EXPERIMENT STATION

OF THE

KANSAS STATE AGRICULTURAL COLLEGE,

MANHATTAN.

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FARM DEPARTMENT.

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SOY BEANS IN KANSAS IN 1900.

THE year 1900 was the most unfavorable but one that we have had in twelve years of growing soy beans. The usual rainfall in May was followed by an exceedingly dry June. The rainfall in August was deficient, and during the dry weather hot winds blew. These made the beans ripen too soon, reducing the yield greatly and injuring the quality of the beans. The beans had to be cut and shocked or stacked in August. September opened up with about ten days of continuous rain, seriously damaging many of the beans in the stack and spoiling those still in the field. Such an unfavorable condition is unusual. The following table shows in inches the normal rainfall and the rainfall in 1900, as recorded by Pres. E. R. Nichols:

MONTH.	1900.	Normal.
June	1.19	4.45
July	4.51	4.80
August	2.84	3.46
September	5.37	3.01

EARLY YELLOW SOY.

The College had 59.5 acres planted to Early Yellow soy beans, besides the area planted to this variety in the variety test. Thirty-seven acres planted on high upland with a decided southern slope yielded 3.9 bushels per acre. Another planting of 2.7 acres on upland with southern slope yielded 7.4 bushels per acre. An upland field of 3.5 acres having a northern slope yielded 7.6 bushels per acre. A field of 16 acres lying along a small, dry stream produced 9 bushels per acre. These four fields were planted in May and were in the blossom when struck by the hot winds; the more exposed the field the lower the yield. A patch of one-fifth of an acre partly protected on the south by trees was planted June 7, and yielded at the rate of 35.6 bushels per acre.

Soy beans have been raised on the College farm for twelve years. The yield of soy beans, corn, and Kafir-corn, for this period, is given in the following table:

YIELD PER ACRE ON THE COLLEGE FARM.

YEAR.	Soy beans.	Corn.	Kafir-corn.
1889. . .....bus.	17.0	56	71
1890..... "	.....	22	19
1891..... "	14.6	74	98
1892..... "	16.3	30	50
1893..... "	11.8	30	49
1894..... "	2.6	0	0
1895.... .... "	12.5	23	43
1896..... "	12.6	39	48
1897..... . "	....	34	48
1898. ..... "	13.0	26	33
1899. . .... "	15.5	40	50
1900..... "	5.6	0	16
Averages	12.0	31.6	43.8

In 1890 and 1897 the yield per acre was not determined, but notes taken during these years show that the crops were good ones, and in calculating these averages it has been assumed that they were equal to the average. It is probable from the notes that the yield in these two years was greater than the average. While the average yield of soy beans seems low, the food value produced is fully equal to that of the corn produced during the same time, and the beans have to their credit their effect on the soil and their value in a rotation.

TEST OF VARIETIES.

We made a test of sixteen varieties of soy beans, using twenty-two acres in this test. Each variety was planted in rows and cultivated, in the test for grain; and each variety was planted thickly in drills, the same as wheat, in the test for hay. There was not sufficient seed of six varieties received from Japan to make a fair test of yield, two

varieties were too late in maturing to furnish seed, and one variety the seed was so poor that no start was secured.

The table following shows the results obtained with these varieties. In each variety the yield of grain and the yield of hay was secured from different plats:

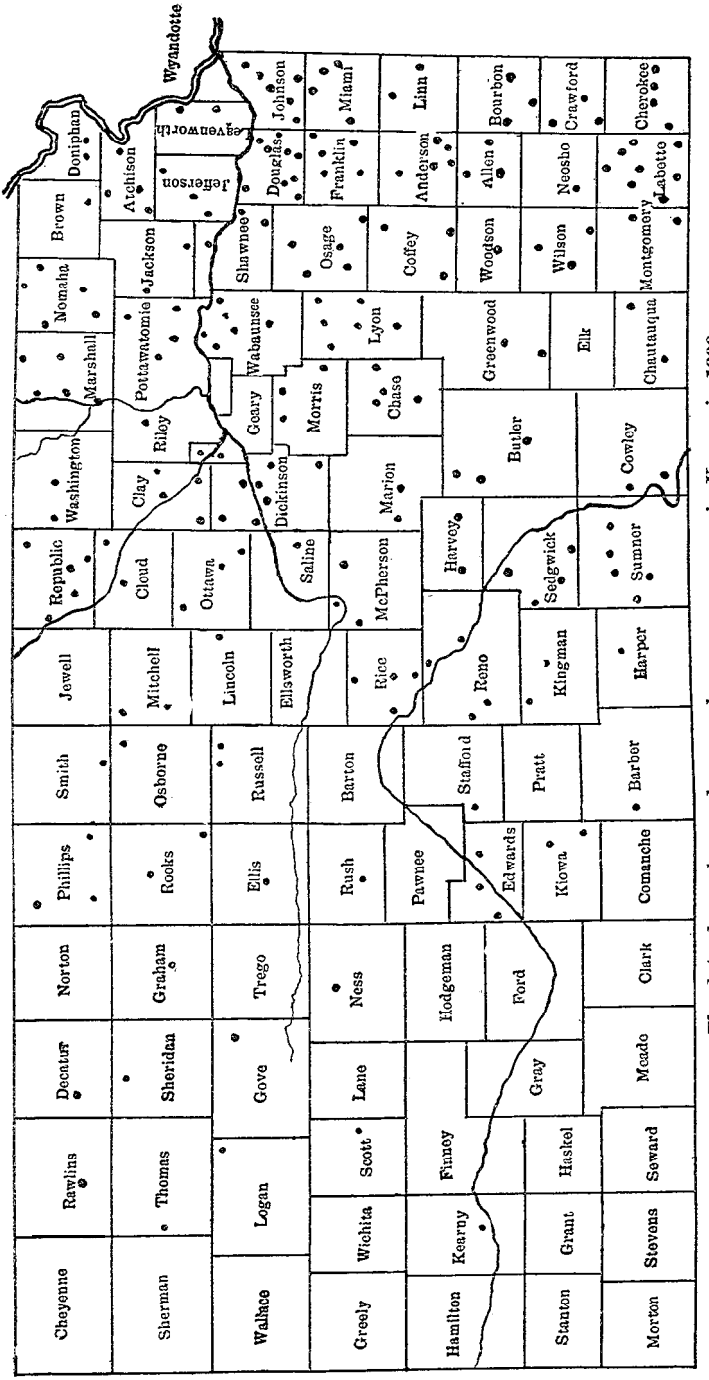
VARIETIES OF SOY BEANS.

VARIETY.	Seed from—	Yield of beans per acre.	Yield of hay per acre.	Days from planting to maturity.
Early Yellow	Kansas State Agricultural College	7.4 bus.	1.4 tons.	90
Early Soy	Peter Henderson & Co., New York	6.2 "	.8 "	124
American Coffee	J. J. H. Gregory, Marblehead, Mass.	5.5 "	.95 "	84
Medium Early Black	J. J. H. Gregory, Marblehead, Mass.	3.0 "	.62 "	90
Extra Early Dwarf	J. J. H. Gregory, Marblehead, Mass.	2.7 "	.6 "	70
Early Soy	Johnston & Stokes, Philadelphia, Pa.	6.5 "	1.1 "	96
Late Soy	Johnston & Stokes, Philadelphia, Pa.	*	.75 "	
Dwarf Soy	Geo. W. Hilliard, Brighton, Ill.	6.4 bus.	.86 "	90
Medium Soy	Geo. W. Hilliard, Brighton, Ill.	*	No stand.	
Chastian Soy	E. N. Chastain, Hume, Mo.	No stand.		
Nalrade	Japan			166
Asahi	Japan			166
Tamarat Sukun	Japan			151
Soy bean, 4912	U. S. Department of Agriculture, from Japan			128
Best White, 4913	U. S. Department of Agriculture, from Japan			128
Best Green, 4914	U. S. Department of Agriculture, from Japan			166

*Did not mature.

As usual, the Early Yellow soy gave the highest yield of both grain and hay. It was closely followed by the Early Soy from Johnson & Stokes, the Dwarf Soy from Hilliard, the Early Soy from Henderson, and the American Coffee from Gregory. The season was so unusually unfavorable that the acclimated variety—Early Yellow—had a distinct advantage, and it may be that after these four promising new varieties become acclimated they will yield well. We will give them a further trial. The Early Soy from Henderson is the variety introduced by Prof. Wm. P. Brooks, of the Massachusetts Agricultural College, and has yielded with him as high as fifty bushels per acre. It is a very distinct variety, and has a rugged, vigorous appearance, as shown in the cut.

The twelve years' tests made at this Station of varieties of soy beans show that the Early Yellow soy is the best variety yet tried for Kansas. We hope to find or breed something better.



The dots show places where soy beans were grown in Kansas in 1900.

TESTS OF THE SOY BEANS BY KANSAS FARMERS.

The first general trial through the state of the soy beans was made in the summer of 1900. (See map on opposite page.) We have received reports of 292 Kansas farmers who raised soy beans. These reports come from 75 of the 105 counties of the state. The letters, condensed, giving these reports follow. They give in detail the methods used, the difficulties encountered, and the failures and successes. A few of the farmers reporting live near county borders—living in one county and having a post-office in another. In these cases the correct county and post-office are given. This will explain why, in some cases, a farmer is recorded at a post-office not in his county. The letters are listed in counties. All letters received to March 1 are published.

ALLEN COUNTY.

Jos. E. Ferris, LA HARPE. Planted with a corn-planter, drill attachment. Cultivated twice, first with ordinary shovels and second time with stalk-cutter knives on cultivator beams. A small portion slightly injured by chickens as it was coming up. Cut with a mowing-machine. Found that when cut while the dew was on they did not shell, but shelled badly after the dew was off. Raked as soon as cut with a hayrake and cured in small cocks. Yield from thrashing-machine, fourteen bushels per acre. At least one bushel per acre was lost by letting them get too ripe. Feeding to a couple of shoats and am highly pleased with the result. I think they are a good thing.

Wesley M. Jones, MORAN. Planted with a corn-planter set for three feet, using small drill plate. Cultivated with corn-cultivator first time, five-shovel cultivator twice. Cut with a mower. Yield, twelve and one-half bushels per acre. They are all right for this section of Kansas.

J. C. Strong, MORAN. Upland gray soil. Planted with drill plates on ordinary corn-planter, in rows forty-two inches apart. Yield might be increased by planting in rows thirty-two inches apart. Cultivated the same as corn. Ground was flooded by water backing up from railroad bed, which caused the leaves to turn yellow and the lower ones to drop off. Seemed to recover all right when the ground became dry again. Cut with a mower. Raked and cured in cocks. Yield, twelve bushels per acre. Cannot give an opinion on their merits yet. Will plant again.

A. M. Wright, MORAN. Soil red limestone, thin, close to rock. Planted with a corn-planter, in rows three feet eight inches apart, using Kafir-corn plates and going twice in a row. Cultivated with eight-shoveled cultivator. Rabbits ate an acre, and this was replanted. A heavy rain in July scalded the beans, and they turned white, but they recovered. Later two weeks' drought ripened the beans too quickly. Cut with a mower. Yield, six and two-thirds bushels per acre. They will do well under favorable circumstances.

ANDERSON COUNTY.

J. M. Caldwell, GLENLOCH. Planted with a wheat-drill, in rows thirty-two inches apart. Came up good. Harrowed twice and cultivated with a five-toothed cultivator. Badly infested with crab-grass. Cut with a mower. Heavy rains, and crop was abandoned as it lay in the field. Cattle finally turned in, and after getting a taste of the beans ate them down until the field was as bare as a road,

leaving sorghum, flax straw, etc. My experience teaches me that the average farmer had best plant in rows wide enough to cultivate with a two-horse corn cultivator. May plant with a corn-planter, making alternate rows three feet apart. Use small plates for drilling corn. Mow with an ordinary mower with attachment rake, or gather so as to leave in bunches and avoid shaking out beans. Stack or mow every day as fast as cut, to avoid getting wet, as they spoil easily or grow when wet. To be sure of not losing a crop in a wet season, have the ground selected where hogs may have access.

J. M. Caldwell, GARNETT. Light upland. Planted with a two-horse drill corn-planter, going twice in a row and using large plates. Cultivated three times, with an ordinary two-horse corn cultivator. Injured slightly by the dry weather. Cut with a mower and stacked. Cattle, hogs, turkeys and other things foraged on them for six months, then thrashed, and secured nine bushels per acre.

C. C. Cochran, SELMA. Upland. Rather poor soil. Planted June 1 with a corn-planter, in rows forty inches apart. Cultivated with a six-shovel cultivator. Jack-rabbits ate some of them. Cut with a mowing-machine, raked, and stacked. Yield, eight bushels per acre. Soy beans are a good crop for this part of Kansas. They make the best feed I ever fed to hogs.

Sam S. Irwin, LONE ELM. Good upland. Planted with a corn-planter, in rows forty-four inches apart, three inches apart in the row. Cultivated three times, with a disk cultivator. Cut at the surface of the ground with a knife attachment put on disk cultivator. Yield, twelve to fourteen bushels per acre. Have fed with Kafir-corn, and am convinced of their value for feed, and results show that they are certainly a valuable crop for this section.

J. H. Laughlin, KINCAID. Upland. Planted and cultivated the same as corn. Cut with a knife bolted to cultivator. Yield, eleven bushels per acre. The soy bean is a nice crop to handle. I will plant ten acres this season.

T. H. Noble, HASKELL. Creek bottom. Planted in June, and cultivated three times, with corn-cultivator. Rabbits ate the beans as fast as they came up on one side of the field. Cut with a corn-knife. Have not thrashed. Estimated yield is fifteen to eighteen bushels per acre. They grew well; are easily raised; cows, calves and pigs eat them well when cut and fed green, before the plants have become too ripe.

H. C. Whitford, GARNETT. Upland mulatto. Planted in rows three feet eight inches apart. Cultivated twice with a weeder and once with a two-horse cultivator. Checked by drought and injured by rain after harvesting. Tried to cut with mower, but this broke the clods and we had to resort to hand pulling. Got badly injured in the shock. I thought them worthless and fed them to hogs; the hogs were very fond of them. I think if planted and cared for properly (clean cultivated), and gathered at the proper time, they will be a good crop for this section. The nitrogen content is nearly or quite double that of wheat bran to the 100 pounds, and I believe they can be raised so that they will cost no more per ton than we have to pay for bran.

ATCHISON COUNTY.

W. W. Guthrie, ATCHISON. Deep black soil, treated as for corn; cultivated the same as for corn. Grew well; cut, cured, and placed in a barn, but the chickens ate so many that no estimate of yield can be made. Experiment was on a small scale, but I believe soy beans very desirable for Kansas.

Frank Hunn, ARRINGTON. Rich, black bottom land. Listed a little closer than for corn and dropped the seed with a drill. Cultivated the same as for corn, except that the ground was kept level. Injured some on the outside by the rabbits and the grasshoppers. Part mowed and part pulled. Yield, fifteen bushels per acre. They are all right for this section of Kansas if planted on clean land. My land was foul, and after the beans were laid by the weeds came up very badly in them, as they do not shade the ground like corn. They are the best feed for fall pigs that I ever used.

Bent Bolsinger, EFFINGHAM. Upland. Planted with a lister running shallow. Poor method, as the beans grow too slow, and it is hard to work the ground down level without covering the beans. Harrowed and cultivated with a disk cultivator. Knife on cultivator will not work, and I cut with a scythe. Put in large piles. Heavy rains and hot sun made many shell out while in piles. Saved ten bushels per acre, and probably lost five bushels. Am grinding them and feeding them with oats and corn to milch cows. The soy bean is no more trouble to raise than corn until you come to harvest them. Dry weather does not hurt them, and land that will yield forty bushels of corn per acre will produce twenty bushels of soy beans.

William Matthias, HURON. Ground marked off in shallow furrows with corn-planters. Seed planted with a corn-drill. Floated once with a plank and cultivated twice with a corn-cultivator. Pulled by hand. Yield, sixteen bushels per acre. Pigs and poultry got a taste of the ripe beans, and they made desperate raids on the field.

BARBER COUNTY.

L. S. McElwain, DEERHEAD. Sandy loam. Listed April 20. Cultivated the same as listed corn. Crab-grass got in the rows. Too busy with other work to gather them when they became ripe; turned in the calves and let them harvest the crop. The calves did well on them, and paid for all the expense of raising the crop. They will do all right here.

BOURBON COUNTY.

John German, HIATTVILLE. Planted with a corn-planter geared as high as possible, using plates which drop four beans at a time. Rabbits nibbled on them all season, killing one-fourth acre entirely and thinning the rest. Cultivated four times, and hoed where the rabbits injured them. Cut with a mower — a wasteful way. Injured by rain while in the stack. Thrashed eight bushels per acre. Hogs would not eat them, but calves and yearlings did well on them.

J. D. Hill, FORT SCOTT. Upland prairie. Planted with a corn-planter, using especially drilled plates. Cultivated three times, the last time with a disk cultivator, which left the ground practically level. Cut with a mower, two rows at a time. Yield, twenty bushels per acre. My judgment is that soy beans are a profitable crop to raise, but a farmer should not plant less than ten acres.

C. O. McLane, UNIONTOWN. Shallow clay soil with croppings of sandstone. Planted with a wheat-drill, four inches apart. Harrowed before they were up and cultivated three times, with "eagle claws." Harvested with a cultivator with gopher attachment, and by hand. Harvested when too ripe and lost some by shattering. Saved seven bushels per acre. Fed ground with Kafir-corn. Colts and calves will climb a low fence to get this mixture. Soy beans will stand more dry weather than anything else on the farm.

BROWN COUNTY.

George Anderson, EVEREST. Black loam soil. Planted with a press drill. Cultivated with a two-horse cultivator and hoed. Cut with a mower and scythe and gathered with a two-horse rake. Yield, thirteen bushels per acre. I think they are profitable for milch cows and young stock.

