

Progress of agricultural mechanization in Cameroon

Fifth CARD General Assembly
5-6 February 2013 at Dakar

Summary

1. Current situation/ Challenges to strong mechanization
 - 1) Access to implements
 - 2) Challenges and hurdles
2. Progress with the mechanization process
 - 1) On the technical side: (a) Appropriate technical equipment (the result of an exercise allying farm machinery, the size of holdings and the soil conditions) (b) Testing and certification, (c) Scenario – machinery that can be made or assembled locally

Policy thrusts: Policy instruments with regard to changes linked to encouraging mechanization
3. Outlook
 - 1) On the technical side, 2) On the policy side

1. (1) Access to powered machinery

- Availability/ accessibility of powered machinery:
- 1. Two-wheel drive tractors (15 hp rotary tillers and 60 hp tractors):
 - Importers /agents: AGROMAC, EMEI-DIESEL, TRACTAFRIC, Ebolowa tractor plant
 - Selling price in US\$:
 - 4000 for the rotary tillers,
 - 20 000 to 24 000 for the 60 hp tractors
 - Market size US\$
 - Around 64 000 for rotary tillers

1. (1) Access to powered machinery (cont.)

- 2. Four-wheel-drive tractors - 75 hp, 90 hp:
- Main importers AGROMAC, EMEI-DIESEL, TRACTAFRIC, Ebolowa tractor plant
- Selling price US\$
 - 25 000 to 33 000 for 75 hp
 - 26 000 to 37 000 for 90 hp
- Market size US\$
 - 400 000 to 1 800 000 for all tractor types
- Access to powered machinery: yes, in certain regions, Hiring cost: 52.4 US\$ /ha,
- Interest rate applicable to powered machinery purchases: 15%
- .

1. (1) Access to powered machinery (end)

- Annual imports:
- two-wheel-drive tractors:
 - About 30 rotary tillers
 - 50 to 100 tractors (includes all types)
- Import duty (or tax): 10%.

1. (2) Challenges and hurdles to encouraging mechanization

Technical issues

- *Weak producer capability to use and manage agricultural machinery*
- *Non availability of suitable machinery to meet the needs of users and the production environment*
- *Scarcity of maintenance technicians and spare parts*
- *Operating irrigated rice growing schemes is very difficult*
- *Tight area of holdings*

Policy issues

- *Low financial means of growers*
- *Difficulty gaining credit*
- *Absence of agricultural machinery training centres*
- *Extension services lack competence in mechanization*
- *Absence of standards for machinery being sold*
- *High cost of machines, agricultural equipment and manufacturing raw materials*
- *Lack of after-sales service*

2. (1-a) Matching farm implements to rice growing systems

Proposed suitable equipment:

- Soil preparation: *Plows, rotavator, disc harrow, ridging bodies, rollers, to supplement manual labor and enable good seed bed preparation according to local soil type*
- Planting: *Seed drills, transplanters, cage-wheels*
- Treatments and weeding: *Portable or pulled sprayers (dependent on holding size), ridge-weeder for draught animal cultivation.*

2. (1-a) Matching farm implements to rice growing systems (cont.)

Proposed suitable equipment:

- Harvesting: *Power scythes, medium-size combine harvesters (dependent on holding size),*
- Drying: *tarpaulins/ drying beds, solar dryers (due to affordability and sunshine availability)*
- Processing: *threshers (hand- or engine-driven), winnowers, huskers (small or medium), milling machines, graders, de-stoners, parboilers (to produce good quality rice competitive with imported rice).*

2. (1-b) Testing and certification

Current situation /problems

- Existing organisational bodies:
- *National Standards Agency (ANOR),*
- *Farm machinery branch of the Ministry for Agriculture and Rural Development (SDMA)*

Outlook

- *Establishment of a Rural Engineering Committee at ANOR*
- *Redefinition of the missions of SDMA/MINADER*

2. (1-b) Testing and certification

Current Situation/problems

- *National Center for Farm Machinery Studies and Trials (CENEEMA) unable to fulfil its mission*
- *Absence of regulations covering quality testing and certification of farm machinery*
- *Human resources: Insufficient, elderly, lack of training and re-education*

Outlook

- *Capacity building at CENEEMA*
- *Development and introduction of farm machinery and farm product standards*
- *Strengthening the staff at ANOR and the SDMA*

2. (1-c) Scenario: List of machinery that could be produced locally

- 1. list of machinery that could be manufactured or assembled locally:
 - In 3 years: *Tractors, plows, discs, rollers, wheel-cages, rice threshers, huskers, medium-size combine harvesters, solar dryers, drying and threshing beds, winnowers, parboilers*
 - In 10 years: *Graders, sprayers, milling machines*
 - More than 10 years: *Rotary tillers, combine harvesters*

2. (1-c) Scenario: List of machinery that could be produced locally (cont.)

