

Kenya & Tanzania: FACASI CA equipment and business management for hire services. September/October 2014

## **Kenya & Tanzania: FACASI training on CA equipment and business skills for hire service enterprises**

**23 September – 13 October 2014**



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## Abbreviations

ATDC	Agricultural Technology Development Centre, Nakuru, Kenya
BTOR	Back to office report
CA	Conservation Agriculture
CAMARTEC	Centre for Agricultural Mechanization and Rural Technology, Tanzania
CIMMYT	International Maize and Wheat Improvement Centre
DADPs	District Agricultural Development Programmes (Tanzania)
DC	District Council
FACASI	Farm Mechanization and Conservation Agriculture for Sustainable Intensification
MoA	Ministry of Agriculture
MUST	Multi-use sheller/thresher/chopper/Trailer designed by CAMARTEC
NT	No-till
SARI	Selian Agricultural Research Institute, Arusha, Tanzania
SCPI	Sustainable Crop Production Intensification
SIMLESA	Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa
ToT	Training of trainers
WT	As in 2WT: two-wheeled tractor

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## **Summary**

1. This 20-day mission to Kenya and Tanzania was to prepare and deliver two courses on conservation agriculture equipment management, adjustment and operation in conjunction with business skills training. The training was part of FAO's contribution to the CIMMYT-led FACASI Project (Farm Mechanization and Conservation Agriculture for Sustainable Intensification). The courses were aimed at CA service provision entrepreneurs, ministry of agriculture mechanization specialists and private sector machinery dealers. Comments are made on the fundamental need for thorough course preparation and the perils of skimping this task.
2. The courses each ran for five days and included themes on CA as a critically important component of sustainable crop intensification, no-till planter calibration, costing of CA equipment, safe operation of two-wheel tractors and maintenance and field operation of agricultural machinery. The complementary business skills imparted included: feasibility studies; livelihood strategies; record keeping; accounts (balance sheets, profit and loss, cash flow); costing; enterprise outcome and income and marketing.
3. At both locations ample time was allocated for information exchange which included an open forum discussion and a debate on the way forward. The main conclusion is that the courses were successful and achieved their goals as evidenced by the anonymous participant evaluations. More time could usefully have been spent, especially on practical work, but the courses provided a valuable contribution to the successful implementation and maintenance of CA hire service provision enterprises. Suggestions for improvements of future courses are included.

## **Acknowledgement**

This mission to Kenya and Tanzania was made in conjunction with Enterprise Development Officer Martin Hilmi of FAO who joined during the training in Kenya. Martin made invaluable contributions to this present report and his collaboration, improvements and insights are gratefully recognized. His own report of the mission will be via his FAO BTOR.

### **1. Background**

4. The FACASI Project was initiated in 2013 in Kenya and Tanzania, and 2014 in Ethiopia and Zimbabwe with the goal of improving access to farm mechanization in Eastern and Southern Africa, through the delivery and adoption of 2WT-based technologies to and by smallholder farmers. One of the principal objectives is to improve capacity and create awareness of 2WT-based technologies in the sub-region, and share knowledge and information with other regions.
5. The present training course was offered as a contribution to this objective by generating expertise in the two areas of CA equipment operation, calibration, maintenance and field operation; and business management for hire service enterprises, equipment dealerships and district level public sector officials.

6. The request was for the training programme to be aimed at trainers so, in effect, it was a ToT exercise. However, in Kenya four CA service providing entrepreneurs were included amongst the participants primarily selected from MoA candidates. In Tanzania there were two private sector CA service providers. Their presence greatly enriched the quality of the courses. The hope is that the MoA participants will now be able to pass on their new-found knowledge to future would-be service provision entrepreneurs.

7. This training is a continuation of previous FAO initiatives to perfect a training manual on technical and business management skills for CA service provision entrepreneurs. Previous similar training courses have been given in the past in Bungoma and Nanyuki, Kenya (in 2009); and in Karatu (Tanzania) in 2009 (see Annex 5). Since then the material, originally compiled in collaboration with Alexandra Röttger of FAO, has been enhanced by sporadic inputs to improve specific sections of the manual and the present mission has started to put these improvements and additions into effect.

## **2. Programme**

8. The mission started in Kenya where the plan was to collect, inspect, adjust, calibrate and operate the machines used for CA in the FACASI Project before the start of the training course. This should have been at the site of the programmed training, i.e. the Agricultural Technology Development Centre (ATDC) in Nakuru. In the event key members of the training group were unavailable and so this was not possible.

9. The first three days were spent in Nairobi liaising with the CIMMYT office, national trainers and Martin Hilmi in Rome to crystallize and finalize, as far as possible, the training course content and programme. Over the weekend of 27 and 28 September two members of the Kenyan training team travelled to Bungoma and brought in the machinery to be used for training (in Nakuru) and the programme was further developed to be ready for the participants.

10. The Kenyan course was run from Monday 28 September to Friday 3 October after which Brian Sims and Martin Hilmi travelled to Arusha, Tanzania to begin preparations for the Tanzanian training course.

11. The Tanzanian course was held at the SG Resort hotel, Arusha and at the Selian Agricultural Research Institute (SARI) from 6 to 10 October. After which, on 12 October, Brian Sims returned via Nairobi to the UK and Martin Hilmi returned to Rome.