Antonio Scalapino, EVEREST. High prairie. Planted with press-drill, in rows thirty-two inches apart. Cultivated three times, with "bull-tongue" and cultivator. Beans grew rank and full of pods from top to bottom. Cut with a scythe. Yield, seventeen bushels per acre. Have fed to hogs. They keep the hogs in a healthy condition, with slick hair, that causes them to sell well on the market, and the hogs gained rapidly.

BUTLER COUNTY.

D. M. Elder, EL DORADO. Upland. Listed, using four-holed corn plates. Not enough seed used. Stand too thin and not properly planted. Cultivated the same as corn. Estimated yield, seven bushels per acre. They will grow here and I expect to plant again. I do not know enough about them to advise others.

B. Regier, ELBING. Upland. Beans planted on oat stubble with a lister. Cultivated twice, with a disk cultivator. One acre destroyed by rabbits. Pulled by hand. Yield of acre not eaten by rabbits, twelve and one-half bushels. Steers. accidentally got into the field while the beans were green, and were hard to keep out, as they preferred the beans to good grass.

J. M. Troy, BRAINERD. Fertile upland. Planted with a grain-drill, in rows thirty inches apart. Cultivation delayed by rain until crab-grass had nearly sodded the ground. Used a small, five-shoveled cultivator, and hoed one-half of the tract—balance never entirely cleaned—and made about one-half of the yield of the hoed plat. Harvested with a sixteen-inch stubble plow, with a very sharp shear, just shaving the surface; bunched with a pitchfork. Dry weather at filling time shortened the crop, especially those not hoed. Some waste by shelling. Yield, eleven bushels per acre. Soy beans are all right for this section.

CHASE COUNTY.

R. C. Johnson, COTTONWOOD FALLS. Part planted on surface and part listed. Put in with a corn-planter, in rows three feet six inches apart. Cultivated with a corn-cultivator and a hoe. Rabbits took many of the side next to the creek and small pigs took as many on the side next to the barn. This was no loss, as the pigs did tiptop. Harvested with knife on cultivator. Thrashed twenty-one bushels from four acres, but pigs and calves helped themselves around the stack. I estimate the yield at fifteen bushels per acre. Good thing. Have tried feeding to cows and hogs, and am satisfied that they are worth five times as much as corn, when mixed with other feed at the ratio of one to five, and of immense value as a preventive of disease.

Henry Rogler, MATFIELD GREEN. Light, loamy soil; second bottom. Planted with wheat-drill, in rows three feet apart, beans two inches apart in the row. Cultivated with a corn-cultivator, using "eagle-claw" shovels first time. Rabbits took about one acre of beans. Cutworms and weeds thinned the stand. In parts, not more than half a stand came up. Dry weather injured the beans. Fed a good many in the straw to hogs. Estimate yield, six bushels per acre. I

do not think soy beans will ever be a profitable crop in this section of the state. The chief difficulty is getting a good stand, and, for us, the dry weather has injured them severely every year, average yield being not over eight bushels on the best river bottom, while corn has averaged thirty-five bushels or better the same time. I have fed a good many this winter, and they make excellent feed, but lack of yield and uncertainty of crop keeps them out. They are excellent in preparing the soil for wheat or alfalfa to follow.

Joseph Shaw, STRONG. In 1899 planted medium soy beans the last of June. Harrowed and cultivated twice, with a common cultivator. Grew well and nearly covered the ground. Cut with a mower before fully matured. Raked, cocked, cured, and put in the barn. Fed straw and all to fall pigs. Pigs were crazy for them, and ate stalks and all. I never had pigs do better. Fed some green to fattening hogs. They ate them up clean—beans, stalks, leaves, and roots—and did well. In 1900 bought dwarf variety. Not more than ten per cent, came up. Harrowed and planted again, straddling the rows. Second planting did not germinate any better than the first. The rows were too close to allow cultivation, and crab-grass and weeds choked what beans did come up.

CHAUTAUQUA COUNTY.

J. R. Haines, WAUNETA. Planted with corn-planter. Cultivated with a disk cultivator and hoed once. Cut with a knife attached to cultivator. Yield, eight bushels per acre. I have great faith in soy beans as pig feed, and, being a great drought resister, every farmer should raise them.

P. M. Rushmore, BROWNSVILLE. Sandy soil, clay and gravel and subsoil. Planted with a one-horse drill. Cultivated with ten-shovel cultivator. Cut with a sharp plow. Put in small piles until well wilted, then in narrow, high shock covered with cane. Yield, twelve bushels per acre. From limited experience should say that they are profitable here; only drawback I can see is the difficult method of harvesting in order to save all the seed. Shall plant ten acres this spring.

CHEROKEE COUNTY.

C. E. Gray, CRESTLINE. Soil light, close subsoil. Drilled with a wheat-drill, in rows thirty-two inches apart. Cultivated four times, with "eagle claws." Nothing injured them and they grew nicely from the start. Pulled by hand and threw into piles, this taking about the same amount of time that it would to gather the same area of corn. Yield, twelve bushels per acre. Very well satisfied and have received good results from what we have fed.

Frank Hoover, COLUMBUS. Sandy loam. Planted with a corn-planter, in drills. Cultivated with a cultivator. Weeds checked the beans. Mowed and raked. Yield, not known. Soy beans are a good crop, but not as good as cow peas.

O. A. Rhoads, COLUMBUS. Reddish gray, sandy upland. Drilled with a corn-planter. Cultivated shallow, with a six-shoveled cultivator. Slightly injured by hot, dry weather. Cut with a mower. Raked with a sulky rake and put in small shocks to cure. The beans were not cut until too ripe and many shattered off. Thrashed six bushels per acre. Could have made a much larger yield by planting closer. If the feed value is one dollar per bushel they will be a profitable crop to grow.

Geo. L. Fisher, GALENA. Thin soil, some alkali. Planted August 1 with corn-planter. Not cultivated. Rabbits ate outside rows and frost caught some unmatured. Pulled by hand. Yield, four bushels per acre. All right as a catch-crop after wheat; would hardly pay as a main crop. I will plant about July 1 on wheat ground next year. I drilled wheat in the beans before they were harvested. Only a few were broken down by the drill.

CLAY COUNTY.

R. H. Berger, LONGFORD. Black, sandy loam. Marked out the ground and planted by hand. Double-shoveled cultivator used. Jack-rabbits ate whole rows. Planted one bushel, gathered ten. Soy beans are O. K. for this section of Kansas. Never saw any plant stand the drought better.

Elmer Dodson, WAKEFIELD. Planted with a grain-drill, thirty-six inches apart. They came up beautifully, received excellent cultivation and rapid growth, but owing to the exceedingly dry weather did not mature well. Cut with a mower. Yield, two bushels per acre. The soy beans seem very vigorous and I believe will stand a reasonable dry spell.

Eugene Elkins, WAKEFIELD. Sandy upland. Planted with a corn-planter and cultivated with an ordinary six-shoveled cultivator. Weather exceedingly dry. Pulled by hand. Yield, six bushels per acre. Planted two acres July 19 on oats stubble after being plowed. It was so dry that they did not come up for a month after planting. They got about six inches high, and had four or five pods per plant, and the beans were of extra quality. Soy beans are all right.

H. A. Hoch, BROUGHTON. Upland. Planted with a two-horse cultivator, in rows three feet eight inches apart, using largest seed plates. Cultivated with ordinary corn-cultivator. Rabbits ate one piece entirely. Yield, five bushels per acre. Undecided as to their value.

A. Michelson, CLAY CENTER. Upland. Planted with a grain-drill, in rows thirty inches apart. Very few plants came up, on account of poor seed. The rabbits ate most of the plants that came up. Immediately after a rain I harrowed in millet, using a harrow so as not to destroy the few plants that were left. The few plants that were left grew well in spite of the millet, and produced a heavy crop of beans. I think they are all right for Clay county if good seed can be procured.

CLOUD COUNTY.

D. M. Bourne, DELPHOS. Have tried the soy beans two years, and dry weather has beaten me both times. I do not like them.

Chas. Guffin, CONCORDIA. Upland. Planted with a drill June 1. Beans came up well, and grew well until about six inches high, when they were entirely destroyed by a small insect. The same bug destroyed the tomatoes and potatoes. It was different from any insect we had ever seen before.

O. C. Montgomery, CLYDE. Soil sandy. Double listed, harrowed the ground until the furrows were four inches deep, and then drilled with a one-horse drill. Rabbits cut some of the beans short. Cultivated the same as corn. Cut with knife made from corn-stalk cutter, the knife attached to the shank of a corn-cultivator. Raked and put in windrows, where continuous rains kept them wet for six weeks. Two-thirds of the beans shelled out and were lost. Thrashed three and one-third bushels per acre. Yield previous years, ten bushels per acre.

COFFEY COUNTY.

Fredrick Henley, GRIDLEY. Upland, gravelly soil. Planted with a hand corn-planter. Cultivated twice, with a walking cultivator. Badly eaten by rabbits. Pulled by hand after many beans were shattered out. Yield, eight bushels per acre. I think, under proper management, they will do well.

Geo. Schenck, LE ROY. Rich bottom, very weedy. Planted with a corn-drill. A late variety. Cultivated the same as corn. Rabbits pastured off all of them. Beans sprouted up from the stubs, but the delay allowed the grass and weeds to get such a start that I had to plow up a considerable portion of them. Got what remained with a corn-knife. They were set full of pods from the surface of the ground to the top. Fed in the straw to hogs, and I do not want a better feed for hogs. Cows and calves in the corral fought with the hogs for the beans. I believe they will be a profitable crop here. My experience tends to show that the late varieties will be much better here than the early. The early ones have to be harvested at a time when other work is pressing and the weather hot. The late ones shade the ground completely and keep down the weeds. My neighbor, Wm. Schworts, of Le Roy, planted the early variety. His did not get large enough to shade the ground; ripened in summer in a rain and shelled out before he could get to them. He says that if he plants any more he will plant the late kind. I see no salvation for hog-raisers except through soy beans. Shorts are high and it is often impossible to get them.

J. L. Senior, WAVERLY. Beans planted in July. Severe hail-storm the last of August absolutely denuded them and left nothing but the bare stalks.

COWLEY COUNTY.

Wm. T. Baird, ARKANSAS CITY. Loam, clay subsoil. Second bottom. Planted with a grain-drill, in rows thirty-six inches apart. Cultivated with a two-horse cultivator having eight shovels. Rabbits made several runways across the field, and the plants were attacked by several swarms of small beetles, which ate all the leaves on the stems in several spots in the field. This beetle also attacked the alfalfa field in the same way. Harvested with a riding plow. More than enough beans were lost by this method to seed the ground. Yield, ten bushels per acre. Corn alongside the soy beans yielded twenty-six bushels per acre. Soy beans are as well adapted to this part of the state as corn, wheat, or oats.

D. L. Means, ARKANSAS CITY. Upland soil. Planted in an orchard, in drills thirty inches apart. Cultivated with a corn-cultivator. Yield, six bushels per acre. The soy bean is all right. I will plant fifteen or twenty acres in orchard ground this year.

S. G. Philips, ARKANSAS CITY. Light, sandy loam. Planted with a grain-drill, cultivated the same as for corn, and hoed once. Too dry at the time of maturity. Cut with a knife attached to the shank of the cultivator. Cured in shocks. Yield, thirteen bushels per acre. Fed whole to hogs of all ages, with very satisfactory results. Their culture and harvesting interfere with the care and culture of wheat, so they are not likely to be raised extensively here, although they are a decided success as a drought-resisting crop and as a part of a balanced ration.

W. J. Stewart, ARKANSAS CITY. Black, as good land as there is in the county. Furrows broken out with a one-horse single shovel, and beans planted

with a one-horse drill. Cultivated with a six-shovel cultivator, using trough instead of fenders. Cut the plants with an old sulky plow and raked with a hay-rake. Thrashed 124 bushels from four acres—thirty-one bushels per acre.

G. H. Wilson, KELLOGG. Black loam. Planted with a press-drill, in rows thirty inches apart. Cultivated three times, with a five-toothed cultivator. The beans grew very thrifty. Two weeks before time to harvest hot winds set in and stopped their growth, and the leaves fell off. Cut with a mower, raked, and stacked. Not thrashed yet. I believe soy beans are a good crop for our part of the state, as they will stand more drought than corn.

CRAWFORD COUNTY.

Alex. Roese, MCCUNE. Soy beans were not a success with me, but I think it was my fault. I would rather not say for or against them.

Chas. A. Holzer, GIRARD. Black loam. Planted with a drill. Cultivated twice, with a two-horse cultivator, and hoed once. Rabbits injured the beans. Cut with a knife attached to cultivator shanks. Yield, sixteen bushels per acre. I shall never fail to plant soy beans hereafter. My stock all like them; in fact, will leave their grain if I give them bean hay. I thrashed my early planted ones and those I plowed after my oats were harvested. I cut and cured them and put in the barn. Fed to my dairy cows. I wish I had enough to last until grass comes.

T. C. Pierce, WALNUT. Planted June 16, as a catch-crop, after flax had failed. Planted with a corn-planter, using bean plate. Harrowed and then cultivated three times, with a two-horse corn-cultivator. Grew three feet high, and podded well. Not being familiar with the plant, did not harvest until the beans got too ripe. Cut with a mowing-machine, and lost a large per cent. of the crop. Am confident if I had cut at the proper time the yield would have been twenty bushels per acre. Soy beans do well here and are a sure crop. Will be a profitable crop when we can get some good machine at reasonable cost to harvest them.

Phillip F. Schulz, WALNUT. Planted twenty acres. Season was unfavorable, and crab-grass and weeds got a start before we could work the beans. Cut with a mower, and left one-third on the ground. Bunched and stacked. Thrashed five bushels per acre. I grind with oats and corn, and feed the mixture with silage to my milch cows.

DECATUR COUNTY.

P. F. Johnson, OBERLIN. High upland. Listed very shallow. Went over the ground once with a two-row weed-cutter and harrowed twice. Jack-rabbits ate about one acre out of the four planted. Hail-storm June 14 destroyed the whole field: not over fifty plants survived. I had a good stand and beans were growing nicely, although the spring was very dry. I am encouraged to believe that soy beans can be successfully grown in this county, and shall plant again this spring.

DICKINSON COUNTY.

H. W. Ashcraft, MANCHESTER. Planted with grain-drill and cultivated with a six-shovel cultivator. Rabbits ate one end of the field down so it did not produce beans. Tried a knife on cultivator, but as this did not work hoed by hand. Yield, four bushels per acre. Soy beans is one of the best drought-re-

sisting crops that we have. They blossom and produce seed through the extreme drought, and the ground is left in excellent condition after the beans are harvested.

A. D. Blanchett, HERINGTON. Soy beans not a success with me last year. Planted too late and was too busy to cultivate them. Not thrashed and do not know the yield.

E. E. Chronister, ABILENE. Dark loam. Planted with a grain-drill and cultivated with a six-shovel cultivator. Beans injured by dry weather, and in spots denuded of leaves and a web spun over them. Beans mowed on account of wet weather. Yield, eight bushels per acre. All right for this section.

A. J. Conklin, SOLOMON. Soil quite sandy. Planted in drills, very shallow, with a hoe, about June 1. Cultivated with a four-shoveled corn-cultivator, and hoed once. Pulled by hand. Yield, fifteen bushels per acre. The chinch-bugs ran through them from the wheat, but never stopped to taste. Planted another patch out in the field away from the house, and the jack-rabbits ate all the plants. We cannot raise them here unless we can do away with the rabbits. If it were not for the rabbits, I am satisfied that soy beans would do well on our sandy soil.

A. H. Diehl, CHAPMAN. Black soil. Planted with a lister run two inches deep. Harrowed twice and cultivated once. Rabbits ate one-fourth acre. Harvested every way; cut most of them with a subsoil plow, one or two inches deep, as near as we could keep them, but sometimes it would get too deep and the rake would not gather them. Tried breaking plow, but it was no good. We had nine acres and cut them all and raked them the same day, but did not pile, and that night it rained and the sun the next day did a good job thrashing them. The rows were wet. Those left standing were all shelled and were no good, and we could not pile them for several days. The ground in them was wet, and we had a hard job on our hands. At last we finished them and they dried nicely. Hauled and stacked, and thrashed in a few days. Saved nine bushels per acre, and think we lost as many more. Soy beans are all right. Will use a bean harvester this season. Had a good increase in milk from what I fed this winter.

S. Goldsmith, ACME. Thin upland. Drilled with grain-drill, in rows thirty inches apart. Cultivated with a two-horse cultivator. Hot winds and rabbits damaged the crop badly. Harvested with a sharp plow and threw in piles with forks. Yield, four bushels per acre. I believe in ordinary seasons soy beans will be one of the most profitable crops for dairymen. Cows are fond of the beans and are eating the vines.

Alex. Martin, MANCHESTER. Clay upland. Planted with a two-horse corn-planter, drill attachment. Cultivated the same as corn four times and hoed once. Dry weather at time of blooming and maturing shortened the crop. Kafir-corn planted the same day and given the same cultivation made only ten bushels per acre. Yield of beans, four bushels per acre. They had no rain after they were five inches high. I think the farmers ought to plant a few acres of soy beans, as the ground would be left in first-class condition for fall wheat.

Chas. H. Robertson, SOLOMON. Good upland. Planted with a corn-planter and cultivated the same as corn. Hoed twice. Left two weeks in the shock and much of the seed shattered off. Saved six bushels per acre. They are a fine feed for horses. Have not fed them to other stock.

J. A. Shriner, RHINEHARDT. Upland soil. Three acres planted to sorghum and Kafir-corn. Chinch-bugs destroyed these, and the last of June planted soy

beans with a grain-drill, in rows thirty-two inches apart. Beans came up well. Cultivated twice and hoed once. July 5 and 6 planted three acres more, plowing the ground. These were cultivated once. Cut with knives attached to cultivator. Yield, six bushels per acre. Considering time of planting, care, and drought, I am well satisfied.

DONIPHAN COUNTY.

Gustave Koehler, TROY. I have raised the soy bean for years, and find it not a paying crop.