- 2. Capacity building requirements:
 - *Training for tractor drivers and other users of farm machinery and implements,*
 - *Training for agricultural mechanics,*
 - *Training on machinery choice for technicians and growers,*
 - *Training on farm mechanization for service providers, in terms of managing the machinery inventory,*
 - *Strengthen manufacturing and engineering skills; strengthen the ability of agricultural producers and related businesses to evaluate production costs*

2. (2) Policy instruments and related measures for change [1/3] – Improving the environment

Suggested policy measures:

- *Formation of a National Farm Mechanization Council*
- *Formation of a sub-regional African network on farm mechanization*
- *Basic infrastructure development (access roads, electricity, land clearance, development of paddy fields, ...)*
- *Set up a negotiating platform for the State and private sector to discuss price setting (sales to end-users) for farm machinery and spare parts*
- *Develop an Investment Code for the agropastoral sector*
- *Bring legislation and other regulations to bear on counterfeiting to protect the products of international and local manufacturers*

3. (1) Outlook: on the technical side

- *Capacity building testing, safety inspection, quality certification and homologation of farm machinery*
- *Skill strengthening of manufacturers in engineering and production costing;*
- *Manufacturing technology transfer for machinery specific to rice growing;*
- *Train tractor drivers and other farm machinery operators;*
- *Train farm mechanics;*
- *Train producers on the use of farm implements;*
- *Train technicians and producers on farm implement choice;*
- *Train farm mechanization service providers to manage their machinery inventory*

Guidance:

3. (1) Outlook: on the technical side

- *Implementation of programs to develop and extend the land area suitable for machinery*
- *Set up machine pools in production areas*
- *Make private services affordable*
- *Capacity build testing and certification (alongside institutional and human resources strengthening)*
- *Set up local testing for tractors, soil preparation equipment, transplanters, crop treatment equipment, harvesters, threshers, huskers, parboilers, graders*

Guidance:

3. (2) Outlook: policy directions

- *Development and application of national standards for farm machinery;*
- *Downward revision of customs duties on machinery that cannot be manufactured locally and in VAT on farm equipment and raw materials for manufacturing;*
- *Enforcement of the statutory instrument covering After-sales Service;*
- *Encourage Associations and Groups for machinery users, artisans and manufacturers of farm equipment (local industries, local artisans, blacksmiths), rice mechanization service providers.*

3. (2) Outlook: policy directions

- *Improve access to financing/credit for local farm machinery manufacturers and users;*
- *Extend the standards for imported rice to locally processed rice and introduce homologation of processing equipment designed to improve rice quality, particularly for urban consumption;*
- *Encourage leasing and farm machinery user cooperatives;*
- *Engineering scholarships, study tours and training workshops for local capacity building.*

Appendices

5. Matching equipment and farm machinery to holding size
 - 1) Tractors
 - 2) Huskers
 - 3) Combine harvesters
6. Progress of the mechanization process
 - 1) Events/meetings timetable
 - 2) List of participants
7. Summary/ Points for the processing questionnaire
 - 1) Existing position of processing capacity
 - 2) Existing market situation
 - 3) Standardization and categorization system

5. (1) Matching farm equipment to size of agricultural holding - Tractors

10 out of 34 factors	2-wheel drive	4-wheel drive
1. Sown area (ha)	10	40
10. Dimensions of available machinery (m)	0.5	0.9
12. Drawbar power (kN/m)	7	7
18. Tractor purchase price (\$)	4000	14 000
28. Total operational costs (\$/h)	7.1	16.6
31. Total fixed costs (\$/hr)	7.46	17.78
32. Total cost/hr (\$/hr)	11.9	34.38
33. Cost/ha (\$/ha)	47.6	34.38
Basic contract costs (\$/ha)	52.36	37.82

5. (2) Matching farm equipment to size of agricultural holding – Huskers

10 out of 34 factors	Small	Medium
1. Throughput (t/yr)	500	1000
10. Capacity of available machinery (kg/hr)	450	1000
18. Purchase price (\$)	2000	5000
28. Total operational costs (\$/hr)	1.59	2.83
31. Total fixed costs (\$/hr)	1.5	4.17
32. Total cost/hr (\$/hr)	3.09	7.00
33. Cost/ha (\$/t)	7.52	4.20
Basic contract costs (\$/t)	9.64	5.46

5. (3) Matching farm equipment to size of agricultural holding - Harvesters/threshers

