

the bundforming implement, dividing up the field, in compartments of 5 to 10 cents. The bunds help to hold up the rain water for a longer period, thereby resulting in greater absorption of the rain water by the soil. Owing to the extra moisture, so made available, crop yield are increased. An investment of As. 12 per acre in this operation results in an increase in the produce worth Rs. 5/-.

Cattle Inoculation. During the period ending April 30, 1949, 51502 preventive inoculations were done by the Animal Husbandry Department for animals against the various contagious diseases, as against 44,677 in the previous two months.



Gleanings

Pressure cooking does not destroy vitamins. Dietitians study a tricky problem: Changes in diet can have unforeseen and serious consequences. In the East, beri-beri has in the course of centuries destroyed millions of lives merely because polished rice — which lacks the husk in which vitamin B of the grain is stored — came to be considered more palatable than unpolished rice.

Today, the rapidly increasing popularity of pressure cookers is setting dietitians a serious problem: they are busy finding out what effect this new kind of cooking has on the nutritional value of food. This research is of the greatest practical importance for it would be a disastrous paradox if one branch of applied science — the use of high pressure steam to speed up cooking and made it cheaper — conflicted with another — the maintenance of health by properly balanced diets.

Fortunately, however, it seems that, rather unexpectedly, this danger will not materialise. Indeed, thanks to this research, the protagonists of pressure cooking can claim as a point in its favour that it enhances the vitamin content of food, rather than reduces it. Thus in seeking to expose a possible danger the dietetic experts seem to have brought to light a real advantage.

Simple principle: The principle of the pressure cooker is very simple. The temperature at which water boils depends on pressure. At ordinary pressures, it boils at 212°F (100°C). At lower pressures, on high mountains or in high-flying aircraft for example it may boil at a much lower temperature. Under such conditions it may be impossible to make an egg set by boiling it and meat is difficult to make tender however long it is stewed. To overcome such difficulties pressure cooking has long been resorted to. During the last few years, however, the pressure cooker has become very popular for ordinary domestic use under quite normal conditions. By heating water in a sealed container at quite a moderate and safe pressure — often 15 lbs. per square inch — it can be boiled at 252°F (122°C) instead of the normal boiling temperature. This extra 40° makes a lot of difference — food cooks in a fraction of the time usually needed and much less fuel is needed. There is an obvious danger in this method however. Two important vitamins — vitamin C, whose lack causes scurvy, and vitamin B whose lack causes beri-beri — are both slowly destroyed by heating. Consequently, it was feared that as quite substantial amounts are lost by ordinary boiling, the even higher temperatures reached in pressure cooking might cause almost all of both these vitamins to disappear before the food reached the table. In families which relied entirely on pressure cooking this might eventually lead to the appearance of both scurvy and beri-beri.

Exhaustive experiments: Exhaustive experiments recently carried out at King's College of Household and Social Science — a part of London University — have confirmed that this new method of cooking is safe in this respect. Over 5,000 tests were

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made altogether in which many kinds of everyday vegetables — cauliflower, carrots, turnips and several others — were cooked under the same sort of conditions as would be found in an ordinary kitchen. The results showed that, contrary to expectation, pressure-cooked vegetables contained more vitamin C — the anti-scurvy vitamin — than ordinary boiled ones. Other experiments, which have been confirmed in other British laboratories, show that vitamin B₁ also is not destroyed so greatly. Naturally, an attempt has been made to find out why despite higher temperatures there is more vitamin left. There seem to be three main reasons. The first and foremost is the fact that very little water is put into pressure cookers and even this small amount never comes into direct contact with the food. When food is boiled in the ordinary way, some vitamin is lost by heat, but a great deal more is lost by being dissolved out by water. As much as half the vitamin C may be lost in this way and thrown into the kitchen sink. Another important factor is that in the pressure cooker the food is heated to its highest temperature in a very short time whereas when boiled in water it takes several minutes. It is during this preliminary heating that the vitamin is most likely to be destroyed. Yet another point is that in the pressure cooker there is no air, only steam, so that no vitamin is lost by chemical combination with oxygen.

