

3 : CATALOGUE OF IMPLEMENTS

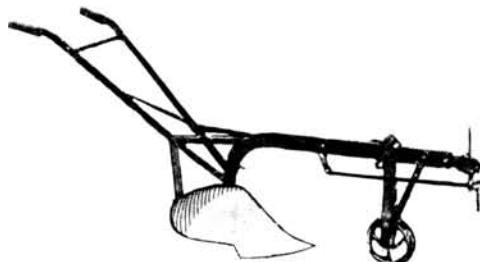
PLOUGHS, RIDGERS, CULTIVATORS

PAP DRAGON OX PLOUGH

Manufactured by:

Ploughs & Allied Products Ltd
PO Box 467
KISUMU
Kenya

Telephone: Kisumu 40512



Description: The PAP Dragon is a standard design of mouldboard plough whose basic features are a curved beam, a mouldboard plough-share, a wheel and handles. The beams are of high-carbon steel and are imported, as are the cast-iron wheels. The other parts of the plough are made at the factory from steel sections, and as all the dimensions are standard with other similar designs, replacement of parts is relatively easy. Ploughs & Allied Products report annual sales in excess of 3000 units per annum.

Price: (ex-works) (as at 1.7.80) Kshg.365.00 (\$49.00)

'LION' OX PLOUGH

Manufactured by:

Ideal Casements (E.A.) Ltd
PO Box 45319
NAIROBI
Kenya

Telephone: Nairobi 555599/555319

Telegrams: IDEASMENT



Description: The Lion ox-plough is a standard design of mouldboard plough similar to models manufactured elsewhere in Africa. Ideal Casements manufacture all the components locally in Kenya, including the plough-shares made from heat-treated steel. Ideal Casements have been manufacturing the plough for 14 years and produce over 7000 units per year.

Price: (retail) (as at 1.4.80) Kshg.300.00 (\$40.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

N'GOMBE OX-PLOUGH

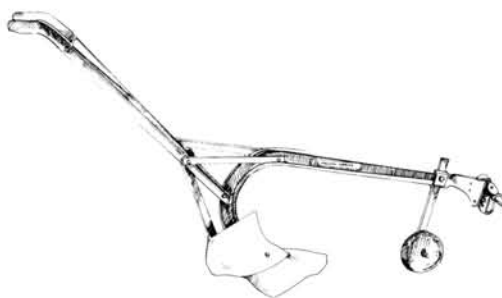
Manufactured by:

Ubungo Farm Implements Ltd (UFI)
PO Box 20126
DAR es SALAAM
Tanzania

Telephone: Dar 53146-8

Telex: 41206 Dar es Salaam

Telegrams: MAJEMBE



Description: The N'gombe ox-plough is a single furrow mould-board plough of standard design. It is of all steel fabrication and the share is of heat-treated steel. The weight is 31 kgs.

Price: (retail) (as at 1.1.80) Tshg.404.00 (\$50.00)

SINGLE-FURROW PLOUGH

Manufactured by:

Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL



Description: A single-furrow mouldboard plough of conventional design with a share made from heat-treated steel. Agrimal currently manufacture 15000 per annum. The plough is available in 20 cm. and 25 cm. models.

Price: (ex-works) (as at 1.2.80)

20cm.	-	57.35 kwacha	(\$70.00)
25cm.	-	57.90 kwacha	(\$71.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

'HUARD' MOULDBOARD PLOUGH

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Huard mouldboard plough is similar in design to those produced in Anglophone countries and similarly has an adjustable and replaceable share. The traction linkage is however different and allows a greater degree of adjustment for different heights of harness to obtain the most efficient angle of penetration.

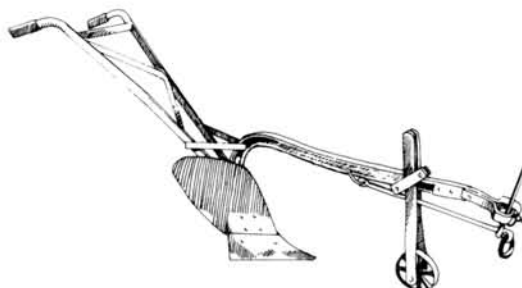
Price: (ex-works) (as at 1.1.80) 25,673 CFA (\$120.00)

OX-PLOUGH

Manufactured by:

Agricultural Implements
Manufacturers
PO Box 1553
NAKURU
Kenya

Telephone: Nakuru 41672



Description: A mouldboard plough, with adjustable and replaceable share of standard design. The plough is manufactured in 3 sizes.

Price: (ex-works) (as at 1.1.80)

1. Small	Kshg.390.00	(\$52.20)
2. Medium	Kshg.450.00	(\$60.25)
3. Large	Kshg.550.00	(\$73.60)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

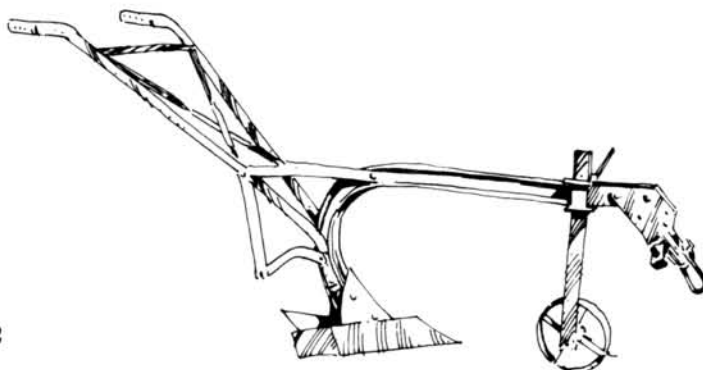
SILVER MEDAL OX-PLOUGH

Manufactured by:

Bulawayo Steel Products
8 Ironbridge Road
Donnington
PO Box 1603
BULAWAYO
Zimbabwe

Telephone: Bulawayo 62671/2

Telegrams: BYOSTEEL

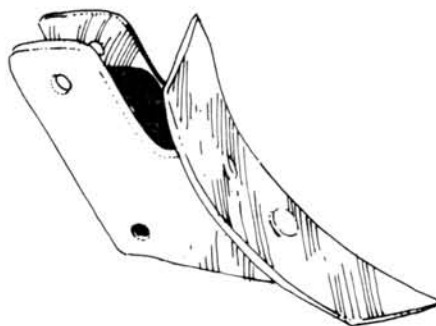


Description: The standard ox-plough design has been modified to eliminate the need for spanners to adjust the blade and handle setting. The wheel adjustment and linkage have also been modified, and the frog has been strengthened. The Institute of Agricultural Engineering in Salisbury have designed alternative attachments which can be fitted in place of the mould-board. These are:

- (a) a single tine for reduced tillage;
- (b) a ridger blade; and
- (c) a groundnut-lifting blade.

Prices: (ex-works) (as at 1.7.80)

With 200mm flat share	Zim\$37.00	(\$57.00)
" 250mm " "	Zim\$37.30	(\$57.40)
" 300mm " "	Zim\$45.08	(\$69.35)



OX-PLOUGH

Manufactured by:

Northland Engineering Ltd
PO Box 1640
NDOLA
Zambia

Telephone: Ndola 3712

Telegrams: Northland

Description: A standard design of ox-plough, manufactured throughout of mild steel. The beam is also of mild steel, for strength, and is of rectangular, rather than girder, section.

Price: (wholesale) (as at 1.7.80) 48 kwacha (\$61.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

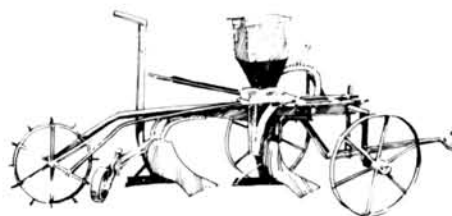
KIFARU PLOUGH

Manufactured by:

Tanzania Agricultural Machinery
Testing Unit (TAMTU)
PO Box 1389
ARUSHA
Tanzania

Telephone: Arusha 3666

Telegrams: TAMTU

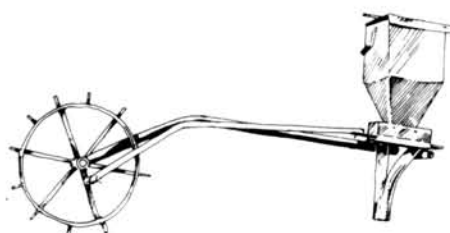


Description: The Kifaru is a heavy duty, double-furrow mouldboard plough, manufactured from locally available steel components. The frame is mounted on 3 wheels, 2 forward and one rear.

As cultivation with the Kifaru is usually carried out twice prior to planting, the Kifaru can be fitted with a metered seeding unit, for planting during the second cultivation pass. The whole seeding unit includes a metering wheel which trails.