10 out of 34 factors	Small	Medium
1. Minimum sown area (ha)		200
10. Dimensions of available machinery (m)		2.1
12. Drawbar power (kN/m)		4.00
18. Purchase price (\$)		28 000
28. Total operational costs (\$/hr)		34.8
31. Total fixed costs (\$/hr)		36.05
32. Total costs/hr (\$/hr)		70.1
33. Cost/ha (\$/ha)		36.05
Basic contract costs (\$/ha)		46.87

6. (1) Timetable of events / meetings, workshops

Date	Actions taken (meetings, etc) after March '12
February - March 2012	1 st regional workshop at Nairobi on mechanization of rice growing: <i>Presentation on the national agricultural mechanization situation, exchanges and development of a route plan for lobbying in favor of mechanization of rice growing</i>
June - September 2012	Training at Garoua on constructing a mini rice harvester
	Study tour to South Korea on mechanization of rice growing for 20 Cameroonians
	Testing a locally manufactured thresher at Batouri
	Training in Japan for a post-harvest expert on rice
	Training by the SONALIKA company on using a rice transplanter

6. (1) Timetable of events / meetings, workshops

Date	Activities taking place after March 12
October 2012	Launch the process for encouraging mechanization of rice growing
17 /09/ to 10 /11 2012	Group training in Japan on <i>Improvement of agricultural machinery and equipment for the growth in agricultural productivity</i>
16 October 2012	Follow-up to the Nairobi workshop and <i>discussion of the plan to encourage mechanization of rice growing</i>
22-24 /10/ 2012	Second regional workshop at Nairobi on mechanization of rice growing: <i>Changing the route plan to encourage mechanization of rice growing</i>
14-18/01/2013	<i>Working week for the core group on mechanization</i>

Route map for developing a strategy document

- Draft zero (1st WW) → begun in the aftermath of the working week [21 January 2013]**
- Interviews with key contacts, key stakeholders and other interested parties [February to mid-March 2013]**
- 2nd Draft presented to stakeholders: [April 2013]**
- National Validation Meeting: May 2013**
- Strategy implementation begins [mid-May 2013]**

7. (1) Current position of processing capacity

	Small <150 kg/hr	Medium 150-300 kg/hr	Large >300 kg/hr
Number of rice mills and/or huskers	Not known	Not known	01
Principal source of paddy	Rice growers	Traders, Rice growers Cooperatives	Rice growers Cooperatives
To whom is husked rice mainly sold?	Retailers Consumers	Retailers/ Wholesalers Consumers	Retailers/ Wholesalers Consumers
Main problems?	<ul style="list-style-type: none"> ➤ High percentage of broken rice; ➤ Impurities in dehusked rice; ➤ Ungraded rice ➤ Frequent machinery breakdowns 	<ul style="list-style-type: none"> ➤ High percentage of broken rice; ➤ Impurities in dehusked rice; ➤ Ungraded rice ➤ Frequent machinery breakdowns ➤ Scarcity of spare parts 	<ul style="list-style-type: none"> ➤ Under utilisation ➤ High maintenance costs

7. (2) Current Market Situation [2/3]

	Urban markets	Rural markets
Total volume (t)	Not known	Not known
% local rice	About 10%	About 50%
Most commonly sold rice type	25% broken	25% broken and other unclassified rice
Price (most commonly sold type)(\$/kg)	0.9	1
Import tariff (%)	5%	5%
Price difference between imported and local rice of the same type and quality (%)	12.5%	12.5%
Consumer preferences (Give possible reasons)	Non sticky, long, short cooking time, aromatic, less than 25% broken	Small bags (weak purchasing power)
Consumers' choice	Long, medium	Long, medium, new

7. (3) Standardization and Categorization System [3/3]

Is there an existing regulation or policy covering classification of rice sold in the markets?

Yes, dealt with by the Ministry of COMMERCE

If yes, What are the categories and how are they set out?

In % of broken grains: <5%, 5-25%, >25%

ex. % varietal purity (Mixture): >50%

<i>% of broken grains</i>	<i><5%,</i>	<i>5-25%</i>	<i>>25%</i>
---------------------------	----------------	--------------	----------------

Institutional capacity: Which institution(s) is/ are responsible for managing standardization and classification of husked rice for market sale?

Ministry of COMMERCE

What limits/constraints to implementation exist for such classification and standardization?

Difficult to apply to local rice, common economic space for six countries in the sub-region

Conformity, awareness of standardization / categorization, human resources, technical difficulties, lack of coherence or rigor in the existing policies (identify), etc.

Trade policy disparities between the countries in CEMAC

Guidance: