

tivate for this special purpose. The following notes are prepared with a view of briefly answering these questions.

RAISING PLANTS.—The summer season of Ontario and Quebec is not long enough, to admit of the profitable cultivation of tomatoes without the aid of a greenhouse, hot bed or window box in starting the plants in spring.

SOIL FOR SEED BOXES.—The soil should not be too rich. A mellow loam of good quality, with sand added to the extent of one-fifth of its volume, will produce stronger and healthier plants than will the leaf mould one frequently meets with in window boxes. If a greenhouse is available, the seed may be sown about the middle of March, or a month earlier if the plants are intended to serve the needs of the home market. A high temperature, 65 degrees to 70 degrees at night and 80 degrees to 85 degrees in the day time, will produce large, succulent, but tender plants. A too low temperature will produce stunted weaklings. Neither class are desirable. It is better to have it slightly too warm than too cold; in consideration of the nature of the plant. Sow the seed thinly in rows six inches apart, pressing the soil firmly over the rows. The seedlings should be transplanted at least twice before setting them in the field. This treatment gives strong, stocky plants. If grown in the greenhouse, the seedlings should be pricked, after the true leaves appear, into "flats," shallow boxes, setting them two to three inches apart each way. From these "flats" they are again removed when they begin to crowd each other, to the cold frames or hot bed, setting them six to eight inches apart each way, or further if the plants are large. By the middle or in a backward season, the last week in May (in this district) they will have made large, stocky plants and are ready for the field. The sashes, or other covers used to protect the frames, should be kept off the frames for some time previous to setting them out, in order to harden the plants.

When the seed is sown directly in the hot-bed, this should be done early in April. A strong, even heat is desirable, such as may be secured from a two foot bed of horse manure. Sow the seed after the heat has subsided to 75 degrees. Other frames should be provided for the reception of the plants when they are removed from the seed rows. Transplant twice, if possible, before setting in the field.

IN WINDOW BOXES; Fairly good plants may be grown in boxes of soil or flower pots placed in well lighted rooms, but owing to the fluctuations of the temperature of dwelling houses and the lack of light, they are often stunted and injured. When any considerable number is required, a hotbed should be employed. The remarks made above on transplanting apply, with equal force, whether plants are grown in the greenhouse, in the hot-bed or in the dwelling house.

FIELD CULTURE.

SOIL.—It is a mistake to plant tomatoes on poor soil. It is true that a warm and somewhat light soil will produce better plants and earlier fruit than will a heavy clay, but a large crop of smooth, well grown tomatoes cannot be ensured unless the soil is fairly well enriched. Poor soils produce small, early and badly wrinkled tomatoes. Sandy or light clay loams, well drained, will give the best returns.

PREPARING THE GROUND.—Plough deeply in the fall. In the spring apply barnyard manure, 20 tons to 30 tons to the acre, and harrow smooth two or three weeks before planting time. Harrow again just before marking out the rows, to destroy the first crop of weeds.

SETTING THE PLANTS.—It is better to set the plants in rows 5 x 3 feet apart, rather than 4 x 4 feet apart, each way, as the wider space facilitates the work of picking the fruit. Planting will be expedited if a light furrow is opened in the line of each row.

PLANTING.—Before lifting the plants out of the boxes or frames the soil in which they are growing should be thoroughly watered, so that it will be saturated to the depth of the lower extremities of the roots of the plants. A few hours after this is done, the plants may be taken up with a ball of earth about the roots of each by using a sharp trowel or spade, if they are far enough apart to allow of the use of the latter implement. The plants should then be placed in carrying boxes, and be transported to the field in a cart or wheelbarrow, and set in the freshly opened furrows. When planted, the ball of earth should be about an inch below the surface, and the soil should be firmly pressed about the lower roots. About three thousand plants are required to set each acre, when planted approximately 5 x 3 feet apart. If by any mishap the plants are tall and spindling, they should be set in a slanting posture, with a view of covering the procumbent stem with soil so that it may strike root. (1)

CULTIVATION.

Shallow and level cultivation should be given for a month after setting. It is advisable to attach the moulding wings to the cultivator and with these throw soil to the plants, the operation is finished by making with a hoe, about each plant, a broad, sloping mound two or three inches in height. This will tend to distribute the fruiting branches and will, by shedding rain, to some extent lessen the tendency to rot. After hilling, the level surface should be cultivated as long as possible without injury to the plants. If growth is unsatisfactory, it may be stimulated by a light application to each plant of muriate of potash, or wood ashes and nitrate of soda. Muriate of potash, 100 pounds, and nitrate of soda, 200 pounds, or wood ashes, 1000 pounds per acre, if scattered around each plant before hilling, will undoubtedly prove beneficial.

TRAINING.—Under field culture, it does not pay to train tomato plants to stakes or trellises. These systems belong to the garden of the amateur, and may there be practised with economy as to space, and satisfaction as to general results. In the field, some attention should be given towards securing a proper disposition of the naturally sprawling branches, to prevent too much interlacing and to secure their proper distribution.