P. K. Symns, ATCHISON. Clay soil, west slope. Planted with a grain-drill. Cultivated twice, with a one-horse cultivator. Hay season came on and the beans were neglected. The beans were planted alongside of the pasture, and the grasshoppers ate the four outside rows. Pulled by hand. Harvested when too ripe, and many lost from shattering. Saved fourteen bushels per acre. The beans can be made a successful crop in our county if put in after the heavy spring rain has fallen and given the necessary attention. I do not know how our occasionally wet falls will affect the beans. I think they would have a tendency to cause them to rot; but this fall was a wet one, and there were but few rotten beans.

DOUGLAS COUNTY.

G. J. Bahnmaier, LECOMPTON. Obtained a good stand. Plants destroyed by hail-storm.

E. C. Cowles, SIBLEY. Sandy loam, upland. Planted with a wheat-drill, in rows thirty inches apart. Cultivated with a one-horse cultivator. Grasshoppers injured them some. Cut with a mower and raked. Yield, ten bushels per acre. Beans are good if you want milk. My stock likes the fodder after thrashing, if fed only a little at a time.

H. C. Jay, LONE STAR. Light limestone soil. Planted with a grain-drill, in rows thirty-two inches apart: one-half bushel per acre. Level culture with small shovels and hoed once. Beans injured by wet weather, by sprouting and shelling. Cut with a mower. Saved five bushels per acre. Think I lost two-thirds of the crop by not getting them thrashed before the rains came. I think they are a profitable crop to raise to feed milch cows.

J. W. Kelley, CENTROPOLIS. Black prairie. Planted June 4 with a corn-lister drill and cultivated twice, with a five-toothed cultivator. Cut with a mowing-machine and stacked. Wasted badly in harvesting them. After shocking the beans rain set in and kept them wet for some time. But beyond the beans getting a little soft no damage was done, as the beans came out with good color and in good condition. Yield, twelve bushels per acre. Soy beans will be a profitable crop for this section of the state, as the yield can probably be made twenty-five or thirty bushels per acre. My stand was light.

B. J. McBride, EUDORA. Marked out the ground with a shovel, and seed planted with the drill part of a lister. Cultivated with a spring-toothed cultivator. Pulled by hand. Estimated yield, twenty bushels per acre. I know of nothing better for hogs. The best feed to feed with corn that I ever tried. We fed in the straw. The only thing in the way of raising soy beans is the harvesting, and I will raise them on a small scale only until a better way to harvest is found. I also planted four acres in the fall, after the wheat was cut. I plowed

the ground as soon as I could get the wheat off and planted the beans July 4. They grew very nicely and matured in good season. These beans were much nicer than the early planted ones—that is, they were plump and full.

Enos Reed, EUDORA. Upland. Drilled with corn-planter June 11. Cultivated with a cultivator having small shovels. Stand poor on account of too deep planting. Cut with a mowing-machine. Cocked as soon as they were wilted slightly. After standing three or four days put them into the barn. Yield, fifteen bushels per acre. The yield would have been twenty bushels per acre if I had secured a good stand. I think soy beans fill a long-felt want of the hog-raiser, the cattle-feeder, and the dairyman.

William Roe, VINLAND. Second bottom. Planted with a two-horse corn-planter, splitting the rows, making them twenty-one inches apart. Cultivated with a one-horse harrow twice. Mowed and raked into windrows for hay before the beans got ripe. Am feeding the hay to sheep and hogs with good results. Shall make my rows thirty inches apart next time. I like soy beans.

H. H. Townsend, HESPER. Sandy gumbo. Ordered of a prominent seedsman Early Yellow, and they sent me a very late variety. Planted with a two-horse corn-planter, in rows forty inches apart. Cultivated as for corn. Rabbits ate a few on the ends of the rows. Cut with a mowing-machine and a scythe. Not thrashed. Beans did not pod until September 1. Some were cut when full, but not ripe, about October 5. Some ripened later, about November 1. Nothing but an unusually long season enabled any to ripen. I fed some to cows. They ate all eagerly, down to the hard stubs. An occasional plant of the early variety ripened early and impressed me favorably. I could furnish several bushels for seed, but would advise against this variety, and think seed houses should be restrained from selling the late varieties, except with a clear understanding of the variety on the part of the purchaser.

A. W. Wade, WORDEN. Listed shallow; cultivated with a cultivator and hoed. A bug ate holes in the beans. Beans pulled. Yield, twelve bushels per acre. I do not think they are a paying crop.

Cyrus Willford, APPANOOSE. Upland prairie soil. Planted with a two-horse corn-planter, in drills. Cultivated with a disk cultivator. It is not a good implement, as it ridges the ground too much. Rabbits ate the plants from the time they came up until the beans were nearly ripe. Cut with a scythe. Yield, six bushels per acre. The beans are a good milk-producer, but I do not know whether they will be a profitable crop or not.

C. C. Waters, WELLSVILLE. Planted with a drill corn-planter, in rows thirty-two inches apart. Cultivated with a riding cultivator, three times. Cut with a self-rake reaper, which missed some. Cured in cocks. Left through a number of rains, and wasted some in hauling to thrashing-machine. Yield, nine bushels per acre. I will plant twenty acres the coming season. A feeding experiment with hogs seemed to indicate great things.

A. T. Wilson, BALDWIN. Black limestone soil; black gumbo subsoil. Planted with a two-horse corn-planter, and of course got the rows too far apart. Three cultivations with two-horse cultivator and hoed once. Injured by wet weather in fore part of season. Cut with a mower. Let them lay in swath five days, raked into windrows. and stacked. Yield, ten bushels per acre. Commenced feeding them to my cows the 1st of January; noticed an increase in milk yield of one-half to one pound per day per cow. But while my herd made an

average test of 6.4 in December they only tested 6.2 in January. Don't pretend to say what was the cause.

Alfred Wuensch, EUDORA. Light loam. Planted with a drill, in rows thirty-four inches apart. Cultivated three times with a small shovel cultivator. Cut with a mower that made much waste. Yield, twenty bushels per acre. Well pleased with my success, and shall plant more this year. I recommend the culture of soy beans to the farmers of this county. Fed the beans ground, with good satisfaction.

EDWARDS COUNTY.

H. P. Alexander, KINSLEY. BIack-loam upland. Planted with a disk grain-drill, in rows thirty inches apart. Cultivated with a one-horse cultivator. Jack-rabbits kept several rows eaten to the ground, and the severe drought contributed to an almost total failure. One-half the vines bore pods, and some few contained beans. I did not harvest them, and there was no yield.

W. C. Dunicker, OFFERLE. Planted with a wheat-drill; one-half in rows so they could be cultivated, and one-half drilled through every hole. The rabbits took them.

S. J. Frost, LEWIS. Sandy soil. Planted with a one-horse wheat-drill, using two outside hoes, and setting drill to plant one and one-fourth bushels of wheat per acre. I put the beans two inches apart in the rows. I think that shallow listing would have given better yield. Cultivated three times with a cultivator. Rabbits injured the beans, eating some of them to the earth. Pulled by hand. Yield, twelve bushels per acre. I think it will pay well to raise them here.

H. J. Gifford, HAVILAND. I have planted the Little Yellow soy bean on a small scale for the past seven years—principally as a coffee substitute. I usually prepare the land by plowing and harrowing. Plant them in rows three and one-half feet apart, ten inches apart in the row. Cultivate the same as for corn. Planted about May 1. I think the soy bean insect-proof; also I never saw it hot or dry enough to cause it to wilt. The soil light sand. I think it is a good crop for this part of Kansas.

K. Schwarz, OFFERLE. Planted with a drill, in rows thirty inches apart, beans three to four inches apart in the rows. Cultivated five times, with a little shovel cultivator. Dry weather destroyed the beans.

W. F. Snyder, OFFERLE. Upland. Planted with a drill and cultivated with a two-horse cultivator. Rabbits held institutes in the patch when they first came up, and the grasshoppers had a camp-meeting about the time they began to blossom. I am not certain that the 'hoppers ate the blossoms, but I think they did. Not more than one plant out of twenty had any beans on. The pigs took care of the crop. They might do better this year than they did last; but I won't try again.

ELLIS COUNTY.

B. P. Replogle, HAYS. Sandy loam. Planted with a wheat-drill, in rows thirty-two inches apart. Cultivated with a two-horse, spring-toothed cultivator. Grasshoppers and potato-bugs ate nearly all the stalks. Those that matured were gathered by hand.

FRANKLIN COUNTY.

H. M. Bainer, PLEASANT HILL. Black loam, not extra good. Raised soy beans three years. Planted the first year with a one-horse drill, in rows three feet apart; second and third years with corn-planter, in rows three feet apart. Cultivated the same as corn. Cattle broke into shocks after gathered and wasted some of them. Cut with a mower and raked with a sulky rake. Yield first year, twenty bushels per acre; second year, nine bushels: third year, six bushels. Third year too wet. Soy beans are an excellent crop for this section of Kansas. They enrich the soil, and are an excellent feed for cows and hogs, both as grain and hay. Planted some for hay last year, Cut them just as the beans were beginning to fill, and got about two tons per acre of hay almost equal to alfalfa. Our cows gave considerable more milk while the hay lasted than they did on clover hay. The beans were sown broadcast about June 1. Are going to put out more this year for hay.

W. C. Bass, OTTAWA. Well-worn and well-manured sandy upland. Planted in rows twenty-eight inches apart with disk drill. Followed drill with a smoothing harrow, and cultivated four times with one-horse garden cultivator. Wet weather injured the beans after cutting and stacking. Cut with a mower, ninety days after planting. Yield, fifteen and one-half bushels per acre. If they will yield, as I think—from eleven to fourteen bushels on worn soils—feed that will take the place of bran and oil-meal, that we are obliged to otherwise buy or do without, they certainly must be a benefit to us, because they are the only crop that we can profitably and frequently take from such soils. In three months I fed them to hogs. I believe them to be all you claimed for them last year.

W. A. Boys, RICHTER. Planted with a wheat-drill; cultivated twice with a corn-cultivator. The rabbits and grasshoppers injured the plants some along the edges. Cut with a home-made sled, having slanting knives bolted at the outside lower edge, or the runners. Raked in windrows. Kept in cocks until cured, and then stacked. Stacks covered with Kafir-corn fodder. Yield, ten bushels per acre. Soy beans are a valuable crop for this section. They do well on light land. Make an excellent rotation crop and are invaluable in securing a balanced ration. All kinds of stock like them.

A. E. Clark, PLEASANT HILL. Planted with a corn-planter and cultivated with a corn-cultivator. Cut with mowing-machine and raked. Let them get too ripe before harvesting and lost about half the crop from shattering. Saved seven bushels per acre. There is money in soy beans for the farmer who knows how to raise and feed them.

C. I. Fleming, RICHTER. Thin upland, where corn would not yield more than fifteen bushels per acre. Planted with a corn-planter, in rows thirty-four inches apart. Cultivated with a cultivator having "eagle claws." Cut with a mower. Let them get too ripe, and many shelled off. Thrashed five bushels per acre. The pigs were turned on the field after the beans were harvested, and picked up every bean that had been shelled off. The soy beans are a good crop here, and a great hog feed.

A. B. Gardner, HOMEWOOD. Flat, ashy soil. Planted with a wheat-drill. Cultivated with a common four-shovel corn-cultivator. Injured first by wet weather, then by drought. Cut with a knife fastened to a cultivator frame. Think well of the beans.

W. S. Hanna, RICHTER. Sandy bottom. Planted with a grain-drill. In four days the plants were up, and in seven days came a flood and destroyed the entire planting. Replanted July 14—never cultivated. Beans grew well, and developed two-thirds of the crop. Cattle preferred them above all other feed. Soy beans are the thing to raise, and save buying oil-meal. They have come to stay.

G. H. Merrill & Bros., RANTOUL. Planted with a grain-drill, in rows twenty-eight inches apart. Cultivated with a spring-tooth cultivator, taking off the outside shovel of each gang. Rabbits ate a few of the young plants around the edges of the field, but not enough to amount to anything. Cut with a reaper, but this wasted much of the beans. Thrashed twelve bushels per acre. Probably wasted two bushels per acre. We like soy beans very much as a feed for hogs. When a small quantity is mixed with the corn and fed to the cows we can notice a marked increase in the flow of milk. We are undecided as to whether it is a profitable crop to raise or not, on account of the small yield and difficulty of harvesting.

H. H. Shomber, HOMEWOOD. Sandy loam, clover sod. Drilled with a corn-planter. Cultivated the same as corn. Rabbits destroyed some of the plants. Stalks full of pods from bottom to top. Pulled the stalks by hand. Estimated yield, ten to twenty bushels per acre. Fed to cattle and to hogs without thrashing. Soy beans do well in this locality, and I expect to plant on a larger scale the coming season.

Henry F. Tede, RANTOUL. Limestone upland, that would grow about forty bushels of corn per acre. Planted with a one-horse drill, in rows three feet apart. Cultivated the same as corn. Cut with a hoe and put in piles. Yield, eleven bushels per acre. A few planted in sod made a perfect stand and grew well.

W. W. Warren, RICHTER. Light, sandy loam. Drilled with a corn-planter, but did not get them half thick enough, and rows too far apart. Cultivated with a corn-cultivator. Crop injured by drought. Cut with a mower, which lost great quantities. Saved six bushels per acre. If I could have saved all, would have had twelve to fourteen bushels per acre. For this part of Kansas soy beans are a very profitable crop. They are relished by all farm animals and poultry. For pigs and poultry I find it pays to feed whole. Soy beans are the right thing to fill out in case of a late start, as they may be planted previous to July 1.

Wave Rhoades, WELLSVILLE. Light, sandy soil. Late variety of soy beans. Drilled with a corn-planter. Kafir-corn plates. Cultivated the same as corn. Rabbits ate an acre clean. Cut with a mowing-machine. Yield, twelve bushels per acre. Think early soy beans are all right, but the late ones do not mature well before frost.

GEARY COUNTY.

P. H. Gfeller, ALIDA. Planted according to directions given in Bulletin No. 92. Cultivated with a Campbell Jr. cultivator. Jack-rabbits took two acres. Knives attached to cultivator shank would not work in harvesting them. Made a tool like an ordinary weed-cutter, but this would not work. Finally used an old breaker with mold-board taken off and shear sharp. Yield, five bushels per acre.

Chas. A. Streeter, MILFORD. Creek bottom. Planted in rows two feet apart, with a press-drill. Cultivated with a five-toothed cultivator, and hoed once. Beans injured by drought. Gathered with a knife attached to cultivator. Yield, eight bushels per acre. Have not made up my mind as to the profit or loss of raising soy beans.

GOVE COUNTY.

R. H. Samson, QUINTER. Our beans had no chance. The grasshoppers took them as they were coming up. Not even a single stalk grew on the entire piece; they were a total failure.

GREENWOOD COUNTY.

C. J. Hafey, EUREKA. Black loam. Planted with a grain-drill, thirty inches apart. Cultivated with a two-horse cultivator and finished with a five-toothed cultivator. Rabbits injured the plants on the outside of the field. Cut with a mower and raked with a sulky rake. Not thrashed yet. Soy beans are just the thing for this section.

Garth McMillen, PIEDMONT. Planted in drills with corn-planter and cultivated with a corn-cultivator. Cultivated but twice, owing to the rush of work, and they became very grassy. Cut with a mower and raked with a horse-rake which shattered out many. Yield, ten bushels per acre. I think the yield would have been twice as much if the beans had been properly handled. Corn on the average went twenty bushels per acre.

Geo. M. Munger, EUREKA. I tried for two years to grow the crop, with practically a failure both years as a result. In 1898 there were about eight acres planted, and, according to appearance, there was a fair yield. They were cut with a mowing-machine, stacked and thrashed by hand, with the result of an insignificant yield, but I do not remember what it was; probably not more than two or three bushels to the acre. A part of them was planted as corn and cultivated once only, conditions governing, and the other part was planted in the same way, but double-rowed and not cultivated, except that the strong-growing weeds that came in were hoed out. These seemed to be the best yield. The beans were injured by rain while in stack, which makes the test entirely unsatisfactory—all that in 1898. In 1899 we planted forty acres, all double-rowed. The crab-grass was a persistent enemy, and the army-worm did the rest. The crop, such as was left, was mowed, raked, and stacked. Later it was thrashed, but it was done during my absence from home, and, when I examined it, found that there were probably more beans in the straw than in the bin—that is, the work was very poorly done. The yield was trifle—I think we got about one bushel per acre. The crop seems to be promising, but I got discouraged with two failures.

HARPER COUNTY.

J. G. Wenger, HARPER. Planted the last of May, in rows thirty-six inches apart. The seed had probably heated in the sacks, as we secured only one-third of the stand. Cultivated the same as corn. Nothing injured them. We did not know anything about raising soy beans and did not harvest them until they were dead ripe, and consequently lost a good many. We pulled them up by the roots. We had only about two acres and thrashed about eight bushels, but we lost a good many in gathering them. I believe soy beans will do all right in this part of Kansas if they are handled properly, and I expect to plant about eight acres this season.

HARVEY COUNTY.

J. T. Axtell, NEWTON. Second bottom. Planted with a drill corn-planter. Cultivated like corn and hoed once. They stood dry weather better than the ordinary crop. Pulled by hand and shocked. Wasted by wet weather after being harvested. Yield, fifteen bushels per acre. I think they will grow well here, but do not expect they will ever be a popular crop, on account of care in cultivating and trouble in keeping dry after gathering,

A. E. S. Danner, NEWTON. Black soil, slightly gumbo; subsoil yellow clay. Planted with a wheat-drill and cultivated the same as for corn. Beans injured by hail-storm just as they began blooming. Were cut nearly to the ground. Cut with a sixteen-inch walking plow and raked. Yield, five bushels per acre. Soy beans are all right. Easy to raise and easy to put up. I like their feeding qualities. If it had not been for the hail I think they would have yielded as much as last year, which was fifteen bushels per acre.

J. A. Schowalter, HALSTEAD. Good, black, heavy soil, with alkaline subsoil. Planted with a disk drill, cultivated three times, and cut out weeds with a hoe. Got only half a stand, and beans injured by part of the field being too wet. Cut with a riding plow, taking rolling cutter and mold-board off. Worked perfectly. Raked, cocked, and stacked. Yield, seven bushels per acre. Not yet decided on the value of soy beans for this section. Will give them a better trial this year.

