FIRST EXPERIMENTAL RESULTS OF THE INTRODUCTION OF FOREST TREE SPECIES INTO SOMALIA (1954 - 1958)

by
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Originally published in Italian as

PRIMI RISULTANI SPERIMENTALI SULL' INTRODUZIONE DI ESSENZE FORESTALI IN SOMALIA (Periodo 1954 - 1958)

in the journal

Rivista di Agricoltura Subtropicale e Tropicale (1960)

54, 652-660

Translated by
M.R. Bowen et al (1986) *

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Working Paper No. 5
Mogadishu
November 1986.

PREFACE

This paper is one of a series translated from the Italian forestry literature by the Research Division of the British Forestry Project Somalia, with the intent of making the information available to a wider audience.

In some cases there has been difficulty in translating technical terms: where doubts exist, the questionable passage is indicated by a question mark and enclosure bracket, thus [?]. Where words have been added for the sake of clarity during translation, these are also enclosed in brackets.

SUMMARY

(added by translators)

Branca A (1960) First experimental results of the introduction of forest tree species into Somalia (1954 - 1958), translated from the Italians by M.R. Bowen et al (1986), from the journal Rivista di Agricoltura Subtropicale e Tropicale 54 652-660.

A brief outline is given of the early history of tree planting in what is today central and southern Somalia.

Seeds of 67 species were imported in the four year period from 1956 with the objective of finding species which could supply export quality timber, wood for the local construction of packing cases and cheap furniture, and to stabilize shifting sand dunes. Many of the species listed are first introductions to the country.

Preliminary growth data are given for some of the species:
Acacia cyanophylla, and A. melanoxylon had high survival rates. Erythrina siliqua grew well in the south and central regions of the country. None of the many Eucalyptus species planted had high survival rates, except on irrigated sites. Swietenia mahogani and Tectona grandis also showed promise on irrigated areas.

Authors English Summary.

The author presents some considerations on the first experimental results of the introduction of forestal essences in Somalia, imported from 1954 - 1958.

PLATES

Four plates were included in the original text but are omitted from the translation. These were:-

Plate 1. Agricultural Centre, Alessandria in the Lower Juba showing Jacaranda mimosifolia D. Don in June 1957 aged 15 months from planting.
[The saplings shown have thin, wavy, unbranched stems and are around 6m in height.]

Plate 2. Agricultural Centre, Alessandria, Lower Juba showing Tectona grandis L.F. in June 1957 aged 15 months from planting.
[A single sapling is shown in the foreground with a straight stem, unbranched to around 5m, thereafter with double upwardly growing branches or stems giving an overall height of some 7m]

Plate 3. Agricultural Centre, Alessandria, Lower Juba, the plot shown in the previous plate but after 33 months, in December 1958.
[Foreground tree shows a sturdy sapling with a clear bole of around 4m before developing a 'typical' teak whirl of branches. Overall tree height is approximately 12m and crown diameter 9m]

Plate 4. Azienda Mazzi, Upper Juba, plot of Entandrophragma caudatum Sprague, african mahogany, in December 1958.
[Shows four, single stemmed, spindly saplings with small, high crowns: overall height around 6m]

First Experimental Results of the Introduction of Forest Tree Species to Somalia (1954 - 1958)

A. Branca.

Forestry activities in Somalia[1] began immediately upon the arrival of the military, civil servants and missionaries; and in fact, all of these people suddenly became farmers in addition to their regular duties, using their leisure hours to establish small vegetable gardens to supply their respective messes.

But with the enthusiasm of the newly arrived, the small gardens became large ones and these grew to include groves of trees and shaded avenues. Certainly it is possible to see clearly the results of these activities in many places in Somalia.[2]

The first pioneering period can be said to have ended and the second began with the founding of the Governmental Agricultural Service [Servizi Agrari Governative]. under whose remit forestry came as a closely related subject. This replaced individual initiative, but gave a new impetus by setting up "Centres of Reclaimation" at Villabruzzi [Jowhar], Jenale [Genale], and at Avai, and in the Lower Juba region etc. These centres served the Italian farmers in their vicinities and were encouraged by them to undertake tree palnting activities.

This second long period[3] of private and government sponsored tree planting was followed by a third phase, with the arrival of the National Forestry Corps [Corpo della Milizia Nazionale Forestale] and its specialised staff of technicians. They immediately started a study of the forestry problems of Somalia. Most unfortunately, this organisation had only a short life before its work was interrupted by the Second World War.[4] This occured at a most inopportune time, when the institute was just starting to implement its carefully and labouriously prepared plans, which were based on its own work and that of the pioneers.

