https://doi.org/10.29321/MAJ.10.A04673

work is becoming one of the chief weapons in the battle that must be ceaselessly carried on against the destructive forces of Nature, especially diseases.

Like every other science the modern science of genetics is international not only in theoretical findings, but also in its practical application to agriculture. A great improvement in the productive efficiency will result by the establishment of the contemplated Bureaux of Plant Introduction in India on lines similar to that in the United States of America. In the future, the well-being of a nation will depend more and more on the vigour and adequacy with which it carried on the task of improving the forms of life on which it depends to feed, to clothe and house its people and also on the efficient means by which this improvement is made available to all its citizens. G. N. R. *Science and Culture* Vol. 7,No. 8, February 1942.

Sugarcane Ratooning.

Advantages and Disadvantages of the Practice.

By RAO BAHADUR T. S. VENKATRAMAN,

Imperial Sugarcane Station, Coimbatore.

The article in *Indian Sugar* for August 1941 by Dr. C. D. Agarwala entitled "Economic Aspects of Sugarcane Ratooning" is likely to attract the attention of sugarcane growers in our country. It may not, therefore, be without interest to indicate very briefly certain of the advantages and disadvantages connected with the ratooning of sugarcane.

Ratooning, it has to be admitted, is in vogue in most of the known sugarcane countries of the world. It is not practised in Java for the reason that the land tenure system there necessitates cane lands going back to paddy after the harvest of the cane crop. Even in India there are certain places like Hospet in the district of Bellary and elsewhere where ratoons have successfully been taken for as many as 10 to 12 years. Certain indigenous canes of North India did not lend themselves to ratooning but the Coimbatore canes which have now replaced them ratoon well and hence the grower is now tempted to adopt it.

Appreciable Saving in Costs. The saving in cultivation costs from ratooning is quite appreciable as mentioned in Dr. Agarwala's article. Secondly, ratoon crops mature earlier than plant crops of the same age and this should come in handy for the early part of the factory crushing season. But it has to be remembered, however, that ratoon crops need careful cultivation and attention to make them a success. In our country, on the other hand, the ratoon crops are often neglected.

In Australia, where ratooning is a standard practice on account of the high cost of labour in that country—special field implements have been devised to ensure that the crop left over for ratooning is properly harvested. The plants have to be cut low and well below ground level as the ratoons grow best when developed from the lower buds. In fact, one could walk over ratooned sugarcane fields in Australia, soon after ratooning without suspecting that the field has been ratooned. In Australia the sugarcane crop is not earthed up. It may be worthwhile importing certain of the field implements used in ratooning from Australia. Some of these are figured in an article in *Agriculture and Livestock in India*, in the issue for May 1936.

Varieties differ considerably in the manner in which they respond to ratooning and certain of the Coimbatore canes have been known to give as ratoons higher yields than even as plant crops. The capacity for ratooning is a character which can be worked into canes by selective breeding.

There is one serious warning, however, which persons in our land enthusiastic about ratooning have to bear in mind. In cases where the plant crop is affected by fungoid or other diseases, like mosaic, which find a lodging in the cane itself, the practice of ratooning will be disastrous, as it would lead to a rapid multiplication of the disease. The cane joint with its juicy contents is almost an ideal culture house for certain of these pathologic organisms. The same would apply also to certain pests which lodge in the stubbles and find in ratooning favourable conditions for rapid multiplication.

Discrimination Necessary. To conclude, it would appear that ratooning should be confined to tracts where proper cultivation practices including manuring prevail and where the plant crop is definitely known to be sound and healthy. It would be courting disaster if a deceased or poorly grown crop is allowed to ratoon. *Indian Sugar* Vol. 4, No. 10, October 1941.

ABSTRACTS

Ascorbic acid content of some varieties of Mexican peppers. Francisco Giral and Juan Senosiain. *Ciencia* (Mexico) 1, 258—9 (1940). The vitamin C content of 17 varieties of Mexican peppers, corresponding in a major part to the species *Capsicum annuum* L. and one of the species *Capsicum frutescens* L., determined. Variations ranging from 17·4 to 213·4 mg. per 100 gm. of fresh material were observed. The authors found that the ascorbic acid content was inversely proportional to the pungent power of the pepper. The pungency was assayed by dilution in water until no sharp taste was experienced by the tongue. The total N determinations demonstrated a direct proportionality to the pungent power and inverse proportion to the vitamin C content. Martin L. Peller. [*Chemical Abstracts* Vol. 35, No. 21, Nov. 10, 1941.]