W. W. White, NEWTON. Planted with a disk drill, in rows thirty-two inches apart. Cultivated with an ordinary corn-cultivator. Wet weather hindered their growth and delayed cultivation. Cut with a mower and stacked. Wet weather rotted one-half or more in the stack. Saved five bushels per acre. I have confidence in them as a Kansas crop. Those raised the year before did exceedingly well.

JEFFERSON COUNTY.

C. G. Cooper, MERIDEN. Soil side-hill, light clay loam. Planted with a one-horse lister drill. Cultivated with a two-horse cultivator and hoed. Rabbits and drought injured the crop. Gathered with knife on cultivator and mowing-machine. Yield, ten bushels per acre. Think they did all right.

Isaac J. Davis, VALLEY FALLS. Listed the same as for corn. Cultivated the same as for corn. Mowed beans when they were about two-thirds matured, and I put them up the same as hay. Am so well pleased with them that I want some more, but will harvest them some other way next time.

Ben Schneider, NORTONVILLE. Drilled with a corn-planter, going twice in a row, planting half a bushel per acre. When the beans first came up, harrowed with a steel-toothed harrow, to break the crust. Cultivated with an ordinary cultivator. Lodged before ripe. Cut with a mower, put in large cocks. Rain rotted them so badly that they could not be thrashed. Estimated yield, twenty bushels per acre. I do not believe that soy beans are a profitable crop in eastern Kansas, because the soil is too rich and we have too much rain at the time they are to be gathered.

David Smith, OSAWKIE. Sandy, upland soil. Listed as for corn. Then filled the furrows nearly full with a harrow and drilled the beans with a corn-drill. Cultivated as for corn. Cut with a knife, but stalks were so hard and dry that much of the crop was left on the ground for the pigs. Fed to pigs unthrashed. This, my first trial of soy beans, was not at all satisfactory.

JACKSON COUNTY.

A. F. Culver, HOYT. Creek valley. Planted with a two-horse planter, going twice in a row. Harrowed after planting. First cultivation with a two-horse cultivator; second and third cultivations, five-toothed cultivator. Knife on cultivator shank would not work. Pulled by hand. Yield, nine bushels per acre. Think one-third lost by shelling. Land adjacent yielded twenty-five bushels of corn per acre. Hope to get something better to harvest them with; otherwise do not want to raise them. Fair success in feeding to dairy cows.

S. Siegrist, AVOCA. Black upland. Planted with a press-drill, in rows thirty inches apart. Cultivated with a five-toothed cultivator. Gathered by a sled cutter. Yield, fifteen bushels per acre. Season the dryest in twenty years. Soy beans stood the drought better than any other crop. A great deal of corn did not make over fifteen bushels per acre, and some less. It was too dry for Kafir-corn to fill well. I am feeding some ground to fattening cattle, and some whole to hogs, with good results. It keeps hogs loose, and their hair in good condition. Those I planted on July 5, after oats, matured perfectly. The vines were short, but heavily loaded with pods.

JOHNSON COUNTY.

J. C. Beckley, SPRING HILL. Planted in drills, three feet apart. Cultivated with a five-toothed cultivator. Pulled by hand. Yield, fifteen bushels per acre. I think soy beans pay in this section of Kansas if properly handled and cared for.

C. C. Burns, EDGERTON. Planted with a drill planter made of wooden plates with twenty holes, so that it planted close together. Cultivated with a six-shoveled cultivator. Gathered by cutting roots off under the surface with the shear of the plow. Picked them up by hand. Yield, eight bushels per acre. Sheep got around the stacks and ate several bushels, or the yield would have been more. Will be a profitable crop when we get a better way of harvesting them.

Ira E. Campbell, EDGERTON. Upland, slightly sandy. Planted with a drill corn-planter, using check plates. Cultivated with a two-horse, spring-toothed cultivator. Rabbits commenced pasturing them when the second leaves came on. Some shot well applied morning and evening proved to be a good remedy. Cut with a scythe. Yield, fifteen bushels per acre. Soy beans are all right for this section of Kansas. Had my beans ground, and fed with good results.

E. E. Chase, MERRIAM. Clay hills. Drilled in rows thirty inches apart. Cultivated with a five-toothed cultivator. Injured by dry weather. Cut with a mowing-machine. Yield, seven bushels per acre. Soy beans can be made to raise as good a crop in Johnson county as anywhere in the state, but I think wherever cow peas can be grown that it will not pay to raise soy beans, for they will yield as much or more per acre, and the hay, after the peas have been thrashed out, is almost as good as alfalfa.

J. B. Dickson. EDGERTON. Upland, clay subsoil. Planted with a corn-planter, using smallest plate and planter made as narrow as possible. Cultivated the same as corn; weeds cut out with a hoe. Injured in small spots by rabbits. Cut with a riding plow, taking mold-board off and leaving shear very sharp. Cut just under the surface. Gathered with a rake. Yield, twelve and one-

half bushels per acre. Soy beans are a success, and place the farmer and dairyman where he is not at the mercy of the oil trust.

A. B. Dille, jr., EDGERTON. A rather stiff alkali; in some places the hard-pan was pretty close to the top. Planted with a corn-planter, drill attachment. I got only half a stand. Cultivated with an ordinary corn-cultivator. Pulled by hand. Yield, nine bushels per acre. I believe they are the farmer's friend in this section. In a fairly good year, on average soil, they can be made to produce eighteen bushels per acre. I planted a small lot which had been in a hog pasture for some time. They grew above my waist, with seed-pods from the ground to the very top.

J. W. Gleason, OLATHE. Planted with a grain-drill, in rows three feet apart. Harrowed before the beans came up. Cultivated twice, with two-horse corn-cultivator having "eagle claws." Cut weeds out with a hoe. Cut with a mower. Yield, twenty-one bushels per acre. I think the soy bean can be successfully grown in my section. They are no harder to cultivate than potatoes, and if the work is properly done the ground is left in excellent condition for wheat without any additional preparation.

W. P. Goode, LENEXA. Black loam; very rich soil. Planted with a wheat-drill. The drill planted in too deep, and I did not get a crop. The beans are a great crop for this part of Kansas.

Geo. E. Luce, OLATHE. Ground marked off in rows thirty inches apart, and beans planted with a corn-drill having a plate properly drilled. Cultivated with one-horse, five-toothed cultivator. Rabbits ate a few around the edges when the beans first came up. Cut with a mower. Cured in small cocks. Yield, fifteen and one-half bushels per acre.

J. W. Smith, EDGERTON. Drilled with a corn-planter, in rows three feet eight inches apart. Cultivated twice, with an eight-shoveled cultivator. Cut with a sulky plow run about one inch under ground. Gathered by hand. Field in corn year before yielded thirteen and one-half bushels per acre; field in pasture for four years previous yielded eleven and one-half bushels per acre. They would be all right if we had a better way to harvest them.

F. E. Uhl, GARDNER. Black soil, three acres, not well drained. Planted with a wheat-drill, letting three spouts run. Harrowed crosswise just before coming up, and cultivated three times with a cultivator. Slightly injured by rabbits. Cut with a self-rake; lay on the ground three or four weeks, and then stacked. Yield, twelve bushels per acre. Eastern Kansas is liable to have wet weather any time of the year, and any grain crop cut with a binder or reaper may suffer loss any year. One is never sure of a crop until it is harvested and in the bin. This is more true of soy beans than of any other grain. If the ground be miry when the beans are ripe harvesting will be a difficult matter. If the beans be cut and a wet season catches them, the alternate rain and sunshine will cause the beans to shatter badly. If stacked they should be well covered. In wet weather the beans can be saved and dried better by placing the bunches on the stubble ridge. The crop for eastern Kansas should be planted so as to ripen and be harvested at a time when rains are least likely to occur, or be planted when hogs can clean the field after harvesting. We have plenty of moisture to insure a crop; keeping the weeds down and harvesting are danger points. Their greatest utility with us will be in planting as a catch-crop, to supplant hay for hog pasture, and, on a small scale, for seed.

KEARNY COUNTY.

F. R. French, LAKIN. We had one effort made in this county to grow soy beans. Professor Georgeson sent me some beans, and I put them in the hands of a practical farmer, but the grasshoppers were rustlers that year, and the experiment was a failure. But, really, in this alfalfa region, the average farmer believes that he has a feed that is unexcelled, and he is not disposed to devote his time looking for anything else just now.

KINGMAN COUNTY.

O. M. Brown, KINGMAN. Sandy loam. Had corn listed on the ground intended for beans. Covered up the corn with the cultivator, and planted the beans in the furrows with a one-horse drill. Harrowed once and cultivated twice. Rabbits ate off one end of the patch. Cut with a sod plow and thrown into piles. Yield, eight bushels per acre. Soy beans are all right for this country. They stood the drought well.

A. J. French, PENALOSA. Light, sandy soil. Drilled by hand, in rows thirty inches apart. Cultivated with a one-horse cultivator. Variety, small black. Plants grew fifteen to twenty inches high, when the severe drought of July and August burned them to death. I did not get any seed back. I think the soy beans will do well here in any ordinary season.

E. L. Greenleaf, KINGMAN. Second bottom. Planted with a corn-planter, drill attachment, in rows twenty-four inches apart. Planted one-half bushel Kansas grown Early Yellow and ten bushels bought in St. Louis for Early Yellow. The crop from Kansas seed matured, with a very fair crop. I did not thrash them. The others made a much ranker growth, and were green until killed by frost. Only a few beans, and these did not mature.

KIOWA COUNTY.

S. G. Howard, BELVIDERE. Several years ago we tried to raise soy beans, planting on both light and red sandy soils, but owing to drought and a small insect, apparently similar to the bean-weevil, the attempt was a failure.

LABETTE COUNTY.

A. E. Bartlett, CHETOPA. Sowed soy beans broadcast on very poor land. Sowed with end-gate seeder, on ground prepared for millet. In the whole patch there were a few little spots that drowned out, but the most part was a fine stand and made lots of feed. I sowed a very late kind, as furnishing more fodder. I also turned under one very heavy crop of about three acres in the middle of a piece of ground I had ready for oats, as I wanted to see the results. Would have planted some so they could be cultivated, but the expense occurring here (owing to the crab-grass being so thick a crop has to be hoed twice), and I did not think it would pay.

Arthur E. Bartlett, CHETOPA. The rabbits started on the ends of the rows and ate up every plant. I shall try them in the middle of the field next time.

D. L. Beale, MONTANA. Planted with a corn-planter. Cultivated with a corn-cultivator. Cut with a corn-knife and thrown in piles. Wet weather in-

jured them after they were cut. Yield, ten bushels per acre. I think they are one of the best crops known for this part of the state.

G. J. Coleman, MOUND VALLEY. Clay loam. Planted with a wheat-drill, in rows twenty-four inches apart. One-half acre planted with a lister, rows three feet apart. Cultivated the same as for corn. Cut those surface-planted with a mower, and pulled the listed beans by hand. Fed in the straw, and all kinds of stock appeared to like them.

Levi Correll, PARSONS. Poor stand on account of poor seed. Cultivated with a two-horse cultivator that had four small shovels on a side. Cut with a mower. Yield, five bushels per acre. Fed to milch cows, and the flow increased one-fifth while feeding beans. Disgusted with small yield.

Joseph H. Davis, MOUND VALLEY. Dark loam. Planted with a corn-planter, and cultivated the same as corn. Cut with a mower. Yield, unknown. I think soy beans are a good thing for this part of Kansas to build up the soil, and a sure crop.

Robt. J. Hart, EDNA. Planted June 5 with a grain drill, in rows thirty-two inches apart. Cultivated with surface plows. Rabbits injured the beans a little near the hedge, and the hedge injured the growth of several rows. Cut with a mower, raked, and stacked. Did not thrash. At first cattle would not touch them, but after they acquired the taste for them ate them greedily, stems and all, except the coarsest. We find a decided improvement in the taste of the milk, besides increasing the yield.

Geo. Hildredth, ALTAMONT. Planted with a grain-drill, in rows three feet apart. Cultivated three times, with a common cultivator. Rabbits ate about one-third of the planting. Cut with a mower and raked with a hayrake. Yield, nine bushels per acre. Cut too early; could have left them longer with profit.

D. A. Jones, MONTANA. Light gray soil. Planted with a two-horse corn-planter, dropping a bean every six inches. Cultivated with a two-horse "eagle-claw" cultivator. Beans damaged some while young by rabbits. Cut the beans by hand with a corn-knife and threw them in piles. Yield, twelve bushels per acre. The soy bean will do well on our soil.

M. E. King, ALTAMONT. Gray land that will produce forty bushels of corn per acre in an ordinary year. Planted with a corn-drill, in rows thirty inches apart. Cultivated with a small-shoveled cultivator. Rabbits, potato-bugs and web-worms injured the beans. Cut with a mower. Yield, eight bushels per acre; two years ago, ten bushels. So far with us they seem to have been a failure, as the yield has been too small. I incline to the opinion that the fault has been, to some extent at least, in the variety that we have planted. Will try other varieties this year.

J. W. Morain, MOUND VALLEY. Sandy soil. Drilled with an ordinary corn-planter. Cultivated with a cultivator having small shovels. Cut with mowing machine. Put in shocks and let stand. Excessive rains rotted them badly and did not thrash. Estimated yield, fifteen bushels per acre. Have been feeding them in the straw and find that our stock does well while eating them.

C. K. Ryan, ANGOLA. Planted in rows thirty-five inches apart, with a grain-drill. Cultivated twice with "eagle-claw" gang cultivator. Rabbits were bad. Cut with a mower. Planted May 1. Harvested August 1. Yield, seventeen bushels per acre. I think they are a profitable crop if properly handled.

H. W. Savage, MOUND VALLEY. Medium upland. Planted with a press-drill, three rows at a time. Cultivated twice, with a five-toothed cultivator. Cut with a mower. Thrashed only part of the crop. Estimated yield, twelve to fifteen bushels per acre. Fed quite a lot without thrashing to hogs. They did well.

LEAVENWORTH COUNTY.

J. P. Carr, BASEHOR. Planted in rows thirty-two inches apart. Cultivated when small, twice with Planet Jr. cultivator, then twice with a two-horse cultivator, and twice with Planet Jr. Beans injured by dry weather. Cut with mower, raked in windrows, and gathered on a wagon. Yield, twenty-two bushels per acre. A profitable crop for this section of Kansas. Am feeding whole beans to hogs and bean meal to milch cows, and find it profitable. Beans good feed for laying hens.

J. M. Gilman, LEAVENWORTH. Dropped partly by hand and partly with corn-drill. Cultivated twice. Some were planted too close to a hedge, and dried up. Pulled by hand. Have not thrashed yet. Think favorably of the beans so far as I can see.

R. M. Petherbridge, JARBALO. Planted June 26, with a one-horse drill. Only one-fourth of the seed grew. Cultivated four times, with a cultivator. Pulled by hand. Yield, six bushels per acre. Soy beans raised in large quantities will pay.

LINCOLN COUNTY.

W. H. Howell, BEVERLY. Ordinary upland. Planted with a disk corn-drill. Cultivated three times, with a two-horse cultivator; cut out a few weeds with a hoe. Injured by hot winds just as they were ripening. It was very hot and dry through August. There were three days of hot winds that seemed to dry the beans up. Yield, eight bushels per acre. I think they will make a good crop for us. Not bothered by insects.

LINN COUNTY.

N. J. Conrad, CADMUS. Planted with a two-horse corn-planter, going twice in a row. Cultivated just like corn. Rabbits injured the beans. Cut with a mower. Estimated yield, fifteen bushels per acre. Calves and pigs are eating them in the straw. The soy beans are all right.

J. W. Tucker, PLEASANTON. Light clay. Planted with a corn-planter, three to four beans to the foot. Cultivated the same as for corn. Rabbits ate one-half of the plants. Yield, one bushel per acre. Seed used was shriveled, and the poor stand secured cut down the yield. Have raised soy beans previously for three years, each year with satisfactory results. Every kind of animal eats them. We feed ours to poultry, and think it a great egg producer.

LOGAN COUNTY.

G. W. Vinall, OAKLEY. The beans came up nicely, but just as fast as one would stick its head above ground there was a jack-rabbit waiting for it. The rabbits swarmed in like a flock of sheep and ate every plant up. I do not think much of the soy beans for this part of Kansas, unless you find some way to kill the rabbits. One thousand have been killed since the snow (ten days), but we never missed them.

LYON COUNTY.

Hugh Brown, NEOSHO RAPIDS. Creek bottom. Listed and harrowed the land, planting with lister attachment. Cultivated with a common cultivator and hoed. Beans injured by hot weather and rabbits. Cut them with a hoe and gathered with a hayrake. Have not thrashed. They will grow all right, but do not amount to anything after they do grow.

Carl L. Howe, EMPORIA. Upland; had been used for a hog lot, and was quite sticky and run together. Planted with a grain-drill, in rows three feet apart: drill set for one and one-half bushels of wheat. Cultivated with a five-toothed cultivator. Did well, and formed pods and seeds right along through the hot and dry weather. Pulled by hand. Yield, fifteen bushels per acre. Have raised soy beans four or five seasans, and found it very hard to keep them clean, the crab-grass being the worst weed to contend with. Between weeds and poor seed they have not done me any good.

John H. Husband, SAFFORDVILLE. Upland. Planted with a grain-drill, letting every third hole run. Cultivated twice, with a one-horse cultivator. Jack-rabbits entirely destroyed one corner and injured the whole patch. Cut with a weed sled, raked, and stacked. They got too ripe before harvesting and many shattered out. Yield, seven bushels per acre. We can raise soy beans successfully in this vicinity, but think it would be a good plan for our county commissioners to offer a bounty on jack-rabbits' scalps.

F. W. Lyon, ADMIRE. Rich, black loam, with sticky, impervious subsoil. Ground listed to corn: failed to get a stand, and harrowed the ridges down nearly level, then drilled the beans into the furrows. Drill did not put the beans nearly thick enough, and a heavy rain prevented many from coming up. Harrowed and cultivated. Stand so poor that beans were not worth hoeing, and crab-grass grew thick in the row. Will try again.