With the cessation of hostilities the Forestry Service was recombined with that of Agriculture under the Italian Trusteeship Administration.[5] [AFIS]

1. refers to former Italian Somalia which now forms the central and southern parts of the Somalia Democratic Republic.
2. in 1960, some 50 years later.
3. some 15 years from the early and mid-twenties to the late thirties.
4. 1940-1945.
5. the Trusteeship was granted under a United Nations charter and lasted from the late forties up to independance in 1960.

The new service tried to draw on the experience of civil servants who had worked in the country prior to the war and used the new technical staff to design and establish agricultural and forestry experiments.

Ignoring other forestry problems, and concentrating on nursery work with a view to establishing plantations, it was felt at that time that there were three important objectives:-

- the introduction of appropriate tree species capable of producing timber, both for export in the round, and for milling locally to meet the internal demands.
- the introduction of [?fast growing] species (poplars and conifers) to provide timber for packing cases[6] and furniture for poorer families,
- the introduction of tree species capable of afforesting the mobile sand dunes, with a view to protecting agricultural land, roads and villages under constant threat from wind blown sand; and to establish wind-breaks for the towns, villages and reclaimed agricultural land.

New or reinstated Agricultural Centres and Sections have been set-up close to agricultural areas to institute this programme. Simple but efficient nurseries have been started at Mogadishu, Afgooye and Genale for the Benadir region; at Alessandria [near present day Labadaad] and Yontoy for the Lower Juba; at Baidoa for the Upper Juba; and at Belet Wein for Hiran.

The production and distribution of seedlings of proven species, both exotic and indiginous, has already started. Experimental introductions of tree seed have also taken place from countries with similar climate and edaphic conditions to Somalia.

Between 1954 and 1957, AFIS gratefully received gifts of seed from S.A. Vilmorin Andrieux of Paris, and also of Jacaranda seed from Dr. Giuseppe Lodi, Head of the Agricultural Office of the Government of Eritrea.

In 1958 all the seeds were supplied free of charge by Mr Walter J. Quick Jr, Forestry Advisor of ICA[7] for Somalia, with ICA kindly importing them at their expense directly from Australia, Italy, Israel, Jamaica, Kenya, Sudan, Tanganika[8] and the U.S.A.

6 presumably for the fairly extensive banana exporting industry.
7 ICA - ? International Council for Agriculture.
8 today Tanzania.

A full list of tree seed imports from 1954 - 1958 is :-

1954 -	1.	Acacia moluccana Miq.	9a
	2.	A. stipulata Boiv.	
	3.	Caesalpinia coriaria Willd.	
	4.	Covillea racemosa ?	9b
	5.	Erythrina indica L.	
	6.	Haematoxylon campechianum L.	
	7.	Inga saman Benth.	
	8.	Santalum album L.	
	9.	Swienenia mahogani L.	
1955 -	1.	Acacia cyanophylla Lindl.	
	2.	A. melanoxylon R. BR.	
	3.	A. saligna Weldll.	9n
	4.	Caesalpinia tinctoria L.	
	5.	Ceratonia siliqua L.	
	6.	Eucalyptus colossea Fn.M	
	7.	E. corynocalyix R.Br.	9c
	8.	E. eugenioides Sieb.	
	9.	E. ficifolia Fn.M	
	10.	E. maculata Hook	
	11.	E. Melanophloia Fn.M	
	12.	E. obliqua L'Herit.	
	13.	E. occidentalis Endl.	
	14.	E. resinifera Smith	
	15.	E. robusta Smith	
	16.	E. rostrata Schlecht.	9d
	17.	E. sideroxlyon A. Cunn.	
	18.	Jacaranda mimosaefolia D. Don.	9m
	19.	Pandanus odoratissimum L.F.	
	20.	Trinax argentea Loddiges.	9e
	21.	Tectona grandis L.F.	
	22.	Raphia ruffia Martius.	
1956 -	1.	Swietenia mahogani L.	
	2.	Eucalyptus camaldulensis Dehn.	
	3.	E. corynocalyx R.Br.	
	4.	E. gomphocephala D.C.	
	5.	E. microtheca Fn.M.	
	6.	E. tereticornis Smith.	

1957 - 1. Acacia cyanophylla Lindl.
2. Eucalyptus diversicolor Fn.M
3. Grevillea robusta A. Cunn.
4. Jacaranda mimosaefolia D.Don 9m
5. Schinus molle L.
6. Sesbania grandiflora L.
7. S. grandiflora var. coccinca Baker.
8. Swietenia mahogani L.
9. Tecoma stans L.
10. Tectona grandis L.

1958 - 1. Acacia albida Del.
2. A. arabica Willd.
3. A. campylachanta Hochst 9p
4. A. dealbata Link.
5. A. pycnanta Benth. 9g
6. A. senegal (L.) Willd.
7. Ailantus glandulosa (altissima) Desf. 9h
8. Casuarina stricta Dryand. 9i
9. Cedrella odorata L.
10. Colodendrum capense (L.f.) Thub.
11. Dodonaea viscosa L. 9j
12. Eucalyptus corynocalyx Fn.M.
13. E. citriodora Hook.
14. E. gomphocephala D.C.
15. E. hemiphloia Fn.M.
16. E. melanophloia Fn.M.
17. E. microtheca Fn.M.
18. E. occidentalis Andl.
19. E. paniculata Smith
20. E. punctata D.C.
21. E. robusta Smith
22. E. rostrata Schlecht.
23. E. siderophloia Benth.
24. E. trachyphloia Smith 9k
25. Grevillea robusta A. Cunn.
26. Hegenia abyssinica (Bruce) J.F. Gmel.
27. Jacaranda mimosaefolia D. Don. 9m
28. Khaya grandiflora C. Dc.
29. K. senegalensis A. Juss.
30. Schinus molle L.
31. Syncarpia lausifolia Ten.

32. Tectona grandis L.f.

33. Widdringtonia whytei Hendle. 91

9a now Acacia mollicula Mart. and Gal.

9b cannot be traced.

9c now Eucalyptus cladocalyx F.V. Muell.

9d now Eucalyptus camaldulensis Dehn.

9e correctly was Trinax argentea Millup, now Thinax wenlandiana Beco.

9f correctly Acacia campylacantha Hochst. ex A. Rich.

9g correctly Acacia pycnantha Benth.

9h now Ailanthus altissima Desf.

9i correctly Casuarina stricta Ait.

9j correctly Dodonaea viscosa Jasq.

9k correctly Eucalyptus trachyphloia F.V. Muell

9l correctly Widderingtonia whytei Rendle.

9m correctly Jacaranda mimosifolia D. Don.

9n Acacia saligna (Labill.) Wendl. is now synonymous with A. cyanophylla Lindl.

After so short a time, it is not possible to fully assess these experiments. However, the following preliminary observations are of interest:-

- Acacia cyanophylla, Acacia melanoxylon, Acacia saligna,[9n] - the seeds germinate well in all nurseries which have sown them. The seedlings produced at Afgooye were planted in a predominantly sandy soil but of little depth (average 80cm), for the underlying madrepore[25] is solidified in the area near Mogadishu; they have also been planted in a small annex to the nursery, in a loose, sandy, argillous, damp soil. Survival is high because of irrigation[10] carried out in the (dry) season following planting out.

It is presumed that experiments were conducted with these species in the past, but no old specimens have been traced, not even at Jowhar.

- Caesalpinia tinctoria seed germinated satisfactorily but the seedlings suffered in the long dry season following field planting. The seed pods were formerly used as a source of tannin, but with the decline in the commercial market for this product, it is not thought worthwhile continuing the experiment. Amongst other thins this species has proved to be particularly susceptible to attack by woolly aphis.[11]

10 supplementary water given by hose or can
11 possibly mealybug.

- Erythrina siliqua[12] - the seed germinated quickly and well. Seedlings planted at the Agricultural Centre in Alessandria and Baidoa have made fast vegetative growth. It is thought feasible to introduce this species to virgin land or to under-utilized, irrigable areas. On a larger scale E. siliqua may be able to supply saw timber: the wood has a low specific weight, a fine grain and is easily worked.

- Eucalyptus species, - seeds of many species were found to be non-viable, others had failed to germinate satisfactorily. An experimental plot has been planted with seven species at Afgooye, on an area of land between a main irrigation channel and the Shabelle river.[13] The species were E. corynocalyix[9c] E. camaldulensis, E. gomphocephala, E. microtheca, E. tereticornis.[14] E. accidentalis and E. melanophloia. The seedlings were given the benefit of irrigation[15] soon after planting and at intervals during the dry season.[16] However, after three years, growth rates have remained slow and there is a tendancy to twist.[17] Only a few plants are of good, regular form and these also have slow growth rates.