12. A detailed Itinerary is given in Annex 1.

## **3. Preparation**

13. Adequate preparation time for practical sessions involving farm machinery is essential. And this was indicated well in advance of these training courses. However in the event, no time for machinery and practical session preparation was available in

Kenya and in Tanzania the time available was severely curtailed. Preparation involves running through the content of the practical sessions and ensuring the following points:

- The machinery is complete and in a working condition.
- The correct tools are available for fitting and adjustment.
- The regular operator is on hand – especially for 2WT operation.
- The land envisaged for field operation is suitable.
- The inputs are on hand, i.e: seed, fertilizer, diesel fuel, grease, oil, water for machine cleaning, etc.

Without these essential preparations the practical sessions run the danger of being hit or miss affairs which may, or may not, be successful.

14. With experience from the Kenya training and advice and inputs from project staff in Tanzania prior to the training taking place, the training programme (Annex 4) was revised and prepared with a focus on the targeted set of trainees (entrepreneurs from hire service enterprises, entrepreneurs from equipment dealerships and district public sector – MoA – officials) in mind and this also enabled the refurbishment and fine tuning of the training materials and exercises.

#### 4. Training Programme in Kenya

15. CA and CA equipment training started on Day 1 with a discussion on the CA concept and levels of adoption world-wide; the purpose of this session was to bring all participants up to the same level of understanding. This was followed by detailed consideration of calibration of NT planters, followed by extensive practical calibration of available machines (on Day 2). The practical session also covered maintenance and care of 2WTs and CA equipment and the opportunity was provided to operate the machinery in the field (Figures 1 and 2). Calculation of CA machinery costs (including 2WTs) was explained and reinforced with practical exercises in group work. This aspect fitted neatly with the business management training on operating costs. Finally, input was made to the record keeping section with reference to the importance of machinery maintenance records to ensure regular and timely maintenance interventions to prolong the useful life of CA machinery. A final session (on Day 5) focussed on safety aspects of 2WT operation.



**Figure 2. Transporting a Fitarelli 2-row NT planter hitched to a Chang Jiang 6 kW 2WT**



**Figure 1. Calibration of fertilizer distribution of a NT planter**



16. The business management training part of the programme on Day 3 commenced with an introduction to feasibility studies. This carefully outlined how trainees thinking of starting a hire service enterprise should consider all the pertinent business factors prior to investing money in such a business enterprise. Such aspects as the need for market research were covered, along with ascertaining the equipment input supply chain, credit availability and so forth. This was followed by a practical exercise where the trainees needed to carry out a feasibility study themselves. This was followed by lectures and, importantly, practical exercises on record keeping, accounting (balance sheet, profit and loss accounts and cash flow), costing, enterprise output and income. Trainees for each of the practical exercises were asked to carry them out on their own so as to increase their knowledge and practical skills. Day 4 was initiated with a review of the Day 3 training where trainees provided brief presentations on what they had learnt previously. The lecture that followed was on business planning and trainees needed to develop their own business plan for their hire service businesses. This was followed by a lecture on marketing services and trainees had to develop their own service marketing plans. This segment of the training day was followed by a reinforcement lecture and exercise on record keeping, costing, pricing and profit. Day 5 provided for a further lecture on record keeping and was followed by an overall summary of the main aspects covered in terms of business management.

17. Finally the training programme provided for an open forum for discussions with and amongst trainees, a plenary session on the way forward and the programme concluded with the presentation of certificates to trainees. The timetable of the programme followed is indicated in Table 1. All course materials, Power Points, reference materials, programme and background information were supplied to each participant on a CD for future reference.

**Table 1. Programme of the Kenya training course**

Session No	Day 1	Day 2	Day 3	Day 4	Day 5
1	Welcome and Introduction (JM1)	Practical training on calibration, operation and maintenance of NT planters (BS&JM2)	Review of days 1&2 (MS) Evolution of a CA hire service business (SM)	Review of day 3 (DK) Business planning (JM1)	Safe operation of farm machinery (JM2)
2	Introduction to FACASI (JM2)		Introduction to hire services as a business (Session 3.1) (JM1) Presentation of machinery cost calculations (Groups)	Business plan practical (JM1)	Record keeping (MH &BS) Business plan review (JM1) Open forum, way forward (All) Course evaluation and presentation of certificates
3	CA as a component of SCPI (BS)	Costs of machinery, explanation and practical exercise (BS)	Business management for hire services (Session 3.1) (JM1)	Business management: marketing (MH)	
4	Calibration of CA equipment (BS)			Business management: records (MH)	

JM1: John Mungoo; JM2: Joseph Mutua; BS: Brian Sims; SM: Stanley Muriuki; MS: Musa Sang; DK: Daniel Kinymu; MH: Martin Hilmi

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## **5. Training course evaluation: Kenya**

18. The week was characterized by lively discussions amongst the heterogeneous group. An example would be the discussion on capturing service payments which arose during the presentation and debate on cash flow. The following are some examples of the many problems faced:

- Village dynamics, social pressures from family members, close neighbours and friends, can mean that payment is deferred and securing it at a later date may create sensitive situations.
- Refusing to continue a job until payment is made may mean that competitor providers are called in to complete the task and consequently the initial work accomplished will not be paid for.
- It is difficult to enforce the idea of written contracts as arrangements are almost always made by word of mouth.
- Repeated visits for partial payments from female clients (by male service providers) can raise suspicions and create social tensions.
- Although it is best to ask for up-front payment, this may not always be possible for the client.
- Large landowners tend to be the slowest payers.
- A good ploy to extract early payment is to explain that the work crew (e.g. four helpers per pair of work oxen) need to be paid and fed on the day that the work is executed.