Prices: (ex-works) (as at 1.7.80)

Kifaru plough	Tshg. 1500.00	(\$185.00)
Seeding attachment	Tshg. 600.00	(\$ 74.00)
(see below)		



(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

TWO-FURROW PLOUGH

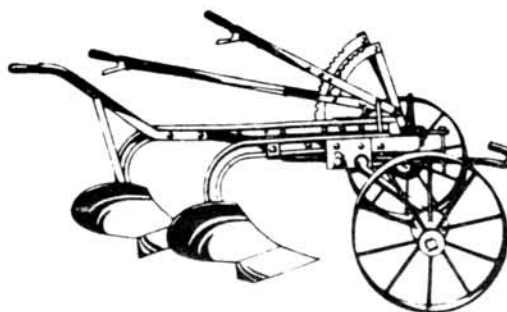
Manufactured by:

Rhoplow Ltd
PO Box 1059
BULAWAYO
Zimbabwe

Telephone: Bulawayo 71363

Telex: RH3372

Telegrams: RHOPLOW



Description: The two beams are mounted on an axle between 2 widely spread metal-rimmed wheels. One beam is shorter, which presents the two shares in an off-set pattern to the land. The hand-levers are used to adjust the angle of the shares.

Price: (wholesale) (as at 14.4.80)

Zim\$185.80 (\$286.00)

SINGLE FURROW PLOUGH

Manufactured by:

Rhoplow Ltd
PO Box 1059
BULAWAYO
Zimbabwe

Telephone: Bulawayo 71363

Telex: RH3372

Telegrams: RHOPLOW



Description: A standard design light-weight mouldboard plough, weighing 38 kg.

Price: (wholesale) (as at 14.4.80)

Zim\$36.50 (\$56.00)

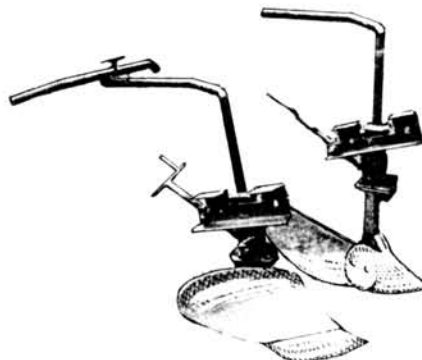
(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

AGRICO UNIVERSAL CULTIVATOR

Manufactured by:

Ploughs & Allied Products Ltd
PO Box 467
KISUMU
Kenya

Telephone: Kisumu 40512



Description: The Agrico is produced and marketed as a light-weight (25kg.) cultivating share mounted to a handle, on which there is a bracket for attachment to beams and harnesses that are already available. Thus it can be fitted to tool-bar frames (e.g. the Sine tool-bar) or more simply to a wooden beam, on which there would be a forward skid. Only the high-carbon plough-share is imported, and annual production of the Agrico is presently around 100 units.

Price: (ex-works) (as at 1.1.80) Kshg.450.00 (\$60.00)

STANDARD CULTIVATOR S51

Manufactured by:

Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: BLAntyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL



Description: The Standard Cultivator is an all-purpose cultivator which is designed to weed between rows of varying widths - from 60 cm. to 100 cm. It is equipped with 3 different types of tine; 2 reversible shares in the front, 2 mouldboard hillers in the centre and a 25 cm. sweep in the rear, with 2 spare shovels.

Price: (ex-works) (as at 1.2.80) 77.15 kwacha (\$94.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

5 TINE CULTIVATOR MC5

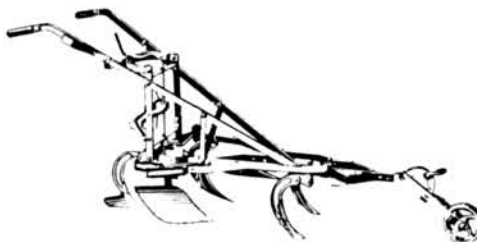
Manufactured by:

Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL



Description: The MC5 is designed for lighter cultivation than the Standard cultivator, although it is of similar configuration, with tines, tillers and a sweep. The width is adjustable by means of a crank-handle, whereas on the Standard it is by lever.

Price: (ex-works) (as at 1.2.80)

82.50 kwacha (\$100.00)

RIDGER

Manufactured by:

Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL



Description: This animal-drawn ridger/cultivator is suitable for ridging crops of maize, cotton, tobacco and potatoes. The wings of the ridging share can be adjusted to cultivate rows varying from 40 cm. to 75 cm. in width. Agrimal produce about 10,000 units of the ridger per annum.

Price: (ex-works) (as at 1.2.80)

72.50 kwacha (\$88.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

5-TINE CULTIVATOR

Manufactured by:

Rhoplow Ltd
PO Box 1059
BULAWAYO
Zimbabwe



Telephone: Bulawayo 71363

Telex: RH3372

Telegrams: RHOPLOW

Description: The cultivator comes in 2 forms:-

- (a) S 51 cultivator - fitted with 1 sweep, 2 hillers and 2 tines (as in the illustration).
- (b) Light cultivator - fitted with 1 sweep and 4 tines.

The light cultivator is for lighter cultivation and inter-row weeding, whilst the S51 can be used for heavier work. A ratchet and lever mechanism enables adjustment of the cultivator span.

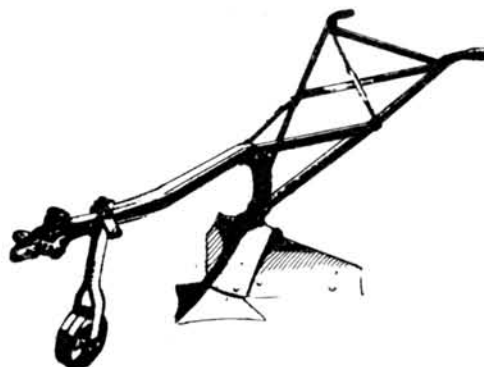
Price: (wholesale) (as at 14.4.80)

- | | | |
|----------|------------|-----------|
| 1. S51 | Zim\$59.00 | (\$91.00) |
| 2. Light | Zim\$55.00 | (\$85.00) |

HIGH-WING RIDGER

Manufactured by:

Rhoplow Ltd
PO Box 1059
BULAWAYO
Zimbabwe



Description: The same beam and handle assembly of the Rhoplow ox-plough is fitted with adjustable ridging blades.

Price: (wholesale) (as at 14.4.80)

Zim\$60.50 (\$93.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

HAND TOOLS

AGRICULTURAL HAND TOOLS

Manufactured by:

Kenya Engineering Industries Ltd
Nairobi Industrial Area
PO Box 18331
NAIROBI
Kenya

Telephone: Nairobi 559970/556395

Telex: AO 22866

Description: Kenya Engineering manufactures a range of agricultural and garden hand-tools, all with carbon steel blades and solid wooden handles. These are illustrated below, together with their price, (as at 1/5/80).



Curved Machete

<u>Blade length</u>	<u>Price</u>
30cm.	Shg.14/10 (\$1.90)
40cm.	Shg.15/80 (\$2.10)
45cm.	Shg.17/00 (\$2.25)



Straight Machete

<u>Blade length</u>	<u>Price</u>
40cm.	Shg.14/90 (\$2.00)
45cm.	Shg.16/30 (\$2.20)



Garden Spade

Length: 106cm.
Price: Shg.33/60 (\$4.50)



Garden Rake

	<u>Price</u>
8 teeth	Shg.15/40 (\$2.05)
18 teeth	Shg.22/00 (\$2.95)
(Intermediate sizes available pro-rata)	



Sugar-Cane Knife

Blade-length: 53cm.
Price: Shg.21/00 (\$2.80)



Shovels

<u>Round-mouth:</u>
Shg.33/60 (\$4.50)
<u>Square-mouth:</u>
Shg.31/80 (\$4.25)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

AGRICULTURAL HAND TOOLS

Manufactured by:

Agricultural Implements Manufacturers
PO Box 1553
NAKURU
Kenya

Telephone: Nakuru 41672



Description: AIM manufacture a range of agricultural hand tools. There are: forked hoes, flat hoes and axes, and all come in different weights, and the hoes in different shapes. These differences are reflected in the price list.



Price: (retail) (as at 1.1.80)

½ kg. Fork Hoe (Round Head)	Kshg.27.60	(\$3.70)
1 kg. Fork Hoe (Hammer Head)	Kshg.38.40	(\$5.10)
1½ kg. Fork Hoe (Hammer Head)	Kshg.40.45	(\$5.40)
1 kg. Flat Hoe (Round Head)	Kshg.28.30	(\$3.80)
1 kg. Flat Hoe (Hammer Head)	Kshg.30.00	(\$4.00)
1½ kg. Flat Hoe (Round Head)	Kshg.29.05	(\$3.90)
1½ kg. Flat Hoe (Hammer Head)	Kshg.37.10	(\$5.00)

AGRICULTURAL HAND TOOLS

Manufactured by:

Ubungo Farm Implements Ltd (UFI)
PO Box 20126
DAR es SALAAM
Tanzania

Telephone: Dar 53146-8

Telex: 41206 Dar es Salaam

Telegrams: MAJEMBE



Description: UFI manufacture both Round-eyed and Tanged Hoe Blades, in weights of 0.9 kg., 1.1 kg. and 1.3 kg.

