

*Annual Report*  
of the  
Arizona  
Agricultural Experiment Station

FOR THE 62ND YEAR  
ENDING JUNE 30, 1951



AGRICULTURAL EXPERIMENT STATION  
UNIVERSITY OF ARIZONA, TUCSON

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ROBERT L. NUGENT, Ph.D.....Vice-President of the University  
ALFRED ATKINSON, D.Sc.....Executive Advisor to the Board of Regents

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## I. DEVELOPMENTS NOT ASSOCIATED WITH SPECIFIC PROJECTS

### CHANGE IN PRESENTATION OF ANNUAL REPORT

Beginning with this issue the Annual Report will consist of two publications. One will be a short, official report (this publication) prepared primarily for officials of the College, State, or Federal Government, other research workers, and libraries. The other part of the Annual Report will be a detailed record of research developments prepared mainly for the internal use of the Experiment Station and for Extension workers and others who have a need for more complete information than that carried in the official report.

In presenting the work of the Station to the public, major reliance will be made on *Progressive Agriculture in Arizona*, the research news periodical published quarterly by the Station. Arizona farm and ranch families have indicated their approval of the content and the popular style of this publication by their many requests for inclusion on the mailing list. Approximately 8,000 copies of each issue are now distributed by mail and about 450 copies are distributed directly to students and other interested persons.

The methods of presenting agricultural research results which are outlined above and which will be followed hereafter, are completely in line with the recommendations made recently by an Editor's Subcommittee to the Experiment Station Committee on Organization and Policy.

### PURCHASE OF MARANA FARM

The most significant addition to the research facilities of the Station during the year was the purchase of a 225-acre farm on the west side of Arizona State Highway 84 near Marana. Subsequent to this purchase, a 17-acre tract on the east side of the property was sold to the Western Cotton Products Company for bale storage needed in connection with a cotton gin operated at Marana. It is planned that the 208 acres remaining in the University's possession shall be devoted primarily to livestock production research although some other lines of research will also be carried on. Another use presently envisioned for the farm is the improvement and expansion of livestock numbers used at the University for instructional purposes. Under the terms of purchase, the University will not obtain possession of the land until the harvesting of the 1952 cotton crop is completed. Research and other operations on the farm, therefore, will probably not begin before the first months of 1953.

### RESEARCH FOR NEW FARMING AREAS

As Arizona's agriculture expands there will continue to be a growing demand from farmers and ranchers for technical assistance on new problems. To provide useful assistance it is essential that the Experiment Station develop well-oriented and well-timed programs of agricultural research. The proper orientation and timing of experimenta-

tion is especially necessary when there is a sudden increase in agricultural activity such as the opening of a new irrigated area.

This kind of sudden development will probably take place within the next year when the first water is made available on the Wellton-Mohawk Division of the Gila Project. In preparation for this project the Experiment Station has prepared a research program that encompasses the problems that are likely to be encountered as they are presently envisioned.

This program is centered mainly about the two "development" farms which are to be established for experimentation and demonstration on the new irrigated lands. These farms are to be set up as going concerns by the Bureau of Reclamation, and the Experiment Station will co-operate with this Bureau, the Bureau of Plant Industry, Soils, and Agricultural Engineering, and other agricultural agencies in conducting experiments and demonstrations on the farms for the benefit of settlers. In effecting its part of the program the Experiment Station has made definite provision for assisting with the personnel and operating needs of the farms during the next fiscal year.

#### LINING OF IRRIGATION DITCHES ON THE SAFFORD FARM

During the year approximately  $\frac{1}{4}$ -mile of irrigation ditches were lined with concrete on the Safford Farm. The lining was installed by the shotcrete process (pneumatically applied), and use made of the ditches to date indicates satisfactory construction. A complete appraisal cannot be made of course until it is known how the linings hold up over a period of years.

#### CHANGE IN DIRECTORS

On June 30, 1951, Dr. Paul S. Burgess retired as Director of the Experiment Station after eighteen years of service. During Dr. Burgess' directorship agriculture advanced to become the largest single industry in Arizona and assumed a position of prominence among the research institutions of the Nation.

Dr. Burgess was succeeded by Dr. Phil S. Eckert who came to the State from the Economic Co-operation Administration in which he had served as an agricultural advisor in the European area and in Washington, D.C. Previously Dr. Eckert had been active in the field of agricultural economics in the State of Montana and with the Federal Reserve System.

## II. ACTIVE PROJECTS

### AGRICULTURAL CHEMISTRY AND SOILS

Lysimeter study of the nitrogen balance in irrigated arid soils (Purnell 169)

Studies in soil structure as influenced by physical characteristics and moisture relations (Purnell 212)

Nutritional, chemical, and physical studies on the more important soil types in Arizona (Purnell 265)

Fertilization of field crops on alkaline-calcerous soils, of different types, under semiarid and irrigated conditions (Research and Marketing 266)

Availability of native soil phosphate and new commercial phosphate fertilizers in Arizona calcareous soils (Purnell 280 and Atomic Energy Commission)

Fundamental soil studies on the properties and uses of soil correctives (Purnell 281)

The soil plant system with reference to availability and uptake of moisture and ions (State 307)

Weather records (State)

Control laws (Industry tonnage and registration fees)

Analytical service (State)

Co-operative Research with the U.S. Forest Service

#### AGRICULTURAL ECONOMICS

Supply-price relationships and trends as they apply to Arizona farm and ranch products (Bankhead-Jones 196, State Research, Hatch Sales)

Marketing research directed at opening up channels of trade for irrigated cotton (Research and Marketing 267, State Research, Hatch Sales)

Management of field margins on Arizona irrigated farms (Bankhead-Jones 284, State Research, Hatch Sales)

Differential in prices between the producer and consumer that may be attributed to trade barriers in the western region (Research and Marketing 300, State Research, Regional Research)

#### AGRICULTURAL ENGINEERING

Groundwater studies (Adams 1)

Sprinkler evaporation tests (Adams 303)

Water-supply forecasting and needed areal adjustment in irrigated agriculture during drouths. The annual water supply forecast (Hatch 215)

Cotton Mechanization (Research and Marketing 269)

The production and utilization of tamarisk. The tamarisk tree and its wood preservative treatment of tamarisk fence posts (Purnell 231)

#### AGRONOMY

The culture and improvement of cereals. Nature of research and principal results of the year (Research and Marketing 305)

The control of weeds on irrigated lands. Nature of research and principal results of the year (Bankhead-Jones 261)

The culture and improvement of flax. Nature of research and principal results of the year (State Research)

Oil seed crops yield and quality as affected by heredity, soil, climate, and other environmental factors (Purnell 275)

Cotton yield and quality as affected by soil and climatic environment (Purnell 264)

Mechanization of cotton production and harvesting (Regional Research 269, Research and Marketing)

Production of long staple cotton (State Research)

Seed production of special forage grasses and legumes (Purnell 304)

Alfalfa (State Research)  
 Grain sorghums (State Research)  
 Irrigated pastures (Bankhead-Jones 248)

#### ANIMAL HUSBANDRY

A comparison of Vaughn barley and Markton oats as winter pasture crops for sheep in southern Arizona (Bankhead-Jones 248)

Salt as a regulator of supplemental feed intake for range cattle (State)

The effects of various concentrate to roughage ratios in fattening rations for yearling steers (State)

Dried cantaloupe, safflower meal and salt in Arizona cattle-fattening rations (State)

Investigation of an achondroplasia-like condition in Hereford cattle (Purnell 282)

Mineral nutritional studies on Arizona range plants and animals (Purnell 183)

Progeny testing of Hereford sires (Research and Marketing 279, Reg. No. W-1)

#### ANIMAL PATHOLOGY

The influence of high salt intake on the physiology of ruminants (State Research)

Range livestock losses from poisonous plants (Purnell 171)

Infectious keratitis in cattle on range and in feed lots (Purnell 199)

An investigation of cattle death losses occurring on alfalfa, alfalfa-barley, and barley pastures (Purnell 217)

#### BOTANY AND RANGE ECOLOGY

The range resources of Arizona (Purnell 232)

The nutritional adaptation of selected crop and forage plants for growth under alkaline soil conditions (Purnell 250)

Artificial revegetation of deteriorated semidesert grassland ranges (Purnell 263)

Factors affecting the noxious shrub control program on Arizona rangelands (Bankhead-Jones 292)

Control of noxious shrubs on southwestern ranges (Research and Marketing 285)

Poisonous plants of Arizona (State 173)

Grasses of Arizona (Grasses of the Southwest) (State 174)

Asphalt paved runoff basins as a source of water in semiarid regions (Stancal Asphalt Bitumuls Co., Ariz. Fish and Wildlife Comm., U of A)

#### DAIRY HUSBANDRY

Dried citrus vs. grain for calves (Purnell 258B)

The effect of feeding practices upon milk production and the composition of milk (Bankhead-Jones 290)

Calf pasture vs. dry lot (Hatch 274)

Feeding tests to determine the relative value of different cuttings of Arizona alfalfa hay for milk production (State Research 291)

## ENTOMOLOGY

- Insect pests of vegetable crops (Purnell 257, State Research)
- Insect vectors of plant diseases affecting Arizona crops (Hatch 301, State Research)
- Arizona insects of economic importance (Purnell 302, State Research)

## HOME ECONOMICS

- Indoor play areas for the preschool child (Rural Housing W-8)
- Dining area storage of linen, dishes, silver, glassware, and table appliances used in indoor meal service in rural homes in the Western Region (Regional Research 287)

## HORTICULTURE

- Lettuce breeding in Arizona (Purnell 297)
- Lettuce physiology and cultural management (Purnell 298)
- The breeding and improvement of melon varieties (Purnell 295)
- Melon physiology and cultural management (Purnell 298)
- Vegetable variety and cultural tests. Weed control in carrots. (State Research)
- Citrus physiology (Purnell 299)
- Date maturation, storage, and quality (Research and Marketing 270)
- Improvement of pecan production and quality in Arizona (Purnell 262)
- Cardinal grape maturity studies (State Research)
- Deciduous fruit variety and cultural tests (State Research)

## NUTRITION

- The nutritive values of certain Arizona-produced foods and their relationship to various factors (Purnell 258A)
- The effect of feeding practices upon milk production and the composition of milk (Bankhead-Jones 290 and Purnell 258B)
- The interdependence and physiological availability of amino acids, vitamins, and other nutrients in foods (Research and Marketing 271)
- Investigation of amino acid metabolism of rheumatoid arthritis (U.S. Public Health Service H-490 (C<sub>2</sub>))

## PLANT BREEDING

- Breeding sorghums for increased uniformity in the field and for improved agronomic characteristics and increased production of grain and forage (Bankhead-Jones 309)
- Breeding small grains for increased yield, strength of straw, and disease resistance (Adams 293)
- Upland cotton breeding (Adams 47)
- Breeding long staple cotton (*Gossypium barbadense*) for length, fineness, and strength of fiber and improved type of plant with high production (Adams 294)
- A study of variability in adapted commercial alfalfa varieties and methods for their improvement (Adams 4)



## PLANT PATHOLOGY

Control of *Phymatotrichum* (cotton or Texas) root rot in irrigated lands (Adams 42)

Control of dry root rot and other diseases of citrus (Purnell 222)

Development of wilt-resistant varieties of alfalfa (Adams 227)

Verticillium wilt of cotton (Adams 256)

Virus diseases of vegetables in Arizona (Research and Marketing 286)

Miscellaneous studies (State Research)

The control of drop and watery brown rot in lettuce and other vegetables through the use of "Aero" calcium cyanamid (American Cyanamid Co.)

## POULTRY HUSBANDRY

Developing a high egg producing line of S. C. White Leghorns (Purnell 229B)

Establishing a sixth character to be added to the present five character system (Purnell 229C)

Inheritance of egg size (Purnell 229D)

Hormone feeding (State Research 90)

Preliminary: X-ray treatment of eggs (State)

Arizona egg laying test (State Research 53)

## III. PUBLICATIONS

## TECHNICAL BULLETINS

120. Behavior of Nitrogenous Fertilizers in Alkaline Calcareous Soils: I. Nitrifying Characteristics of Some Organic Compounds Under Controlled Conditions, by W. H. Fuller, A. B. Caster, and W. T. McGeorge.
121. Behavior of Nitrogenous Fertilizers in Alkaline Calcareous Soils: II. Field Experiments with Organic and Inorganic Nitrogenous Compounds, by W. H. Fuller, W. P. Martin, and W. T. McGeorge.
122. Absorption of Gypsum by Semiarid Soils, by W. T. McGeorge and E. L. Breazeale.

## GENERAL BULLETINS

228. Grass Seed Production, by L. P. Hamilton and W. M. Wootton.
229. Arizona Range Resources: II. Yavapai County, by R. R. Humphrey.
230. Desert Grapefruit Goes to Market, by R. E. Seltzer.
231. Physical Land Conditions in the Fredonia Soil Conservation District, Arizona, by Milo S. James, R. D. Headley, H. V. Smith, and W. G. Harper.
232. Arizona Agriculture, 1951, by Geo. W. Barr.
233. Cotton Planting, by W. I. Thomas, E. R. Holekamp, and K. R. Frost.
234. Cotton Fertilization, by L. L. Brimhall and W. T. McGeorge.
235. Cotton Cultivation with Tractors, by E. Holekamp, W. I. Thomas, and K. R. Frost.

## REPORTS

100. Rations for Fattening Cattle in Arizona, by E. B. Stanley, O. F. Pahnish, and C. E. Saffley.
101. Cantaloupe Variety and Strain Test in Yuma Valley, Arizona, 1950, by R. E. Foster and C. W. VanHorn.
102. Depreciation and Maintenance Costs on Permanent Irrigation Systems, by R. D. Rehnberg and M. E. Steffe.
103. Progress Report: Studies of the Ripening of the Cardinal Grape in 1950, by R. H. Hilgeman, G. C. Sharples, and Ray Milne.
104. Yellowing in Early Spring Lettuce, by W. D. Pew.

## ANNUAL REPORT

Sixty-first Annual Report for Fiscal Year Ending June 30, 1950.

## OTHER PUBLICATIONS

- Quarterly: "Progressive Agriculture in Arizona"—Vol. II, No. 2, July, August, September, 1950; Vol. II, No. 3, October, November, December, 1950; Vol. II, No. 4, January, February, March, 1951; Vol. III, No. 1, April, May, June, 1951.
- Thirteenth Annual Report of the Arizona Feed Control Office of Arizona.
- Thirteenth Annual Report of the Arizona Fertilizer Control Office—Fertilizers and Agricultural Minerals.
- Fifth Annual Report Economic Poisons.
- Monthly and Final Reports of Arizona Egg Laying Test—July, 1950 through June, 1951.
- Borden, A. L., E. B. Wallraff, E. C. Brodie, W. P. Holbrook, D. F. Hill, C. A. L. Stephens, Jr., L. J. Kent, and A. R. Kemmerer: Plasma Levels of Free Amino Acids in Normal Subjects Compared with Patients with Rheumatoid Arthritis. *Proc. Soc. Exp. Biol. Med.* 75, 28-30, 1950.
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- Breazeale, E. L. and W. T. McGeorge: Moisture Absorption by Plants from an Atmosphere of High Humidity. *Plant Physiol.* 25-413.
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- Brown, J. G.: Persistence of 2,4-D in Plant Tissues. *Plant Disease Reporter* (Washington, D.C.) 34:127-128. May 15, 1950.

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- Burkhart, L.: Arizona Melon Improvement. *Western Grower and Shipper* Vol 22, No. 5, April 1951 issue.
- Cardon, B. P.: Vitamin A. *Arizona Cattlelog*, May 1951.
- Douglas, Ernest and J. G. Brown Crown Gall Tree Killer. *Arizona Farmer* 30: 40-41. April 14, 1951.
- Douglas, Ernest and Alice M. Boyle Saguaro Doctor. *Arizona Farmer* 30: 16-17. April 17, 1951.
- Everson, A. C.: Grass Yields of Three Differently Treated Range Areas. *Jour. of Range Management* 4(2):93-94, Baltimore, Maryland. March 1951.
- Everson, A. C.: Range Society Has Marked Progress. *Arizona Cattlelog*, Phoenix, Arizona. March 1951.
- Fuller, W. H. and W. T. McGeorge: Phosphates in Calcareous Soils I: Solubilities of Native Phosphates and Fixation of Added Phosphates. *Soil Science* 70:441.
- Fuller, W. H. and W. T. McGeorge: Phosphates in Calcareous Soils II: Organic Phosphorous Content. *Soil Science* 71:45.
- Fuller, W. H. and W. T. McGeorge: Phosphates in Calcareous Soils III: Distribution in Some Representative Profiles. *Soil Science* 71:315.
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- Hathorn, Scott Jr.: Identify Our Cotton. *Arizona Farmer*, Vol. 29, No. 18, p. 21, September 2, 1950.
- Hathorn, Scott Jr.: X-44 or X-28? Two Variety Crops Planted in Arizona to Determine Best Standard Cotton. *Cotton Digest*, Vol. XXII, No. 51, p. 44, September 9, 1950.
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## IV. STAFF

PAUL S. BURGESS.....Director  
RALPH S. HAWKINS.....Vice-Director

## AGRICULTURAL CHEMISTRY AND SOILS DEPARTMENT

WILLIAM T. McGEORGE.....Agricultural Chemist  
THEOPHIL F. BUEHRER.....Physical Chemist  
WALLACE H. FULLER.....Associate Biochemist  
HOWARD V. SMITH.....Associate Agricultural Chemist  
EDW. L. BREAZEALE.....Assistant Agricultural Chemist  
LOGAN L. BRIMHALL.....Assistant Agricultural Chemist (Phoenix)  
GEORGE E. DRAPER.....Assistant Agricultural Chemist (Phoenix)

## AGRICULTURAL ECONOMICS DEPARTMENT

GEORGE W. BARR.....Agricultural Economist  
SCOTT HATHORN, JR.....Associate Agricultural Economist  
\*R. E. SELTZER.....Associate Agricultural Economist  
J. S. HILLMAN.....Assistant Agricultural Economist  
REX D. REHNBERG.....Assistant Agricultural Economist  
JOHN D. ROWELL.....Research Assistant

## AGRICULTURAL ENGINEERING DEPARTMENT (Irrigation)

HAROLD C. SCHWALEN.....Agricultural Engineer  
GEORGE E. P. SMITH.....Agricultural Engineer  
K. R. FROST.....Assistant Agricultural Engineer  
\*EMMETT R. HOLEKAMP.....Assistant Agricultural Engineer  
R. W. JOHNSTON.....Assistant Agricultural Engineer  
R. J. SHAW.....Assistant Agricultural Engineer

## AGRONOMY DEPARTMENT

.....Agronomist  
†KARL HARRIS.....Associate Irrigation Engineer (Phoenix)  
LARUE C. CHAPMAN.....Assistant Agronomist  
HOWARD P. CORDS.....Assistant Agronomist  
WM. I. THOMAS.....Assistant Agronomist

## ANIMAL HUSBANDRY DEPARTMENT

ERNEST B. STANLEY.....Animal Husbandman  
BARTLEY P. CARDON.....Associate Animal Husbandman  
‡V. L. MARSH.....Assistant Animal Husbandman  
O. F. PAHNISH.....Assistant Animal Husbandman  
C. E. SAFLEY.....Assistant Animal Husbandman

## ANIMAL PATHOLOGY DEPARTMENT

WILLIAM J. PISTOR.....Animal Pathologist  
BARTLEY P. CARDON.....Associate Animal Pathologist  
‡V. H. FISHER.....Assistant Animal Pathologist  
‡JOAN ATTERBURY.....Research Assistant

## BOTANY AND RANGE ECOLOGY DEPARTMENT

WALTER S. PHILLIPS.....Botanist  
JOHN J. THORNBURGH.....Taxonomist  
R. R. HUMPHREY.....Associate Range Ecologist  
A. L. BROWN.....Assistant Range Ecologist  
WM. L. EHRLER.....Assistant Botanist and Range Ecologist  
KITTIE F. PARKER.....Assistant Botanist  
A. C. EVERSON.....Research Assistant

## DAIRY HUSBANDRY

RICHARD N. DAVIS.....	Dairy Husbandman
F. G. HARLAND.....	Assistant Dairy Husbandman
J. W. STULL.....	Assistant Dairy Husbandman

## ENTOMOLOGY DEPARTMENT

L. A. CARRUTH.....	Entomologist
G. D. BUTLER, JR.....	Assistant Entomologist

## HORTICULTURE DEPARTMENT

LELAND BURKHART.....	Horticulturist
R. E. FOSTER.....	Associate Horticulturist (Tempe)
R. H. HILGEMAN.....	Associate Horticulturist (Tempe)
C. W. VAN HORN.....	Associate Horticulturist (Yuma)
STEVE FAZIO.....	Assistant Horticulturist
G. A. LUNDEEN.....	Assistant Horticulturist
W. D. PEW.....	Assistant Horticulturist (Tempe)
G. C. SHARPLES.....	Assistant Horticulturist (Tempe)

## HOME ECONOMICS (School of)

B. ELEANOR JOHNSON.....	Director
‡MAXINE P. WITTEBORT.....	Research Assistant

All other members do teaching only.

## NUTRITION DEPARTMENT

ARTHUR R. KEMMERER.....	Nutrition Chemist
M. G. VAVICH.....	Associate Nutrition Chemist
JUNIATA S. HIRSCH.....	Research Assistant

## PLANT BREEDING DEPARTMENT

WALKER E. BRYAN.....	Plant Breeder
ELIAS H. PRESSLEY.....	Associate Plant Breeder
D. W. GEORGE.....	Assistant Plant Breeder
SMITH WORLEY, JR.....	Assistant Plant Breeder

## PLANT PATHOLOGY DEPARTMENT

JAMES G. BROWN.....	Plant Pathologist
RUBERT B. STREETS.....	Associate Plant Pathologist
PAUL D. KEENER.....	Assistant Plant Pathologist
ALICE M. BOYLE.....	Research Assistant

## POULTRY HUSBANDRY DEPARTMENT

HARRY EMBLETON.....	Poultry Husbandman
HUBERT B. HINDS.....	Associate Poultry Husbandman

## EXPERIMENT STATION FARMS

D. C. AEPLI, General Supt. and Supt., Mesa
G. E. BELL, Foreman, Mesa
A. M. BLISS, Supt., Safford
H. A. CARR, Foreman, Salt River Valley Res., Tempe
L. R. COOPER, Foreman, Yuma Mesa, Somerton
R. H. HILGEMAN, Supt., Salt River Valley Citrus Res., Tempe
E. H. HUSSMANN, Supt., University Farms, Tucson
R. MORGAN, Foreman, Poultry Farm, Tucson
W. D. PEW, Supt., SRV Veg. Res., Tempe

\* On leave

† In co-operation with United States Dept. of Agr., Bureau of Plant Industry

‡ Resigned June 30, 1951

F. W. RICHARDSON, Supt., Poultry  
 \*W. A. RISETTER, Foreman, Poultry  
 C. W. VAN HORN, Supt., Yuma  
 W. M. WOOTTON, Asst. Supt., Yuma

### APPOINTMENTS

#### FELLOWS

BAKER, SIMON — Agronomy  
 BOYLAN, MERLE N., JR. — Botany and Range Ecology  
 DOHNER, PAT M. — Paul Steere Burgess (Animal Husbandry)  
 MURPHY, DANIEL R. — Entomology  
 BELL, G. E., Foreman Mesa Farm  
 BORDEN, ALICE, Research Associate  
 BUTLER, G. D., JR., Asst. Entomologist  
 FISHER, V. H., Asst. Animal Pathologist  
 FROST, K. R., Asst. Agricultural Engineer  
 GEORGE, D. W., Asst. Plant Breeder  
 HILLMAN, J. S., Asst. Agricultural Economist  
 HIRSCH, JUNIATA S., Research Asst.  
 †JOHNSTON, R. W., Asst. Agricultural Engineer  
 LEADER, CHARLOTTE, Herbarium Asst.  
 LUNDEEN, G. A., Asst. Horticulturist  
 MARSH, V. L., Asst. Animal Husbandman  
 ROGERS, R. N., Research Assistant  
 WITTEBORT, MAXINE P. (Mrs.) Res. Asst. (Home Ec.) — part time

