

Gleanings.

A Golden Jubilee. On 6th December 1935, the Society of Plant Pathology and Agricultural Entomology of France, held at the Natural History Museum in Paris, a meeting to celebrate the memory of Professor Millardet and the Fiftieth Anniversary of his discovery of Bordeaux Mixture in 1885. (*Int. Review of Agri.* Jan. 1936).

Hear this about the white Elephant! A white elephant with pink eyes--a true albino--was killed not long ago by a game warden on the plains of Laikipia, in Kenya colony, South Africa. Like all white elephants, the animal was in reality gray, but every hair on its body was white. The Kenya game warden's report relates terrible effects on wild life, of three years of drought. There are records of elephants falling into wells and perishing, because they were too weak to get out again. A number of rhinoceroses, and many buffaloes have also died in their frantic efforts to get water. In northern Kenya, herds of wild elephants hid behind cattle while natives dug for water, and when it was found, stampeded forward to get the first drink.

Soaking Seed Cane before Planting. Two experiments were made to investigate the effect of soaking on the germination of cuttings and on the final yield of cane, both plant and first ratoon. There were five treatments: (1) soaked in a saturated solution of lime; (2) soaked in a solution of lime containing also one pound of magnesium sulphate per 50 gallons; (3) soaked in a complete nutrient solution containing all plant food; (4) soaking in water alone; (5) no soaking. In one experiment the soaking was for a period of 8 hours, in the other 16 hours.

In both experiments the yield of cane from the seed cane that had been soaked in (1) the lime, and (2) the lime and magnesium sulphate solutions, was significantly better than the yield of cane grown from seed cane that was not soaked and also better than from the treatments (3) and (4). There was no significant difference between soaking in lime solution alone, and lime solution plus magnesium sulphate. Hence preference is given to the method of soaking in saturated lime solution, because it appears to be the simplest. Both experiments were extended to include the first ratoon crops from all treatments. In the plant cane the increase of yield from the cane soaked in lime water was about 25 per cent., in the ratoon crop about 17 per cent.

The author has made some investigations with a view to finding an explanation of why soaking the seed pieces results both in a better germination and a larger yield of cane. It was first thought that the soaking would initiate a rapid hydrolysis of sucrose, which would speed up the germination process. It could not be shown that soaking had any marked effect on the rate of hydrolysis. It was then thought that the nature of the solution would have some effect on the amount of water absorbed by the seed pieces. By experiment it was found that the pieces actually absorbed significantly more water from the lime solution than from pure water, and this appears to provide the answer to the question. The pieces that have been soaked in the lime solution have absorbed more moisture, and therefore germinate faster when planted; this rapid germination assures a more vigorous growth.

While soaking in the lime solution resulted in an increased percentage of germination, there was still a certain number of failures. By a special investigation it was found that the most uniform stands (lowest percentage of blanks or misses) were obtained when the planting material was taken from young cane, or the top portions of old cane; this means that the best planting material is that

containing the largest percentage of invert sugar. Obviously when such material is soaked in lime water, one condition will be provided that will help to give the best stand and the largest yield. (Extract from *Facts about Sugar*, Vol. 30, 12, 1936).

Germination studies on Sugar cane. Pieces of seed cane were soaked for 24 to 48 hours in solutions of various materials; among these, extract of ashes and a saturated solution of lime and magnesium sulphate (1:50) showed a more favourable effect on percentage of germination than water alone, and a much better germination than was obtained with unsoaked seed pieces. The more mature parts of the cane stalk benefited most from soaking. It has been found useful to keep canes standing vertically in drums with their cut ends wholly immersed in water to ensure uniform germination of middle and top pieces.

Germination tests with material cut every month and kept in an incubating chamber maintained at 72–78°F. show that the best germinations obtain in monsoon from young canes. High glucose ratio and moisture per cent in cane seem to have a significant bearing. Critical point of moisture percentage in cane seems to be 50.3, below which very poor germinations were realised. Critical point of moisture percentage in cane buds of Co. 213 was, however, found to be only 40.0. On further dessication they lose power to revive even on soaking. Younger buds borne on the top of cane shrivel up and dry more quickly than mature buds, which dry up comparatively slowly. Form and shape of bud and its position on the stalk also influence to a certain extent rate of dessication. Other points studied show relationship between wax or bloom present on cane-stalks and germination. Varieties having a thicker coating of wax show tardier germination under low soil moisture conditions. With high moisture content, differences are, however, less marked.