PICKING AND PACKING FOR THE HOME MARKET.—Pick the fruit when fully coloured, being careful to avoid bruising it. Discard all ill-shaped or blighted specimens. The fruit should be carried to the sorting shed and carefully packed in the shipping baskets or packages. Place the fruit

(1) Very good advice.—Ed.

stem end downwards, wiping such specimens as are soiled; finish the package with a smooth face. Strong baskets—vener is better than the splint—should be used, and these covered with a stout frame-like cover made of the veneer trimming material, but centered with lace.

PACKING FOR FOREIGN SHIPMENT.—If the fruit is intended for the European market, it should be picked when full grown and just beginning to change colour—if it is to be forwarded in thoroughly refrigerated compartments. Specimens partly coloured sent last year, arrived in England in an over-ripe condition with imperfect ice refrigeration. If shipped by ordinary freight, which may be successfully done with good ventilation, the fruit should be packed when fully developed, but "yet green in colour." The fruit should be carefully graded as to size and with regard to its characteristic colour when mature. Scarlet and purplish red varieties should not be packed together in the same case.

PACKAGES.—Light, strong wooden ventilated cases are recommended. A case of the following dimensions will hold 20 lbs. of medium sized tomatoes, two rows or layers deep. The two layers should be separated by a sheet of stiff cardboard, unless each fruit is wrapped in tissue or light printers paper. To prevent the fruit shaking, place a layer of clean excelsior on top before nailing down the cover.

The words "Canadian Tomatoes" should be branded upon the ends of each case. The name and address of the grower should appear on a printed sheet within.

DIMENSIONS OF CASE OUTSIDE.—Length 22 inches, width 10 inches, depth 5½ inches. It should be provided with a partition cross-wise in the middle. The boxes should be made of planed lumber and ventilated by holes or open slits at the sides. Such a case will hold about four dozen medium size tomatoes and weigh 20 to 25 pounds. Thickness of lumber, ends and partition ¾ inches sides, top and bottom ¾. Ventilation could be provided for by using slightly narrower side pieces than called for by the depth of the box. The top and bottom pieces should come flush to the corners. This would leave a slit the length of the case without weakening it to any extent.

VARIETIES.—If it is intended to ship the fruit to distant points, medium sized, smooth, solid bright colored varieties should be mainly grown. Most extra early kinds are inclined to be rough or wrinkled. Among those that seem best suited for export purposes, as tested here, are:—Longkeeper (Thorburn), Stone (Livingston), Favourite (Livingston), Liberty Bell, Cook's Favourite.

Notes by the Way.

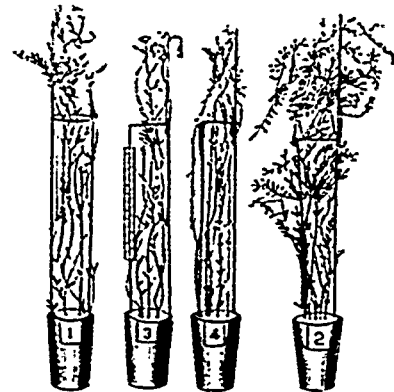
ROTHAMSTED EXPERIMENTS.—If any one of our readers will take the trouble to examine the reports of the careful experiments conducted by Sir John Lawes and Sir Joseph Henry Gilbert, which were begun in 1843, and still continue, he will find that the application of superphosphate, without potash, to the wheat-crops, enabled that crop to take up an increased amount of potash compared with that in the unmanured crops. In certain experiments,

now being carried on at the Ohio experiment station, potash seems to have no effect on the wheat-crop, whether used alone or in combination with any other manures. In Kentucky, though potash has largely increased the crops of corn, hemp, tobacco, and potatoes, it has utterly failed to exert any influence on wheat, whether used alone or in combination.

NODULE-BACTERIA.

The following two examples of the proper use of "nodule-bacteria" will, we hope interest our readers. The four pots are supposed to be sown with the ordinary pea, and inoculated with nodule-bacteria from the French-bean (*Phaseolus*), trifolium (clover of some sort), Robinia, (a pod-bearing tree like the acacia) and from the pea itself. The plants of the pea, as given in the cut, when treated with its own private nodule-bacteria, is seen to have grown luxuriantly while the others did not take to the addition of the same dose at all, though the whole four plants belong to the same order, the "leguminosae."

In the 2nd cut, it will be noticed the "False-acacia" does not at all approve of the provision made for it of the nodule-bacteria of the pea, but flourishes amazingly on its own kind.



Pea Plants (*Pisum sativum*) inoculated (1) with nodule bacteria from *Phaseolus*, (3) from *Trifolium*, (4) from *Robinia*, (2) from Pea.

We now really may hope that the novel fertiliser we mentioned in the December number of the Journal under the name "Nitrogen," will turn out to be practically useful, in spite of the apparent absurdity of the statement that



Robinia Plants (*Robinia pseudacacia*) inoculated with (1) nodule bacteria from Pea plant (*Pisum sativum*), (2) nodule bacteria from *Robinia pseudacacia*.

for 60 cents enough may be bought to dress an acre of land. We remember too well how all English farmers looked askant, when they were first told that 3 cwt. of Peruvian guano was a full dressing for an acre of wheat, to have much incredulity left when matters of scientific investigation are concerned.

ROOTS AND CORN.

Sir John Lawes and Sir Henry Gilbert agree with Mr. Wm. Ewing, of Montreal, in the opinion that, although the soil and climate of this part of the