A better method of manuring these crops is to extend the area round the plant every time fertilizers are applied, in order to encourage the development of a wide-flung root system. This will enable the plant to avail itself more fully of the plant food and moisture in the soil and also to resist better the effects of drought.

As already stated, the application of fertilizers at the right time is most essential. The time of application depends on the nature of the fertilizer and of the crop. For most crops there are certain general rules as to the time of applying fertilizers.

Potash manures should be broadcast and worked into the soil some time before planting, in order that the potash may be dissolved in the soil and be available when required by the crop-plant.

Phosphates, especially the less soluble forms, should be applied some months before sowing or planting, in order that they may be rendered soluble and readily assimilable by the time they will be required by the plant. On light soils superphosphate may be applied just before planting.

Nitrogenous fertilizers, especially nitrates, may be applied during growth as a top-dressing, the application taking place just before rain is expected or where irrigation is employed, immediately before watering. In using sulphate of ammonia or nitrate of soda as a top-dressing, care must be taken not to apply them when the plants are wet, as the fertilizers falling on the wet leaves are apt to burn them.

When the less soluble nitrogenous manures are employed, application must take place earlier, the manure being worked in some months before planting. This enables nitrification to take place, so that the contained nitrogen will be in a readily available form when required by the plant.

In the case of perennial crops, manuring should take place during the resting period, for instance, at or towards the end of the rainy season. The fertilizers are then washed in to the soil, where they are rendered available for the crop when its new period of growth commences. With crops such as oranges, &c., which bloom in spring, it must be remembered that the flowers are produced on wood matured in the preceding season, and thus the bloom and young fruit are dependent for their development on food assimilated during the previous season, and the manuring programme should be arranged accordingly.

With crops such as oranges, tea, &c., better results will be obtained if fertilizers be applied over a long period, rather than all at once. To young plants the fertilizer should be given in two instalments, whereas with older crops, application in four dressings may give better results.—(*Jacob and Coyle.*)

NEW DEVELOPMENT OF POTASH PRODUCTION.

To replace essential supplies of potash formerly obtained from Germany and Palestine, the Western Australian Government, in co-operation with the Commonwealth Department of Supply and Development, the Commonwealth Council for Scientific and Industrial Research, and commercial interests are making preparations with a view to producing potash from alunite deposits in the bed of Lake Campion, Western Australia, 250 miles from Perth. Many agricultural industries, especially sugar-growing, depend on a continuous supply of potash for fertilizers.

It is estimated that 2,000,000 tons of alunite are available at Lake Campion in deposits which could be removed readily by dredging. From this quantity it is estimated that 250,000 tons of potassium sulphate could be produced, sufficient to meet Australian requirements for 25 years at the present rate of consumption.

It is proposed to produce 200 tons a week, which would meet the Commonwealth demand. Australia normally imports about 12,000 tons of potash salts annually, and it is estimated that two-thirds of the total are used for agricultural fertilizers in the form of potassium sulphate and potassium chloride. Potassium sulphate is the basis of the potassium chlorate used in making matches and explosives, and in pharmacy. So far, no plant for the manufacture of chlorate exists in Australia.

Before the war Australia obtained potassium chlorate principally from Germany, Sweden and Switzerland. Australian firms handling potash, fearing a shortage such as occurred in the last war, have built up stocks which are expected to last for twelve months. By the end of that period it is hoped that the Western Australian plant will be producing commercially.

The production of other forms of potash from wool is being investigated. The sweat in wool is composed largely of potassium soaps, which can be obtained by steeping the wool before scouring.

It is estimated that sufficient potassium carbonate and potassium hydroxide for Commonwealth requirements can be produced from this source. In these forms potash is used in the making of soft soaps and in the preservation of dried fruits, where it is of great importance. In the year ended 30th June, 1939, Australia imported from Germany 10,709 cwt. of potassium carbonate and pearl ash and 7,991 cwt. of potassium hydroxide. (From *Chemistry and Industry,* 60, 4, 52.)

SOAP-MAKING.

With the object of cutting down expenses and using up some of the copra which they are unable to sell, many planters are now making soap, both for their own and native use. Many planters have satisfactory recipes, but the majority are always anxious to try others, particularly if they are cheap. Already two recipes have been published in this *Gazette,* and a third, kindly supplied by the Catholic Mission of the Holy Ghost at Alexishafen, will now be presented. Any planters, having other recipes which they have found to possess special merits, are invited to submit them to the Editor for publication.

(1) 100 lb. of coco-nut oil or two-thirds coco-nut oil and one-third rendered animal fat.

(2) Ash solution.—This consists of the ground ashes of coco-nut husks mixed with water until a consistency of 8 degrees is registered on a Baumé Aerometer.

(3) Soda solution.—To 16 gallons of cold rain water add 100 lb. caustic soda.

Method:

The oil, or oil and fat, is heated to a temperature at which one may just hold a finger in without being burned. Ash and soda solutions are then added and stirred in well. The mixture is then allowed to boil for one-half to