



Food and Agriculture
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Why Agricultural Mechanization is Important in Transforming Agriculture in SSA

Geoffrey Mrema (SUA) & Simplicie Fonkou (DREA–AUC)

Basics on agricultural mechanization

- **Definition of agricultural mechanization** *embraces the manufacture, distribution & operation of all types of tools, implements, machines and equipment for agricultural land development and farm production as well as for harvesting & primary processing of agricultural produce* [FAO, 1981].
- **Six stages of the agricultural mechanization development process:** (See Box 2 in SAMA document)
 1. *Power substitution stage – from animate muscles [human &/or animal] to mechanical power [Internal Combustion (IC) engines or/& electric motors]*
 2. Mechanization of human control functions – from hand-hoe to mechanized weeding, manual harvesting to mechanized harvesting etc.
 3. Adaptation of cropping system to the machine
 4. Adaptation of farming system to facilitate mechanization
 5. Adaptation of crops/livestock to the mechanization system thru breeding etc.
 6. Automation of the agricultural production system
- **Agric Mechanization in SSA is still, to a large extent, in stage 1.**

Fig 1 Primary Land Preparation in SSA 2005

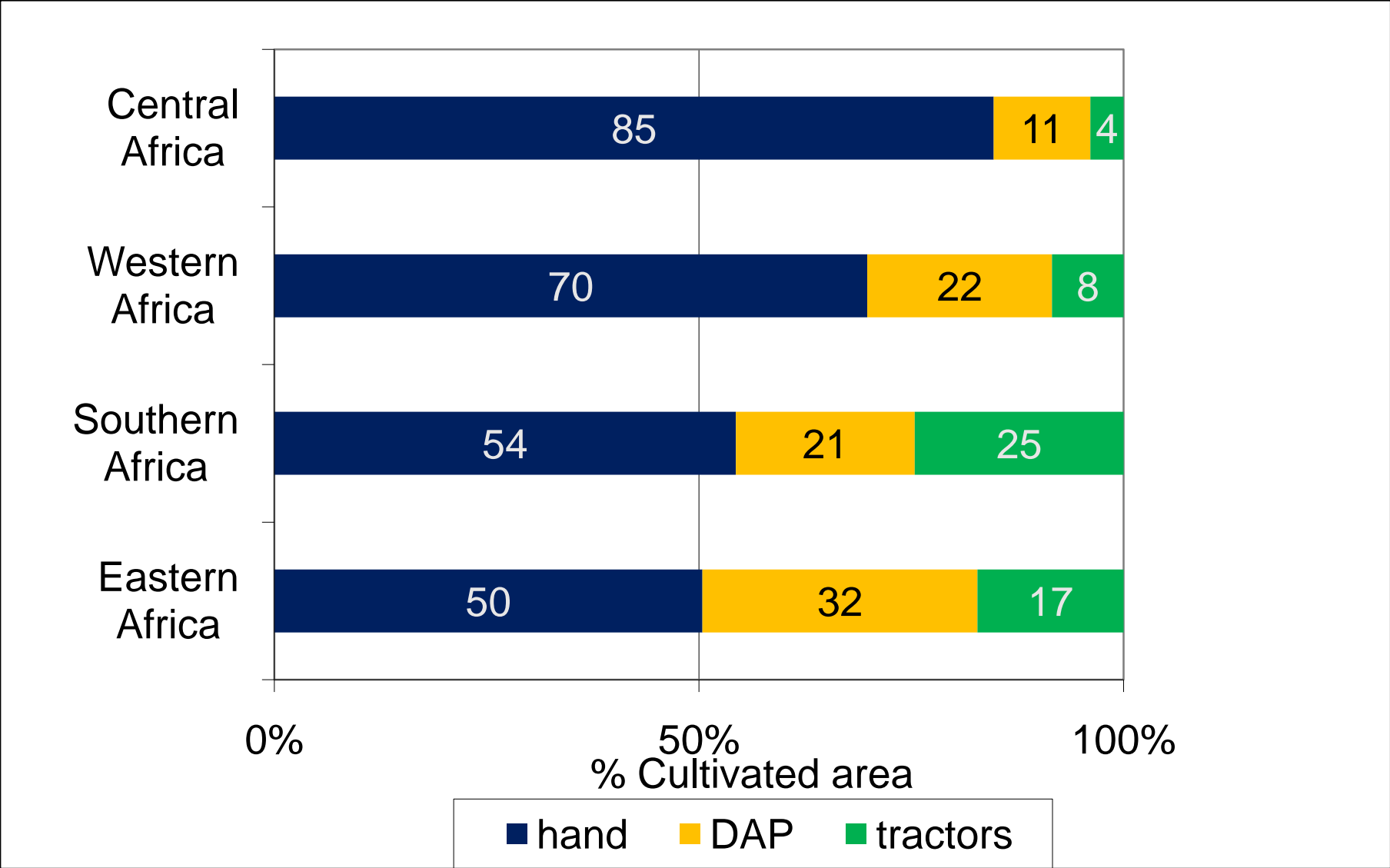
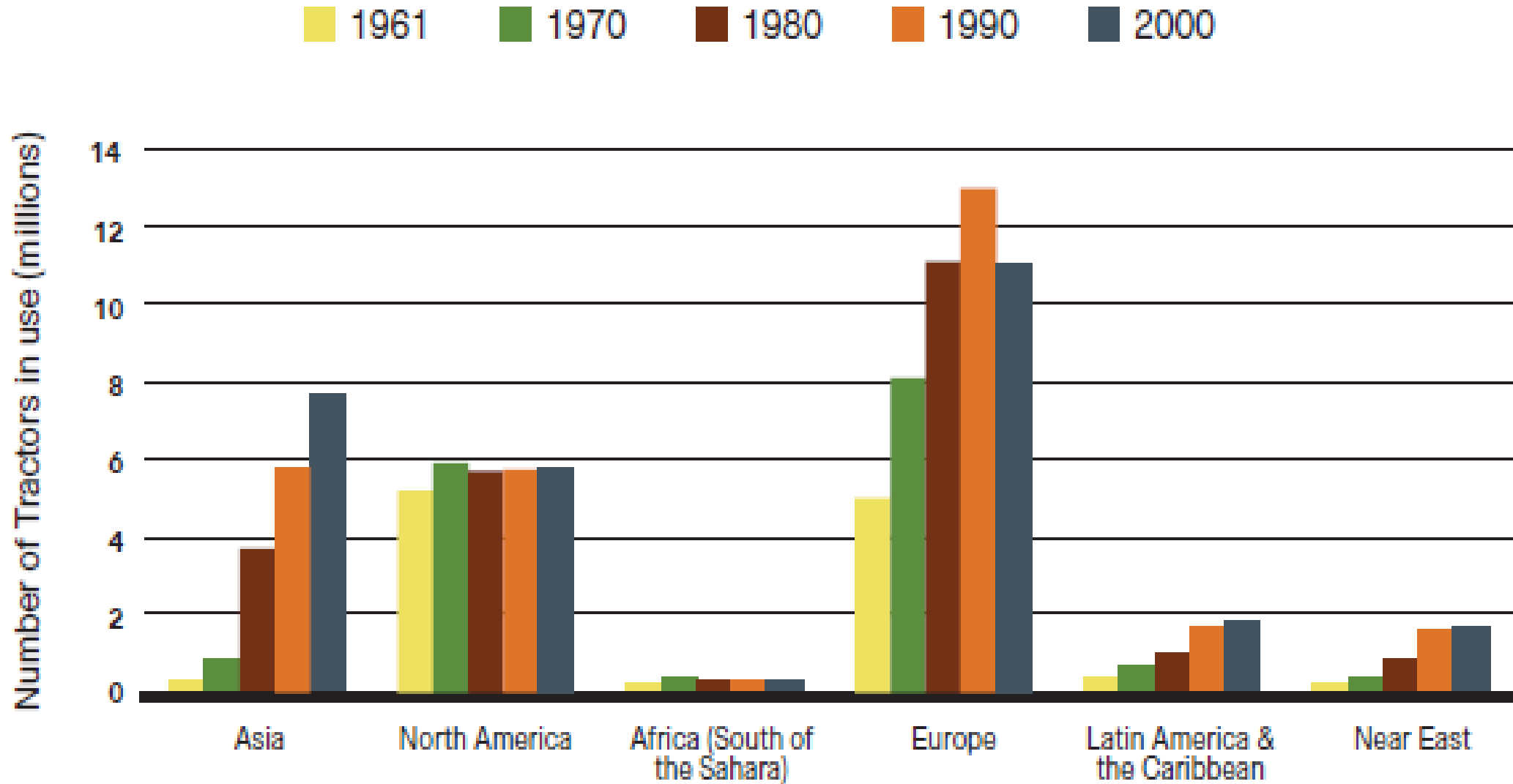


Fig 2: Tractors in Use by Region (1961 – 2000)



Why Mechanize Agriculture

- ❑ **Timely and Precise farm operations** e.g. land preparation, seeding, weeding and harvesting – increase productivity and reduce post-harvest losses especially in rainfed agriculture and mitigate effects of climate change.
- ❑ **Reduced drudgery in performing** field operations to attract the youth and women to agriculture as well as mitigate effects of pandemics e.g. HIV AIDs, COVID-19
- ❑ **Expand area under cultivation** – bring new land under orderly cultivation and production as opposed to old slash and burn systems
- ❑ **Machinery** could be used for other operations e.g. maintenance of **rural infrastructure** and **transportation**

