SB 205. B3 K3

BEANS

AS A FIELD CROP

IN

KANSAS

18-27055

ISSUED BY

KANSAS STATE HORTICULTURAL SOCIETY

O. F. WHITNEY, Secretary

JANUARY, 1918

KANSAS STATE PRINTING PLANT
W. R. SMITH, STATE PRINTER
TOPEKA. 1918

7-1965

D. of D.
FEB 18 1918

Beans as a Field Crop in Kansas.

THE bean is one of the essential food products of this state and furnishes a very economical food and may be grown in every garden.

Beans have been grown in Kansas ever since the very early days when the homesteader brought with him seed, and also the knowledge that he must provide food for himself and family from his immediate surroundings. Many of those early settlers were ex-soldiers and living witnesses to the fact that beans were an important food product. Beans are easily transported, capable of being cooked in several simple ways, and furnish a palatable and nutritious food. Logically, then, our state should have been a great producer of beans, but as it is we are not listed as a bean-producing state. It is written that there shall be wars and rumors of wars, and when war was declared, that this nation might help win the fight for democracy, our farmers realized that our soldier boys at the front and our allies in this world war must be furnished with proper food. The bean appealed to them as one of the available and quickly produced food crops. The result has been that we produced more beans during the season of 1917 than has ever been previously produced in this state.

We do not advise that one should extensively engage in the business of raising beans without due preparation. The production of beans, like the production of all farm crops, requires some definite knowledge, embracing many details which will only come with actual experience. A small acreage will furnish experience and produce conditions about as well as a larger acreage, and at much less cost in money and muscular energy.

Answers to our inquiries indicate that Pinto was the variety principally planted during the season of 1917, with some of the eastern counties preferring Navy. The drouth-resisting trait of the Pinto appeals to those who fear a dry summer and fall. The Tepary offers a bean well adapted to the semiarid districts, having that peculiar feature to remain inactive during a drouth period and when refreshed by water

to resume its growing and produce a crop with less water than other varieties.

Beans are an economical crop when raised in the garden or field. The bean is a high-scoring article of food in the field of economy and efficiency. Cull beans, or those which are slightly damaged, may be ground and used for stock food, but those fed to swine should be cooked.

The bean is a soil builder, the same as other leguminous plants, and gathers nitrogen and leaves the soil in better condition for the crop which follows.

The answers to our inquiries, directed to some of the men who planted beans during the season of 1917, will show that we may expect a fairly good crop when normal conditions prevail. The replies which we have here recorded are from practical men and give the experience from counties situated in different parts of the state, and include the records of about a thousand acres.

The acreage was too large for best results in several instances, and the parties claimed that the same number of bushels could have been produced from a less number of acres. The tendency to overplant was regretted by several growers. The crop should have intensive cultivation on well-prepared ground rather than indifferent work on a large acreage of poorly prepared ground.

The following information is from Prof. E. C. Mellick, of Colby, Thomas county, Kansas, who produced, harvested and threshed the bean crop from 150 acres. The professor gives his experience in a very complete and direct manner. The details of his operations are as valuable as the important features, and we believe the advice and instruction given by Professor Mellick will be of much assistance to those who intend to plant beans.

PINTO BEANS.

The Pinto bean is a variety of the Mexican bean, having a light buff color for a background, speckled over with dark-brown spots. It has become one of the leading varieties of domestic beans, with a well-developed market.

Soil Needed.

Most any kind of soil will do for growing Pinto beans, but sandy loam is the best.

Preparation of the Soil.

I feel that this is the most essential point in producing Pinto beans. The ground should be in perfect physical condition at the time of planting. The land should be summer fallowed if possible, as this puts the ground in ideal shape for planting, cultivating, and keeping down the weeds. If the land has not been summer fallowed it should be fall plowed or blank listed. Early in the spring the soil should be worked into a firm seed bed, as good, or even better, than for corn or wheat. If fall plowing has not been done, plow as early as possible in the spring, and work the ground into a firm seed bed.

Do Not List for Beans.

Many people have made the mistake of using a lister rather than a surface planter. The surface of the land should be flat rather than ridged, as this will make a great difference at harvest time. If the field is small it does not matter so much how they are planted, as the harvesting will not be such a great task as it is in fields of large acreage.

Time to Plant Pinto Beans.