19. Record keeping aroused great interest – it is a task that is clearly rarely done, but the value of honest and complete records was readily recognized by the group as the importance of a healthy cash flow for the business became clear.

20. Service providing entrepreneurs were invited to share some of the detail of their businesses by describing which activities they engaged in to earn income, and what their costs were. Typical income-earning activities include: ripping, planting, spraying, sub-soiling, shelling, pumping and transport.

21. Participants agreed, and commented that the skills shared during the training course were precisely what they required as entrepreneurs. Future trainers from the MoA confessed themselves to be confident to pass on the messages learned. At the final discussion forum (on Day 5), the participants made the following pledges for their own future action:

- Share with colleagues the newly gained knowledge resulting from the training;
- Apply what we have learnt to our own businesses;
- Monitoring progress reports and follow-ups with the FACASI project would be welcome;
- Assess the level of CA in their regions and explore entry points to increase awareness and adoption of both CA and 2WTs.
- Promote 2WT technology through advice on costing and evaluating the impact of changing systems.

22. The results of the confidential evaluation sheets completed by each participant revealed the following in terms of training programme outcomes:

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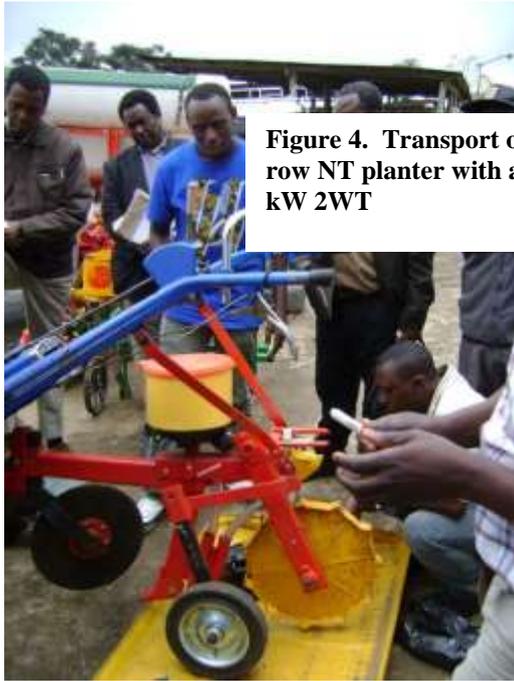
- The objectives of the training course were explained and achieved and were understood by the trainees;
- The course was easy to follow but could have been longer (this is a common observation of these kinds of practical courses – there is always more that could be potentially achieved with more time. But a balance has to be struck).
- There were enough breaks and other opportunities to exchange ideas with trainers and fellow participants.
- The presentation materials and handouts were of high quality. In fact each participant was given a CD with the presentation materials in it.
- Useful skills were acquired along with the ability to pass them on.

23. In the same evaluation exercise trainees requested the following for future training courses:

- There was one request from one trainee that multimedia be used in future trainings, specifically referring to the use of documentary films on the subject matters covered in the training programme.
- One trainee requested visits to hire service enterprises, equipment dealerships and have entrepreneurs involved in the training programme as guest speakers.
- One trainee requested that more time be devoted to cashflow and other “financials” as well as economics.
- One trainee suggested that partial budgeting be included.
- One trainee requested that more time should be spent on two-wheel tractors.
- One trainee requested that more equipment dealers be involved in future trainings.

## **6. Training Programme in Tanzania**

24. The CA equipment training input for Tanzania followed a similar course to that for Kenya. The CA worldwide presentation was again included to bring all participants up to the same level. In fact it created a lot of interest and insight. No-till planter calibration was dealt with theoretically and practically with the available machines (Figure 3). All machines were thoroughly described by the CAMARTEC contingent of participants and field operation of some machines was practised (Figure 4). In addition to the CA equipment the CAMARTEC MUST sheller/chopper was described (Figure 5). This was particularly useful as the descriptions could be given directly in Swahili. Again machinery costs, maintenance, record keeping and safety were emphasized during the training course.



**Figure 4. Transport of Fitarelli 1-row NT planter with a Donfeng 9 kW 2WT**

**Figure 3. Calibration of the seed metering mechanism of a Fitarelli single-row NT planter**



**Figure 5. CAMARTEC MUST sheller/thresher/chopper/trailer**

25. The training course in Tanzania found a better integration and amalgamation of business management with conservation agriculture aspects and mechanization as the trainers had more information on the intended target trainees, provided by the project field staff and had been provided with other inputs on what was required for the training. Consequently Day 1 of the training included a mixture of lectures on conservation agriculture and business aspects devoted to entrepreneurs of hire services and equipment dealerships and importantly the public sector. The presentation on conducting feasibility studies not only looked at the private sector aspect of a feasibility study, but also and importantly on the public sector conducting a feasibility study for developing a programme to support and develop hire service enterprises and equipment dealerships. Trainees all conducted a feasibility study exercise and this was followed by an exercise that was to last for the entire duration of the training. The exercise considered developing a virtual enterprise and public support programme for developing hire services and equipment dealerships. Trainees were provided with outlines of the enterprise development process and public support programme and were given a virtual budget to develop the business and programme. This exercise was intended to be worked on throughout the duration of the course. The expected result was a short development plan for the public sector in support of hire service enterprises and equipment dealerships, while for the private sector enterprise development plans were expected.

