburg, Virginia
Erby L. Cathey, County Agent, Melbourne, Arkansas
J. C. Ferguson, Extension Agricultural Engineering Specialist, Raleigh, N. C.
Jeff R. Martin, Assistant County Agent, Monroeville, Alabama
G. C. Bellistri, District Engineer, American Oil Company, Roanoke, Virginia

Banquet - W. C. Roben, Sales Engineer, American Oil Company, Richmond, Virginia
Dorothy Gentry, Assoc. State 4-H Club Agent, Blacksburg, Virginia

CONTESTANTS AND COACHES

Alabama - Philip C. Hardee, Box 66, Beatrice, Alabama (Fordson Dextra)
R. Jeff Martin, Assistant County Agent, Monroeville, Alabama

Arkansas - Dean Bookout, Wiseman, Arkansas (Ford 641)
Erby L. Cathey, County Agent, Melbourne, Arkansas

Connecticut - Paul Robert, Southbury, Connecticut (Farmall 340 Tricycle)

Delaware - William W. Naudain, Route 3, Newark, Delaware (Farmall 340)
Ernie Scarborough, Extension Agricultural Engineer, Newark, Delaware

Florida - George Haas, McAlpine, Florida (Ford 641)
Judson T. Fulmer, Assistant County Agent, Live Oak, Florida

Georgia - Dan McDonald, Route 2, Jesup, Georgia (Ford 851)
Dick Collier, Assistant County Agent, Jesup, Georgia

Louisiana - Tommy Smith, Husser, Louisiana (Farmall 240)
Joseph L. Smilie, Assoc. Spec. Agricultural Engineer, Baton Rouge, La.

Maine - Ronald L. Leeman, Route 2, Bucksport, Maine (Case 300)

Maryland - Charles H. Carpenter, Jr., Route 1, Frederick, Maryland (John Deere 530)
Kenneth E. Shiflet, Assistant County Agent, Frederick, Maryland

Massachusetts - Gilbert M. Sena, Easthampton, Massachusetts (John Deere 330)

Mississippi - Eddie Hunter, Ruleville, Mississippi (John Deere 630)
E. G. Hunter, Ruleville, Mississippi

New Hampshire - Francis A. Towle, Route 4, Concord, New Hampshire (Allis-Chalmers L-14)

New Jersey - Walter H. Turner, Route 2, Elmer, New Jersey (Case 200)
Howard B. Sherwood, 4-H Club Leader, Route 2, Elmer, New Jersey

New York - Terry Luckman, Route 1, Gasport, New York (Ferguson 35)
Edward O. Eaton, 4-H Agricultural Engineer, Ithaca, New York

In Charge of Publicity - Warren G. Mitchell, Asst. Extension Editor, Blacksburg, Virginia
Walter M. Rock, Public Relations, American Oil Co., New York, N.Y.
Jerry Moore, Public Relations, American Oil Co., New York, N. Y.
L. C. Hamilton, Asst. Extension Editor, Clemson, South Carolina
R. L. Rees, Associate Extension Editor, Blacksburg, Virginia

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Burton Horne, Extension Agricultural Engineer, University Park, Pennsylvania
Leon M. McNair, Nat. Comm. on Boys and Girls Club Work, Chicago, Illinois
W. C. Roben, Sales Engineer, American Oil Company, Richmond, Virginia
Evelyn Barker, Associate State 4-H Club Agent, Blacksburg, Virginia
Mrs. Waldo E. Bell, 4-H Leader, Morgantown, West Virginia

Parades - Earl T. Swink, Head, Agricultural Engineering Dept., Blacksburg, Virginia
J. Linwood Rice, State Fair of Virginia, Richmond, Virginia
W. C. Roben, Sales Engineer, American Oil Company, Richmond, Virginia
Ancil B. Cutlip, Associate County Agent, Weston, West Virginia

Get Acquainted with Tractors - Guy W. Gienger, Ext. Agricultural Eng., College Park, Maryland
Burton Horne, Ext. Agricultural Eng., University Park, Penn.

Presentation of Awards - W. E. Skelton, State 4-H Club Agent, Blacksburg, Virginia, Chairman
I. F. Pierce, Regional Manager, American Oil Co., Atlanta, Georgia
H. F. Todd, Manager, Farm Dept., American Oil Co., New York, N.Y.
R. O. Glover, Exec. Vice-Pres., State Fair of Virginia, Richmond, Va.
J. A. Reynolds, Assoc. State 4-H Club Agent, Blacksburg, Virginia

Course Officials - Course 1 - Easley Smith, Assoc. Ext. Agri. Engineer, Blacksburg, Virginia

Operation of Tractor

T. C. Skinner, Agricultural Engineer, Gainesville, Florida
John M. Johnson, Agricultural Engineer, Knoxville, Tennessee
W. C. McClernan, Special Representative, American Oil Co., Pittsburgh, Pennsylvania
Kenneth Shiflet, Assistant County Agent, Frederick, Maryland
H. D. Merrell, District Engineer, American Oil Company, Jackson, Mississippi
Ernie Scarborough, Extension Agricultural Engineer, Newark, Delaware

Belting

G. T. Caillard, Extension Agricultural Engineer, Auburn, Alabama
Philip H. Wilson, Extension Agricultural Engineer, Kingston, Rhode Island
T. B. Tillman, Assistant County Agent, Sumter, South Carolina

Safety

H. B. Goolsby, Extension Agricultural Engineer, Athens, Georgia
E. A. Mintmier, Assistant State 4-H Leader, University Park, Pennsylvania
Lee Miller, Assistant Extension Agricultural Engineer, State College, Mississippi
R. M. Bowden, Assistant County Agricultural Agent, Yadkinville, North Carolina
Ira Rogers, Director, Rural and Education Division, Automotive Safety Foundation
J. P. Murray, Regional Engineer, American Oil Company, New York, New York

Course 2 - J. A. Waller, Extension Agricultural Engineer, retired, Blacksburg, Virginia

Operation of Tractor

Guy W. Gienger, Extension Agricultural Engineer, College Park, Maryland
Joseph L. Smilie, Associate Spec. Agricultural Engineer, Baton Rouge, Louisiana
Kermit Barbour, Assistant County Agent, Charlotte Court House, Virginia
Dick Collier, Assistant County Agent, Jesup, Georgia
D. A. Chase, District Engineer, American Oil Company, Charlotte, North Carolina
Bob Gilden, Extension Agricultural Engineer, USDA, Washington, D. C.

EASTERN UNITED STATES 4-H TRACTOR OPERATORS CONTEST

8:00 a.m., Tuesday, September 29, 1959

STATE FAIR OF VIRGINIA, Richmond, Virginia

Conducted by the Agricultural Extension Service, and Co-sponsored by the American Oil Company, the Virginia Farm Equipment Association, Machinery Dealers, and the State Fair of Virginia.

SCHEDULE

Monday, September 28	
6:30 a.m. to 7:15 a.m.	Breakfast
7:15 a.m. to 5:30 p.m.	Educational Tour-AMOCO Refinery, Yorktown, Williamsburg, and Jamestown for contestants, coaches, and officials. J. A. Waller, Extension Agricultural Engineer, retired, in charge. Courtesy--Allis-Chalmers Manufacturing Company, Tractor Division, Richmond Branch, Sandston, Virginia.
6:30 p.m.	Annual Banquet for contestants, coaches, and officials, etc. - Hotel William Byrd. Courtesy of the American Oil Company - followed by meeting to explain contest, assign duties, and drawing for contestants' numbers in contest.
Tuesday, September 29	Registration of contestants, written examination, and briefing
8:00 a.m. to 9:00 a.m.	and organization of judges - Hotel William Byrd.
9:30 a.m. to 11:00 a.m.	Contestants get acquainted with tractors, practical examination and lunch - State Fair of Virginia Grounds.
11:00 a.m. to 11:30 a.m.	Dry Run for judges.
[illegible] a.m.	Parade of contestants on tractors - Main Gate to Special Event Area.
11:50 a.m. to 12:15 p.m.	Tractor "Power Takeoff Safety Show" - J. C. Ferguson, Extension Agricultural Engineer, Raleigh, North Carolina.
12:15 p.m. to 2:45 p.m.	"Operation of Tractor" and "Belting."
2:45 p.m. to 3:30 p.m.	Pictures, preparing for Tractor "Power Take-off Safety Show," and preparation for parade of winners on tractors in front of Grandstand.
3:30 p.m.	Presentation of awards.
4:00 p.m.	Tractor "Power Take-off Safety Show."
4:20 p.m.	Parade before Grandstand
4:40 p.m.	Review of written and practical examinations

JUDGES AND OFFICIALS

Directors of Contest - W. A. Turner, Assoc. State 4-H Club Agent, Blacksburg, Virginia
J. A. Waller, Extension Agri. Eng., retired, Blacksburg, Virginia
Easley Smith, Assoc. Extension Agri. Engineer, Blacksburg, Virginia

Examination (written) - Easley Smith, Assoc. Extension Agri. Engineer, Blacksburg, Virginia
Waldo E. Bell, Extension Agri. Engineer, Morgantown, West Virginia
Bob Gilden, Extension Agri. Engineer, USDA, Washington, D. C.

Examination (practical) - J. W. Sjogren, Prof. Agricultural Eng., VPI, Blacksburg, Virginia
H. B. Goolsby, Extension Agri. Engineer, Athens, Georgia

Running Account - G. E. Russell, Asst. State 4-H Club Agent, Blacksburg, Virginia
Jack F. Hassell, Sales Engineer, American Oil Company, Atlanta, Georgia
R. L. Rees, Associate Extension Editor, Blacksburg, Virginia
O. B. Rosstead, Public Relations, American Oil Co., New York, New York

PLACING	STATE	CONTESTANT	TRACTOR	EXAMINATION	SAFETY	OPERATION	BELT	TOTAL
11	Tennessee	Jimmy Jacobs	Ferguson	255	0	211	99	565
12	Connecticut	Paul Robert	Farmall-340	380	0	138	116	634
13	West Virginia	Randall Reeder	Ferguson-35	225	0	308	142	675
14	Delaware	William W. Naudain	Farmall-340	230	0	378	96	704
15	New Hampshire	Francis A. Towle	Allis-Chalmers D-14	265	40	234	167	706
16	North Carolina	Thomas D. Smitherman	Ferguson-35	175	50	375	111	711
17	South Carolina	Johnny Watt, Jr.	Ford-860	495	25	317	47	884
18	Louisiana	Tommy Smith	Farmall 240	390	150	376	35	951
19	Florida	George Hass	Ford-641	245	200	409	107	961
20	Rhode Island	John A. Marshall	Ford	345	20	535	217	1117
21	Mississippi	Eddie Hunter	John Deere-630	405	0	449	336	1190

Contestants

PHILIP C. HARDEE
Alabama

DEAN BOOKOUT
Arkansas

PAUL ROBERT
Connecticut

WILLIAM W. NAUDAIN
Delaware

GEORGE HASS
Florida

DAN McDONALD
Georgia

TOMMY SMITH
Louisiana

RONALD L. LEEMAN
Maine

CHARLES H. CARPENTER, JR.
Maryland

GILBERT M. SENA
Massachusetts

EDDIE HUNTER
Mississippi

FRANCIS A. TOWLE
New Hampshire

WALTER H. TURNER
New Jersey

TERRY LUCKMAN
New York

THOMAS DAVID SMITHERMAN
North Carolina

TOM BROWN
Pennsylvania

JOHN A. MARSHALL
Rhode Island

JOHNNY WATT, JR.
South Carolina

JIMMY JACOBS
Tennessee

GERRY WATTS
Virginia

RANDALL REEDER
West Virginia

FINAL SCORES

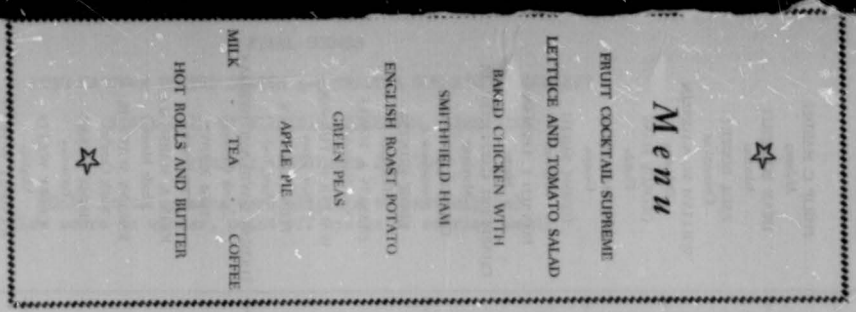
1959 EASTERN UNITED STATES 4-H TRACTOR OPERATORS' CONTEST

STATE FAIR OF VIRGINIA, RICHMOND, VIRGINIA

TUESDAY, SEPTEMBER 29, 1959

(Only state winners were eligible to participate)
(Low score is winner, point off system of scoring used)

PLACING	STATE	CONTESTANT	TRACTOR	EXAMINATION	SAFETY	OPERATION	BELT	TOTAL
1	Georgia	Dan McDonald	Ford-851	135	0	152	32	319
2	New York	Terry Luckman	Ferguson-35	250	0	74	28	352
3	Maryland	Charles H. Carpenter	John Deere-530	185	0	103	69	357
3	Virginia	Gerry Watts	Ford-641	60	0	225	72	357
5	Arkansas	Dean Bookout	Ford-641	190	25	81	73	369
6	Pennsylvania	Tom Brown	Ford-800	110	0	248	53	411
7	Alabama	Philip C. Hardee	Fordson Dextra	205	0	202	54	461
8	Massachusetts	Gilbert M. Sena	John Deere-330	165	10	275	23	473
9	Maine	Ronald L. Leeman	Case-300	155	100	208	60	523
10	New Jersey	Walter H. Turner	Case-200	215	25	244	69	553



PLACING								
1								
2	New York	Terry Luckman	Ferguson-35	220	0	74	28	324
3	Maryland	Charles H. Carpenter	John Deere-530	185	0	103	69	357
3	Virginia	Gerry Watts	Ford-641	60	0	225	72	357
5	Arkansas	Dean Bookout	Ford-641	190	25	81	73	369
6	Pennsylvania	Tom Brown	Ford-800	110	0	248	53	411
7	Alabama	Philip C. Hardee	Fordson Dextra	205	0	202	54	461
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10	New Jersey	Walter H. Turner	Case-200	215	25	244	69	553

Program

☆ ☆ ☆

Toastmaster	T. C. Skinner, Extension Agricultural Engineer, Florida
Pledge of Allegiance to U. S. Flag	Dean Bookout, 4-H Contestant, Arkansas
4-H Pledge	Ronald Leeman, 4-H Contestant, Maine
Invocation	J. A. Waller, Agricultural Engineer, Virginia
Banquet	
Welcome	W. H. Daughtrey, Associate Director of Extension, Blacksburg, Virginia
Introduction of Contestants and Coaches and Officials by States	
Introduction	Dr. W. E. Skelton, State 4-H Club Agent, Virginia
Speaker	I. F. Pierce, Regional Manager, American Oil Co., Atlanta, Georgia
Remarks	L. B. Dietrick, Dean of Agriculture, V.P.I., Blacksburg, Virginia
Entertainment by Virginia 4-H Members	Evelyn Barker, Associate State 4-H Club Agent, Virginia
	Lou Swartz, Buckingham County
	Katherine Roach, Buckingham County
	Jacquelin Crebbs, Louisa County
	Dorcas Campbell, Rockingham County
Movie — Premier Showing	"Horse Sense for Horsepower"

Annual Banquet

Eastern United States
4-H Tractor Operators Contest

HOTEL WILLIAM BYRD

RICHMOND, VIRGINIA

☆

SEPTEMBER 28, 1959

6:30 P.M.

☆

Courtesy

AMERICAN OIL COMPANY

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
VIRGINIA POLYTECHNIC INSTITUTE AND THE UNITED STATES DEPARTMENT
OF AGRICULTURE COOPERATING

STATE OF VIRGINIA
1959 4-H TRACTOR OPERATORS' CONTEST
State 4-H Short Course - June 24, 1959
Blacksburg, Virginia
(Two contestants from each district were eligible to participate)
(Low score is winner, point-off system of scoring used)

PLACING	CONTESTANT	COUNTY	TRACTOR	EXAMINATION WRITTEN & PRACTICAL	SAFETY	OPERATION	BELT	TOTAL
1.	Gerry Watts	Charlotte	Ford 641	120	0	126	24	270
2.	Wayne Poarch	Sussex	Ford 641	65	0	268	79	412
3.	Charlie Moshenek	Pittsylvania	Oliver 770	190	0	248 4/5	42	480 4/5
4.	Gale Faris	Washington	Ferguson 35	260	0	154 3/5	89	503 3/5
5.	Earl Allin	Prince George	John Deere 430	295	0	162	59	516
6.	Tommy Thorburn	Spotsylvania	John Deere 430	215	0	279	41	535
7.	David Beyeler	Augusta	Ferguson 35	345	0	170 3/5	25	540 3/5
8.	George Etzler	Botetourt	Ferguson 35	420	0	187 3/5	82	689 3/5
9.	Waymon Aker	Smyth	Ford 641	590	0	149	63	802
10.	Kenneth Bristow	Gloucester	Ferguson 35	400	50	339	127	916
11.	Russell Harris	Albemarle	John Deere 430	455	60	271 3/5	173	959 3/5
12.	Evans Lewis	Richmond	Oliver 770	330	150	185	356	1021

Easley S. Smith
Easley S. Smith
Assistant Extension Agricultural Engineer

ew

4-H TRACTOR MAINTENANCE SCHOOL
FOR
LEADERS OF 4-H TRACTOR PROGRAM
IN
WEST CENTRAL DISTRICT
Town Council Hall, Farmville Va.
January 15 and 16, 1959

Thursday, January 15

9:30 - 10:00 A.M.	Registration
10:00 - 10:15	Invocation, Welcome, Instructions, Announcements, and Division into Groups for Shop Work.
10:15 - 10:30	The 4-H Tractor Program
10:30 - 11:00	Review of Tractor Maintenance Kits.
11:00 - 11:30	Farm Mechanization and Costs
11:30 - 12:00	What Makes An Engine Run
12:00 - 1:00	Lunch
1:00 - 2:00 P.M.	Tractor Lubricants and Lubrication
2:00 - 2:30	Cooling Systesm
2:30 - 3:00	Rest Period and Travel to Shop
3:00 - 4:00	Shop Work, Lubrication - Taylor Forbes Equip. Co.
4:00 - 4:30	Shop Work, Cooling Systems - Taylor-Forbes Equipment Co.
7:00 P.M.	Movies

Friday, January 16

9:00 - 9:45 A.M.	Use and Care of Farm Tires
9:45 - 10:15	Clean Air for Engines
10:15 - 10:45	Rest Period and Travel to Shop
10:45 - 11:45	Shop Work, Clean Air for Engines Taylor-Forbes Equipment Company
12:00 - 1:00	Lunch
1:00 - 1:30 P.M.	4-H Tractor Operators Contest
1:30 - 2:30	Organization and Conducting Community or County Tractor Maintenance Schools
2:30 - 3:00	General Discussion and Demonstrations

This school will be limited to leaders 18 years of age and older.