Beans are a warm-weather plant and cannot stand the slightest frost; therefore the planting should be delayed until all danger of frost is over. This is usually about the 25th of May or the 1st of June.

I began the 25th of May and finished on the 17th of June. Planting should begin as early as possible, as a delay in planting may delay maturity, and an early frost in the fall may injure the crop. It takes at least 90 days for a crop to mature, and if the season is somewhat dry it may take 120 days.

How to Plant Pinto Beans.

If a large acreage is to be planted a bean planter should be used. A two-row corn planter will do, using a regular bean plate. I used a corn planter and had excellent success. Do not plant by using a lister, because it leaves the ground ridged, and it will be almost impossible to get it smooth and level for harvesting the crop. Pinto beans should be planted from 8 inches to 14 inches in rows which are from 30 to 40 inches apart. This will require from 8 to 15 pounds of seed to plant an acre. I planted 13 pounds to the acre and had an excellent stand. Always test the seed for germination before planting,

as many beans are frequently injured by the frost, and consequently will not grow, although they may look to be as good as the others. Beans should be planted about 3 inches deep.

Cultivation.

Most of the cultivation should be done previous to planting. It is necessary to work the ground in the spring enough to insure a firm seed bed; this gets a start of the weeds, which is about all that cultivation is for. It is important, of course, to always stir the ground after a heavy rain in order to form a soil mulch, and thus preserve the moisture. Beans are shallow-rooted plants, and therefore all cultivation should be rather shallow. The first cultivation should be the deepest, something like three inches. This will form a soil mulch, which will probably dry out as deep as you have stirred the soil. This will cause the roots to seek the moist ground beneath, and consequently you can force your plant to become rather deep rooted. At this time the root system has not developed to any great extent and there is not much danger of injuring the roots. The second cultivation should not be as deep as the first one. It is a very good practice to run over them with a spring-tooth harrow after the first cultivation. This can be done without injury to the plants and it will level the ground, give you a soil mulch and make it easier for the second cultivation. Use an ordinary corn cultivator. I suggest that you use a four-shovel cultivator for the first time, and a six-shovel for the second time. This will avoid having the shovels follow in the tracks which were made the first time, and consequently the work will be easier. One must always avoid working in the field when the vines are wet. Cultivation should stop when the vines begin to bloom. Always keep in mind that, if conditions are favorable, there is going to be a harvest by and by, and it behooves one to keep the field clear of weeds, as weeds give all kinds of trouble when you want to use a bean harvester. It may, therefore, pay to go into your field with a hoe, after you have finished cultivation, and destroy all of the stray weeds which have escaped the cultivator. I hoed my entire field of 150 acres in order to have it perfectly free from weeds.

Harvesting the Crop.

If you have a good-sized field to harvest, it is best to buy a bean harvester, which is a simple machine made with two strong knives so arranged that they cut the stalks just under the surface of the ground, and throw two rows together in a windrow. One team is enough to pull it. Some machines have an attachment for bunching the beans as they are cut, but I cannot recommend it. I discarded the one on my machine, as it was of no practical benefit, although it added \$20 to the cost of the machine. I would recommend the older makes which do not have the attachment and cost less money. The beans should be put into small shocks as soon as they are cut.

Small shocks are more economically handled, as larger ones must be torn apart, which shells a large percent of the beans, causing quite a loss. Harvesting should begin when a majority of the pods are yellow, but not dry. A good rule to follow is to examine the beans in the pods, and when the colorings are quite distinct in the majority of them you should begin cutting. The beans which are not fully ripe will ripen in the shock or stack. Some few beans will shrivel, but the loss by shriveling will be less than by shattering. If the field is small the crop may be gathered by pulling the stalks and placing them in a dry place. If a hulling machine is not obtainable at once, the beans should be stacked as soon as they are properly cured. Usually this will be in about ten days after they were shocked. The bottom of the stack should be made of old straw or hay in order to prevent the beans from drawing dampness from the ground. They should be placed in stacks similar to wheat, arranged so as to simplify matters at threshing time. The stacks should be topped out with straw or hay to prevent the rain from damaging the beans.

Threshing the Beans.