26. The second day of the training programme was devoted to livelihood mapping and a related exercise as well as developing further the virtual enterprise and development support programme exercise. Day 3 comprised presentations and, importantly, practical exercises on record keeping, accounting (balance sheets, profit and loss accounts and cash flow), costing, enterprise output and income. Trainees for each of the practical exercises were asked to carry them out on their own so as to

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increase their knowledge and practical skills. This was followed by a lecture and exercise on costing and pricing. Day 4 provided for reinforcement lectures on record keeping, accounting (balance sheet, profit and loss accounts and cash flow), costing, enterprise output and income. Day 5 commenced with a lecture on marketing and followed by a practical exercise where trainees needed to develop a marketing plan for their virtual enterprises. This was followed by a reinforcement lecture on record keeping. A summary was next provided regarding all matters that had been covered on business management. The training programme then provided for an open forum for discussions with trainees, a session on the way forward, and the training programme was concluded with the presentation of certificates to trainees.

27. The timetable of the programme followed is indicated in Table 2. As in Kenya, all course materials, Power Points, reference materials, programme and background information were supplied to each participant on a CD for future reference.

**Table 2. Programme of the Tanzania training course**

Session No	Day 1	Day 2	Day 3	Day 4	Day 5
1	Welcome and Introductions (JS)	Practical training on calibration, operation and maintenance of NT planters (WB&BS)	Business management 1: records, accounts (MH)	Review of days 1, 2 & 3 (participants) Business management - profit & loss (MH)	Review of day 4 (participants) Marketing (MH)
2	Introduction to FACASI in Tanzania (JS)		Costs of machinery, explanation and practical exercise (BS)	Business management – cash flow (JM)	Record keeping (MH &BS) Virtual enterprise development plan, conclusion
3	CA as a component of SCPI (BS)	Livelihood strategies (MH)	Presentation of machinery cost calculations (BS & Groups)	Business management 3: management, accounts, people and marketing (JM)	
4	Calibration of CA equipment (BS)				Open forum, way forward (All) Course evaluation
5	Introduction to hire service businesses (MH) Virtual enterprise development plan 1 (MH)	Virtual enterprise development plan 2 (MH)	Business management 2: costs and pricing (MH)		

JS: John Sariah; BS: Brian Sims; MH: Martin Hilmi; WB: Wilson Baitani; BT: Ben Titus; JM: John Mung'oo

## 7. Training course evaluation: Tanzania

28. Generally the enthusiasm of the Tanzanian participants was at a similar level to that of the Kenyan counterparts. However most of the 'buzz' of discussions between them was carried out in Swahili.

29. During the open forum and forward planning sessions on Day 5 it was manifested that the whole group was very happy with the training but needed refresher training events on a regular basis. Of great use was what was described as the 'formalization of accounting'. Other views expressed included:

- From a service provider: he intends to 'work on' the skills imparted and to implement them in his business.
- FACASI fills a gap in the SIMLESA project on the need for more farm power and appropriate associated CA machinery.
- Seeing is believing! There is a need for more practical sessions rather than too much classroom training.
- The training course is too compacted and should run over two weeks.
- From a second service provider: there is a need for much simpler information. With the information gleaned he will now implement a regime of costing his equipment and keeping detailed records.
- District mechanization officers indicated that they will now conduct local training to actual and potential service providers, especially on machinery record keeping and maintenance.
- Exchange visits between service providers would be a positive step towards improved service provision.

- Giving the training in Swahili would have been better, but one participant with poor English claimed that he was drawn into the course as he could follow the steps via the Power Points.
- The CIMMYT view was that the machinery management and operation aspects were very good. The business management aspects were relevant and required. CA service marketing was a crucial element. More farm machinery dealers need to be involved in the Project and perhaps the feasibility of the concept of leasing should be explored further.

30. The results of the anonymous evaluation sheets completed by each participant revealed the following:

- The objectives of the training course were explained and achieved and knowledge and skills were increased in the following areas:
  - Business management
  - CA equipment use, calibration and care
  - Record keeping
  - Ability to impart the knowledge learned to others
  - With the increase in knowledge and skills of the subject matters covered during the training programme, there would be a change of behaviour in the work place of the trainees as a result.
  - The most interesting subject matters for the trainees were, apart from the practical work with CA machines, business management and in particular accounting and the most useful subject matters covered by the training were the costing and pricing of services, financial statements, cash flow, record keeping and livelihood mapping;
  - The training materials as well as the training exercises were found to be useful and could provide for further trainings to be conducted.
- Suggestions for improvements:
  - Time was too short. This is a perennial problem and it is easy to see how additional time would have been beneficial. The mechanization and business management skills components could both have comfortably been run over a four or five day period. This would have allowed longer field practical sessions and more detailed desk exercises.
  - The training programme should be conducted more frequently and also include field visits and study tours.
- Suggestions to additions to future courses included:
  - Selection of farm machinery.
  - 2WT operation and servicing in addition to routine maintenance).
  - CA equipment maintenance in more detail.
  - Preparation of an enterprise business plan.
  - Include draught animals as a power source for service providers.

- Sustainability and business planning.