G. W. Parkman, EMPORIA. Upland. Planted with a drill corn-planter: plates too small for size of beans and only one-fourth stand secured. Cultivated like corn. Nothing injured the beans. Yield, three bushels. I am sure soy beans are all right for this section of Kansas, and will plant twenty acres this year.

G. Plumb Proeger, EMPORIA. Planted only a small patch, on upland soil. Cultivated with a five-toothed cultivator. Grew well. Yield, twelve bushels per acre. Soy beans do well here.

J. P. Sterbenz, OLPE. Planted May 1, in drills, with a corn-planter. Cultivated twice with a disk cultivator and once with shovel cultivator. Beans injured somewhat by an insect boring through the pods. Pulled the beans by hand. Yield, thirteen bushels from one-fourth acre. Planted both early and late beans. Both varieties will produce well, but the late variety must be planted earlier.

A. P. Walstrom, OSAGE CITY. Planted with a corn-planter. Cultivated the same as corn. Pulled by hand. Not thrashed yet. I think they will do well here after we learn how to plant and handle them.

G. W. Warren, BUSHONG. Very thin soil (four inches) underlaid with gumbo. Planted June 10 with corn-planter, drill attachment, Cultivated as for corn. Rabbits ate half an acre close to the timber. Pulled the beans. Yield per acre, seven bushels. The soy bean will be a profitable crop in this part of Kansas when the people learn how to plant and harvest them. I planted on poor land last year to see what they would do.

FIG. 1. Early Yellow Soy Bean.

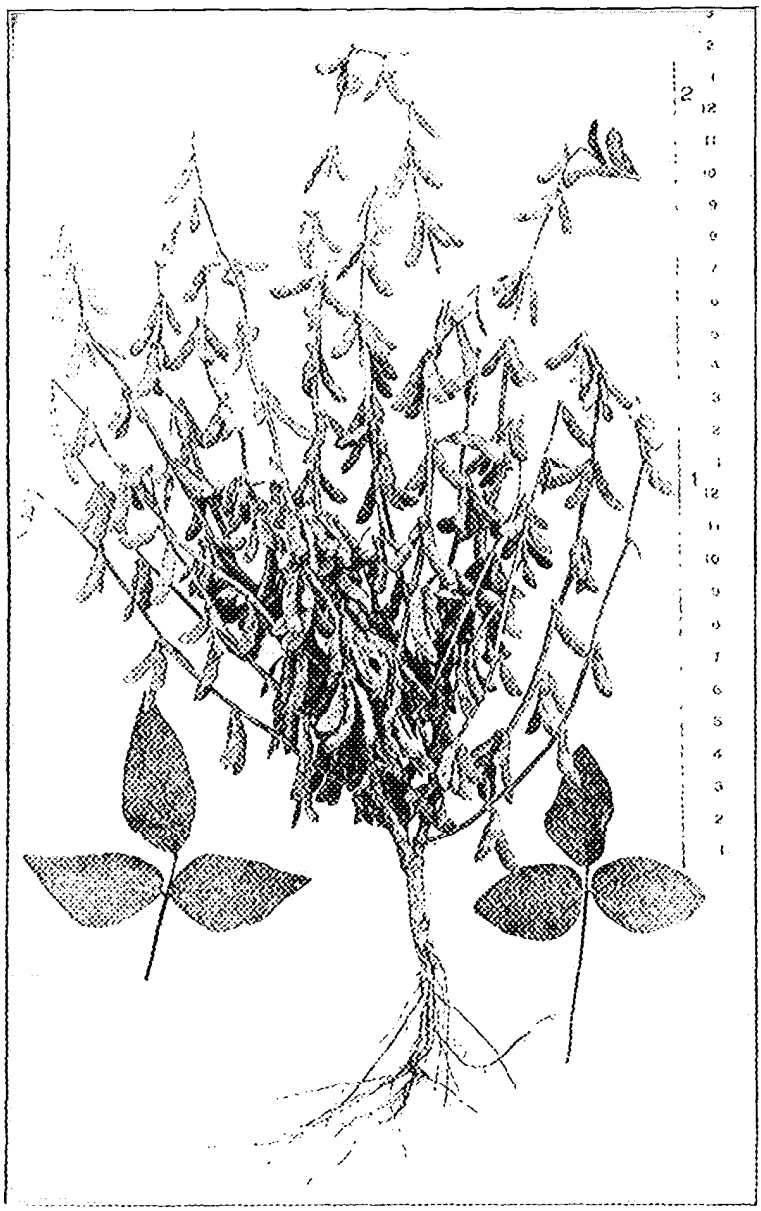


FIG. 2. Early Yellow Soy Bean. Leaves removed to show pods.

FIG. 3. Brooks Early Soy Bean (Henderson).

FIG. 4. Early Yellow Soy Beans in the field.

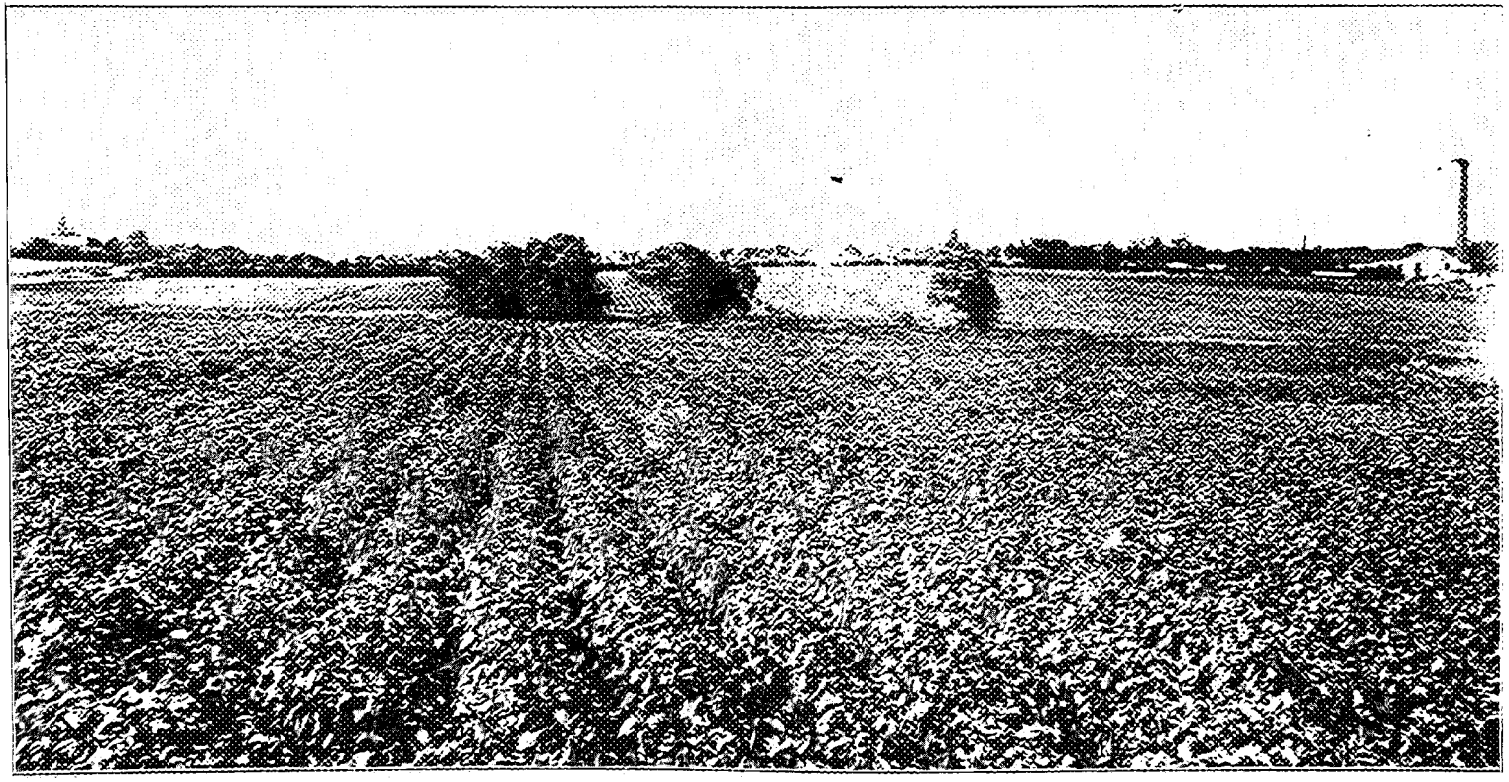


FIG. 5. Sixteen acres of Early Yellow Soy Beans.

MARION COUNTY.

Edwards Butts, CRESWELL. Loose loam with stiff clay subsoil. Planted in rows thirty inches apart, with a drill. Harrowed once and cultivated three times. Eaten more or less by rabbits. Mowed and fed to cattle. Probable yield, five bushels per acre. The crab-grass grew among them abundantly, and they required too much hard work with the hoe to be a profitable crop.

J. H. Winkley, AULNE. Rich, black loam. Planted with a grain-drill, with three holes open. Cultivated with a five-toothed cultivator. Injured by water standing on them. Cut with a mower and raked. Yield, ten bushels per acre.

MARSHALL COUNTY.

John Bain, MARYSVILLE. Good upland. Planted with a press-drill, thirty-two inches apart. Cultivated with a common riding cultivator. Cut with a mower. Did not thrash. Estimate yield, ten bushels per acres. Two years ago yield fifteen bushels per acre. Think the soy beans pay well when we consider their value for feed for milch cows and hogs.

J. S. Chapin, OKETO. High bottom, stiff clay subsoil. Listed in rows three feet apart. Given one cultivation with a cultivator. About one-fourth destroyed by rabbits. Beans shattered off badly before being gathered. Saved ten bushels per acre. A good crop can be raised in this section if properly handled.

H. H. Drake, BEATTIE. Black loam. Planted with a corn-planter. Cultivated the same as corn. Jack-rabbits kept a large patch down to the ground all summer. Cut with a mowing-machine, the method wasting many. Let lay in windrows too long, and many shattered out. Estimated yield, fifteen bushels per acre. Ten bushels will make a paying crop, as they are most excellent feed. The green, growing beans are much relished by little pigs. Will plant ten acres the coming season, and put the rows twice as close.

J. A. Morrow, BLUE RAPIDS. Clay loam, second bottom. Planted with a corn-drill and cultivated with a two-horse cultivator. Cut with a mowing-machine. Wet weather set in and spoiled the crop for thrashing. Fed them in the straw to hogs and chickens. The beans are all right for feed. Have raised them in a small way for four or five years, but have had only one paying crop. Perhaps I have not given as good care as I should.

Albin Smercheck, BLUE RAPIDS. Good upland loam. Double listed, very shallow second time, leaving ground nearly level. Planted with a combined lister, using shortest drop and largest plate. Cultivated with harrow and corn-cultivator. Beans considerably injured, apparently by worms; about an acre entirely destroyed. Rabbits did some damage. Fed all but an acre to milch cows in connection with sweet corn, green. Cut remainder with fourteen-inch stirring plow, hammered out very thin and kept filed. Shaved the beans off at surface of ground, throwing two rows together at a round; then raked up. Frequent rains prevented thrashing. Finally stacked and fed to pigs. They picked them out clean and with a relish. Alfalfa did much better under same conditions. Shall cast my lot with alfalfa in the future.

John Turnbull, SUMMERFIELD. Planted on upland prairie soil. Put in with a common corn-drill. Cultivated three times, with an ordinary cultivator, and hoed once. Cut them with a sharp hoe. Yield, eleven bushels per acre. The soy beans will do well in this section of Kansas.

McPHERSON COUNTY.

C. D. Johnson, ROXBURY. Sandy loam; second bottom. Planted with hoe-drill, in rows thirty inches apart. Cultivated twice, with a five-toothed cultivator. Hoed once. Injured by hot winds and dry weather in August. Stood the heat and drought in July well. Pulled and piled in shocks August 23, where they stood until January 28, when I thrashed. Yield, twenty bushels per acre. Feeding to milch cows unground, giving each cow one quart with two quarts of corn a day, divided into two feeds; wheat straw and a mixture of Kafir-corn and and sorghum hay for fodder.

A. T. Linderholm, LINDSBORG. Loam soil. Planted with a grain-drill, in rows three feet eight inches apart. Cultivated shallow, with a two-horse cultivator. Cut with scythe and piled. Yield, eight bushels per acre; too small a yield to be profitable.

MIAMI COUNTY.

M. L. Dickson, EDGERTON. Upland. Planted with corn-drill, in rows thirty-six inches apart. Cultivated with an eight-hole corn-cultivator three times, and weeds cut with a hoe. Cut with a mower. Raked, cocked, dried, and stacked. Heavy rains immediately after cutting caused some to sprout and rot. Lost many in harvesting. Saved ten bushels per acre. We have so much faith in the soy bean as a milk producer and a flesh former that we shall continue to raise them. No man that understands the balanced ration will raise stock without the soy bean unless he has alfalfa in abundance. The harvesting is the greatest problem. We expect to invest in machinery made for that purpose.

C. B. Manchester, CHILES. Heavy upland. Planted with a grain-drill, in rows thirty-two inches apart. Cultivated twice with an ordinary cultivator having small shovels. Cut with a self-rake. Yield, fifteen bushels per acre. They are all right for this section.

W. H. Straushbaugh, OSAWATOMIE. Thin, red soil. Drilled with a corn-planter. Cultivated the same as corn, only shallow. Cut with mower, and raked. Yield, nine bushels per acre. The soy bean is all right for this section of Kansas.

L. C. West, SPRING HILL. Upland. Planted with a nine-hole wheat-drill, stopping up all the holes but three. Cultivated with a corn-cultivator, taking off the outside shovels. Injured by rainy weather after they were cut. Cut with a self-rake reaper. Yield, ten bushels per acre. The beans are all right, and I expect to increase the area sown.

M. J. Whitaker, LOUISBURG. Planted with a corn-planter, in rows forty-two inches apart. Cultivated four times with a six-shovel cultivator. Cut with a self-rake reaper. Not thrashed yet. Fed some in straw to hogs with good results. Will broadcast considerable this season for hay.

MITCHELL COUNTY.

C. W. Bemis, CAWKER CITY. Sandy upland soil. Planted with press-drill, in rows thirty-two inches apart. Cultivated twice, and large weeds cut out with a hoe. Grasshoppers came from an adjoining alfalfa field and took about half of the beans. The remainder of the beans did well until they matured, although the season was very dry. Corn planted on the same kind of soil did not make

good fodder. Cut with knives fastened to shank of cultivator. Shocked and stacked. Fed to pigs in the straw. They can be profitably raised in Mitchell county. If, however, alfalfa does well on the same soil, it is the more profitable, because it is cheaper and less trouble, and answers about the same purpose.

Maurice Brown, BLUE HILL. Beans on high ground destroyed by rabbits. Beans on low gully grew well, filled with a mass of pods. Cattle broke in and destroyed them.

MONTGOMERY COUNTY.

Henry Bellairs, CHERRYVALE. Planted with a wheat-drill, in rows thirty-two inches apart. Cultivated the same as corn. Pulled by hand and cut with a corn-knife. Fed in the straw to ewes and lambs. It makes the ewes give lots of milk. I have grown soy beans for four years. Yield is so small and they are so hard to harvest that I doubt if it will pay to raise them.

W. M. Holmes, CHERRYVALE. Planted with a common grain-drill, in rows thirty-two inches apart. Cultivated once and kept the weeds hoed out. Nothing injured them. Yield would have been good, but as I got crippled, could not harvest them. I think the bean will be a success in southern Kansas, and I expect to plant more this year.

H. V. Schlafman, COFFEYVILLE. Soil variable, from dark sandy to poor alkali. Planted with a grain-drill, in rows thirty-two inches apart. Two acres planted the last of April, four acres May 12. Early planting the best. Cultivated twice with a five-toothed cultivator. Rabbits and grasshoppers injured the beans slightly. Dry weather caused the plants to die before the beans matured. Thrashed eighty and one-half bushels from four acres. Am now feeding the unthrashed beans to cows, calves, and hogs. Never had milch cows or calves do so well before. A profitable crop for this section.

J. T. Smith, COFFEYVILLE. Sandy loam and black prairie. Drilled with corn-planter. Cultivated with six-shoveled cultivator. A few eaten by rabbits. Cut with a rod breaking plow, and put in shocks with a fork. Yield, ten bushels per acre. I have used the beans ground with Kafir-corn for feeding milch cows, and I think the combination about the best for young calves raised on skim-milk. I would caution against planting too deep, and find a great improvement in packing the soil on sandy land, securing a better stand, and the beans growing taller and heavier.

Harlen Stevens, COFFEYVILLE. Planted with a one-horse drill, in rows thirty inches apart. They came up well and grew fast, seeming to do as well on poor land as on better. Cultivated with a two-horse corn-cultivator. Cut with a mower, cured, and stacked. Every horse, mule and cow that passed the stack had to have a mouthful. Fed the straw to milch cows, and they preferred it to any other feed, and leave chop for soy beans. Mules eat the straw raveneously. Yield of fodder, one ton per acre. It will not pay to raise soy beans in southeastern Kansas, unless for hay, and then the cost of seed would make the hay too dear compared with prairie or sorghum hay.

MORRIS COUNTY.

A. C. Havens, DWIGHT. The beans came up well and made a good growth. Planted the 1st of June. Cultivated twice, once with spring-toothed and once with disk cultivator. Planted on good bottom land. Grew two and one-half to

three feet high. Rows about forty inches apart. Vines nearly filled the space, and were well set with pods. Had difficulty in harvesting, and after harvest wet weather molded a good many, so were not fit for seed. Did not thrash; stacked them up and am feeding to hogs. Hogs relish them very much. My neighbor planted some on stiff gumbo. They grew well, about a foot to fifteen inches high; podded well. They were allowed to get too ripe before harvesting and were badly thrashed out by hail. But he is well pleased with the result of his trial.