Price: (wholesale) (as at 1.1.80)

Round-eyed	from:	Tshg.25/10	(\$3.00)
Tanged	from:	Tshg.21/90	(\$2.70)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

AGRICULTURAL HAND TOOLS

Manufactured by:

Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL



Description: Agrimal manufacture
Tanged Hoes in different weights.
They are sold in bundles of 10 units,
but the prices below are for single
units.

Price: (as at 1.4.80)

<u>Weight</u>	<u>Price</u>
0.7 kg.	1.40 kwacha (\$1.70)
0.9 kg.	1.60 kwacha (\$1.95)
1.1 kg.	1.85 kwacha (\$2.25)

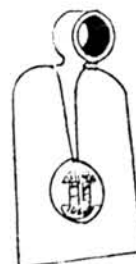
'WINDOW' HOES (JEMBES)

Manufactured by:

Ideal Casements (E.A.) Ltd
PO Box 45319
NAIROBI
Kenya

Telephone: Nairobi 555599/555319

Telegrams: IDEASMENT



Description: Ideal Casements
manufacture a range of round-eyed and
hammer-head hoes, of various sizes,
from fully forged carbon steel. The
various size of blades they produce are:

Round-eyed: 17x23, 15.5x21.5, 12x18 (cm)
Hammer-head: 16.5x22, 15x21.5, 14x20, 12x18 (cm)

Price: (retail) (as at 1.4.80)

Kshg.19.35 - 26.15 (\$2.60 - 3.50)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

"MEALIE BRAND" HOES

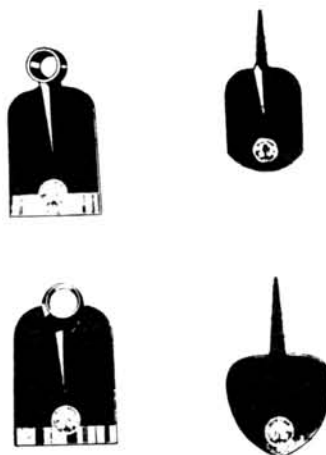
Manufactured by:

Rhoplow Ltd
PO Box 1059
BULAWAYO
Zimbabwe

Telephone: Bulawayo 71363-5

Telex: RH3372

Telegrams: RHOPLOW



Description: Rhoplow manufacture a range of tang and ring headed hoes in different sizes. Hoes are sold in packets of 10 units and the prices below are shown per single unit, according to different sizes.

Prices: (ex-works) (as at 14.4.80)

0.6kg. Ring Hoe	Zim\$1.11	(\$1.70)
0.9kg. Ring Hoe	Zim\$1.46	(\$2.25)
1.1kg. Ring Hoe	Zim\$1.60	(\$2.46)
0.9kg. Sunken Head Ring Hoe	Zim\$1.46	(\$2.25)
1.1kg Sunken Head Ring Hoe	Zim\$1.65	(\$2.54)
0.45kg. Tang Hoe	Zim\$0.76	(\$1.17)
0.9kg. Tang Hoe	Zim\$1.11	(\$1.70)
1.35kg. Tang Hoe	Zim\$1.35	(\$2.08)
0.6kg. Heart Shaped Hoe	Zim\$0.86	(\$1.32)
0.8kg. Heart Shaped Hoe	Zim\$1.01	(\$1.55)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

TOOLBARS & TRACTORS

OCCIDENTALE TOOL BAR

Manufactured by:

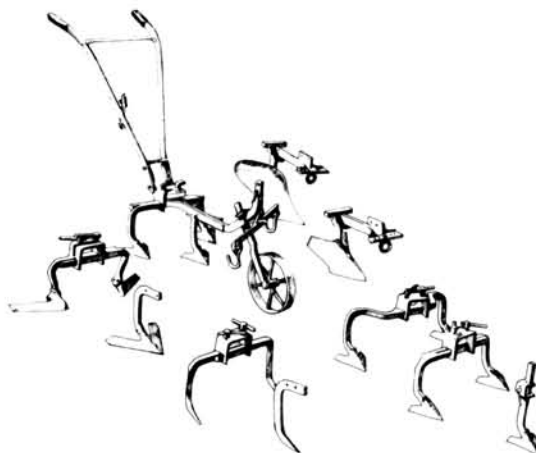
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Occidentale is Siscoma's lightest tool bar and it is especially designed for horse and donkey draught. It can take the following tools:-

- 1x15 cm. plough blade
- 1x25 cm. ridger
- 3-5 hoeing tines
- 3 duck-foot tines
- 3 weeding blades
- 1 two-row seed drill
- 1 35 cm. lifting blade

Overall operational weight: 18-25 kg. (dependent on tools)

Price: (ex-works) (as at 1.1.80)

1. Basic equipment (hoeing/weeding)	15,750 CFA	(\$ 74.00)
2. Full equipment (except seeder)	35,215 CFA	(\$165.00)
3. Two-row seed drill	26,931 CFA	(\$126.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

ARARA TOOL BAR

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue de Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Arara is one of Siscoma's 2 medium weight tool bars, the lightest range they manufacture for ox-draught. It is the simplest of the 2, in terms of equipment it takes, and in terms of the adjustability of width. It is however, the only Siscoma tool bar with a handle whose height is adjustable, in the vertical axis. It takes the following tools:-

- 1x25 cm. plough share
- 1 ridging plough, adjustable blades
- 1 set of groundnut lifting blades
- 1 set of 3 'Canadian' tines
- or 1 set of 5 'Canadian' tines
- 2x2 row seed drills (Super Eco)

Overall operational weight: 31-46 kg. (dependent on tools)

Price: (ex-works) (as at 1.1.80)

1. Basic equipment (frame only)	16,570 CFA	(\$ 78.00)
2. Full equipment (except seeder)	70,250 CFA	(\$330.00)
3. 2x2 row seed drill	62,830 CFA	(\$294.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

SINE TOOL BAR (HOUE SINE)

Manufactured by:

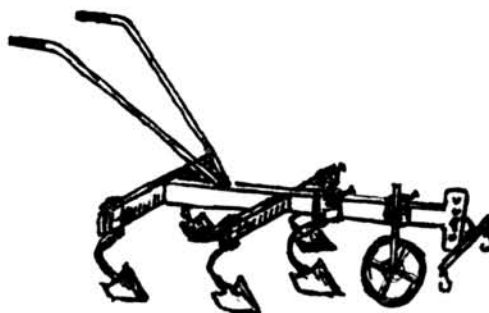
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Sine is one of Siscoma's 2 medium weight tool bars, the lightest range they manufacture for ox-draught. The Sine is more sophisticated than the Arara permitting more adjustment of operational height and width and the additional alternative of chisel-tines. An adaption of the basic design has also been made at the factory to meet specific conditions in the Gambia where the Sine is being used. It takes the following tools:-

- 1 20 cm. or 25 cm. plough share
- 1 ridging plough, adjustable blades
- 1 set of groundnut lifting blades
- 1 set of 3 'Canadian' tines
- or 1 set of 5 'Canadian' tines
- 2x2 row seed drills

Overall operational weight: 30-45 kg. (dependent on tools)

Price: (ex-works) (as at 1.1.80)

1. Basic equipment (frame with 'Canadian' tines)	23,912 CFA (\$112.00)
2. Full equipment (except seeder) approximately	69,500 CFA (\$326.00)
3. 2x2 row seed drill	62,830 CFA (\$294.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

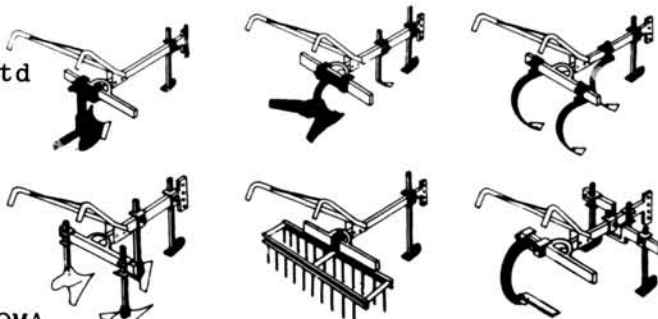
SINE-HOUE TOOL-FRAME

Manufactured by

Ploughs & Allied Products Ltd
PO Box 467
KISUMU
Kenya

Telephone: Kisumu 40512

Description: (see entry for
SINE-HOUE manufactured by SISCOMA,
Senegal for greater detail)



Ploughs & Allied Products are making the Sine-Houe tool-frame of Senegalese design, and are able to manufacture the whole frame from locally available materials. In the last year they produced more than 100 units.