## 8. Way forward

For the Tanzanian trainees the way forward was seen principally from the public sector point of view. Public sector officials from the districts of Hanang, Mbulu, Arusha and Arumeru provided the following information on their intended way forward:

- Communicate with their departments and advise on the importance of the training conducted and its details;
- Setting a budget for the trainings and finding funding for the trainings;
- Planning for the trainings to take place;
- Translate the training programme, materials and exercises into Swahili;
- Conduct exchange programmes in terms of visits and knowledge sharing;
- Provide for the training of a number of hire service enterprise entrepreneurs , training in numbers from 15 to 50;
- Monitoring and controlling the trainings;
- Start the training programmes between October/November 2014 and end them in July 2015;
- Attempt to include the training programmes in District Agricultural Development Plans (DADPs).

## 9. Conclusions

There is clear evidence from the above that the training programmes provided in both Kenya and Tanzania did fulfil their objectives as outlined by the training objectives set. Evidence for this was provided by the learning outcomes achieved and the trainees' evaluations of the training programmes conducted. Trainees in both programmes provided positive feedback and found the training programmes to be successful. However as a result of the knowledge and experiences gained from the training programmes the following important aspects need to be considered:

- Overall more time and collaboration should have been devoted to the preparation phase for the training programme;
- More time should have been devoted to the training programme *per se*;
- Training needs assessments could have been carried out;
- Further integration and amalgamation of CA, mechanization and business management subject matters in terms of the training programmes and related training materials, training exercises and business development simulations should be considered in any future training programme of a similar nature.

## 10. Recommendations

- Future training programmes should run to two weeks and include more field and other practical work.
- Adequate preparation time needs to be allocated and the active collaboration of local counterparts ensured.
- There is a need for further integration and amalgamation of conservation agriculture, mechanization and business management subject matters in terms of the training programme and related training materials, training exercises and business development simulations.
- There is a need to further refine training methods for the programme that specifically address the needs of the intended target trainees.
- There is a need to include more field visits, including enterprise visits to hire services and equipment dealerships.
- There is a need during training programmes to invite guest speakers who can contribute presentations on their experiences as entrepreneurs from hire service enterprises, entrepreneurs from equipment dealerships and public sector officials.
- Include more training of project field staff, CA service providers, equipment dealers and MoA employees on the economics and business management of mechanization and conservation agriculture.

## **Annex 1. Itinerary**

### **September 2014**

**Tue 23.** Bedford – LHR – Nairobi

**Wed 24.** Arrive Nairobi. Briefing meeting with John Mung'oo

**Thu 25.** CIMMYT office, Nairobi. Logistics meeting with Carol Mukundi. Programme planning with John Mung'oo

**Fri 26.** Nairobi, literature review for FACASI training in Nakuru. Email work

**Sat 27.** Travel Nairobi – Nakuru with Joseph Mutua and John Mung'oo. Email work

**Sun 28.** Receipt of CA planting machinery from Bungoma. Re-formulation of training programme

**Mon 29.** Nakuru training: CA equipment and business management for hire service entrepreneurs, to:

### **October 2014**

**Fri 3.** End training course in Nakuru and travel to Nairobi

**Sat 4.** Nairobi – Arusha by air. Introductory meeting and visit to SARI with Ben Titus

**Sun 5.** CA Machinery inspection and selection at SARI with Ben Titus and Wilson Baitani. Evening meeting with John Sariah

**Mon 6.** Arusha training: CA equipment and business management for hire service entrepreneurs, to:

**Fri 10.** End training course in Arusha

**Sat 11.** Report preparation. Wrap up meeting with Ben Titus, CIMMYT, Arusha

**Sun 12.** Arusha-JRO-NBO. NBO-LHR

**Mon 13.** Arrive London HR. By car to Bedford

## **Annex 2. People met**

### **KENYA**

#### ***CIMMYT***

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Isaac Murge Mgero, Mbulu

Steven D. Kessy, CAMARTEC

### Annex 3. Terms of Reference

#### Exhibit "A"

##### Terms of Reference for FACASI Technical Training Consultant

Technical training for Farm Mechanization and Conservation Agriculture for Sustainable Intensification (FACASI) Project. FACASI is funded by AIFSRC (Australian International Food Security Research Center) and managed by ACIAR (Australian Centre for International Agricultural Research), with co-funding from, CIMMYT, EIAR, KENDAT, DRD, UZ, ACT, IDE and FAO. This Project, has a strong mechanization component which aims to equip CA service provision entrepreneurs with 2-wheel tractor technology to supply high quality CA services in their neighbourhoods and beyond. The Project operates in four African countries: Kenya, Tanzania, Ethiopia and Zimbabwe.

**Location:** UK, Kenya and Tanzania

**Expected start date of assignment:** 23 September 2014

**Duration:** 22 days

The training will be directed at CA service-provision entrepreneurs in Kenya and Tanzania. (A further mission is envisaged to conduct similar training in Ethiopia and Zimbabwe, probably in early 2015.) One week of intensive training is envisaged in each country and will be undertaken in conjunction with a business skills component to be delivered by a second consultant. The technical training consultant will prepare, as far as possible before arrival on site and on-site thereafter, training materials on the following topics:

- CA planter calibration (seed and fertilizer)
- Sprayer calibration
- Calculation of costs (fixed and variable) for CA equipment

While these will be necessary areas for technical training, the most important aspect of the course will be practical field operation and adjustment of the available equipment. Details of this equipment will be available on-site after arrival, first in Kenya and subsequently in Tanzania.