John Holt, WHITE CITY. Stiff clay, some gumbo. Planted with a drill, part thirty-two inches between rows and part twenty-one inches apart. Cultivated as for corn. Rabbits did a very little injury. Cut with a common plow, skimming the surface. Threshed only a few, as the hogs did as well when fed the beans in the straw. Estimated yield, ten bushels per acre. A very short cut to growing protein on the farm, and every farmer should have five to ten acres.

Geo. W. Jenner, DWIGHT. The beans grew well, and the drought had no effect on them. Just as they became ripe a heavy hail-storm shattered them off and I lost the entire crop. They are a good crop for this section of Kansas.

C. H. Willes, SKIDDY. I planted soy beans twice, but could not get a good stand; I think the seed was poor. I will try again this spring.

Marion Smith, DWIGHT. Upland. Double-listed the ground, and planted with a corn-drill geared high. Cultivated as listed corn. Tried harvesting with knives on cultivator, but failed. Used long knives on an ordinary listed-corn sled or weed-cutter. Not thrashed yet. Have fed to fattening hogs, pigs and chickens with good results, and do not intend to be without them until I get plenty of alfalfa.

E. C. Trembly, COMISKEY. Planted with a corn-planter, in drilled rows three feet six inches apart. Harrowed when coming up, and cultivated with a four-shovel cultivator. Dry weather caused the beans to shrivel. Gathered with a mower and raked and cured in small piles. Yield, four or five bushels per acre. Judged from this crop, soy beans are not good for this section.

NEMAHA COUNTY.

William E. Bruce, SABETHA. Planted June 8, with a grain-drill, in rows thirty inches apart. Cultivated with a five-toothed cultivator. Cut with a mowing-machine, which shelled some of the beans. Yield, sixteen bushels per acre. With proper machinery for raising and handling the crop, soy beans ought to be a success. I think they will prove of considerable value to plant between a wheat field and an adjoining corn field to prevent chinch-bugs from going into the corn from the wheat.

Pat Donahue, CENTRALIA. Poor, sandy loam. Planted June 10, with a one-horse corn-drill. Cultivated the same as corn. Slightly injured by hail. Pulled by hand. Estimated yield, twenty bushels per acre. Fed in straw to hogs. They are a fine feed for hogs.

G. E. Hollister, SABETHA. Soil dark, rich loam. Planted with a grain-drill, in rows twenty-four inches apart. Harrowed once, as they were coming through the ground. Cultivated three times with one-horse cultivator. I think this method of planting the best for this section, as the beans fully occupy the ground and keep down the weeds. Hail and cool weather injured the beans somewhat. Cut with a mower, raked into windrows, and bunched, and thrashed from field

as soon as dry. Yield, twelve and one-half bushels per acre. I think the dwarf soy bean is well adapted to this section. I have fed hogs the past two seasons a mixture of beans and have been well pleased with the result. Pork thus produced is far superior in texture and flavor to strictly corn-fed.

G. N. Lowe, KELLY. Thin sandy loam. Planted June 10 with a lister, very shallow. Cultivated with a common cultivator. Jack-rabbits injured the beans slightly. Cut with a knife on cultivator. Not thrashed yet. A good crop for this section. Will plant twenty acres this spring.

William Schaaf, BERN. Upland, with some gravel. Listed very shallow, and planted the beans with a one-horse corn-drill. Rows three and one-half feet apart, beans three inches apart in the row. Harrowed once and cultivated three times. Beans got ripe before I harvested them and one-third of the crop was lost by shelling. Knife attached to cultivator did not work. The only thing I do not like about the beans is harvesting. Thrashed ten bushels per acre. If a farmer has clean ground he can raise beans, but on weedy land he had better keep hands off. I used my beans to fatten hogs, for which I like them very well. My hogs do better since I commenced feeding beans than ever before.

D. Schaaf, BERN. Planted five separate pieces—three broadcast, two drilled, June 2, on rich ground. Those put in broadcast were smothered by weeds. One drilled piece of two acres yielded sixteen bushels per acre, another of four acres did not come up because they were planted too deep. Replanted, and a heavy rain packed the ground and prevented the grain coming through. Cut with a mower and gathered with a rake. Where alfalfa and clover grow it is not profitable to raise soy beans.

Otto C. Weyer, BAILEYVILLE. Rich, black soil. Planted with a drill planter, in rows thirty-two inches apart. Injured by strong wind and heavy flood when they first came up. Cultivated twice. Pulled by hand. Yield, eight bushels per acre from one-fourth of a stand. Just what a dairyman wants in this section of Kansas.

NEOSHO COUNTY.

O. M. Record, THAYER. Beans a total failure in 1900, on account of poor seed. The second year of my planting I did not thrash, but fed them as they grew. About half were broadcast, and I fed the hay once a day to milch cows until January. They made $4.50 each per month during the time the beans lasted.

NESS COUNTY.

J. M. Kendall, RANSOM. Black loam. Planted ten acres. Seed obtained from a seedsman. Not one per cent. of the seed grew. Followed closely the method recommended by the Kansas Experiment Station. A few that sprouted were destroyed by rabbits.

OSAGE COUNTY.

H. C. Burk, BURLINGAME. Black loam. Drilled with a corn-planter, using corn plates with part of the holes stopped. Cultivated three times, with "eagle claws" on cultivator. Cut with a mowing-machine, which wasted a good many. Fed some to hogs, in the straw, and the hogs liked them. Thrashed fourteen bushels per acre, and estimated that if all had been thrashed the yield would have been sixteen bushels per acre.

Charles Coleman, BURLINGAME. Thin, ashy soil, with hard-pan subsoil. Planted with corn-planter; beans one to three inches apart in the rows. Cultivated with fourteen-toothed harrow. Injured by the drought in August. Cut with a mowing-machine. Raked and shocked the same day. Heavy rains set in and spoiled most of the beans. Fed the beans to my hogs, and made as much off the ground as I would if it had been in corn, besides the spoiled beans.

Ed Ellis, CARBONDALE. Drilled with a corn-planter, in June. Cultivated once. Rabbits injured the crop. Cut with a mower. Did not thrash. The soy beans are all right for this section. Raised a good crop the year before, but did not harvest them soon enough and they shelled out on the ground. My brood sows picked them all up, and I never had hogs do better.

C. L. Forbes, AGRICOLA. Reddish clay. Planted June 1, with a drill planter. This made the rows too far apart. Harrowed once and cultivated twice. Cut with a mower and raked. Hail-storm August 18 ripened them up so quickly that many shattered off before the ground became dry enough to cut them. Not thrashed. Soy beans are O. K. Have learned how to handle them.

Peter Jochumson, LYNDON. Planted in three different kinds of soil: good black soil, hard-pan, and red clay. Grew well in all soils. Planted with a corn-planter, using Kafir-corn plates. Cultivated with a common corn-cultivator. Cut with a mowing-machine, because crab-grass was so thick that knives would not work. Yield, ten bushels per acre. The soy bean can be raised successfully in this section of Kansas if properly handled.

H. Meyners, BURLINGAME. Medium good upland. Planted June 10, with a one-horse corn-drill, in rows thirty inches apart, beans one and one-half inches apart in the row. Cultivated with a five-toothed cultivator. Hand pulled. Yield, sixteen bushels per acre. A good crop to plant, and unexcelled for dairy cows. The soil of this section of Kansas is well adapted to soy beans.

R. S. Montgomery, CARBONDALE. Upland. Planted with a horse planter. Cultivated twice, with a five-toothed cultivator. Rabbits nipped them a little. Cut with knives attached to a cultivator. This method is not satisfactory. Yield, six bushels per acre. Many shelled before harvesting.

F. M. Norton, CARBONDALE. Planted with a grain-drill, in rows thirty-two inches apart. Cultivated with a corn-cultivator. Injured by drought, which prematurely ripened them, and by wet weather after harvesting them. Yield, eighteen bushels per acre. I planted in plats here and there on what I called the poorest ground, plowed with the corn ground, and disked just before planting, after the corn was all planted. I stopped cultivating after the beans were well in bloom, fearing it would injure the yield (a great mistake). The season was wet and I had a fine prospect until a severe drought set in, in July or August, which greatly injured all crops. The beans dried suddenly upon the ground and could not be harvested without shelling, except early and late in the day. It finally rained, and it did rain and rain, and a succession of foggy days made it almost impossible to save them. I tried the Miller bean harvester, but a heavy sod had formed by a combination of foxtail, crab-grass and tickle-grass after I stopped cultivating, and the harvester had to cut below this, leaving the beans standing. I tried to rake with the horse-rake, but the sod and mud mixed with the beans. Lost about seventy-five bushels by the drying and wetting continuously and many of the others were damaged. As I look back, viewing all the circumstances, including weather, it seems as if everything I did all through was the

worst that could have been done. Yet I am not discouraged, and shall try this season to profit by experience and turn defeat into victory. I believe it will prove a paying crop here. But last season's struggle is so notorious, and as a neighbor lost all his except what he mowed for hay, it will take considerable to forget the scare.

Niels Peterson, LYNDON. Rich, black soil. Drilled with common corn-planter, medium small plates. Cultivated three times, as for corn. They were too far apart for the best yield. Cut with a mower, raked, and shocked. Injured in the shock by heavy wind-and-rain storm. Yield, fifteen bushels per acre. A good crop for this section.

Soren Peterson, LYNDON. Black soil with clay subsoil. Planted with a one-horse wheat-drill, and cultivated the same as corn. Injured by drought, and, after harvesting, by rain. Cut with a mower. Soy beans are all right for this section of Kansas.

C. B. Urie, CARBONDALE. A total failure on account of heavy rains after harvesting. The beans were cut, piled in small piles and one stack partly up when the first heavy rain came. The beans were soaked so that about one-third were swollen to twice their natural size. Kept turning the piles every day or two during a two weeks' rain—fourteen inches of water. I considered the beans lost and did not gather them. Used some for a windbreak, and the cattle ate them all up, and have been feeding them ever since. Soy beans will not make a success here as they do farther west, where they do not have the crab-grass as bad as here.

M. E. Wilcox, BURLINGAME. Planted June 1, with a two-horse drill planter. When four inches high cultivated with a two-horse cultivator; cut out the weeds when beans were a foot high, and cultivated the second time. Cut with breaking plow, taking off mold-board and keeping shear very sharp. Yield, fourteen bushels per acre. Fed to sheep with splendid results, and fed ground to milch cows, mixing with corn-and-cob meal, increasing the milk. Fed some spoiled ones in the straw to hogs and pigs. They would leave their corn to eat them: never had hogs to do as well. Shall plant more this year.

OSBORNE COUNTY.

B. D. Courter, Downs. Rich, black loam, in cultivation for twenty-seven years. Planted with a press-drill, in rows thirty inches apart. Cultivated twice, with a five-toothed one-horse cultivator. Jack-rabbits ate about two acres, and the beans were injured by drought. Cut with a knife attached to cultivator beam. Some lost by shattering. Yield, six bushels per acre. Soy beans are the thing for our farmers to raise. Kafir-corn did not head out on account of the drought, and corn made only five to six bushels per acre in the same field where beans were raised. Wheat looks better on the ground where beans were raised than it does on the corn ground.

OTTAWA COUNTY.

Grant Dalrymple, VERDI. Sandy loam: bottom land. Planted with a grain-drill, in rows thirty-two inches apart. Cultivated but once, with a pair of knives about eighteen inches long attached to the front shanks of the cultivator. Cut with a common weed-sled having a long knife on each side, cutting two rows at a time. Raked, cured, and stacked. Thrashed forty bushels from four acres,

but it would be difficult to estimate the yield, as eighteen shoats ran to the stack for three months before the beans were thrashed. Soy beans are well adapted to this part of Kansas, as they will produce a crop with less rainfall than any other crop I have ever tried.

PHILLIPS COUNTY.

Jacob Branstine, LONG ISLAND. Sandy loam, on hill. Listed and planted with a corn-drill. Cultivated twice, with a cultivator. Injured by rabbits, grasshoppers, and drought. Gathered by hand. Yield, one bushel per acre. Will try them again. A neighbor had ten acres on low ground that averaged seven bushels per acre.

George Culbertson, LONG ISLAND. Planted with a grain-drill, in rows thirty-two inches apart. Cultivated with a one-horse plow. Injured by drought. Cut with a mower and raked. Yield, seven bushels per acre. The soy bean is the best drought-resisting crop I know of.

William Knowles, KIRWIN. Heavy limestone. Planted with a one-horse corn-planter. Cultivated the same as corn. Worms kept a web around them until they were killed.

F. M. McCormick, SPEED. Beans received late and planted July 28. Not enough moisture at this late date to make them grow. Grasshoppers, rabbits and drought took what plants came up. I will put in five acres this spring.

D. F. Young, LONG ISLAND. Planted June 20 with a corn-planter. Jack-rabbits ate them off as soon as they came through the ground. Believe they are what this country needs to supply deficiency of protein that is found in other feeds. Will plant more next year.

POTTAWATOMIE COUNTY.

J. S. Chambers, ONAGA. Heavy loam, clay subsoil. Listed and planted with a corn-drill June 1. Cultivated the same as corn. Damaged some by rabbits. Harvested with a sulky plow, cutting just below the ground. Have not thrashed yet. Am not ready to state just what I think of them.

W. H. Knitter, WESTMORELAND. Common upland, rather high and level. Drew furrows with a lister. Drilled with a sweet-corn drill, but did not get them thick enough. Cultivated twice, with a common cultivator. Jack-rabbits bothered them a little. Knife on cultivator beam would not work, and pulled them by hand. Yield, twenty bushels per acre. They make the best feed for a hog that I ever raised in my life and are good for cattle.

Corvin J. Reed, ST. CLERE. Clay loam. Listed; planted with a corn-drill. Cultivated with a disk Monitor twice, with a corn-cultivator twice. Beans gathered by sheep. Soy beans do well here.

W. D. Wheat, BRODERICK. Grown on upland which has been in corn for the greater part of twenty four years. Opened ground with a corn-lister, and harrowed, leaving slight troughs, in which beans were planted with a two-horse drill-planter, dropping a bean every inch in the row. Cultivated twice, with a disk cultivator. Racked and shocked, and, when well cured, stacked. Yield, fifteen bushels per acre. Well pleased with the trial, and will plant twenty acres the coming spring. They have come to stay. I find the beans very hardy after

they once get well started. Besides the regular planting, I planted, June 1, a little patch on very hard gumbo or buffalo-wallow, which had never been known to yield an ear of corn. The beans did well on this.

RAWLINS COUNTY.

Henry A. Ohlson, ATWOOD. Planted in rows three feet apart; hills ten to twenty inches apart in the row, and one to three beans in the hill. Plants came up well. Were injured by grasshoppers when they first came up. When the plants were about six inches high, a hail-storm entirely destroyed them.

RENO COUNY.

S. W. Kinnamon, PLEVNA. Light, sandy soil. Double-listed and planted the same as corn. Cultivated with a disk cultivator. I planted two and one-half acres. They came up and started off well, but the rabbits and grasshoppers took all. Not one plant reached maturity. Rabbits ate around the outside, but the grasshoppers did the most damage.

B. T. Lee, HUTCHINSON. Sandy soil. Beans came up strong and vigorous. Were eaten down several times by rabbits, and finally killed.

Eli Nisly, HUTCHINSON. Black loam, little sand. Planted with a press-drill. Cultivated with a corn-cultivator. Badly injured with weeds. Jack-rabbits ate them like sheep. Cut with knives attached to a cultivator. I had five acres planted, but don't think I cut over two and one-half acres. Got about ten bushels last year. I had about three acres and did not get any. I am getting discouraged, but I cannot see why they do not do well here. Would like to see them tried more here, but no one seems to want to take hold.

D. Van Horn, NICKERSON. Planted May 10. Seed came up well. Rabbits destroyed them entirely, not leaving a single plant on two acres two weeks after planting.

E. P. Yust, PEACE CREEK. Sandy soil, rather high. Part planted with a grain-drill and part double-listed. Cultivated with a two-horse cultivator. Grew well at first; severe heat, drought and hot winds almost killed them. My very best did not grow over one and one-half feet high, and the average were one foot high. Not gathered. The season was entirely too unfavorable to pass any opinion on their merits for this county.

REPUBLIC COUNTY.

F. B. Morlan, COURTLAND. Black loam, clay subsoil; second bottom. Ground marked off with a sled, in rows three feet apart, and seeds planted with a corn-drill, using a plate drilled for the purpose. Cultivated three times, with a two-horse cultivator, as shallow as possible, using common, large shovels. Grasshoppers ate everything but stems on eight outside rows. Dry weather and hot winds the latter part of August checked the formation of new pods. Cut with mower, raked, and cured in cock and stacked. Yield, thirteen and one-half bushels per acre. The soy bean has come to stay. The last year it was a better paying crop at one dollar per bushel than either corn or wheat. While perhaps not equal to corn in a good corn year, yet have not tested it fully as to that. This year I expect to plant on early-fall-plowed land, which ought to allow it to do its best; then I will know what it can do under the most favorable circumstances I can give it.

Herbert W. Nafziger, NARKA. Good upland. Planted with a press grain-drill, in rows three feet apart. Harrowed as soon as the beans were up and cultivated with a common cultivator. Weeds cut out with a hoe. Long striped beetle injured the beans in one spot. Harvested with a weed-cutter and raked. Yield, eleven bushels per acre. Yield of corn on same kind of land, twenty-five bushels. Soy beans are a successful crop here, and will increase my area sown.

J. P. Porter, SCANDIA. Sandy loam, upland. Listed shallow and filled the furrows half full with little shovels behind the lister. Then drilled with one-horse drill, eighteen holes in a plate. Harrowed until the furrows were full, then cultivated with two-horse cultivator. Rabbits and dry weather injured the beans. Pulled the beans. Too deep in the ground to gather any other way. Yield, seven bushels per acre. I lost one-half on the ground by letting them get too dry. They do well here.

