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FIELD BEANS

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The field bean is one of the great food crops of the world. Very few other edible seed crops produce more nutrition to the acre. Beans represent one of the world's most concentrated food products, and consequently are in great demand in places where it is difficult to transport food. As a food stuff in mines, lumber camps, construction camps, on the frontier, and in the army and navy, beans are always popular because of their immense food value in comparison with their bulk, and normal cost. A bushel of beans has a food value equivalent to 108 pounds of round steak.

Beans are a splendid food crop to grow, and Oregon has never produced enough of them. Census statistics of 1909 indicate that 652 acres were planted to beans in Oregon in that year, with an average production of .72 pounds per capita of the total population. The production for the United States for the same year was a little less than 8 pounds per capita, indicating that we are far below the average of the United States in the production of beans. We do not produce nearly enough beans for our own needs, and there is a large bean-consuming territory north of us that we might supply with this crop.

Indications are that in 1917 Oregon will produce about enough beans for her own use, if weather conditions are favorable and the yields are good. We should not only extend our acreage of beans at least to the point of supplying fully our own needs, but should also engage in the industry extensively enough so that we may market the excess crop in the eastern and northern states.

Beans are more concentrated and more valuable pound for pound than the ordinary grain. They are valuable enough so that they may be profitably shipped for considerable distances in normal years. They constitute a cultivated cash crop which is well suited to our conditions, and for which there is usually a good market.

Soil and Its Preparation. When land is too poor to grow little white beans, it is said to be too poor to grow anything. The little navy type of bean, or the bush field bean, grows very well on many soils that are exceedingly poor, both in physical condition and in their supply of plant food.

Beans grow successfully on red hill land, good white land, black land, and gray land. They do better, however, on soils that are mellow, well drained, and warm, such as sandy river bottom land. It is not a good plan to make heavy applications of raw barnyard manure previous to planting beans. Early plowing is desirable. With late plowing, the harrow should usually follow the plow as closely as possible. The soil for beans should be worked down to a fine, firm seed bed; fine in order that the roots may properly permeate the entire soil, and firm in order that in drilling the beans they are not seeded too deep in the soil. Preparing the land for beans should take place as early as possible. Harrowing at intervals of from 6 to 10 days from time the land is plowed until it is seeded, will save much weeding later on. In some cases of very badly run-down soils an application of acid phosphate, at 100 to 150 pounds an acre, or in some other instances, an application of calcium sulfate or gypsum at 40 to 50 pounds an acre is likely to give satisfactory results with beans.

Varieties. The only types of beans that are likely to be successful in the Willamette Valley are certain early and uniform-maturing varieties. Of these, the Lady Washington is best for the heavier types of soil. On the more mellow types, the Mexican Tree bean is a splendid variety. The Red Mexican is also a very good variety, and meets a ready sale, especially in the western states. In choosing a variety of beans, always choose one, if possible, that is uniform and that has small to medium-sized seeds. The uniformity of maturity is very important because of our wet fall weather. The smaller sizes of beans are very much more in demand than the larger sizes; the white varieties are more strongly desired than most of the red ones.

Inoculation. If beans have never been grown in your immediate vicinity, it will be a good plan to inoculate the seed. Culture for that purpose may be had from the Oregon Agricultural College, Corvallis, Oregon, by paying a small fee of 40 cents, enough for 2 acres, or 60 cents for enough for 3 to 15 acres.

Planting. Seeding of beans takes place as early as possible after the ground warms up well and frost danger is over. Beans are usually seeded in rows 30 inches apart, and about 2 to 4 inches apart in the row. Under irrigated conditions, they are sometimes planted in double rows, with about 30 to 36 inches between the double rows. Under dry-farming conditions the rows are 4 to 6 feet apart and the plants 6 to 8 inches apart in the row. Beans are a good crop on summer fallow. They may be planted with a corn planter or with a regular bean planter; the small varieties are often planted with ordinary grain drills. Planting in hills, 10 to 15 inches apart in the row, is a common practice, with usually about 3 or 4 beans to the hill. Beans should be planted just deep enough to insure moisture for germination, which is usually about 2 inches.