On return to home base the Consultant will produce a concise report including a review of the technical training course material and recommendations for the next training in Ethiopia and Zimbabwe.

The duration of the consultancy will be 22 days distributed as follows:

Date	Activity	Comments	Days
September 2014	Preparation of course materials. UK		1

Kenya & Tanzania: FACASI CA equipment and business management for hire services. September/October 2014

24 Sept 2014	Travel London – Nairobi		1
25 – 27 Sept 2014	Travel to training site. Pre-course familiarization with the equipment and its field use on site in Kenya. Discussion and adaptation of course content with local counterparts.	This is essential for a successful training and is required before the first round of such a training for FACASI to verify available equipment. More time is spent here than in Tanzania because of the difficulty of fitting in the necessary time in Tanzania.	3
Sun 28 Sept	Fine tuning training programme		1
29 Sept – 3 Oct	Training for Kenya	Location to be specified	5
4 Oct	Travel Nairobi – Arusha and final training location		1
Sunday 5 Oct	Revision of training programme in light of the Kenya experience	It is unlikely that useful practical preparation time would be offered locally on a Sunday	1
Mon 6 Oct	Pre-course familiarization with the equipment and its field use on site in Tanzania	It is assumed the equipment available for the training in Tanzania is similar to that in Kenya	1
7–11 Oct	Training Tanzania	CAMARTEC, Arusha	5
12 Oct	Travel Arusha – NBO - LHR		1
13 Oct	Arrive LHR travel to home base		
Two days home based report writing (revision of training and recommendations)			2
Total			22

**Deliverables:**

1. Organize and deliver a 5 day training programme for 2WT service providers in Kenya and Tanzania
2. Prepare training reports (2) together with an evaluation of the training.

## **Annex 4. Training Programmes in Kenya and Tanzania**

### **Kenya**



*Farm power and conservation agriculture for sustainable intensification (FACASI) Project*

### **Conservation Agriculture Equipment and Business Management for Hire Services Enterprises Training programme**

Nakuru, Kenya

29<sup>th</sup> September - 3<sup>rd</sup> October 2014

#### **Introduction to the training programme**

Karibu to this training programme

The training programme is a five day intensive and practical training programme. In this training programme you will familiarize yourselves with direct planters for Conservation Agriculture being used in the FACASI Project. You will calibrate the machines and use them in the field.

From a business perspective you will be introduced to the topic of how to manage and market a hire service enterprise. This will be highly practical and you will be required to work on practical exercises to start, implement, manage and market a hire service enterprise. You will create a model hire service enterprise. For this you will be given a budget in the currency of VS (Virtual shillings) and with this budget you will have to set up and run your hire service business. Each aspect of your business will be covered with the facilitators of this training programme from a business management perspective. You will cover with the facilitators how to conduct a market and feasibility study. This will involve a short lecture and then you will be able to provide your information of the feasibility of setting up a hire service business. Remember this will be based on your knowledge and hence you are the judges to say if starting a hire service is feasible or not. You know your local areas, demand for hire services and other important information that may be necessary. The facilitators will show you how to do a feasibility study and a market assessment, but cannot do this for you. You will have to do this. You will also be provided with lectures and more importantly practical exercises on how to keep records of your enterprise, how to do accounting (profit and loss account, cash flow) and importantly cost and profit calculations and why profits are so important. There will also be a section of the training programme devoted to how to finance the business and provide for marketing of the business.

#### **Methodology of the training programme**

This training programme is mainly based on practical and experiential learning. In other words participants will be trained with experiential and participatory approaches. This will mean that participants will work on participatory exercises: practical exercises with a learning-by-doing approach.

### **Learning objectives**

Review the principles of planter calibration and calibrate a range of no-till planters

Become familiar with routine maintenance of planters and two-wheel tractors (2WTs)

Gain experience in the field operation of no-till planters with 2WTs

Define what is a feasibility study

Describe what is a feasibility study

Prepare a feasibility study

Define what is a market study

Describe what is a market study

Prepare a market study

Define and describe what a service is

Define and describe the services of a hire service enterprise

Define record keeping

Describe record keeping

Prepare records

Define what is a cost

Describe what is a cost

Prepare a cost calculation

Define what is accounting

Describe what is accounting

Define cash flow

Describe cash flow

Prepare a cash flow

Define a profit and loss account

Describe a profit and loss account

Prepare a profit and loss account

Define what is profit

Describe profit

Prepare a profit calculation

Define finance

Describe finance

Prepare a loan calculation

Define marketing

Describe marketing

Prepare a marketing plan

Define what a hire service enterprise is

Define how a hire service enterprise operates

Describe a hire service enterprise

### **Training programme structure**

*Note: The programme is liable to change according to the range of available equipment and date of arrival of trainers*

#### **Day 1**

Session 1.1: Introduction to the training programme

Session 1.2: Introduction to the concept of conservation agriculture and the FACASI project

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Session 1.3 Introduction to calibration of no-till planters

Session 1.4 Practical calibration of planters

**Day 2**

Pre-session: Summary of day 1

Session 2.1: Direct planter practical calibration

Session 2.2: Field operation of direct planters

Session 2.3: 2WT engine routine maintenance.