H. J. Sluttz, BELLEVILLE. Soil upland. Plowed the ground early, harrowed twice, and just before planting disked the ground; then floated it with a plank float. Planted with a wheat-drill, in rows thirty-two inches apart, the indicator on drill set as in putting in oats. Harrowed first, cultivated with a two-horse cultivator, and cut weeds out with a hoe. But one light rain after planting. Injured badly by rabbits. Beans cut with a mower, which left a few pods on the stubs. Yield, twelve bushels per acre. I am well pleased with the soy beans. Stock eat the hulls after thrashing, and everything eats the beans well and thrives on them.

Joseph Stenger, jr., WAYNE. Planted with a drill corn-planter, in rows thirty-eight inches apart, eight inches apart in the row. Planted May 10; ripened latter part of August. Cultivated twice, with a corn plow. Beans injured a little by the slate-colored potato-bug. Pulled by hand. Yield, fifteen bushels per acre. Soy beans are just the thing for some of us who haven't alfalfa land to raise to feed dairy cows and growing stock. But it requires moderately rich land to do the best.

B. F. Surface, NARKA. Planted with a press-drill, in rows three feet apart. Cultivated with a common cultivator and hoed once. Rabbits ate them down badly at the ends of the rows. Cut them with a hoe and fed to hogs without thrashing. Soy beans a good crop to raise in this part of the state, as they stand dry, hot weather well and make a good feed to mix with corn and other feeds.

C. J. Webber, SCANDIA. Planted with a drill, using corn plates. Cultivated three times, as for corn. Sheep would get through the fence and seemed to have a great liking for them. Beans shelled badly. They would pay here if it were not for the trouble in harvesting them. Cattle and hogs ate the straw greedily after thrashing.

RICE COUNTY.

James K. Caldwell, GENESEO. Upland prairie. Double-listed; planted by hand. Harrowed twice and cultivated once. Planted close to a large wheat field. The beans grew well and were just beginning to blossom when I headed the wheat. Jack- and cotton-tail rabbits came out of the wheat, ate the beans to the ground, and kept them eaten down. The crop was a total failure.

H. Hanna, LYONS. Sandy loam. Planted with hand and hoe. Jack-rabbits destroyed the beans. Soy beans are A1 if you can get them.

E. J. Humphries, STERLING. Double-listed, leveled with a cultivator, and drilled with a two-horse grain-drill. Grew vigorously and stood the drought well. Cultivated with a two-horse cultivator and hoed. Grasshoppers attacked the patch and I did not get a bean from the two acres planted.

William Gedhardt, LYONS. Sandy and heavy gumbo. Planted with a grain-drill, in rows thirty-two inches apart. Cultivated three times, with a six-shoveled cultivator. Cutworms injured them at first, and the grasshoppers took all the rest after they began to bloom. Never got a bean.

R. Nodurft, LYONS. Black-loam upland. Planted with a wheat-drill, in rows thirty inches apart. Cultivated with one-horse, twelve-toothed cultivator as soon as the beans came up, then hoed, then cultivated with a common two-horse cultivator. Five weeks of dry weather and one week of hot wind cut the crop short and caused the beans to ripen unevenly. The first beans that ripened shattered out before the last ones were ready to cut. Harvested with a Le Roy bean harvester. Cured and put in the barn. Yield, eight and one-third bushels per acre. The soy bean is the coming crop for central Kansas. I am running one of the Parker creamery skimming stations and find the soy-bean straw worth as much as coal for fuel.

J. W. Noland, RAYMOND. Dark sand loam. Planted with a disk drill, in rows thirty-two inches apart. Cultivated twice, with a six-shoveled cultivator. The beans were planted close to the barn and hens took an acre. Jack-rabbits also worked hard on them. Pulled by hand. Yield small, on account of drought and other injury.

RILEY COUNTY.

A. J. Avery, MILFORD. Creek bottom. Planted with a press-drill, and cultivated with a five-toothed cultivator. Not a drop of rain fell on them from the time they were planted till after they were harvested and then it rained for five weeks. The rain did not seem to injure them much. Yield, six bushels per acre. A bushel to the acre was probably lost in handling during dry weather.

G. E. Avery, MILFORD. Upland, of poor quality. Planted with a grain-drill and cultivated with a fourteen-toothed harrow. Rain injured the beans after they were harvested. Gathered by a sled with knives attached. Did not thrash. I have raised soy beans for the past two years and like them well as a laxative feed. Last year I fed them in an experiment against Standard stock food and other patent stock food, and doubled the gain made by the patent stock food, and fed at the other fellow's expense, because I beat him. I fed four different pens of eighty-pound shoats four different ways and soy beans are ahead. In 1899 I planted soy beans after rye and raised eight and one-half bushels of fine beans per acre. In 1900 I planted independent of any other crop, and would have been pleased with the result if I had been able to have stacked them before the fall rains had set in.

A. E. Oman, WALSBURG. Upland. Planted with a wheat-drill. Cultivated twice, with a common cultivator. Cut with knives put on cultivator. Yield, twelve bushels per acre. Last year was the third season we handled soy beans. In 1898 we had half an acre; in 1899 three and one-half acres were planted; and last season we raised about sixty-five bushels, on five and one-half acres. The average yield for the three seasons has been about twelve bushels, and in each case the crop was put in on upland fields. The beans are a fairly sure crop with us. On land that yielded twelve bushels of soy beans this year, corn would not

have averaged ten bushels. We are well pleased with the beans. They are easily raised on clean land. Hogs fatten well on beans and corn, with an appreciable saving of corn. We intend to increase our acreage, and secure a bean harvester, as the knife arrangement is bothersome.

ROOKS COUNTY.

R. Q. McCandless, NATOMA. Bottom land. Planted June 10 with a press-drill, in rows forty inches apart. Made a fine stand. No rain after they came up for a month, but they stood the drought remarkably. In July the alfalfa worm came from an adjoining alfalfa field, and destroyed all the beans excepting a small corner. These grew twelve to sixteen inches high, and were very full of pods. Pulled, and fed the beans to chickens, turkeys, and pigs. All were very fond of the beans. Alfalfa supplies protein more economically, but should think that on upland, after wheat, soy beans would pay, as they stand drought well.

J. W. Noyce, STOCKTON. Small quantity raised in the garden. Picked by hand. I do not think they will prove very profitable in these parts. Will plant for chicken feed.

RUSH COUNTY.

Frank B. Smith, RUSH CENTER. Soy beans are eaten by the Colorado potato-beetles. Have planted soy beans several years and think they are all right.

RUSSELL COUNTY.

Geo. A. S. O'Brien, LURAY. Second bottom. Listed the same as for corn. Planted with a lister. Cultivated the same as corn, and hoed once. Grasshoppers ate all the blossoms. Two years ago I planted soy beans on my Osborne county farm, and old land that had been cropped twenty to twenty-five years. They grew well and stood the drought well. As soon as the plants began to blossom the grasshoppers ate off every bloom, and the crop was a total failure. The grasshoppers did not hurt the leaves much. Judging from my experience, soy beans are unprofitable here on account of the grasshoppers.

C. E. Tabler, WALDO. Black, rich bottom. Planted the same as corn, in hills. Cultivated the same as corn. The black potato beetle ate the leaves all off; the plants revived and pods set, and the leaves came on again. This delayed the ripening, and frost killed the plants before the beans were ripe. Pastured them off with calves. The soy bean is all right for this country, and I will plant more this year.

SCOTT COUNTY.

W. M. Criss, GRIGSBY. Clay loam. Planted with a wheat-drill. Cultivated with a corn-cultivator. When they were beginning to bloom the grasshoppers took them, eating them down to the ground. I think they would do well here if the grasshoppers would let them alone.

SALINE COUNTY.

F. W. Muench, GYPSUM. Fair upland. Listed, and planted with a one-horse drill. Harrowed once and cultivated once. Injured by jack-rabbits. Pulled by hand. Tried knife on cultivator and plowing shallow, but neither would work. Yield, three bushels per acre. Will give them a thorough trial this year; if not more successful, will drop them. I find them a good protection

against chinch-bugs. I had a strip of ground—eighteen acres—a half mile long between two wheat fields. Wanted to put sorghum in with a drill, but had had great loss the year before on listing sorghum in the same field. Did not lose any this year, as chinch-bugs seemed to get discouraged going across twelve or thirteen rows of listed soy beans without anything to eat.

SEDGWICK COUNTY.

John Hillman, CHENEY. Sandy soil. Planted by hand and cultivated with a hoe. Yield from thirty beans was one-half bushel. A good crop.

S. Kauffman, GODDARD. Black loam. Planted with a wheat-drill, in rows to cultivate. Cultivated as for corn. Rabbits fed on the beans until they got eight inches high. Yield, ten bushels per acre. The rabbits ate many of the plants to the ground and destroyed them. On some plants only the branches were eaten off. If it had not been for the rabbits the yield would have been twenty bushels per acre. Soy beans are all right.

L. D. Kiser, ANDALE. Planted with a press-drill. Cultivated with ordinary corn-cultivator. Cut with a mower. Fed in the straw. Soy beans are a good thing to take the place of alfalfa, or, better still, to make a balanced ration with common grains.

A. M. Reichenberger, ANDALE. Upland soil. Planted in rows thirty-two inches apart, beans two to three inches apart in the row. Injured by the hot, blistering winds of August and by the crab-grass. Cut with a mower. Not thrashed, but estimate yield ten to fifteen bushels per acre. Soy beans would be all right for this section of Kansas if we could get machinery to handle them.

F. L. Tillinghast, CLEARWATER. Planted in drills with the corn-planter. Not one bean to the rod grew. Seed purchased of a seedsman. I suppose it was because they had been sacked too long. I will not bother with them any more unless I can get seed that will grow.

SHAWNEE COUNTY.

J. W. Bigger, NORTH TOPEKA. Planted on creek land that has been in cultivation since Kansas was first settled, and is well worn out. Planted with a grain-drill, in rows three feet apart. Cultivated with small shovels. Dry weather did not allow them to mature, and the beans were injured while in the shock by rain. Gathered by bolting a knife to a cultivator. Yielded ten and a half bushels per acre. I think soy beans can be grown here as soon as we learn how to handle them.

W. J. Carson, TOPEKA. Bottom land. Planted June 10 with a corn-drill, dropping eight to ten inches. First cultivation with weed-cutter, second with cultivator. Pulled by hand. Yield, twenty bushels per acre. They do well.

J. F. Cecil, NORTH TOPEKA. Planted in a young peach orchard, first and second year for the trees. Land, thin upland. Planted with a drill, in rows twenty-four inches apart. Cultivated with a five-toothed cultivator. Cut with mower. Injured by poor land. Being the orchard, and being closely planted, it was difficult to harvest. Great loss in shattering from allowing the beans to thoroughly ripen. Saved five bushels per acre.

Peter Eberhart, TECUMSEH. New land; black soil. Corn-planter, straddling the row, making the rows twenty-one inches apart. Cultivated with five-

toothed cultivator only once. Cut with a mowing-machine. Yield, nineteen bushels per acre.

W. Hanson, TOPEKA. Bottom land. Planted with a corn-drill, dropping eight to ten inches. First cultivated with a weeder, and second with a cultivator. Pulled by hand. Yield, twenty bushels per acre. They do well in this section of Kansas.

M. C. Haywood, TECUMSEH. Soil worn too much to raise corn. Double-listed, listing shallow the second time. The beans seemed to be able to stand considerable punishment both as to cold, wet, dry, and hot weather. Cultivated same as corn. Rabbits took a few plants. Cut by fastening knives to a cultivator. Yield, seven and one-half bushels per acre. Some parts of the field probably went fifteen. I am assured that they will do well in this part of the state.

Ben Kessler, TOPEKA. Cold and wet ground. Planted with a two-horse cultivator, in rows forty inches apart. Cultivated three times, the same as corn. Rabbits injured the beans somewhat when they were three to four inches high. Cut with a plow run one to two inches below the surface. Shocked and stacked. Yield, fifteen bushels per acre.

S. M. Losey, RICHLAND. Planted with a one-horse drill. Cultivated with a double-shovel cultivator. They were a failure.

Henry G. Mosher, TOPEKA. Gumbo bottom. Double-listed for corn and planted beans between the rows. Planted with a two-horse corn-planter, June 20. Cultivated with a common corn-cultivator. Injured some by rabbits. Mowed with a scythe. Yield, seven bushels per acre. Soy beans planted earlier on upland made a larger growth and yield, but did not get them gathered on account of rain. Soy beans do not grow well on bottom, if of a gumbo texture.

Peter Moyer, NORTH TOPEKA. Light, loose soil, with gravel subsoil. Planted in rows thirty-two inches apart, with a one-horse corn-drill. Cultivated with a spring-tooth cultivator, the same as corn and Kafir-corn. In harvesting, removed all shovels from the five-toothed cultivator, attached a ten-inch sweep to right-hand hind shank and another sweep to the middle shank, and straddled the row. Yield, sixteen bushels per acre. They are a good paying crop.

W. D. Witwer, TOPEKA. Upland. Planted with a wheat-drill after corn was planted. Cultivated first with a corn-cultivator, and twice with a seven-tooth cultivator. Hoed twice. They grew well all the time. Lost some in harvesting. Cut with knives. The knives did not work well. Yield, thirteen bushels per acre. They do well here.

SHERIDAN COUNTY.

H. L. Delaplain, MACGRAW. Furrowed the ground off with a shovel, and covered the beans with the same. They came up slowly, for the lack of moisture, and jack-rabbits sat up nights watching them come out. Never permitted one to get over two inches high. I planted them, as a safeguard, in front of the kitchen door, the farthest point not being more than 150 yards from the door. The rabbits wore the dog out, and he soon gave them free run. Planted a few at a distance, where rabbits could not find them. They bore pods quite well, but nearly every pod was found perforated with one to three holes. Do not know what did it. Will try again.

SMITH COUNTY.

R. M. Hammond, PORTIS. Dark loam. Planted June 1 with a disk wheat-drill, in rows thirty-two inches apart. Cultivated once, with a six-shoveled cultivator, going in alternate rows. Came up nicely and grew rapidly until three inches high, when the grasshoppers came down on them by the thousands and ate every stalk on three acres. The grasshoppers were so bad that they ate all the leaves off the trees, and even ate the sunflowers. In the garden patch, surrounded by a netting to keep the chickens out, the grasshoppers could not get in, and soy beans made a good yield. The conditions were the same as in the field, except the 'hoppers. Lost $9.65 on the soy beans, but shall try again this year. They should be planted about May 10, so as to get a good start by July, the month of drought and insects.

STAFFORD COUNTY.

G. O. Learned, STAFFORD. Sandy loam. Planted with a grain-drill, in rows thirty-two inches apart. Cultivated three times, with a spring-toothed cultivator. The grasshoppers ate an acre and a half, the rabbits did some damage, and the beans were seriously injured by drought, growing only six to ten inches high. Pulled by hand. Not thrashed yet. Cannot form much of an opinion of their value, but will try them again.

D. H. Wells, MACKSVILLE. Planted with a wheat-drill, in rows three feet apart. Poor stand secured. Jack-rabbits ate every stalk up clean.

SUMNER COUNTY.

T. C. Breneman, MILAN. Sandy loam. Planted with a disk drill, in rows thirty-two inches apart. Cultivated twice, with a two-horse cultivator having gopher shovels. Last cultivation with five-toothed cultivator. Cut with a hoe and then thrown in piles. Have not thrashed yet, but am sure they will make a good yield. The plants made a vigorous growth through the season and were not injured in any way. I think they will make a very profitable crop to raise in Sumner county, and I shall plant thirty acres this year.

C. F. Hawley, ANSON. Planted with a wheat-drill. Came up well and grew vigorously. In three weeks after they came up there was not a stalk left—all eaten by jack-rabbits. After the plants were killed the rabbits would come around and smell of the stubs.

Charles W. Hitchcock, BELLE PLAINE. Medium to poor upland. Drilled. Cultivated with a two-horse cultivator. Rabbits ate them all. Cow peas were disturbed along side of them.

J. F. Hood, RIVERDALE. Soil part sandy loam and part dark clay. Planted with Dowagiac grain-drill. As soon as the first pair of leaves above the seed leaves appeared, I ran a light, five-toothed cultivator through. Cultivated five times with an eight-shoveled cultivator, with a bent wire on points of inside shovel to permit running close to the row. Cut out the weeds with a hoe. Stalks averaged thirty inches in height, and bore from forty-five to ninety-six pods per stalk. Rabbits ate some of the plants. Cut with a sloping knife bolted to a sled; raked, and cured in small cocks. Yield, twelve bushels per acre. At least three bushels per acre were lost in harvesting and thrashing. The thrashing-machine did not have suitable riddles, and the largest beans were carried over into the

straw pile. I am well satisfied that they are a paying crop in themselves, beside the rich fertilization they give the ground. Wheat planted on this soy-bean ground comes up quicker, has a better stand, and the ground is more vigorous than in the same field where there had been no beans. I screened out the smaller beans, ground them, and fed to six shoats, making a slop of one gallon of corn and Kafir-corn and one quart of soy-bean meal. They improved very fast.

O. S. Russell, ARGONIA. Red, sandy soil. Drilled the beans in, and cultivated them with a disk cultivator. The rabbits commenced on them as soon as they came up, and took them all. If it were not for the rabbits, soy beans would do first rate here; but we will have to give them up while the rabbits are so plentiful.

C. O. Young, BELLE PLAINE. Soil sandy loam underlaid with clay Planted with a hoe-drill, in rows thirty-six inches apart. Cultivated with a corn-cultivator and with a hoe. The beans were eaten by jack-rabbits. I did not harvest them. I am not satisfied with my trial, and cannot say how they are adapted to this section.

THOMAS COUNTY.

E. W. Albright, BREWSTER. Clay ridge. Planted twelve acres with a wheat-drill, in rows thirty inches apart. A good stand secured. Cultivated once, with the same drill used in planting them, taking out the hoes with which I drilled the beans. Grasshoppers found them soon after the first cultivation and destroyed every stalk. In regard to what I think about soy beans for this section of Kansas, I think they are a failure where these pests are bad; otherwise, I still believe they would be a good crop for this part of Kansas.

WABAUNSEE COUNTY.