SCHEDULE OF 1959 DISTRICT 4-H TRACTOR MAINTENANCE SCHOOLS

DISTRICT	AGENT	DATE	PLACE	LOCAL CONTACT MAN
W. Central	J.B. Flora	Jan. 6-7	Blacksburg: All Meetings in Seitz Hall V.P.I.	J.A. Waller, Jr. Seitz Hall, V.P.I. Blacksburg, Va.
Southwest	P.B. Douglas	Jan. 8-9	Abingdon: Discussions: Appalachain Electric Power Co. Auditorium. 1st Shop - J.C. Vance Equipment Co. 2nd Shop - Vance Supply & Equipment Co.	J.W. Derting Asst. County Agent Abingdon, Va.
Southeast	J.W. Rogers	Jan. 13-14	Wakefield: Discussions: Community Building 1st Shop - Southside Motors 2nd Shop - Cogsdale Equipment Co.	E.B. Parsons, Jr. County Agent Sussex, Va.
East Central	E.W. Carson	Jan. 15-16	Farmville: Discussions: Town Council Hall 1st Shop - Taylor-Forbes Equipment Co. 2nd Shop - Taylor-Forbes Equipment Co.	H.L. Jones Asst. Co. Agent Cumberland, Va.
Northern	G.H. Clark	Jan. 20-21	Culpeper: Discussions: Auditorium - Co. Agent's Office 1st Shop - Gill and Graham Implement Co. 2nd Shop - Hoffman Implement Service	R.F. Heltzel County Agent Culpeper, Va.
Northeast	J.B. Norment	Jan. 22-23	Tappahannock: Discussions: Lowery's Restaurant 1st Shop - Rappahannock Equipment Co. 2nd Shop - Essex Implement Co.	H.A. Little County Agent Tappahannock, Va.

13. Mow across and never up and down steep slopes. This helps you to control mower. It also helps to keep the mower from sliding into the operator, or the operator from slipping and falling into the mower. Golf shoes equipped with spikes are excellent to wear for sure footing while mowing steep slopes.

14. Don't permit the power mower to pull you. To maintain control, slow it down; never run or trot.

15. Never leave engine running when mower is unattended.

16. Avoid using an electric mower when the grass is wet. Make sure the mower and cord are in perfect condition.

Wrong way to mow.

Right way to mow.

Prepared by

Easley Smith and G. D. Kite

Agricultural Engineering Department

Virginia Polytechnic Institute and the United States Department of Agriculture Cooperating: Extension Service, L. B. Dietrick, Director, Blacksburg, Virginia

Printed and Distributed in Furtherance of the Acts of Congress of May 8 and June 30, 1914

5. Before mowing on rough terrain, set the blade high to prevent it from striking the ground. Keep blade high enough to prevent damage to the turf. Usually a minimum blade height of 2¼ in. is required.

6. Store gasoline in an approved metal container away from furnaces, fires, or sparks. Do not store in a glass container.

A safe container for gasoline.

7. Do not refill tank when the engine is hot or running.

8. Use care in starting your lawn mower engine.
   (a) Make sure self-propelled mowers are out of gear.
   (b) Stand firmly and keep hands and feet away from cutting blades and moving parts.

Generally, in starting engine, you can steady mower by placing one foot in a safe position on machine.

9. Use slowest blade speed, consistant with good work, that is possible. High blade speeds are more dangerous and cause excess wear of mower.

10. Remove all toys, stones, sticks, wire, cans, glass, and other trash from lawns before mowing. Remember, a blade traveling at 150 miles per hour can knock an object several hundred feet, causing serious injury or damage to anything in its path.

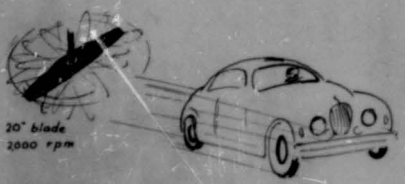
11. Keep children and pets away from mowers.

12. Don't let small children operate mowers.

Note rock hidden by weed from operator's view.

A lawn littered with toys and cans and the presence of a child and pets make this a hazardous operation.

MANY home owners are now using power lawn mowers. Most of them are rotary-type mowers with blades that revolve at speeds between 1800 and 3000 revolutions per minute. This means the cutting edge of a 20-inch blade is traveling at speeds between 100 and 180 miles per hour. Imagine what would happen if a person were struck by a steel blade traveling that fast, or by a stone or piece of wire thrown by the blade.



Blade tip speed equals 120 mph.

Along with the increased use of power lawn mowers, there has been a closely related increase in accidents involving both operators and bystanders. Most of the accidents have been due to carelessness or lack of knowledge on the part of the operator.

A recent survey indicated that approximately ⅔ of the injuries were caused by direct contact with mowers and ⅓ of all power mower injuries were caused by objects being thrown by mowers. This same survey showed that about ⅔ of the direct-contact injuries were to toes and feet and ¼ to fingers and hands. The revolving blade is the most dangerous part of a power mower, and is either directly or indirectly responsible for most of the injuries.

The following suggestions on how to operate your lawn mower safely may be of great value if properly observed:

1. Be familiar with your lawn mower, read the operator's manual and follow the manufacturer's instructions.

2. Always disconnect the spark plug wire and be sure the blades have stopped before working on mower. This is especially important before placing your hand under the mower or when sharpening and making blade adjustments.

Disconnecting spark plug wire.

3. Keep mower clean and the blade sharp. Wipe off excess grease and dirt and check the blade before each use to be sure all nuts are tight. A sharp blade does a better job of cutting and requires less speed.

4. Make sure your mower is equipped with the necessary safety shields and never operate it unless these shields are in place.

Underside of a rotary mower showing the blade and shield around blade.

Lawn Mower Safety

Power lawn mowers are innocent, handy, labor saving machines, which if improperly operated can be dangerous. Be careful!

Injured hand caused by adjusting mower with the motor running.

Foot injury caused by improper operation of a rotary lawn mower. Operator's foot slipped into blade while he was mowing wet grass on a slope.

(SEE INSIDE)

Circular 829 **June 1959**

V. P. I. Agricultural Extension Service

Blacksburg, Virginia

Position of the Subject—Place the subject in the face-down position. Bend his elbows and place the hands one upon the other. Turn his face to one side, placing the cheek upon his hands.

Position of the Operator—Kneel on either the right or left knee at the head of the subject, facing him. Place the knee at the side of the subject's head, close to the forearm. Place the opposite foot near the elbow. If it is more comfortable, kneel on both knees, one on either side of the subject's head. Place your hands upon the flat of the subject's back so that the heels lie just below a line running between the armpits. With the tops of the thumbs touching, spread the fingers downward and outward.

Compression Phase—Rock forward until the arms are approximately vertical and allow the upper part of your body to exert slow, steady, even pressure downward upon the hands. This forces the air out of the lungs. Your elbows should be kept straight and the pressure exerted almost directly downward on the back.

Expansion Phase—Release the pressure, avoiding a final thrust, and commence to rock slowly backward. Place your hands upon the subject's arms just above the elbows, and draw his arms upward and toward you. Apply just enough lift to feel resistance and tension at the subject's shoulders. Do not bend your elbows, and as you rock backward, the subject's arms will be drawn toward you. Then drop the arms to the ground. This completes the full cycle. The arm lift expands the chest by pulling on the chest muscles, arching the back, and relieving the weight on the chest.

The cycle should be repeated 12 times per minute at a steady uniform rate. The compression and expansion phases should occupy about equal time, the release periods being of minimum duration.

ACKNOWLEDGMENT

The author gratefully acknowledges many helpful suggestions from the National Safety Council and the American Red Cross in the preparation of this circular.

Do not overload. Know the capacity of your boat. Weight of passengers, not the number of seats, determines a safe load. Make this test in shallow water of your pond or stream. Boat sides should always be well above the water line.

Don't stand up in the boat, whether the boat is moving or standing still. Hold boat sides firmly when changing seats. Be careful in entering and leaving the boat.

Equip your boat with Coast Guard-approved life preservers.

Wear a life vest or have a seat cushion life preserver attached to your body by a line when riding in a small boat. Be sure you know how to use the cushion.

Don't overpower your boat. A motor too powerful for the boat will always cause trouble.

"Hot-rod" operation should not be permitted.

BOATING—Hang on to the overturned boat—it floats

SAVE A LIFE BY ARTIFICIAL RESPIRATION

Back Pressure-Arm Lift Method as Taught by the American Red Cross

The standard technique for the Back Pressure-Arm Lift method is as follows:

1. Place hands 2. Swing forward 3. Lift arms

REPEAT 12 TIMES PER MINUTE

YOUR POND NEED NOT BE A DEATHTRAP

Swim Safely

Mark off good swimming areas where underwater trash, bottles, rocks, snags, etc. have been removed.

Provide the swimming area with rescue equipment such as a coil of light rope tied to a wood block or ring buoy for throwing, a long reaching pole or stick, a board with rope attached, and posted first aid instructions. Also, erect a sign for the protection of the property owner.

Include shallow water area for nonswimmers and have adult supervision for small children.

(See drawing in center of this circular.)

Learn to swim well — get competent instruction.

Never swim alone — you are not that good. Don't rely on such floating devices as innertubes, air mattresses (too easy to fall off), or devices that float beyond reach or become deflated. Have qualified life guard on duty for larger groups.

Avoid swimming when overheated, overtired, or after you have just eaten.

Know what to do when someone else is in trouble in the water. Practice using all the rescue equipment.

Avoid horseplay — it is unsafe.

Have Fun Skating, But:

Make sure the ice is solid enough for skating.

Have a skating buddy.

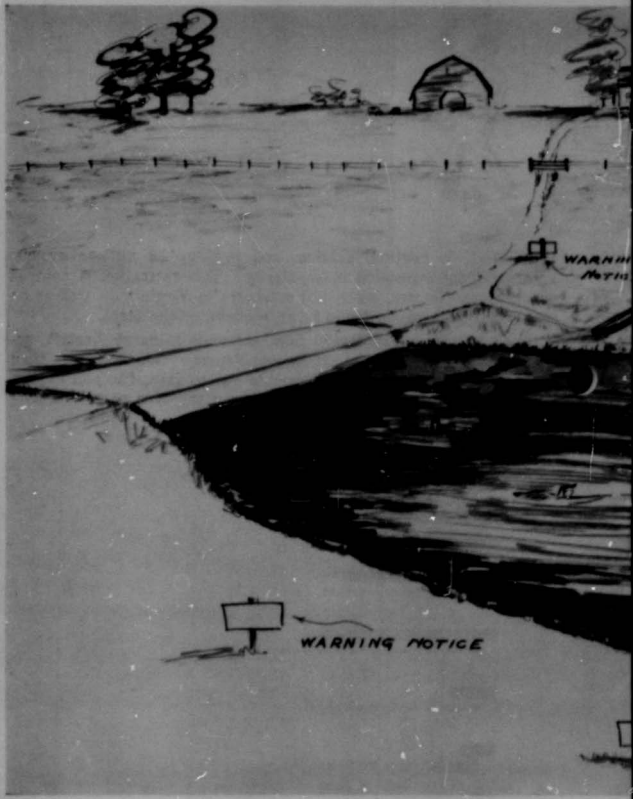
Have rescue equipment available and know how to use it.

Boating Can Be Safe

Most small wooden boats, which are not waterlogged, and metal or fiber glass boats with adequate flotation will float when swamped or capsized. In case of emergency, stay with the boat until help arrives. Test the buoyancy of your boat before loading passengers by swamping it in shallow water.

Your Pond Safer for Swimming

These Precautions Will Make Y

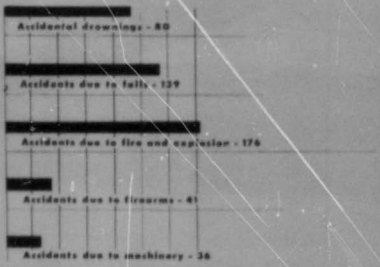


Water Safety

SWIMMING, boating, skating, and fishing, for all age groups, are rapidly increasing in popularity. This recreation is enjoyed on the many streams, lakes, and seashores in Virginia, as well as on the 20,000 farm ponds found in all sections of the state.

Drownings accounted for 80 fatal accidents in rural Virginia, according to the 1958 Statistical Annual Report. This was more than from any other cause except accidents due to falls, fire and explosions. Most rural drownings occur between the ages of 15 and 24.

FATAL ACCIDENTS IN RURAL VIRGINIA FOR 1958



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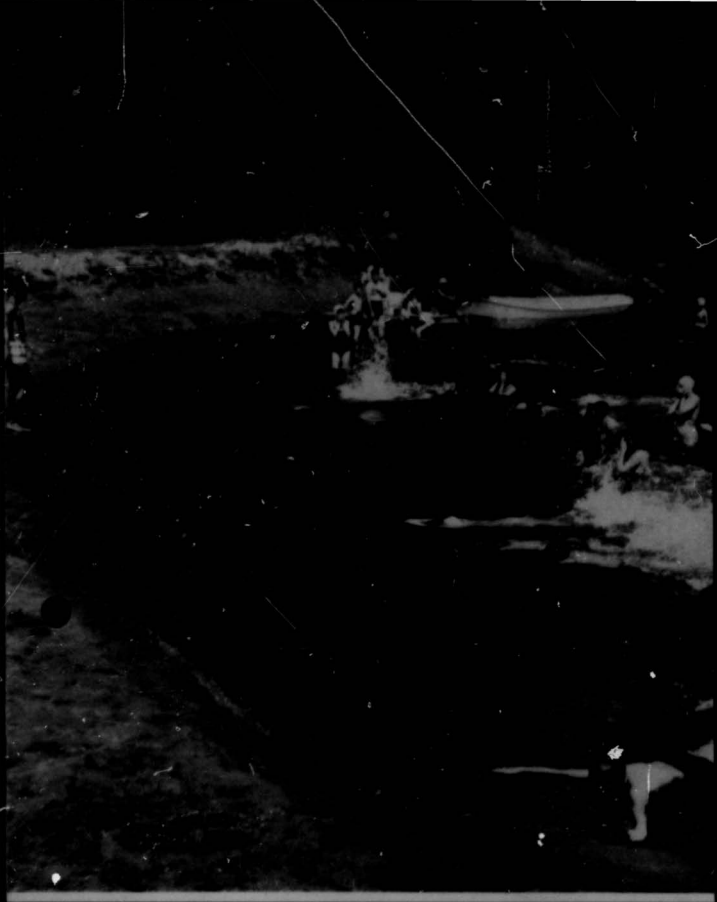


WATER SAFETY

James A. Waller, Jr., *Extension Agricultural Engineer*

Circular 831 June 1959

V. P. I. Agricultural Extension Service
Blacksburg, Virginia

EXHIBIT SECTION****

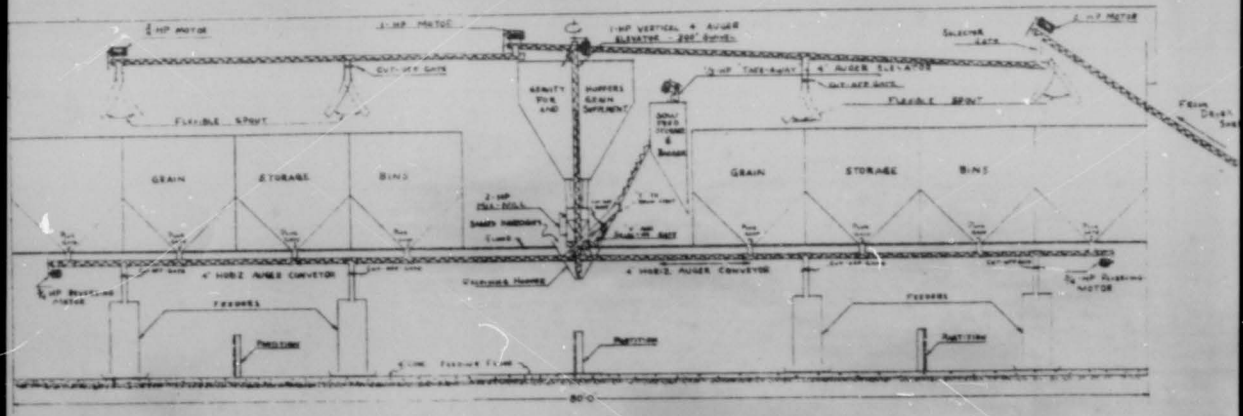
STATISTICAL SUMMARY

	Kite & Driggers	Smith	Wheary	Waller	Lambert & Strickler	Calhoun	Swink	Total
News Articles	4	3	1	2	1	5	3	19
Radio Programs	18	14	12	12	4	4	4	68
T. V. Programs	1					1	1	3
Special Articles	1				1	1	3	6
Circular Letters	12	10		5	13	25	23	88
Copies of Cir.Letters	1240	390		400	1696	2881	917	7,524
Leaflets & Circulars Prepared		1	1	1		1	1	5
Bulletins Distributed	4743	1200	1049	237		7500	35	14,764
Individual Letters	953	250	263	519	341	485	1146	3,957
Conference with Agents	106	20	91	54	21	68	9	368
Farm-Home Visits	201	5	169	17	32	40	19	483
Result Demonstrations Visited	6			3		18	17	44
Tours - Field Days	10	2		2	3	1	2	20
Talks to Groups	53	15	32	25	19	23	38	205
Attendance at Meetings Demonstrations, etc.	2136	452	590	437	831	979	2601	8,026
Days in Office	439½	162½	186	134	198	162	197½	1,479½
Days in Field	126½	48	94	77	78½	78	70	572
Miles Traveled	14,080	6269	12,631	7977	9606	7651	14,465	72,679
4-H Meetings Attended	2	13	4	14	5	4	3	45
Special Plans & Sketches Prepared	70		50	3	17	7		147

AUTOMATIC FEED PROCESSING AND DISTRIBUTION FOR 300+(plus) HOGS

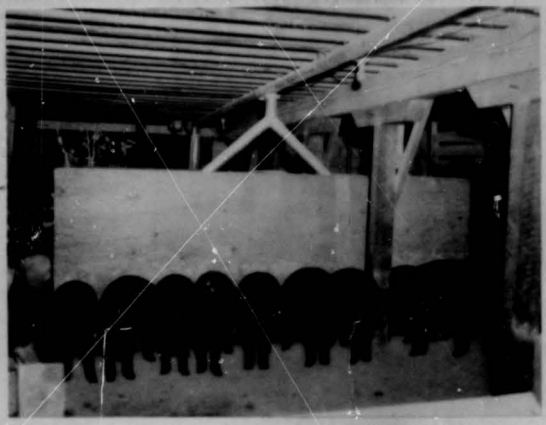
ON

J. J. LILLEY FARM, SUSSEX COUNTY



REAR VIEW ELEVATION —

A switch is adjusted to operate the proper auger. The mill is turned on with a timer that cuts off the equipment after it operates for a pre-set time.



Feed is augured directly from the grinder-mixer into the hog feeders.

The cost of the grinder-mixer and all of the conveying equipment was about $2,000. The first month the unit was operated, the cost of electricity was $6.78. This bill included pumping and warming water for the hogs. A minimum amount of labor is required with the new system, as compared to excessive labor costs with the old method of feeding hogs.

This installation is truly a result demonstration. It has been visited by large numbers of farmers from Virginia and other states. Farmers have shown interest in this operation and two similar installations have been added in Sussex county. Other farmers in the area are considering automatic grinding, mixing and feeding as a method of reducing hog production costs.

agriculture, and well trained in shop work, added some ideas of his own. The result is one of the most efficient hog feeding operations in Virginia.

Grain produced on the farm is marketed through livestock. Milo follows small grain which gives two grain crops per year from the same land. Two men do the harvesting, one operates the self-propelled combine and the other hauls the grain. The first stop for the grain is a batch drier. The dry grain is conveyed from the drier into a holding bin, and is then augered into the desired bin in the new structure.

Augers move the grain from storage into smaller holding bins above the automatic grinder-mixer. As feed is being ground, it is augered directly into the hog feeders.

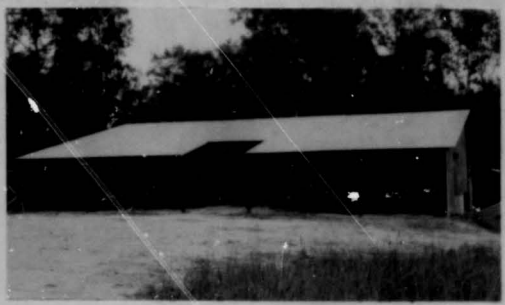
This 2 h.p. unit automatically grinds and mixes desired ration. Ration can be changed by adjusting the black dials.