All the above lead to increased Labour productivity

Previous Actions

- **Colonial Period** – Royal Commissions, Goma Conference 1948, mechanization of settler farms and African native yeomen farmers

- **Independence period (1960's)**
 - ✓ **Transformation Era** (Ghana, Tanzania, Nigeria etc.)
 - ✓ **Tractor hire schemes** both public & private
 - ✓ **Intermediate technology era** 1970 - 1985
 - ✓ **Draft Animal Technology** period 1985 - 2005
 - ✓ Time for a new look from 2005 to now with debates on;
 - *Small vs Large tractors*
 - *Environmental Sustainability- tillage systems*
 - *Commercial Sustainability – mechanization service providers*
 - *Socio-economic Sustainability – youth & gender issues*

Previous AU Actions

- 2003** **Maputo, Mozambique**
Maputo Declaration on Agriculture and Food security
- 2004** **Sirte, Libya**
The Comprehensive Africa Agriculture Development Programme (CAADP)
- 2010** **Abuja Nigeria**
Adoption of **(3ADI) African Agribusiness and Argo-Industries Development Initiative** with Heavy Commitment on Agricultural Mechanization
- 2014** **Malabo, Equatorial Guinea, 23rd Summit**
Malabo declaration on **Accelerated Agricultural Growth and Transformation** for Shared Prosperity and Improved Livelihoods
- 2015** **Addis Ababa, Ethiopia, 24th Summit**
Endorsement of the **“Agenda 2063 The Africa We Want”** Vision
- 2015** **Durban, South Africa**
25th Summit – Initiative on **Confining the Hoe to the Museum by 2025**
- 2018** **Rome, Italy**
AUC & FAO joint launching of the **Framework for SAMA**

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Previous studies include *inter alia*:

- Agricultural Development Programmes of 1960s drawn by FAO/IBRD/COMSEC/UNDP;
- IBRD (1967) Study on Agric Dev in Africa (DeWilde *et al.*, 1967)
- USAID/MSU Study of 1969 on Agric Mechanization in Africa (Kline *et al.*, 1969)
- ILO Study on Mechanization and Unemployment in Africa of 1973
- ICRISAT 1978 Report on Tractors Vs Draft Animal Technology in India (Binswanger, 1978)
- World Bank Reports on Mechanization in Africa 1985-87 (by Pingali *et al.*, 1987; Binswanger *et al.*, 1986 & 1987)
- They were quite prescriptive offering blanket solutions and had significant impact on Agricultural mechanization policies and strategies in SSA – several paradigm shifts between 1960-2000.
- FAO initiated a study on a new look on Agricultural Mechanization in Africa from 2008 and this included studies with other partners FAO/UNIDO/IFAD/ AfDB aiming at reactivating interest on agricultural mechanization in SSA. This culminated in the F-SAMA study - July 2016 to Nov 2018

The SAMA Initiative - 2

- Need for a new look on Agricultural mechanization in Africa informed by **long term studies involving key African Institutions active on the ground in implementation of agricultural mechanization programmes & projects.**
- Previous studies were rather esoteric and often undertaken through short term studies by externally based organizations and tended to make blanket prescriptions which in several cases **distorted local policies and strategies.**
- **A note from Dr. de Wilde made 53 years ago;**
'..... One is impressed by the diversity of experiences with animal-drawn and tractor-drawn implements in tropical Africa and by the fact that no comprehensive effort is apparently being made to analyse these experiences and make conclusions of this analysis available to all countries in tropical Africa. The chronic tendency to repeat mistakes will remain as long as there is no proper and easily accessible record and analysis of past experience. The urgency of improving and increasing the equipment for African agriculture cannot be denied. Unfortunately, all the experience of the past has provided warnings of difficulties, but few concrete guidelines for a more positive approach. In many cases for instance, it is difficult to determine whether mechanization has failed because it was inherently uneconomic, or because it suffered from certain technical and managerial problems that could have been avoided or overcome.....'. [de Wilde, 1967].
- Dr de Wilde then a retired Vice President for Economic Affairs at the World Bank made these remarks after leading a year long review of agricultural development in what was then categorized as Tropical Africa.
- **We are still in the same situation over half a century later. F-SAMA offers SSA an opportunity to get out of this experimentation. The Directors/Heads of Agricultural Mechanization & Engineering Services in SSA have a critical role to play in this regard.**

Thank you