province of Quebec, the authors found that there were considerable differences in the percentages of nitrogen, as determined by the Kjeldahl and the Dumas methods. The latter always gave a higher figure, the difference between the two methods varying from 6·4 to 29·6% of the total nitrogen. The results therefore lend support to the belief, that not all the nitrogen in the soil is of a protein nature and that the non-protein nitrogen which may be an appreciable fraction, is not estimated by the Kjeldahl method. M. R. B.

Some factors affecting the influence of soy beans, oats, and other crops on the succeeding crop. By D. R. Dodd and G. G. Pohlman. (*Bull. 265 Agri. Expt. Stn. West Virginia Univ.*) Different investigators having reported different results as regards the effect of soy beans (grown for hay and for seed) on the succeeding crops, the authors attempted to study this effect in a three fold direction.

1. to determine the effect of a crop of soybean hay as compared with oats on the yield of corn, wheat, buckwheat, potatoes and oats, following. 2. to determine the effect of respective crops of oats, buck wheat, potatoes, wheat and corn or the yield of following crops of soy beans and oats. and 3. to determine the effect of these various crops and cultural treatments on the nitrate and moisture content of the soil, and the relationships of these contents to the yields of crops.

Results obtained showed that as regards (1), the yields of oats (both grain and straw), wheat *grain* and corn grain were significantly higher when following soybeans than when following oats, but as regards potatoes, clover and wheat straw, the difference was not significant. As regards the 2nd point, wheat was found to be the best crop, to precede oats or soy beans. During the growth of soy beans, the nitrate content of the soil diminishes reaching a minimum at the time of removal of the crop; the soil recoups gradually after the removal of the crop and therefore sufficient time (about 3 weeks) should be allowed after the removal of the soy beans, for the store of available Nitrogen to be replenished, before the next crop is planted; as an alternative an addition of 50 pounds of Sodium Nitrate per acre, may be applied. M R. B.

Gleanings.

Bees in Court. Near Amity, N. Y. lived two brothers, surnamed Utter. One was a peach grower by general occupation while the other added beekeeping to his various other rural pursuits. For some time a bad feeling existed between the two, and then Peach Utter conceived the idea that the bees of his brother, the beekeeper, were injuring his peaches and even killing the trees. Upon these allegations he based a complaint and brought a suit for damages against Beekeeper Utter. The judge gave a judgment of 25 dollars and costs against Beekeeper Utter. On this, the National Beekeeper's Association, America whose attention was called to the matter, employed competent counsel and took the matter up to the country court. The final trial which came off on 17th, 18th and 19th December 1931, before the country court was stubbornly contested by both sides, about 30 witnesses were examined and the jury after 10 minutes' deliberation brought in verdict for the defendent, Beekeeper Utter.

There were in attendance, witnesses ready to render expert testimony to the fact that, bees do not and cannot puncture sound fruit; some laughable testimony was given by the witnesses for the prosecution, like the statements ' that the bees used their horns (antennae) to make holes in the fruit,"—which only illustrated the prevailing ignorance in regard to bees. Professor Benton one of the defence witnesses showed by live and dead specimens of bees, and also by charts

which he brought for the occasion, that in his opinion it was a physical impossibility for the bees to puncture fruits with their jaws or mandibles; that the jaws of bees were very different from those of wasps and other insects having cutting edges or teeth × × × × (*American Bee Journal*—Dec. 1935. P. 571.)

Where Spores score over Human Beings. Surviving conditions under which man would die, tiny spores of important plant diseases are growing in a laboratory of the 'Department of Agriculture, Washington, after journeying nearly 13¾ miles into the stratosphere, with the balloon *Explorer II.* Discovery that spores can live after being sent to an altitude of 72, 395 feet, is the first scientific conclusion from the recent ascension. × × × × The spores carried aloft had to withstand (1) temperatures lower than 65 degrees below Zero Fahrenheit (2) such a low atmospheric pressure that man could not live in it (3) ultra-violet rays from the sun which never reach the earth and which are capable of killing some forms of life (4) ozone & (5) extreme dryness. (*Science-Suppt.* vol. 82, No. 2136, p. 12).

Sugar Windows! Slapstick comedies are now few and far between these days but even then a movie villain is now and then tossed through a window. When you see this, don't cringe for fear that the glass will cut the actor, for, this glass-like pane has been prepared from sugar. (*Sc. Amer.* Jan. 1936, p. 50).