Control panel for the automatic feed grinding, mixing and feeding equipment on the Lilley farm.

The Lilleys grind enough feed for 300 hogs and 45 brood sows by running the equipment about an hour per day. The mill requires little attention. The dials are adjusted to produce the proper ration. Slide gates are opened or closed to deliver feed into the desired pen.

Hog Feeding Operation: Feed and labor costs are major items of expense in many hog feeding operations. A reduction in these costs means more profit. J. J. Lilley and his father, of Sussex county, saw the possibilities and resolved to do something about it. They studied the problem and decided to modernize their hog feeding operation with emphasis on lower feed costs and labor-saving equipment.

There were good reasons for making the change. "In the winter we ground feed with a mill pulled by a tractor," Lilley explained. "It took one and one-half days a week using three men grinding. In summer, when we were busy with crops, we had the feed custom-ground by a portable grinder that goes through the country. This was costing better than $100 a month for grinding alone. And it was a lot of work picking up and carrying the feed back to the barn."



Building for market hog feeding operation on the J. J. Lilley farm.

Lilley's first step was to construct a new building for storing grain and feeding hogs. He used plans provided by the Agricultural Extension Service as a guide in building the unit which included a four-pen feeding floor. Grain storage bins were installed above the covered area of the pens. Some machinery storage space was also provided in the building.

Lilley requested additional help from the Extension service in planning an automatic grinding, mixing, and feeding layout for the new structure. Extension agricultural engineers developed a suggested plan. Lilley also obtained recommendations from equipment manufacturers and electric power suppliers. Lilley, B. S. in vocational

etc. Twenty nine counties organized and used the farmstead lighting demonstrations to tell the story of lighting to 7,018 people. Electric power suppliers assisted with 750 lighting meetings and made recommendations for 285 lighting layouts and improved lighting was installed by 731 families in their service areas.

It is estimated that about 47,500 families were made aware of good farm and home lighting in 1957, not including those reached through television or magazine articles.

The program continued in 1958 under the title "Light for Better Living" with most of these same activities contributing to its success. Forty nine counties conducted educational programs on lighting. Thiry two of these counties established lighting demonstrations which were visited by hundreds of people. As evidence of the broad scope of the lighting program, it is estimated that 70,090 people were reached during the year through open-house demonstrations, fair exhibits, home demonstration club demonstrations and presentations at civic clubs.

Continued emphasis was placed on lighting during 1959. The specialist served on Council committees which developed two fact sheets on lighting, in addition to revising the equipment guide and other activities. About 35,000 copies of the two fact sheets were printed for distribution by Council members and their representatives. The program was promoted at the state level through many of the same communications channels as in the previous two years. County activities continued in about the same manner but with less interest than in 1957 and 1958, according to Extension reports. One other agency of the Council reported over 50 per cent increase in activity during the year. It seemed difficult to maintain keen interest in a program over a number of years by any one organization. The Extension service has experienced early success with leveling off of interest in the program during this year.

An evaluation of what was actually accomplished in the use of improved lighting in the home and on the farm is difficult to make. Those closely associated with the program are convinced that many families have improved their lighting. It is estimated that at least 200,000 people have been reached and made aware of the need. If the number of actual improved lighting installations only remotely approaches the amount of cooperation from the agencies and organizations who worked together to develop this educational program on lighting, the program has been a success beyond all expectations.

A lighting demonstration was created on a Montgomery County farm to serve as an educational tool on a statewide basis. Arrangements were made with the V.P.I. motion picture unit to make a movie of this demonstration depicting before and after installations of the farmstead wiring and lighting. This movie, slides and a tape recording were used to develop a story on how various groups could participate in projects to realize an overall educational aim. The specialist was a member of a panel which presented this story to the 1956 Annual Rural Electrification Conference.

Following the publicity on this demonstration farm, the Extension service asked other members of the Virginia Farm and Home Electrification Council if they would help sponsor a more concentrated program on farm and home lighting through a general committee of the Council. An Extension committee was organized to develop and coordinate its lighting program with that of the Council.

The program as outlined by the committee with that of the Council, was presented to the administrative staff and later to the district agents. Rural electrification specialists were alloted a half-hour at each of the six fall district Extension meetings to present the farm lighting situation and to outline possibilities for county programs. The agents were urged to handle this program through a special interest committee in accordance with Extension program planning procedures.

Through the above coordinated effort, farmstead lighting received major emphasis in 1957 for the first time. The Extension lighting committee, with assistance from the Council, secured nationally known experts in the field of lighting, to assist in training county Extension agents and leaders. In March of 1957, a total of 418 agents and leaders attended training meetings at five locations in the state.

Following the training for agents and leaders, the specialists assisted some counties in training local leaders. In other instances, help was given in setting up result demonstrations on lighting for "open house" and publicity. During 1957, the specialists, as members of Council committees, helped prepare an equipment guide and also a visual aids guide to assist local leaders in conducting a program.

The Extension specialists arranged a program at the 1957 Institute of Rural Affairs where approximately 800 people heard talks and saw demonstrations on lighting. The specialists prepared circular 737, entitled "Light for Family Living" and 4,000 copies were printed for distribution. Other activities included newsletters on the program to county and home agents, a newspaper mat service, news articles, radio tapes for local use, magazine articles, and a television program.

An incomplete survey late in 1957 showed that seventy counties held method demonstrations for one or more of the following: home demonstration clubs, 4-H Clubs, special interest groups, Ruritan, P.T.A.,

young stock. The county agent arranged for a conference with the Extension farm building specialist, the dairy inspector, and the Droogs brothers. The existing situation and the tentative future plans were discussed.

The farm building specialist recommended a location for the new set-up. He explained the types of different buildings and facilities with the aid of pictures, plans, and bulletins. The brothers selected the loose housing system, with a herring-bone milking parlor. Every item was considered for economy of construction and maintenance, efficiency of labor and equipment, sanitary requirements, and animal environment.

A special plan was prepared for a complete layout which included a double-six elevated stall milking parlor, a 40' x 120' clear span, pole type lounging barn, two fifty-ton self-feeding haykeepers, a 30' x 100' bunker silo, manure loading ramp and a concrete paving lot. Complete plans for each unit were furnished. The construction was done throughout the year with the usual farm labor and only one extra man. Careful buying of materials and effective use of farm labor, resulted in a cash outlay of only $18,000 for the complete 80-cow unit.

The new facilities have six outstanding labor-saving features. Milk is carried by pipeline from cows to bulk tank. Bulk feed is moved by gravity flow and auger from storage tank to feeders. Chopped hay is stored, dried, and self-fed in the newly developed haykeeper. Silage is self-fed from a wood bunker silo. Fresh drinking water is supplied by automatic waterers equipped with electrical heating units. Manure is scraped from concrete paved lot by tractor - mounted scraper directly onto manure spreader.

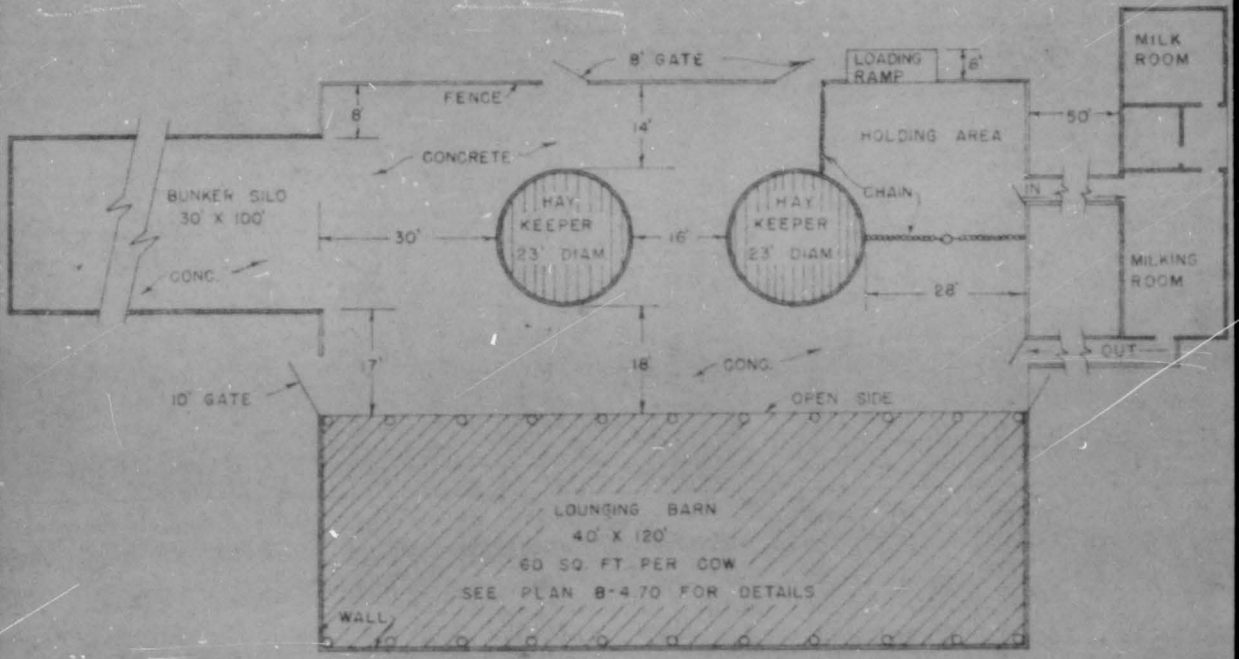
With 66 cows in the new set-up, ten man hours per day are required for the dairy chores as compared to 20 man hours with 54 cows in the old unit. A higher quality milk is produced.

More than 175 county agents and farmers have visited this new set-up during the first five months of its operation. This is sufficient testimony for its value as an efficient operation and an excellent demonstration.

Mr. Adrian Droogs says, "I have found that information on farming and dairying is available from the Extension Service and other agricultural agencies, and that I can get any advice and information which I need from those sources. I attribute my success as a farmer in large part to the information obtained."

"Light for Better Living Program" In 1956, few farms had enough light for efficiency, convenience and safety. Surveys showed farm families did not generally understand how good lighting would benefit the farm business. These conditions led to the development of a program in 1956 to place major educational emphasis on lighting.

SUGGESTED DAIRY BUILDINGS LAYOUT FOR 80 COW HERD



SKETCH D

LAYOUT OF DROOGS' BROTHERS DAIRY BUILDINGS

SPECIAL REPORT

Farm and Home Development

The 1959 program did not include any special activities aimed specifically at the farm and home development phase of Extension. The specialists did, however, work with county agents charged with responsibility for this program, on the engineering aspects of problems encountered by these agents in working with farm families involved in the program.

Several hundred special maps were processed in the farm building plan service section for county agents working with this program.

Program Projection

The staff devoted much time to the study on the "Role of V. P. I. in Serving the People of Virginia". Trend data were assembled on all phases of agricultural engineering relating to agriculture and rural living in Virginia. This information was studied, analyzed, and presented in a departmental report to the "Committee of Fifteen" in the school of agriculture. This report, along with similar material prepared by other subject matter departments will serve as a basis for program projection and planning during the next several years.

Significant Stories of Extension Accomplishment

Several examples of significant accomplishment in agricultural engineering Extension have been selected and are given here.

Dairy Farm Buildings and Facilities: More income, greater efficiency, use of less manual labor, and higher quality milk were results obtained by the Droogs brothers of Campbell County in a switch from stanchion barn to an engineered milking parlor - loose housing system. The cost-price squeeze, plus the fact that their market was changing to a bulk tank operation forced these farmers to make drastic changes in their operation.

Travis and Adrian Droogs were typical of many Virginia dairy farmers who were confronted with the need for more farm income. A larger and more efficient operation seemed necessary. Since purchasing the family farm in 1951, they had cleared more land, increased crop production through improved farming practices, and increased the milking herd to 54 cows. The future plan called for a milking herd of 80 cows.

The two brothers in discussions with county agent, Charles Ellis, who was an agricultural engineer, concluded that their old dairy set-up which included a 34 stanchion barn, was not suitable for development into an economical, efficient 80 cow unit, but could be used for the

In the adult phase of the program, the specialist cooperated with research and teaching staffs and other subject matter specialists on special activities as planned. Some of these were: (1) A study of the performance of hay conditioners. (2) A sprayer school and demonstration for 32 vocational agricultural teachers. (3) Demonstration of an alternate method of planting and cultivating peanuts for the control of stem rot infection. Approximately 30 Extension agents and manufacturers representatives attended. (4) Assembled information for an Extension circular on an alternate method of planting and cultivating peanuts for stem rot control. (5) Served as co-chairman of the "Mechanized Forage Handling" program of the Virginia Farm and Home Electrification Council. (6) An Agricultural Engineering Exhibit at the State Fair of Virginia showing certain phases of farm mechanization. (7) An Agricultural Engineering session at the Annual Extension Conference.

Safety was stressed in the 4-H tractor program, radio programs, meetings, and in a circular prepared on "Lawn Mower Safety." This program might be expanded by a still closer cooperation and understanding between Extension and industry and between Extension specialists in the various subject matter field.

Safety: Safety practices were emphasized where appropriate in all phases of the Extension project. Two timely safety publications, "Water Safety", and "Lawn Mower Safety" were prepared. Ten thousand copies of these two bulletins were distributed for use in county safety programs. The project leader, as chairman of the Extension Safety Committee, cooperated with other Extension specialists on safety in their particular programs. He represented the Extension Service on the Virginia Rural Safety Committee and the Advisory Committee to the Governor's Highway Safety Committee and took part in their activities.

Program Improvement: The agricultural engineering project in Extension could be greatly strengthened if agents were better informed on trends, changes and needs in their area. This can be accomplished by the use of more news letters to agents, better use of "New Developments", giving special presentations and reports at district agents conferences, and paying more attention to giving new information and ideas to agents while working with them at the county level. Buildings, machinery, equipment, and soil and water conservation are critical subjects for farmers as they seek to improve farming efficiency. Every effort must be made to give these topics adequate consideration in program planning with and for farmers.

retarding the expansion of mechanized peanut harvesting.

Only limited progress was made in hay and small grain drying during the year. The increase in picker-shellers has resulted in growing interest in corn drying. The critical labor situation is causing the larger peanut producers to give serious consideration to the possibilities of mechanized harvesting. It is estimated that 70 crop driers of all types were installed in 1959, which is below the goal of 100 new drying systems.

The 4-H electric program has been an effective approach to inform boys and girls on the efficient use of electricity. In 1959 the project enrollment was 11,736 boys and girls from 91 counties. Last year 12,326 Four-H members in 95 counties took the project. This was the largest enrollment of any state in the nation. The goal of 10,500 members to be enrolled in the project was exceeded. New project materials and more extensive training and use of leaders are basic needs for strengthening the program.

The specialists spent about 40 per cent of their time on general and special activities not directly related to the major problem areas discussed above. Many of these activities involved electric power and crop processing and others were concerned with advancing the overall Extension program.

Farm Water Development and Use: Only limited progress was made on this phase of the project. The specialist responsible devoted a great deal of time to engineering work on the new Southwest Virginia 4-H Club Center. He retired from active duty on August 31. Work accomplished included participation in the statewide water systems program in handling 16 individual requests for special assistance; promotion of the development of ponds and seep springs; design of six irrigation systems; and the publication of a circular on water safety.

This phase of the project will be completely revamped and new approaches will be developed as soon as a qualified replacement can be employed for the staff member who retired this year.

Farm Machinery: There was an eleven per cent increase in the enrollment of the 4-H tractor program with four additional counties participating than in 1958. While this was an improvement, it was somewhat short of the goal planned. One state and eight district 4-H tractor program schools for training leaders were held with an attendance of 146 leaders and agents from 63 counties. This was a smaller attendance than had been anticipated, possibly due to quite a few receiving similar training in previous years. The specialist assisted with six district, one state, and one regional 4-H tractor operators' contest as scheduled.

Rural Electrification and Crop Processing: The major areas of work during the year were farmstead lighting, farmstead wiring, water systems and water use equipment, materials handling equipment, crop drying and processing, and the 4-H electric program.

During the year, 48 counties conducted educational programs on lighting. Fourteen of these counties established result demonstrations showing approved lighting practices. It is estimated that 42,000 people were reached through demonstrations and meetings. Information is not available on the number of farmstead lighting systems that were improved. The lighting program was more extensive in 1958. A survey is being made to determine the problems county committees have encountered in planning and conducting lighting programs. The results of this study will be used as a guide in strengthening the 1960 program.

Inadequate farm wiring is a critical problem. It is retarding the expanded use of electricity on the farm. Power supplier personnel rendered valuable assistance on farmstead wiring problems during the year. The goal of 800 wiring systems to be improved was exceeded.

A "Water for Better Living" program was continued under the sponsorship of the Virginia Farm and Home Electrification Council. An organized emphasis program on water systems has been conducted in Virginia for the past 12 years. Extension has participated in this activity since its inception. Little enthusiasm was shown for the program this year. It is doubtful that the goal of 10,000 water systems to be improved was attained.

Farmers are becoming more interested in chore equipment for saving labor and reducing production costs. Materials handling equipment was featured in an exhibit entitled "Electro-Mation and Mechanization-Revolution in Agriculture" for the Atlantic Rural Exposition. The specialists spent almost 300 man-hours in planning, building and manning this exhibit. Twenty electric power supplier representatives and 15 other interested people received training in materials handling equipment during a two-day short course. Training in this area was presented to 61 Extension agents during the year.

Additional training is needed on materials handling equipment for Extension agents, power supplier personnel, and dealers to keep them abreast of new developments. A survey among county workers revealed mechanized forage handling should receive major emphasis in 1960. Plans have been developed for this program under the sponsorship of the Council. The specialists will cooperate in this undertaking.

Modern harvesting machinery requires drying facilities to preserve the quality of hay, small grain, corn and peanuts. How to prevent early harvested corn in eastern Virginia from becoming sour and moldy is a serious problem. The high cost of drying systems is

Rural Housing: Accomplishments in the principal areas of work in the rural housing project were about as planned or anticipated in the 1959 plan of work. The most important exception was that it was not possible to revise the farm house plan book.

The three project areas receiving most emphasis were (1) House Remodeling and Repairs, (2) Community Projects, and (3) New House Construction.

The house remodeling and repair project required the greatest percentage of the specialist's time. Most of the work was conducted through home visits by the specialist and home demonstration agent. At least 170 families in 55 different counties were assisted in this manner. In most cases remodeling plans or sketches were made by the specialist. The county Extension agents estimated that at least three-fourths of those assisted will do the recommended work. This could amount to construction valued at half a million dollars. About 1500 other rural people were given information on house remodeling through nine meetings, five radio tape recordings, two house planning clinics, and distribution of literature.

The work with community projects was about the same this year as in 1958. The specialist worked with 10 rural church groups, and four other community groups in planning various construction projects. The value of the construction involved in these projects could be over $400,000. The value of this work in fostering good public relations is inestimable.

Rural people requested and received 306 house plans through county Extension offices. Two new house plans were added to the plan service. An estimated 1500 rural people received information on, or assistance with, new house planning through four county meetings, two county housing clinics, and six radio tape recordings.

With the cooperation of the district home demonstration agent, the housing specialist and the home improvement specialist conducted an agent training workshop in house planning and remodeling for nine home demonstration agents in one district. At the Annual Extension Conference, the housing specialist conducted a three-hour training session for 26 home demonstration agents on house planning and remodeling.

Although safety in the home was not planned as a special project for 1959, considerable work was done in this area. A set of slides on "Accidents in the Home Due to Falls" was prepared. Illustrated talks on home safety were given at three county meetings and two state meetings. Six radio recordings were made on the subject. The specialists time could be more efficiently used if agents would do a little more work with families who request assistance before the specialist is called in. Possibly more agent training in home planning would give the agents more confidence in undertaking this type of work.