Do not thresh them with a wheat-threshing machine, as it will split and crack many of the beans. They should be threshed by a bean huller, or by a wheat thresher which has a special attachment made for the purpose of hulling beans. The Case Company makes such an attachment. A flail may be used to thresh a small amount. A man can thresh about 1,500 pounds of beans in a day with a flail.

Marketing.

Although you may have used the best method of threshing, the beans should be recleaned for the purpose of removing damaged beans and other foreign matter which the thresher failed to take out. They should be marketed in strong new sacks, each sack containing 100 pounds of well-cleaned beans. The Pinto bean has a well-established market, and it is easy to find a ready sale for the beans of standard grade and good quality. The normal price was around 4 cents a pound, but at present they sell as high as 8 or 10 cents a pound.

Bean Straw.

The straw is valuable as roughage for milch cows, having almost the same feeding value as alfalfa. I found it to be much better for milk production than kafir.

Beans in Rotation.

The Pinto bean is a legume and has the same effect on the soil as other legumes, such as alfalfa, clover, cowpeas, etc. It is a splendid crop to precede wheat, as it serves as a cleaning crop and also gathers the much-needed plant food that is required to produce a profitable crop of wheat. It is almost the equivalent of a summer fallow.

Acreage to Plant.

One who has many other duties should not attempt to plant too large an acreage. I suggest the planting of 30 or 40 acres for the average farmer.

The Pinto Bean a Drouth Resister.

By many the Pinto bean is called the "dry-weather bean," because of its drouth-resisting qualities. It seems to have the trait to stand still, as it were, and wait for the moisture to come. When the vines turn a dark-green color it is an indication that they need moisture, and the drier they get the darker they become. A light-green color is an indication of sufficient moisture.

Pests.

The chief pests of the Pinto bean are rabbits, grasshoppers, and various kinds of worms. The grasshoppers can be con-

trolled by scattering poison* around the edge of the field. For worms and rabbits, I know of no remedy.

The Pinto bean may be hailed down very badly and yet make a very good crop. There were several fields in this neighborhood hailed down last summer and they recovered and produced a very good yield.

Dry weather will cause the blossoms to blight and fall, but if cool weather and moisture come soon they will begin to bloom again and will produce a crop of beans, if there is a late fall and other favorable conditions.

Are They Adapted to Kansas?

I feel quite convinced from my experience this year that they are well adapted to Kansas conditions. They must have proper care if good results are to be realized. Many people have made the mistake of expecting results without making proper efforts to get them. They expected the bean to make a crop without any care or cultivation, when as a matter of fact they need more care than other field crops.

Are They Profitable?

This was an extra dry season and my field produced 400 pounds from each of the 150 acres. At 10 cents a pound the crop will return us \$6,000. The total cost of the crop was about \$1,500, leaving a net profit of \$4,500. This return is better by far than the return from other fields in this vicinity which were planted to the usual crops. Under normal conditions I feel sure that a yield of 800 pounds could be expected from each acre. I expect to plant several acres next season.

* POISON BRAN MASH.

	<i>Large quantity.</i>	<i>Small quantity.</i>
Bran	20 pounds.	1 quart.
Paris green	1 pound.	1 teaspoonful.
Syrup	1 to 2 quarts.	2 tablespoonfuls.
Lemons	3	$\frac{1}{2}$
Water	3 $\frac{1}{2}$ gallons.	1 pint.

Mix dry bran and Paris green thoroughly first; then add syrup and lemons, and water enough to make a moist mash. The lemons should be ground fine in a foodchopper. The syrup should be the cheapest strongest-flavored product obtainable. The bran and Paris green may be kept mixed indefinitely if kept dry, but the lemons, syrup and water should be added just before using the mash.

The odor attracts the grasshoppers, army worms and cutworms.

The poisoned bran mash should be spread broadcast in the evening for army worms and cutworms, but in the early morning for grasshoppers.

Sow the poison mash very sparingly in strips from 12 to 16 feet wide across the field, so that a tubful will spread over from 8 to 10 acres. If a second application is necessary, one week after the first, sow the mash in strips running the opposite way. Be sure to sow it thin so that there will be no danger to birds.

The following is the experience of W. J. Rickenbacher, Topeka, Shawnee county, Kansas:

From observation, investigation and practical experience, I am convinced that there are three important factors in raising a successful bean crop in this county:

First: Proper preparation of seed bed.

Second: Proper time of planting.

Third: Care and cultivation.

