

Growing String Beans for the Canning Factory

By GEO. E. STARR

The state of Michigan is justly noted for the production of beans. It produces approximately two-thirds of the white pea beans of the United States and is one of the leading states in the production of red kidney beans. The climatic and seasonal conditions which have placed the State in the front rank as a producer of dry beans for the market are equally favorable for the production of green beans for canning.

It is customary to grow this crop for the cannery under a contract which states the price in advance. Thus, the price is assured and does not fluctuate within the season, thereby eliminating one crop risk and assuring a profit to the grower who economically produces a large yield. There is little hazard in harvesting because the string bean crop is seldom subject to damage from frost or fall rains. There is little labor competition with other crops on the farm as the picking season comes after harvest time and before the heavy fall work begins. Soil fertility is not seriously depleted for the crop is harvested in an immature condition and the vines and leaves may be plowed under or used for feed. The crop is harvested in ample time to permit planting to fall grains. In case the crop has been well cultivated, a good discing will serve to prepare an excellent seed bed.

How to Grow the Crop

Soil and Soil Preparation—Select a well drained fertile loam, silt loam or clay loam, which is well supplied with humus and is retentive of moisture. Heavy clay soil may be too wet, light sandy soil may be subject to drouth.

Plow in late fall or very early in spring. Fall plowing is best as the seed bed will have ample time to settle and become firm.

Fit the seed bed thoroughly. Start preparation early in spring and go over the field with harrow or disc at least once per week until planting time. Use roller or cultipacker if necessary to pulverize and properly fit a loose or cloddy soil.

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R. J. Baldwin, Director

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Fertilizer, Manure, and Lime—Use from 10 to 15 tons of manure per acre if it is obtainable. Apply it in fall before plowing. Do not apply fresh manure to bean ground just before planting the crop as a late application may be followed by considerable loss from the bean maggot. Supplement the manure with from 200 to 300 pounds of super phosphate per acre. If manure is not available, use a complete commercial fertilizer. Broadcast this at the rate of 200 to 400 pounds per acre before fitting the soil. A portion of this fertilizer, not to exceed 60 pounds per acre, may be applied through the drill with the seed.

Dr. McCool of the Michigan State College Soils Department makes the following recommendations in regard to fertilizing the bean crop.

Fertilizers for Beans on Sands and Light Sandy Loams

Crop	No manure or leguminous green manure used within the last two years	Clover or alfalfa grown within the last two years	Manure used within the last two years
Beans.....	4-16-4	2-16-2 4-16-4	2-16-2 0-20-0

Fertilizers for Beans on Heavy Sandy Loams, Silt Loams and Clay Loams

Crop	No manure or leguminous green manure used within the last two years	Clover or alfalfa grown within the last two years	Manure used within the last two years
Beans.....	2-16-2 4-16-4	2-16-2 0-20-0	0-20-0

Beans will not thrive on soils which are markedly acid and such soils should be given an application of lime. This should be applied in the preparation of the soil for the clover crop which precedes the beans in the crop rotation.

Planting—Plant with a grain drill, corn drill, or hand planter. In fertile soil which is free from weeds, it is customary to use a grain or bean drill. Many growers prefer to grow the crop in hills in order to facilitate the cultivation and harvesting of the crop. On light loams and on soils where control of weeds is difficult, it may be better to plant in hills 24 inches apart in each direction, planting four to six beans in each hill, or the field may be marked out in rows 30 inches apart and the hills planted 12 to 15 inches apart in the row. The usual custom is to plant from 28 to 45 pounds of seed per acre, depending upon the methods of planting and the variety of seed used.

Do not plant the seed too deeply. If covered deeply, many of the seedlings will not reach the surface. From three-fourths to one inch is ample for depth of planting.

The planting season may cover a comparatively long period, ranging from early June to July 10 or later. As the crop is harvested in an

immature state, the growing season is much shorter than for a crop grown for mature seeds. The canner may co-operate with the grower in the arrangement of planting dates so that the canning season may be spread over a considerable period.

Seed—Plant clean, plump seed of good germination. The canner usually supplies the seed to the grower and it is to the mutual advantage of both grower and canner that care be taken to secure clean seed.

Varieties—There are two types of beans used by the canner, the green podded varieties and the wax or butter sorts. The principal green podded sorts are the Stringless Refugee, either the Keeney or Rogers Strain, and the Giant Stringless. The Wax varieties are Stringless Refugee Wax, Rogers' or Burpee's strain of Improved Kidney Wax, and Wardwell's Kidney Wax.

Cultivation—Give thorough cultivation throughout the growing season. For the first cultivation, the ground may be stirred somewhat deeply and worked close to the row. This cultivation should be given as soon as the plants are sufficiently developed so that the rows may be easily followed. The next cultivation, about a week later, should be further from the plants and not so deep. Later cultivations should be very shallow as many of the feeding roots lie very close to the surface. The blade type of cultivator teeth known as "duck-feet," "sweeps," and "half sweeps" are effective in weed control and are especially desirable since they reduce root pruning to a minimum.

Do not cultivate beans when the vines are wet with dew or rain because, at that time, the organisms which cause disease are most easily carried from plant to plant.

Harvesting—Make the first picking as soon as the pods are sufficiently mature. Pick the plants clean at each picking to encourage the setting of new pods. Do not delay the picking when pods are ready, as frequent picking helps to secure heavy yields.

Do not pick the pods when vines are wet with dew or rains, for, if there is a small amount of disease present, it is likely to be spread over the entire field.

It sometimes happens that there is a period of a few days during the harvest season in which there may be splashing rains or the air may be damp and the skies cloudy and overcast. These conditions are favorable for the development of disease spots on the pods. As soon as the plants are thoroughly dry, the spotted pods should be picked off, carried from the field and destroyed in order to prevent the further spread of disease. The spotted pods are of no value to the canner; in fact, he is prohibited by law from canning diseased beans.

Returns to the Grower—The price paid by the canner varies somewhat according to variety. Some varieties yield more heavily than others and price is graduated accordingly. The average cash returns per acre should be around \$150.00 and under favorable conditions, with good care it may be more than double that amount.

The amount of acreage to be planted by the grower depends upon the amount of help available at harvest time. As frequent picking induces maximum yields the grower should not plant a greater amount than he can well care for. A small field properly cared for is likely to

be more profitable than a larger planting which cannot be attended to at the right time.

It is not a good practice to follow beans with beans in the same field. For best results, there should be a well planned rotation which shall not include beans more often than once in four years.

The following rotations are suggested by the Department of Farm Crops of the Michigan State College:

First year—beans.

Second year—wheat, rye, barley or oats seeded with clover, sweet clover, or alfalfa.

Third year—clover, sweet clover or alfalfa.

If longer rotations be desired they may be planned as follows:

1. On farms with little live stock—
 - (1) Beans; (2) oats; (3) clover, sweet clover or alfalfa; (4) corn or beets; (5) wheat; (6) clover.
2. For combined stock and crop farming—
 - (1) Corn or beans; (2) oats, barley or wheat; (3) clover, alsike, timothy (hay); (4) pasture.
3.
 - (1) Corn; (2) beans; (3) oats or barley seeded; (4) alfalfa; (5) alfalfa; (6) alfalfa.