CONTRIBUTION TO REGIONAL PROGRAMS

Southern Regional Plan Service Committee: G. D. Kite, Project Leader, served as chairman of this regional committee which coordinated the farm building plan work in the states of the region with the Farm Building Service of the Agricultural Research Service, USDA.

Southern Regional Committee on Extension Agricultural Engineering Publications: E. T. Swink, Head of the Department served as chairman of this regional committee to provide the vehicle for producing certain appropriate publications which could be used in two or more states. Six bulletins were produced under the auspices of the committee during the year.

TOTAL PROJECT

In general, the goals which were indicated in the 1959 plan of work were attained. In a few cases goal estimates were not reached due to unexpected changes in the situation or special personnel assignments of an emergency nature. The special exhibit for the state fair of Virginia, communication schools, and subject matter workshops were examples of unscheduled activities that were time consuming. A brief appraisal of progress made in each major phase of the project follows:

Farm Structures: The program in farm structures was adjusted to meet the needs of the different commodity groups in the county and state programs. Most emphasis was put on dairy and livestock enterprises where the problems were economical expansion, improved efficiency of operation and better environmental conditions. Demonstrations of individual buildings, farm layouts and labor saving features were used more in county programs than in previous years.

Information was given on building location, planning and construction during 201 farm visits, a slight increase over 1958. Farmers and county agents were informed on subject matter and programs through 953 individual letters, 12 circular letters and 4743 bulletins. Plans for buildings and equipment were used effectively as subject matter material. New plans were added and old plans revised to keep the plan service up-to-date. A total of 8,805 plans were distributed this year as compared to 9,873 in 1958. The cost-price squeeze in agriculture had some effect on new farm construction, especially in hog and egg production units.

The evidence of improved buildings and more labor saving facilities on farms throughout the state is evidence of the use of plans and other information supplied by Extension Service and other organizations.

5. Tractor Safety.
6. Methods of Mechanically Unloading Farm Wagons and Trucks.
7. Operation and Adjustment of Grain Combines for Best Performance.
8. Tractor Safety.
9. Haymaking.
10. Ways to Reduce Tractor Fuel Costs.
11. Changes in Corn Harvesting.
12. Pick More Corn Safely.
13. Winter Care of Engines.
14. 4-H Tractor Program.

News Releases:
1. Oil for Your Engines.
2. Care and Service of Plows.
3. 4-H Tractor Program

Miscelleneous Activities

Approximately 7% of the specialist's time was devoted to general Extension activities.

Staff Meetings attended:

1. Three Extension Staff Meetings.
2. Nine Agricultural Engineering Staff Meetings.
3. Three General Faculty Meetings.

Meetings attended for professional improvement:

1. 4-H All Star Conference.
2. Institute of Rural Affairs.
3. Annual Extension Conference.
4. Electro-Mation Short Course.
5. Annual Meeting of Virginia Section, ASAE.
6. Communications Training School.
7. Southern Regional Conference for Extension Agricultural Engineers.

Committee assignments:

1. Co-chairman of Mechanized Forage Handling Committee of the Virginia Farm and Home Electrification Council.
2. Member of Action Committee and Co-director of the Eastern United States 4-H Tractor Operators' Contest
3. Member of Recreation Committee for Institute of Rural Affairs.
4. Member of Information Cafeteria Committee for Annual Extension Conference.
5. Member of two committees for the Agricultural Engineering exhibit at the State Fair of Virginia.

b. Maintain maximum quality.
c. Promote safe practices.

2. To make available through local dealers the necessary equipment for accomplishing Objective 1.

The farm machinery specialist is co-chairman of this committee which includes representatives of the Virginia Farm Equipment Association, electric power suppliers, and members of the research, teaching, and Extension staffs at V.P.I. representing Agricultural Economics, Agricultural Engineering, Animal Husbandry, Dairy Science, and Vocational Agricultural Education.

While this committee will function throughout 1960, it has suggested pilot counties for initiating the "Mechanized Forage Handling" program, reviewed available material and literature on the various systems, and recommended alternate patterns or systems.

The plan of the committee is for all interested agencies and organizations, including equipment suppliers and allied groups, to be given an opportunity to participate and cooperate in activities to improve the harvesting, processing, handling, storing, and feeding of hay and silage. Plans are being developed for an active Extension program on this problem in 1960.

Planting and Cultivating Peanuts for the Control of Stem Rot: An estimated annual loss of $10 million to $20 million to peanut growers in southern United States is caused by stem rot infection. Much of this loss is taking place in the Virginia peanut belt.

Recent research has shown that stem rot infection of peanuts can be reduced by adopting a combination of field practices; such as turning under organic matter, planting on ridges, using herbicides, and cultivating without moving soil onto the plants.

A demonstration of these field practices was conducted for the county agents in the peanut counties by the machinery specialist in cooperation with members of the Tidewater Research Station. Approximately 30 agents and manufacturers representatives attended.

The specialist and G.B. Duke, Research Agricultural Engineer, ARS, USDA, are preparing an Extension circular on an alternate method of planting and cultivating peanuts for stem rot control.

Mass Communications: Fourteen radio programs and three news releases were prepared on topics pertaining to safety and selection, operation, and maintenance of machinery. They were as follows:

Radio Tapes:
1. Farm Machinery for 1959.
2. Winter Check-up of Your Farm Machinery.
3. Oil for Your Engines.
4. Care and Service of Plows

Approximately 250 copies of the summary of the study have been distributed. The study was also explained by the specialist on a radio program.

Low-Pressure, Low-Volume Power Sprayers: Spraying for insect, disease, and weed control has become a widespread practice throughout the state. The proper selection, use, and maintenance of low-pressure, low-volume power sprayers is important for economical applications. A nine-page paper was prepared on this subject for use in sprayer schools and for distribution to County Agents, dealers, and farmers.

The specialist assisted with a sprayer school and demonstration for 32 vocational agricultural teachers attending the Vocational Agricultural Teachers Short Course at V.P.I.

Lawn Mower Safety: The large number of accidents caused by the increased use of power lawn mowers prompted action on a "Lawn Mower Safety" circular. Circular 829 was prepared jointly by the farm machinery and farm structures specialists. Causes of accidents and safety practices were explained.

The circular applies to both rural and urban home owners. Fifty-five hundred copies were distributed to agents, rural and urban home owners and safety organizations.

Mechanized Forage Handling: Due to an increase in the livestock production in Virginia and a demand for more and better forages, more emphasis was placed on harvesting, storing, and feeding of forage crops. To harvest, store, and feed top quality forages with a minimum of labor; it is necessary that farmers have properly engineered and balanced systems. They need unbiased information on the machinery, buildings, and equipment available for doing the job.

To make more information available on machinery and equipment for hay and silage harvesting and storing, a paper was prepared on this subject and presented to Extension agents and specialists attending the Annual Extension Conference. Approximately 150 copies of this information was distributed to agents, specialists, farmers and machinery dealers.

The specialist assisted with the Agricultural Engineering department exhibit, showing mechanized forage handling, at the State Fair of Virginia.

In July a "Mechanized Forage Handling" emphasis committee was organized by the Virginia Farm and Home Electrification Council with the following objectives:

1. Make readily available and encourage maximum use of information on harvesting, processing, handling, storing, and feeding hay and silage to:
   a. Reduce labor and cost.

Jamestown; the annual banquet; and the contest, is included in this report. State winners from 21 states competed in the regional contest. Gerry Watts, the Virginia contestant, tied for third place.

4-H Automotive Care and Safety Project: Because there is a need for additional projects, holding the interest of older farm, as well as urban boys and girls, the 4-H Automotive project is being made ready for 1960. Extension agricultural engineers and the 4-H Club staff are cooperating on this project. The Firestone Tire and Rubber Company, donor of the project, is providing literature, leader training grants and awards.

Adult Program

With the continual decrease in net profit per unit of farm production, farmers are finding it necessary to increase the size of their operations. To do this they are depending more and more on machines. This means they should be aware of the latest developments in machinery and how these machines can fit into their operations profitably. It often means that farmers must change some of their farming practices to eliminate the use of some machines and make greater use of others, to justify them.

Hay Conditioners: Even though the importance of producing and harvesting top quality forages has been proven, a large amount of hay is lost each year during harvest because of weather damage and leaf shattering. Because of this a study of the performance of hay conditioners in Virginia was made by the specialist while in graduate school.

The study was designed to determine the difference in field drying rates of alfalfa after these treatments: 1. unconditioned, 2. crushed, 3. crimped, and 4. crimped and windrowed in one operation; also, to determine the difference in nutrient values and commercial grades of hay after three months storage. These are questions that farmers have been seeking the answers to in regards to hay conditioners.

The results showed a definite decrease in the drying time of conditioned hay, as compared to unconditioned with as much as a 2/3 saving in time. The conditioned hay also graded better in most tests. No significant difference was noted in the results from the use of either a smooth-steel-roller crusher or a fluted-steel-roller crimper.

These tests were made in cooperation with the V.P.I. Departments of Dairy Science, Agronomy, Biochemistry, and Statistics; Commonwealth of Virginia, Division of Markets; and the New Holland Machine Company.

A summary of the results of this study was given to Extension agents and specialists attending the Agricultural Engineering session of the Annual Extension Conference and was published in the October issue of "New Developments."

Governor Almond congratulating Gerry Watts, Virginia, third place contestant in the Eastern United States 4-H Tractor Operators' Contest.

Line-up of contestants in the order of their placing in the Eastern United States 4-H Tractor Operators' Contest.

Gerry Watts, Virginia Contestant, in the Eastern United 4-H Tractor Operators' Contest.

Tractor "Power Take-off Safety Show" presented at the Eastern United States 4-H Tractor Operators' Contest. Note dummy entangled in P.T.O. drive.

The 21 contestants participating in the 1959 Eastern United States 4-H Tractor Operators' Contest.

wherever possible. Excellent cooperation was received from machinery manufacturers and dealers, tire company representatives, and American Oil Company representatives. The machinery dealers furnished shop space, tractors and other equipment. Machinery, tire and oil company representatives all assisted with class room lectures and shop work.

A leaders' school was held in each Extension District for the white program. They were held in Abingdon, Blacksburg, Culpeper, Farmville, Tappahannock, and Wakefield. A total of 74 agents and leaders attended from 44 counties.

One leaders' school was held on a state basis at Virginia State College in Petersburg and two district schools were held for the negro program. A total of 53 negro agents and leaders from 26 counties attended the state school and 19 agents and leaders attended the district schools.

One hundred forty-six leaders and agents from sixty-three counties were trained in the 4-H Tractor Maintenance Schools.

Four-H Tractor Programs were conducted in 69 counties with an enrollment of 1073. This is a 11% increase in enrollment over 1958.

Tractor Operators' Contests for members enrolled in the 4-H Tractor Program were conducted on county, district, state, and regional levels. These contests were designed to give 4-H Club members an opportunity to demonstrate their knowledge of tractor maintenance and skill in operation and to compete with other 4-H'ers. They consisted of four parts, the written and practical examination, tractor safety, operation of a tractor through a prescribed course, and belting a tractor to a hammer mill or similar machine.

Specialists conducted six district contests in which the county winners competed for district winner. The first and second place winners in the district contest were given $15.00 schlorships to the State 4-H Club Short Course by the Virginia Farm Equipment Association.

The State 4-H Tractor Operators' Contest was conducted during the 4-H Club Short Course at V.P.I. Twelve district winners competed in the State Contest with Gerry Watts of Charlotte County winning first place.

The specialist, assistant county agent in Charlotte County, local Ford tractor dealor, and Ford state distributor assisted Gerry, the state winner, in extra training for the regional contest in Richmond.

The Eastern United States 4-H Tractor Operators' Contest, the regional contest for this area,was held at the State Fair of Virginia, September 28 - 29, 1959. Two specialists of this department and one from the 4-H Club department were directors of this contest. A program, which included an educational tour to Yorktown, Williamsburg, and

COUNTIES (69) PARTICIPATING IN 4-H TRACTOR PROGRAM

FARM MACHINERY

This report covers the activities of specialists working with the adult and youth farm machinery program. J.A. Waller, soil and water specialist devoted approximately 30% of his time to the 4-H Tractor Program. E.S. Smith devoted approximately 72% of his time to the total Extension farm machinery program, and the remainder to graduate study in the machinery field.

The importance of safety practices was stressed in all phases of the Extension farm machinery program.

To keep abreast with the latest farm machinery being made available by industry, specialist attended a Ford field day held by the Universal Tractor-Equipment Corporation, Richmond, and a tour of International Harvester Company's new building in Richmond.

A farm machinery section was prepared for the Agricultural Engineering phase of the report on Improving and Expanding V.P.I.'s Role in Virginia Agriculture and Rural Life.

Specialist had 93 office and field conferences and wrote 250 individual letters pertaining to his subject matter field.

4-H Tractor Program: There are approximately 91,000 tractors and a correspondingly large number of other farm machines in use on Virginia farms today. Many of them are operated by young people with little or no training in safety, operation, and maintenance. During 1958 there were 36 fatalities due to farm tractor and machinery accidents. In addition, there were thousands of accidents causing injuries, loss of time, and property damage.

The objectives of the 4-H Tractor Program were to train 4-H Club members in safe and efficient use of farm machinery. This was done by teaching safety, operation, and maintenance of tractors and other machines. The program was also designed to develop character and leadership.

To train Extension agents and volunteer leaders for the program, the Fourteenth Annual series of 4-H Tractor Maintenance Schools for Leaders was held in January and February. Approximately two days were devoted at each of these schools to an explanation of the 4-H Tractor Program; a review of the available material; lectures and shop work concerning such topics as lubrication, cooling systems, air cleaners and tire care; and a discussion of the 4-H Tractor Operators' Contest. Mechanization costs and safety were stressed throughout these schools. After the agents and leaders had attended a leaders' school, they organized and conducted similar schools in their respective counties for 4-H Club members enrolled in the Tractor Program. Specialist gave assistance on the local programs

COUNTIES (18) RECEIVING MAJOR EMPHASIS ON IRRIGATION AND WATER USE PROGRAM

Committee Assignments

Chairman, Meetings Place Committee, Institute of Rural Affairs
Chairman, Tour Committee, 4-H Regional Tractor Operators' Contest group.
Co-director, Eastern 4-H Tractor Operators' Contest
Chairman, Technical Committee on Engineering, SCS
SCS Research Needs Committee

Radio Programs

4-H Maintenance Schools
The Program for 4-H Tractor Schools
The Tractor Storage Battery
Care of Tractor Tires
Greases for Tractor Lubrication
Cistern Water Supplies for County Homes
Lawn Irrigation Systems
Farm Pond Safety
The Hydraulic Ram
Be Informed Before Buying Irrigation Equipment
Know your Irrigation Pumping Unit
Sealing Leaky Ponds

Miscellaneous

The specialist spent about 40% of his time on miscellaneous and general Extension activities.

As chairman of the Technical Sub-Committee on engineering for the State Soil Conservation committee, he assisted in the revision of the handbook, "Recommendations and Specifications for Engineering Practices in Soil and Water Conservation."

4-H Tractor Program: Approximately 30% of the specialist's time was directed to this program which is included in the Farm Machinery section of this report. Most of the planning and activities on this project during the first half of the year was done by this specialist. The farm machinery specialist, who was responsible for the project, was on educational leave during that time. This specialist was co-director of the Eastern United States 4-H Tractor Operators' Contest held at the Virginia State Fair. On his retirement in September, he was presented a handsome watch by the sponsor of the 4-H Tractor Program, the American Oil Company, for his long and efficient service in connection with this program.

4-H Educational Tour: An educational tour to historic Yorktown, Jamestown, and Williamsburg has become an outstanding event in connection with the activities of the Eastern United States 4-H Tractor Operators' Contest. The specialist made all arrangements and conducted that tour which was sponsored this year by the Richmond branch, Allis-Chalmers Manufacturing Company. Seventy-one 4-H contestants, leaders, and officials of the contest from twenty-one states enjoyed this event.

Southwest 4-H Center: After the preliminary plans were made for the development of the new 4-H Center for the Southwest District, certain engineering work was necessary to get the project underway. The specialist devoted about ten percent of his time to this project.

This engineering work included a contour map for the camp area, surveying and grading for the new entrance road, relocation of a stream through the area, and the installation of a water line from the spring to the swimming pool. In cooperation with the county sanitation officer, locations were established for two septic tanks and drain fields. Building locations and elevations were surveyed. The progress of construction was checked throughout the period.

Meetings Attended for Professional Improvement

Insitute of Rural Affairs
Extension Agents' Conference
Virginia Society of Professional Engineers

FARM WATER DEVELOPMENT AND USE

Work on this project included water source development, farm ponds, irrigation, farm and home water systems, and phases of soil conservation and water safety. About 60% of the specialist's time was devoted to these activities.

Farm Water Supply: More effective use could be made of pastures on many farms and many rural homes could have running water under pressure if an adequate, year-round supply were available at a reasonable cost. Many farms have small springs or seeps, which if properly developed with reservoirs or watering troughs, would provide a suitable supply. Information was provided many farmers on developing water sources by letters on specific problems, farm farm visits, and the distribution of 1100 copies of the circular, "Developing Seeps and Springs."

Farm and Home Water Systems: More than 40% of the rural homes in Virginia are without running water and the use of water using equipment. Lack of a suitable source of water and low family incomes were probably reasons for that situation. The specialist worked with the Extension specialists and other interested groups in a statewide water system program. He gave two radio programs, made 16 individual water system surveys, and supplied information for individual problems on water purification, selection of pumps, pipe and spring and well enclosures.

Supplemental Irrigation: Irrigation of high value crops is on a gradual increase, but the availability of adequate water supplies and the high cost of equipment and its operation are limiting factors for a big increase. Many ponds were built as water storages for irrigation systems and livestock. In Virginia the principle crops being irrigated to a limited degree were pastures, tobacco, vegetables and fruits.

The specialist made field surveys and designed systems for six installations. He gave one talk on "Pasture Irrigation" at the annual meeting of the Dairy Fieldmen and three radio programs on irrigation equipment and operation.

Water Safety: Recreation in swimming, boating, fishing, and ice-skating has increased tremendously in recent years. Lakes, ponds, rivers, and the seashore are reasonably accessible to most everyone throughout the state. In 1958 eighty rural people were drowned. Many organizations have safety programs to make people conscious of the hazards in these activities. A circular on "Water Safety" was prepared this year for use by rural people in their water safety programs. More than 4,500 copies were distributed.

COUNTIES WORKED IN BY RURAL ELECTRIFICATION SPECIALISTS

14. Chairman of the electrification section of the southern region Extension agricultural engineers conference.

15. Member of the Council "Water for Better Living" committee.

16. Chairman of the Extension water systems and water use equipment committee.

17. Chairman of the public information sub-committee for the "Water for Better Living" program.

18. Member of the committee on Extension of the American Society of Agricultural Engineers.

19. Member of the steering committee of the electric power and processing division of the American Society of Agricultural Engineers.

J. H. Strickler and A. J. Laubert

1. Chairman of the program committee for the 20th annual Virginia Rural Electrification conference.

2. Member of the judging committee for the 4-H electric project records.

3. Chairman of the exhibits committee for the 4-H electric congress.

4. Chairman of the mail committee for the state 4-H short course.

5. Member of the quarters committee for the Institute of Rural Affairs.

6. Member of the sub-committee to develop the electro-mation section of the agricultural engineering exhibit for the Atlantic Rural Exposition.

