EXTRACTS

Jam Making. Always choose good fruit in making jam. Over-ripe fruit seldom produces good jam. When leaving fruit to stand over-night sprinkle with sugar. Use an enamel or earthenware vessel; aluminium and fruit acids affect one another. Do not overcrowd the preserving pan, allow plenty of room in the pan for the jam to boil and rise, if necessary.

When sugar is added, it should be quite dissolved before the jam boils. The longer the jam is boiled the better it will keep. When cooking jam with little or no water added, stir often and thoroughly from the bottom of the pan to ensure it not sticking. Jam generally should be boiled fast to keep a good colour. No definite time. Fruit and rate of boiling vary in each case. It is a matter of choice whether the bottles done are sealed whilst hot or cold. When covered with paraffin wax they are better done when the jam is cold otherwise the wax will not adhere to the sides of the bottles, which is necessary to make them air-tight. There are inexpensive cellophane and gummed covers on the market to day, which make the sealing of jam an airy cupboard, but it should be cool, dry and dark.

Recipes. Fig jam.—To every 1 lb. of figs allow 1 cup water and 1 lb. sugar. Boil water and sugar first; as soon as sugar is melted put peeled figs in and boil together until thick. Add few almonds and ginger to taste.

Banana and pear jam.—12 bananas. 4 lbs. juicy pears, juice of 4 lemons, 6 lbs. sugar. Put 21 lbs. sugar in preserving pan squeeze over the lemon juice and allow it to dissolve. Peel, core, and cut up the rest of sugar and the bananas cut up small, stir until it boils, simmer five minutes. Skim and boil fast for an hour or until it jellies.

Grape jam.—4 lbs. grapes, 3 lbs. sugar; wash grapes and strip from stalks, place in pan and crush slightly. Bring slowly to the boil. Boil fruit half an hour, add sugar, and stir until dissolved. Boil fast until jam sets. Seeds can be removed as they float to the top. (*Journal of the Dept. of Agri. S. Australia*—May 1937.)

Pruning the Tea Plant. J. R. Tubbs (*J. Pom. and Hort. Sci.*, 14 (4), 317; 1937) has estimated that the young shoots of the tea plant (*Camellia Thea*) of which the majority of leaves are normally harvested almost as fast as they grow, have produced at the time of harvesting only half the amount of carbohydrate used up in their development. The consequent continued depletion of the reserves of the bush frequently causes die-back of branches, followed by fungal attack and the death of the whole bush. An investigation on plantations at 200 ft., 1,500 ft. and 4,600 ft. above sea level showed that die-back was more common at the lower elevations, and smaller amounts of reserve carbohydrate were found in the roots. Several methods of pruning were tried, and it was found that by allowing a number of branches to retain their foliage, a method designated "lung pruning", the drain on carbohydrate was checked and the incidence of die-back reduced. (*Nature*. May 22, 1937).

Deterioration of paper. Technical Bulletin No. 541, November 1936, of the United States Department of Agriculture, Washington, D. C., deals with the "Deterioration of Book and Record Papers" and is written by T. O. Jarrell, J. M. Hawkins and F. P. Veitch. It appears to be the general opinion of librarians that much of the paper of books and records on their shelves, especially that made since about 1860, is not sufficiently durable. This conclusion applies especially in the case of books and papers subject to frequent handling. Thirty-eight samples of paper taken from old books, magazines and court records, ranging in age from 19 to 169 years, were examined. The results seem to indicate

that paper actually absorbs from the air harmful quantities of acidic sulphur compounds with which the air is generally polluted. The absorption is greater in the portions of the leaves more fully exposed to the atmosphere, and this is one reason why the leaves of old books become more brittle near the outside edges. Seven samples of commercial bond and ledger papers, made in 1914 and 1915, were tested after storing under normal conditions for eighteen years. They were examined after five years and again after eighteen years storage. After eighteen years, the folding endurance of these papers had decreased 23--93 per cent. and the bursting strength 0--18 per cent. In general, papers with the higher acidity, as indicated by the pH of their water extract, suffered the greatest deterioration. The results are indicative that a water extract with a pH of less than 5 is a major factor in the deterioration of even the best classes of paper. (*Nature*, May 22, 1937.)

ABSTRACTS

Zinc as a nutrient for Plants. Chandler, W. H. *Bot. Gazette*, 98 (1937), 625—646. There is strong evidence that zinc is an essential element for fungi and for higher plants; but, because of the very small amount of zinc required and its widespread presence as impurities, it has required exceptional methods to hold the zinc supply to plants in water cultures low enough to prevent moderate growth. Earlier workers were able to cause some improvement by supplying zinc, but some of them considered this response merely a stimulation, because the growth of check plants was approximately normal.

Widespread and serious injury to trees in orchards has been overcome by treating the trees with zinc, through the soil, by driving zinc or galvanized iron into the trunk or branches, and by spraying with zinc compounds on the foliage or on the dormant twigs.

The trees seem to take only about one ounce of zinc a year from an acre of soil, but under some conditions they are not able to obtain enough even for this small requirement. This is not always due to a small total zinc supply in the soil or to a reaction unfavourable to the solution of zinc. The soil flora seems to be involved: some soils in which plants show zinc deficiency will supply enough zinc after they have been sterilized. Theories are suggested to explain these phenomena.

The role of zinc in the plants is not known, but it is rather generally thought to act as a catalytic agent in some essential reaction. (Author's summary).

The age of a Cow and its Effect on Milk. *Queensland Agricultural Journal*—June 1937. How does the age of a cow influence the composition of its milk? This is a question often asked. From the dairyman's point of view the fat is the most important constituent; and much experimental work has been carried out to determine how the fat test varies with the age of the cow. It has been shown that, with advancing years, cows produce milk containing a diminishing percentage of fat. The variation observed is not of any serious consequence, but it is nevertheless noticeable when average figures are taken. A cow of a high testing breed, which shows an average test of 5 per cent. of fat as a young animal, will decline to about 4·5% if she continues to produce to fourteen years of age.

It is sometimes thought that a heifer showing a low test as a two-year-old may improve as she matures. There are no grounds for such a belief, and any farmer building up hopes of this nature is likely to be very disappointed. The richness of milk is a matter of inheritance, and so far as is known nothing can be done to change it in an individual animal.