



Analysis of Seed Released and / or Registered in Nigeria from 1937-2013: The Success and the Gaps

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

The National Crops Varieties and Livestock Breeds Registration and Release Committee in Nigeria is domiciled in the National Centre for Genetic Resources and Biotechnology (NACGRAB), Moor – Plantation, Ibadan, Nigeria. The Director/Chief Executive Officer of NACGRAB doubles as the Registrar of National Crops Varieties and Livestock Breeds Registration and Release Committee. Before the Promulgation of Decree 33 of 1987, there was no national institutional mechanism for the validation of claims by individual or institutions on the development of new crop varieties or institutions on the development of new crop varieties or livestock breeds. However from 1937 to 2013, thirty-six (36) different crops were released and / or registered in Nigeria. The ones previously released before Decree 33 of 1987 were retroactively registered in 1991. If the thirty-six (36) crops are grouped into nine (9) sub-divisions, we have root and tuber crops (72), legumes (82), cereals (248), vegetable crops (33), fruits, beverages and tree Crops (37), oil crops (7), spices crops (5), Latex crops (17) and fibre crops (15). The total number of released materials, as of 2013 were 516 crop varieties, however, there exists some gaps to be addressed.

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1. INTRODUCTION

The National Centre for Genetic Resources and Biotechnology (NACGRAB), was established by the Federal Ministry of Science and Technology (FMST), Nigeria in 1987 to conduct research, gather data and disseminate technological information on matters relating to genetic resources conservation, utilization and biotechnology applications. The Centre establishment was backed by Decree 33 of 1987 to regulate the seed, livestock and fisheries industries in Nigeria, through its Varietal Release Committees.

Before the promulgation of decree 33 of 1987, there was no national institutional mechanism for the validation of claims by individuals or institutions on the development of new crop varieties or livestock breeds. There was no centralized documentation of the distinguishing features of such flora and fauna, nor was there any harmony in the adoption of nomenclature, among others. What existed was undesirable diversity in practice, leading to considerable confusion. It was against this background that Decree 33 of 1987 that established the National crop varieties and livestock breeds registration and release committee was promulgated to inject sanity into the system of naming, registration and release of crop varieties and livestock breeds and consequently checkmate the intellectual property of the seed industry in Nigeria [1]. The decree spelt out the responsibilities of members and functions of the national committee. The committee was charged with receiving and processing applications for the registration, naming and release of old and new crop varieties and livestock breeds recommended by the technical sub - committee [1].

The National Crop varieties and livestock breeds registration and release committee held a meeting on 13th January, 2000, where an agreement was reached on the need for the harmonization of Decree 33 of 1987, establishing the National Crop Varieties and Livestock Breeds Registration and Release Committee and Decree 72 of 1992 establishing the National Seed Service (now National Agricultural Seed Council). While Decree 72 deals with crop seed development only, on the other hand, decree 33 of 1987, in addition to having provisions for crop varieties, release and registration also provides for livestock breeds release and registration [2].

On 15th February, 2000 an Ad-hoc committee comprising Dr. P.O. Oyekan, Chief National Coordinator of Nationally Coordinated Research Projects under the National Agricultural Research Project (NARP) and Chairman Technical Sub-committee (TSC) on Naming, Registration, and Release of Crop Varieties as the convener, Dr. M.N. Ukwungwu representing Director, National Cereals Research Institute (NCRI) and Dr. A. Joshua, Managing Director of Premier Seeds Limited, Zaria, held a meeting at the conference room of the National Agricultural Research Project (NARP), Abuja, where major decisions on speedy release of crop varieties were taken. One of the decisions was to produce a comprehensive list of all the crop varieties currently or retroactively released and registered in Nigeria. This is to serve as a reference guide for plant breeders, research institutions, and other interested organizations and private sectors.

The objectives of this paper is to disseminate information on the seeds released and registered in Nigeria for policy makers, donors, Agricultural Research Institutes, local and international seed companies, breeders, researchers, farmers, prospective agricultural investors etc. in order to know what have been achieved so far and the gaps, so as to know what is needed to be done and resources available for use.

2. METHODS

The Catalogue of crop varieties released and registered in Nigeria volume No 5 updated as of January, 2013 was consulted, in addition to other necessary retroactive information from the National seed council were used to analyse the seed released and / or registered in Nigeria from 1937 to 2013.

3. RESULTS

Thirty Six (36) different crops were released and / or registered in Nigeria from 1937 to 2013. The ones previously released before Decree 33 of 1987 were retroactively registered in 1991. The following crops have no recorded year of release:-

Forage Legumes ILRI-15876 and ILRI-75 have no recorded years of release, likewise NIFOR-DATE PALMI and NIFOR-RAPHIA PALMI and IRISH Potato BR6318. Also Sorghum

CSR 01 and CSR 02 were registered but not released.