7. Member of the research committee of the Virginia Farm and Home Electrification Council.

8. Member of the "Light for Better Living" committee of the Council.

9. Chairman of the public information sub-committee for the 1959 "Light for Better Living" program.

10. Chairman of the reference material sub-committee of the 1959 "Water for Better Living" program.

11. Co-chairman of the 1960 "mechanized forage handling" program of the Council.

Committee Assignments

Committee responsibilities required a large portion of the specialists' time during the year. Most of these committees were appointed to coordinate and expedite various phases of the electric power and crop processing project. The specialists also served on other committees concerned with advancing the overall Extension program. The committee assignments of the specialists are listed below:

J. L. Calhoun

1. Member of the Extension training committee for a portion of the year to assist with instruction in communication training.

2. Member of a special committee to study procedures for making quality forage.

3. Member of committee to study the problem of handling early harvested corn in eastern Virginia.

4. Member of committee to develop plans for agricultural engineering subject matter training for Extension agents during the annual Extension conference.

5. Member of the 4-H Club committee for the 4-H electric program.

6. Member of the judging committee for the 4-H electric project records.

7. Chairman of hotel and local arrangements committee for the state 4-H electric congress.

8. Co-chairman of the headquarters committee for the state 4-H short course.

9. Chairman of the meals committee for the Institute of Rural Affairs.

10. Member of committee to prepare agricultural engineering department report on improving and expanding V. P. I.'s role in Virginia's agriculture and rural life. Chairman of the electric power and crop processing phase of the report.

11. Chairman of the committee to develop a 10' x 40' agricultural engineering exhibit for the Atlantic Rural Exposition.

12. Chairman of the School of Agriculture phase of the V. P. I. exhibit for the Atlantic Rural Exposition.

13. Chairman of the program committee for the "electro-mation short course."

Exhibits were a feature of the Annual Rural Electrification Conference Program.

Publications

The major effort on publications was directed toward preparing a bulletin on poultry house ventilation. J H. Strickler spent considerable time assembling factual information for this publication. Draft copies of the bulletin were prepared and distributed to interested people for their comments and suggestions. It is expected this bulletin will be delivered to the printer by March, 1960. The specialists prepared the rural electrification and crop processing phase of the agricultural engineering report on improving and expanding V. P. I.'s role in Virginia's agriculture and rural life. Details of this report are included in another section of this annual report.

The supply room reported that 45,955 copies of publications pertaining to electrification were distributed during the year. In addition, about 7,500 copies of publications were distributed by the specialists.

The demand for 4-H electric project material made it necessary to reprint 18,000 copies of the record books and 15,000 copies of the reference materials during the year. A leaflet entitled "1960 4-H Electric Program" was prepared for distribution to 4-H members interested in the electric project. This publication lists the awards available and offers some suggestions for participation in the 4-H electric project. Ten-thousand copies of this leaflet were printed with financial support by the co-sponsoring electric power suppliers.

The committee for the 4-H electric project has recommended major revisions in the record books and reference materials. The objective is to develop project material that more adequately meets the needs and interests of boys and girls of different age groups. Last year the specialists developed a list of the topics appropriate for different age groups. This list has been studied by the committee members as a basis for determining the subject matter material to be included in the revised project. The committee recognizes the need for a professional writer to develop project material that will create and hold the interest of boys and girls.

General Activities of Specialists

Aside from the major problems discussed in this report, the specialists were concerned with other aspects of electrification. Some were accepted that were concerned with advancing the overall Extension program. Some of these accomplishments and assignments are outlined below:

Contribution to Regional Programs

The specialists attended the southern region agricultural engineers conference held at Athens, Georgia, during the period November 9-13. A similar conference is held each three years. At this workshop, J. L. Calhoun was chairman of the electrification section and participated in a panel discussion. Following the conference, he prepared a report containing recommendations of the electrification section for exchange of information and material among rural electrification specialists in the region, and guidelines for educational programs in the various states. Valuable information and ideas were obtained at the conference which will be helpful in project work of the specialists.

Rural Electrification Conference

The 20th Annual Virginia Rural Electrification Conference was held in Richmond on May 5 and 6. J. H. Strickler was chairman of the program committee for this event. About 150 people were present for this two-day conference as compared to an attendance of 120 people last year.

Bedford county received a plaque for conducting the most outstanding 4-H Electric Program in 1959.

The 4-H electric demonstration contest, offered for the first time in 1958, was continued this year. The two winning contestants from each Extension district, preferably one boy and one girl, were awarded scholarships to the state 4-H short course in June. At the state level, Brenda Barrett, of Russell county gave the most outstanding demonstration and blue, red and white ribbons were presented to all of the contestants. Four representative demonstrations from this group were selected for presentation at the state 4-H Electric Congress. These club members were awarded an all expense trip to the congress.

Brenda Barrett, of Russell county, gave the most outstanding demonstration and was one of four contestants who received an all expense trip to the 4-H Electric Congress at Richmond.

One of the outstanding county exhibits on display at the electric congress.

Two state awards were presented at the congress. Gene Carson, of Appomattox county was chosen state winner and was awarded an all expense trip to the National 4-H Club Congress in Chicago, in November. Bedford county was awarded the Westinghouse Educational Foundation plaque for conducting the most outstanding 4-H electric program in the state. In national competition, Gene Carson was sixth alternate to receive a $400 college scholarship.

Gene Carson of Appomattox county was the state winner and was awarded a trip to the National Club Congress. He was named sixth alternate for a $400 scholarship.

Twelve district winners were awarded 19-jewel gold watches. The district winners were: Archie J. Beebe, Accomack, for the southeast district; Brenda Barrett, Russell, and Clyde Barrett, Tazewell, for the southwest district; Helen Winslow, Prince William, and Jerry Hiner, Shenandoah, for the northern district; Margaret Berkley, Lunenburg, and Percy Lucado, Jr., Appomattox, for the east central district; Marilyn Loquet, York, and Woody Haynes, Gloucester, for the northeast district; Connie Straub, Rockbridge, and Kenneth Snodgrass, Roanoke, for the west central district; and Patsy Overstreet, Bedford, winner-at-large.

These twelve district winners were awarded 19-jewel gold watches at the Congress.

Fifteen counties displayed exhibits at the congress as compared to 11 counties in 1958. Exhibits by Amherst, Nansemond, Floyd and Henrico were in the blue award group. Exhibits by Bath, Bedford, Culpeper, Cumberland, Essex, Northampton, and Prince Edward were placed in the red award group. Exhibits displayed by King William, Mecklenburg, Prince William and Rockbridge were awarded white ribbons. Cash awards amounting to $180 were presented to the counties with exhibits on display. The total expense for the congress this year amounted to $6,242.37.

Different methods were used by the counties in giving the project instruction. In several counties all of the 4-H Clubs took the project. In others, one or more clubs in the county selected it as a club project. Some counties offered the training in neighborhood or county groups.

This year 11,736 boys and girls were enrolled in the project from 91 counties. The project was completed by 8,508 members and 15,219 articles were made. In 1958 the project was taken by 12,326 boys and girls from 95 counties which was the largest enrollment of any state in the nation.

The ninth annual state 4-H Electric Congress was held at the Jefferson Hotel in Richmond, Virginia, August 26-28. The total attendance was 290 people. Sixty-four counties qualified to send official delegates to the congress, which is the same number that qualified in 1958. Each county with 12 boys and 12 girls completing the project in 1959 was authorized an all expense trip to the congress for one boy, one girl, and one Extension agent. A total of 136 Four-H members and 58 county Extension agents attended as official county delegates.

Recreation and entertainment features were included in the Congress program.

Picker-shellers are fast replacing corn pickers to harvest corn in eastern Virginia. This modern harvesting method has resulted in growing interest in drying corn on the farm. On the farm drying is usually profitable for corn harvested above 20 percent moisture. It is essential for shelled corn harvested and stored on the farm.

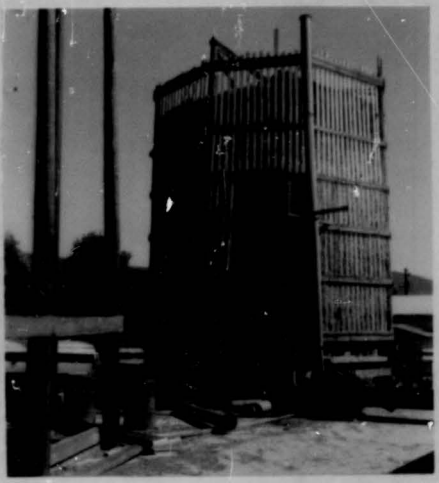
There is growing interest among peanut producers in mechanized harvesting. About 15 peanut drying systems were installed in Virginia during the year. Forty county Extension agents were given training in new developments in hay drying during the annual Extension Conference. Information on corn drying was presented at a special meeting of 20 county agents in the northeast district. During the year, the specialists assisted with nine meetings on crop drying and processing that were attended by 231 people. Thirteen drying systems were designed which will serve as result demonstrations. A report was prepared on the problem of handling early harvested corn in eastern Virginia. Mimeographed material was prepared on procedures to use in drying chopped hay in the hay-keeper. A feature article on mechanized peanut harvesting and drying was prepared for the Southern Planter. J. L. Calhoun attended a meeting on new developments in sampling and grading peanuts at N. C. State College.

It is estimated that 70 crop dryers of all types were installed in 1959 which is below the goal of 100 new installations.

4-H Electric Program

Rural and urban boys and girls are inadequately trained on efficient use of electric service. Boys and girls do not take the project long enough to obtain maximum benefits from the training. The project materials do not fully meet the needs and interest of boys and girls of different age groups. The percent of project completions is too low. Power supplier personnel are being utilized only to a limited extent in training local leaders.

The 4-H Club committee for the project continued to give guidance to the program during the year. The membership of the committee includes representatives of the 4-H Club department, agricultural engineering department, house furnishings specialist, county Extension agents, and representatives of the electric power suppliers. The program was co-sponsored by all electric power suppliers in Virginia. Counties planning to offer the project were encouraged to appoint a planning committee for the project. These committees usually develop plans for all phases of the project during the year. Past experiences has shown this type of planning is necessary for successful project training. Extension agents were encouraged to invite power supplier representatives to the planning meetings. Power supplier agricultural engineers and home economists trained local leaders and in many cases serve as project leaders.



Structure for storing, drying and self-feeding chopped hay. Portable crop dryer (left) was used to dry the hay.

The problem of early harvested corn in eastern Virginia is a serious problem. Unless this problem is solved, the markets for early maturing corn will be seriously affected. A study of this problem was made with B. W. Sadler of the hay and grain section of the State Department of Agriculture. Three days were spent in eastern Virginia discussing the problem with terminal and country elevator operators and with county agents. Some corn was being marketed prior to mid-August at moisture contents above 30 percent. It appears the 15 1/2 percent permissable moisture for No. 2 corn is too high for the temperature and humidity conditions prevailing in the area during August and September. Studies at the Tidewater Research Station at Holland indicate that early harvested corn should be dried to 11 percent moisture if it is to be stored safely. One of the specialists will attend a meeting on December 15 to discuss this problem and to consider possible solutions. If additional research is needed, an effort will be made to initiate the required investigations.

A pressurized poultry house ventilating system. Electric fans provide positive control of ventilation.

Crop Drying and Processing

It is difficult to produce quality hay without mechanical drying equipment. It is estimated that 25 percent of the hay crop is lost or badly damaged because of unfavorable weather at harvest time. Delayed harvesting of such crops as small grain and corn is causing excessive field losses through shattering, storm damage, birds, and rodents. Problems are being encountered in eastern Virginia in maintaining the quality of early harvested corn. Mechanical drying equipment is a necessary component of mechanized peanut harvesting, and to maintain quality low drying temperatures must be used. This means large capacity drying units to handle the output of a peanut combine and associated high cost for equipment.

Only limited progress was made in hay drying during the year. Batch dryers for baled hay required one extra handling of the crop. Some farmers have installed expensive wagon drying systems to overcome the extra labor requirements. Drying chopped hay in self-feeding structures offers potentials for reducing labor requirements and costs in producing quality hay. The specialists cooperated with the farm structures specialist in developing plans for a self-feeding structure for chopped hay.

The specialists cooperated with other members of the department in presenting training on new developments in materials handling equipment for the benefit of Extension agents and farmers. Automatic grinding, mixing and feeding, and mechanical ventilation were discussed at one of the subject matter sessions for 30 county Extension agents during the annual Extension conference. In cooperation with the farm structures specialist, feedlot automation was discussed at the fall meeting of the east central district. Thirty one Extension workers were present at this session. Five county meetings were held at which materials handling equipment was featured on the program. A total of about 125 farmers attended these meetings.

The specialists designed 10 materials handling systems of different types to serve as result demonstrations. Three radio tape recordings, one feature article, and two news articles were written on this subject. A nine-minute television program was prepared on film which featured the Illinois working model and pointed out the five main components of feedlot automation.

An example of electrical equipment to reduce labor and improve environment in poultry laying house.

Following the Atlantic Rural Exposition, the exhibit was set up in the machinery laboratory of the agricultural engineering building. The electro-mation section of the exhibit was demonstrated to power supplier representatives who attended a short course in October. It was also demonstrated to the people who attended the state section meeting of the American Society of Agricultural Engineers. Other groups have seen the exhibit since it has been on display in the building. It is known that several thousand people viewed the exhibit, but an accurate estimate of the attendance is not available. The specialists spent almost 300 man-hours in planning, building and manning the exhibit.

Early in the year a questionnaire was sent to electric power suppliers in Virginia to determine the most urgent subject matter training needed by their employees concerned with rural electrification problems. As a result of this questionnaire, it was decided to plan and conduct an electro-mation short course at V. P. I. in October. A committee was appointed, composed of J. L. Calhoun as chairman, two representatives from the power companies, and two representatives from the electric cooperatives. Two meetings of the committee were held to develop plans for the short course. A copy of the program for this two-day event is included in the appendix of this report. Twenty agricultural engineers and rural representatives of electric power suppliers in Virginia attended. Approximately 15 other people were present for all or portions of this short course. At the conclusion of the program, the participants were requested to complete an evaluation questionnaire. The results showed the group was pleased with the instruction given and recommended that similar training be offered annually in the future. Each participant was given a packet of materials on the topics presented for his reference file.

Twenty electric power supplier agricultural engineers and rural representatives received training during the "Electro-mation Short Course".

Materials Handling Equipment

An excessive amount of manual labor is being used in and around farm buildings in Virginia. Farm wages have more than quadrupled since the start of World War II. Chores are being performed by hand labor which can be done at less cost with electrical equipment. There are only a limited number of dealers in the state who promote and service materials handling equipment.

In an effort to create an awareness of the problem, an exhibit entitled "Electro-mation and Mechanization--Revolution in Agriculture" was developed for the Atlantic Rural Exposition. This exhibit occupied a 10' x 40' space in the agriculture building at the fair. J. L. Calhoun was chairman of the committee responsible for preparing the exhibit. J. H. Strickler was a member of a sub-committee to develop the electro-mation phase of the exhibit. This portion of the exhibit was designed to show how electric power "takes the man handling out of materials handling." Enlarged 14" x 17" photographs were used on the background to show examples of important materials handling jobs on the farm. These included storing farm products, removing products from storage, automatic feed grinding, automatic feeding, automatic watering, and litter removal. The center of interest in this portion of the exhibit was a working model on feedlot automation, borrowed from the University of Illinois. A continuous tape recorder explained the various operations of the model and helped create interest among those who viewed the exhibit. Featured in the model were storage bins for automatic unloading, blending, feed grinding and mixing, pneumatic conveyors, and automatic feeders. The model effectively presented the savings in labor and cost that are possible with automatic feed grinding, mixing, and feeding.

Electro-mation section of exhibit prepared for the Atlantic Rural Exposition.

He was also chairman of the Extension water systems and water use equipment committee and the public information committee. The public information committee assembled mass media material for the folder for the convenience of local committees. It included seven radio scripts, seventeen radio spot announcements, and eight news articles. The Extension water systems and water use equipment committee prepared suggestions for Extension participation in the program. These suggestions and an outline of the Council "Water for Better Living" program were distributed to county Extension agents by the associate director.

Water can be provided for livestock with minimum labor by using automatic waterers with built-in heating units.

The results of the 1959 water systems and water use equipment program have not been determined. It is doubtful that the goal of 10,000 water systems to be improved was attained. No information is available on the amount of water using equipment that was installed in 1959.

At the 1959 annual meeting of the Council, the membership voted to discontinue the "Water for Better Living" program in 1960. This action dampened the enthusiasm of professional workers for continuing the program in 1959. Only a limited number of counties planned and conducted an effective educational program on water systems and water use equipment this year.

Programs aimed at improving farmstead wiring systems have met with varying degrees of success in other states. An effective farmstead wiring program requires all interested agencies and organizations to focus their efforts on the problem. The specialists recommended that the Virginia Farm and Home Electrification Council adopt farmstead wiring as one of its major projects in 1960. The Council adopted the general area of "electro-mation" as a main effort next year. A questionnaire sent to representatives of the Council membership revealed that mechanized forage handling was an urgent problem. Accordingly, this topic will receive major emphasis in 1960. In view of the Council action, the specialists devoted limited time to farmstead wiring during the year.

The specialists will continue to stress the need for a concentrated effort on the wiring problem. A unified approach would have a profound effect on improved wiring systems in the homes and on the farms of Virginia.

Water Systems and Water Use Equipment

Water is being pumped and carried by hand on about 45,000 farms in Virginia. Reports indicate a large percentage of the water supplies in rural areas are polluted. Families with pressure water systems do not have the water using equipment needed to obtain maximum benefits from running water. Many families have problems related to water hardness, iron content, and corrosive water sources. In some areas the receding water table has caused an inadequate supply of water from wells.

An organized emphasis program on water systems has been conducted in Virginia for the past 12 years under the sponsorship of the Virginia Farm and Home Electrification Council. The Extension service has given leadership to this effort. The 1959 "Water for Better Living" program was a revised version of last years program. This activity was concerned with: (1) safe and adequate supply of soft water under pressure, (2) water using equipment in the home, and (3) productive uses of water on the farm. The local health directors assumed the responsibility for calling a meeting of professional workers in the counties that did not hold a meeting of this type in 1958. The purpose of this meeting was to discuss the need for an educational program on water systems and water use equipment. Committees were appointed to develop and execute specific phases of the program in counties that decided to conduct an emphasis program.

A 1959 "Water for Better Living" folder was assembled. It was similar to the 1958 folder, with new and revised materials added to bring it up-to-date. Ninety copies of the folder were distributed to local health directors, sanitarians, and power suppliers. J. L. Calhoun explained the 1959 program to the local health directors at their annual meeting in December. He was a member of the "Water for Better Living" committee that developed plans for the 1959 program.

The specialists cooperated with the house furnishings specialist in assisting several counties in planning and conducting their lighting programs. The specialists prepared three radio tape recordings on lighting for distribution to radio stations in the state. They also assisted in developing 10 radio scripts on farmstead lighting for use by county Extension agents and local lighting committees. The rural electrification and house furnishings specialists prepared a suggested questionnaire to be sent to representatives of the Council membership to determine the main problems in the lighting program. J. L. Calhoun was a member of a special Council committee to prepare minimum standards for home lighting. This committee was formed upon request of the Farmers Home Administration and the standards developed by the committee were adopted by the Council. Some assistance was given in assembling the revised edition of the Council "Light for Better Living Equipment Guide".

The home demonstration agents in 48 counties reported that method demonstrations on lighting were presented to home demonstration club meetings. Similar reports were submitted by local home agents in 19 counties. Fourteen counties had "open house" result demonstrations attended by 3,275 people. It is estimated that 17,275 people were reached directly through this program. This does not include people who received information on lighting through mass media and fair exhibits.

The membership of the Virginia Farm and Home Electrification Council voted to continue the farmstead lighting program as one of its major projects for 1960. The objective of the 1960 program is to make available and encourage maximum use of information on lighting that will bring about improvement in (1) visual health, (2) farm and home safety, (3) home tasks and beautification, (4) farm production, and (5) wiring and control for convenience. A survey was conducted among representatives of the Council membership to determine the problems in conducting county lighting programs. The results will guide the efforts in the program next year. A. J. Lambert is serving on the Council "Light for Better Living" committee for 1960. He has also been appointed chairman of the public information committee and is a member of the Extension lighting committee. J. L. Calhoun will serve on the program evaluation committee.