Session 2.4: Calculating the costs of agricultural equipment

**Day 3**

Pre-session: Summary of day 2

Session 3.1: Introduction to the hire services as a business: Market and feasibility study

Session 3.2: Livelihood strategies: Mapping the household economy and identifying the business enterprise

Session 3.3: Business management for hire services Part 1: Keeping records/accounting, profit and loss account, cash flow, financing, loan appraisal, input/output calculations, costing, profits

Session 3.4: Business management for hire services Part2: Costing conservation agriculture equipment/Pricing services

**Day 4**

Pre-session: Summary of day 3

Session 4.1: Business management for hire services Part 3: Management, accounts, people and marketing

Session 4.2: Business management for hire services Part 4: Marketing

Session 4.3: Business management for hire services Part 5: Revisiting record keeping, cash flow and profit and loss account

Session 4.4: Business management for hire services Part 6: Machinery purchase and cash flow planning, joint ownership of equipment

**Day 5**

Pre-session: Summary of day 4

Session 5.1: Review of planter calibration

Session 5.2: Review of record keeping, accounting, profit and loss account, cash flow and loan appraisals

Session 5.3: What next: Forward planning by participants

Session 5.4: Review and discussions

Session 5.5 Presentation of certificates

**References for this training programme**

FAO. 1990. *Agricultural engineering in development: selection of mechanization inputs*. Agricultural Services Bulletin 84. Rome.

FAO. 1994. *Testing and evaluation of agricultural machinery and equipment: principles and practices*. Agricultural Services Bulletin 110. Rome.

FAO. 2012. *Hire services by farmers for farmers*, Rome

FAO.2009. *Rural transport and traction enterprises for improved livelihoods*, Rome

FAO.2009. *Explaining profitability and borrowing*, Rome

FAO.2009. *Explaining the finances of machinery ownership*, Rome

Kenya & Tanzania: FACASI CA equipment and business management for hire services. September/October 2014

FAO.2005. *Explaining cash flow and savings*, Rome

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<http://www.fao.org/ag/ags/index/en/>

#### **Tanzania**



*Farm power and conservation agriculture for sustainable intensification (FACASI) Project*

## **Conservation Agriculture Equipment and Business Management for Hire Services Enterprises/Equipment Dealerships and the Public sector Training programme**

Arusha, Tanzania

6<sup>th</sup> October- 10<sup>th</sup> October 2014

#### **Introduction to the training programme**

Karibu to this training programme

The training programme is a five day intensive and practical training programme. In this training programme you will familiarize yourselves with direct planters for Conservation Agriculture being used in the FACASI Project. You will calibrate the machines and use them in the field.

From a business perspective you will be introduced to the topic of how to manage and market a hire service enterprise business and an equipment dealership business. This will be highly practical and you will be required to work on practical exercises to start, implement, manage and market a hire service enterprise and equipment dealership. You will create a model hire service enterprise and equipment dealership. For this you will be given a budget in the currency of VS (Virtual shillings) and with

this budget you will have to set up and run your business. Each aspect of your business will be covered with the facilitators of this training programme from a business management perspective. You will cover with the facilitators how to conduct a market and feasibility study. This will involve a short lecture and then you will be able to provide your information of the feasibility of setting up a hire service business. Remember this will be based on your knowledge and hence you are the judges to say if starting a business is feasible or not. You know your local areas, demand for hire services and equipment and other important information that may be necessary. The facilitators will show you how to do a feasibility study and a market assessment, but cannot do this for you. You will have to do this. You will also be provided with lectures and more importantly practical exercises on how to keep records of your enterprise, how to do accounting (profit and loss account, cash flow) and importantly cost and profit calculations and why profits are so important. There will also be a section of the training programme devoted to how to finance the business and provide for marketing of the business.

The public sector will also be involved in this training. The public sector will also be given a budget in VS ( Virtual Schillings) and this will enable them to set up programme for supporting hire service enterprises and equipment dealerships development. The trainers will support this process in terms of how to conduct a feasibility study in a defined area to verify the potential of hire service enterprises and equipment dealerships. For example what demand there may be for such services in a geographic area . This will be a first step in setting up a programme. Other steps will involve, for example a stakeholder analysis, an input supply chain analysis and so forth. The ultimate goal of this programme will be to determine if in a defined area it is feasible to provide incentives to the private sector to develop hire service enterprises and equipment dealerships. However the final decision on this will be in the hands of public sector workers as trainers will only facilitate the process and not take decisions.

### **Methodology of the training programme**

This training programme is mainly based on practical and experiential learning. In other words participants will be trained with experiential and participatory approaches. This will mean that participants will work on participatory exercises: practical exercises with a learning-by-doing approach.

### **Learning objectives**

- Review the principles of planter calibration and calibrate a range of no-till planters
- Become familiar with routine maintenance of planters and two-wheel tractors (2WTs)
- Gain experience in the field operation of no-till planters with 2WTs
- Define what is a hire service enterprise
- Describe a hire service enterprise
- Define how a hire service enterprise operates
- Define what is an equipment dealership
- Describe an equipment dealership
- Define how an equipment dealership operates
- Define a public programme to support hire service enterprise and equipment dealership development

