

Banana clonal situation in india. A resume

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India has a number of clonal banana cultivars ranging in diversity from delicate edible diploid acuminata (AA) types which can be nurtured only in sheltered and humid environs to hardy hybrid triploids (ABB) types which can tolerate seasonally arid monsoon climates prevailing in most parts of the country. The 'Poovan' AAB (Mysore) is by far the foremost Indian dessert banana cultivar and 'Monthan' ABB ('Bluggoe') the cooking banana. To a small extent the pattern of cultivar distribution has changed by the popularisation of 'Cavendish' cultivars, predominantly 'Dwarf Cavendish' (AAA) and to a lesser extent 'Robusta' (AAA) under special banana development programmes, particularly in the Western and Southern States.

The confusing synonymy of the local names of the banana clones makes it difficult to identify them. Therefore, the clones from different regions are first aggregated to identify distinct forms, their synonyms and mutants. Then they are classified based on their ploidy levels and genome. Such a programme of collection, conservation and classification of banana germplasm, is a *sine qua non* for any active breeding effort in bananas (SIMMONDS, 1966; SHEPHERD, 1977).

Important clones, their synonyms and mutants are listed in the annexure. Brief notes on cultivars - some important and others less so, grouped based on the genomic classification of SIMMONDS and SHEPHERD, are given below.

AA Group

'Matti' though less hardy has a potential to yield bunches weighing over 30 kg with an excellent grade of about 18 hands; the fruits are long with a pronounced tip. It is highly male and female fertile. The pollen content per anther is 4500 with a fertility of 36 per cent. It readily sets seeds with other polleniferous edible AA diploids and some AAA triploids. It yields on an average eight good seeds in ten fruits. So 'Matti' has a great potential in banana breeding. 'Anaikomban' and 'Sanna Chenkadali' are hardy clones and 'Namarai' is a delicate one. The fruits of 'Sanna chenkadali' resembles 'Matti' but it has red skin with a light orange yellow flesh; its male bud resembles

'Red' banana (AAA). 'Nivedya kadali' has fruits which very much resemble 'Rasthali' (AAB). It is not an effective male parent but is highly female fertile.

A passing mention of a wild *Musa acuminata* in South India is necessary in the context of some of the cultivars particularly of the 'Pome' group of clones resembling it. In peninsular India sub species of *M. acuminata* is common in the Western Ghats. This is remarkably similar to the sub sp. *burmannica* SIMMONDS. Its mistaken identity as *Musa banksii* var. *singampatti* NAYAR is due to the presence of some pollen in the basal female flowers. Its affinities certainly lie with sub sp. *burmannica*, as its appearance in all other respects suggests (SIMMONDS, 1956 and 1960).

AB Group

'Ney Poovan' which is resistant to Panama disease is grown mostly amidst arecanuts and is an esteemed clone in Karnataka State. 'Kunnan' and 'Adakka Kunnan' are backyard bananas in Malabar coast and are more starchy than 'Ney Poovan'. 'Thaen kunnan' (like 'Ney Poovan') has the suffused pink tinge along the petiole margins, unlike 'Kunnan' where the petiole base is more green and glaucous. The fruits of 'Thaen kunnan' are angular with a prominent tip. Its mutant without male axis, 'Thattilla kunnan' often resembles a 'Horn Plantain' when it is well grown. The fruits are bigger in size and the tip more pronounced than 'Thaen kunnan' and a bunch may contain anything from 5-15 hands. In taste it is like 'Ney Poovan' and is much relished. This group is of no importance in breeding since the clones are mostly male and female sterile; 'Adukkan' and 'Nattu Poovan' set a few seeds.

AAA Group

'Amritsagar' akin to 'Gros Michel' is a choice clone Of West Bengal and Bangladesh. There are reports of it possessing some tolerance to Panama disease. But it is not a prolific clone and has no commercial status.

'Dwarf Cavenish' is being grown in South, West and North Eastern parts of India because of the interest generated in the export of bananas and launching of special de-

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velopment schemes to boost its production. 'Robusta' inspite of its good yield and vigour needs a prop without which it gets blown down by wind; this precludes its extensive cultivation.

'Wather' has a lax but heavy bunch with characteristically protruding straight fruits, of about 28 cm long. It almost resembles the diploid 'Anaikomban' (AA) but is more vigorous and prolific. The fruits lack the flavour of Cavendish clones. 'Wather' produces 10500 pollen per anther with a fertility of 15 per cent. It readily sets seeds with many edible diploids.