Cultivation. As soon as the beans emerge from the soil, cultivation should begin. The first cultivation should be thorough, stirring all of the soil to a depth of about 3 inches. Later cultivations must be made to kill weeds while they are still small. These cultivations may be made somewhat shallower than the first. Beans should never be cultivated when wet with dew or rain, as that is a means of spreading disease.

Harvesting. The crop is ready to harvest when the pod turns yellow, since the beans are then in an advanced hard-dough stage. They are usually harvested with a bean harvester, although on small areas they are often pulled by hand. It is usually not possible to cut beans satisfactorily with a mowing machine or self-rake reaper, because the pods hang so close to the ground that this kind of machine cuts them and causes much loss. The important thing is to get the beans harvested as promptly as possible after they are mature. This is especially important on red land, which is likely to stain the beans if they are left out after the rainy season begins.

For a considerable acreage of beans, it is very desirable to have on hand a supply of hay caps. These are made of heavy unbleached muslin or light-weight canvas, 3 feet to 3½ feet square, and either weighted at each corner with a half-pound to three-fourths-pound weight, or fastened at each corner with a light stake. Blank nuts, small castings, concrete weights, or even flat stones or pieces of heavy wood may be tied to the corners — anything, in short, of sufficient weight to keep the cap from blowing off. In some respects it is probably cheaper to use light stakes, which are tied up close to the corner of the hay cap. These stakes should be notched on the sides so they may be pushed into the shock and will not slip out readily. Caps of this sort will keep the bean shocks dry and prevent spoilage in wet seasons.

Threshing. As soon as the beans have dried out, so that they will thresh readily, they must be threshed at once or put under cover. They

should be hauled to the machine on tight-bottomed, or canvas-covered racks, so that there will be no shattering and loss of the high-priced bean seed. Where there is sufficient acreage, a bean thresher should be purchased. Such machines are especially adapted to threshing the pods, so that the beans are all recovered from the straw, with a minimum number split or damaged.

Where a regular bean thresher is not available, the beans are in some cases threshed out with an ordinary threshing machine with all of the concaves removed and replaced with wooden blanks. The grate bars must be covered over with tin in order that no sharp corners are presented against which the beans may strike. The cylinder should be speeded very slowly, and in some instances it is necessary to take out the cylinder teeth. The cylinder bars alone will sufficiently thresh out the beans to do very good work. This is only possible, however, on beans which have matured very uniformly, and among which there are no late-matured tough beans. Beans are also threshed out with flails or pounded out with forks; and in some instances they are spread out in a large circle and tramped out with live stock.

The beans after being threshed should be put through a recleaner, and polisher, of which there are several kinds on the market. These machines sort, clean, and brush off the dirt if any is present and thus put the beans in an attractive condition for market.

Beans that have failed to mature, or which have molded slightly and are discolored, are sometimes so nearly the same size and weight of good beans that the screens and air blasts will not make the separation. These are picked out by hand. Various hand-picking machines are available. The principle in the hand- or warehouse-picking machine is simply that of passing a thin layer of beans before the operator on an endless belt. The discolored beans are picked out as they go by, and the good beans are emptied into the sack. Beans should be uniformly and carefully sacked up for marketing purposes. It is not a good plan to attempt to market beans that are not sorted into sizes, and that are not uniform in color, as they do not command a good price.

Cull beans and bean straw make excellent stock feed. When weevil are present, the beans should be heated to 120° F. for 3 or 4 hours immediately after harvest.

Yields. Beans produce in Eastern Oregon 8 to 10 bushels an acre on summer fallow; on irrigated land 15 to 30 bushels an acre.

Western Oregon yields vary from 12 to 30 bushels an acre.

Oregon should produce 1,000,000 bushels a year on summer fallow alone, besides another 1,000,000 bushels in Western Oregon.

At normal Oregon prices beans are a splendid cultivated legume cash crop and they will work well in rotations.