Safety aspects of lighting will be emphasized during Farm Safety Week, July 17-23. The program is to reach peak emphasis during the period from October 15-November 30, 1960.

Farmstead Wiring

Farmers have added electrical equipment at a rate far exceeding expectations. Most wiring systems have not been improved to cope with the added load. The result is inadequate wiring--a major problem in achieving an expanded use of electricity on the farm.

RURAL ELECTRIFICATION AND CROP PROCESSING

This section of the report deals with the major project areas which are farmstead lighting, farmstead wiring, water systems and water use equipment, materials handling equipment, crop drying and processing, and the 4-H electric program. Other general and special activities of the specialists are included. Two specialists are assigned to the rural electrification and crop processing project. One devotes full time to Extension and the other spends three-fourths time in Extension and one-fourth time in college teaching. Work on this project required 60 percent of the time on the major problems and 40 percent on general and special activities.

Farmstead Lighting

It is estimated that 85 percent of Virginia rural homes had substandard lighting and few farm buildings and yards had enough light for efficiency and safety. Rural families were performing difficult seeing tasks in the home with inadequate light. Recommended home lighting equipment was not available generally throughout the state. Dealers were not informed on good lighting practices. A large percentage of our farms had no yard or farm building lighting.

The 1959 "Light for Better Living" program was a continuation of the program initiated in 1957. The 1957 and 1958 annual reports contain details on how this program was planned and conducted. The Virginia Farm and Home Electrification Council appointed a "Light for Better Living" committee to develop suggested plans for a state-wide program on farmstead lighting. This committee appointed sub-committees to deal with the problems of visual aids, equipment, demonstration material, and public information. A. J. Lambert and J. H. Strickler served on the "Light for Better Living" committee. They were also appointed chairmen of the public information committee. Under their guidance, radio tape recordings were prepared for distribution to radio stations in the state, and news articles were written and distributed to newspapers in Virginia. With the aid of specialists from other subject matter areas, they assembled radio scripts for use by county committees on local stations. A. J. Lambert and J. H. Strickler were also members of the Extension lighting committee that developed suggestions for Extension participation in this state-wide program. The Council requested power supplier representatives to call meetings of professional workers at the county level to determine the need for an action program on lighting. Counties that decided to conduct a program usually appointed committees to expedite specific phases of the program.

This picture of a dangerous situation, due to a cluttered basement stair, is an example of those in the set of slides prepared by the Housing Specialist on "Causes of Accidents In The Home."

Figure 2

Ext. Form 16

COUNTIES WORKED IN ON RURAL HOUSING - 1959

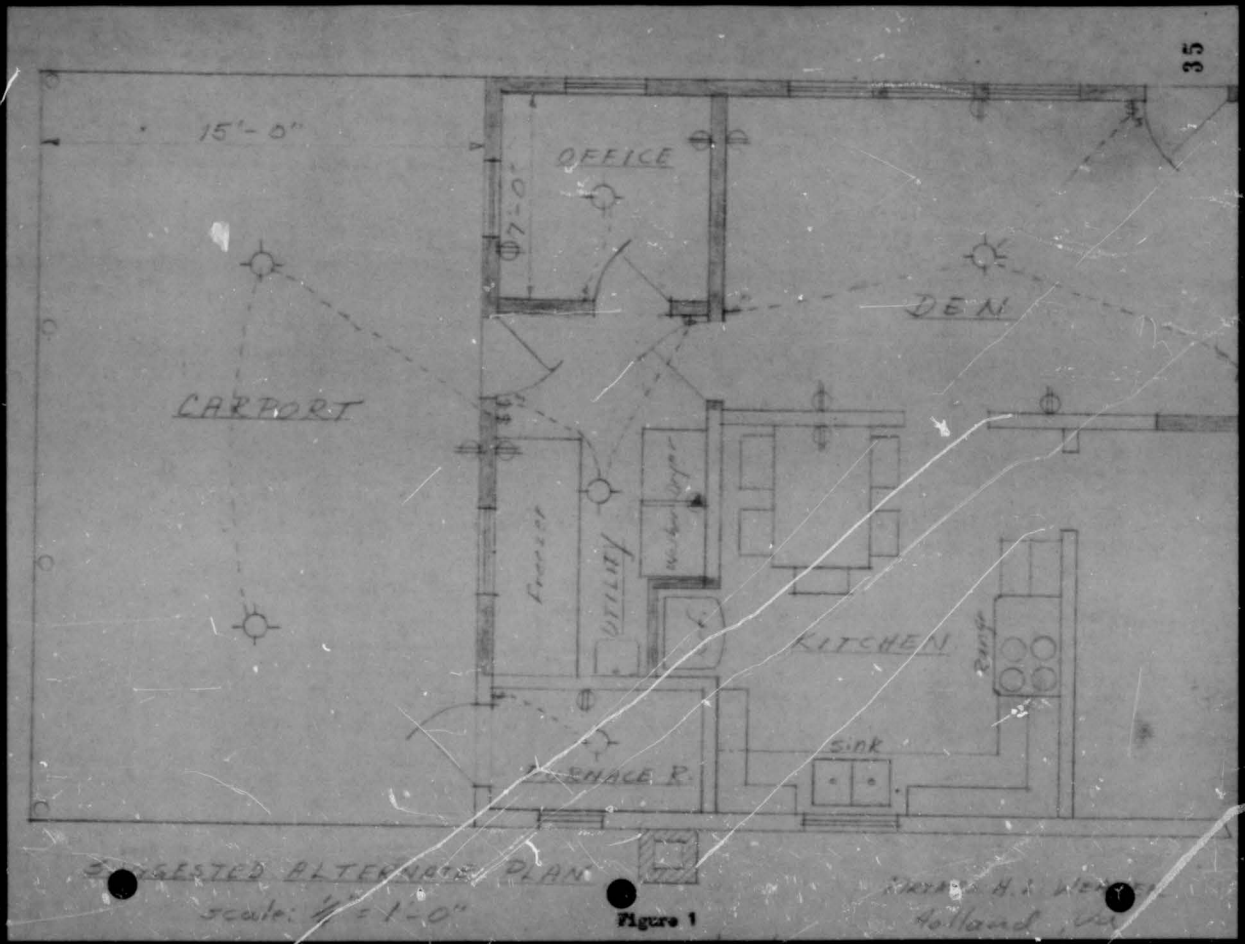

15'-0"
OFFICE
7'-0"
DEN
CARPORT
UTILITY
KITCHEN
sink
FURNACE R.
SUGGESTED ALTERNATE PLAN
scale: 1/4" = 1'-0"
Holland, Mich.

Figure 1

Meetings Attended and Committee Assignments

Communications Training School, October 19-22, 1959
Training Conference for Extension Agricultural Engineers in Southern Region, Athens, Georgia, November 9-13, 1959.
Three Agricultural Faculty Meetings
Three Extension Staff Meetings
Registration committee at State 4-H Short Course
Quarters Committee at Institute of Rural Affairs
Arrangements Committee, Epsilon Sigma Phi
Annual Extension Conference
Home Electro-Mation Committee of Virginia Farm and Home Electrification Council
State Section, ASAE
Virginia Rural Electric Conference

Special Report

An example of the direct assistance given a rural family in planning home improvements was that given the H.L. Weaver family of Nansemond County. The Weavers were a young family with three small children. They lived in an old T-shaped frame farmhouse which they had inherited. The house needed a lot of repairs such as refinishing floors, replacing some windows, replastering, insulating, and many others. Mrs. Weaver contacted the home demonstration agent and asked for assistance in planning the remodeling. Since some structural changes were involved, the home demonstration agent requested specialist help. Later, the specialist and agent met with Mr. and Mrs. Weaver at their home. They went through the house and discussed plans for insulating, painting, finishing floors, central heating, and location of of closets. Mrs. Weaver wanted plans for a convenient kitchen, a utility room, and a family room. Mr. Weaver wanted a private office and a carport if possible. Several possibilities were discussed and it was finally decided to inclose and remodel the two back porches. The specialist and home demonstration agent took the necessary measurements and later a couple of sketches were prepared showing suggested arrangements. A copy of the accepted plan is shown in Figure 1 of this report. The home demonstration agent reports that the work is nearing completion and the entire Weaver family is delighted with the job.

the fact that this work contributes to better public relations between church and community groups and the county Extension workers.

One special community house plan was prepared and several of our standard community house plans were sent out during the year. The community house for which special plans were prepared is now under construction. Two others using Extension Service plans are reported to be under construction.

The specialist worked with two community planning committees who were making plans for community recreation centers including playground, swimming pool, and community building.

It is known for sure that one parsonage and four Sunday School room additions are being constructed using plans from the Extension Service.

Miscellaneous Activities

Probably 10% of the specialist's work in the field and in the office was related to things which may not be listed under the major project headings.

Safety In the Home: A correct attitude toward safety in and around the house is vital whether it is a rural or urban home.

Upon request from the county home demonstration agents concerned, the housing specialist gave illustrated talks on "Safety In The Home" to two Women's Clubs.

The specialist participated in a symposium on accidents in rural Virginia at the Virginia Safety Conference held in Roanoke, Virginia. An illustrated talk on "Accidents in the Home Due to Falls" was presented. A set of slides on this subject was used in the presentation. This set of slides was prepared by the specialist and has been made available to county Extension agents, on a loan basis. Prints illustrating the nature of these slides are shown in Figure 2 of this report. The illustrated talk was also presented by the specialist at a meeting of the Virginia Rural Safety Council in Richmond, Virginia.

Radio recordings were made during 1959 on "Preventing Home Fires," "Causes of Accidents in and Around the Home," "Spring Cleanup," and "Construction Features That Make For Home Safety."

4-H Committee: The housing specialist served on a planning committee of the Southwest Virginia 4-H Camp which planned the swimming pool to be constructed at the camp. The construction involved will cost in excess of $30,000.

methods. Twenty-six different home demonstration agents attended the three-hour session. Many favorable comments were received.

Radio recordings were made on "Planning an Expansible House," "Painting Interiors," "Choosing a House Plan," "Planning Carports and Garages," "Some Good Construction Practices," and "Home Financing."

There is no accurate method of determining the number of houses built by plans from the Extension Service, but if only 30% were used, the value of construction would be over three-quarters of a million dollars.

At least 1500 people were given information on plans for new housing in 1959.

Community Projects

An estimated 15% of the specialist's time was used in working with community groups who were planning community houses and rural church committees who were either planning parsonages or Sunday School room additions to churches.

Rural community groups need and ask for assistance in planning their community houses, and most rural church groups also need advice in planning Sunday School room additions and church remodeling. Many projects of this type have been built without proper planning, and have resulted in costly and inconvenient buildings. In most areas, architectural services are not available to these groups, and even if the services were available to them, most of them could not afford to pay for it. The rural community and church groups usually do most of the construction work themselves, and in many instances, a large part of the materials are donated.

The Housing Specialist worked with 10 rural church committees during 1959. In two cases, the group was working on plans for a rural minister's home. One group was planning a new rural church. The other groups were making plans for Sunday School room additions. Strictly interpreted, this was not rural housing work, but it served as a very useful Extension training method. By working with these rural groups, the specialist was able to teach them principles of good planning and its importance. He was able to give local carpenters information on good construction practices, and point out the importance of using quality materials and using them correctly. When they are planned and built well, these Sunday School buildings served as good demonstrations of economical construction. Such information services and demonstrations are bound to result in improved farm building practices. Another important consideration is

which the family plans to use. More people are reached per day by this method than by the home visit, and it is more in keeping with the Extension Philosophy of "Helping People to Help Themselves."

The District Home Demonstration Agent, the Rural Housing Specialist, and the Home Improvement Specialist planned and conducted an agent training workshop on house remodeling in one District this year. Nine Home Demonstration Agents took part in this workshop. During the two days the agents not only received instructions on how to plan remodeling, but they actually went out to a farmhouse, took measurements, and made plans for the remodeling job.

A complete annual evaluation of the results of work in this project area is difficult to ascertain. This is true in all areas of rural housing. County Extension agents state that they are confident that over 75% of the families given direct assistance in planning house remodeling through home visits will do at least part of the work within the next year. At present costs of construction, this would involve construction valued at close to one-half million dollars.

New Housing

Approximately 15% of the housing specialist's work was in the area of new housing. Due to the continued increase of the rural non-farm population, there has been an increase in new rural homes. The Extension Service has been called on for plans and information on new house construction. Far too many new rural houses are being constructed without any type of plans. Many rural people simply state the number of rooms they desire and depend entirely on a local carpenter or contractor to determine the size and arrangement. If more of this group could be assisted through the Extension Housing Program, it would result not only in more economical construction, but also more convenience and comfort for the families.

During the year, 306 house plans were sent out to rural people in Virginia. These plans were requested through the county Extension offices.

Two new house plans were purchased from U.S.D.A. Regional Plan Service and added to the Extension Plan Service.

The housing specialist assisted the home demonstration agents in four counties to plan and conduct special interest meetings on house planning. Some of the subjects discussed were "Home Financing," "House Painting," "Good Construction Practices," and "Kitchen Planning."

During the Annual Extension Conference, the specialist conducted a session on housing. Through illustrated lecture, motion pictures, a materials exhibit, and a tour, the specialist attempted to inform the agents of recent developments in house planning and construction

Home visits utilize considerable time and relatively few people are reached directly by this method. However, the method is justifiable in that it serves a threefold purpose. First, the individual family gets direct assistance which makes it less likely that mistakes will be made in remodeling. Second, the county Extension agents get some training which will enable him to assist other families with similar problems. Third, the completed projects serve as result demonstrations in the respective counties.

In 1959 the housing specialist made 169 home visits with county Extension agents in 55 different counties. More than two-thirds of these visits were for the purpose of assisting rural families in planning house remodeling. A majority of the families assisted were cooperating in the Farm and Home Development Program.

The specialist prepared 50 farm house remodeling plans in the office, and probably another 30 or 40 sketches were made at other homes visited.

The housing specialist assisted home demonstration agents in planning and conducting four county meetings on planning home improvements. Some of the subjects discussed were: "Locating Bathrooms," "Kitchen Planning," "Heating Systems," "Insulating," and "Paints and Painting." While the attendance at these meetings was not large, (usually about 20 to 30 people) nearly all of those present indicated that they planned to do some home improvements very soon.

Radio tape recordings were made on the following subjects related to house improvements: (1) Things to Look for When Planning Remodeling, (2) Paints and Painting, (3) Termite Prevention, (4) Insulating the Home, and (5) Suggestions for Cutting Costs of Remodeling.

The specialist conducted five leader training meetings with 76 home demonstration club leaders on simple household repairs. In these meetings, the specialist demonstrated such things as repairing broken windows, leaky faucets, and how to do many other simple jobs.

About 150 copies of the leaflet, "Household Mechanics Notes" were given the leaders for their use in giving demonstrations. Three leader training meetings in simple carpentry and making farm signs were conducted by the housing specialist.

Another method which has proven successful in assisting rural people with their remodeling plans has been the county housing clinic. At these clinics, the Home Demonstration Agents arrange for families to come in to the county office at assigned periods during the day. The family brings along sketches, pictures, and other information related to their problem. The Home Demonstration Agent and Specialist go over the problem with the family and discuss possible solutions. Sometimes the discussions concern the evaluation of a new house plan

RURAL HOUSING

As in previous years the work of the rural housing specialist in the Extension Rural Housing Program can be reported under the general headings: (1) House Remodeling and Repair, (2) New Rural House Plans and Planning, and (3) Community Projects. The housing program is planned and conducted primarily in cooperation with county home demonstration agents. Few county agents include housing in their county plan of work, however, some do call on the specialist for assistance as problems develop during the year. Much of the rural housing work is done in cooperation with county extension workers concerned with the Farm and Home Development phase of the county Extension program.

House Remodeling and Repair

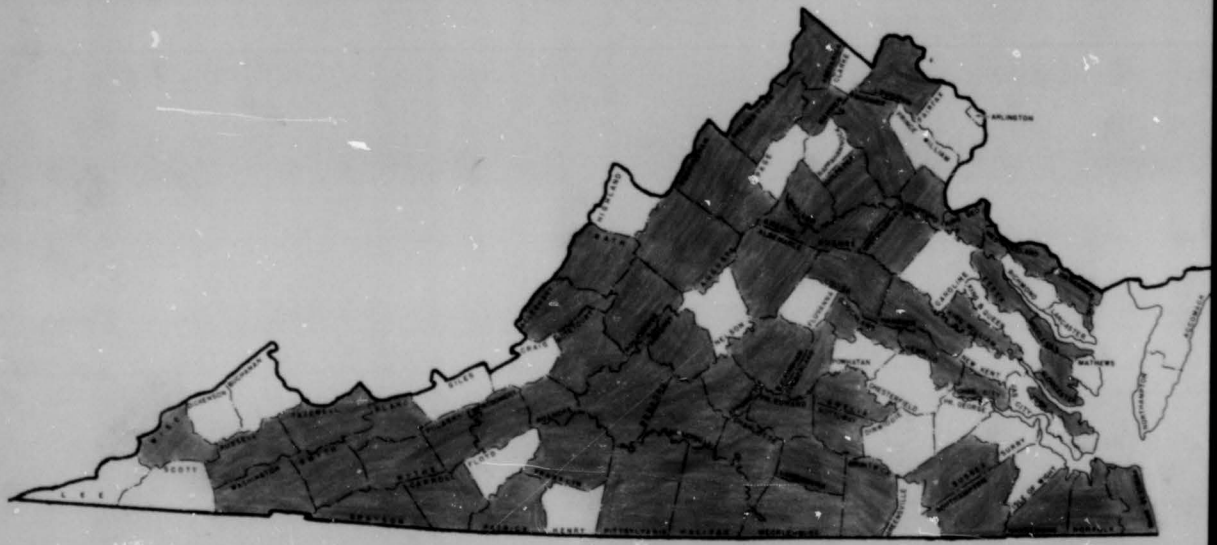
At least 60% of the total work of the housing specialist is devoted to the area of house remodeling and repair. More than 70% of his field work was devoted to helping rural families plan house remodeling with the assistance of a county Extension agent.

As Farm and Home Development has advanced in many areas, more rural people have become aware of the information and assistance available on house remodeling through the Extension Service. Consequently, they are requesting this help through the county Extension offices.

Some other factors affecting this area of rural housing are indicated in the Scope Report under the headings, "The Rapidly Changing Scene" and "Clientele." Supplementary income resulting from part-time off the farm employment by one or more members of rurel families has made it possible for many people to make desirable home improvements.

While the number of farm families is decreasing, very few farm homes are being abandoned. Many rural non-farm families are purchasing old farm homes and remodeling them. These people are requesting assistance from the Extension Service.

Working directly with the rural family planning house remodeling is still a necessary and very successful method of helping them work out their plans. One of the County Extension Agents with the Housing Specialist visited the family who was planning to do some house remodeling. Generally, the procedure was to let the farm family outline their problem or plans, then the agent and specialist offered suggestions for possible solutions. In nearly all cases, the family wanted a sketch or plan which could be used by a carpenter. Sometimes a simple sketch was made at the home, but in some instances, it was necessary for the specialist to take notes and make more detailed drawings at headquarters.



COUNTIES (66) RECEIVING MAJOR EMPHASIS ON FARM BUILDING PROGRAM

Eight safety films from the Extension Film Library were shown by agents and specialists to a total of 100 groups with an attendance of 2575 youth and adults. Approximately 15,000 copies of safety publications were distributed by specialists and agents.

