

## **LA TRACTION CAMELINE AU NIGER : ENTRE TRADITION ET MODERNITE**

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### **RESUME**

Avec 800 000 têtes, le Niger reste sans conteste un pays d'élevage camelin. Traditionnellement, la force du dromadaire est utilisée pour la selle, le bât et l'exhaure mais les atouts de cette espèce pour le transport et la culture attelés sont sous-estimés voire ignorés. Cependant, depuis quelques années, une diversification de l'utilisation du dromadaire par la culture attelée et le transport au moyen de la charrette est observée en zone agricole.

Ces dynamiques sont nées d'initiatives privées ou ont été promues par des projets de développement ayant pris conscience du potentiel non exploité de cette espèce. Cette communication restitue l'expérience de la promotion de la traction cameline au Niger par le projet Filière cameline en insistant sur les propositions techniques (matériels agricoles et de transport adaptés à l'espèce), économiques (crédit à l'équipement) ainsi que sur le renforcement de la compétence de l'équipe du projet (formation technique et approfondissement des capacités scientifiques) qui ont sous-tendu cette promotion.

**Mots clés :** Traction – cameline – tradition – modernité - Niger

### **CAMEL TRACTION IN NIGER: BETWEEN TRADITION AND MODERNITY**

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#### Summary

With 800 000 head, Niger is undoubtedly camel raising country. Traditionally, the camel's strength is used for saddle, packsaddle work and water extraction but its advantages for cart pulling and ploughing are under-estimated or even unknown. However, the use of camels for ploughing and pulling carts has been observed in farming areas for several years.

The dynamics are due to private initiative or have been promoted by development projects aware of the unexploited potential of this species. This paper discusses the experience of promoting camel traction in Niger, led by the "projet filière cameline" (camel traction project), focusing on technical (agriculture and traction equipment designed for camels), economical (credit to buy equipment) and improving the capacity (technical training and reinforcement of scientific expertise) of the project team supporting this promotion.

**Key words** : Traction - camel – Tradition – modernity - Niger.

## INTRODUCTION

The "*Projet de Renforcement Institutionnel et Technique de la Filière Camelin*" (*Project for Institutional and Technical Reinforcement of Camel Traction*) has been running in Niger since 1996 to explore ways of improving the use of camels (removing major restrictions, studying innovative techniques for using this resource...) and developing promotional materials (technical sheets or baselines, guidelines...) as well as providing development structures with the technical knowledge they need to make a useful contribution to the development of camel-based production in Niger. Within this context not much is known about camel traction and an investigation begun in July 1998 led to an initial report being drawn up on the status of camel traction and suggesting some bases for development. The main objective of this enquiry was to study the status and peasant farming practices with respect to camel traction in Niger's farms so as to define the issues and problems specific to this technique. The main conclusions are given in this document which distinguishes the traditional use of camel traction (dewatering) from recent dynamics (draught-animal cultivation) or those initiated by the project (pulling carts or harrows in the development of firebreaks).

## CAMEL TRACTION TRADITION IN NIGER

In Niger, dromedary power is traditionally used for dewatering. This is an ancestral activity in the Aïr region. Dewatering is used extensively to irrigate small areas (gardens, market gardens and cultivation out of season) and providing water for animals. The power of this animal and its working speed make it an excellent choice for this type of work. The dewatering system used in the Aïr is as follows: the water is raised in a dipper (called a *Délou*), which automatically empties from the bottom. A primitive harness is used.

## DEVELOPMENT OF CAMEL TRACTION EQUIPMENT AND ITS TECHNICAL SPECIFICATIONS

Camel traction seems to be the most efficient way of intensifying agricultural work using animals, but its development is limited in Niger due to lack of knowledge and technical expertise. The camel traction project has therefore set an objective to develop and test camel traction equipment and distribute it to management structures.

### Camel-drawn carts

Two prototype farm carts have been built and tested in a farming environment. Improvements have led to the production of a standard model based on the ox-drawn cart traditionally built in Niger. It is designed for use by peasant farmers (**Figure 1**). A dumper, based on the cart, with a tipping metal plate, has been developed to meet the need for heavy duty transport: dung, household waste, sand, stones. It is essentially designed for use by local authorities (waste collection, carrying stones for building up the banks of *koris*, collecting earth, construction min-dams and trails...) and to a lesser extent by farmers (dung, bricks, wood...) (**Table 1**).

The floor of the camel-drawn cart is 2 m or 1.80 m x 1.20 m x 0.40 m, made of wood (3 cm thick planks). It is mounted on a framework of 50 mm angle iron and pivots on the axle shaft. It is completed by 4 removable side boards made of 3 cm thick planking. This floor is fixed at

a height of 85 and 90 cm above the ground for respective lengths of 1.80 m and 2 m, to ensure a constant height at the end of the draft arm of about 1.60 m from the ground, i.e. below the dromedary's withers (Figure ). The two (2) draft arms are straight, made of 50 / 60 mm cylindrical tubing, 0.95 m apart (inside) and 3.60 m long. They are fastened to the axle. Two rings, 0.10 m X 0.10 m are mounted at 0.10 m and 0.40 m respectively from the front end of each draft arm. The front ring is inserted upwards while the rear ring is inserted towards the outside. A 1.80 m long metal chain is fastened to one of the two front rings on the draft arms. It is used to link the cart to the saddle worn by the dromedary. This chain can be extended or shortened to ensure that the floor is kept horizontal. The axle is strong, made of 50 mm square tubing and 1.50 m long with a 30 cm diameter body axle arm at each end. This axle must be able to support a minimum load of 1000 kg. The wheels are 750 x 15.