Fall plowing, as deep as possible, is a good foundation for moisture conservation. When the first weeds appear in the spring, I disk, and then disk and harrow and pack with a Topeka soil packer every ten days until June 15 to June 25. Then I plant in rows 30 inches apart and drop the seed about $4\frac{1}{2}$ inches apart in the row. This will plant about 30 pounds of seed to the acre. If land is rich, well fertilized and inoculated, ten to twenty pounds of seed to the acre would be enough, as the plants will have more and longer runners and will therefore require more room.

The richer the soil the better the crop. While I believe beans will make more money on poor soil than corn will, yet I prefer rich land for best results.

After planting I float the ground with a plank to thoroughly level and pulverize. In ten days, if dry, I cultivate; if wet, I do not. I cultivate shallow every week until the bloom sets on, then cease cultivating. I never cultivate, hoe or walk through the field while the plants are damp with rain or dew, as this will spread anthracnose and other diseases. An entire crop can easily be ruined by several diseases to which beans are subject unless spraying is resorted to. I find the best way to avoid spreading the disease is to keep out of the field while the plants are damp.

First-class Michigan seed will mature in 90 days, and if planted before June 15 will bloom during July when we have our usual hot winds, which will blight the blossom, and unless weather conditions are very favorable the blossoms will not set on again in time to mature a crop before an early frost. I find that late planting also has the advantage of ripening the beans at a time when we usually have a fair spell of weather, which makes harvesting ideal.

As soon as the pods were dry I pulled the plants and placed in piles of about 25 pounds, and in a few days after I found them well cured. I moved them in my barn, intending to hull them in late winter or early spring. This I would not do again, as I lost my crop and barn by fire. Next year I intend hulling the beans in the field with a regular bean huller. I find that the regular wheat and oats threshers will not thresh beans successfully. If I had a small patch I would beat them out with a fork, placing them in a wagon box, and then run them through a fanning mill.

Five successive bean crops will improve the soil to the extent of \$30 an acre in fertility, at the present price of fertilizers. (This is based on reports from state experiment stations and bulletins from the United States Department of Agriculture.)

The following is the experience of bean growers from among our correspondents:

Cloud county is represented in the bean field by Mr. A. B. Stockton, of Concordia, who planted six pounds of Navy bean seed to the acre on a field of 20 acres. The acre yield was 480 pounds, or eight bushels. He will include Pinto in his next planting, and will plant about the 15th of June. He considers the Pinto a better yielder, and it does not discolor as readily as the white one.

Mr. Jules Renard, of Concordia, Cloud county, reports a yield of 480 pounds to the acre of the Pinto variety, and prefers clay land for best results. The date of planting was May 20, at the rate of 16 pounds of seed to the acre. In part he says: "The beans were grown under very adverse weather conditions. The summer of 1917 was very hot and dry. The beans withstood the heat quite well. We had given them up as a failure, when, to our surprise, we gathered 480 pounds to the acre. Plant them in a shallow listed furrow, as you would corn, and cultivate in the same manner. It is very important that there be no weeds allowed to grow and remain in the crop of beans, for it is almost impossible to harvest them if the weeds are allowed to mature with the crop."

Mr. Herman Neitzel, of Concordia, records a failure, but will try it again. He recommends the Pinto for the western half of the state. Will plant about June 1, and says "two good rains will produce a crop of Pintos."

Henry Williams, of Matfield Green, in Chase county, planted $\frac{1}{4}$ acre, using $1\frac{1}{2}$ pounds of seed, and produced 2 bushels of small Navy beans. Will plant again, and the time of planting will depend on the season.

George Nuzum, of White Cloud, Doniphan county, planted 40 pounds of Navy beans on one acre and produced 5 bushels. The cultivation was not difficult. He will plant about July 10, and recommends a poor soil. (Poor soil in Doniphan county might be considered a very good soil in some localities.—ED.) He considers the crop a practical one for food and a profitable one to raise.

J. Mallows, of Sparks, Doniphan county, planted 10 acres, using 11 pounds of Michigan Navy bean seed to the acre, which produced 50 bushels of beans. Mr. Mallows says that he lacked experience in cultivating, and also in harvesting the crop. Under proper conditions it is a practical food crop and when properly harvested it will yield a profit. Would plant about June 20, preferably on clay soil.