Special kits with general information and program material for Spring Clean-Up Week, National Fire Prevention Week, and National Farm Safety Week were secured and supplied to all Extension agents for emphasis programs. Special suggestions for local activities were also supplied.

One area safety planning meeting was attended to assist in developing the program for an area safety meeting for farm, home, school, public, industrial and commercial people.

Other state agencies and many industrial organizations sponsored safety programs. As a result of the efforts of all organizations and individuals, the accident fatalities for rural Virginians were held to 591 in 1956, 557 in 1957, and 629 in 1958. A change in the group classification from farm to rural in the 1951 recording of fatalities probably accounted for an increase in the number of 1958 fatalities reported.

A statistical record of non-fatal accidents in the state was not available, but the estimate is 100 injuries to one death. It can be reasonably assumed that the accident rate would have been greater if these safety programs were not in existance. The 1959 summary of rural accident fatalities in Virginia will not be available until early 1960.

file system. This new system will permit agents to keep in a more orderly manner the subject matter material that will be furnished by the specialists.

Safety - The farm structures specialist, as Chairman of the Extension Safety Committee, conducted a general safety program to a limited degree in addition to his regular program. Approximately five percent of his time was devoted to safety activities. Other subject matter specialists were encouraged to emphasize safety, where applicable, in their particular programs. The specialist worked closely with the 4-H Staff on their safety program.

During 1958, 629 rural Virginians were killed in non-transport accidents and thousands were injured. The economic loss resulting from these accidents amounted to many thousands of dollars. The physical and mental suffering could not be measured. Most accidents were caused by recklessness, ignorance and human error on the part of all age groups.

The objectives of the program were to assist in reducing the number of deaths and injuries caused by accidents. The approach was to try to make people always aware of accident hazards and to teach safety practices for work and play.

The specialist, in addition to being chairman of the Extension Safety Committee, represented the Extension Service on the Virginia Rural Safety Committee and the Advisory Committee to the Governor's Highway Safety Committee. Four committee meetings of the latter two groups were attended. During the annual safety meeting, sponsored by the Virginia Rural Safety Council, which was attended by 125 youth and adult leaders, the specialist discussed "Power Lawn Mower Safety."

A training meeting on "Water Safety" and "Power Lawn Mower Safety" was conducted for 31 Home Demonstration Leaders in Augusta County.

The specialist assisted staff members in the preparation of two safety bulletins, "Water Safety" and "Power Lawn Mower Safety". More than 5500 copies of the Lawn Mower Safety bulletin were distributed throughout the state and nation. The popular farm magazine, The Southern Planter, which has a circulation of more than 420,000 in more than six states, used this bulletin as a source of material for an article on "Lawn Mower Safety."

A T.V. program on "Lawn Mower Safety" was given on a Roanoke station. Nine radio programs, on the following topics, were made on tapes and sent to all radio stations in the Extension network:

Farm Accidents in Virginia
Safety With Christmas Toys
Fire Prevention
Spring Cleanup
Safety With Thin Plastic
Gun Safety
Safety With Auto Seat Belts.
National Fire Prevention Week.
National Farm Safety Week

sessions. He was a member of the Conference Planning Committee.

4-H Program - Construction on the 4-H Center in Washington County was started in the spring. Tentative plans for the buildings and facilities to accommodate 200 campers were completed during the winter by the Plan Service Specialist in cooperation with the Center Executive Committee and other members of the Agricultural Engineering Staff. Throughout the year, members of the staff were consulted on problems arising during construction. Several Committee meetings were attended and visits made to the camp site to assist with the construction program.

As of this date, approximately $65,000 have been spent on the construction of a magnificent swimming pool with filtration facilities, three girls' cottages, each to accommodate 24 4-H'ers and two leaders, a 40' x 100' recreation shelter, modernization of six old cabins for boys, a boys' shower and bath house and grading and graveling a new entrance road to the camp buildings. Construction is to continue until next spring.

The specialist was one of the judges for the state 4-H Tractor Operators' Contest held at the State Short Course and for the Eastern 4-H Tractor Operators' Contest that was held at the State Fair in Richmond. The Virginia contestant tied for third place among the 21 states represented.

Several committee meetings have been held in the department for the purpose of starting a 4-H Automotive Care and Safety Project in the State. Program material is being assembled.

During the State 4-H Short Course, the specialist was a member of the vespers committee and assisted with the Vespers Program each evening.

Departmental Exhibit for State Fair - The specialist served as a sub-committee chairman in developing the agricultural engineering exhibit for the State Fair of Virginia, and worked with the exhibit six days during the fair.

County Extension Office Planning - Plans were developed for new offices in the county Court House for the Wythe County Extension Staff. The specialist met with the county agent, home agent, and several members of the County Board of Supervisors to study the space available and the needs of the Extension staff. The plan involved removal of several walls and the addition of several partitions and new lighting fixtures. The result is an efficiently arranged Extension office where the staff can operate comfortably and efficiently.

Workshop For County Extension Office File System - The specialist participated in a three-day workshop with certain specialists, district agents, and agents from six counties on the new county office

Staff and Committee Meetings Attended

Eight Department Staff
Four Extension Staff
Three Department Extension Staff
Two District Agents and Department Staff
Two 4-H Automotive Care and Safety
Three Extension-TVA Advisory Committee
One Extension-TVA Planning Committee
Seven Department Committee for State Fair Exhibit
One Extension Project Leaders
Three VPI Role in Virginia Agriculture
Three Extension and Commercial Dairy Committee
Three Dairy Survey Committee
One Grain and Storage and Handling Committee
One Workshop for County Extension Office File System (3 days)

Meetings Attended for Professional Improvement

Institute of Rural Affairs (VPI)
Annual Extension Agents' Conference (VPI)
Virginia Section, American Society of Agricultural Engineers (VPI)
Virginia State Dairymens' Association
Training Conference for Southern Regional Extension Agricultural Engineers, Athens, Georgia
Electro-Mation Short Course (VPI)

Miscellaneous Activities - Approximately 10% of the farm building specialists and plan service specialist's time was devoted to miscellaneous activities. They included agent training, professional improvement, communications training, safety, and certain committee activities pertaining to the overall Extension program.

Communications Training - The specialist was one of the instructors in the four-day communications workshop for the Extension Agents in the Northeast District form January 6 - 9. This was the second of the series of communications workshops for the agents.

The third communications workshop for Extension Specialists was attended for four days in October. This workshop was on written communications.

Training for Extension Agents - During the in-service training sessions for new agents that were held in March and September, the specialist was one of three members of a panel to discuss "How The Specialists Can Help You."

Southern Regional Conference for Extension Agricultural Engineers - The specialist attended the second regional conference for Extension Agricultural Engineers which was held in Athens, Georgia on November 9 - 13. He discussed the topic "The Role of the Extension Agricultural Engineer" and participated in the conference work

L-3.61 - Two-Row Aromatic Tobacco Row Marker
L-3.62 - One Row Aromatic Tobacco Row Marker
Leaflet 93 - Hay, Grain, and Silage Feeder for 16 Sheep.
Leaflet 94 - Combination Hay and Grain Feeder for Lambs.

PLANS DISTRIBUTED BY THE AGRICULTURAL ENGINEERING DEPARTMENT

V.P.I., FROM DECEMBER 1, 1958 TO NOVEMBER 30, 1959

A - House Plans	306
B - Dairy Buildings and Equipment	1986
C - Beef Cattle Barns and Equipment	1326
D - Horse Barns and Equipment	49
E - Sheep Barns and Equipment	362
F - Poultry Houses and Equipment	1028
G - Hog Houses and Equipment	1729
H - General Purpose Barns	35
J - Storage Buildings and Equipment	595
K - Machinery Storage, Farm Shops, Garages	308
L - Tobacco Barns and Equipment	226
M - Public and Camp Buildings and Equipment	43
N - Miscellaneous Buildings and Equipment	481
Special Plans	331
TOTAL	8805
Farm Maps Reproduced	235

farmers' needs. They are considered as subject matter material, and are distributed free of charge to anyone in the state who requests them. Extension agents make good use of the plan service in supporting their county programs.

There are 326 standard plans for farm service buildings and equipment and over 60 plans for farm houses in the plan service. These plans have been developed over a period of years by the U.S.D.A., other states, and this state to get buildings that are structurally sound, economical, and of good functional design. One full time specialist handled the work of the plan service and assisted with the office work on farm buildings and rural housing in the Extension program. He supervised the production and distribution of the plans as they were requested.

A total of 8605 plans for farm buildings and equipment were sent to farmers upon request and to Extension agents as they were needed to support the activities of the county agricultural programs.

Two hundred thirty-five farm maps were reproduced for county agents working on the farm and home development program. Also, numerous charts and training aids for other Extension departments were reproduced at various times throughout the year.

During the year, ten new plans were designed and added to the standard file and seven standard plans were revised. Twenty-eight special plans were prepared for particular situations for which standard plans could not be used. In some cases, the special plans serve as a basis for new standard plans, depending on the acceptance and need of the new facility.

Standard Plans Revised

B-2.55 - Three-Stall Milking Parlor
B-2.57 - Six-Stall Milking Parlor
C-5.34 - Covered Silage Feeder
F-5.19 - Droppings Pit
F-5.40 - Ridge Ventilator For Poultry House
G-6.16 - Concrete Feeding or Watering Trough
K-4.12 - Two Car Garage

Plans Added to the Plans Service

B-2.51 - Two-Stall Milking Parlor for Manufactured Milk
B-2.54 - Double-four Herringbone Milking Parlor
B-2.56 - Double-six Herringbone Milking Parlor
E-1.17 - Sheep Dipping Vat for Treating Foot Rot
J-4.61 - Hay Storage and Feeding Shed
J-4.62 - Fifty Ton Self-Feeding Haykeeper

Holding chute, loading ramp, and sorting pens, necessary facilities on livestock farm for safe and efficient handling of livestock.

The cost is no more than for buildings with one or two rows of posts within the buildings.

The specialist attended a Community Club Meeting in Pulaski County to discuss "New Developments in Farm Buildings Adaptable to That Community." This meeting was unusual in that an official of India and a USDA representative were present. They were on an agricultural tour of Virginia to study rural life and agriculture in general.

As a result of Agricultural Engineering discussions with the agents at the 1958 Agents' Conference, five special interest county meetings were requested this year. Those meetings were all-day sessions and attended by 128 persons. Subjects discussed were: New Uses Of Plastics on the Farm, Pole Type Construction, Materials Handling Equipment, Feed Processing, Crop Drying, New Machinery, and Silage and Hay Harvesting, Storing, and Feeding. Farmers and agents showed considerable interest in the information presented.

To give special information that was requested by farmers and agents and to plan programs, 953 individual letters and 13 circular letters were written and 4743 bulletins were distributed by the two specialists.

Farm Fencing - Several years ago the specialist assisted in making a film "Fencing for the Future" for agents to use in their county programs. This year agents showed the film to 18 groups with approximately 398 persons in attendance.

One farm fence demonstration was erected in Augusta County on the farm of the State Lime Plant. That fence was on a main county road where it will be seen by many people. The county agent uses it as a result demonstration. While the fence was being erected, many people stopped to see what was being done. Reporters from two county newspapers came to get pictures and a story on the new method of fence erection.

For a number of years, the specialist has been working with operators of several state-owned farms on fencing projects. The idea behind this plan is to have state farms use fencing methods that are recommended by the state land grant college resulting in more farmers accepting the practice. Fence demonstrations have been erected in more than 20 counties in recent years. Throughout the state, there is evidence of new fences being erected by methods emphasized in the extension fencing program.

Farm Building Plan Service - The plans service is operated for the purpose of supplying Virginia farmers with up-to-date, economical, functional, and sturdy buildings which are needed for efficient and profitable operation of a farm. The plans are prepared for general use and in most cases, have to be modified to fit the

Latest development in poultry laying house, insulated, mechanical ventilation, feeders and egg conveyor. Capacity, 1.2 sq. ft. per bird.

A 40 foot wide pole type poultry laying house, VPI Plan F-1.18A. Aluminum siding and roof, insulated roof and side walls, double layer clear plastic on windows, natural ventilation.

Two committee meetings were held with representatives of dairy firms handling manufactured milk and the State Department of Agriculture regarding preparation of three new plans for the small farmers who produce milk for manufacturing purposes. One plan has been completed, one partially completed, and the third will be completed early next year. The purpose of these plans is to assist those farmers to get economical and convenient facilities for producing better quality milk.

Beef Cattle: The amount of construction for expanded and improved facilities on beef cattle farms seems to have decreased from that of several years ago. Most of the work in this area was on service buildings such as hay barns, silos, silage feeding facilities, machinery storage, cattle sorting pens, and the maintenance of these facilities. Many farm visits were made to assist with those problems. More than 1326 plans for such buildings and equipment were distributed. One short course and five area and county meetings, with 356 persons attending, were participated in for this program.

Sheep: Farmers were quite active in providing improved facilities for sheep. Approximately 362 plans for sheep buildings and equipment were distributed. One meeting on sheep production was attended to discuss buildings and equipment.

Swine: Activity in the construction of new hog farrowing houses and feeding units decreased slightly from the preceding year. Lower prices for market hogs resulted in decreased interest in new construction. Four hog production meetings, with 196 persons present, were attended to discuss hog buildings and equipment.

Poultry: Lower prices for broilers and eggs caused less new poultry house construction than in 1958. Poultrymen were more interested this year in improving the environmental conditions in their existing buildings and constructing better buildings than in previous years. The trend in laying houses was to use more insulation and mechanical ventilation so as to lessen the space requirements and to get better labor efficiency. This has been the theme of the Extension program on laying houses during the last few years. The results of that program are just beginning to be realized. One thousand twenty-eight plans for poultry houses and equipment were distributed this year. The construction of new houses in 1959 is estimated at not more than 40% of those constructed in 1958. Many old houses were improved, but no information is available on the number.

General: Because of economical cost and improved operating efficiency, practically all hay storage, animal, and poultry buildings constructed this year were one-story buildings. Pole type construction was the most popular. The use of clear span buildings, up to 40 feet wide, are becoming quite popular, especially for hay and machinery shelters, dairy lounging units, sheep and hog shelters.

A popular type lounging barn, pole construction, clear span for 40 foot widths for efficient operation. Cost, less than $1.00 per sq. ft.

Labor saving features on dairy farm - paved concrete yard, automatic waterer with electrical heating unit, concrete ramp for pushing manure onto spreader.

Following a well developed plan for a new, loose housing dairy unit for 80 cows on Droogs Brothers' farm, Campbell County: milking parlor, lounging barn, haykeeper, self-feeding bunker silo, manure loading ramp and concrete paved yard.

The Iowa Haykeeper - latest development for efficient storing, drying, and feeding chopped hay. Cost, approximately $1,000, capacity 50 tons hay.

dairy class and the other the Agricultural Engineering senior class. Approximately 1546 persons attended these activities.

The meeting discussions usually consisted of a slide illustrated talk. In some cases, the discussion was the entire program, while in others it was one of several discussions. Participation in these meetings and the farm and home visits were at the county agent's request and for the purpose of supporting his county farm building program. Forty percent of the specialist's time was devoted to field work in 66 counties. One hundred six conferences were held with county agents.

Dairy: The major work with the dairy farmers had to do with location, arrangement, and construction of new milking facilities, hay storage, feeding and lounging barns, silos, silage feeding facilities, concrete barn yards, calf barns, and facilities. Many farm visits were made with county agents, inspectors, and fieldmen to give recommendations on these problems. Arrangements for operating efficiency, animal environmental conditions, sanitation, and economical costs were important considerations. More than 1986 plans for dairy buildings and equipment were distributed. Dairy buildings were discussed at two state short courses and twelve farmers meetings which had a total attendance of 593 persons. The specialist worked closely with dairy inspectors and fieldmen in the preparation of dairy building plans and in keeping them informed on the latest developments in building construction and arrangement. Most of the milking parlors and loose housing facilities that were constructed this year were constructed by V.P.I. plans. In all new dairy units established this year, the milking parlor loose housing systems were provided.

The majority of the new construction on existing dairy farms resulted from increasing the size of herds and the addition of bulk milk tanks. Many farmers with stanchion barns, who faced the problem of installing bulk milk tanks and facilities for accommodating more cows, provided new facilities throughout. These included elevated stall milking parlors, pipe line milkers, bulk tanks, mechanical silage feeders or self-feeding silos, convenient one-story hay storages, concrete paved yards and lounging facilities. During one week, the specialist visited six farmers in four counties who needed facilities for expanding their herds from 30 to 50 percent. They planned an investment of $120,000 on the basis of the discussions.

The most successful technique used in getting farmers to accept new ideas in the use of buildings and equipment was to get them to visit farms where the latest practical facilities had been installed. A typical example was a farm in Campbell County with a complete new dairy unit. From June to November, more than 175 farmers and county agents had visited and studied those facilities. One planned Extension meeting was held on the farm, but most farmers visited on an individual basis. By publicizing such facilities, with the owner's consent, many farmers were benefited.

Extension Agents' District Meeting - specialist training agents on modern equipment and methods for grinding, mixing and moving grain and facilities for storing, drying and self-feeding chopped hay - using models, actual equipment, slide pictures, and crayon board.

Field meeting for agents and farmers to discuss new dairy facilities; herringbone milking parlor, haykeepers, self-feeding bunker silo, lounging barn, automatic waters, manure loading ramp.

To aid the Extension agents in their county program planning, the specialist supplied a list of appropriate and timely projects for consideration by the respective county planning committees. In some cases specific suggestions for programs were given to agents for certain local situations.

The work was carried on by the usual Extension methods, i.e., mass media, county and area meetings, farm tours and demonstrations, farm visits, distribution of building plans and subject matter publications, conferences and correspondence.

Extension agents were informed through circular and individual letters and publications and during extension training meetings, county meetings, farm visits, and conferences when working with farmers in the counties. More than 110 conferences were held with agents on subject matter and programs.

Two agents' district meetings in the Southeast District were attended to discuss "Hog Houses and Equipment," and "Methods of Harvesting, Storing, and Feeding Hay and Silage." These topics were selected by the agents as being timely and the information being appropriate for them to use in their county programs.

Representatives of industry and other government agencies were informed on building information in the same general way. Close cooperation was maintained with the dairy inspectors and fieldmen. Building plans, publications, and information for special problems were supplied to these men at their request. Close cooperation with representatives of other government agencies and industry is maintained at all times so the specialist can keep them informed on certain technical information as well as to learn from them the different programs and the problems involved with those programs. Commercial companies and trade organizations supplied technical information on their materials and publications which supplement the available Extension publications.

Most of the field work involved 201 farm and home visits with Extension agents where the individual building problems were discussed. These problems varied in scope and nature from simple to complex on selection of materials, building location, planning, and construction, etc. To supplement the discussions, building publications and plans were usually given to the farmer for his study and guidance in developing his project. In many instances, these completed projects served as demonstrations for neighbors or for planned meetings.

The specialist participated in 27 county meetings, two area meetings, two farm tours, two experiment station field day programs, and three short courses to discuss subjects pertaining to the particular program. Dairy buildings were discussed for two V.P.I. classes, one a

FARM STRUCTURES

The activities of the farm building and plan service specialists are reported in this section. In addition to the regular subject matter program, miscellaneous activities such as administrative committee assignments, extension training, and farm safety activities are included.

Farm Structures - This being the specialist's major project, he spent approximately 85 percent of his time on it. It included supervision of the Farm Building Plan Service. The specialist assigned to the Plan Service assisted with the correspondence in the structures program.

Buildings and equipment are important tools of production in all types of farming. Through research and experience, many new techniques are being developed in the use of equipment and in building construction arrangement. The remodeling and the erection of new buildings are long term projects and involve capital outlay of money. Because of this situation, farmers should provide for the modern improvements in their buildings in order to avoid obsolence and inefficiency in a few years. Extension agents, other government and commercial representatives who work with farmers need to be well informed on this subject so they can be in a position to assist farmers whenever the occasion arises.