Price: (ex-works) Kshg. 1200/00 (\$160.00)
(as at 1.7.80)

GRECO TOOL-BAR

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Tel: Pout 81096/81136

Telex: 7781 SISCOMA SG

City Office:

SISCOMA
rue du Dr Theze/Grammont
DAKAR
Senegal

Tel: 22375-84

Description: The Greco has the design of the Sine Tool bar, but the frame is heavier. It will take all the fitments made for the Sine, and the wheel-bearings are nylon instead of iron.

Price: (Ex-works) (as at 1.1.80)

1. Basic equipment (frame with 'Canadian' tine) 25,656 CFA (\$120.00)
2. Full equipment (except seeder) approximately 71,244 CFA (\$334.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

ARIANA TOOL BAR

Manufactured by:

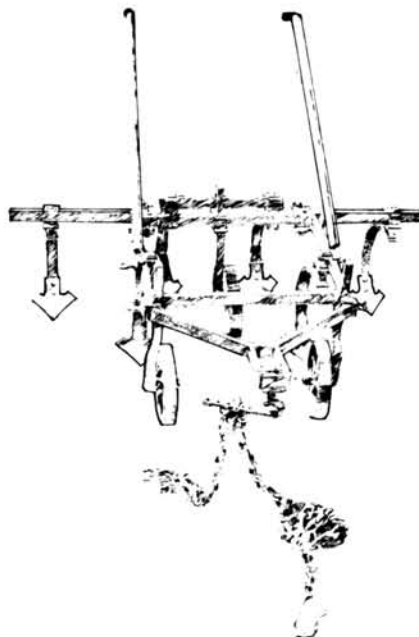
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue de Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Ariana is perhaps Siscoma's most well-known tool bar, a reputation it enjoys for its versatility and relative ease of operation. The Ariana frame is designed for stability, giving it this reputation, a stability that persists when the tool bar is used in heavy soils and paddy fields. The basic frame is quadrilateral, it rests on 3 wheels and is guided by two independent handles and an adjustable draught-chain mounting. It takes the following tools:-

- 1 or 2 25 cm. cut-away plough shares
- or 1 25 cm. quarter-trim plough share
- 1 ridging plough, adjustable blades
- 1 set of groundnut lifting blades
- 1 set of 6-8 'Canadian' tines
- 1 1.5 m. extension bar

Overall operational weight: 58-92 kg. (dependent on tools)

Price: (ex-works) (as at 1.1.80)

- | | |
|--|------------------------|
| 1. Basic frame (wheels, extension bar, chain, handles) | 39,420 CFA (\$185.00) |
| 2. Full equipment | 159,319 CFA (\$748.00) |

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

BAOL TOOL BAR

Manufactured by:

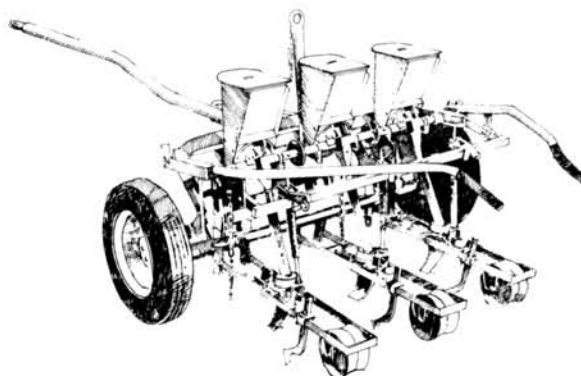
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue de Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Baol tool-bar with drill

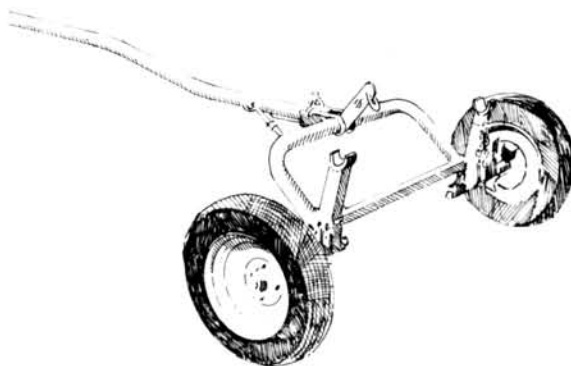
Description: The Baol tool bar is a heavy duty axle with 2 pneumatic tyres and a solid draught bar, which is swivel mounted. Its operation requires high draught or low drag conditions and its configuration is similar to tractor drawn tool bars; thus it is a useful transition tool to motorized cultivation.

It takes the following tools:-

- 1 25 cm. plough share
- 2 ridging ploughs, adjustable blades
- 2 sets of groundnut lifting blades
- 1 2 m. articulated extension tool bar with
- 1 set of 8-12 'Canadian' tines
- 1 tippable cart-top
- 1 set of 3 row Super Eco seed drills

Prices: (ex-works) (as at 1.1.80)

1. Basic toolbar chassis	104,160 CFA	(\$ 489.00)
2. Full equipment (as above)	402,281 CFA	(\$1888.00)



Baol tool-bar chassis

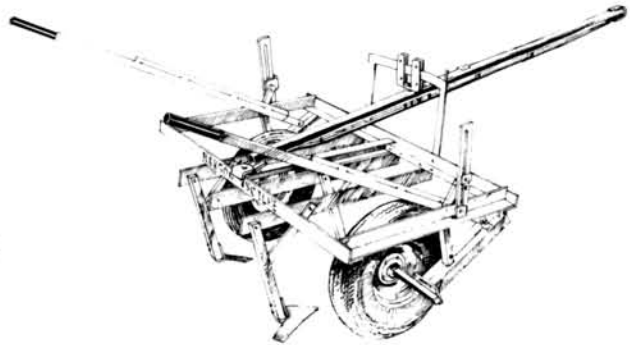
(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

MAKGONATSOTLHE TOOL-BAR

Manufactured by:

Kgatlang Development Board
PO Box 208
MOCHUDI
Botswana

Telephone: Mochudi 356



Description: The Makgonatsothlhe Tool-Bar has been developed from designs of existing multi-purpose tool-bars. It is perhaps unique in that it has been designed for either ox or donkey draught.

It is designed to be fitted with: planter, disc-cultivator, sweeps for minimum tillage, fertilizer applicator, water-drums (for water transport) and a scotch-cart frame.

The basic frame of the tool-bar is made from heavy angle iron, and the rubber-tyred wheels are mounted on stub-axles. Implements are attached to the main frame with sub-frames which can be positioned variably at any position on the main frame. This enhances the adaptability of the machine: e.g. by being capable of bearing either one or two planter units for single or double row planting.

Price: (retail) (as at 1.7.80)

1. Complete with all attachments except planter: 600 pula (\$759.00)
2. Planter attachment: 180 pula (\$228.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

TINKABI TRACTOR

Manufactured by:

Tinkabi Tractor Project
NIDCS
Box 450
MANZINI
Swaziland

Telephone: 52141

Telex: 2127 WD



Description: Tinkabi is a design of small tractor unique in Africa. It is powered by a 15 h.p. diesel engine and has a hydro-static transmission which controls speed, backward and forward motion and braking with a single movement of a hand lever. That and the steering wheel are the only operational controls, which makes operation extremely simple. The simple mechanical design of the tractor also permits a long engine life with a minimum of servicing: and combined with the low capital cost makes Tinkabi a cheap alternative to a conventional tractor.

Forward of the driver is a large platform which can transport loads of up to 500 kg., and at the rear of the tractor is a tool bar, to which can be fitted a full range of cultivation equipment. There is also a belt-drive power take-off on the engine and Tinkabi can be supplied with both a water-pump and a maize hammer-mill which can be powered from this source.

Price: Unavailable

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

HARROWS

HARROWS

Triangular, Diamond and Zig-zag

Manufactured by:

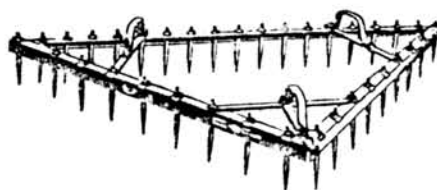
Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

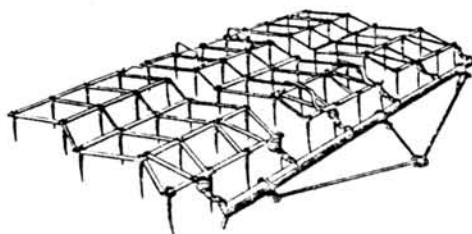
Telex: 4282 MI

Telegrams: AGRIMAL

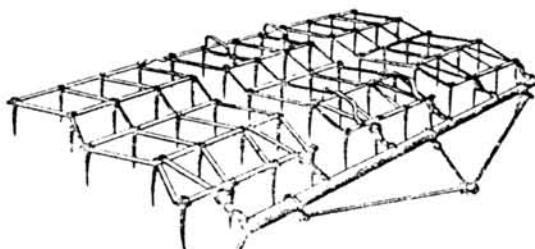
Description: Triangular, Diamond and Zig-zag Harrows are produced by Agrimal. The Diamond and Zig-zag harrows are available in sets of 2, 3 or 4 depending on the power source available and the type of cultivation. Prices vary according to the type and size of harrow.



Triangular Harrow



Diamond Harrow



Zig-Zag Harrow

Prices: (as at 1.4.80)

Triangular Harrow	47.50 kwacha	(\$ 58.00)
2 section Diamond + Drawbar	81.90 kwacha	(\$100.00)
3 " " " "	116.70 kwacha	(\$142.00)
4 " " " "	157.80 kwacha	(\$192.00)
2 section Zig-zag + Drawbar	147.30 kwacha	(\$180.00)
3 " " " "	217.80 kwacha	(\$266.00)
4 " " " "	292.60 kwacha	(\$357.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

ROTARY HARROW

Manufactured by:

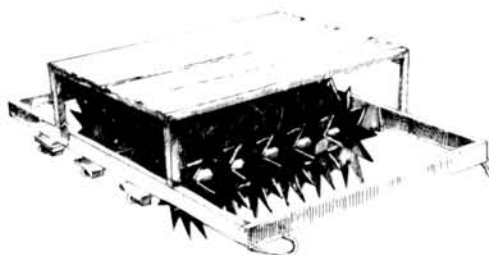
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Rotary Harrow consists of 2 axles of spike-toothed wheels mounted in a frame. The width of cultivation is 1 m. and depth of cultivation 20 cm. A platform is mounted above the harrow, on which the operator can stand to increase the weight.

Price: (as at 1.1.80) 65,840CFA (\$309.00)

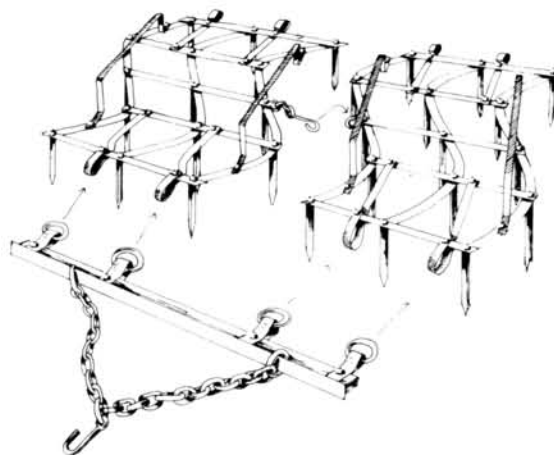
ZIG-ZAG HARROW

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG



Description: A zig-zag harrow with a double set mounted on a drawbar, supplied with a sled for transport.

Price: (as at 1.1.80) 30,974 CFA (\$145.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

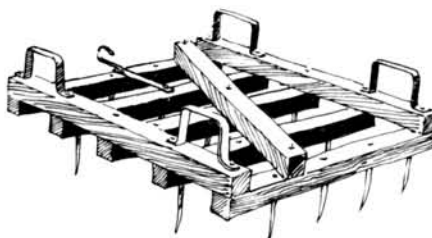
RECTANGULAR HARROW

Manufactured by:

TAMTU
Box 1389
ARUSHA
Tanzania

Telephone: Arusha 3666

Telegrams: TAMTU



Description: The TAMTU harrow is made from a heavy 10cm x 10cm timber frame, fixed with cross-members. To these are attached heavy duty steel spikes that protrude 15cm. On the top of the frame are fixed steel slides so that the harrow can be inverted for transport as a sled.

Price: (retail) (as at 1.5.80)

Tshg. 700.00 (\$86.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURE FOR ACTUAL)

HARROWS

Manufactured by:

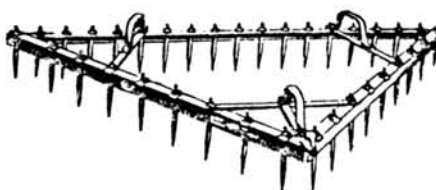
Rhoplow Limited
P O Box 1059
BULAWAYO
Zimbabwe

Telephone: Bulawayo 71363-5

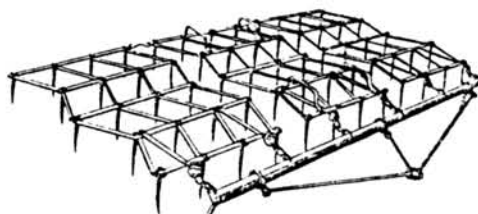
Telex: RH3372

Telegrams: RHOPLOW

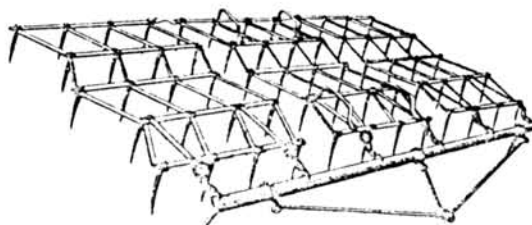
Description: A standard range of harrows, of which the diamond and the zig-zag are available in sets of 2, 3 or 4 sections.



Triangular Harrow



Diamond Harrow



Zig-Zag Harrow

Prices: (ex-works) (as at 14.4.80)

Triangular Harrow	Zim\$ 37.50	(\$ 58.00)
2 section Diamond Harrow + Drawbar	Zim\$ 65.77	(\$101.00)
3 " " " "	Zim\$ 99.02	(\$152.00)
4 " " " "	Zim\$133.17	(\$205.00)
2 section Zig-Zag Harrow + Drawbar	Zim\$111.80	(\$172.00)
3 " " " "	Zim\$167.91	(\$258.00)
4 " " " "	Zim\$225.23	(\$346.50)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

SEEDERS

CASAMANCE SEED-DRILL (PADDY)

Manufactured by:

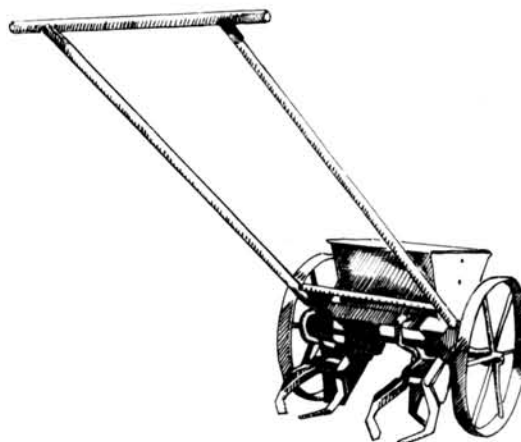
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Casamance is designed for paddy planting, and manual operation only. It will sow all varieties of rice seed, at rates varying between 0-130 seeds per running metre.

Price: (as at 1.1.80) 17,730 CFA (\$83.00)

KOLDA SEED-DRILL (PADDY)

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG



Description: The Kolda is for paddy planting, and is designed for donkey draught. It is equipped with seeders in 3 fixed rows, spaced at 25 cm.

Price: (as at 1.1.80) 26,931 (\$126.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

MOPTI SEED-DRILL (PADDY + WHEAT)

Manufactured by:

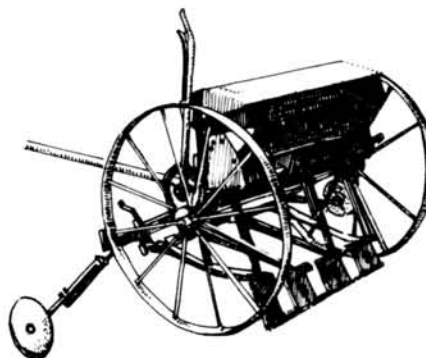
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Mopti is for paddy or wheat planting, and donkey or horse draught. It can be fitted with either 4 or 7 seeding coulters, spaced between 20 and 40 cm., which are designed for precision planting.