Other seedlings were planted on stabilized sand dunes close to Mogadishu on the road to Afgooye, at a site known as "Kilometre 4".[18] Five species were out-planted, E. camaldulensis, E. tereticornis,[14] E. microtheca, E. gomphocephala, and E. occidentalis. All were irrigated[19] in the first few days after planting. High suseptibility to the salt laden winds killed E. gomphocephala after three months. E. tereticornis died after five months, partially because of its lack of drought hardness and partially from the sea wind. After six months E. occidentalis had died for the same reasons. Of the two surviving species, E. microtheca also looks prematurely senescent and twisted [? stunted], although it continues to battle on. [It should be noted that] the Kilometre 4 site has more rainfall than Mogadishu itself.

12 this species cannot be traced in new indexes, nor is it listed in the table of new introduction previously listed in this paper; it is possibly a misprint for Erythrina indica.
13 this site could not be located in 1986.
14 mispelt as thereticornis in original.
15 flood irrigation controlled by gates from the irrigation channel.
16 unclear if irrigation was only in the dry season following establishment or in subsequent years as well.
17 presumably spiral grain: spiral patterns on the bark have been noted by the translator as occuring on many Eucalyptus trees at a number of sites.
18 Kilometre 4 was by 1986 part of the residential and business suburbs of Mogadishu.
19 Hose or can irrigation.

There is evidence to suggest that other Eucalyptus species were tried experimentally in earlier years, as there are a few trees of E. melanophloia at Genale, Afgooye, and in the Lower Juba. Those at Genale are on irrigated land while the Afgooye and Lower Juba trees are only a few metres from the rivers Shabelle and Juba respectively. On the whole, although not exceptional, these trees have regular form and are around 12m in height. In the Alessandria nursery there is a small group of E. cornuta which exhibit the true characteristics of the species [possibly genus]. It is not worthwhile trying to introduce this genus to "Paese della boscaglia"[20] by distribution.

Up to now, and amongst all the Eucalyptus species tested, not one has been found which is worthwhile distributing on a large scale. The few species that do grow satisfactorily do so only on land which is capable of supporting forestry species of greater value.

-Grevillea robusta - although the seed germinates relatively freely, the seedlings are not drought tolerant and can only survive on irrigated land. As the species is of little value it should only be grown eventually as an ornamental.[21]

- Jacaranda mimosaefolia[9m] - the seed germinated well and the seedlings were planted out on reclaimed land,[22] where they grew vigorously, although with a tendancy to twisted form and [?] basal suckers. Jacaranda in Somalia is outside its normal habitats, being more usually grown in the tropics as an ornamental of montane regions. However, its overall performance is satisfactory and the timber, although commercially unknown, has some good furniture making qualities. We therefore feel it is worthwhile persisting with the experiment, and that the species may be particularly suited to avenue planting along roads on irrigated, agricultural farms.

20 literally "The Country of Wood" or "Country of Trees" as far as can be ascertained this is a reference to the area south of Mogadishu, on old, stabilized sand dunes. This area has a well defined and typical vegetation of open, heavily grazed pasture mixed with patches of bush and tree Acacia woodland.

21 Grevillea robusta is recorded as growing satisfactorily as an amenity tree in some of the villages and towns in the montane regions of the north of present day Somalia; the light timber can be used for box making and low quality furniture.

22 possibly land recently taken into irrigation after clearance of the natural bush.

- Swietenia mahogani - this species has already been referred to in a previous article "Indigenous plants and their utilization".[23] It is necessary to point out here that the success of this species is tied to the availability of fresh soils which are subject to periodical flooding or irregular irrigation. There are sound reasons to believe that because,of the valuable timber, it is worthwhile planting this species, even taking into account the silvicultural neccesities just mentioned.

- Tectona grandis - the same conditions apply as for mahogany mentioned previously.

- other species - it is too early to pass judgement. Sometimes the seeds have germinated - sometimes not. Some young trees are still alive. Their behaviour in this environment is still uncertain.[24]

23 no reference is quoted
24 in 1986 the translater was unable to locate any of the trials or plots referred to in this article, with the possible exception of isolated trees around Alessandria.
25 calcareous rock/soil or coral.