(i) Studies have been in progress for the past few years in Wetlands, Central Farm, to obtain information for Coimbatore-soil-climatic zone regarding the most suitable green manure for paddy. The periodic visitation of drought in this district has been kept in mind while attacking the problem. Of the four green manures studied, Dhaincha, Sunnhemp, Pillipesara and Cowpea, Dhaincha was found to be uniformly superior to others particularly in droughty years.

In these various ways the Chemistry Section has besn endeavouring to reach the farmer every time an investigation is designed.

On the occurrence of *Musa balbisiana* Colla., in S. India and its importance in banana breeding

By

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Musa balbisiana Colla., has not hitherto been recorded as such in Indian literature on *Musa*. The species, however, has been found growing in certain tracts of this country for ages now and has been ranked as *Musa sapientum* (Roxburgh, 1824; Kurz., 1866), that mythical species, which is "the most confounded and confusing combination in the whole literature of *Musa*" (Cheesman, 1948a).

The classification of the bananas, more so that of the entire genus *Musa*, has been a much vexed problem; this has been discussed at some length elsewhere (Cheesman, 1934, 1947, 1948b; Venkataramani, 1946). The reasons for the existing chaos in the taxonomy of the bananas are very many indeed, but the confusion to group this seemingly distinct species as some other species may in part be due to the inaccessibility of the literature on *Musa* scattered in various journals not easily obtainable to the banana worker. Colla's original description of this species has been transcribed in a recent publication on the classification of the bananas (Cheesman, 1948a), in which is also given a generalized description of the species. It can be summarised as follows :

Plant suckering freely; pseudostems robust, green or pale green; leaf blades oblong, truncate at apex and rounded or slightly cordate at base; petioles long, their edges almost meeting over the

concave adaxial channel, margins developed in the lower regions and closely appressed to the pseudostem. Inflorescence is pendulous, peduncle glabrous, "heart" or male bud ovoid or ellipsoidal, bracts imbricate at the blunt apex; bracts rounded at apex, often with a green or yellow tip, more than one lifted at the same time, thus exposing a number of clusters of male (staminate) flowers simultaneously; bracts usually deciduous and occasionally persistent in a withered condition, especially in the later stages of blooming. Fruit bunch pendent and compact; individual fruits small, about 10 cm. in length and 4 cm. in diameter, angulate at maturity, abruptly narrowed at base into a short pedicel, and gradually at the stigmatic end into a short and broad beak; rind thick, pale yellow in colour when ripe; pulp whitish and with seeds; seeds black, irregularly globose, scarcely depressed, and about 5 mm. in dimension.

The above description agrees in most essentials with that of a wild seeded banana growing in certain parts of S. India and variously referred to as "Ela Vazhai" at Madras, "Ginjali arati" in the Circars and "Kallu Bale" in parts of S. Kanara district. This species has also been recorded from Ceylon and Mysore (Cheesman, 1948a). This again is quite distinct from the few other wild sorts growing in the S. Indian forests.

The importance of this species lies not so much in its mere occurrence in S. India as in the possible role that it might have played in the evolution of some of the edible bananas. A study of the numerous edible bananas will reveal the enormous diversity met with in the 'banana complex'. In a tentative classification of the South Indian bananas all the edible varieties are grouped under one species, *Musa paradisiaca* L. (Jacob, 1934). Our knowledge of the various species of *Musa* occurring in this country is rather inadequate in that many of the wild species have not yet been critically studied; a new species of *Musa*, *M. Agharkarii*, has been recently recorded from the Chittagong Hill Tracts (Chakravorti, 1948) and possibly there are some more which are not known to science. A detailed investigation of the taxonomy of the genus *Musa* as occurring in this country and also on the inter-specific hybridization, especially, with the species of the section *Eumusa*, may be expected to throw some light on the real status of our edible horticultural varieties — whether they are all varieties of one and the same species or they are derived from various sources. This is especially desirable before a classification of the cultivated

bananas is attempted, as work done elsewhere on banana breeding suggests that the origin of the edible bananas for the most part can be traced to three sources, one of which is of hybrid nature and the remaining two being associated with the natural species, *Musa acuminata* and *Musa balbisiana* (Cheesman, 1948b). Also, hybridization between these seeded species and the synthesis, from this inter-specific cross, of an edible banana closely resembling an established horticultural variety. Dodds and Simmonds, (1948) suggest that some of the edible bananas may after all be natural hybrids ingeniously propagated by man to meet his requirements. Some of the South Indian banana varieties show some of the characteristics of *Musa balbisiana* and the occasional seeds met with in some of them resemble to a great extent those of that species.

Musa balbisiana has been reported to have a wide geographical distribution; so also the other natural species, *Musa acuminata*. The writer is not aware of the occurrence of the latter species in S. India; it has, however, been recorded from Assam. The presence in this country of these two important species of the section *Eumusa*, which includes most of the bananas, can be taken as an indication of the diverse origin of our bananas, and it is hoped that these wild species will form useful parent stocks in any banana breeding programme contemplated in this country.

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