Improvement of memory by sleep. If a person memorises certain kinds of material perfectly and goes to sleep immediately afterwards, he will recall most of it, and also relearn the whole thing more economically after a lapse of 24 hours, than if he waits even a few hours before going to sleep, according to Dr. H. M. Johnson, Professor of Psychology, Washington. Experiments based on different methods, made by Dr. Rosa Heine Katy and Joseph O' Brien at the University of Gettingen, showed that all the subjects who were studied, were better able to recall and also relearn material that they had learned by rote and partially forgotten, if they slept for 8 hours and then worked for *16* hours, than if they distributed their rest and activity in any other way during the 24 hour period. × × × × (*Sc. Suppt.* vol. 82 No. 2137, p. 15.)

The Composition of some Common Foods :—

Food.	Percentage of				Calorie (energy value) per lb.
	Protein.	Fat.	Carbo-hydrates.	Salts.	
Wheat.	12·0	1·7	73·7	1·5	1750
Cambu.	10·0	5·0	74·2	2·0	1750
Cholam.	8·9	3·1	71·0	2·5	1750
Rice.	7 5	1·8	82 0	0 8	1584
Grams.	19 0	4·3	54·0	2·8	1530
Lentils.	25·0	1·5	60·0	6·0	1600
Peas & Beans.	24·0	1·5	60 0	3 0	488
Soya Beans.	40·0	20·3	24 6	4·8	2100
Linseed.	24·0	40·0	26 0	2·0	2270
Groundnut.	24·0	45·0	22 0	2·0	2450
Meat.	24·0	2·5	...	1 5	576
Eggs.	14·8	10·5	...	1 0	720
Milk (Buffalo's)	4·0	7 to 9	4·0	0·8	480
Potatoes.	3·0	0·12	14·2	1·0	556

(From Pamphlet No. 7—Bombay Presy. Baby and Health Week Association).

Correspondence.

Growing Sugarcane in the Tanjore Delta.

Rao Bahadur C. S. Subramanyam writes from Mayavaram :— Some years ago it was the common opinion among farmers and agricultural officers that sugarcane cannot be grown in the wet lands of this delta. The imposition of the protective duties against the import of sugar was not taken advantage of by the Tanjore farmer, though it has been utilised very profitably by the farmers and industrialists in Northern India. About three years ago different varieties of cane were planted in the wet fields of the Government Aduthurai Farm, where the land is a flat level block that does not drain quickly after a heavy rain. As the results were encouraging, here and there some farmers grew sugarcane with varying success. The failures were due, as I have since ascertained, to their not adopting the correct method of cultivation as also to the unsuitable choice of land.

Early last year, I tried growing sugarcane on my farm and chose a wetland field somewhat higher in level which would drain off quickly after a heavy rain. The local method of raising the crop is to plough the land 3 or 4 times and plant the setts in dry land beds of 4 or 5 feet square. Irrigation water is obtained either by diverting the adjoining channels or raising it from a well by means of a *picotah*. The local Agricultural Demonstrator advised me to dig trenches one yard apart, put in farmyard manure and channel silt and plant the setts a foot apart, after a preliminary watering. 1500 setts of Fiji. B. and about 800 setts of Co. 281 and Co 285 were thus planted in about 12 cents of land between the 10th and 15th of May. The Fiji B. seed was obtained from a friend, and the other varieties from the Aduthurai Farm. For the first two months, the crop was watered once a week by raising water *(picotah)* from a well previously sunk for the purpose. After the freshes arrived in the river, the channel water supply was utilised, and irrigation became easy. About two months after planting, I applied about 5 maunds of groundnut cake and earthed up the ridges. A second earthing up was done in August, and thereafter, not much attention was required until the cane came to harvest in March. The cane was exhibited at the Srirangam Exhibition early this year and also at Aduthurai at which places it earned a silver medal and an iron plough respectively.

The reported failures are due to choosing a plot which would not drain off, planting a large area without trying the suitability of the land in the first instance, and not seeking the advice and guidance of the Demonstrator—in brief, attempting to do the job without knowing the ropes. I do not think that all the villages in this delta are suitable for sugarcane cultivation, because, the fields therein get water-logged after some continuous or considerable rain. But a very large number—nearly half—of the villages have some higher-level lands in them, and on these, cane could be grown successfully. Wetlands of this type score over dry lands as the cost of lift irrigation, except for a few weeks in the beginning, is saved. The requisites for a successful planting are (a) a high-level wetland that drains easily, (b) a well in its centre, and a *mhote* or *picotah* arrangement to lift the water and (c) acting under the advice of a Demonstrator, instead of playing off one's bat. The initial outlay consists in digging and constructing a well for every 6 or 7 acres. The *mhote* arrangement is better, for it does away with human labour to a great extent, and the bullocks can be worked for ploughing other lands, carting manure and produce etc.