Minerals: Vitamins are not the only important substances which boiling water may dissolve out of food — valuable minerals, such as iron, phosphorus and calcium are also lost. Experiments in a number of laboratories have shown that scarcely any of these are lost when the pressure method is used. The pressure cooker has gained in favour so rapidly during the last few years — when economy in time and fuel have become so vital — that we may well be starting an era in which its use becomes common place. It is, therefore, gratifying to know that our scientists are keeping a watchful eye for any dangers which may result from such a departure from kitchen convention. (B. F. 1013 British Information Service.)

Locusts are not invincible: As the prevention of locust invasions is still imperfect, new invasions may come, but recent experience has shown that locusts are not invincible. Man can now defend his crops against the invaders, and sooner or later locust plagues will be a thing of the past.

For the last 20 years, scientists of many nations have been studying locusts in Africa, Arabia, India and elsewhere, trying to find out all about their life and habits in order to fight and eliminate their ever threatening menace. To make these studies, scientists travelled through inhospitable deserts and pestilential swamps; they lived for months amongst locusts and learned their ways. They also collected reports on swarm movements in all countries of Africa and plotted them on maps so as to know how locust invasions spread from one country to another, and particularly — to discover where and how the swarms originate. The most striking fact about locusts is that their swarms are not always present. There are periods of several years when there are no swarms at all. It has always been a puzzle — what happens to locusts when there are no swarms? This puzzle has now been solved. It has been found that, when swarms disappear, locusts continue to live in certain places, but they are few in number, do no harm and pass unnoticed by ordinary man. It is more remarkable, however, that even scientists in the past overlooked such non-swarming locusts, because they change their appearance when not in swarms and look like ordinary grasshoppers. A young non-swarming locust is green, while a locust from a swarm is coloured orange and black.

Under constant watch: The solitary locusts survive only in a few places, and when the season is favourable, they increase in numbers, come together in dense groups and change their colour, becoming dreaded swarming locusts, which travel fast and wide. Once that secret of the change in locusts became known, the places where solitary locusts survive were discovered and the sources of swarms were no longer unknown.

These places are now kept under constant watch, to see whether locusts begin to change size. In this way, locust invasions can be prevented. Unfortunately, many of these original locust sources are in wild uninhabited countries, where it is difficult to maintain a strict watch. Therefore, there are still places where swarms can develop unobserved and locust invasions are still possible. However, the knowledge of swarm movements is sufficiently good now to enable scientists to make predictions, so that every threatened country is always warned in time to make preparations for defence. During the last war, vast swarms of locusts threatened crops in East Africa and the Middle East, and famine was expected, but warnings were sounded and anti-locust measures organised on a large scale. Thousands of troops, under the direction of scientists, were used to track down locusts and to scatter poisoned bran which locusts love in front of the advancing hordes. This anti-locust war was entirely successful. Only in few cases was there damage to crops, and famine was averted. [B. F. 1096 British Information Service.]

Grass cubes as cattle feed: Grass dried and pressed into cubes will feed thousands of dairy cows in Britain next winter. This revolution in feeding — which makes grass last all the year round — will save expenditure on imported feeding stuffs. Plants to dry grass and convert it into bales or cubes are being erected in many countries. Most of these are owned by farmers either through co-operative societies or local associations. The associations do the work of manuring, cutting, carting and drying and returning the final product to the farms.

The crop is cut two or three times a year and the average production of dried grass is two tons an acre. The cost averages about £15 (Rs. 200) a ton — nearly £10 (Rs. 133) less than imported feeding stuffs. Farmers say that cows milk better on and are much healthier. A big stimulus to this scheme has been provided by Government grants. [B. F. 1279 British Information Service.]

New orchard sprayer impresses: A new Australian machine for spraying crops and orchards with insecticides and for similar purposes is said to be very successful. The Wilmist dispenses with booms, and is a single compact unit. It can be mounted on a trailer, utility or truck.