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- Describe a public programme to support hire service enterprise and equipment dealership development
- Define how a public programme is created to support hire service enterprise and equipment dealership development
- Define what is a feasibility study
- Describe what is a feasibility study
- Prepare a feasibility study
- Define what is a market study
- Describe what is a market study
- Prepare a market study
- Define and describe what a service is
- Define and describe the services of a hire service enterprise
- Define and describe the products of an equipment dealership
- Define record keeping
- Describe record keeping
- Prepare records
- Define what is a cost
- Describe what is a cost
- Prepare a cost calculation
- Define what is accounting
- Describe what is accounting
- Define cash flow
- Describe cash flow
- Prepare a cash flow
- Define a profit and loss account
- Describe a profit and loss account
- Prepare a profit and loss account
- Define what is profit
- Describe profit
- Prepare a profit calculation
- Define finance
- Describe finance
- Prepare a loan calculation
- Define marketing
- Describe marketing
- Prepare a marketing plan

**Training programme structure**

**Day 1**

Session 1.1: Welcome and introduction (Dr. J. Sariah and/or Mr. B. Titus)

Session 1.2: The FACASI project (Dr. J. Sariah and/or Mr. B. Titus)

Session 1.3: Introduction to the concept of conservation agriculture (Mr. B. Sims)

Session 1.4: Introduction to calibration of no-till planters (Mr B. Sims)

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Session 1.5: Introduction to the business of hire services and equipment dealerships: Market and feasibility study (Mr. M. Hilmi)

**Day 2**

Pre-session: Summary of day 1

Session 2.1: Field: Practical calibration and field operation of planters (Mr. B. Sims)

Session 2.2: Business management Part 1: Keeping records/accounting, profit and loss account, cash flow, financing, loan appraisal, input/output calculations, costing, profits (Mr. M. Hilmi)

Session 2.3: Livelihood strategies: Mapping the household economy and identifying the business enterprise (Mr. M. Hilmi)

Session 2.4: Review of model enterprises and public programme (Mr. B. Sims & Mr. M. Hilmi)

**Day 3**

Pre-session: Summary of day 2

Session 3.1: Calculating the costs of agricultural equipment (Mr. B. Sims)

Session 3.2: Business management Part2: Costing conservation agriculture equipment/Pricing services (Mr. B. Sims & Mr. M. Hilmi)

Session 3.3: Business management Part 3: Management, accounts, people and marketing (Mr. M. Hilmi)

Session 3.4: Review of model enterprises and public programme (Mr. B. Sims & Mr. M. Hilmi)

**Day 4**

Pre-session: Summary of day 3

Session 4.1: Business management Part 4: Marketing (Mr. M. Hilmi)

Session 4.2: Business management Part 5: Revisiting record keeping, cash flow and profit and loss account (Mr. M. Hilmi)

Session 4.3: Business management Part 6: Machinery purchase and cash flow planning, joint ownership of equipment (Mr. M. Hilmi)

Session 4.4: Review of model enterprises and public programme (Mr. B. Sims & Mr. M. Hilmi)

**Day 5**

Pre-session: Summary of day 4

Session 5.1: Open forum: Questions and answers

Session 5.2: What next: Forward planning by participants

Session 5.3: Presentation of certificates

**References for this training programme**

FAO. 1990. *Agricultural engineering in development: selection of mechanization inputs*. Agricultural Services Bulletin 84. Rome.

FAO. 1994. *Testing and evaluation of agricultural machinery and equipment: principles and practices*. Agricultural Services Bulletin 110. Rome.

FAO. 2012. *Hire services by farmers for farmers*, Rome

FAO.2009. *Rural transport and traction enterprises for improved livelihoods*, Rome

FAO.2009. *Explaining profitability and borrowing*, Rome

FAO.2009. *Explaining the finances of machinery ownership*, Rome

Kenya & Tanzania: FACASI CA equipment and business management for hire services. September/October 2014

FAO.2005. *Explaining cash flow and savings*, Rome

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### Annex 5. Training programme conducted Karatu, Tanzania, 2009

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08:00 – 08:30		Summary of Day 1 Completion of overnight tasks	Summary of Day 2 Completion of overnight tasks	Summary of Day 3 Completion of overnight tasks	Summary of Day 4 Completion of overnight tasks
08:30 – 10:30	Opening and introduction of participating farmer and service provider entrepreneurs	Continuation of direct planter practical calibration work.	Measuring profitability:  Accounting periods Output calculations Input calculations Profit and loss account	Partial budgeting exercise: investing in a no-till planter and switching to CA	Review of sprayer and planter calibration  Record keeping
11:00 – 12:30	Introduction to CA equipment and FACASI Project  Course objectives	Field operation of direct planters	Importance of profit	Marketing strategies for contractors  The marketing game (JH, MO, FM)	What next: forward planning by participants
14:00 -15:30	Introduction to the nature of “business” and the qualities of an entrepreneur: Aminta’s story	Sprayer description calibration and use	Adjustment, use and maintenance of other CA (e.g.ripper and subsoiler  Maintenance and care of CA equipment	Introducing cash flow  Exercise: Cash flow story	Review and discussion of action plans  Presentation of certificates and closure
16:00 - 17:30	CA Equipment:  Planter construction, operation and calibration (seed and fertilizer)	Livelihood strategies  Exercise: Mapping the household economy and identifying business enterprises	How to calculate the costs of CA equipment and charges for hire services  Using partial budgets to evaluate the effect of changes on profit	Machinery purchase and cash flow planning  Considering joint ownership of equipment	

Source: Sims, B.G. 2009. CA equipment and business skills training & CA equipment manufacturing potential: Tanzania. Project GCP/RAF/413/GER –RAF. Prepared for FAO. 13p.