The camel-drawn dumper is a cart with a metal floor and the special feature of being able to tilt around the axle. The floor has the following specifications: 1.80 m x 1.2 m x 0.4 m in 10/10 sheeting, height of floor 0.90 m. The Draft arms, axle and wheels are identical to those of the camel-drawn cart described above.

### **The camel-drawn harrow**

A scarifier known as a "harrow" had been built, tested and improved for use in constructing firebreaks in pastoral areas. This solution is cheaper than using tractors and is also more efficient (between 10 and 15 km covered each day) and easier than manual labour (**figure 2**) .

The body of the frame is of 50 mm square tubing, 1.30 m wide. The vertical regulator is welded to the end of the body of the frame. The wheel is connected to the beam by a wheel upright; a locking handle is used to adjust the height of the wheel. The handles can be set to three different heights. A 1m 30 rake is fitted into the frame at the back.

### **Draught-animal cultivation**

Harnesses for dewatering, draught-animal cultivation and cart pulling have been developed.

The saddle for the camel-drawn cart and dumper consists of 2 wooden planks, 0.40 m X 0.15 m connected by two 40/4 flat iron arches. Two 35/4 flat iron longitudinal bars connect the two arches and carry a U-shaped hook (5 cm wide) in front, welded at the top, used to hold the cart and dumper chain. A fine 10/10 metal sheet covers the planks over a width of 15 cm on either side of the U-shaped iron bars. Two fabric pads are placed under the planks to limit saddle sores. Two strong iron hooks 5 cm in diameter are fixed to the back and front of each plank. Thick padding is placed under the saddle. A 2 cm thick leather strap, 20 cm wide at each end and slightly thinner in the middle (17 cm de large). A leather cord is detached from the upper part in the middle of the strap. Two hooks are fixed to each end of the strap. The angle of insertion of the hooks is 45°C (**Figure 3**).

## **TECHNICAL AND ECONOMIC DATA**

Farmers using camel-drawn equipment were monitored for one year to study the economic profitability of these innovations. In rural areas, farmers with camel-drawn carts made a profit of 428 255 fcfa (**Tables 2 and 3**). This profitability supports the use of camel-drawn equipment for agricultural purposes in many projects.

## **OPERATIONS TO PROMOTE THE USE OF CAMEL TRACTION**

After developing camel-drawn traction equipment, the *Projet de Renforcement Institutionnel et Technique de la Filière Cameline (Project for Institutional and Technical Reinforcement of Camel Traction)* has begun an information and promotion campaign for development projects with Nigerian stock raisers and farmers. This innovative equipment is promoted at four levels:

### **Training the camel traction project team**

The technical knowledge of the Camel Traction Project team has been improved with respect to animal traction and camel traction through a more detailed library on the subjects, cooperation with agronomists and training courses at Cirad-Emvt.

### **Producing technical information sheets**

Development of these innovations being complete, technical manuals for their use have been drawn up to support the information and circulation of this knowledge.

#### *Production of a guide to optimal use of the dromedary as animal power*

This guide gives a summary of the knowledge needed to be able to use the different techniques for optimal use of the pack saddle, dewatering, draught-animal cultivation and cart pulling. Chapters are included on the equipment, work performance, training, treating and looking after the animal...

The guide is illustrated to be accessible to farmers. Initial training is provided by *Projet de Renforcement Institutionnel et Technique de la Filière Cameline (Project for Institutional and Technical Reinforcement of Camel Traction)* so that this guide provides technical support in an easily understood version handed out to farmers by field agents.

#### *Production of a manual for treating dromedary diseases*

An easily understood guide has been developed to train farmers and stock workers in how to treat the diseases of dromedaries which, after feeding, is the second biggest constraint on camel raising productivity in Niger and in the use of dromedary power. This practical guide, in the form of short texts and drawings provides the necessary information to identify, treat and sometimes prevent diseases suffered by camels in Niger and the Sahel.

### **Informing agricultural development structures**

After drawing up the technical manuals, agricultural development structures have been provided with information by the *Projet de Renforcement Institutionnel et Technique de la Filière Cameline (Project for Institutional and Technical Reinforcement of Camel Traction)* of the advantages of camel traction and its benefits to farmers. Finally, these structures become the promoters of camel traction development in Niger by providing:

- training for agents to explain camel traction to farmers;
- monitoring and supervision of farmers in the field;
- credit to equip Draught-Animal Cultivation units with camel traction equipment.

### **Media information:**

Stock shows are opportunities for presenting this camel-drawn equipment to a wider public. Cart rallies followed by discussions have been organized in the streets of urban centres to demonstrate these innovations to the public.

## **CONCLUSION**

The major obstacle to developing the promotion of camel-drawn carts in Niger is linked, first of all, to lack of knowledge of the techniques (equipment, performance, advantages over other animal species) and secondly to that of the animal (raising, training, feeding and hygienic stabling) particularly in the sedentary population in the south of the country which has greater potential for development. Although camel-drawn cultivation has been growing for the past ten years, cart traction is non-existent in a context where all the elements needed to start it are present: an important transport activity (harvesting, wood, bricks, dung, people...), there are dromedaries throughout the country, the land is covered by many development projects which could subsidize the purchase of a new type of cart or grant credit for the purchase of equipment, and a wide network of blacksmith-welders.

The dromedary still represents the ultimate stage of agricultural intensification. Its use deserves support because it meets the demand for durable development suitable for the resources available in Niger.

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