<u>Price:</u> (as at 1.1.80)	4 row Mopti	295,000 CFA	(\$1385.00)
	7 row Mopti	316,000 CFA	(\$1484.00)

SINGLE-ROW PLANTER

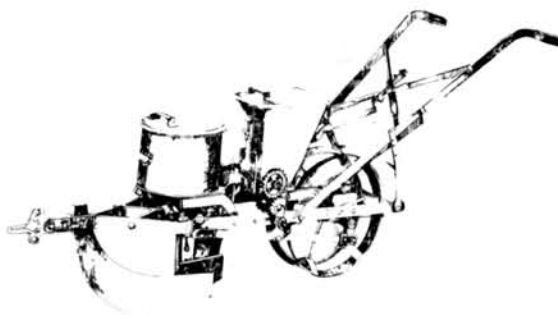
Manufactured by:

Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL



Description: The Agrimal planter is of simple and rugged construction and a double pitman drive operates the planting wheel, which ensures positive seeding. Several optional extras are available for the planter: fertiliser spreader, cotton-seed planter and a range of seed plates suitable for all sizes of maize, millet, sorghum and legume seeds.

<u>Price:</u> (as at 1.1.80)	168.40 kwacha	(\$205.00)
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(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

SUPER ECO SEED-DRILL

(with SUPER-ECO or TAMBA HOPPERS)

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Super-Eco seed-drill is a hand-guided seeder for all types of animal draught to which can be attached both the Super-Eco and the Tamba hoppers.

The Super-Eco hopper is for sowing all grains and legumes and can be fitted with interchangeable discs for seeds of different sizes.

The Tamba hopper is specially designed for sowing undelinted cotton seed.

The Super-Eco seed drill frame is fitted with a tracer adjustable up to 80 cm. spacing.

Price: (as at 1.1.80)

1. Super-Eco seeder, with Super-Eco hopper:	31,415 CFA	(\$147.00)
2. Super-Eco seeder, with Tamba hopper:	34,155 CFA	(\$160.00)
3. <u>Each</u> seeding plate (all supplementary)	1,050 CFA	(\$ 5.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

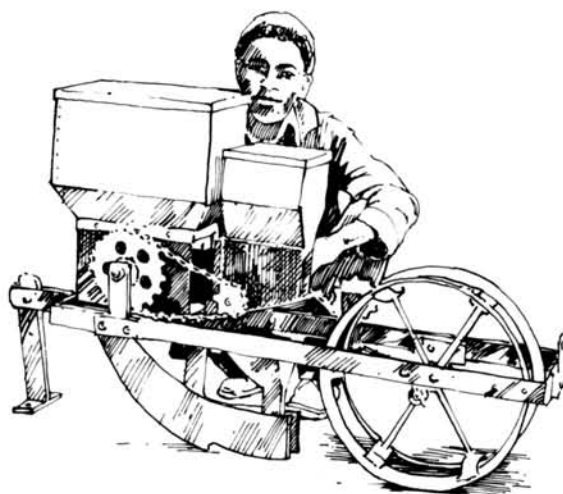
MOCHUDI SEEDER

Manufactured by:

Mochudi Brigade
PO Box 248
MOCHUDI
Botswana

Telephone: Mochudi 912

Telegrams: BRIGADES, MOCHUDI



Description: The planter is based on a 'seed and agitator' design of seed hopper, which will meter and plant a wide range of seed sizes without blockage. It can be used with ungraded seed, and good results have been obtained with millet, sorghum, cowpeas, sunflowers and maize, although it should be noted that it is not a precision spacing planter. Seed depth is controlled either by an adjustable mounting on a toolbar, or by skids in the single row version. Seed-covering is achieved by the 40cm. diameter split-rim wheel.

Price: (retail) (as at 1.7.80)

75.00 pula (\$98.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

TAMTU HAND PLANTER

Manufactured by:

TAMTU
PO Box 1389
ARUSHA
Tanzania

Telephone: Arusha 3666

Telegrams: TAMTU

Description: The hand planter is a jab planter with wooden handles and a wooden slide seed metre. The jabbing action automatically meters seeds into the planting hole.

Price: Tshg.85.00 (\$10.00)



TAMTU OX-DRAWN PLANTER

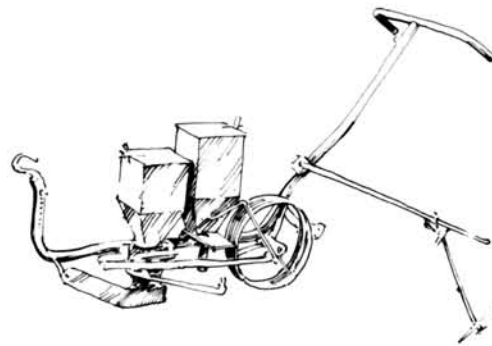
Manufactured by:

TAMTU
PO Box 1389
ARUSHA
Tanzania

Telephone: Arusha 3666

Telegrams: TAMTU

Description: The TAMTU ox-drawn planter is a heavy duty ox-drawn planter with 2 hoppers mounted in tandem : one for seed, the other for fertiliser. The frame is made from welded tubular steel.



Price: (as at 1.1.80) Tshg.1500.00 (\$185.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

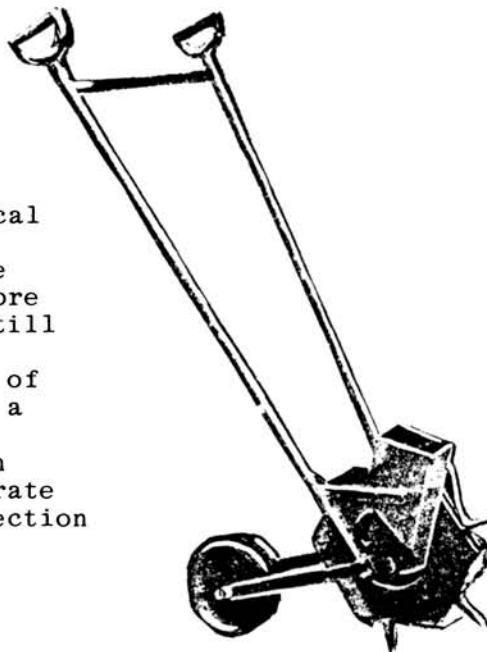
ROTARY INJECTION PLANTER

Manufactured by:

Agricultural Implements Manufacturers Ltd
PO Box 1553
NAKURU
Kenya

Telephone: Nakuru 41672

Description: Manufactured to a design by the International Institute of Tropical Agriculture at Ibadan in Nigeria, this planter is specifically designed for use in minimum tillage cultivation. Therefore it is best used in combination with no-till primary preparation by herbicide weed killing, followed by injection planting of seeds through the detritus (which forms a mulch). Seeds are distributed from an axial hopper through seeding channels on the wheel rim, which themselves incorporate a slide to tamp down the soil after injection of a seed.



Price: (approximately) (as at 1.1.80)

Kshg.270.00 (\$36.00)

HAND PLANTER

Manufactured by:

Brown & Clapperton Ltd
PO Box 52
BLANTYRE
Malawi

Telephone: Blantyre 34677

Telex: 4243

Telegrams: BEANCE

Description: The Brown & Clapperton hand planter is a jab planter made from wood and metal, which meters the seed into the planting hole by means of a wooden slide.

Price: (retail) (as at 1.7.80) 16 kwacha (\$19.50)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

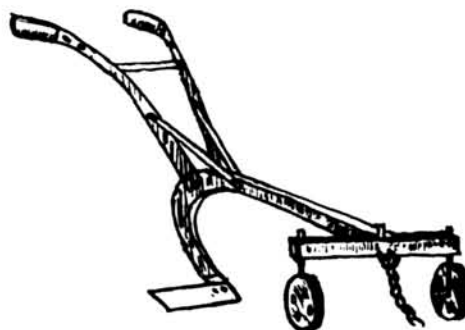
HARVESTERS

'BORNU' GROUNDNUT-LIFTER

Designed by:

Farm Machinery Research Unit
Regional Research Station
PO Box 11
MAGOYE
Zambia

Telephone: Magoye 420



Description: The 'Bornu' Groundnut-lifter is merely a blade that can be attached to the standard 'Victory' mouldboard type of ox-plough frame. The adaption, therefore, is limited to the blade, which can be bolted on in place of a mouldboard, and an extra wheel and axle-bar in place of the single wheel of a plough.

The lifter was originally developed in Nigeria, hence the name, where it is used, and the design was brought to Zambia. It is designed for lifting groundnuts which have been planted in 1 metre ridges, and in normal use can harvest about 1.2 hectares per day.

The lifter blade must be made from high grade steel - such as an old lorry spring, or a slasher blade - and can be easily shaped by local blacksmiths.