4. DISCUSSION

A total of 516 different crop varieties were released and/or registered during the period of Seventy Six years. Maize has the highest number of varieties released and registered. This is obvious because Maize has a lot of uses and the demand for Maize as food for man and as feed for livestock is increasing [3]. Not only so, more importantly, maize is an outcross plants and variation can easily be created in maize leading to new varieties. Although producing conventional hybrid maize is a big challenge due to the need to produce inbred lines that have been selfed for 6 to 8 generations.

3.1 Statistics and Data Analysis

All the seeds that have been released from 1937 to 2013 were counted from the catalogue. All the 516 seeds that have been released and or registered from 1937 to 2013 were grouped into crop names or varieties. The crop varieties or crop names also were grouped into 9 subdivisions based on crop group classifications. Bar chart was used to illustrate the crop varieties while Pie chart was used to illustrate the crop groups or subdivisions.

Table 1. Regrouping of the released varieties into 9 sub-divisions

S/N	Crop group	Crop names	Total in each sub-division
1	Root and tuber crop	Cassava, Yam, Sweet potato, Irish potato	72
2	Legumes	Cowpea, Soybean, Forage-Legumes, Groundnut	82
3	Cereals	Maize, Pearl millet, Rice, Sorghum, Sugar cane, wheat	248
4	Vegetable Crops	Amaranthus, Celosia, Okra, Corchorus, Solanum, Tomato	33
5	Fruits, Beverages and Tree crops	Date palm, Raphia palm, Cocoa, Cashew, Kola, Coffee, Coconut, Sweet orange, Tangelo	37
6	Oil crops	Melon, Oil palm, Sunflower	7
7	Spices crops	Pepper	5
8	Latex crops	Rubber	17
9	Fibre crops	Cotton and Kenaf	15
Total			516 Crop varieties

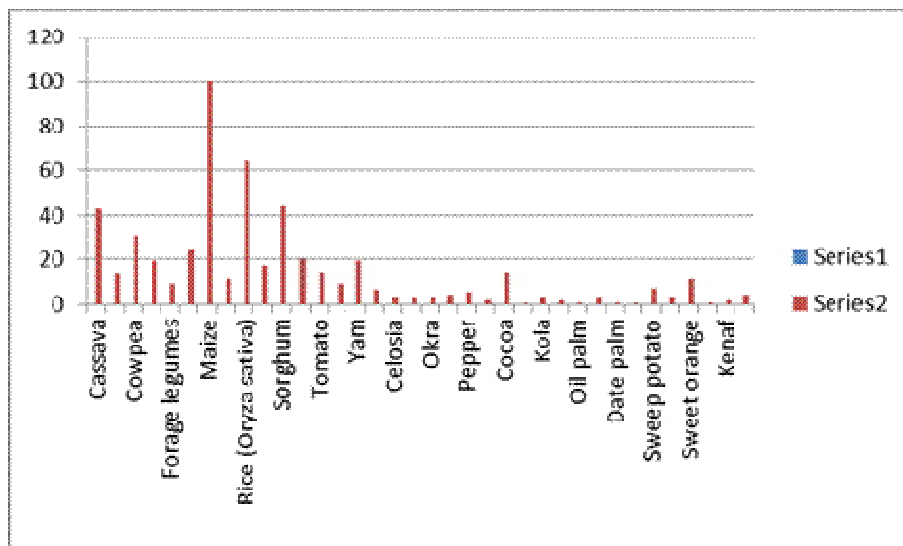


Fig. 1. Bar chart showing selected released varieties

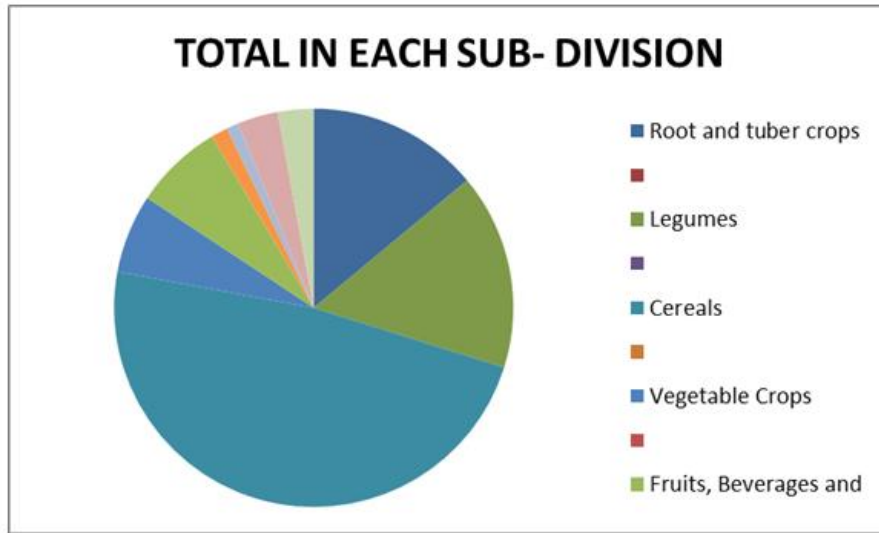


Fig. 2. Pie chart showing major crop sub – divisions of released varieties

The next crop is rice. This is also obvious due to the importance of rice as food around the world [4]. This is also followed by Sorghum and Cowpea, Groundnut and then Yam [5]. All these are obvious, because of their importance as food crops in Nigeria. Tree crops have the least number because of their long gestation period.

Using the crop groups, cereals has the highest number of varieties because of the importance of cereals as food in Nigeria and also because of short gestation period of cereals that enable breeders to come up with new breeds as early as possible. This is also followed by legumes. Although if forage legumes is removed from number of legumes the number of crop varieties in the legumes is 73, almost equal to the number of crop varieties in the group of root and tuber crops. Legumes and root and tuber crops are almost equal in importance as food and also as cash crops in Nigeria after cereals. Fruits, Beverages and Tree crops are important as food and cash crops in Nigeria but the long gestation period does not encourage the quick release of new varieties like cereals, legumes, and root and tuber crops. The other groups though important but they are not as important as aforementioned crops either as food or as economic crops.

4.1 The Gaps

Just as there is a specific period of days (about 2 to 3days) allotted for the committee to consider the release and registration of new varieties of crops, there is a need for committee to allot a

specific period each year or every two years subject to the decision of committee to consider deleting some of the non- performing released varieties. However the question is whether it is National Centre for Genetic Resources and Biotechnology (NACGRAB) or National Agricultural Seeds Council that will convene the meeting or both.

Another gap is the need to consider the studying of impact assessment of the released varieties after five years. This will include the names that these varieties have acquired where they are adopted.

Another serious gap in the crop varieties released and/or registered in Nigeria is the absence of any single release and/or registered varieties of certain crops or plants despite their importance either as food, medicinal or economic and the volume of such crops or plants and even varieties in use in Nigeria. Some of these crops or plants includes (1) Plantain (2) Banana (3) Ginger (4) Carrots (5) Onion (6) Bitter leaves (7) Pineapple (8) Mango (9) Pawpaw (10) Bush Mango (*Irvingia wombulu* and *Irvingia gabonensis*) (11) Guava (12) Avocado pear (13) Locust bean tree (14) Shea butter trees (15) Passion fruit (16) *Jatropha curcas* (17) Castor oil plant (18) Plums (small pear) (*Dacryodes edulis*) (19) *Moringa oleifera* (20) Bush candles (*Senna alata*) (21) *Chrysophyllum albidum* (22) *Chrysophyllum caenito*.(23)*Spondia mombin* and *Spondia purpurea*.

5. RECOMMENDATIONS

- The release process of 3-4 years should be reduced to 2-3 years.
- Adequate quantity of breeder seeds must be made available by the breeder nominating a crop variety for multi-location testing and evaluation.
- The breeder or the Institution concerned must submit an appropriate name for the new variety which must be simple, brief and pronounceable.
- Data from 2 years multi- location trials and on-farm trials (OFAR) must be available before the nomination of a crop variety for release.
- 1kg (or adequate quantity in case of vegetables) of the newly released varieties must be sent to the National Centre for Genetic Resources and Biotechnology to be kept in the National Gene Bank.
- National Agricultural Seed Council (NASC) is mandated to produce Foundation Seed after signing an MOU with concerned NARIs.
- The Technical sub – Committee, TSC (Crops) in consultation with the Registrar must visit the on-farm at selected locations before any new varieties could be presented to the committee for consideration [2].
- There is need to utilise the distinctiveness, uniformity, similarity (DUS) system in our National varietal release processes in Nigeria.

6. CONCLUSION

The National institutional mechanism for the validation of claims by individuals or institution on the development of new crop varieties or Livestock breeds have helped to harmonize the adoption of nomenclature of the released varieties. It also helps to control the crops that come into the seed system of Nigeria. This helps the country to curb the importation of undesirable breeds of crops that can cause danger to the

country especially those associated with races of diseases and insect pest or pests that are not in the country. It also helps the National Agricultural Seeds Council (NASC) to monitor the seeds in the country and also regulate the seed industry in Nigeria. It will also help in preserving the breeders' rights.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDIX A

The list of the thirty - six crops released and / or registered from 1937-2013

1.	Cassava	43
2.	Cotton	13
3.	Cowpea	30
4.	Soybean	19
5.	Forage legumes	9
6.	Groundnut	24
7.	Maize	100
8.	Pear millet	11
9.	Rice (<i>Oryza sativa</i>)	64
10.	Rubber	17
11.	Sorghum	44
12.	Sugar cane	20
13.	Tomato	14
14.	Wheat	9
15.	Yam	19
16.	Amaranthus	6
17.	Celosia	3
18.	Corchorus	3
19.	Okra	3
20.	Solanum	4
21.	Pepper	5
22.	Melon	2
23.	Cocoa	14
24.	Cashew	1
25.	Kola	3
26.	Coffee	2
27.	Oil palm	1
28.	Coconut	3
29.	Date palm	1
30.	Raphia palm	1
31.	Sweet potato	7
32.	Irish potato	3
33.	Sweet orange	11
34.	Tangelo	1
35.	Kenaf	2
36.	Sunflower	4

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