REPORT OF THE COUNTY AGRICULTURIST FOR 1915

(Continued from last week.)

CO-OPERATIVE TEST OF POTATO VARIETIES.

The growing of seed and table potatoes for the larger markets, especially the Portland and San Francisco markets, has long been considered a plausible undertaking for the farmers of this section by the Agriculturist. Early in the season of 1915 some correspondence was carried on with various seed houses relative to potato varieties suitable to Crook county and the source of seed supply for same. The Portland Seed Company of Portland, Oregon, was interested in the growth and production of six special varieties which they wished to see tried out in a comparative test in Crook county. This Company furnished 10 pounds each of the following varieties for the comparative test: Pride of Multnomah, Producer, Prize Taker, Snow and Earliest of All. The county agriculturist undertook the testing of these varieties on irrigated and dry land respectively in co-operation with Mr. R. D. Mustard of Powell Butte on irrigated and Mr. Peter Pence of Powell Butte, on dry lands. Ten pounds of each variety was planted in test rows by each of the above named men, who are among the most successful growers of potatoes in Crook county.

On the irrigated land Mr. Mustard planted these potatoes in rows of uniform length and on uniform soil. All of the land in the test having been prepared at the same manner and all varieties being planted on the same day and receiving the same attention throughout. This test plot was visited by county agriculturist four times during the growing season and he assisted in the harvesting and the weighing of the crops. The comparative results from the planting of 10 pounds of seed potatoes for each variety were as follows on the irrigated land:

Pride of Multnomah	164 pounds
Prize Taker	272 pounds
Producer	74 pounds
Earliest of All	208 pounds
Snow	192 pounds

On the dry land Mr. Pence gave the same attention as did Mr. Mustard and all varieties were similarly treated. This plot was visited three times during the growing season and the potatoes weighed by the county agriculturist and the following results were obtained from the planting of 10 pounds of each variety:

Pride of Multnomah	165 pounds
Prize Taker	205 pounds
Producer	128 pounds
Earliest of All	175 pounds
Snow	182 pounds

As this seed was obtained late in the planting season and crop planted June 1st and 6th respectively, it was with these six, but the results obtain- with these six, but the results obtained from these six as compared to other varieties in acre yields, and considering lateness of planting, would indicate that all of the varieties tried in this test will give good returns in the field. The Pride of Multnomah, Prize Taker and Earliest of All varieties seem to be favored by the men conducting this test. All of the potatoes produced have been saved by these growers and trials of the varieties will be continued in comparative tests together with other varieties in the season of 1916.

Potato growers are, however, advised to confine themselves to the growing of not more than three varieties generally so that new varieties to become popular, must not only produce well but also be in demand on the market.

REPORT ON SWEET CLOVER IN CROOK COUNTY.

(Crop Demonstration.)

In the study of the soils and the crops of Crook county during the season of 1914 the County Agriculturist observed that one of the greatest needs of practically all of the soils in the county for increasing yields is the humus content of these soils, also in fields along the river bottoms, many spots of varying areas were found so filled with "black alkali" that practically nothing, excepting the plant locally known as "salt grass" would grow on them.

Personal acquaintance with the White Blooming sweet clover plant and its hardiness, adaptability and growth characteristics caused us to consider it seriously as a possible corrective for the soils here mentioned. Through correspondence and through bulletins obtained from the Kansas experiment station, the International Harvester Co., and the U. S. Department of Agriculture, we learned of the value of sweet clover as a pasture and forage crop in other sections of the United States. Early in 1914 we began the recommendation of trials with this crop in the county. Much opposition to the planting of sweet clover from a large number of farmers and some educators was met, but as a result of our recommendations one field of 17 acres was planted in 1914 and seed was purchased and planted by 22 farmers in the spring of 1915. Both the hulled and unhulled seed was obtained and fields varying from one fourth to 40 acres were planted. Sweet clover was this year grown in practically all sections of Crook county and on lands varying from a loose, sandy up land soil to a tight hard pan bottom land and bottom lands covered with black alkali. Also at elevation varying from 2500 to 4200 feet, the sections of the latter elevation being visited by frosts every month in the year. The field planted in 1914 was planted June 1st, those planted in 1915, from March 20 to May 15.