Price: (cost of production) 20 kwacha (\$25.00)

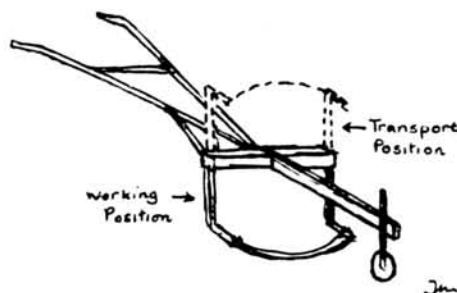
(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

CHITEDZE GROUNDNUT LIFTER

Designed by:

Chitedze Research Station
Ministry of Agriculture &
Natural Resources
P O Box 158
LILONGWE
Malawi

Telephone: Lilongwe 721855



Description: The Chitedze Research Station has designed a model of groundnut lifter as a light-weight alternative to the double-beam design that is also being produced. The Chitedze model is also designed for easy transport when the implement is not in use, as the blade can be unmounted and re-positioned above the beam for movement between fields. Furthermore, the mounting of the single front wheel is so designed that, with the line of draught passing through the centre of resistance of the blade, the wheel has no function, and consequently no drag, when the blade is in operation. The wheel is thus only used as a pivot when turning at the end of a line, or during movement outside the field. All components of the lifter can be made from easily available steel sections with simple smithy techniques.

Price: (cost of production) 20 kwacha (\$24.50)

GROUNDNUT LIFTER

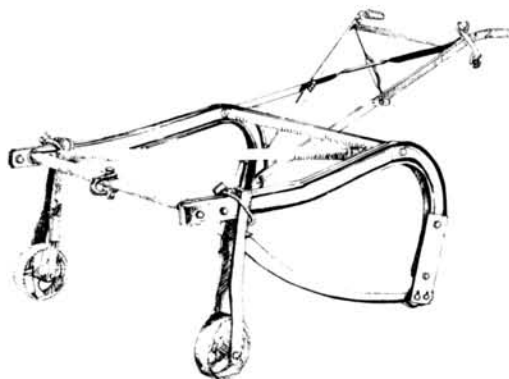
Manufactured by:

Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL



Description: Agrimal manufacture a robust groundnut lifter, whose design incorporates 2 plough beams spaced apart with a groundnut lifting blade. The weight of the implement is 54 kg., and Agrimal produce about 500 units per annum.

Price: (as at 1.1.80) 95.00 kwacha (\$116.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

THRESHING, WINNOWER, CRACKING, SHELLING

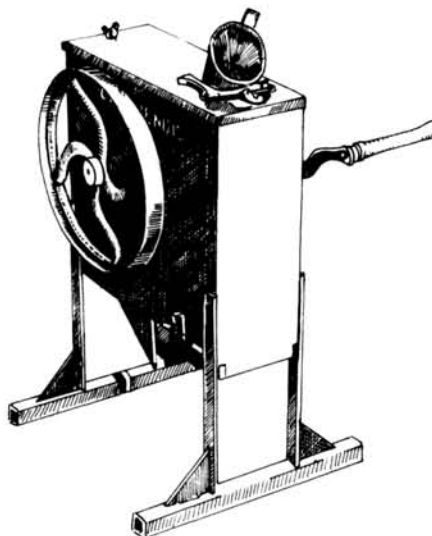
MAIZE SHELLER

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG



Description: Two models are available: a small (manual) model whose capacity is 80-100kg. grain/hour, and a large model (manual or motor-driven) whose capacity is 150-200kg./hour.

Prices: (as at 1.1.80)

1. Small manual	7,010 CFA	(\$ 33.00)
2. Large manual	64,596 CFA	(\$303.00)
3. Large motor driven	190,016 CFA	(\$892.00)

GROUNDNUT SHELLER

Manufactured by:

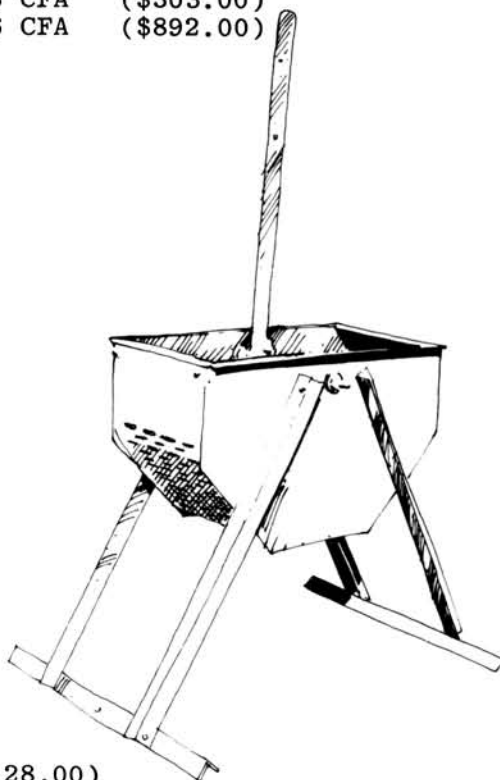
Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL

Description: The Agrimal groundnut-sheller is a reciprocating decorticator equipped with inter-changeable screens for groundnuts of different size.



Price: (as at 1.4.80) 105.00 kwacha (\$128.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

HAND MAIZE SHELLER

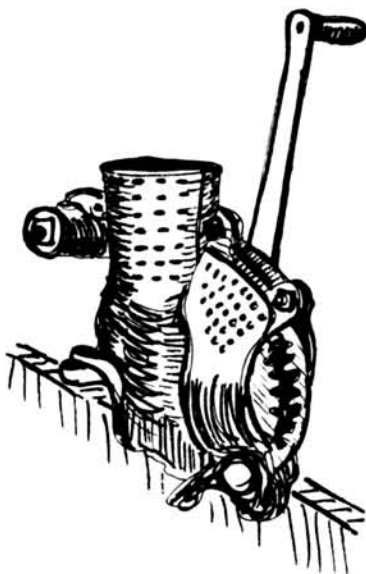
Manufactured by:

Brown & Clapperton Ltd
PO Box 52
BLANTYRE
Malawi

Telephone: Blantyre 34677

Telex: 4243

Telegrams: BEANCE



Description: A compact maize-sheller for hand-operation that can be fitted to the side of a container, allowing the kernels to drop into the container, and passing the shelled cobs out to the side. Tension is adjustable according to the diameter of the maize cobs.

Price: (as at 30 kwacha (\$36.00)
1.7.80)

GROUNDNUT SHELLER

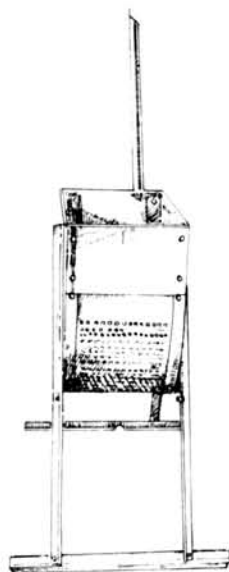
Manufactured by:

Ubungo Farm Implements Ltd (UFI)
PO Box 20126
DAR es SALAAM
Tanzania

Telephone: Dar 53146-8

Telex: 41206 Dar es Salaam

Telegrams: MAJEMBE



Description: The groundnut sheller is a hand-operated reciprocating design, with interchangeable screens. The potential capacity is 25-30kg./hour.

Price: (retail) (as at 1.1.80) Tshg.275.00 (\$34.00)

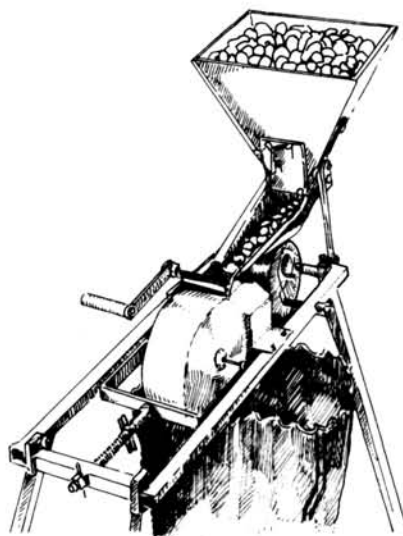
(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

CHITEDZE GROUNDNUT CRACKER

Manufactured by:

Chitedze Research Station
Ministry of Agriculture &
Natural Resources
PO Box 158
LILONGWE
Malawi

Telephone: Lilongwe 721855



Description: The groundnut cracker has been developed for cracking the shells of groundnuts before hand-shelling, as Malawi produces a large amount of 'Chalimbana' groundnuts for the confectionery trade. These are larger than the ordinary groundnut and can be damaged when processed with available groundnut shellers. 10% would be the maximum acceptable level of damage for these nuts: therefore they are shelled by hand.

The machine consists of 2 wheels, held together by spring-tension, which are covered with rubber from old inner-tubes. A hopper feeds the nuts between the wheels, which are cranked steadily to process the nuts. In setting the spring-loading, a balance must be struck between 100% undamaged nuts and 100% cracked shells: obviously a strong loading would crack all shells, but damage some nuts whereas a weak loading would damage no nuts but leave some shells uncracked. Tests have shown that 5% damage can be matched with 8% uncracking: whilst 12kg. of nuts can be cracked per hour.