Franklin Adams, MAPLE HILL. Raised soy beans for two years. Plant with two-horse corn-drill, going twice in a row. Cultivate with corn-cultivator. Hot weather injured the beans. Top pods did not fill out and others were shriveled. Cut with a sulky plow, raked with two-horse sulky rake, bunched, and stacked when dry. Yield, fifteen bushels per acre. I am not prepared to say whether soy beans are a satisfactory crop or not, but find them a splendid crop to prepare land for alfalfa. After taking off beans, harrow ground smooth, sow alfalfa seed, and harrow it in.

J. C. Bolton, PAXICO. Creek bottom. Planted with a grain-drill, in rows thirty-five inches apart. Cultivated the same as corn, using eight-shoveled cultivator for both. Jack-rabbits ate down a small patch. Cut with a blade attached to shank of corn-cultivator. Cured in shocks and stacked. Yield, eighteen bushels per acre. A very valuable crop for this country. They make one of the best crops in a short rotation and are a feed rich in protein, the material that most of our crops lack. They can be got off of the land in the fall in time to sow wheat or alfalfa.

E. L. Cottrell, WABAUNSEE. Upland, gumbo soil. Planted with a corn-drill, in rows thirty-two inches apart. Cultivated as soon as the plants appeared above ground. The first planting of beans was eaten up clean by grasshoppers. They made several attempts to grow, but were entirely destroyed. The late planting never had a drop of rain on them and grew very slowly and uneven. They were entirely destroyed by the pursley worm. The beans tried their hardest to grow; under ordinary circumstances there would have been a good stand, but there

never was a time when you could see a row clear across the field. When one pair of leaves were eaten off another leaf would start, and I have seen several blossoms on a stalk about the height and size of a toothpick that hadn't a sign of a leaf; later I found that these blossoms had produced pods which contained from one to three beans that were about the size of BB shot. I believe that if the beans had been planted earlier we might have had a crop. I do not believe that the soy beans will pay in this section unless used as a catch-crop, as, at present, the cost of handling is too great. But they are the hardiest plant that I ever saw.

H. H. Clothier, VERA. Grown on upland two years in succession. The first year listed the beans, using an eight-hole plate, the same as for corn. The second year listed the ground, and then went over it twice with a disk harrow, almost leveling the ground: planted with a one-horse drill. Like my last method of planting much better than the first, as the cultivation is easier done and the chances for a good stand are much better. Rows thirty-six inches apart. First cultivation with ordinary two-horse cultivator; other cultivation with five-toothed cultivator. The first year the crop was not injured by anything; last year the grasshoppers destroyed about two rods all around the sides of the field, and hot winds did considerable injury. Cut with a sulky plow, which is very satisfactory. The first year the yield was thirteen bushels per acre. Have not thrashed the crop of 1900, but think it better than the first. I think soy beans a profitable crop for this part of Kansas. Last year D. W. Clark, Denison, planted something over two bushels, and thrashed over 100 bushels of fine quality of beans.

John F. Heil, WAMEGO. Bottom land. Planted with a two-horse corn-planter; rows three and one-half feet apart; beans two inches apart in the rows. Cultivated the same as corn. Plants grew over three feet high, rows almost touching, and plants podded from top to bottom. Not affected by drought in the hottest weather. Planted May 15; ripened in July. Cut with a mowing-machine. Hard on the machine and does not get all the pods. Badly injured in the stack by rain. Have fed in the straw. Chickens will not touch them and nothing will eat them until almost starved to it. Beans planted July 15 grew sixteen inches high and ripened all right.

Oliver Lott, PAXICO. Late Yellow soy. Planted June 1. Cultivated with a five-toothed cultivator. Rabbits ate many plants. Cut with a corn-knife and fed to hogs. A good crop for this locality.

H. Saffry, HALIFAX. Eight acres, planted on upland. Planted with disk drill attached to a sulky plow. Grasshoppers nearly took the young beans. Cultivated with a weed-cutter, and when in bloom with a corn-cultivator, running the shovels deep. Harveted with a Griffin weed-cutter, raked, cured in cocks, and stacked. Fed to the hogs in the straw, giving the hogs one-fifth soy beans and four-fifths Kafir-corn, and never had pigs thrive better. Part were thrashed, and yielded seven bushels per acre. Had good success in balancing a ration for the milch cows with the beans.

WASHINGTON COUNTY.

J. J. Achenbach, WASHINGTON. Planted with a shoe-drill, in rows thirty-two inches apart. Cultivated twice with a Planet Jr. cultivator. Knife bolted to a cultivator failed to work on account of the wet weather, and many of the plants pulled by hand. Yield, ten bushels per acre. Last year the yield was fifteen bushels per acre. We think soy beans are the best drought-resisting grain plant grown, and expect to try them for hay this year.

A. M. Dull, WASHINGTON. Upland prairie. Planted with shoe-drill, in rows thirty-two inches apart, two to six inches apart in the row. Cultivated with a five-toothed cultivator. Rabbits worked on them considerably. Fixed a machine with a knife on each side and cut the plants just under the surface. Put in cocks with a fork. Several heavy rains while they were in the cock, and the beans shattered badly. Yield, eight bushels per acre. Soy beans will do well in this section of Kansas.

S. Ericson, CLYDE. Clay soil. Planted with a corn-drill, in rows three feet feet apart. Put in only half thick enough. Cultivated three times, with a two-horse cultivator. Rabbits injured them some. Knife on cultivator would not work, and had to cut them with a mower. Cut when too ripe, and shattered badly. Estimated yield, nine bushels per acre. Fed most of the crop in the straw to hogs. They do well in this section, and will plant more.

A. R. Hoffmann, HADDAM. Planted with a corn-planter having a specially drilled plate. Cultivated three times, with a corn-cultivator. Cut with a knife attached to shank of cultivator; shattered badly. Thrashed twelve bushels per acre. Soy beans are all right.

E. W. McCrone, HADDAM. Planted with a corn-drill, in rows three feet eight inches apart. Cultivated with a five-toothed cultivator. Grew well; plants well filled with pods. Cut with a cultivator having a knife bolted to one of the inside shanks. Yield, ten bushels per acre. I think soy beans are a good crop for this section of Kansas.

WILSON COUNTY.

H. E. Bachelder, FREDONIA. Creek bottom. Planted with a corn-planter, in rows three feet eight inches apart. Cultivated with weeder and then spring-toothed cultivator. Gathered by hand and stacked around stakes. Yield, one and one-half bushels per acre. I believe they are all right to raise, but we need tools especially adapted to the crop.

A. Z. Brown, GUILFORD. Planted with a lister and cultivated with harrow and cultivator. The crop grew nicely and looked fine, but would not wait for me to harvest them. They ripened up very quickly, and being busy in alfalfa hay, did not notice them for a few days. When I went to harvest them found the beans scattered all over the ground. Not a good crop to raise.

S. M. Z. Long, BROOKS. Light upland prairie. Planted with press-drill. Cultivated three times, with one-horse cultivator, and hoed once. Rabbits worked on them badly. Some were destroyed the latter part of the season by wet weather. Cut with a mower, raked, cured in bunches, and stacked. Yield, eighteen bushels per acre. With proper implements to harvest them, they will be a most profitable crop. My crop cost fifty cents per bushel, with a fair rental for the land.

Marion Smith, FREDONIA. Planted with a wheat-drill. Cultivated with one-horse and four-toothed cultivator. Injured by pigs, which were very fond of the young and tender plants. Cut with a mowing-machine, bunched, and thrashed. Shattered terribly. Yield, six bushels per acre.

WOODSON COUNTY.

D. T. Shotts, YATES CENTER. Upland; compact subsoil. Planted with corn-planter, drill attachment, and cultivated the same as corn. Cut with a mower and raked. Yield, eight bushels per acre. The land I planted to beans would probably produce twenty bushels of corn per acre. I have a favorable opinion of them for this section.

SUMMARY OF TESTS BY KANSAS FARMERS.

Most of the farmers successful in growing soy beans plowed and harrowed the ground as for surface planting of corn. A few listed or double-listed, either listing shallow or else harrowing the furrows nearly full.

The Early Yellow soy gave the best returns in most cases. A few farmers report success with the late varieties, and fully as many more found the late sorts unprofitable. It is possible that late varieties of soy beans may be found to do well in the southern tier of counties.

The favorite method of planting was with a grain-drill, stopping up all the holes but those that put the rows thirty-two inches apart, and dropping single beans two to three inches apart in the row. Corn-planters with drill attachments and one-horse corn-drills were frequently used. Objections are made that corn-planters put the rows too far apart for the best yield.

The best yields were usually secured by planting as soon as corn planting was finished. Several farmers in eastern Kansas report that with them the beans may be planted at any time before July 1. In eastern Kansas, it is probable that in seasons having the ordinary rainfall the beans will be a profitable crop to plant after wheat and oats.

The same cultivation as for corn was usually given. "Eagle-claw" attachments to the ordinary two-horse cultivator and the five-toothed cultivator were frequently used. Level culture is necessary to ease in harvesting.

The season was exceptionally unfavorable. Hot winds and drought from the time of blossoming to maturing cut the crop short, ripened them prematurely, and shriveled the beans. This was immediately followed by heavy and long-continued rains, that injured the beans in shock and stack. The worst pest was rabbits, the injury from them varying from slight to the total destruction of every stalk on eleven acres. In some parts of the state soy beans cannot be profitably grown while the rabbits are so numerous. In many places fields of ten to twenty acres will be profitable, as the rabbits are sufficiently numerous to eat the outside rows only, while small patches planted in the same fields would be entirely destroyed. A few cases report serious injury or total destruction of the planting by grasshoppers, but most of the trials show no injury from these insects. A few reports show injury from other insects.

Most farmers had difficulty in harvesting the beans, and many farmers will abandon the crop after another trial, unless they are able to improve on their present methods of harvesting. Favorable reports were made of harvesting with knives attached to the beams on

cultivators, with mowing-machines, with plows set to cut just under the surface, and with home-made sleds having knives attached. Other farmers report unfavorably in regard to each of these methods. In this connection, it may be mentioned that a regular bean harvester will cut an acre an hour, and the work can be done as easily as cultivating corn. Good harvesters are made by Charles H. Bidwell, Medina, N. Y., and by the Le Roy Plow Company, Le Roy. N. Y.

The yields were from nothing to thirty-one bushels of grain per acre, where the beans were cultivated, and up to two tons of hay per acre, where sown broadcast, the hay being reported as nearly equal to alfalfa and superior to clover. Most of the yields were from twelve to twenty bushels per acre. On the College farm, soy beans yielded 7.4 bushels per acre, alongside of Kafir-corn yielding twenty bushels, and corn a total failure.

Many reports show a failure of seed to grow. Soy beans for seed must be kept in cool, well-ventilated bins, in thin layers. In buying seed, empty the sacks as soon as received, and keep the beans spread out in a dry, cool place, in a thin layer. A grower may send the best of seed, and yet, if it is kept in the sacks until planting time, it will usually heat sufficiently to destroy its growing powers.

Almost every feeding trial was highly favorable. Satisfactory results are reported in feeding soy beans to horses, mules, colts, steers, dairy cows, young stock, calves, sheep, lambs, hogs, chickens and other poultry. Many farmers write that they never fed anything equal to soy beans. A few say that their stock could not be induced to eat either beans or hay. Some of the reports show the beans harvested in the field by cows, calves, and hogs, the entire plant being eaten to the ground. The plants fed green made a palatable food. Many hog-raisers fed the beans in the straw, securing as good results as when thrashed, and reports are given showing satisfactory results from feeding the beans in the straw to all kinds of farm animals. The general opinion seems to be that soy beans are an appetizing feed, producing good growth, increased yield of milk, rapid gain in fattening, and that soy beans keep the coat glossy and the animal in a thrifty, healthy condition. These reports were received from 292 farmers, and came from 75 of the 105 counties of the state. One hundred and thirty-five farmers write that the soy bean is a profitable crop, sixty-eight have a favorable opinion but need further trial, thirty-three report unfavorable, and thirty think the crop a total failure. The others did not express their opinion.

The season was the most unfavorable for growing soy beans but one that we have had in twelve years. The crop was a new one to most of the farmers raising it, and many mistakes were made. Good

results were secured in this poor season, and with a new crop by a majority of farmers who reported, indicating that in an ordinary year most Kansas stock-raisers will find this crop profitable.

SOIL INOCULATION FOR SOY BEANS.

In Bulletin No. 96, published by this Station May. 1900, the fact was noted that Kansas soil does not contain the bacteria which form tubercles on the roots of the soy bean.

The yield of crops of all kinds is increased where they follow soy beans, wheat showing in large fields an increase of five bushels per acre, when following soy beans, over that grown on adjoining land that had not been in beans. This increase is shown where soy beans bearing no tubercles have been grown. Where no tubercles grow on the roots the soy bean does not add fertility to the soil, but simply makes available for other crops the plant-food already in the soil. The soy bean is a strong feeder, and can obtain plant-food from the soil that a weaker plant, like wheat, is unable to secure. Then, when the beans are harvested, their roots decay and the plant-food in them is in such a condition that wheat or other ordinary farm crops can easily use it.

Inoculated soy beans add plant-food to the soil. Nitrogen is one of the most needed elements of plant-food. The reduced yield from our long-cultivated field comes chiefly from the lack in the soil of nitrogen in the form which our field plants can use. Four-fifths of the air is pure nitrogen, but ordinary plants can make no use of it. The bacteria that cause and live in the tubercle on soy-bean roots take this nitrogen from the air and put it in such a condition that our ordinary field plants can use it. In this way inoculated soy beans, while yielding a profitable grain crop, make the soil richer than before the crop was grown. Where the beans do not have tubercles no plant-food is added to the soil, but that already there is made available for the production of larger yields of crops following the soy bean, and in the end the land is made poorer.

In order to introduce these bacteria in soil where they are absent, soil is taken in which soy beans bearing tubercles on their roots have grown and this soil is planted with soy beans. The soy beans germinate, and the young rootlets immediately come in contact with the bacteria and become infected.

Inoculated soil was sent to twenty-five farmers in the spring of 1900. Reports were received from five farmers, and are given below:

Allen County. WESLEY M. JONES, Moran, Kan. I made a furrow with a cultivator and drilled the dirt and beans together. There were tubercles on the roots of the plants by the time they were three inches high. The beans were about one-fourth larger than those planted alongside without inoculated soil.

Leavenworth County. J. M. GILMAN, Leavenworth, Kan. Marked off with a single-shovel plow, dropped earth in trench by hand, dropped beans on top, and covered by hand with hoe. Frequent examinations showed numerous nodules on every plant examined, and the growth of these beans was somewhat ranker than those planted alongside on soil not inoculated.

Neosho County. O. M. RICORD, Thayer, Kan. The inoculated soil which I received from you last spring did me little good, from the fact that so few beans grew. A row planted thickly, with a liberal supply of inoculated soil, had tubercles on the roots, but the plants were so few that I concluded to send this spring for more soil, and try again.

Pottawatomie County. J. S. CHAMBERS, Onaga, Kan. I distributed about one-half of the soil received from you in the row with a combined lister, using an ordinary corn plate, which caused a constant stream of the soil to fall into the row. Then I followed immediately with a one-horse drill, dropping beans about an inch apart in the row. In using balance of the soil I dropped the beans by hand; then I scattered the inoculated soil by hand along with the beans and covered with the hoe. I examined hundreds of plants where I used the former method and did not find a single tubercle. But where I put the dirt directly on the beans I did not find a plant without lots of tubercles.

Wabaunsee County. H. H. CLOTHIER, Vera, Kan. The dirt that I received from your College was scattered in a row just before drilling in the soy beans. The result obtained was as follows: The roots of the bean-stalks were all more or less full of tubercles and the bacteria spread to an adjoining row on each side, which caused many tubercles to form on some of the roots of beans planted in those rows.

It requires from 1000 to 1200 pounds of inoculated soil for one acre. A trial was made to develop a method of inoculation that would not require so much inoculated earth. Ten pounds of inoculated soil and ten pounds of water were thoroughly mixed by stirring together at intervals for half an hour. The dirt was then allowed to settle and the water was poured off. To this water was added one pint of molasses. This gave enough liquid to wet half a bushel of beans. The beans were thoroughly dampened by pouring the sweetened water over them and mixing. The wet beans were placed in a burlap bag and allowed to drain. They were then spread out and dried for planting. In a previous experiment using the same method but omitting the molasses, inoculation was a failure, as the bacteria would not adhere to the beans. Molasses was added in this experiment with the hope that it would stick to the beans and would hold the bacteria.

A plat was planted without being inoculated, another plat with beans inoculated with this fluid, and a third plat with beans inoculated by planting with infected earth. The plants in the plats not inoculated bore no tubercles, those in the plat inoculated with the liquid bore an average of one tubercle to the plant, and those inocu-

lated by infected earth in the usual way bore an average of one and one-half tubercles to the plant.

CONCLUSION.

Soy beans have been grown on the College farm for twelve years, and during that time have produced feed worth fully as much as corn grown on an equal area of the same kind of land. They stand drought well, and supply cheaply protein, the material necessary in the formation of blood, muscle, and milk. They increase the yield of succeeding crops, and are an excellent crop with which to prepare the soil for alfalfa or wheat. They are not touched by chinch-bugs, but are a favorite feed for rabbits. They are a valuable feed for horses, beef and dairy cattle, calves, hogs, sheep, and poultry, supplying in a home-grown crop protein and mineral matter, the materials in which most Kansas feeds are deficient.

A majority of the 292 who reported growing soy beans in 1900 think them a profitable crop, and this with a new crop, in an unfavorable season.

On Kansas farms where there is a sufficient supply of alfalfa for all the stock, we do not think it will usually pay to grow soy beans. Alfalfa supplies protein and mineral matter at a less cost than soy beans. On most Kansas farms where there is not alfalfa for all the stock, it will pay to raise soy beans. Judging from the experiences of the farmers who raised the beans last year, it is most profitable to plant ten acres or more.

Inoculated soil for soy beans may be obtained in limited quantities of the farm department of this Station at fifty cents for 100 pounds. We advise raising soy beans two years in succession where the soil has been inoculated, in order to make the inoculation thorough and permanent.