The growth of this crop was watched carefully throughout the season and results were noted, both through these personal visits to farms and fields where this crop was grown, and through written reports from the growers obtained by sending out blanks and return envelopes for same. 22 farmers filled out and returned these reports. Of this number, 3 reported a failure to obtain a stand, 1 of these being on irrigated land, and 2 on dry land farms, 2 report a good stand but crop was destroyed by rabbits, 2 report good stands, good growth and very satisfactory results.

Through personal visits we found that results obtained this season on irrigated lands were very satisfactory and generally surprising, there being only two cases of failure with the crop and this failure was caused by late planting. In two instances on irrigation land the crop was planted, no water was available practically the whole season, and a satisfactory stand and crop was obtained. Through personal visits we found that results obtained this season on dry lands were generally unsatisfactory but two very good fields were found, the sweet clover making better growth and providing more feed than any other crop grown on these farms. With two exceptions, those planting crop on dry land this season are decided that their failures are not the fault of the crop but were caused by methods used and, most especially, the lateness of planting. In five instances on dry land the seed was planted in very loose, sandy soil and was blown out by the wind of May.

With the exception of the 17 acre field planted in 1914, all of the sweet clover grown this year was used as pasture and in every instance gave satisfactory results and in most instances proved the best pasture crop yet grown in Crook county on either irrigated or dry land. Specific examples of pronounced success with sweet clover as a pasture crop are as follows: H. C. Cram and Sons, of Prineville, Ore., located on the Ochoco bottom land 4 miles east of Prineville had 40 acres of medium heavy sandy loam bottom land, so covered with black alkali that no crop, excepting the plant locally known as "salt grass" had been grown on it for several years. As drain tile or other drainage methods would prove very expensive in this locality, sweet clover was recommended for trial on the field by the County Agriculturist. A part of the field had been plowed early in the spring, another part was disced thoroughly and another part lightly. Sweet clover seed was planted April 1st and a good stand of sweet clover was obtained on the firmer soil but a poor stand on the looser surface. There was no more than 20 acres of the crop grown. On June 1st, 14 head of calves and four head of horses were turned on this field for pasture and until October 1st, from 18 to 28 head of stock were kept on this field. Very little rain fell during April and none after that date and this field received no irrigation water. Mr. Cram, in his report on this crop states as follows: "As far as we can observe there are no insect pests which bother it. It will stand more alkali than any other crop we know of and if there is sufficient moisture will grow any place. We believe, as a crop that it is fully equal to alfalfa and superior in the fact that cattle do not bloat on it as they do on alfalfa or other clovers."

L. W. Van Doren of Powell Butte had only 12 pounds of seed. He planted this on two acres of thin irrigated land on April 3rd. When we visited him early in July, it was found that he had a good stand. He stated that his cows had been in the field and had not touched the sweet clover. These cows, however, had access to a very good grass pasture and were all fed on alfalfa and grain. A saddle pony was turned into the field and ate sparingly the first day, after which it seemed to relish the pasture. Later in the season when the pasture became short the cows were turned into this field and were soon eating it with as much relish as they would alfalfa or clover pasture. Mr. Van Dorn considers this the best pasture crop he has.

Mr. F. E. Dayton of Tumalo, four miles north of this town on the Tumalo irrigation project, planted 11 acres of sweet clover on April first. He obtained the best stand seen in the county this year, the field in July and August being mistaken for an alfalfa field by many passing it. He intended cutting this crop for hay, but because of shortage of irrigation water, all other pasture became worthless and he turned his cows into this field about September first. The crop at this time averaged about two feet in height. It was relished by the cows from the start and he obtained a marked increase in production of milk and butter for the remainder of the season. Soon after turning the animals on this field, Mr. Dayton lost a cow which he first believed to have died from bloat but later found that the animal had visited a straw stack where wheat had recently been threshed and considerable grain wasted. Upon post mortem examination, he found the paunch filled with swelled wheat.

Mr. C. M. Elkins of Prineville, located on the Crooked river bottom land near O'Neil planted about 20 acres of sweet clover in May. He obtained a very good stand, using the crop for pasture after July 15. He turned cattle and sheep upon the field, having imported Hampshire breed of sheep. In a personal talk with him concerning the crop, he informed me that he lost three sheep while they were pasturing on the sweet clover and is very sure that at least one of them died from bloat. In his written report on the crop he writes as follows: "Sweet clover will yield as much per acre or more than alfalfa. Cows seem to do well on it as a pasture crop. Would not recommend it as pasture for sheep."

