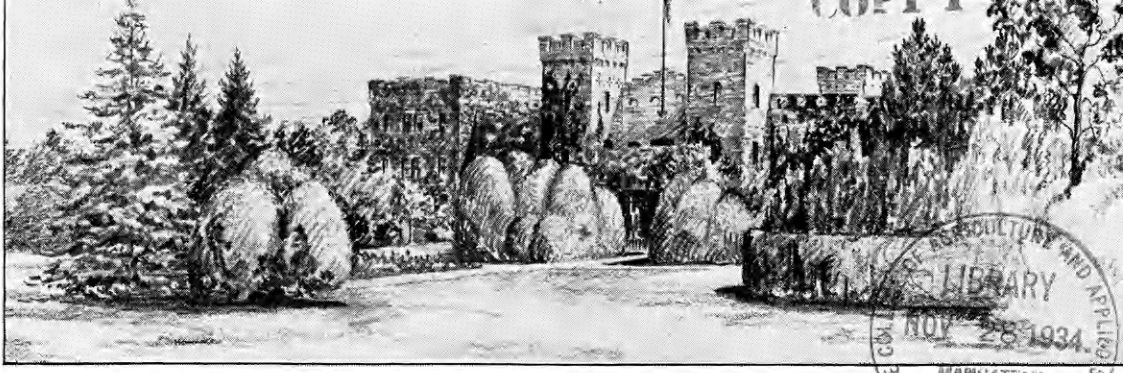
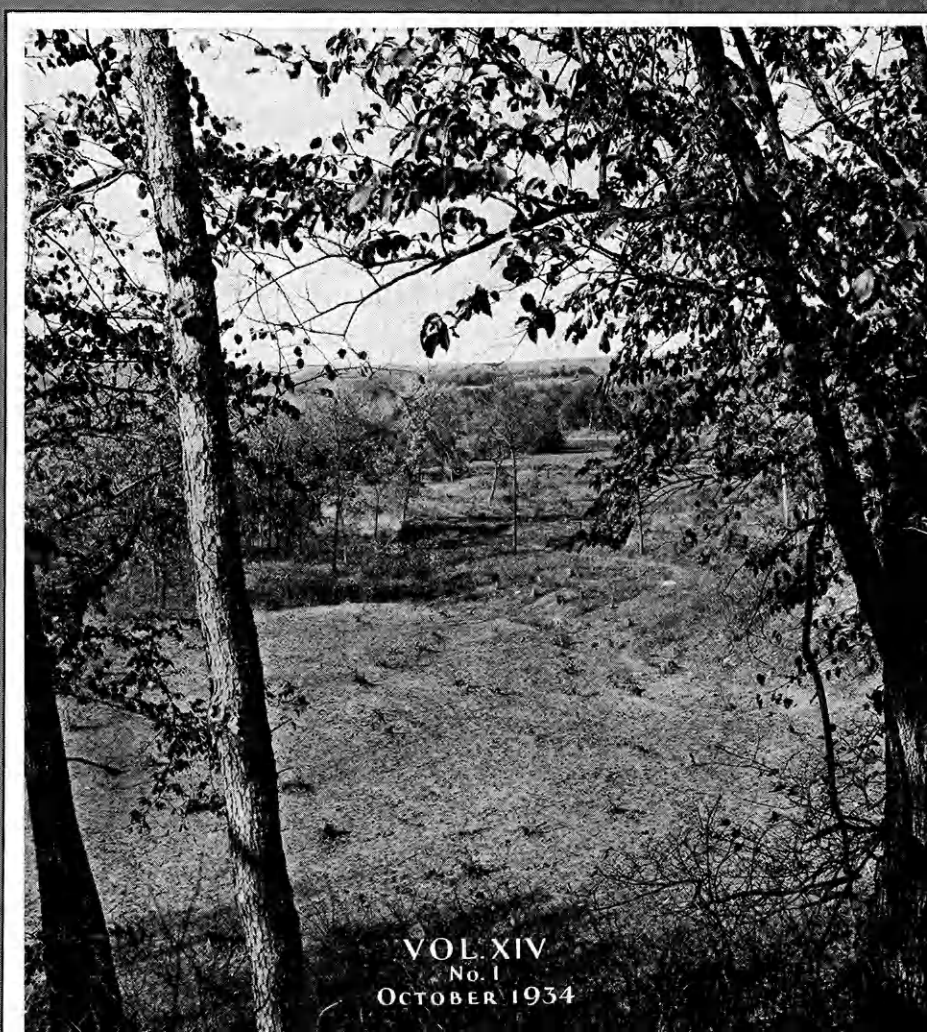


THE KANSAS AGRICULTURAL STUDENT

MANHATTAN, KANSAS



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The Kansas Agricultural Student

VOL. XIV Manhattan, Kansas, October, 1934 No. 1

BIRD'S-EYE VIEW OF THE FAIRMAN LAKE SITE

This picture was taken from the cliff above (south) the upper end of the lake. The dam is being built just a little to the right and back of the center of the picture. The timber in the background is that along Wildcat creek. Immediately back of this timberline as it appears is U. S. highway 40N, while the scene extends with considerable clearness far to the north of the highway. (See page 8.)

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Cash Returns to Kansas Farmers

Maurice I. Wyckoff, '35

In spite of what was possibly the worst general drought in the history of Kansas, the estimated gross cash receipts of Kansas farmers in 1934 are as large or larger than any year since the boom of 1929. The principal sources of this unexpected return are from the following: Wheat, hay, fruit, alfalfa and sweet clover seed; dairy and poultry products; and benefit payments from the AAA and the KERC. Lambs were the most profitable livestock but their numbers were limited. Apples made about average returns but it is old Bossy and Biddy that are continuing to keep home fires burning.

This year's small wheat crop of 80 million bushels as reported by the State Board of Agriculture, plus allotment benefit payments on wheat of over 25 million dollars returned more cash to Kansas farmers than the 237-million-bushel banner crop of 1931 which sold for an average price of 33 cents per bushel. Wheat yields were above average in south central and southeastern Kansas, while Brown, Doniphan, Nemaha, and Atchison counties reported fair yields. The remainder of the state ranged from a poor crop in north central Kansas to a complete failure in western Kansas where in many sections seed wheat had to be shipped in.

Hay was an important crop in southeastern Kansas, in the Arkansas river valley, and in extreme northwestern Kansas. The first cutting of alfalfa was heavy but dry weather cut the second one short and most farmers left it for seed. Alfalfa and clover seed crops were exceptionally good and found a ready sale. Some farmers got as much as $30 per acre from their seed alone while hay finds ready sale from $20 to $30 per ton depending on the grade.

Although there was considerable criticism of the AAA it has furnished the most uniform income throughout the state, serving as a semi-crop insurance for the extremely dry sections. Without the aid given by the various allotments especially the wheat and corn-hog allotments many farms would have practically no income. Various emergency loans including summer fallow, seed, and feed loans helped relieve the immediate credit problems while the Production Credit Corporation and the Regional Credit Corporation granted intermediate term credit and the Federal Land Bank of Wichita took care of long-time loans. The buying of distressed cattle helped many farmers and stockmen to sell cattle which were not fit to be marketed through regular channels and thus gave them opportunity to keep a few of their best stock. Without these various governmental aids it would have been impossible for many farmers of central and western Kansas to continue in their farming operations.

Lambs made good profits for the western feeder and also for the smaller farm flock owner. This was especially true of the man who got his lambs to market early last spring when lambs were comparatively high in price while corn and grain sorghum were offered at bargain prices. Quite the contrary situation existed with hogs as they have been low in price, making the corn-hog ratio too close for a profit to be possible. Feeder pigs at times were almost worthless, selling as low as 25 cents each at weaning time in some localities. Only a few steer feeders who were on the late summer and early fall market can expect to make much.

Corn, the pride of eastern Kansas, faded clear out of the picture, setting a new record by producing the smallest crop ever recorded, according to government reports, with estimates running as low as 10 million bushels while many central and western Kansas counties have no yield to report at all. Although estimates are not yet available grain sorghum probably follows corn closely for a second place in low yields.

Total crop returns don't always tell

the tale and that is especially true this year. In the first place this income was not evenly distributed throughout the state. Some sections received above their normal average income while in the worst drought-stricken areas no income was realized except from government payments. In these sections livestock feed has become a thing to be dreamed about but only to be made a reality in gold. Since maintenance cost, due to lack of roughage, will be more than doubled, some of the best livestock herds of Kansas are threatened, and only by rigid culling can farmers afford to winter them. Summer and fall liquidation has already taken as many as 50 per cent of the cattle from some areas and a large percentage from the state as a whole. While these government payments for drought-stricken cattle have furnished some cash for running expenses they are in reality a liquidation of some valuable assets and do not represent a cash profit.

Cash returns for the various sections of the state are described briefly in the following paragraphs.

From the extreme northwestern part of Kansas W. H. Meissinger, '34, reports wheat as the biggest source of cash, some yields running up to 48 bushels per acre on summer fallowed land and a county average of around 10 bushels. About 80 per cent of these farmers normally summer fallow so that the wheat allotment had little effect on total acreage planted. Wheat and corn-hog allotments were a big source of cash and were well distributed among farmers. Alfalfa was good and produced a good seed crop on creek bottoms. While there was not much corn, about 50 per cent of it made good fodder.

Benefit payments of at least one kind reached nearly every farmer in the central west section of the state around Wichita county, says Charles E. Murphey. Sale of cattle to the government eased the livestock situation and gave a great many farmers a little operating cash for the winter.

Harry G. Sitler reports that wheat allotments and government cattle purchases were the main source of income in Barber county. Several thousand head of cattle were sold to the government because of shortage of feed.

Walter M. Lewis reports that most farmers around Larned were blessed with a good wheat crop, which along with the increase in price as compared with last year, made an increase in purchasing power. Practically all other crops were a failure except alfalfa which was about a half crop, but sold for $20 per ton. The wheat allotment money provided a substantial help.

Earl C. Borgelt reports that Kingman county farmers received the majority of their cash income from wheat, the county ranking fourth in the state in wheat production. Wheat and corn-hog allotments also returned considerable cash while oil lease money furnished a small scattered income.

Robert J. Danford, Jr., says last year found Reno county in the garden spot of Kansas with a good wheat crop which sold for nearly a dollar per bushel. The AAA payments on wheat, corn, and hogs helped some of the less fortunate farmers.

Verle R. Oline reports that the principal cash returns to farmers in Rice county and surrounding territory were from wheat, producing an average of 18 bushels per acre, AAA checks, and alfalfa seed, returning as much as $20 to $30 per acre. Drought relief purchasing of livestock and cash returns on oil leases in one of the most active pays in Kansas were also important factors.

Wheat was good in Sumner county, according to Gerald A. Simpson, and in Cowley county, according to J. Raymond Dicken. It was the principal cash crop in this region. The hay crop and the alfalfa seed crop brought good returns.

George A. Rogler and Woodrow W.

(Continued on page 24)

College Notes

EIGHTH ANNUAL AG BARNWARMER

The eighth annual Ag Barnwarmer, Friday, October 26, 1934, was the usual unique Ag fall festival. It was similar to the others and yet different. The usual straw for seats was missing chiefly because it was too high in price. A number of evergreens well placed added to the beauty of the fall foliage and other decorations used. Practically the entire floor of Nichols gymnasium was available for dancing, and was it used? Ask anyone who danced. The music satisfied all. In volume and quality few have heard better in that gym.

GEORGIANA AVERY
QUEEN OF THE 1934 AG BARNWARMER

Miss Avery is a sophomore in the curriculum of home economics and art. Her home is Coldwater. She is a representative of Van Zile Hall.

The Queen of the occasion had been elected the day before by the Ags who bought tickets in advance. She was unannounced, however, until time for the crowning about 9:15 p. m., when Acting Dean Grimes announced the election of Miss Georgiana Avery, assisted her to the white throne in a bank of evergreens, and placed a crown of roses on her head. Her attendants were the following princesses: Maxine Huse, Janet Samuel, Corinne Sinclair, and Lorraine Todd.

Delicious doughnuts and cider just right were served throughout the evening in the room off the main floor of the gym on the west, and the crowd didn't have to be coaxed to come and get it.

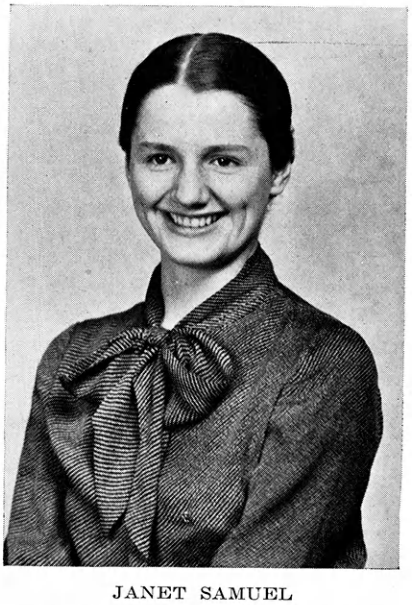
The Ags, as is customary for these occasions, were dressed in their barnyard tuxedos. Students in the Division of Veterinary Medicine and the Department of Agricultural Engineering were invited to join with the Ags in the celebration and did so in large numbers costumed in their usual working attire. The informal dresses of the co-eds were brilliant and varied in color. With at least 300 couples on the floor at one time the scene was most pleasing and unusual.

Altogether the participants had a good mixer and dance. The committee in charge were Frank G. Parsons, manager; George W. Garrison, Jr., assistant manager; and Philip W. Ljungdahl, treasurer. Both the committee on refreshments and the committee on

LORRAINE TODD
Princess, 1934 Ag Barnwarmer

MAXINE HUSE
Princess, 1934 Ag Barnwarmer

CORINNE SINCLAIR
Princess, 1934 Ag Barnwarmer



JANET SAMUEL
Princess, 1934 Ag Barnwarmer

decorations deserve special mention. Robert T. Latta was chairman of the former and Hilbrand D. Chilen, of the latter. Grover O. Steele, Edwin R. Lamb, and Miss Margaret Knerr rendered valuable service while hard work on the part of many other students of

(Continued on page 9)

THE KANSAS AGRICULTURAL STUDENT

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MANHATTAN, KANSAS

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FAIRMAN LAKE SITE

The pictures on our cover page and contents page will undoubtedly become of large interest in the near future. They are pictures of the site of Fairman lake now under construction. The cover page picture was recently taken from near the upper end of the lake site looking down to the dam site. The picture on the contents page was taken from the rocky cliff directly up the bank from where the other picture was taken. It shows a bird's-eye view of the narrow deep valley in which the water is to be impounded.

The drainage basin for the new lake is small containing only about one section of land. It is hilly and rocky with the short branching wooded ravines. The runoff will therefore include an unusually large percentage of the rainfall and the erosion will be light considering the steepness of the slopes.

An area of 15½ acres was given the county for the lake site by Mr. C. E. Fairman. The water of the lake is to cover 7½ acres of this area. The rest of the area will make an excellent public park and pleasure ground.

The site is about two miles west of Manhattan as the crow flies—about three miles by auto, two northwest on 40N and one mile south and across Wildcat creek by a winding road.

SCRUPULOUS THINKING NEEDED

The leaders of the miscellaneous group of students who undertook to disturb the Ag Barnwarmer late Friday night, October 26, certainly didn't care what they were dubbed. They proved this when after failing to force their way into the hall they deliberately and maliciously destroyed public property.

The followers of these few leaders were simply too easily coaxed and led into discreditable conduct. When they do their own thinking they will demand that others be extended the rights and courtesies they expect for themselves.

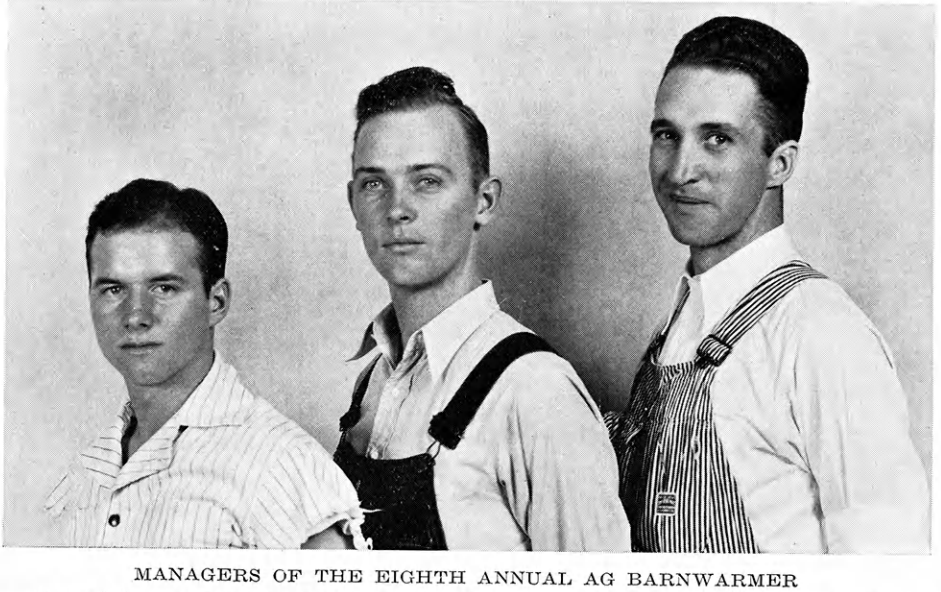
No division or organization of college students is in the least responsible for such a gang. Its acts are all due to the unscrupulous thinking and the unworthy leadership of a few individuals. If a little scrupulous thinking will not redirect their leadership they should be eliminated.

ANNUAL AG BARNWARMER

(Continued from page 7)

the division and the cooperation of all made the party a happy one long to be remembered.

For the Division of Agriculture the committee on decorations freely express appreciation of the generous assistance given by Mr. Robert Scott of the Kansas Evergreen Nurseries.



MANAGERS OF THE EIGHTH ANNUAL AG BARNWARMER

From left to right: George W. Garrison, Jr., Goodland, assistant manager; Philip W. Ljungdahl, Menlo, secretary-treasurer; and Frank G. Parsons, Manhattan, manager.

DAIRY CATTLE JUDGING CONTEST

The Kansas State dairy cattle judging team placed twelfth in a field of sixteen competing teams from the United States and Canada in the contest held in connection with the National Dairy Cattle Congress at Waterloo, Iowa, Monday, October 1, 1934. The students on the team were Forrest R. Fansher, Hutchinson; Philip W. Ljungdahl, Menlo; Howard A. Moreen, Salina; and Lester A. Zerbe, Salina (alternate).

The team was first on Holsteins, eighth on Brown Swiss, tenth on Ayrshires, fourteenth on Jerseys, and fifteenth on Guernseys. Fansher was high man in judging Holsteins and fifth high individual on judging Brown Swiss. Ljungdahl placed tenth on Ayrshires and Moreen, tenth on Holsteins. The score of the Kansas team was 1,752 out of a possible 2,250.

The team made the trip by car and on the way to Waterloo did practice judging on the dairy herd at the University of Nebraska, on Stevens's Brown Swiss herd near Des Moines, and on the dairy herd of Iowa State College at Ames. Altogether the six days spent on the trip had large educational value. Prof. H. W. Cave, coach, accompanied the team on the trip.—Lester A. Zerbe, '36.

CROPS JUDGING TEAM PLACES FOURTH IN AMERICAN ROYAL CONTEST

The intercollegiate crops judging team, coached by Prof. J. W. Zahnley of the Department of Agronomy, placed fourth in the intercollegiate contest

held in connection with the American Royal Live Stock Show, October 22, 1934. Five states have been represented in this annual contest during recent years but this year Mississippi sent a team, making six teams entered. There were three sections of the contest—grading, judging, and identification. A possible team score in each section was 1,800, making the perfect team score for the entire contest, 5,400. The teams entered and their scores are as follows:

Team	Score
Iowa State College	4,991
University of Nebraska	4,885
Oklahoma A. & M. College	4,865
Kansas State College	4,786
University of Minnesota	4,536
Mississippi State College	2,927

The team, composed of J. Raymond Dicken, Winfield, Lewis S. Evans, Washington, George A. Rogler, Matfield Green, and Frank G. Parsons, Manhattan (alternate), placed second in judging, third in identification, and fourth in grading. George A. Rogler tied for first in judging and ranked fifth in identification and in the entire contest. J. Raymond Dicken placed fifth in judging.—Frank G. Parsons, '35.

HONOR ROLL, 1933-'34

For the past college year, 1933-'34, in the Division of Agriculture, 113 students are hereby commended by The Kansas Agricultural Student for their creditable and satisfactory scholarship records. Each of these students carried on regular assignments not less than 12 credit hours of work each semester, had practically no delinquencies throughout the year, and made a total of not less than 48 points on his two assignments, according to the K. S. C. point system (1).

Those students making not less than a two-point or "B" average for the year are given special commendation as winners of high honors. Both the high-honor and the honor groups are listed below.

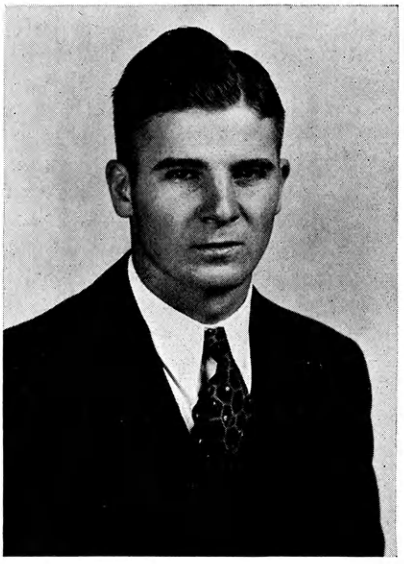
HIGH HONOR ROLL, 1933-'34

Seniors	Home P. O.	Credits	Scholarship av.
William H. Juzi	Florence	43	2.93
Clarence L. Gish	Abilene	34	2.82
Wilfred H. Pine	Lawrence	33	2.82
Paul W. Griffith	Edmond	35	2.74
Kenneth S. Davis	Manhattan	26	2.54
J. Warren Mather	Grinnell	31	2.39
John O. Miller	Meriden	34	2.35
Val W. Silkett	Downs	29	2.31
Vernon E. Burnet	Manchester, Okla.	30	2.27
Pius H. Hostetler	Harper	27	2.26
Nevlyn R. Nelson	Belle Plaine	32	2.22
Everett L. Byers	Hepler	32	2.19
C. Dean McNeal	Boyle	33	2.18
W. Harley Chilson	Oberlin	30	2.17
Wayne W. Jacobs	Harper	31	2.13
Harry C. Johnson	Marquette	33	2.09
Frank S. Burson, Jr.	Monument	31	2.03
Eugene R. Kell	Manhattan	35	2.03
Juniors			
Albert A. Thornbrough	Lakin	35	2.83
Donald R. Cornelius	Wheaton	32	2.78
Robert E. Phillips, Jr.	Manhattan	29	2.72
George A. Rogler	Matfield Green	32	2.69
Charles E. Murphey	Leoti	35	2.66
J. Forest Wolf	Woodston	39	2.64
Lewis S. Evans	Washington	31	2.58
Woodrow W. Rufener	Strong City	39	2.56
Armand H. Rousseau	Seattle, Wash.	32	2.22
Wilbur M. Lehman	Wathena	32	2.22
Walter W. Niemoller	Wakefield	34	2.06
Eugene E. Sundgren	Falun	34	2.06
J. Raymond Dicken	Winfield	27	2.04
Raymond J. Doll	Ellinwood	34	2.03
Melvin P. Rogers	Glasco	36	2.03
Howard A. Moreen	Salina	33	2.00
Sophomores			
Leonard F. Miller	Agra	38	2.95
J. Edward McColm	Emporia	30	2.87
Ivan J. Ramsbottom	Munden	36	2.81
Royse P. Murphy	Norton	33	2.67
Leon E. Wenger	Powhattan	32	2.66
Arthur C. Ausherman	Elmont	34	2.53
Ned O. Thompson	Manhattan	33	2.52
L. Wayne Herring	Tulia, Tex.	40	2.50
David A. Reid	Manhattan	30	2.47
A. Lynn Robinson	Sheffield, Ill.	30	2.47
David W. Gregory	Cheney	33	2.42
Wilmer R. Smittle	Columbus	26	2.38
Edwin C. Sample	Council Grove	31	2.29
John C. Higginbotham	Herington	33	2.27
Howard J. Haas	Almena	32½	2.26
Earl W. Parsons	Winfield	34	2.21
Lebert R. Shultz	Eureka	30	2.10
J. Lowell Myler	Andover	29	2.03
Elmer B. Winner	Topeka	34	2.03
Freshmen			
Robert T. Latta	Holton	32	2.78
Oren J. Reusser	Wellington	32	2.78
Clarence L. Bell	McDonald	32	2.72
Frederick G. Warren	Beverly	33	2.61
Fred L. Fair	Raymond	32	2.41
Roger V. Rosenkrans	Dorsey, Nebr.	31	2.19
Walter M. Carleton	Coldwater	29½	2.14
Paul K. Fanning	Melvern	29	2.03
Gerald J. Brown	Circleville	35	2.03

1. Passing grades in K. S. C. are, from highest to lowest, A, B, C, and D. Each credit hour of "A" gives the student three points; each credit hour of "B" gives the student two points; and each credit hour of "C," one point. No student will be graduated unless his total number of points earned at least equals the total number of credit hours required in his curriculum.

HONOR ROLL, 1933-'34

Seniors	Home P. O.	Credit hours passed	Total points
Olyn D. Calhoon	Manhatttan	34	54
Harry W. Coberly	Gove	31	54
Wallace R. Dudley	Goodland	39	70
John L. Duncan	Kansas City, Mo.	35	56½
Dale H. Edelblute	Keats	33½	53
Eugene P. Farrell	St. Marys	30	55
Lloyd O. Gugler	Woodbine	37	50
Merwin E. Nixon	Manhattan	31	53
James C. North	Kansas City, Mo.	32	61
J. Willett Taylor	Lawrence	38	58
Dwight J. Thompson	Wichita	34	63
Linford L. Truax	Peabody	34	57
Dwight S. Waters	Milford	39	62
Walter E. Wilson	Blackfoot, Idaho	33	55
W. Telford Young	Colony	33	63
Juniors			
Earl C. Borgelt	Zenda	34	51
Robert J. Danford	Hutchinson	35	67
Walter M. Lewis	Larned	33	57
Max E. McCluggage	Manhattan	34	55
George L. McColm	Emporia	33	55
Frank G. Parsons	Winfield	34	63
Wayne D. Shier	Gypsum	36	63
Harry G. Sitler	Lake City	38	59
Henry H. Stark	Wellington	32	54
Orin G. Steele	Manhattan	33	48
J. Howard Watson	Shawnee	38	69
William A. Wishart	Manhattan	34	56
Maurice I. Wyckoff	Luray	34	62
William R. Yerkes	Hutchinson	35½	70½
Sophomores			
Willard A. Challender	Sedgwick	32	61
Glenn H. Dearing	Wellington	34	53
Claude H. Denchfield	Piedmont	32	62
Elbert L. Eshbaugh	Manhattan	31	50
George W. Gerber	Oneida	38	69
Philip W. Ljungdahl	Menlo	31	50
H. Max Nixon	Manhattan	32	63
Rudolph F. Wenger	Powhattan	31	52
Freshmen			
Oran F. Burns	Topeka	30	49
J. Clayton Buster	Larned	32	62
Clarence E. Cook	Effingham	32	51½
Johnie P. Denton	Anthony	33	59
Carl M. Elling	Manhattan	34	51
Roy H. Freeland	Effingham	33	59
Dwight K. Henry	Lecompton	32	54
Mary Jane McComb	Wichita	30½	52
Darrell Morey	Manhattan	32	52
Vernon M. Stevens	Abilene	28	55
Wilton B. Thomas	Clay Center	32½	57½
Carrol L. Wahl	Wheaton	31	49
Rex E. Watts	Havensville	33	61
Merle A. Webb	Meriden	33	49



HIGH FRESHMEN, 1933-'34

Robert T. Latta (above) and Oren J. Reusser (below) each carried a regular assignment during last college year and made a total of 89 points, as given in the high honor roll. The honor society of Alpha Zeta will award to each a medal such as it presents each year to the high freshman of the Division of Agriculture. This is the thirteenth year Alpha Zeta has made these awards.

MEATS JUDGING TEAMS IN CONTESTS AT THE AMERICAN ROYAL

The K. S. C. men's meats judging team placed third in the men's intercollegiate meats judging contest held at the American Royal Live Stock Show, Tuesday, October 23, 1934. The students on the team were J. Edwin McColm, Emporia; Herbert T. Niles, Olivet; Philip W. Ljungdahl, Menlo; and Howard A. Moreen (alternate), Salina.

The men's contest consisted of placing nine classes of meat divided as follows: Beef, 4 classes; pork, 3; and

lamb, 2. Written reasons were given on all placings. McColm was third high individual in the contest, third high man on pork, and fourth on lamb. Niles was third on lamb and sixth on pork. The score of the Kansas men's team was 2,218. Iowa State College placed second with a score of 2,267, and the University of Minnesota placed first with a score of 2,278.

The girls' team competed with their rivals, the girls' team from Oklahoma A. & M. College, and easily won the contest. The students on the team were: Elizabeth Pittman, Fergus, Mont.; Arlene Marshall, Herington; Frances Moss, Lincoln; and Georgia Meece (alternate), Hutchinson.

The girls' contest was divided into two sections—identification and judging. Miss Pittman was high individual in the entire contest and first in placing both the beef and the pork classes. Miss Moss placed first in judging lamb and was third high individual in the contest. Miss Marshall was high individual in identification and placed second in the entire contest.

The teams were coached by Prof. D. L. Mackintosh of the Department of Animal Husbandry.—Howard A. Moreen, '36.

DAIRY PRODUCTS JUDGING TEAM PLACES THIRD

The Kansas State team placed third among 19 competing teams in the fifth annual students national contest in the judging of dairy products held in Cleveland, Ohio, Monday, October 15, 1934, in connection with the Dairy Industries Exposition. In making this high placing the team won one of the six 600-dollar scholarships awarded the six highest teams of the contest by the Dairy and Ice Cream Machinery and Supplies Association, Inc., the corporation which together with the American Dairy Science Association sponsors the contest. The scholarship is to be applied on graduate study and was awarded by a college committee to Everett L. Byers with J. Sherman Todd as alternate.

The six high teams in the contest and their negative scores are as follows:

Team	Score
Ohio State University	355.65
University of Minnesota	361.10
Kansas State College	368.75
Michigan State College	377.20
Iowa State College	377.55
University of Arkansas	379.25

The Kansas team was composed of Everett L. Byers, Hepler; Dean D. Scott, Bonner Springs; J. Sherman Todd, Olathe; and Marion B. Noland (alternate), Falls City, Nebr.

The contest consisted of judging the quality and market grade of butter, American cheddar cheese, milk, and vanilla ice cream. Byers placed third in judging cheese and Todd placed seventh in judging cheese and ninth on all products. The team placed third on cheese, sixth on ice cream, seventh on butter, and tenth on milk.

The contest took place the first day of the exposition and the team spent the next two days sight-seeing and studying the exposition, making the entire trip one of large educational value. Prof. W. H. Martin of the Department of Dairy Husbandry coached the team and accompanied them on the trip.—J. Sherman Todd, '35.

HARDING WINS JUDGING CONTEST

Clifford L. Harding carried off first honors September 13, 1934, in the largest state amateur livestock judging contest ever held at the Kansas Free Fair. Mr. Harding scored 526 points out of a possible 550. Howard A. Moreen placed second with 511 points and Carl M. Elling, third with 497. Other contestants ranking high in the contest were: Edwin C. Sample, fourth; Charles E. Murphey, fifth; Walter M. Lewis, sixth; James Hatfield, Clay Center, seventh; Maurice I. Wyckoff, eighth; Robert R. Teagarden, ninth; and H. Frederick Dudte, tenth.

This contest was open to any under-

(Continued on page 21)

Freshmen, 1934-'35

A picture is taken of each student in the Division of Agriculture and a photographic print filed as a part of his permanent record. Naturally freshman pictures taken each fall constitute a major portion of the new pictures. In October, 1931, The Kansas Agricultural Student reproduced the freshman pictures of the division and has since continued that policy.

As other pictures become available during a student's attendance at college they are added to the permanent record. For graduates, senior pictures taken from the Royal Purple complete this record. The pictures give individuality to the records and enhance their usefulness for many future years.

On the following pages are presented the 128 beginning freshmen in the Division of Agriculture this fall. Besides these beginners there are six second-semester freshmen in the group whose pictures have not been run in this magazine before. There are five other second-semester freshmen in the division whose pictures were run in the fall of '31, '32, or '33. The names and addresses of the 134 freshmen presented on pages 14 to 19 are as follows:

PAGE FOURTEEN

Top Row

WALTER ABMEYER, Grantville
WILLIAM R. ALLEN, Cummings
LAWRENCE S. ALWIN, Morrowville
ROBERT J. ANDERSON, Lyons

Second Row

J. DONALD ANDREWS, Bloom
GEORGE W. ARMSTRONG, Osborn, Ohio
JOHN D. ARY, Lewis
ERNEST R. AUSHERMAN, Elmont
DEWEY AXTELL, Harris

PAGE FIFTEEN

Top Row

HOWARD N. BATCHELDER, Hiawatha
IRWIN V. BEAL, Colwich
DORMAN C. BECKER, Durham
WAYNE E. BEER, Larned
RALPH R. BENNINGTON, Eldorado

Second Row

BLAINE C. BENTLEY, Manhattan
ERNEST L. BIRD, Protection
LEONARD L. BIRD, Hill City
CLINTON P. BLAKELY, Dodge City
G. ROSS BLYTHE, White City

Third Row

CECIL G. BOEHNER, Glen Elder
GERALD P. BOWMAN, Wichita
JOHN R. BRAINARD, JR., Carlyle
BLAINE BRANDENBURG, Riley
F. LOUIS BROOKS, Scott City

Fourth Row

FRANCIS N. CHILDS, Rexford
CLAUDE L. COLEMAN, Abilene
C. LORIMER COX, Mound City
DARREL W. CRAIK, Washington
WILLIAM F. CRITCHFIELD, Effingham

Fifth Row

LAWRENCE L. CUTSHAW, Brewster
VERNER E. DANIELSON, Lindsborg
ELMER A. DAWDY, Washington
CLIFTON DAWSON, Norcatur
PETER DeCINQUE, Woodbine, N. J.

PAGE SIXTEEN

Top Row

C. WENDELL DICKHUT, Scott City
VERNON L. DORAN, Macksville
MARSHALL W. DUTTON, Harlan
RAYMOND A. EICHORN, Yates Center
ROLAND B. ELLING, Manhattan

Second Row

HOWARD S. ELLIOTT, Oakley
KENNETH A. FISHER, Newton
LESTER H. FLAIR, Bucklin
R. GRANT FREEMAN, Tonganoxie
WAYNE H. FREEMAN, Kirwin

Third Row

LESTER G. GANTENBEIN, Elmo
PETER GERMANIO, Woodbine, N. J.
ROBERT M. GIGER, Elmdale
TRUMAN G. GLOVER, Burr Oak
WILSON F. GOBLE, Wallula

Fourth Row

JOE M. GOODWIN, JR., Emporia
LEONARD T. GREEN, Lancaster
RUSSELL H. GRIPP, Hill City
HILBERT A. GROTE, Manhattan
HORACE W. HAMILTON, Argonia

Fifth Row

A. EUGENE HARRIS, Grinnell
S. ROBERT HAYNES, Topeka
GEORGE W. HONICK, Morrill
PAUL B. HUNTER, Sedgwick
JOHN H. HYDE, Augusta

PAGE SEVENTEEN

Top Row

J. ELBERT JOHNSON, Winfield
JACK W. JONES, Council Grove
L. LEE JORDAN, Claflin
EMILE F. KIENTZ, Manhattan
FRED V. KILIAN, Detroit

Second Row

ALVIN G. LAW, Hill City
GEORGE E. LeBRETON, Leavenworth
NORMAN H. LINDBLOOM, Osage City
KEITH W. LINDSEY, Frankfort
J. IRA LOOMIS, Jewell

Third Row

RODNEY K. McCAMMON, Esbon
HENRY McDANIEL, Michigan Valley
ORVILLE C. MADSEN, McDonald
FRANK L. MARCY, Milford
WILSON S. MARSH, Chanute

Fourth Row

VINCENT MERRIFIELD, Agra
JAMES M. MONTGOMERY, Penokee
J. RICHARD MOORE, Alliance, Ohio
ALFRED L. MORRIS, New Albany
DONALD F. MOSSMAN, Manhattan

Fifth Row

L. ELIZABETH MOTT, Poplar Bluff, Mo.
ELBERT L. MUNDHENKE, Lewis
FRED H. MURET, Winfield
L. DUANE MURPHY, Sublette
HUGH G. MYERS, Milo

PAGE EIGHTEEN

Top Row

WAYNE E. MYERS, Osborne
H. ALLEN NOTTORF, Abilene
ROBERT F. NUTTELMAN, Great Bend
R. GRANT NYSTROM, Dover
ANDREW E. OLSON, Dwight

Second Row

CHARLES H. OLSON, Dwight
FLOYD R. OLSON, Minneola
FORD A. OPDYCKE, Russell
GLEN L. OSBORN, Manhattan
ROLLIN C. PARSONS, Manhattan

Third Row

WILLIAM C. PAUL, Rupert, Idaho
JAY H. PAYNE, JR., Delphos
BOYD D. PHILLIPS, Sedgwick
J. ROBB PICKETT, Galena
WALDO W. POOVEY, Oxford

Fourth Row

A. DOYLE REED, Lawrence
JOHN W. REYNOLDS, Winfield
M. DONALD RHODES, Silver Lake
CLEO C. RICE, Altoona
C. D. ROPER, Halstead

Fifth Row

JOHN B. RUFENER, Strong City
LEROY E. SCHAFER, Valley Center
RALPH E. SCHOLZ, Huron
EDWIN L. SCHUETZ, Mercier
G. WOODROW SHAW, Moscow

PAGE NINETEEN

Top Row

K. GLENN SHULTZ, Fall River
ELMER C. SIEG, Bogue
CARL SIMPSON, Milton
JOHN W. SLOCOMBE, Peabody
ALBERT B. SMITH, Manhattan

Second Row

R. IVAN SMITH, Lincoln
ARCH STERLING, La Harpe
ELMORE G. STOUT, Cottonwood Falls
CHARLES L. STREETER, Wakefield
WARREN C. TEEL, Lucerne

Third Row

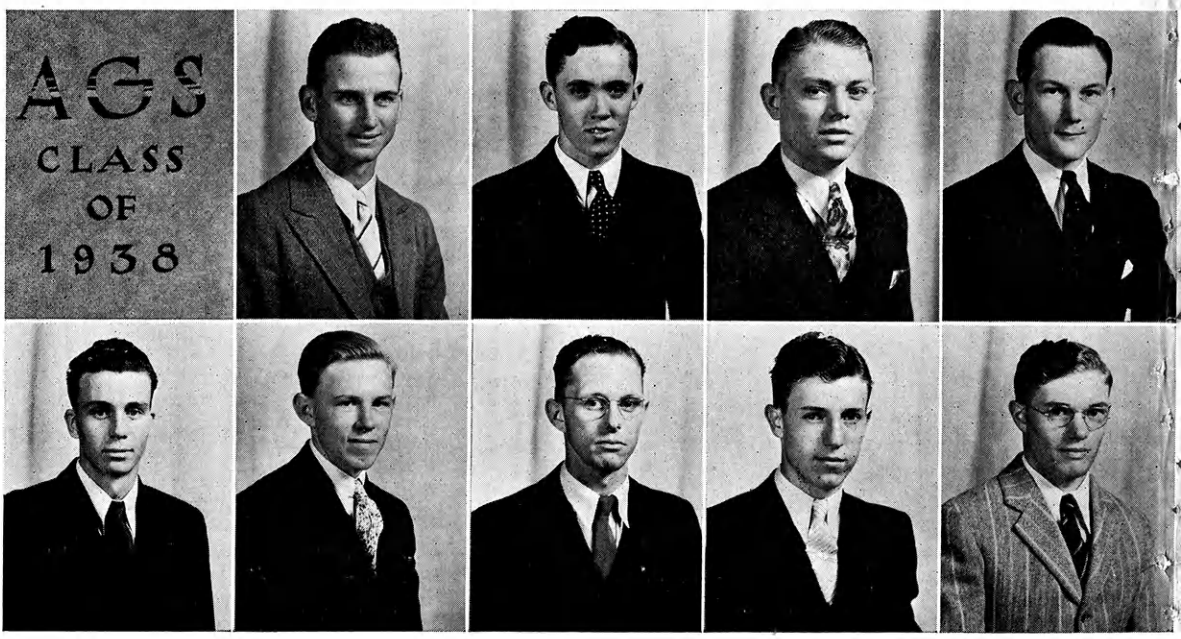
GILBERT L. TERMAN, Columbia City, Ind.
CHARLES E. TOMSON, Dover
RAYMOND C. TRENTMAN, Zenda
PAUL S. WALLINGFORD, Manhattan
CARL S. WARNER, Whiting

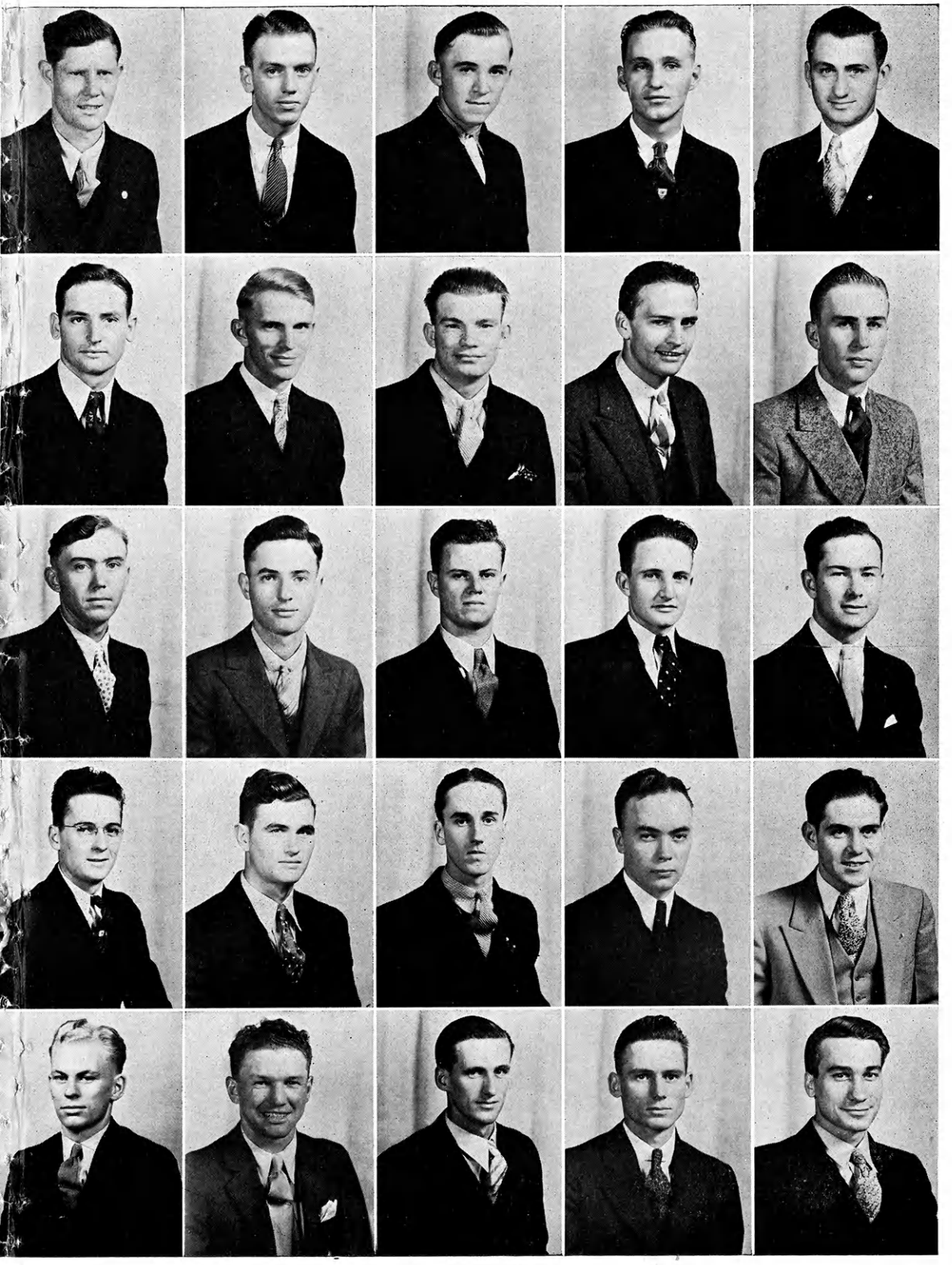
Fourth Row

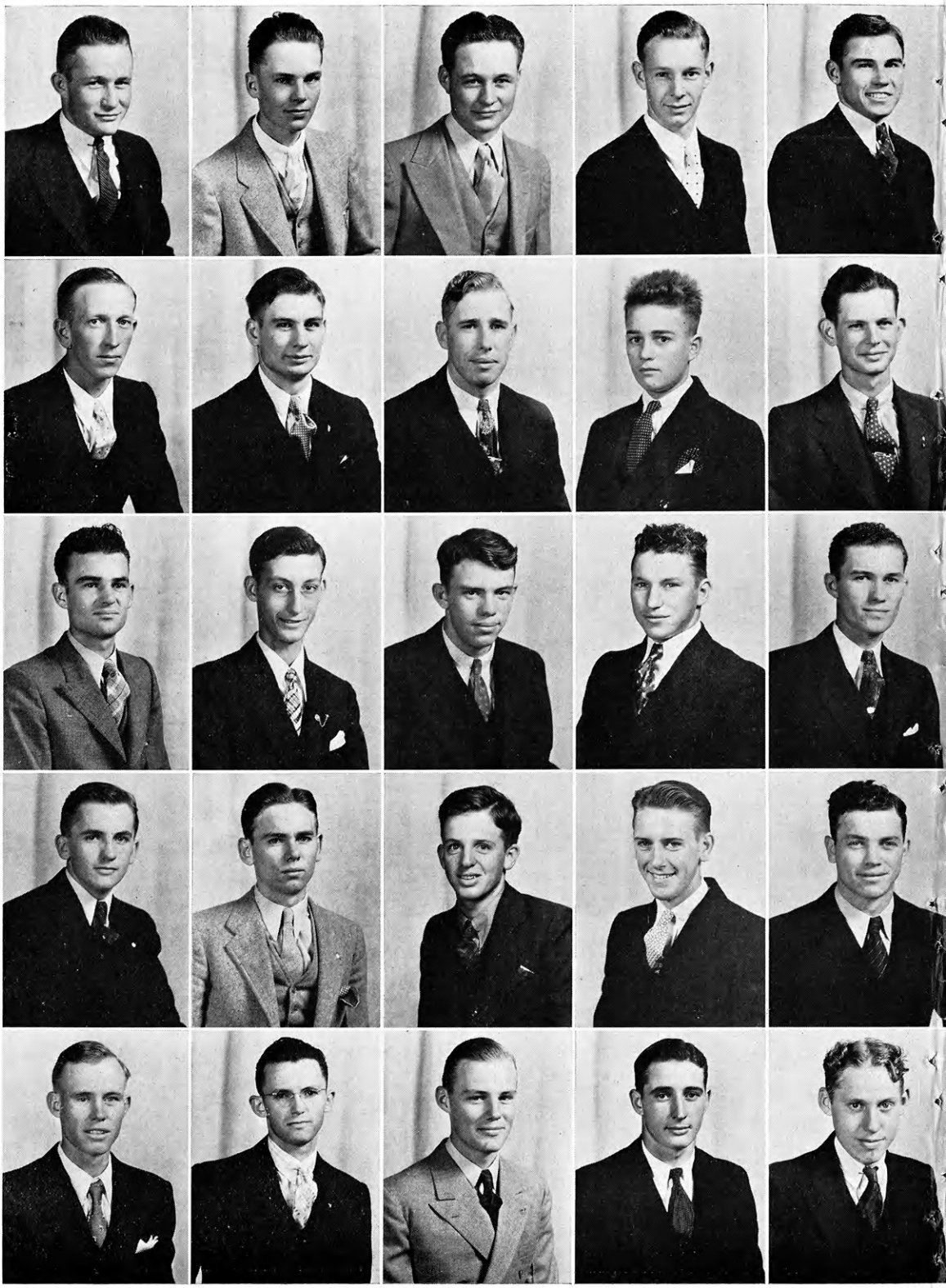
LLOYD A. WATSON, Sublette
VIRGIL E. WATSON, Sublette
JOHN S. WEISSER, Paxico
WILLIS R. WENRICH, Oxford
JOSEPH A. WEYBREW, Wamego

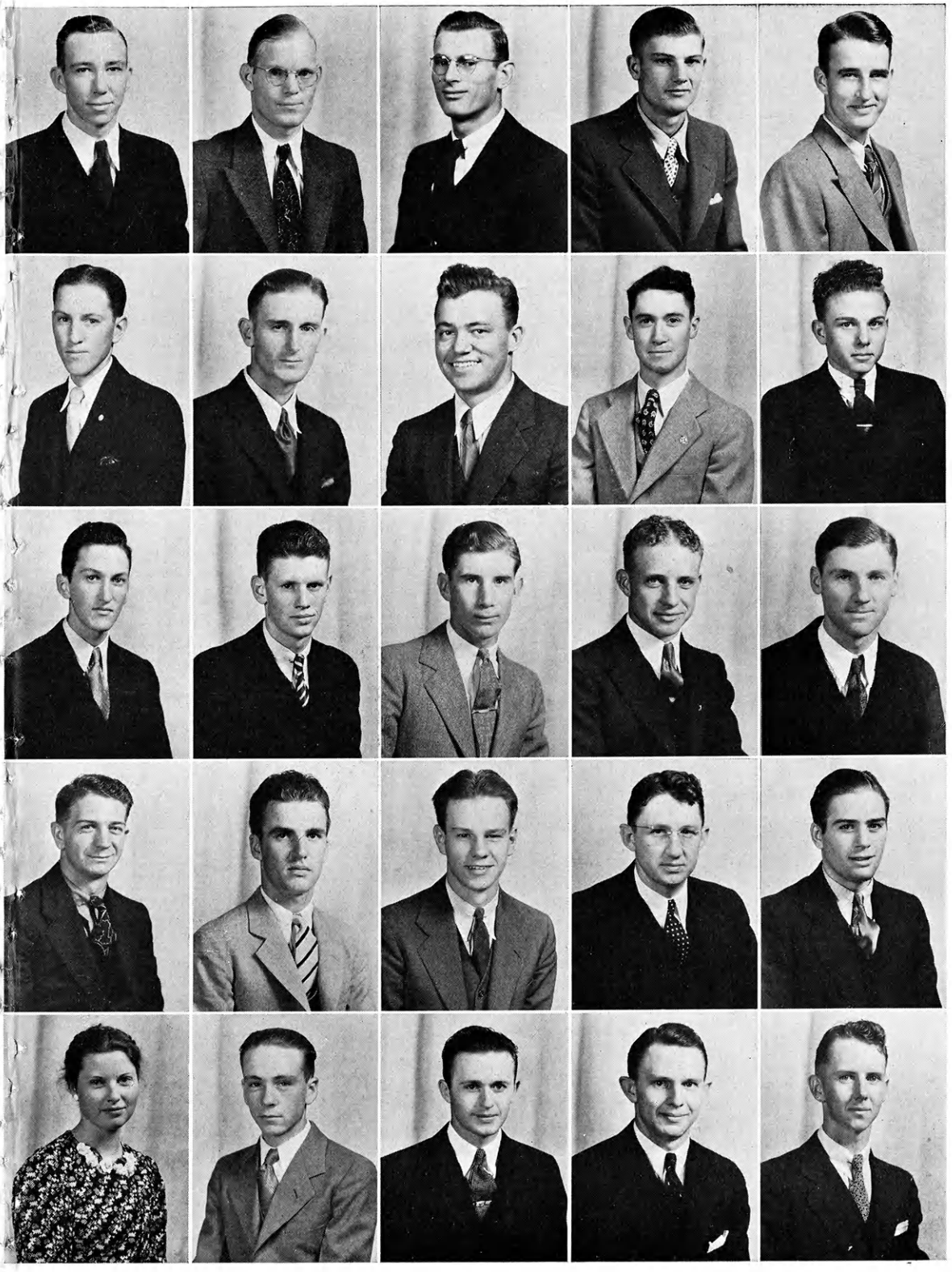
Fifth Row

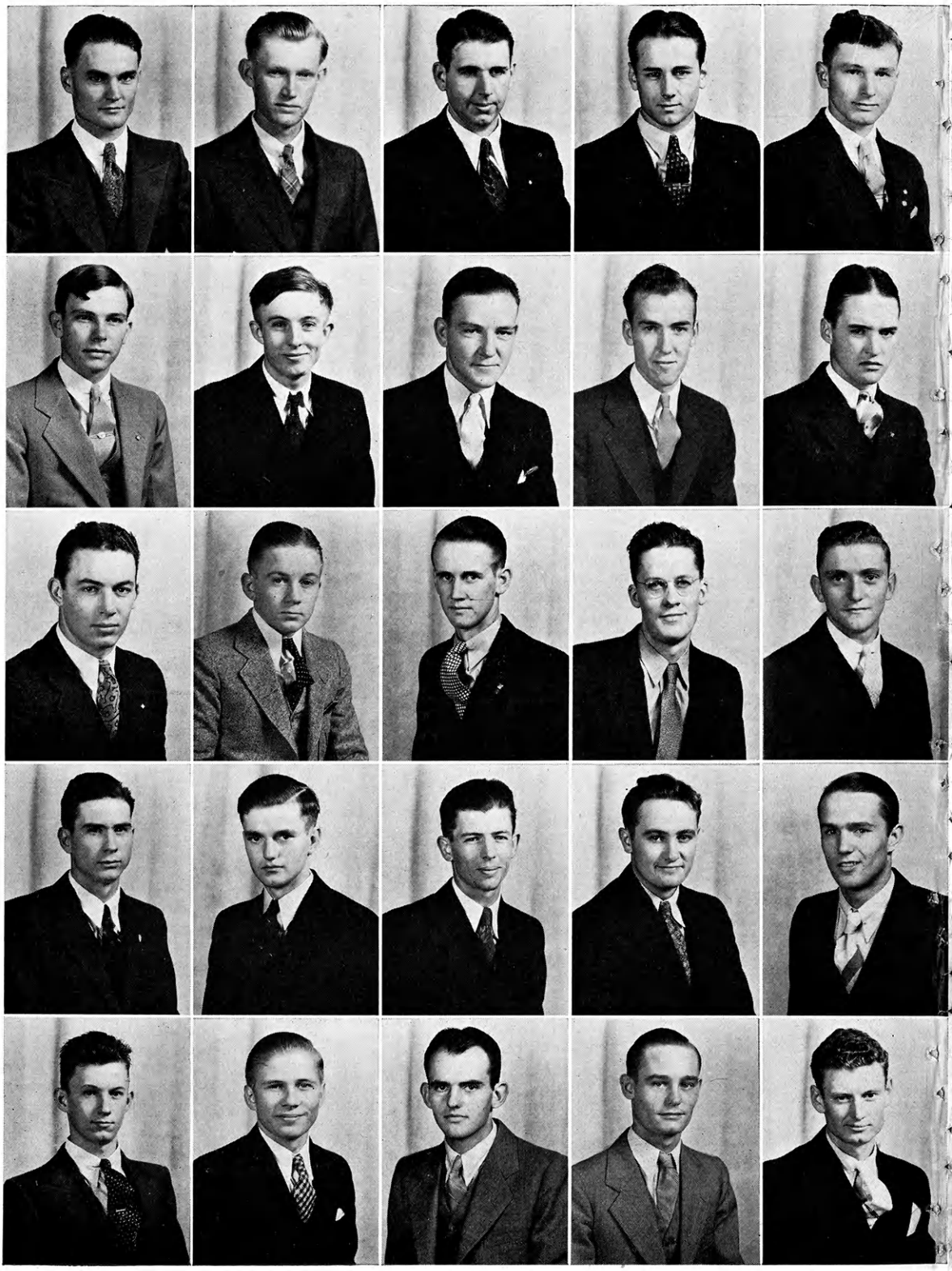
JOHN T. WHITE, Coldwater
WALLACE M. WHITE, Coldwater
R. GORDON WILTSE, Altoona
J. LEROY YOUNG, Cheney
FRED S. ZAMORA, Santa Maria, Ilocos Sur, P. I.

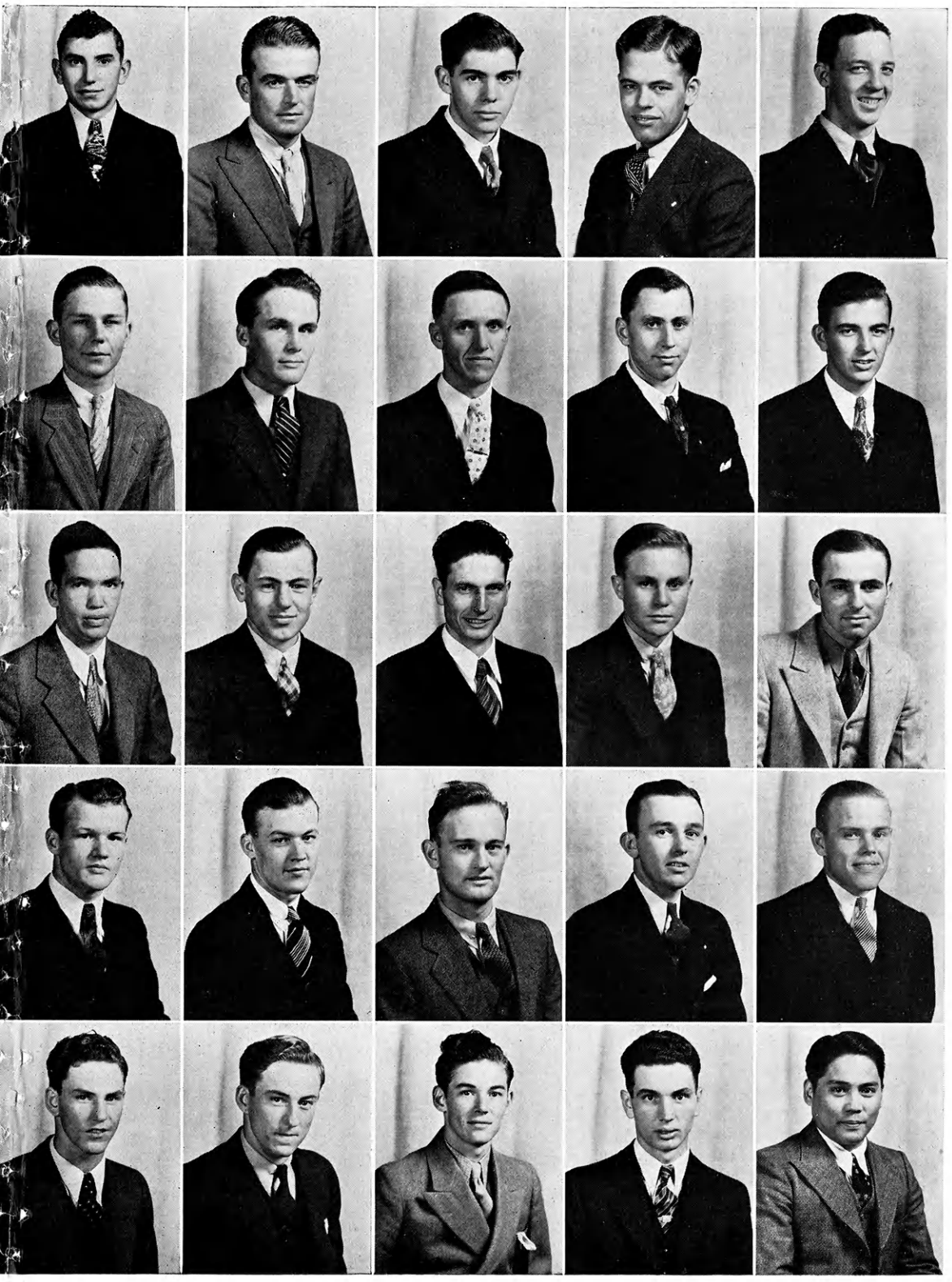












Fighting Bindweed in Kansas

George L. McColm, '35

Kansas is becoming bindweed conscious. For over 50 years this pest has been slipping into Kansas and spreading with alarming persistency over valuable farm lands. Kansans have long been aware of this profit-sapping menace and after failing in all control attempts, have bestowed on it a terrible hatred. College research workers took up the fight and have developed efficient methods of control and eradication.

Prof. J. W. Zahnley of the Department of Agronomy and Prof. W. F. Pickett of the Department of Horticulture offer the latest control recommendations in Bulletin 269 of the Kansas Agricultural Experiment Station, published this summer and now available for distribution. A chemical spray of sodium chlorate solution, 1 pound per gallon of water, applied to the vines is a satisfactory method of eradicating small patches. Usually three applications of 150 to 200 pounds per acre of sodium chlorate, applied in August, September, and again just before frost will give good control the first year. An application in late May to control seedlings and stray plants, and cultivation later are recommended practices the second year.

A year of summer fallow with duckfoot weeders run at 6- to 10-day intervals, and the cultivation continued until about July 1 of the following year, followed by a smother crop of sorghum planted in July will control bindweed in large tracts in western Kansas, according to L. C. Aicher, superintendent of the Fort Hays Agricultural Experiment Station. "Do not allow the weed to show above the ground," Mr. Aicher says.

The Kansas State Board of Agriculture, the extension service of the college, county boards of commissioners, bankers, real estate and loan men, and the newspapers of Kansas have helped carry on a splendid educational program to bring the bindweed menace to public attention. These groups are now cooperating with the farmers to foster a definite bindweed control program for Kansas.

On September 5, 1934, these bindweed fighters met at the state capital in Topeka and expressed a desire for a new bindweed law that would create and finance a state-wide control program, having for its purpose the discovery and eradication of every patch of bindweed in Kansas. Details of the proposal will be worked out by a committee representing farm organizations, railroads, highway commissioners, county commissioners, bankers, and college extension and research workers, and offered to the next session of the state legislature.

The proposed law probably would create a state bindweed control division under the State Board of Agriculture. By the proposed plan, if adopted, the state would buy all supplies and equipment in quantity and furnish them to the counties at cost. Each county would be required to furnish control equipment, hire the workers, and pay a part of the expense of control measures. Failure to comply with any provisions of the law would carry a penalty. In addition the State Board of Agriculture would carry on an educational campaign and maintain close supervision over possible sources of infestation such as seeds, hay, grain, etc. The provision in the old law requiring the railroads, state highways, counties, and townships to eradicate the weed from their property would be retained. While primarily an attack upon field bindweed, the law would be made to include Johnson grass and other obnoxious weeds.

The state highway department used six carloads of a mixture of sodium chlorate and calcium chlorate on their right of ways this summer. Over 35 counties purchased power sprayers to apply sodium chlorate solution and

(Continued on page 28)

HARDING WINS JUDGING CONTEST

(Continued from page 12)

graduate of the college or any Kansas farmer's son under 25 years of age. There were 49 contestants. Eight classes were judged: Hampshire gilts, Duroc Jersey sows, Poland China gilts, Hereford heifers, Shorthorn heifers, fat steers, Percheron mares, and Belgian mares. Reasons were taken on Duroc Jersey sows, Percheron mares, and fat steers.

Prof. F. W. Bell, superintendent of the contest, was especially pleased with the livestock used to make up the classes. The animals in the classes represented winning herds of Texas, Nebraska, Iowa, Missouri, and Kansas. The Belgian class was furnished by Grant Good, Ogden, Iowa, who has one of the best Belgian horse herds in the United States. The Hampshire hog class was furnished by Harry M. Knobe of Nehawka, Nebr., whose herd has won many prizes at the National Swine Show. The Duroc Jersey class was from the Orchard Home Farm, Osawatomie, Kan. This herd had the grand champion boar and the reserve champion sow at the National Swine Show. H. B. Walters, Bendena, Kan., supplied the Poland China gilt class. Mr. Walters has been winning the Poland China classes at the leading state fairs for 20 years. Shorthorns were used from Tomson Brothers' herd, Wakarusa, Kan., and Genoa Ranch, Houston, Tex. The Hereford class was furnished by Robert Hazlett, Eldorado, Kan., Foster Farms, Rexford, Kan., and the Jenny Wren Farm, Lawrence, Kan. The Percherons judged were owned by H. G. Eshelman, Sedgwick, Kan., J. T. Schwalm and Sons, Baldwin, Kan., and Paul Engler, Topeka.—J. Edwin McColm, '26.

LIVESTOCK JUDGING TEAM PLACES THIRD IN THE AMERICAN ROYAL CONTEST

In the intercollegiate judging contest at the American Royal Live Stock Show, October 20, 1934, with twelve teams competing, the Kansas Aggie team placed third. The team slipped somewhat on sheep but taking the scores on cattle, hogs, and horses alone, the team placed first, scoring 3,584, against 3,583 for both Texas A. & M. College and Texas Technological College. The scores of the first five teams were as follows:

Team	Score
Texas A. & M. College	4,725
Texas Technological College	4,686
Kansas State College	4,589
Iowa State College	4,517
Oklahoma A. & M. College	4,501

The members of the team were Walter M. Lewis, Larned; Charles E. Murphey, Leoti; Charlie B. Team, Wichita; Albert A. Thornbrough, Lakin; Maurice I. Wyckoff, Luray; and Lee J. Brewer (alternate), Hartford.

The Kansas team placed third on horses, third on cattle, third on hogs, and sixth on sheep. Murphey tied for second place in the entire contest, scoring 953, two points below the score of the high man. Wyckoff tied for high individual on horses and Team was high individual on cattle. Lewis tied for third place on horses and for seventh on hogs. Thornbrough tied for third place on hogs. Murphey tied for second place on cattle and placed fourth on sheep.

The Aggie team has consistently had high placings in the American Royal contest. It is generally recognized that their place is at or near the top and the good showing that the team made this year maintains the standard reached during recent years. Prof. F. W. Bell of the Department of Animal Husbandry coached the team.—Lee J. Brewer, '35.

F. W. ImMasche, '29, is assistant to the deputy governor in the Farm Credit Administration, Washington, D. C. His job is assisting in establishing statistical units in the office of the general agent in each of the districts of the Farm Credit Administration.

Feeding Milk By-Products to Dairy Calves

The raising of dairy calves is an important part of modern dairy farming. It is naturally more of a problem on farms where whole milk is sold than where skim milk is available. It may also become quite a factor in the coming winter where there is an actual shortage of milk, due to the low feed supply.

The Department of Dairy Husbandry here at Kansas State College has been doing experimental work on feeding milk by-products as a substitute for milk. The results of these experiments as a whole are gratifying and may prove a great benefit to certain dairymen who have occasion to use them.

Three lots of calves were used in the experiments. One lot was fed dried skim milk and dried buttermilk in the remade form. (Remade at the rate of one pound of powder to nine pounds of water.) Another lot was fed dried skim milk and buttermilk in the powder form in the grain ration. The third lot was fed remade semi-solid buttermilk. (Remade at the rate of one pound of buttermilk to three pounds of water.) In all three lots the calves were fed good alfalfa hay as roughage, and were given whole milk at first with a gradual change to the new ration, the changing process extending over a period of from two to five weeks. All the calves were put on experiment at birth and continued for six months, at which time they were put with the general herd.

The calves which received the remade skim milk and buttermilk powder made normal gains and were healthy and thrifty at the end of the period. The calves in lot 2 which received the milk powders in the grain ration did not make normal gains the first six months and were rather rough-haired, although apparently in good health. After being turned into the general herd these calves were of normal size and weight at the end of one year. The third lot did not do so well on remade semi-solid buttermilk as the other lots. Digestive troubles, due to high acid content of the buttermilk, were encountered in almost every case. This was partially remedied by the addition of saturated lime water to neutralize the acid. Even then there was some difficulty in getting the calves to drink well.

Of the three methods of feeding, the first two are recommended. While neither is so economical as skim milk feeding, both are generally cheaper than whole milk feeding.

More detailed information as to the amounts fed, the composition of the grain rations fed, etc., is contained in a paper on "Milk By-products as Feeds for Dairy Calves," prepared by F. B. Wolberg, W. H. Riddell, and J. B. Fitch of the Department of Dairy Husbandry.—Wilmer R. Smittle, '36.

Wheat Tax Collections

From the recently published annual report of the Bureau of Internal Revenue some interesting statistics can be gleaned concerning the wheat processing tax. Tax collections on wheat during the fiscal year ending June 30, 1934, totaled 117½ million dollars. This is nearly $1 per capita for the entire country. Taxes on wheat in Kansas amounted to $11,232,633. This is about $5.60 per capita for the state. Kansas was third in total taxes collected. Minnesota and New York were first and second, respectively.—A. H. Rousseau, '35.

D. B. Ibach, '23, is extension specialist in farm management at the University of Missouri, Columbia.

Willard V. Redding, '31, is teaching agriculture in Ebenezer Mitchell Junior College and High School, Misenheimer, N. Car. He is also supervisor of the college farm.

Securing a Stand of Alfalfa

Andrew B. Erhart, '33

The value of alfalfa both as a feed or cash crop and as a means of maintaining soil fertility is widely recognized. The difficulties experienced in getting a stand are responsible, however, for a much smaller acreage in Kansas than would otherwise be the case. Is there any method of seeding alfalfa whereby the farmer may secure a good stand every year? Perhaps not, but there are certain fundamental principles which, if closely followed, will go a long way toward making this possible.

There is no one method adapted to all sections of the state, since conditions existing in the various sections differ so widely. A method, which has been quite successful in central and eastern Kansas, is to fall seed after a crop of oats or wheat. The stubble should be plowed shallow immediately after harvest and worked sufficiently to kill all weeds and volunteer grain and to maintain good tilth. In some cases, when the small-grain field is particularly clean, the ground can be put into fairly good condition by disking the stubble ground immediately after harvesting. Usually, however, several additional cultivations are necessary to destroy weeds and volunteer grain.

Acid soils occur commonly in the eastern half of Kansas and it is usually necessary to apply lime to such soils before a successful crop of alfalfa can be grown. An accurate determination of the acidity of the soil will indicate the amount of lime which should be applied to that particular soil. Finely ground limestone is the most commonly and widely used form of lime for this purpose and is very satisfactory. The lime should be applied at least a month before seeding and should be incorporated with the surface soil, but should not be plowed under. When alfalfa is to be seeded in the fall, a very successful plan is to plow the land early, disk at once, and apply the lime immediately. Fall-plowed land that is to be seeded in the spring may have the lime applied during the winter months. The average application is about 2 tons per acre in eastern Kansas.

Nearly all of the soils in Kansas are low in phosphorus and some of them are so low in this element that alfalfa makes but a poor sickly growth on them and is unable to compete with weeds and grass. Experiments have shown that phosphorus can be profitably used in the production of alfalfa on most of the soils in the eastern two-fifths of the state. Phosphorus not only increases the yields but aids very materially in maintaining the stands against grasses and weeds. Super-phosphate is the most generally used form of phosphorus and is a satisfactory kind to use at the time of seeding. It is the only kind recommended as a surface dressing on an established stand. An application of 150 pounds per acre at the time of seeding and 150 pounds per acre applied annually, or 300 pounds applied every two years, as a surface dressing is recommended. The application of lime and phosphorus in the western part of the state is not necessary.

The proper inoculation of the soil with the specific kind of bacteria which enables the alfalfa plant to get nitrogen from the air is very important. Many soils are naturally supplied with these bacteria, but others are not. If there is any doubt as to whether these organisms are present it is best to inoculate. Generally speaking, they are lacking in eastern Kansas where alfalfa has not been grown successfully within recent years and especially on soils that need lime.

The best time of seeding depends upon weather conditions. A good plan is to seed some time between August 15 and September 15, immediately after a

good shower. A packer is frequently used to advantage both before and after seeding, especially when the soil is very loose.

An application of well rotted barnyard manure as a top dressing on young alfalfa in the fall after seeding serves as a winter protection to young plants, helps to hold snow on the field during the winter, and hastens growth the following spring. In some sections, however, manure stimulates the growth of grass.

A good method of preparing a seed bed for alfalfa in western Kansas is to summer fallow the land and seed the alfalfa in the spring. Spring seeding is usually necessary in the western half of the state because of the dry weather and the damage by grasshoppers. In some cases a satisfactory seed bed may be prepared by disking corn land. Spring seeding should be delayed until after danger of low temperature is past, yet seeding should be early enough to permit the young plants to become well established before the period of hot dry weather in midsummer.

An alfalfa drill is desirable in order to obtain a good uniform depth of planting and a good covering, as well as an even distribution of seed. A common grain drill may be used but it is difficult to keep from planting too deep. It also leaves too much space between the rows, and for this reason the seed should be drilled both ways if possible. Broadcasting while not exactly satisfactory can be practiced.