S. J. Dutch, of White Cloud, Doniphan county, writes: "I planted 16 pounds of Navy beans on an acre of ground and produced 750 pounds, or $12\frac{1}{2}$ bushels, on land which is too poor to raise an average crop of corn. The planting should be done from the 20th to the 30th of June and the cultivation is not difficult. The crop was sold for 15 cents a pound, and brought \$112.50, which is a good gross return for an acre of land that is not considered good enough for corn." Mr. Dutch closes with: "If it had not rained in August the acre would have yielded more than 20

bushels. The moisture caused the pods to open and much of the crop was wasted because the pods opened and the beans dropped out and were a total loss." He expects to plant five acres of Navy beans in 1918.

Mr. James Kelly, of White Cloud, Doniphan county, planted 6 bushels of Navy beans and Nebraska sand-hill beans on 12 acres; did not cultivate, and harvested 5 bushels from each acre. Prefers to plant on poor, thin ground about June 1 to 15. The crop is both practical and profitable. Mr. Kelly writes: "We planted these beans to help win the war; planted on ground too poor for corn; got 60 bushels, and at half the present prices we could have made a good profit."

Mr. F. J. Sonnenberg, of Highland, Doniphan county, planted 16 acres, using 450 pounds Navy bean seed. He had not threshed at the time of writing, but was not complaining of his prospect. Will plant his next crop from June 20 to July 4. He closes by writing: "I prefer planting Navy beans on thin upland soil, yet it is possible that in a very dry year soil containing more humus would be better than thin upland soil, but under this year's condition thin soil gave better results."

C. F. McDonald, Garden City, Finney county, planted Pinto beans on 60 acres at the rate of 10 pounds to the acre, which yielded 3 bushels to the acre. He does not expect to engage in the business during the season of 1918. He considers the crop profitable when conditions are normal, and a practical one for food.

Mr. G. G. Baker, of Garden City, Finney county, planted 4 $\frac{1}{4}$ acres to Pinto beans and harvested 8 bushels to the acre. He planted 12 pounds of seed to the acre, about June 1. He expects to plant some for 1918. The crop was easy to cultivate, returned some profit, and was an economic food crop, but he is not altogether satisfied. He says, in part: "I planted Navy beans on June 5, just previous to a heavy rain and severe hailstorm, which packed the ground and prevented the beans from coming through the crust, which gave me a poor stand. I finished planting on June 12. The first planting gave better results. I plowed the ground about six inches deep, and ten days later disked, harrowed and listed it in rows 30 inches apart. I cultivated with a corn cultivator. The crop is cheaply cultivated, but expensive to harvest and thresh. I expected to plant 40 acres to beans for 1918, but the government having fixed a price of 7 $\frac{3}{4}$ * cents a pound, which is too low, I shall plant only a few, if any. The grocymen are retailing the same bean at 15 cents a pound, which gives too much profit for the retailer. The grower should be guaranteed 10 cents a pound and a square deal, which would encourage the planting of hundreds of acres."

R. I. Montgomery, Montezuma, Gray county, planted 10 acres with 70 pounds of Pinto bean seed, and harvested about 1,000 pounds. He will plant again for 1918, and prefers black, loamy soil. The yield was light, owing to dry weather. He writes an encouraging letter, and says: "Our bean crop was almost a failure, owing to the dry weather. The very fact that they produced under such abnormal conditions this year con-

* This price is not a permanent one; it may be less and it can be greater.—ED.

vinces us that with a favorable season a profitable crop could be produced. We should do all that we can to encourage the planting of beans, for should the war continue for several years beans will serve a great purpose. They could be made to furnish one-half of the food required by the human family."

Mr. C. C. Mitchell, Montezuma, Gray county, who produced a profitable garden crop, would plant Pinto beans on second-year sod about May 1, and says: "A great number of persons planted Pinto beans for the purpose of aiding in the food drive of the last spring, with varying results. The altitude and the dry climate are not very favorable for best results, but with careful preparation of the soil and proper cultivation, I believe the Pinto bean will produce a profitable crop."

Mrs. T. F. Potts, of Montezuma, Gray county, irrigated 6 rows of beans 50 feet long and produced 65 pounds of shelled beans, as well as some which were used as pod beans. She planted the latter part of April, and Pinto was the variety.