#### RESIGNATIONS

ATTERBURY, JOAN, Research Asst. (Animal Pathology)  
 FISHER, V. H., Asst. Animal Pathologist  
 LEADER, CHARLOTTE, Herbarium Asst.  
 LANGE, A. H., Asst. Horticulturist  
 MARSH, V. L., Asst. Animal Husbandman  
 NILES, ALICE, Research Asst. (Nutrition)  
 RYAN, W. A., Foreman Mesa Farm  
 SHERWOOD, L. V., Department Agronomy Head  
 WALLRAFF, EVELYN B., Research Associate (Nutrition)  
 †WHEAT, PAT, Herbarium Assistant  
 WITTEBORT, MAXINE P. (Mrs.), Res. Asst. (Home Ec.) — part time

#### ON LEAVE

BEECROFT, DOUGLAS E., Mgr. Milk Processing, Dairy Husb.  
 HOLEKAMP, EMMETT R., Asst. Agricultural Engineer  
 SELTZER, R. E., Associate Agricultural Economist

\*On leave from April 1, 1951, through March 31, 1952.

†(Temporary through June 30, 1951 — Vice Holekamp on leave)

‡Changed to position of Clerk in same Department September 16, 1950.

V. FINANCIAL STATEMENT, 1950-51, UNIVERSITY OF ARIZONA, AGRICULTURAL EXPERIMENT STATION

	Hatch	Adams	Purnell	Bankhead-Jones	Research & Marketing	Regional Research	Non-Federal Funds	Total
<b>RECEIPTS</b>								
Received from the Treasurer of the U.S.....	\$15,000.00	\$15,000.00	\$60,000.00	\$15,499.36	\$31,490.04	\$12,114.00		\$149,103.40
State appropriations								
Main station .....							181,682.43	181,682.43
Substations .....							116,224.57	116,224.57
Special endowments .....							33,803.97	33,803.97
Sales .....							39,729.77	39,729.77
Balance forward.....				859.51	813.19			1,672.70
Total receipts .....	\$15,000.00	\$15,000.00	\$60,000.00	\$15,499.36	\$32,349.55	\$12,927.19	\$371,440.74	\$522,216.84
<b>DISBURSEMENTS</b>								
Personal services.....	\$13,868.54	\$11,313.04	\$42,521.59	\$12,621.43	\$21,522.31	\$ 5,997.06	\$264,014.37	\$371,858.34
Travel .....	226.89	1,465.88	3,056.36	908.18	2,707.99	1,082.77	7,793.93	17,242.00
Transportation of things .....		108.67	257.78	19.90	48.57	1.54	713.65	1,150.11
Communication service.....		95.65	192.21	53.15	174.16	5.70	3,208.55	3,729.42
Rents and utility services.....		21.41	362.74	43.86	221.27		1,851.87	2,501.15
Printing and reproduction.....	427.40		752.00	2.00	10.00	1.00	7,360.60	8,553.00
Other contractual services.....		279.12	1,062.15	686.03	1,074.69	102.66	12,956.90	16,161.55
Supplies and materials.....	462.34	1,475.27	9,157.86	813.07	2,000.68	924.42	50,070.79	64,904.43
Equipment .....	14.83	130.57	2,248.20	249.95	2,113.48	242.46	14,641.85	19,641.34
Land and Structures.....		110.39	389.11	101.79	308.53	129.42	7,075.82	8,115.06
Industrial insurance.....							1,752.41	1,752.41
Balance forward.....				2,167.87	4,440.16			6,608.03
Total disbursements.....	\$15,000.00	\$15,000.00	\$60,000.00	\$15,499.36	\$32,349.55	\$12,927.19	\$371,440.74	\$522,216.84