A 3½ h. p. motor is needed to drive a propeller at 3,000 revolutions per minute in a wind tunnel 14 inches in diameter. This produces a 60 mile an hour blast of air through a pipe shaped like a fish-tailed exhaust pipe. Spraying mixture is pumped through jets into the air stream at the mouth of the duct, and thoroughly atomised.

It is said that the machine is very economical. Whereas old-type sprayers usually needed about 100 gallons of liquid to cover one acre, the 'Wilmist' sprayer can cut this down to between 5—10 gallons according to the material being sprayed and the requirements of the crop. [A. G. N. 246]

Toads eat bees: Some bee-keepers in Queensland and northern New South Wales are concerned about the increasing prevalence of the Giant Toad. This unpleasant-looking creature, known as '*Bufo Marinus*' has a voracious appetite for catching them.

The toads feed at night. Taking up a strategic position at the entrance to the hive, they catch the bees as they pass in and out. One bee-keeper maintains that he has seen two-and three-story hives destroyed in 3 weeks by these Giant Toads. A number of toads may attack a single hive. The toad, which exudes a poisonous slime, has also been blamed for the death of cats, dogs and poultry. No convenient way of destroying the toads has yet been found. [A. G. N. 246]

'Earthworm Enterprises': Most farmers and gardeners appreciate the value of worms in improving the soil, and in some places the land has been raised to a higher standard of fertility by encouraging the multiplication of the worms. Mr. Harold Karp, of Randwick, Sydney, claims that if home gardeners used more worms they would get better flowers and vegetables. With a box of 250 worms as breeding stock, he thinks any garden could be started along the road to high fertility, and he has set out to make the necessary worms available. Last December he took up worm breeding as a hobby, but he has now registered 'Earthworm Enterprise' as a business, and has built up a 'stud' of half a-million worms. He intends to sell them at from 15 shillings to one pound a box according to quality.

He apparently has a more ambitious rival in the United States, who recently sought the help of a Sydney newspaper to arrange for the export of some giant earthworms from Gippsland. This worm, technically known as '*Megascotides australis*', may grow to a length of 10 feet and as thick as a man's thumb. However, the prospects of acclimatising these worms in a strange environment are poor. The giant worm is so discriminating in its surroundings that it is found only along the banks of the Bass River in Gippsland, and no where else in Australia or the world. [A. G. N. 242.]



Crops and Trade Reports

Statistics—Crop—Cotton—1948—1949—Fourth Forecast Report: The average area under cotton in the Madras Province during the five years ending 1944-'45 represents 10.7 per cent of the total area under cotton in India.

2. The area sown under cotton upto the 25th January 1949 is estimated at 1,378,700 acres. When compared with the area of 1,286,000 acres estimated for the corresponding period of last year, it reveals an increase of 7.3 per cent.

Three hundred and seventy thousand six hundred acres have been reported as sown since the last December forecast was issued. This extent comprises 202,500 acres under Tinnevelly including Karunganni in Coimbatore, 73,900 acres under Cambodia, 60,200 acres under Westerns (including Mungari cotton), 12,900 acres under Warangal and Cocanadas, 18,000 acres under White and Red Northern, 2,600 acres under Salems and 500 acres under Chinnapathi or short-staple cotton. The area sown in December 1948 and January 1949 is less than that sown in the corresponding period of the previous year by 1.2 per cent.

3. When compared with the area estimated for the corresponding period of the previous year, an increase in area is estimated in the districts of West Godavari, Kurnool, Bellary, Anantapur, Coimbatore, Ramnad and Tirunelveli and a decrease in area in the other important districts. The variations are marked in Guntur (—6,100 acres), Kurnool (—18,000 acres), Bellary (—40,000 acres), Anantapur (—13,700 acres), Nellore (—6,400 acres), Salem—5,500 acres, Coimbatore (—29,800 acres), Ramnad (—9,300 acres), and Tirunelveli (—7,000 acres).

4. The area under irrigated cotton, mainly Cambodia, is estimated at 132,100 acres, as against 126,100 acres estimated for the corresponding period of the previous year.

5. Pickings of the mungari or early sown cotton crop in the Deccan are nearing completion.