N. B. Gray of Deschutes, Oregon, located two miles southwest of this station, planted 17 acres of sweet clover on irrigated land June 1st, 1914, with oats planted as a cover crop. In September of this year he harvested one and one half tons per acre of hay after which he pastured the crop for about one month. On June 1st, 1915, he harvested one and half tons of sweet clover hay per acre after which he allowed the crop to seed. The seed crop was harvested in October and threshed the first week in November, obtaining 4200 pounds of seed from the field. Four and one half tons of straw per acre remained after the grain was threshed and Mr. Gray has at this time fed more than half of the straw obtained from the field to a band of 200 ewes. He also planted, in April, 1915, 50 acres additional to sweet clover besides a calf pasture of about two acres near his house. His cattle and calves have been pastured on this crop the entire season. Some calves were turned on the second year crop about the time it began to bloom and Mr. Gray reports the loss of one calf from bloat from pasturing the crop at this stage of growth. In his written report Mr. Gray states: "I have not been bothered with pests of any kind, not even rabbits or frost. I think if you want to raise hay to put on the market, raise alfalfa. If you wish to raise stock on the farm, raise all the sweet clover you have land for and you will make good. I could have harvested seven tons of hay per acre off my second year crop this year.

Using the brief experience which we have had with sweet clover in Crook county and the reported results from other sections of the country we are led to the following conclusions concerning this crop:

Sweet clover requires a firm seed bed.

It must have sufficient moisture for sprouting the seed near the surface of the ground.

In Crook county on irrigated lands the seed may be planted as late as June 1st, conditions being favorable, but best results will probably be obtained by planting not later than April 1st.

On dry lands it is necessary to plant early enough that there will be moisture for germinating the seed near the surface of the ground and we believe the seed may be planted any time between December 1st and April 1st.

The yield of forage the second year will vary from two to six times that obtained the first year.

All stock will eat it, thought when well fed and unaccustomed to this crop they may refuse it at first.

It is one of the best pasture crops for Crook county.

It will grow on dry upland sandy soils, on tight bottom lands, on alkali soils and on waste land where it cannot be cultivated.

It will not become a weed in cultivated fields, but may become such on ditch banks or any waste places.

There is little danger of bloat from pasturing it, it being much safer for pasturing than alfalfa or other clovers although there are known cases where bloat has occured.

For the information of those interested in this crop, we would advise as follows: Plant only the White Blooming sweet clover, scientifically known as "Melilotus Alba." There are other varieties of sweet clover but because of their characteristic growth they are not so satisfactory; be sure that the seed bed is firm before planting the seed. It is better to leave the land unplowed for planting rather than to plow it and leave a loose seed bed. The food value of this crop is practically the same as that of alfalfa; the hulled seed gives better results when planted than does the unhulled seed. Only from 20 to 50 per cent of sweet clover seed planted in natural form will germinate. Prof. Curtiss of Iowa experiment station, has perfected a machine for scarrifying the seed, which both he and farmers who have used his machine, report increases the germination from 70 to 90 per cent. Information and plans for building this machine are furnished by the Iowa station.

The demonstrations with sweet clover in Crook county prove this crop to be very valuable one, both for pasture and for hay. This is, however, only a part of the benefit derived from the growing of this crop. Because of its profuse growth of large soft roots it will improve any soil through adding to it a large amount of humus, besides the elements which are added by growth of alfalfa and other legume crops. It has been found that the same bacteria are necessary to insure profitable growth of alfalfa are also the bacteria which grow upon sweet clover roots so the lands which have been grown to this crop are not only improved for all other crops, which we might wish to grow, but also are especially favorable for the growing of alfalfa. Also, sweet clover is a biennial, growing only two years unless allowed to seed, so that the land may be plowed and re planted much oftener than with alfalfa, thus improvement of the soil may be continued by planting a field to the crop the second time.

In my opinion, sweet clover will prove one of the most valuable crops, both as a soil improver and a feed crop for Crook county and possibly the whole of Eastern Oregon for several years to come.

Next Week: Sudan Grass, Field Peas, Etc.

(Continued next week.)

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