

the evolutionary relationship of *S. Hohenackeri* to the other species.

The second Indian species, viz., *S. indica* is now known to exist in 5 distinct so-called "chromosome races" having $2n = 30^4$, 44, 45, 46⁵ and 58⁵ chromosomes. Interesting is the fact that $2n = 30$, which is the lowest number in *S. indica*, represents a multiple of five, which is the haploid number of *S. Hohenackeri*. Apparently, this chromosome number relationship establishes a certain degree of affinity between the two Indian species.

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SUGARCANE RATOONS

RATOONING of sugarcane is a common practice among cane-growers, and is usually adopted owing to its comparative cheapness in cultivation. However, under similar conditions, ratoons are found to come upto maturity earlier and yield less than plant crop. It has been stressed that the yields of ratoons could be raised by bestowing greater care in their culture and nutrition.^{2,4} Nagar reported a gradual increase in the yields of the first, second and third ratoons of Co. 312 at Shahjahanpur when nitrogen was applied at 100 lb. per acre.³ Considerable work was done on this aspect in the Sugarcane Ratooning Scheme at Kalai in U.P.; heavier manuring of ratoons was found not only to reduce insect-attack, but raise the extraction of juice.¹

A comparative study of the performance of the plant crop and the first two ratoons of Co. 419, all receiving a manurial dose of 100 lb. nitrogen per acre, was made on this Station during 1947-50; and detailed investigations were carried out in respect of plant nutrition and development, effects on soil composition, and the ultimate yield and juice quality.

The yield of cane and sugar per acre was found to be higher for the plant crop than the

ratoons, the second ratoon recording the lowest values. The ratoons attained maturity earlier, and recorded better juice quality. The yield of the first ratoon could be pulled up to the level of the plant-crop by increased nitrogen application (150 lb. nitrogen per acre), but no similar response was observed in the case of the second ratoon. Phosphatic manure application tended to show slight beneficial effect on cane yield when response to nitrogen was limited, as in the case of the second ratoon.

The chief difference between the plant crop and the ratoons noted was that the nutritional level of the plant crop in respect of nitrogen, as revealed through foliar and whole-plant analysis, was of a higher order than the ratoons. The plant crop had a higher nitrogen-uptake during the growth-phase. The over-all nutritional status in respect of N, P and K was lowest for the second ratoon. Correspondingly, the soil under the ratoons contained lower nitrogen. This may be due in part to the fact that the soil does not have a fallow period for recuperation of nitrogen, since the ratoon immediately follows the plant crop. No other broad differences in the soil composition under plant and ratoon crops were noticed in respect of pH, total soluble salts, mechanical composition, exchangeable calcium and available phosphoric acid; but the organic carbon and available potash tended to show an increase with ratooning. The ratoons showed a lower hydration of the plant tissue than the plant crop, and this seemed to induce earlier maturity in the ratoons as reported.

A detailed paper embodying the various items of study including the results of soil and plant analysis, has been sent for publication elsewhere.⁵

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