

industry. The manufacturing processes—extracting, purifying, crystallizing, and refining—necessary in the preparation of sugar for the use of man—are carried on in the beet-sugar factories. Because of the significance in the beet-sugar industry of the processes carried on by the sugar-beet plant it is important that conditions of climate, soil, and water be favorable and that the necessary cultural practices be followed if the best results are to be attained. Sugar-beet culture is therefore an intensive farming operation.

Sugar beets are grown for the beet root, which is the raw material of beet sugar. The beet seeds are planted in the spring and the beets are harvested in the fall of the same year, making it an annual crop. Though grown under a great variety of soil and climatic conditions, the crop thrives best in regions where the soil is rich, the temperature moderate, and the moisture ample. Where precipitation is insufficient, it is necessary to resort to irrigation.

On the beet farms in this country sugar beets are not the sole crop, but usually one of several grown on the same farm. In the older agricultural regions where beets are grown they are an important crop in the rotation system. In the newer sections, however, less attention is given to the rotation of crops, and oftentimes beets are planted on the same ground for a succession of years.

A good seed bed is the first essential to a successful crop, and consequently the farmers take great care in the preparation for planting. The land is usually manured, then plowed and worked down to a fine, smooth seed bed by disking, harrowing, leveling, dragging, and rolling. In Michigan and the Rocky Mountain sections the seed are planted in April and May, and in California in February and March. Planting is done with a drill and in rows 16 to 24 inches apart.

A few weeks after planting, when the plants appear above ground and show about four leaves, horse-drawn cultivators are run between the rows. The beets are then bunched or blocked and thereafter thinned. The bunching or blocking is done with a hoe by chopping out some of the beets in the row so that small bunches of two, three, or more plants are left about 10 or 12 inches apart. Thinning, the next operation, consists of singling the beets left in the bunches so that only one plant, usually the strongest, from each bunch remains in the ground. Sometimes two rows are thinned at a time, the thinner going on his knees between the rows; but as a rule only one row is thinned at a time, the thinner straddling the row.

In irrigated sections the beets are watered from two to five times during the season. The water is run down in furrows made between the rows by horse-drawn cultivators.

As the beet field must be kept free from weeds, one or several hoeings are required, the number depending upon the condition of the land and the prevalence of weed infestation of the particular ground where the beets are grown.

The crop is harvested when the beets are ripe; that is, when they have practically their full growth and a sugar content of not less than 12 per cent, as shown by samples tested by the sugar company. The harvest season is July, August, and September in California, and October, November, and December elsewhere. The soil around the beets is loosened, and the beets are lifted slightly from the ground by means of horse-drawn or tractor-drawn beet plows or lifters especially constructed for the purpose. Hand laborers follow the lifters, take