I have not kept a costing account. The labour employed was of men engaged in paddy cultivation on the same farm. The cost of seed, manure and labour

came up to Rs. 20. As the effort was the first of its kind, the cost might be 25% more than was necessary. About 3000 canes were the outturn. The cultivation was not intensive. Almost every farmer, big or small, could easily attempt this venture on a small scale in the first instance, and observing the results, expand the cultivation.

The growing of paddy and paddy alone is monotonous work and drab, and this accounts for the indifferent cultivation one sees everywhere. There is a friend of mine, who, with an oil engine installation, grows sugarcane and plantains, and it is paying him.

Crop & Trade Reports.

Castor—First or Final Report—Madras—1935. The average of the areas under castor in the Madras Presidency during the five years ending 1933—'34, has represented 20 per cent of the total area under castor in India. The area under castor in the Madras Presidency up to the 25th November 1935 is estimated at 261,700 acres. When compared with the area of 289,200 acres estimated for the corresponding period of last year, it reveals a decrease of 9 5 per cent. The estimate for last year was above the actual area of 278,131 acres by about 4 per cent. The decrease is general outside Ganjam, Vizagapatam, East Godavari, Bellary, Chingleput, North Arcot, Trichinopoly, Tanjore, Ramnad, Tinnevelly and the West Coast. The yield is expected to be 99 per cent of the normal as against 79 per cent in the previous year according to the season and crop report. On this basis, the yield is estimated at 25,800 tons as against 26,100 tons estimated for the corresponding period of last year and 22,780 tons estimated in the season and crop report of last year. The wholesale price of Castor seed per imperial maund of 82-2/7 lbs. as reported from important markets towards the close of November 1935, was Rs 6 in Berhampore, Rs. 5—5—0 in Vizianagaram, Rs. 5—4—0 in Madura, Rs. 5—1—0 in Cocanada and Rs. 5 in Vizagapatam, Ellore, Bezwada and Guntur and ranged from Rs. 4—2—0 to Rs. 4—15—0 in the other markets. When compared with the prices reported at the corresponding date of last year, these prices reveal a rise of 33 per cent in Vizagapatam, Vizianagaram and Ellore, 31 per cent in Guntur, 30 per cent in Vellore, 16 per cent in Salem, and 7 to 10 per cent in the other markets.

Paddy—Intermediate report—Madras—1935—36. The main crop of paddy has been harvested in parts of the Circars, the Deccan and the West Coast. The yield is reported to be slightly above normal in South Canara, normal in Kistna, the Deccan and Malabar and below normal in the other districts. The main crop of paddy under rainfed tanks in parts of the Nellore district has been affected by drought to some extent. In Tanjore, the early samba varieties have been adversely affected by the high winds in November and rains in December and in parts of the districts of Trichinopoly, Ramnad and Tinnevelly, the crop has been affected a little by insects. The condition of the crop is fairly satisfactory in the other districts. The wholesale price of paddy per imperial maund of 82-2/7 lbs. as reported from important markets towards the close of December 1935 was Rs. 3—2—0 in Cuddapah, Rs. 3—1—0 in Salem, Rs. 2—13—0 in Nellore, Rs. 2—12—0 in Vellore, Erode, Trichinopoly and Madura, Rs. 2—11—0 in Vizianagaram, Rs. 2—10—0 in Nandyal Rs. 2—8—0 in Berhampore, Rs 2—6—0 in Tinnevelly and ranged from Rs. 2—1—0 to Rs 2—5—0 in the other markets. When compared with the prices reported in the previous month, these prices are stationary in Vizagapatam, Vizianagaram, Nandyal, Cuddapah, Vellore, Erode, Trichinopoly, Kumbakonam and Tinnevelly; they have risen by eight per cent in Cuddalore, two per cent in Cocanada and Guntur and by one per cent in Ellore and are lower by 8 per cent in Madura, 7 per cent in Negapatam, 5 per cent in Rajahmundry, 4 per cent in Masulipatam and by one to 2 per cent in the other markets.