The general objectives of the program were to keep the Extension agents and certain government and commercial representatives informed on building information and to inform and assist farmers on building construction and arrangement for economical and efficient operation.

Specifically, the ultimate objective was to get information to farmers that would help them to (1) understand the functional and environmental requirements for which the buildings were to be used, (2) locate and arrange the buildings for the most efficient and convenient operation, (3) select the most suitable building materials for economical and reasonable length of service, i.e., masonry block, concrete, frame or pole type construction, paints, plastics, insulation material, roofing material, etc., and (4) construct and maintain their buildings for adequate strength and durability.

These objectives applied to all farm structures. Throughout the year, information was given in varying degrees on practically every type of farm structure, depending on the requests received and evidence of need as seen by the specialists. However, the most effort was devoted to the types of buildings needed and being used in major production areas, which were poultry, swine, dairy and beef cattle. Information on building maintenance was presented at appropriate seasons.

The workshop provided an exceptional opportunity for exchanging ideas on subject matter, program planning, and methods for successfully conducting Extension work in agricultural engineering.

SPECIAL DEPARTMENTAL ACTIVITIES

State Fair of Virginia Exhibit

An agricultural engineering exhibit was developed and shown in the Agricultural Building at the State Fair of Virginia in Richmond during the period September 25 - October 3. The exhibit theme was "Electromation - Mechanization, Revolution in Agriculture". It was designed to show the effect of the use of electrical and mechanical power on agricultural production efficiency during the period 1940-1959. The exhibit included two working scale models. One model demonstrated the facilities for a completely automatic system of storing, conveying, grinding, blending and distributing feed for livestock. The other model demonstrated the harvesting, drying, storing and feeding of chopped hay with a minimum of labor.

The exhibit occupied 40 feet of wall space and attracted the attention of many people. J. L. Calhoun was chairman of the Exhibit Committee and all members of the Extension, Research and College Division staffs participated in its planning and construction.

Agricultural Engineering Training for County Extension Agents

Intensive subject matter training was given to approximately 70 County Extension Agents during the 1959 annual Extension Conference. The subject matter covered included home heating systems; methods and equipment for harvesting, handling, storing and feeding hay and silage; and new developments in buildings and equipment for swine and poultry. Other training activities for agents are mentioned in appropriate sections of this report. All members of the staff conducted some training activities for County Extension Agents.

Southern Agricultural Engineering Extension Workshop

The Extension agricultural engineering specialists from the 21 southern states participated in a training workshop at the University of Georgia November 8-13. The general sessions of the workshop dealt with the broad aspects of agricultural engineering in the total Extension program, including publications, radio, television, special programs, and the role of the agricultural engineer. Much of the time was devoted to discussion groups of specialists in the major technical subject matter areas.

The entire staff from VPI participated actively in the workshop. C. D. Kite and E. T. Swink appeared on the general session programs, discussing the Role of the Agricultural Engineer and the Regional Publications Program respectively. J. L. Calhoun served as group leader for the Rural Electrification and Processing section and presented a report at the concluding general session. E. T. Swink served as chairman of the resolutions committee. C. D. Kite served on the program planning committee for the workshop.

7. Radio Talks:

Seven tapes on various phases of research were made at local studio.

Assisted with TV coverage of the mulch tillage plowing operation and field trial in Franklin County.

8. Other:

All the research staff cooperated fully and devoted many man days to planning, constructing and showing the Agricultural Engineering Department exhibit at the State Fair in Richmond.

Contributions by College Division

Members of the College Division staff were called upon frequently for consultation on special subject matter problems by Extension specialists. College personnel also gave assistance on the following special activities:

1. Gave subject matter instruction at the 4-H tractor shortcourse.

2. Assisted with the Electromation shortcourse for power supplier personnel.

3. Assisted with the Eastern United States 4-H tractor operators contest at the State Fair of Virginia.

4. Worked on the team that planned and built the Agricultural Engineering exhibit for the State Fair of Virginia.

3. Field Trips within the State to work with County, SCS, or Extension personnel:

Four trips on ACP program development.

Six trips on mulch tillage field trials.

Six trips on land forming and drainage problems

One trip to judge plowing contest in Louisa County in connection with Agricultural Field Day.

One trip to demonstrate mulch tillage plow at same meeting.

One trip of four staff members to work with SCS and others on further refinement of the soil loss formula.

Four trips to work with SCS technicians on tidal river bank erosion problems.

4. Tours conducted at VPI for visiting groups:

Institute of Rural Affairs - 150
Conservation Shortcourse for Teachers - 35
Soil Conservation Service technical representatives from Northeast States - 45
Two tours for Vo-Ag teacher groups - 50
Numerous tours for students and other small groups of visitors - estimated 250.

5. Consultations and correspondence with individual farmers and field technicians on special problems:

Estimated - 150 people

6. Publications prepared that were useful in Extension work:

Land Forming Research in Virginia — submitted for publication in Agricultural Engineering.

Electric Heating of Hotbeds — USDA Leaflet No. 445, February, 1959.

Plastic Greenhouses — Extension Service Circular 760, reprinted February, 1959.

A Research Technique for Hydrology Studies on Small Watersheds — Submitted for publication in Agricultural Engineering.

Principles of Tobacco Irrigation — Submitted for publication as a USDA Agricultural Information Bulletin.

Further revised the Handbook of Recommendations and Specifications for Engineering Practices in Soil and Water Conservation.

Curing Aromatic Tobacco — Extension Service New Developments, February, 1959.

New Developments in Plastic Greenhouse Research — The Virginia Processor, November, 1959.

Mulch Tillage Being Field Tested — Extension Service New Developments, June, 1959.

Land Forming Shows Promise — Extension Service New Developments, June, 1959.

The following reports were published in the several issues of "Progress in Soil and Water Conservation Research", published quarterly by the Agricultural Research Service, USDA:

Mulch Tillage Corn Yields Vary in Field Tests.

Hydraulic Extractor and Special Sampling Tubes aid Moisture Sampling.

Irrigation Increases Yields of Forage Mixtures.

Low Runoff From Watersheds with Frozen Soil.

Machine for Measuring Soil Hardness Gives Reproducible Measurements.

2. Lectures and Talks before groups at VPI or out in State:

Mulch Tillage Tests in Franklin County, to local Farmers' Club.

Four lectures reporting research progress on Watershed Hydrology, Conservation Tillage, Farm Drainage, and Irrigation to the Soil Conservation Service state technical staff.

Gave talk on Farm Building Ventilation at Electromation Short-course.

Eight lectures to student groups on various research projects.

Land Forming Research in Virginia, a talk to Virginia Section ASAE.

The following lectures were given to a group of 40 SCS technical representatives from all the Northeastern States:

Progress in Mulch Tillage Research
Progress in Agricultural Hydrology Research
Progress in Agricultural Drainage Research
Progress in Irrigation Research

In addition, the research staff made an estimated 20 talks to small groups of visitors and technicians on the research in progress.

6. Member, Committee of Fifteen to study Role of VPI in serving the People of Virginia.

7. Member, College Conference Board, United Cooperatives.

8. Chairman, Education and Research Division, ASAE, as of June, 1959.

9. Chairman, Agricultural Engineering Division, American Society for Engineering Education as of June 1959.

10. Chairman, Steering Committee, Education and Research Division, ASAE, and Member of ASAE motion picture production committee.

Special Recognition
(Department Head)

1. Elected "Fellow" American Society of Agricultural Engineers, June 1959.

2. Listed in "Who's Who in Engineering" 1959.

Contributions by Research Division

The research staff conducted some activities that made important contributions to the Extension program and cooperated with Extension Specialists in carrying on some of their project work. Such contributions included:

1. News stories and articles prepared and published:

New Way to Plow Rolling Land -- Farm Journal, March, 1959.

Mulch Tillage Found to Cut Runoff -- Roanoke Times, July 20, 1959. (Also in Extension Service News.)

New Kind of Plowing to be Used on Franklin County Farm -- Franklin Gazette, March 24, 1959.

Mulch Farming Looks Good -- Farm and Ranch, September, 1959.

Irrigation only at Peak Growth Means More Efficient Use of Water -- Electricity of the Farm Magazine, May, 1959.

Gaging Station Built on Ida Valley Road -- Page News and Courier, September 17, 1959.

Curing Aromatic Tobacco Electrically -- Electricity on the Farm magazine, June, 1959.

Automatic Greenhouse Ventilation Control -- Extension Service New Developments, June, 1959.

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Automatic Greenhouse Ventilation Control -- Extension Service New Developments, June, 1959.

Major Meetings
(Department Head)

1. Attended the Winter Meeting, American Society of Agricultural Engineers in December at Chicago, Ill. Presided at General Session program as Vice-Chairman, Education and Research Division.

2. Presented talk on Regional Extension Agricultural Engineering Publication program at Association of Southern Agricultural Workers Conference, Memphis, Tennessee in February. Also held meeting of Publications Committee for southern region during the Conference.

3. Attended annual meeting of Southern Association of Agricultural Engineering and Vocational Agriculture at Atlanta, Georgia in April and presided as President of the Association.

4. Attended annual meeting of the American Society of Engineering Education at Pittsburgh, Pa. in June.

5. Participated in annual meeting of American Society of Agricultural Engineers at Cornell University in June and organized Steering Committee for the Education and Research Division of the Society.

6. Attended meetings of the College Conference Board for United Cooperatives at Athens, Ga. and Seaford, Delaware.

7. Attended workshop for Extension Agricultural Engineers of the southern region at the University of Georgia in November. Presented talk on the Regional program for Extension publications on Agricultural Engineering.

Special Assignments
(Department Head)

1. Chairman, Southern Regional Committee on Extension Agricultural Engineering Publications.

2. President, Southern Association of Agricultural Engineering and Vocational Agriculture. (Term expired April 1959).

3. Chairman, Overall Committee on Emphasis Programs, Virginia Farm and Home Electrification Council.

4. Member, Executive Committee, Virginia Farm and Home Electrification Council.

5. Member, ASAE Electric Utilization Research Conference Committee.

RESULTS AND ACCOMPLISHMENTS

Administration

Extension Staff: Several staff changes occurred during the year. A. J. Lambert returned from educational leave at Michigan State University on October 1. He completed most of the requirements for the Masters degree while on leave and expects to have the degree very soon. J. H. Strickler was appointed on a temporary basis to replace Lambert. Strickler's appointment was terminated October 1 upon Lambert's return to duty. H. S. Smith was granted part-time status for several months during the year to enable him to complete the requirements for the Masters degree.

James A. Waller, Jr. retired from the staff on August 31 after serving the Institution and the people of Virginia for approximately 37 years. Applications for a replacement for Mr. Waller are being sought and an appointment will be recommended early in 1960.

The members of the Extension staff served on many special committees and assignments during the year. In addition to the two members who completed their work for the Masters degree during the year, all other members of the staff attended one or more workshops for professional improvement.

Program: The plan of work for the project served as a guide for the Extension program during the year. The program was aimed at providing information that would aid Virginia farmers in making the necessary adjustments in a rapidly changing agricultural situation. These adjustments included increasing the size of operation for better efficiency, improving buildings and equipment to make more efficient use of labor, maintaining or improving the quality of products, selection, maintenance and use of machinery, and improving farm water supply and water use equipment. Adoption of the best known practices relative to these problems contribute to higher farm income and better rural living.

Work with rural youth through the 4-H programs in electricity, tractors and machinery comprised an increasingly important phase of the total program. Each technical phase of the program along with the work with youth are reported in detail in appropriate sections of this report.

The department head handled the routine administrative matters relative to the program and its execution including maintenance of staff, work with subject matter material, conferences, meetings, correspondence, and a limited amount of field work on all its major phases. In addition, he participated in a number of important meetings and handled other special assignments, most significant of which are listed below:

P. L. Dowdy, Laboratory Mechanic A (Structures).

College Division Staff
(November 30, 1959)

E. T. Swink, B.S., M.S., P.E., Professor, Head of the Department, (Rural Electrification)(1/3 College).

U. F. Harp, B.S., M.S., P.E., Professor, Course Advisor and in Charge of the College Division, (Rural Electrification, Household Equipment, and Special Problems) (3/4 College).

S. H. Byrne, B.S., M.S., PhD., P.E., Professor, (Farm Structures) (15% College).

J. W. Sjogren, B.S., M.S., Professor, (Farm Power and Machinery).

T. J. Wakeman, B.S., M.S., Professor, in Charge of Farm Shop.

J. L. Calhoun, B.S., M.S., Professor (Rural Electrification) (1/4 Time).

B. L. Parsons, B.S., M.S., Associate Professor, (Farm Buildings and Soil and Water Conservation).

J. P. H. Mason, Jr., B.S. (A.E.); B.S. (M.E.); M.S. (A.E.), Assistant Professor, (Structures, Surveying, Farm Power and Machinery) (2/3 College).

V. L. McCoy, Instructor (Department Shop and Laboratory Assistant).

Miss Nellie Lee Pedigo, Clerk-Stenographer, secretary for Head of Department and Teaching Staff.

Mrs. Elizabeth Hall, Clerk-Stenographer B, secretary to Department Head (1/3 College).

John E. Stiff, Laboratory Mechanic B.

Affiliate Personnel

D. R. Burrowbridge, B.S., Coordinator, Virginia Farm and Home Electrification Council. Mr. Burrowbridge works closely with Extension Specialists in this field and is officed in Seitz Hall.

E. G. Thompson, B.S., M.S., Associate Professor, Vocational Education, assisting with Farm Shop Instruction.

G. B. Duke, B.S., Associate Agricultural Engineer, ARS, stationed at Tidewater Research Station, Holland, Virginia, on cooperative research project on peanut harvesting mechanization.

Mrs. Lucille Thornton, Clerk-Stenographer, Vocational Education Department, secretary to Farm Shops group. (Resigned in July and replaced by Mrs. Carol Walls).

McNeil Marshall, B.S., P.E., Associate Agricultural Engineer, (Farm Structures).

H. T. Hurst, B.S., M.S., P.E., Associate Agricultural Engineer, (Farm Structures).

J. N. Jones, B.S., M.S., Associate Agricultural Engineer, ARS, (Soil and Water Conservation).

J. M. Stanley, B.S., Assistant Agricultural Engineer, ARS, (Farm Electrification).

J. P. N. Mason, Jr., B.S., (A.E.); B.S., (M.E.); M.S., (A.E.), Assistant Agricultural Engineer, (Farm Structures) (1/3 Research).

J. P. Walker, B.S., Assistant Agricultural Engineer, ARS, (Soil and Water Conservation).

J. E. Moody, B.S., M.S., Associate Soil Technologist, (Soil and Water Conservation).

J. B. Burford, B.S., Assistant Agricultural Engineer, ARS, (Agricultural Hydrology).

Jan Carr, Engineering Aide, ARS, (Soil and Water Conversation).

Mrs. Verna Agee, Clerk-Stenographer (ARS), secretary to Messrs. Lillard, Walker, Jones Moody and Burford.

Mrs. Fannie A. Reynolds, Laboratory Technician (Soil and Water Conservation).

Mrs. Ann Hale, Clerk-Stenographer, ARS, (Soil and Water Conversation).

Miss Louise Howard, Statistician A.

Mrs. Mervis S. Matney, Clerk-Stenographer B, secretary to Messrs. Stanley, Hurst, Marshall and Bell.

Mrs. Elizabeth Hall, Clerk-Stenographer B, secretary to Mr. Swink (1/3 Experiment Station).

J. R. Price, Agricultural Aide, ARS, (Soil and Water Conversation).

O. N. Shepherd, Field Assistant, ARS, (Soil and Water Conversation).

Marley E. Carroll, Laboratory Mechanic A, (Soil and Water Conversation).

D. D. Walton, Agricultural Aide, ARS, (Soil and Water Conversation).

DEPARTMENT ORGANIZATION

The staff of Extension agricultural engineers listed on the title page of this report comprise one division of the agricultural engineering department. Two additional divisions, namely research and teaching, complete the departmental organization. The head of the department E. T. Swink is administratively responsible for the work of all three divisions of the department. The planning and execution of the Extension program is under the supervision of G. D. Kite, Project Leader.

The Extension project is organized under five major technical areas of agricultural engineering: Farm structures, Rural Housing, Rural Electrification and Crop Processing, Farm Water Development and use phase of Soil and Water Conservation, and Farm Machinery. Personnel assigned to these subject matter areas are responsible for planning and carrying out their phase of the program under the general direction of the project leader and the head of the department. This report is presented to show the major accomplishments in these subject matter areas.

Many agricultural engineering problems involve certain aspects of two or more of the technical subject matter areas. A close and effective working relationship is therefore maintained within the Extension staff, a teamwork approach is encouraged with other subject matter departments. The Extension staff of the department also maintains a close working relationship with staff members of the research and teaching divisions of the department. Because of the liason maintained among the three divisions and the substantial contributions of the research and teaching divisions to the Extension program, the staff members of these divisions are included here.

Research Division Staff
(November 30, 1959)

E. T. Swink, B.S., M.S., P.E., Agricultural Engineer, Head of the Department. (1/3 Research).

J. N. Lillard, Jr., B.S., M.S., P.E., Leader, Research Division. (Soil and Water Conservation).

P. B. Potter, B.S., A.E.; P.E., Agricultural Engineer, (Farm Structures) (1/2 Research).

U. F. Warp, B.S., M.S., P.E., Agricultural Engineer (Rural Electrification and Household Equipment) (1/4 Research).

E. E. Bell, B.S., M.S., Associate Agricultural Engineer (Farm Electrification and Crop Processing).

TABLE OF CONTENTS

PROJECT PERSONNEL and ASSIGNMENTS

E. T. Swink, B.S., M.S., P.E., Extension Agricultural Engineer and Head of the Department (1/3 Extension), is responsible for administration and subject matter for the Extension program.

G. D. Kite, B.S., M.S., Extension Agricultural Engineer and Project Leader, is responsible for the Extension program in the field with major subject matter responsibility in the farm structures phase of the program.

J. A. Waller, Jr., B.S., M.S., P.E., Extension Agricultural Engineer, has major responsibility for the farm water supply development and use phase of the project. He also handled the 4-H Tractor Maintenance project in 1959 with E. S. Smith. (Retired August 31).

J. L. Calhoun, B.S., M.S., Extension Agricultural Engineer, is responsible for the program in rural electrification and crop processing. (3/4 Extension).

A. J. Lambert, B.S., Associate Extension Agricultural Engineer, assists with the rural electrification and crop processing phase of the program.

C. D. Wheary, B.S., Associate Extension Agricultural Engineer, is responsible for the rural housing phase of the program.

E. S. Smith, B.S., M.S., Assistant Extension Agricultural Engineer, is responsible for the farm power and machinery phase of the program.

L. B. Driggers, B.S., Assistant Extension Agricultural Engineer, is responsible for farm building plan service.

F. E. Charlton, Clerk A, operates the Ozalid printing machine, maintains building plan files, and is in charge of the file and supply room.

Mrs. Elizabeth Hall, Clerk-Stenographer B, secretary to Mr. Swink. (1/3 Extension).

Mrs. Elizabeth Woods, Clerk-Stenographer B, secretary to Messrs. Kite, Waller, Smith, Wheary and Driggers.

Mrs. Carol Baldwin, Clerk-Stenographer B, secretary to Messrs. Calhoun and Strickler and office secretary for the Virginia Farm and Home Electrification Council.

ANNUAL REPORT

PROJECT NO. 20

V. P. I. AGRICULTURAL EXTENSION SERVICE

AGRICULTURAL ENGINEERING DEPARTMENT

VIRGINIA POLYTECHNIC INSTITUTE

BLACKSBURG, VIRGINIA

DECEMBER 1, 1958 THRU NOVEMBER 30, 1959