Studies in tropical fruits. XI Carbohydrate metabolism of the banana fruit during ripening under tropical conditions. H. R. Barnell. *Ann. Botany* (N. S.), 5 215—47 (1941). The fresh weight of the whole finger fell throughout the ripening period, but most rapidly between 2—3 and 9—11 days after cutting the bunch. The pulp lost fresh weight till the third day, then increased in weight until the ninth day, after which a loss again occurred. The skin lost weight all through the period, but particularly quickly between the ninth day and eleventh day. The percentage of dry matter in the pulp decreased as the fruit ripened. Starch had fallen to small values at the "eating-ripe" stage while the total sugars rose to a peak value at the beginning of this stage. Sucrose attained its peak value at the beginning of the "eating-ripe" stage and then fell, while reducing sugars continued to increase in percentage amount until the fruit became over-ripe. Glycosidic-glucose, while present in small amount only, definitely increased during the "eating-ripe" and over-ripe stages. The non-starch fraction of the alcohol-insoluble substance is an important source of respirable material in both pulp and skin. In the pulp the C substrate for respiration is at some stages derived in part at least from sources other than the estimated carbohydrates. Titratable acid decreased in the pulp until the "sprung" condition was reached and then increased as coloring occurred, falling again during senescence. In the skin the percentage amount of dry matter increased all through the period of observation, but particularly during the "eating-ripe" and over-ripe stages. Rapid chemical changes in the fruit the first few hours after cutting under tropical conditions, indicate that rapid cooling is to be recommended. R. C. Burrell. [*Chemical Abstracts* Vol. 35 No. 21. Nov. 10, 1941.]

Retention of vitamins by dried fruits and vegetables. E. M. Mrak. *Fruit Products J.* 21, 13—15 (1941). Procedures used in the production of dried fruits and vegetables are discussed. The information available, concerning the effect of the

treatment on vitamin retention, is not extensive but there is sufficient evidence to indicate that certain procedures are desirable and others undesirable. And so: (1) Steam blanching tends to preserve vitamins A, B_1 and C in dehydrated vegetables. Rapid drying also favors the retention of vitamins in carrots and spinach (2) Sulfuring preserves vitamins A and C in dried fruits. It has no effect on riboflavin but tends to destroy vitamin B_1. (3) Dehydration is superior to sun-drying from the standpoint of vitamin retention. (4) Alk. dips have no destructive effect on vitamins A, B_1 and riboflavin. (5) Vitamin destruction in storage is related to temperature and time of storage, period and moisture content of the fruit. Sulfured cut fruits lose SO_2 more rapidly if stored at higher temperatures. As the SO_2 content decreases, darkening and loss of vitamins A and C by the fruit increase. Vitamin A destruction is rapid in fruit containing less than 400 p. p. m. of SO_2. Vitamin C is in all probability also lost as these changes take place. (6) The loss of SO_2 from fruit containing 18—20% moisture is much more rapid than from fruit containing 12—14% of moisture. Storage of fruit containing 12—14% moisture would retard the loss of SO_2 and hence the deterioration of vitamin A and probably C. Edward A. Ackermann. (*Chemical Abstracts.* Vol. 35 No. 21 Nov. 10, 1941.)

Vitamin A content of cows' butter and ghee and buffalo ghee. B. N. Majumdar. *Indian J. Vet. Sci. Anim. Husb.* 11, 329 (1941). Ten samples of fresh cows' butter and ten samples of ghee prepared from this butter were analysed for their vitamin A and carotene contents by the spectrophotometric method. The vitamin A value of the cows' butter was found to be from 15 to 20 I. U. per gm. of fat and the carotene content from 3 to 12 I. U., the total vitamin A potency being about 11,800 I. U. per pound of butter. The vitamin A content and the carotene values of ghee prepared from the above butter ranged from 10 to 17 I. U. and from 2 to 9 I. U. per gm. respectively. The moisture content of the butter samples varied from 13 to 20 per cent. The loss of vitamin A actively during the preparation of ghee was on an average 17·4 per cent and depended on the temperature and period of heating. Eighteen samples of buffalo ghee were also analysed. The vitamin A values ranged from 1 to 3·5 I. U. per gm. Traces only of carotene were present. (Author's summary).

Acacia leucophloea and Acacia alba. K. C. Jacob. *Indian Forester*, Vol. 68, (1942). Plants of the genus *Acacia* are used in medicine in India, especially *Acacia arabica*, and *A. leucophloea*. The former has dark barks while the latter has white barks. Two species of *Acacia* with white barks are found in India—one found distributed throughout the Madras presidency except the Telugu districts known as *velvelam* in Tamil, and the second found in the Telugu districts and known as *tella tooma* there. These are two different species and may be recognised by the following characters:

	Acacia leucophloea. Willd (Tella tooma).	*Acacia alba.* Willd.
1.	Branches spreading	Branches erect.
2.	Panicles slender, spreading, drooping and pubescent.	Panicles stout, erect and tomentose.
3.	Heads 4 mm. in diameter.	Heads 6 mm. in diameter.
4.	Pedicels slender, pubescent.	Pedicels stout, tomentose.
5.	Calyx triangular.	Calyx trapezoidal.
6.	Corolla 1·25 mm. long.	Corolla 1·5 mm. long.
7.	Pod glabrous and sometimes shining.	Pod clothed with pale brown tomentum.

N. K.