Mr. C. C. Isely, a practical business man of Cimarron, and manager of a lumber and grain company, who has financed several parties in bean growing, writes, in part, as follows: "Last spring we shipped a car of bean seed to Dodge City and distributed it from there, shipping the seed to Sublette, Copeland, Montezuma, Ensign, Cimarron, Ingalls, Charleston, Deerfield, Shallow Water and Utica. We have had the most unfavorable season that one could possibly imagine, and yet we have some very good beans, and a favorable out-turn. We will know how favorable when the threshing is completed. We consider the crop has demonstrated, however, that with proper care it could be profitably grown in this territory. The growers will have to learn how to handle the crop, which can be handled without much work, and can be planted any time until the 10th or 15th of June. To get good results the soil should be kept free from weeds. Fifteen to 18 pounds of seed is required to plant an acre, and can be planted with an ordinary corn drill. The great difficulty was in harvesting the crop, as we had no proper machinery. A bean harvester would n't cost much, and each grower ought to have one. To help in producing the crop I would always insist that the growers avoid putting the seed out on sod, as it is impossible to cultivate and the harvesting is more difficult. We planted Pinto beans, and we hope to see a larger acreage put out next year. We financed quite a number of farmers and will probably repeat the operation for the next crop."

Greeley county produced a bean grower who planted 162 acres of Pinto beans, which averaged about 15 bushels to the acre. Mr. Clem Wilson, of Tribune, who produced this crop says he planted 12 pounds of seed to the acre; that the cultivation was about the same as required for corn. He will plant a crop in 1918, about the 25th of May. The crop was a profitable one, and he thinks it is practical to raise beans. (Planting, cultivating and harvesting the crop from 162 acres would give the operator a vast amount of experience which should be a valuable asset to the possessor.—EDITOR.)

Mr. A. M. Davidson, Tribune, is also some bean raiser. He planted 80 acres to the Pinto bean, using 10 pounds of seed to the acre, and produced 500 pounds of marketable beans to the acre. He plans to produce a crop in 1918, and will plant when the time has passed for late spring frosts. His judgment is that Pinto is the best bean to grow in this section, since the grower has learned to clean, properly grade, and sack this bean, it is quite popular on the market. Mr. Davidson is the pioneer commercial bean grower in his county, and is strong for the business.

Mr. Franklin E. Brooks, of Winona, Logan county, gives the following valuable information. This is from a practical farmer and worthy of close attention:

"I put out 30 acres to beans, using 200 pounds of seed. The crop is difficult to cultivate. I should say that the soil should be well plowed and packed before seeding. If it were lightly harrowed just before seeding it would set the weeds back and give the beans a start. On the upland they failed on account of a lack of moisture in July. We had a great prospect up to July 1. On the lowland, subirrigated, I had in a few rows that would have gone 30 bushels to the acre. I put out the speckled Mexican beans. I prefer a loamy bottom soil, with some sand, in this region. We will put out about 40 acres next season, same variety, and will drill them in about June 1. This variety ought to be a great food. I believe they will become one of our profitable crops, if properly put in, especially during the war period. It seems to me, as a matter of patriotism, that this crop should be put in extensively. I suggest that summer fallowing should be done, and the soil frequently harrowed the season before, to produce the best results in growing beans. Several growers received good results from new breaking."

Beans grew successfully in Lyon county for Mr. D. Rathke, of Olpe, who planted 55 pounds of seed on 4 acres of ground, and threshed about 10 bushels from each acre, which at the price he received was a profitable crop. A part of this crop was black-eyed peas, the balance Pinto beans. He will plant the same acreage and the same varieties of seed for 1918. Light sandy soil is preferred for this crop.

Mr. Buxton, of Buxton & Rutherford, located at Utica, has faith that the bean industry in his locality is worthy of more consideration, even though the 200 acres planted by different people were practical failures. He states that owing to the dry weather there were no beans planted until after the 10th of July and the crop did not materialize. His belief is that an ordinary year would be all right for the production of the bean crop.

The bean crop was a success as grown by Mr. J. W. Lough, of Scott City, in Scott county. He planted 12 pounds of Pinto beans to the acre and harvested about 20 bushels from each acre of a field containing 50 acres. It is easy to cultivate, and he prefers old land. He will plant the same variety some time in June for the crop of 1918. He says: "Beans are hard to beat."