Capacity of absorption at surface varies with the quantity of wax present and the hardness of rind, and seems positively correlated with high germination. Similarly, rapidity of sugar hydrolysis on soaking seems to indicate whether variety would result in quick germination. (K. L. Khanna, *Dip. Agri. Bihar and Orissa*, Bull. 6. (1934)—Abstracted in "*Sugar*" Feb. 1936).

Paper from Maize stalks. Difficulties in the manufacture of paper from maize stalks arise from the structural peculiarities of the stems. The cortex contains fibres shorter than those of the most commonly used woods, but, nevertheless, of paper-making quality; whereas the soft, spongy, inner pith consists chiefly of thin walled cells of little use for paper-making. Furthermore, hard nodes occur in the cortex and must be crushed in order to obtain an evenly cooked pulp. An excessive amount of dirt is also liable to be present.

A series of laboratory and semi-commercial tests were carried out, using the material in three different forms, viz. (1) the stalks in 1 in. lengths (2) the shredded stalks, (3) the separated and washed cortex. Papers were made by the lime, caustic soda and sulphate processes, and details are given of the yield of pulp and the qualities of the paper obtained in each trial. The cleanest, strongest, best working papers were produced from the separated cortex, which yielded only 5 per cent less pulp (expressed on the original baled stalks) than was obtained from treating either the cut or the shredded stalks. As moreover the original material requires twice the quantity of chemicals and twice the digester capacity needed for the cortex, which amounts to only 43 per cent, of the original material, the advantage and economy of using the cortex only is evident.

It is estimated that 5.2 tons of maize stalks would be required to give enough cortex to produce 1 ton of pulp suitable for white papers. Assuming that the price of the stalks at the mill is 7.15 dollars per ton and that \$1 per ton must be allowed for the separation of the cortex, the cost of the stalks would be 42.38 \$. per ton of pulp. This is about 60 per cent. greater than the cost of the spruce

wood required for a ton of sulphite pulp, and in addition the conversion and handling costs would be higher.

In conclusion, the authors express the opinion that, on account of the relatively high cost of the raw material and the expense of converting it into pulp, the manufacture of paper from maize stalks is not at the present time a commercially feasible venture. Only if sufficiently profitable uses could be developed for the pith and fine fibrous material left after separating the cortex, could the stalks become of interest to the paper-maker. (*Bull. Imp. Inst.*, Jan. 1936).

This is Japan's way. Japan has come forward with a new plan to bring relief to her unemployed. We understand that the Japanese Bureau of Social Affairs has recently established a scheme of camps for men engaged on unemployment relief works. The object is to give the unemployed the instruction they require, particularly with a view to occupational re-training. Expenditure on the scheme in 1936 will amount to 3,570,000 yen. About 90,000 unemployed workers without means drawn from the six largest cities of Japan, will be engaged on the relief works for at least six months and housed in the camps. Arrangements have been made for 60 teachers to supervise camp life and instruct the men. The authorities will do their best to provide men leaving the camps with employment corresponding to their newly acquired abilities; and special steps will be taken to encourage them to emigrate. (*Mys. Ec. Journal*, Jan. 1936).

Production of Artificial Silk continues to increase. The German Artificial Silk Industry, concerning which official figures have now been published, experienced a further marked up-swing. Total production was 48.2 million Kg. or an increase of 42 per cent. over 1933 and 62 per cent. over 1932..... Sales of German establishments have increased considerably, indeed from 33.6 million Kg. in 1933 to 52.3 million Kg. in 1934 or round about 56%. Exportation has however, declined. (*Ind. and Eng. Chem.*, Vol. 14, No. 3, P. 38).

For the Fads.

Methusaleh ate what he found on his plate,
And never, as people do now,
Did he note the amount of calorie count.
He ate it because it was chow,
He was not disturbed, as at dinner he sat,
Destroying a roast or a pie,
To think it was lacking in granular fat
Or a couple of vitamins shy.
He cheerfully chewed every piece of food,
Untroubled by worries or fears,
Lest his health might be hurt by some fancy dessert,
And he lived over nine hundred years!

(*Scient. Amer.*, March 1936, P. 120).

What an escape! It is fortunate for human beings that one ancient insect became extinct. Fossil remains discovered near Elmo, Kansas, by Dr. Frank M. Carpenter of the Howard Museum of comparative Zoology, show that this particular dragon fly which lived 150,000,000 years ago, was nearly two and a half feet long. (*Sc. Amer.*, March 1936).

ABSTRACTS

Studies on the coconut palm III. Husk. A. The manurial value of coconut husk ash. by M. L. M. Salgado—*Trop. Agri. Cey.* March 1936, P. 131. A paper that records the analyses of coconut husk ash carried out in order to assess its manurial value. The author finds that the coconut husk ash contains as much as