'Chakkarakeli' is grown commercially in the Godavari delta of Andhra Pradesh. It is not a prolific clone. The fruits are strongly attached to pedicel and on ripening turn yellow with green tip. Though sweet the pulp is of poor texture and has to be squeezed out for eating. It is highly susceptible to leaf spot. 'Manoranjitham' is neither a common nor a prolific clone. It has a strikingly waxless foliage and stem. It is highly resistant to leaf spot. The ripe fruit has a delicate aroma reminiscent of *Artabotrys odoratissimus* but its taste is not inviting.

AAB Group

'Sugandhi' is intermediate between 'Poovan' (Mysore) and 'Rasthali' ('Silk') in the expression of most characters. It has a characteristically reflexed petiole base and a conspicuous wrist in which the fruits are borne. It has a compact bunch of short and plumpy fruits that are pale green like 'Rasthali' and bottle-necked like 'Poovan'.

'Virupakshi' ('Pome') has mutants possessing contrasting pseudostem colours from bright red 'Ney Vazhai' to intensely black 'Krisha Vazhai'. In general 'Pome' type of cultivars are well suited for rainfed culture in higher elevations and do well in plains even in marginal situations when compared

to other AAB clones like 'Pacha nadan'. 'Nendran' (French plantain) also has an array of mutants with different pseudostem colours. The variegated mutant of 'Nendran' - 'Anil Vazhai' is also of ornamental interest.

'Pisang seribu' (*Musa chiloicarpa*) is a freskish mutant of 'Thiruvananthapuram' with smaller fruits of innumerable hands. 'Kalibow' ('Celat').

This tall and sturdy clone can be recognised at a distance from the characteristic purple brown tinge of the sheaths. The petiole base is reflexed and the peduncle puberulent. The bunch is compact with about 7 hands of angular fruits. The male bud is high shouldered and acute with imbricate bracts. The male flowers are creamy white with yellow teeth.

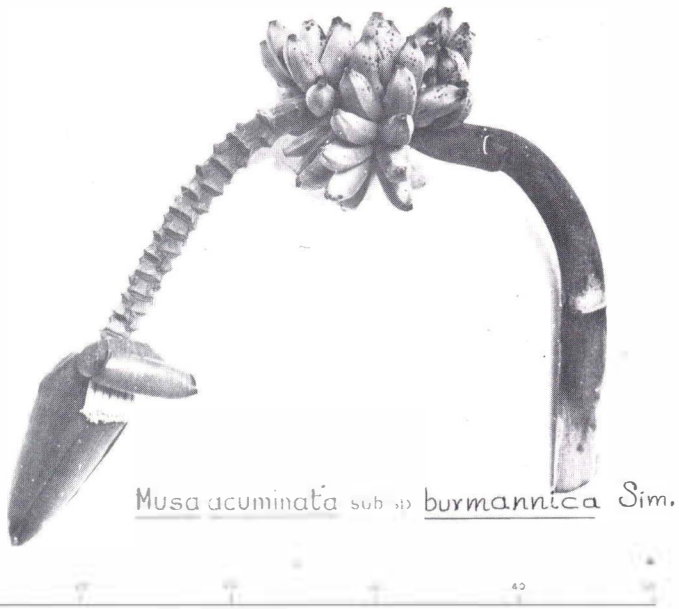
ABB Group

The predominant cooking bananas of India 'Nalla bontha' 'Monthan' and 'Kuribontha' including their mutants, differ in fruit size, waxiness, blunter tip and grade.

'Neymannan' is another distinct cultivar, bearing heavy bunches of fairly close set hands of angular fruits. It is used both as a cooking and dessert banana. It is susceptible to Panama disease and bunches with partly or completely shrivelled fruits due to anthracnose are not uncommon.

'Peyan' is a dessert clone, reputed in native medicine, with angular fruits and thick skin. When compared to plant size it is not prolific and is also susceptible to anthracnose.

'Karpuravalli' has heavier bunches of fruits that have thin skin and subtle flavour; the flesh is stodgy and lies heavily on the stomach. It is hardy and grows well in marginal situations; virtually immune to Panama disease and leaf spot but not tolerant to anthracnose.



hoto 1. *Musa acuminata* sub. sp. *burmannica*

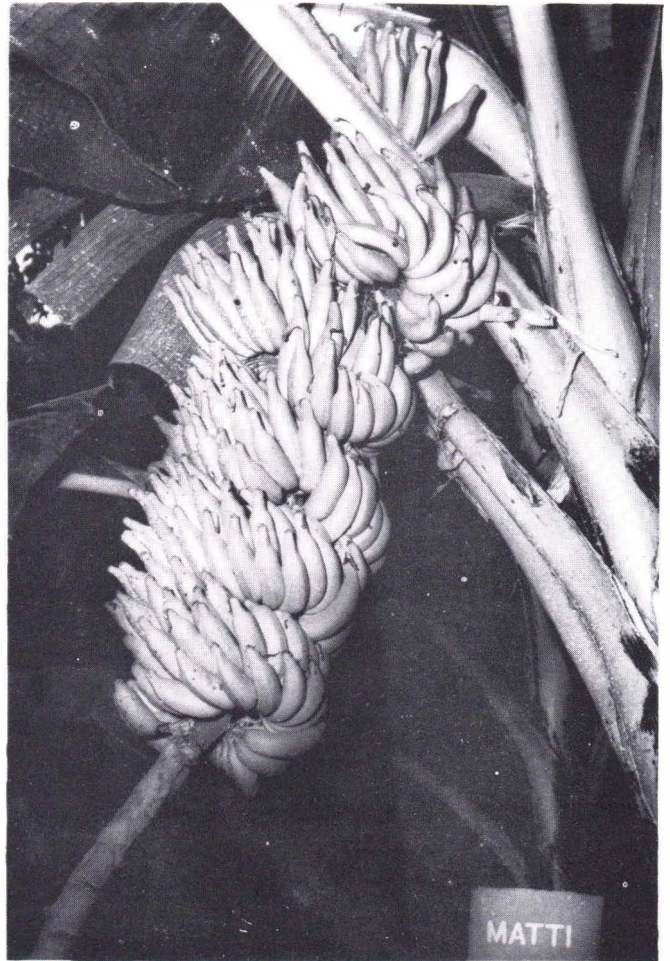


Photo 2. 'Matti' (AA)

Photo 3. 'Namarai' (AA)

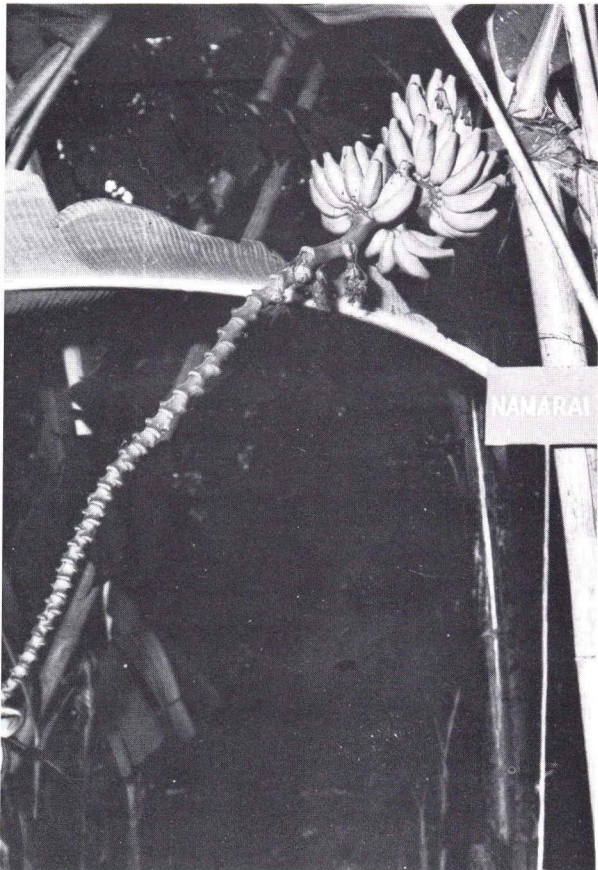


Photo 4. 'Sanna Chenkadali' (AA)

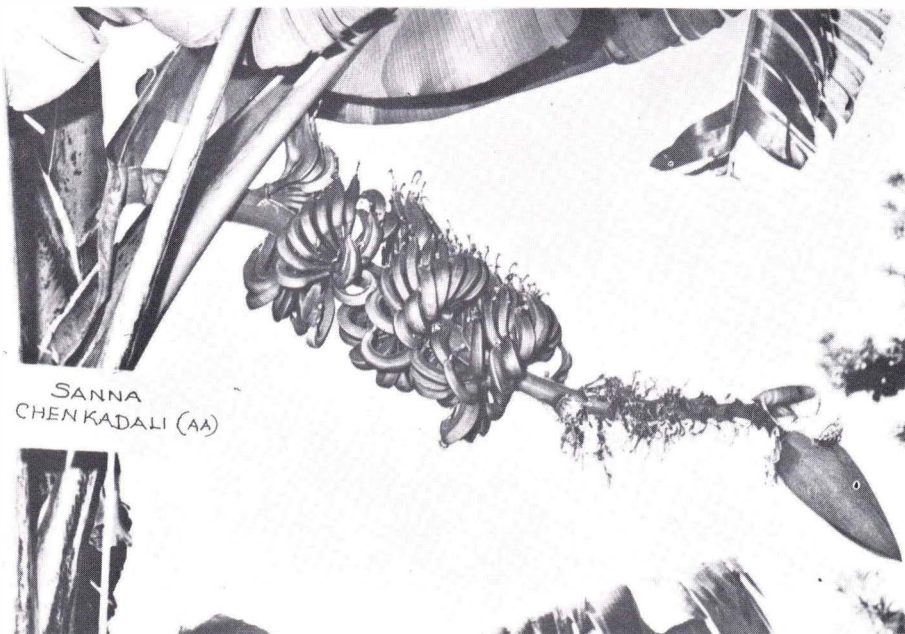




Photo 5. 'Wather' (AAA)

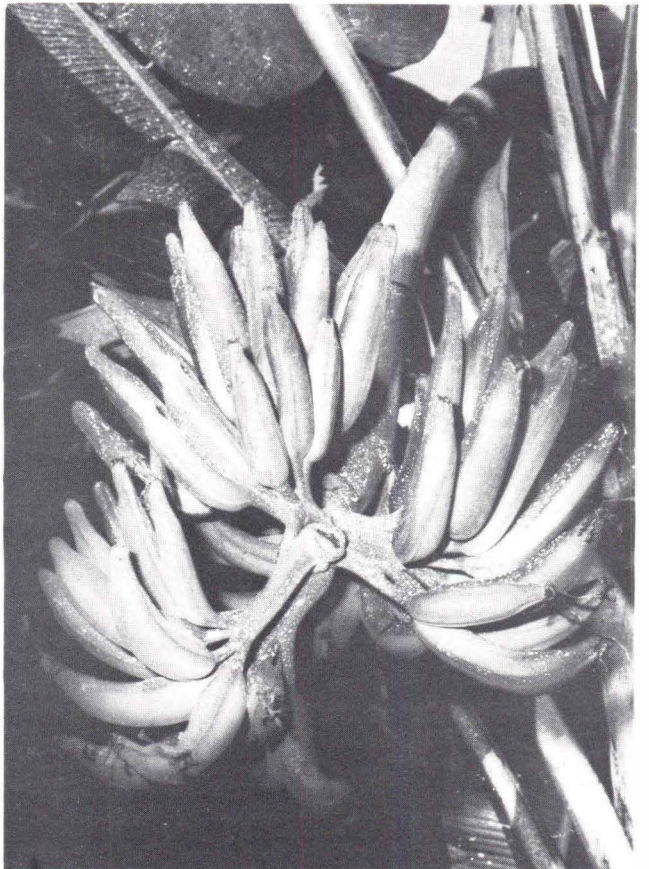


Photo 7. 'Kar puravalli' (ABB)

Photo 6. 'Thatilla kunnan' (AB)

ANNEXURE
LIST OF WILD BANANAS AND CULTIVARS IN INDIA

(Abbreviations : E = east, NE = north east, S = south, SW = south west, W = west)

Wild banana	Synonym	Mutant
1 <i>Musa acuminata</i> subsp. <i>burmannica</i> (S)		
2 <i>Musa balbisiana</i> (S, NE)		
3 <i>Musa laterita</i> (S)		
4 <i>Musa ochracea</i> (W)		
<i>Clone</i>		
AA Group		
1 'Anaikomban' (S)	'Aaattukomban' (S)	'Ambalakadali' (S) 'Erachi Vazhai' (S)
2 'Matti' (S)		
3 'Chingan' (S)	'Chingable' (SW)	'Maniyilla chingan' (S)
4 'Sanna chenkadali' (S)		
5 'Kadali' (S)	'Nivedyakadali' (S)	
6 'Suryakadali' (S)	'Pisang mas' ('Sucrier')	
7 'Namarai' (S)		
8 'Pisang lilin'		
9 'Paka'		
10 'Sikuzani'		
11 'Tongat'		
AB Group		
1 'Ney Poovan' (S)	'Safed velchi' (W) 'Elakki bale' (S) 'Chini champa' (NE)	
2 'Thaen Kunnan' (S)		'Thattilla kunnan' (S) ('Poovilla chundan') (S) 'Vennettu kunnan' (S)
3 'Kunnan' (S)		
4 'Adakka kunnan' (S)	'Adukkann' (S)	
5 'Nattu Poovan' (S)		
AAA Group		
1 'Gros Michel'		'High gate'
2 'Amritsagar' (NE)		
3 'Dwarf Cavendish'	'Pacha Vazhai' (S) 'Mauritius' (S) 'Basrai' (W) 'Jahaji' (NE) 'Kabulee' (NE)	
4 'Giant Cavendish'	'Bongali Jahaji' (NE)	
5 'Robusta'	'Peddapacha arati' (S) 'Harichal' (W)	
6 'Pisang masak hijau'	'Lacatan'	
7 'Wather' (NE)	'Digjoa' (NE) 'Naga bale' (W) 'Kommu arati' (S) 'Mohan bansi' (E)	