Thomas county, which is the third tier from our west line, centrally located north and south, produced quite an acreage of beans for the season of 1917.

Mr. R. D. Misner, of Mingo, Thomas county, has given some of his experience while raising ten acres of Texas beans. He planted 12 pounds of seed to the acre and harvested a fair crop, and as he had not finished threshing at the time of writing, could not state the exact yield, but it was large enough to encourage him to plan again for a crop in 1918. He writes:

"Bean growing in this locality is an experiment. Wheat, barley and corn are our principal crops, but the very dry season caused almost a total failure of these for the year 1917. Previously I never had any experience with beans, and naturally made quite a number of mistakes which I can remedy to my advantage. I plowed my land, and harrowed to smooth it, then planted with a corn planter. The weather was dry and the ground dried out so badly that only a part of the plants came up at the proper time. Each shower after this time brought up a few more, and when frost came I had ripe beans, and beans in bloom. This you see made a muss of things. I expect to plant 20 to 25 acres for 1918, and may make mistakes, but not the same ones made previously. I shall plow and harrow the ground and put a shovel on a planter in front of the shoe, which will make a small ditch in which to plant the beans. This should cause the beans all to come up at the same time, which will insure a uniform stand as well as being easier to cultivate. Some of my neighbors list, the same as for corn, and do not plow the ground. I will plant the Texas bean again. They are mostly called the Pinto, but I do not believe them to be the same.

"There was no thresher that I could get to thresh my beans, so I spread the beans on the ground and hitched to my packer, which is similar to a roller, only it is made of many little wheels and weighs about one ton. I drove this over the beans, and was surprised to see how rapidly it threshed them. I cleaned them on the fanning mill after making a special sieve for that purpose.

"The beans should be planted with a two-row corn planter or a double-row lister. This will enable one to use a harvesting machine, which is made to fit in between the two rows that are the same distance apart at all times.

"We believe that the colored bean is better than the Navy for this section of the country. Some of the growers prefer sandy soil, but I think any good ordinary soil will do very well. Beans planted alongside the corn made a crop, and the corn was a failure. This convinces me that the bean is a good drouth-resisting crop."

A failure will sometimes teach a valuable lesson. A business firm in Colby planted 120 acres, and it was impossible to get help to do the cultivating, consequently the weeds took the crop. There was planted on the 120 acres, 600 pounds of Pinto bean seed. (We are of the belief that five pounds of seed to the acre is not enough.—EDITOR.)

During the first week of June, Mr. J. H. Jeffries of Colby, planted 60 pounds of Pinto bean seed on 4 acres and harvested 800 pounds. He is satisfied that it is a profitable crop and will plant the same variety again.

Navy beans and cowpeas were grown in a small way by Mrs. E. S. Fox, of Larned. The cowpeas were better yielders, some of the pods having as many as 21 individual peas. The rabbits ate some of them, as also did the chickens. The beans and peas are better off if partially shaded while growing, as the soil gets quite hot. Plant about the middle to the last of June on clay or sandy soil.

This encouraging report was received from Larned, Pawnee county:

"I planted 1 bushel of Pinto bean seed on 3 acres of ground. The crop was difficult to cultivate owing to the very dry weather. I did not irrigate. The quality was good. I harvested about 340 pounds to the acre and received 12 cents a pound for part of the crop. I am of the opinion that Pinto beans are a very profitable crop to raise if properly cultivated. The crop must be thoroughly cleaned for the market. I would advise all who can to raise the Pinto bean, as it is delicious food and is relished by all who have eaten it."—REUBEN BLOUNT.

This is also from Larned, Pawnee county, where Mr. A. L. Stockwell gives his experience in raising two acres of Navy, Mexican Pink and Pinto beans. He planted 20 pounds of seed on 2 acres and harvested about 2 bushels to the acre, with the Pinto giving the best results. Was not profitable and is not a practical crop with him. He writes: "I gave this bean crop the very best attention. The soil was in good shape at planting time and we gave it proper cultivation. The same effort would have produced 30 bushels of kafir or 5 tons of alfalfa to the acre."

Finney county has a very successful and enthusiastic bean grower in Wilson C. Larmor, of Garden City. He writes:

"I am very much interested in the growing of beans in western Kansas, as I believe them to be the best crop in this locality, either as a crop for dry farming or as an irrigated crop.