The rate of seeding is determined by the quality of the seed, the condition of the seed bed, and the method of seeding. When good seed is drilled in a good seed bed, 15 pounds per acre are sufficient. If the seed is broadcast it is advisable to use 5 or 10 pounds more. Heavier seeding may help to overcome the bad effects of a poor seed bed to some extent, but should never be substituted for better preparation.

The use of nurse crops for alfalfa in Kansas is not an extensive practice and is practically never justified except when alfalfa is seeded in the spring in the eastern part of the state. A crop such as oats or flax may help to control weeds under such conditions by occupying the land until the alfalfa plants become well established. When oats is used it should be seeded at about one-half the usual rate and should be harvested early for hay in order to give the alfalfa plants a better opportunity for growth.

A careful study of the existing conditions and the observance of these principles will, under ordinary conditions, result in a satisfactory stand of alfalfa.

CASH RETURNS TO KANSAS FARMERS

(Continued from page 5)

Rufener report cash returns to farmers in Chase county this season were principally from the sale of alfalfa hay, alfalfa seed, oats, fodder, and silage. Wheat was good but the acreage small. The corn-hog program furnished considerable cash. Rental for pastures increased over last year and nearly all pastures were filled.

According to A. G. Pickett and Herbert T. Niles, the major cash income for east central Kansas was realized from the sale of farm products. Wheat was above average while alfalfa made a fair hay crop and an excellent seed crop. Corn failed to make grain except on river bottom land but the fodder sold for almost as much as a good crop did the last two or three years. Sheep and summer-fed cattle made some money.

Arthur C. Ausherman and Sidney L. Franz say the AAA, government buying of distressed cattle, and federal employment supplied most of the cash income for farmers in Shawnee and Jackson counties. Milk, cream, poultry, and eggs have helped less than usual and in some sections alfalfa (both seed and hay) as well as garden truck furnished some income.

Irving B. Hawk says benefit payments from wheat and corn-hog contracts were the most outstanding cash

return in north central and northeastern Kansas outside of the fruit district. Corn was a complete failure, hence, most of the livestock feeding, which is usually quite extensive, had to be discontinued. Summer income was furnished by sale of cream, eggs, and poultry. Wheat made fair yields and was profitable for farmers that raised wheat.

According to Wilbur M. Lehman, drought cut the fruit crop of northeastern Kansas to about a fourth crop. The strawberry crop was about 10 per cent of normal. Not only was the production for this year almost wiped out but the crop will be materially reduced next year because most of the old beds were destroyed by the drought. Raspberries and blackberries were of poor quality. Grape production was normal but the market was slow. Only about 50 per cent of a full crop of apples and pears was harvested. However, the market on apples was 25 per cent higher this year than last, thus permitting growers to realize a greater profit in 1934 than they did in 1933.

Is There an Egg-Laying Type of Domestic Fowl?

Most of the evidence now available shows there is no relationship between the anatomical characters of the fowl, such as the shape of skull, width of back, or length of keel, and egg production. There is, however, a relationship between egg production and certain physiological factors such as pigmentation, molt, and condition of abdomen. These are the factors that must be considered in selecting the breeding stock, rather than the morphological characters, because only in this manner can successful poultry breeding be carried on without the assistance of the trap nest.

The yellow pigment in the beak and shanks of breeds that have yellow skin is due to a carotinoid pigment called xanthophyl, that is obtained from the consumption of yellow corn and green feeds. As a bird begins to lay, the yellow pigment, which is carried in the blood stream, is diverted from the outer skin to the ovary where it colors the developing egg yolks. Due to this phenomenon and by the process of oxidation, the skin, beak, and shanks bleach to a pearly white. The bleaching first takes place in the abdominal skin, then in the beak, and later on the shanks. It requires about 20 weeks egg production to completely bleach the shanks.

The wing molt is another important factor governing the production of the hen. As a general rule when a bird begins molting, egg production will stop until this process is completed. However, birds that are high producers will continue laying on through this period. Therefore, birds that begin to molt in August or earlier, if they have stopped laying, should be discarded because their productive period will be shorter than normal for good layers.

Ten new primary or flight feathers must be grown during the molting period. Six weeks are required to grow each new feather and the old feathers are usually shed two weeks apart. Thus, in calculating the time elapsed since a wing molt was begun, six weeks are allowed for the first fully-matured primary feather next to the axial feather, and two weeks for each additional full-length feather. When two or more primaries are dropped at one time, they are calculated as one, and, hence, the sooner the bird will be ready to begin the next year of production.

The good layer will have a flexible, soft, and pliable abdomen, with plenty of capacity.—Robert E. Phillips, Jr.

A Scientific Study of the AAA

Since the Agricultural Adjustment Act of 1933 launched the government upon a vast experiment in the social control or direction of farming, it was

thought advisable by the Institute of Economics of the Brookings Institution to carry on a detailed study of the work. This is the first experiment of its kind that has ever been undertaken in this country and the Brookings Institute of Economics is trying to study it in an organized scientific manner.

This Institute of Economics of the Brookings Institution is located at Washington, D. C. The money for carrying out the study of this program was secured from the Rockefeller Foundation of New York. The study was started in June, 1933. In conducting this study E. G. Norse, director of this institution, has associated with him Dr. John D. Black of Harvard University and Dr. Joseph S. Davis of the Food Research Institute during such part of the year as they can be spared from their duties.

The working force is divided into two parts. First a staff of 11 specialists together with the necessary clerical, statistical, and stenographical assistance working in Washington; and second, a group of approximately 20 resident observers located at various strategic points throughout the territory in which adjustment efforts are being undertaken. These resident observers are, for the most part, located in state colleges of agriculture and their job is to observe the program as it is being carried out and to collect any material that may be valuable. This study is to include an analysis of the program and its underlying philosophy, the measures undertaken to accomplish its several objectives, the success attained by these efforts together with apparent reasons for success and failure, the redirection of efforts or redefining of objectives which takes place during the course of the experiment, and some appraisal of the results attained.

After this material has been gathered together the Brookings Institution is going to publish a booklet on each phase of the program.

Before the work was undertaken, the director of the Institute of Economics ascertained from the secretary of agriculture that such a project would be viewed in favor by him and his associates and that they would do whatever they could to facilitate the making of such a study. Besides being indorsed by the secretary of agriculture, this project was approved by the administrative council of the AAA and has received the cordial support and cooperation of practically all members of the administrative staff. It has been indorsed by the director of the Extension Service of the United States Department of Agriculture in Washington and supported by all extension directors and agricultural experiment station directors to whom it has thus far been presented.—Gerald J. Brown, '36.

Russian Thistles as Roughage for Livestock

Many farmers in the central and western parts of Kansas, faced with the most severe shortage of feed in many years, have turned to Russian thistles as a roughage for their livestock this winter. These thistles, which grow profusely in these sections of Kansas, make good livestock feed if cut and cured before the spines have hardened.

The chemical analyses of thistles show that they compare favorably with alfalfa in amount of crude protein and have somewhat less fibre. However, they are very high in mineral salts which make them laxative in nature.

Very little information is available as to the actual feeding value of Russian thistles. Some years ago, however, the Fort Hays branch of the Kansas Agricultural Experiment Station compared good quality Russian thistle hay with alfalfa for the wintering of beef cows. Two lots of cows were used. Each lot was fed equal amounts of silage and straw and in addition one lot received 9½ pounds of alfalfa hay per head per day and the other lot received an equal amount of Russian thistle hay. The Russian thistle hay proved

equal to the alfalfa in every respect.

If Russian thistles cannot be cut before the spines have formed and hardened, it is recommended that they be made into silage. Four hundred to five hundred gallons of water should be added to each ton of mature thistle hay if handled in this manner. If conditions are such that it is impossible to make silage from the mature thistles they should be thoroughly sprinkled with water ten to twelve hours before they are fed as hay. They may also be ground before being fed.

Since the main function of roughage is to furnish bulk, Russian thistles, if cut at the proper time, become a very valuable feed when other feeds and roughages are scarce and high in price, if they are supplemented with rich concentrates such as grains or protein supplements. Since they are somewhat laxative in nature they cannot be fed in so large quantities as hays or silage and best results will probably be obtained when fed in conjunction with straw, fodder, prairie hay, or other roughages.—Charles E. Murphey, '35.

Feed Requirements for Wintering Livestock

Owing to the drought this year many farmers are confronted with a big winter feed problem. Very little in the way of grain crops was harvested and hay and forage crops were of inferior quality. Although there are a number of solutions of this year's feeding problem, some of which will be mentioned later, the feeding of wheat straw seems to offer the best solution for many Kansas farmers.

Wheat straw may be fed to mature cows during the winter months without the animals' losing much weight if two pounds of cottonseed cake per cow are fed daily to balance the ration. A mature cow will consume about 750 pounds of straw per month besides the two pounds of protein supplement daily. Yearlings will consume about 600 pounds and calves approximately 500 pounds per month. In addition to the wheat straw, yearlings and calves should receive one pound of protein supplement daily.

When silage is the only roughage fed, much better results are obtained when a protein supplement is fed with it. A mature cow should receive between 1,200 and 1,500 pounds of silage and at least 30 pounds of protein supplement per month. Yearlings should receive 900 pounds and calves 600 pounds of silage per month in addition to the 30 pounds of protein supplement.

Immature corn fodder thoroughly cured in shock or stacked in a dry place, makes a satisfactory winter feed. A protein supplement will have to be added to the corn fodder. If a farm mill is available it will pay to grind the corn fodder, as it will minimize the waste.

Prairie hay may be fed, but it is also low in protein content.

Cottonseed hulls should not be confused with cottonseed cake, as cottonseed hulls are low in protein content. Cottonseed hulls have a feed value about the same as that of prairie hay.

Four pounds of alfalfa hay equal one pound of cottonseed cake or linseed cake in protein value for a winter ration.

Approximately the same amount of wheat straw, cottonseed hulls, prairie hay, or corn fodder must be fed to satisfy the requirement of the animal.

One-tenth of a pound of finely-ground limestone should be fed daily to cattle of all ages.

Horses can be wintered on hay or other roughages and require about one-half pound of hay for each 100 pounds of weight. As a rule horses do not require any grain in a wintering ration.

Ewes may be wintered on about the same kind of feed as cattle. A ewe should be fed four to six pounds of silage and either one pound of alfalfa hay or one-fourth of a pound of cottonseed cake daily. Other roughages. such as wheat straw or corn fodder, may be

fed. When these roughages are used, the ewe should receive about one-half of a pound of grain daily. In feeding ewes, as in feeding cattle, grinding the corn fodder will reduce the waste to a minimum.

Hogs cannot be wintered very easily without feeding grain. They can be full fed on ground alfalfa hay with just enough grain to keep them in good breeding condition. It will take from two to four pounds of grain per day. If a good winter pasture is available the alfalfa hay may be omitted.

In every case where cheap roughage is to be the principal winter feed, care should be taken to balance the ration with a protein supplement.—Robert R. Teagarden, '35.

FIGHTING BINDWEED

(Continued from page 20)

most of these counties are now paying part of the expense of control measures where the land owners will cooperate.

Sodium chlorate kills bindweed by poisoning the entire plant, thus killing the roots. The sprayed plants gradually dry up, as the salt makes its way from the leaves down through the stems of the plants. Sodium chlorate sprays will render the ground unproductive for some crops for a year and reduce production for the second year. The soil, however, is practically normal thereafter.

Distinguishing Sex of Purebred Chicks

It is well known that by means of certain first-generation crosses, the sex of chicks—sex-linked hybrids—may be distinguished at hatching time. Now, through the work of Dr. D. C. Warren, poultry geneticist at the Kansas Agricultural Experiment Station, a way of telling with better than 95 per cent accuracy, the sex in purebred American breeds has been found.

This is possible only in those flocks which are predominatingly, although not entirely, pure for late feathering. The flock should be examined as chicks at 10 to 15 days of age. Those chicks showing tail feathering at this time carry the recessive early-feathering character and should be marked so they may be identified at maturity.

To make use of this phenomenon, Doctor Warren outlines the following procedure: (1) Examine the chicks at 10 days of age and mark by toe punch all those which have well defined tail feathering. Any that might be classed as "in-betweens" had best be marked for discard as they may confuse results. (2) In the fall, segregate the toe-punched males for use as breeding males during the following season. (3) Discard the toe-punched females, saving a few for special mating with the early-feathering (toe-punched) males by which to preserve your early-feathering line. (4) In the spring mate the early-feathering males to the late-feathering (or unmarked) females. The offspring at hatching will be of two types: One with well defined flight feathers resembling those of a newly-hatched Leghorn, which are females; and one with short flights, normal to the Rhode Island Red breed, which are males.