Wild banana	Synonym	Mutant
8 'Chenkadali' (S)	'Red'	'Venkadali' (S)
9 'Chakkarakeli' (S)	'Lalkel' (W) 'Agniswar' (NE) 'Honda' (NE) 'Raja Vazhai' (S) 'Raja bale' (S) Thaen kadali (S) 'Karivazhai' (S)	('Green red')
10 'Manoranjitham' (S)		
11 'Nakitembe'		
12 'Nakabululu'		
AAB Group		
1 'Poovan' (S)	'Karpura chakkrakeli (S) 'Lalvelchi' (W) 'Champa' (NE) (Mysore')	'Motta poovan' (S)
2 'Rasthali' (S)	'Amirthapani' (S) 'Sonkel' (W) 'Mutheli' (W) 'Rasabale' (S) 'Malbhog' (NE) 'Morthaman' (NE) (Silk')	'Ayiranka rasthali' (S)
3 'Sughandhi' (S)	'Puttubale' (S)	
4 'Pachanadan' (S)	'Kaali' (S) 'Laadan' (S) 'Galibale' (W) 'Saldatti' (W)	
5 'Nendrapadathi'	'Saker champa' (NE)	
6 'Rajapuri'	'Walha' (W) 'Kullan' (S)	
7 'Virupakshi' (S)	'Malavazhai' (S) 'Sirumalai' (S) 'Vannan' (S) (Pome')	'Krishna Vazhai' (S) (Black stemmed) 'Ney Vazhai' (S) (Red stemmed)
8 'Nendran' (S)	'Rajeli' (W) (French plantain')	'Eleri' (S) (Green French Plantain) 'Velathan' (S) (Wine Plantain) 'Karu Nendran' (S) (Black French Plantain) 'Anil Vazhai' (S) (Variegated French Plantain')
9 'Myndoli' (S)	'Giant Plantain'	
10 'Moongil' (S)	'Zanzibar' (Horn Plantain')	
11 'Kaio'		
12 'Chinali' (S)	'Pisang rajah'	
13 'Thiruvananthapuram' (S)	'West Indian' (Pisang Kelat')	'Pisang seribu' (Musa chiloicarpa)
14 'Kalibow' (?)	'Celat' (?)	

Wild banana	Synonym	Mutant
ABB Group		
1 'Nalla bontha' (S)	'Monthan' (S) 'Bankel' (W) 'Khasadia' (W) ('Bluggoe')	'Thella bontha' (S) 'Syn. 'Silver Bluggoe' 'Sambal monthan' (S) 'Nalla bontha bathees' (S)
2 'Monthan' (S)	'Pidimonthan' (S) 'Kachkola' (NE) 'Jatikol' (NE) 'Dhussray' (NE) 'Bhos' (NE)	'Pacha montha bathees' (S) 'Sambarani monthan' (S) ('Booditha montha bathees') (S)
3 'Kuribontha' (S)	'Chakkia' (NE) 'Muthia' (NE)	
4 Ney mannan (S)	'Ney vannan' (S) 'Vayal vazhai' (S)	'Venneetu mannan' (S) ('Ice cream')
5 'Peyan' (S)	'Peyladan' (S) 'Poothibale' (S) 'Bhurkel' (W)	
6 'Karpuravalli'	'Peykunnan' (S) 'Manohar' (N) 'Sail kola' (NE) 'Kostha bontha' (S) ('Pisang awak')	
AAAA Group		
1 'Bodles altafort'		
ABBB Group		
1 'Klue teparod'		

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