"This year I planted beans chiefly to find out what could be done. I planted two patches, one of 25 acres on land which could be irrigated, and 20 acres under dry-farming conditions, and I am more than pleased with the results. On the irrigated tract 10 acres were destroyed by high winds blowing the sand, which cut off the young plants soon after they had come through the ground, making this part of the tract a total loss.

"I planted 30 pounds of seed to an acre on the irrigated land and 10 pounds of seed to the acre on dry-farming land. The 20-acre tract consisted of medium heavy soil and yielded about 250 pounds of beans to the acre. Had this been reasonably sandy the yield would have been doubled.

"The irrigated land produced about 900 pounds to the acre; neither crop was hard to cultivate. I planted the Pinto variety, and expect to plant from 100 to 200 acres for the 1918 crop.

"The time to plant is from the 10th to the 15th of June, and the crop will be ready for harvesting from the 10th to the 15th of September, requiring practically 90 days in which to make. The crop should be harvested before the pods are fully dry, and just as the bean begins to get loose in the pod and before the pod begins to shrivel.

"It is quite important to observe this fact, for if the beans get too ripe the pods will open and there will be a loss of from 10 to 15 percent caused by the beans shattering from the pod. It is a very important and practical crop to raise. I am estimating the yield of my crop, and I am conservative in the estimate. Should I realize my expectations the crop will be worth more than the land on which it grew."

Greenwood county furnishes a very successful bean-growing experiment. Mr. W. Soule, of Madison, tells his experience as follows:

"The variety of beans which I planted was Michigan Navy, using 14 pounds of seed to an acre, with an acre yield of 12 bushels, or 720 pounds. The land which was used is some of the best in the Verdigris valley. It was plowed early in the spring and was disked about every two weeks up to the 10th of June, at which time it was marked off with the rows 32 inches apart. The beans were drilled with a one-horse corn drill, which dropped the seed from 6 to 10 inches apart in the rows.

"The most important feature in bean raising, as well as other farm crops, is the proper preparation of the land before planting by thoroughly pulverizing the soil. My bean crop was not seriously damaged by the drouth of last summer, owing to the fact that the ground was finely pulverized and the moisture was conserved by a soil mulch which prevented rapid evaporation."

This is from Montgomery county, where Mr. F. L. Kenoyer has had much experience as a horticulturist.

There were only a few beans grown in this vicinity, and those only for home use. One man raises navy beans very successfully by planting any time between June 15 and July 15, drilled in rows about the same as for corn or potatoes, and cultivates them two or three times.

In a small way there was raised a crop which produced 16 bushels to the acre. Mr. Kenoyer says, "I believe that the Pinto bean will produce a paying crop here on any good soil. It is a drought resister. The summer of 1917 was the driest of our 46 recorded years, yet the Pinto withstood the drought and produced a good crop.

"The cultural methods are quite similar to those which are given to corn. You drill the seed 4 or 5 inches apart in the rows and the rows should not exceed 42 inches in width.

"It will require several years of experimental work to demonstrate whether it will pay to engage in raising them in a commercial way.

"Beans grown in a hot climate are not usually as good in quality as those grown in a cooler climate, for this reason those grown in Northern states and even those grown in Canada are considered to be of better quality. This fact may not hold good in the Pinto bean, as it is a Mexican variety, and should grow to perfection in the South."

CONCLUSIONS.

Conservative conclusions drawn from reports and other sources of information support the belief that it is well to recommend bean planting; because it can be done on each farm and garden in this state, producing, as it does, a nutritious and palatable food, which may be eaten as a fresh vegetable with the pod, or allowed to mature, in which case it will furnish acceptable food for all seasons of the year; because when consumed in the locality where it is produced it does not increase the burden of congested transportation; because it does not require an excessive amount of labor to produce, nor expensive machinery to harvest the crop, which may be shelled by hand in a small way, threshed with a flail, a threshing machine, or a regular bean huller, the manner of threshing depending on the size of the crop.

Persons who intend to enter the field in a commercial way should investigate the possibilities by consulting those who have had practical experience and a knowledge of the details. A large acreage is to be avoided by those of limited experience.

LIBRARY OF CONGRESS

0 022 265 383 6