It can readily be seen that in one season you will have lost your late or normal-feathering females. The fact that in your cross the females will be early-feathering like the sire will make it necessary to preserve in a special mating a line of late-feathering males by late-feathering females so that the next season will not find you lacking breeding stock with which to continue the matings.

The three types of matings necessary then are: (1) Early-feathering males X early-feathering females—offspring all early. (2) Late males X late females—offspring all late. (3) Early males X late females—male offspring, late; female offspring, early.

One must bear in mind that the reverse matings do not work. If a late-feathering male be used on early-feath-

(Continued on page 31)

Restoration of Kansas Pastures[1]

Royse P. Murphy, '36

One of the most timely problems confronting Kansas farmers this fall is the restoration and management of native pastures following such extreme drought conditions as were experienced during the past season. Definite information on this subject is lacking because the conditions of last summer were so much more severe than any that have occurred since data on this subject have been collected. A number of factors will influence the management of these pastures, the principal ones being: (1) Types of vegetation; (2) climatic conditions for the next twelve months; (3) intensity of grazing; and (4) conditions of vegetation last spring.

It is highly probable that the pastures in which the bluestems are the dominant forage plants, which is true for most of the Flint Hill region and many other pasture sections in the eastern part of Kansas that have been conservatively managed, will be injured but little. This also applies to the short-grass pastures in western Kansas that have a good sod of grama and buffalo grass and in the sand hills that are well vegetated with bluestems and short grasses.

Previous experience indicates that the drought effects are going to be more severe on some of the tame pastures, particularly Kentucky bluegrass, one of the principal perennial pasture grasses on small eastern Kansas farms. Many of these pastures will require reseeding if their productivity is to be restored in a reasonable length of time. Most of the land occupied by these pastures is either too rough or the soil too shallow to permit plowing or to make cultivation advisable owing to the great danger of erosion. The seeding will therefore have to be done with a minimum amount of soil tillage.

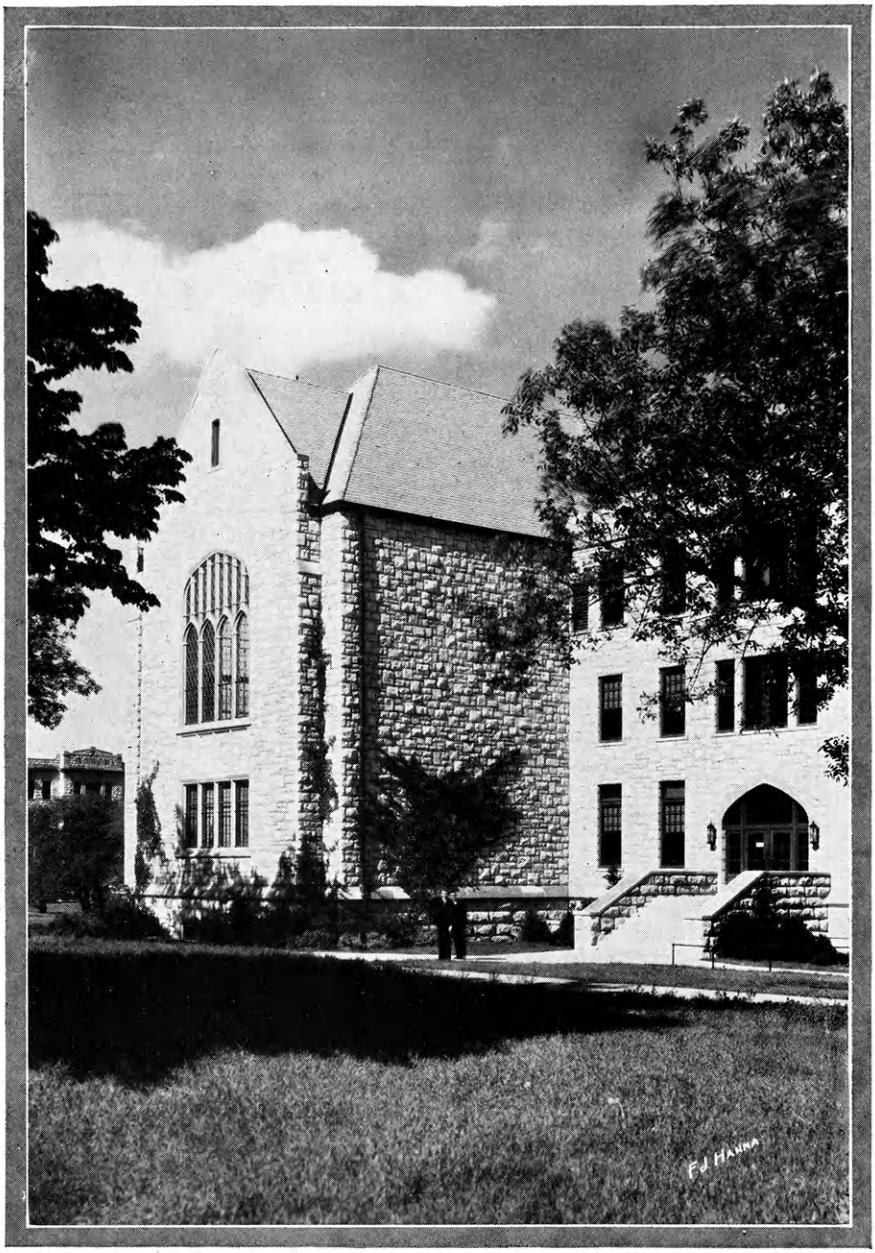
Tame pastures in which brome grass is the dominant species of grass are likely to be injured less than bluegrass. Brome grass recovers the most quickly from drought of any of the tame grasses. Red top, orchard grass, and timothy are susceptible to drought injury, especially on upland poorer soils. The injury to these pastures will be determined to a considerable extent by growing conditions and the intensity of grazing next spring.

Owing to the extreme shortage of feed, most pastures have been very closely grazed this season. Following fall rains this treatment may not be very injurious if the winter is mild. However, if the winter is dry and cold and the pastures are grazed heavily next spring, these practices may result in a heavy decrease in the stand and yield even of the best bluestem pastures.

The only method by which early grazing can be eliminated when feed is scarce is by providing early or temporary pasture crops to supply feed until the permanent pasture gets a good start. The principal temporary pastures that may be used for this purpose are winter wheat, rye, winter barley, and oats. All of these grain cereals are very palatable to livestock and they have a high feeding value particularly in protein.

Where grain cereals are seeded in the fall for pasture, wheat and rye are most generally used. Rye can be seeded very early and wheat by the middle of September. Rye is objected to in the wheat belt because of its menace as a weed. Winter barley may be used very advantageously in the southeastern and south central parts of the state where winterkilling is not a factor. Oats make an excellent spring pasture crop but the fact that they are almost sure to winterkill almost eliminates their use as a fall pasture crop. When adapted seed is available this cereal grain is one of the best pasture crops for use next spring so as to al-

1. The author is indebted to Dr. A. E. Aldous of the Department of Agronomy for much of the information contained in this article.



COLLEGE LIBRARY WITH A PORTION OF THE FRONT OF EAST WATERS HALL IN THE LEFT BACKGROUND

low native pastures to get a good start and store plant food before grazing them heavily.

Where cereals are grown primarily for a grain crop, the livestock should be turned off the pasture before the plants start to joint, which is about the middle of April in an average year.

This is not late enough to permit the native pastures, especially bluestem, to get a good start. Therefore, the grain cereals for pasture should be planted mainly for feed and especially for improvement of the permanent pasture rather than to attempt to obtain a grain crop from them. Such temporary pastures may be used until the first of June and then the land can be seeded to sorghum or some other late crop.

Small Grains for Temporary Pastures

In the late summer the Agricultural Adjustment Administration issued a ruling which permitted corn-hog contract holders to mix wheat with other grains for seeding for feed, provided not more than 50 per cent of the mixture by weight is wheat when mixed with rye or barley, and not more than 25 per cent by weight when mixed with oats or flax.

Because of the 1934 drought and very short feed supply, Kansas farmers sowed much winter wheat early to provide fall and early winter pastures and considerable winter barley was sown in southern Kansas.

The practice of mixing wheat and rye for seeding should not be encouraged for any purpose in Kansas. This state has a reputation for producing high-quality wheat for milling purposes and the mixture of rye with wheat seriously damages the milling value. Furthermore, rye is more winter hardy than wheat and will volunteer readily. It will persist in a wheat field for many years.—A. H. Rousseau, '35.

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DISTINGUISHING SEX OF CHICKS

(Continued from page 28)

ering females, all the offspring, male and female, will be late feathering.

The Japanese method of determining sex in day-old chicks by an examination of the vent is a recent development. It has been found that by proper manipulation of the vent, the slight difference in the sex organs of male and female may be detected. There is a very slight protuberance on the lower lip of the vent of the male and this structure is lacking in the female. It seems, however, that the detection of the difference requires both a very keen eyesight and very skillful manipulation of the abdomen of the chick. The practice of this method, therefore, will probably remain in the hands of experts for some time.

Distinguishing sex at hatching is of interest to all breeders, but can probably be used most advantageously by the hatchery operator, since it makes it possible for him to cater to a specialized trade.—T. B. Avery, '34.

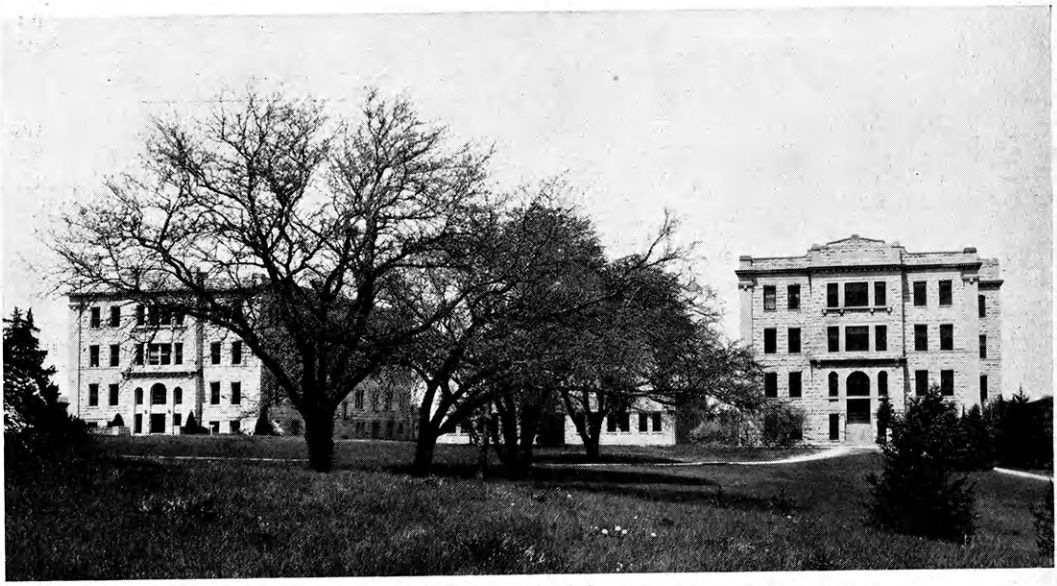
B. H. Pubols, M. S. '27, is acting head of the department of Farm Management and Agricultural Economics, Washington State College, Pullman.

E. S. Fry, '32, is employed by the Ferry Morse Seed Company in Salinas, Calif. In 1931 Fry was a member of the crops judging team and was high-point man at the International Hay and Grain Show.

H. S. Baird, '11, is manager of the Santa Barbara plant of the Golden State Milk Products Co., located at Santa Barbara, Calif. Baird was formerly president of the Santa Barbara Chamber of Commerce.

A VIEW OVER WILDCAT CREEK, U. S. HIGHWAY 40S IN THE DISTANCE

From one-half of Kansas, students come to K. S. C. over highway 40S. Stagg hill, in the distant background, presents the first bird's-eye view on this highway of the College, Manhattan, and the surrounding territory.



WEST AND EAST WINGS OF WATERS HALL FROM A POINT EAST OF THE COLLEGE LIBRARY

The work of most of the students in the Division of Agriculture centers in these buildings designed to be the wings of a larger central structure to be built in the future. The enrolment of undergraduate students in the division at the present time is 393.