Price: (cost of production) 30 kwacha (\$33.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

CAYOR ROTARY GROUNDNUT THRESHER

Manufactured by:

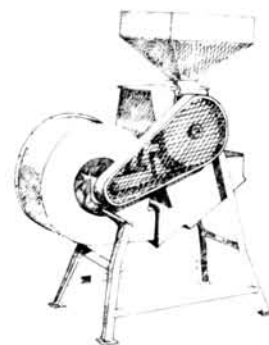
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Cayor thresher is supplied with interchangeable screens and can be operated manually, or by power-take off. The potential capacity is 150kg. kernels/hour.

The 'Super Cayor' thresher is supplied with a winnowing fan.

<u>Prices:</u> (as at 1.1.80)	1. Cayor	55,802 CFA	(\$262.00)
	2. Super Cayor	82,560 CFA	(\$388.00)

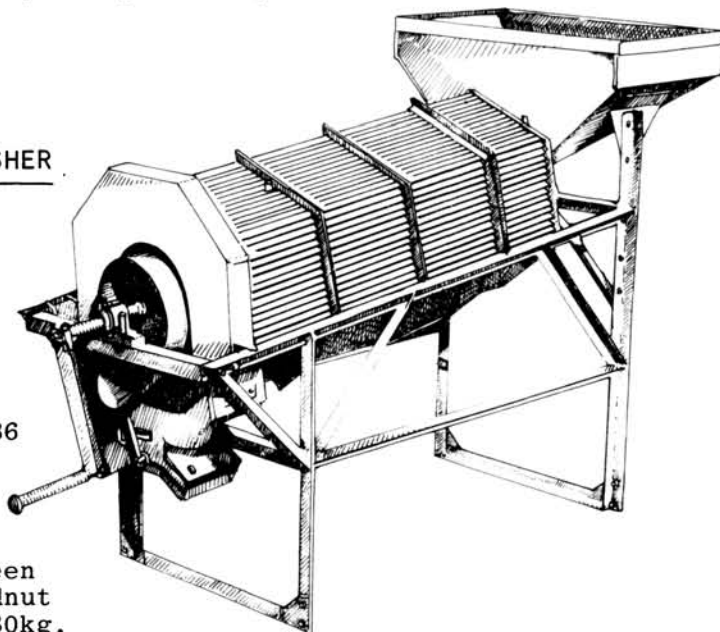
SENEGAL SCREEN GROUNDNUT THRESHER

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG



Description: The Senegal screen cracks and decorticates groundnut pods. Pods are fed from the 80kg. capacity hopper down the rotating drum and the shelled kernels gravitate to two outlets for sack-filling. The potential capacity is 1500kg./hour with manual operation.

<u>Price:</u> (as at 1.1.80)	145,200 CFA	(\$682.00)
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(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

ALTERNATING GROUNDNUT THRESHER

Manufactured by:

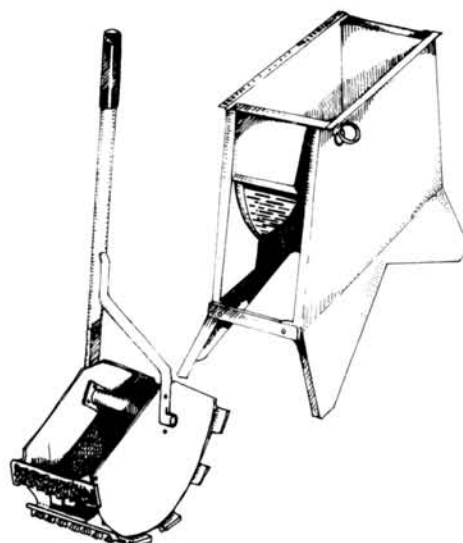
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Siscoma alternating groundnut thresher is supplied with a set of interchangeable screens. Its potential capacity is 100kg. kernels/hour.

Price: (as at 1.1.80) 21,300 CFA (\$100.00)

GROUNDNUT STRIPPER

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

Description: The Siscoma groundnut stripper is particularly suitable for confectionery groundnuts. It is crank-driven and the axle is mounted on sealed bearings. Potential capacity is 200kg. pods/hr.



Price: (as at 1.1.80)

27,188 CFA (\$128.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

OUEME WINNOWER

Manufactured by:

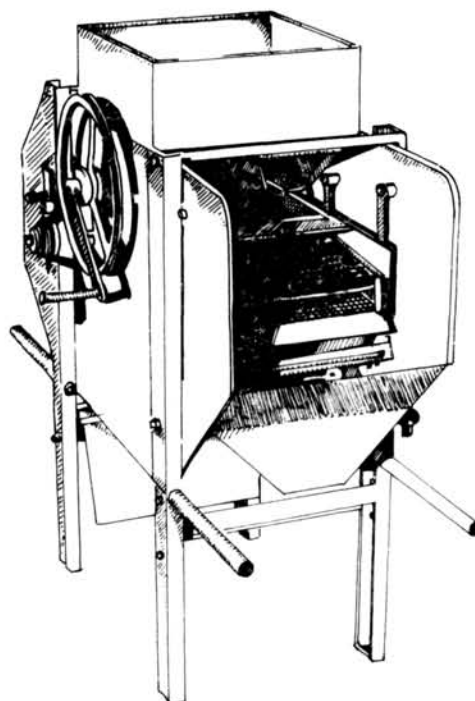
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The Oueme is designed for winnowing all types of cereal and is fitted with 3 separate winnowing screens. It can be operated by hand or by motor.

Price: (as at 1.1.80) 76,885 CFA (\$361.00)

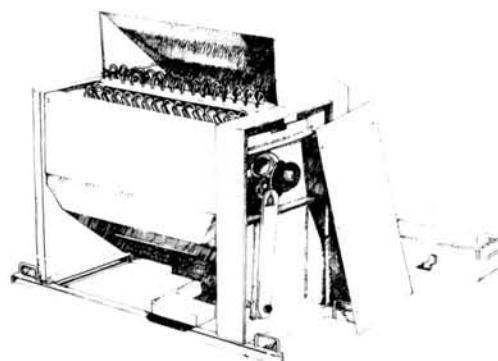
PADDY THRESHER

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG



Description: There are 2 models of paddy thresher, both with the same drum and box, but one geared for pedal operation, the other for power take-off.

The threshing drum has a width of 80cm., and the hourly capacities are:-
150kg./hr (pedal driven)
250kg./hr (motor driven)

<u>Price:</u> (as at 1.1.80)	For pedal operation	103,763 CFA	(\$487.00)
	For power operation	166,432 CFA	(\$781.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

PADDY THRESHER

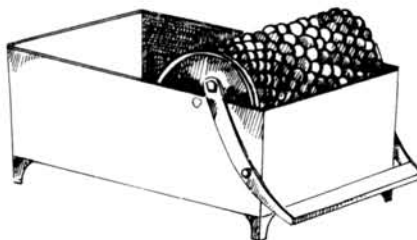
Manufactured by:

Agrimal (Malawi) Ltd
PO Box 143
BLANTYRE
Malawi

Telephone: Blantyre 30692, 31259

Telex: 4282 MI

Telegrams: AGRIMAL



Description: The threshing drum is mounted in an oblong box and is operated by means of a foot treadle, allowing the operator to feed the sheaves of paddy by hand. The capacity of the thresher is about 200kg. of paddy per hour.

Price: (as at 1.4.80) 310 Kwacha (\$378.00)

PALM-NUT CRACKER

Manufactured by:

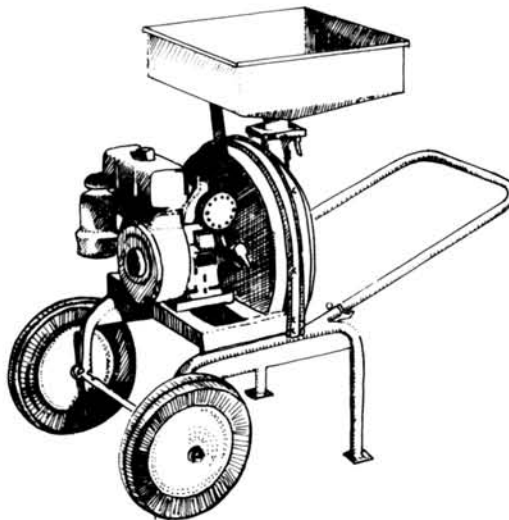
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The palm-nut cracker operates centrifugally, by means of a disc driven inside a drum by direct drive from a 3h.p. petrol engine. The hourly capacity of the cracker is 300-400kg/hr. (The motor is a Bernand W19A)

Price: (as at 1.1.80) 151,469 CFA (\$711.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

GRINDING MILLS

NDUME POWER DRIVEN HAMMER-MILLS

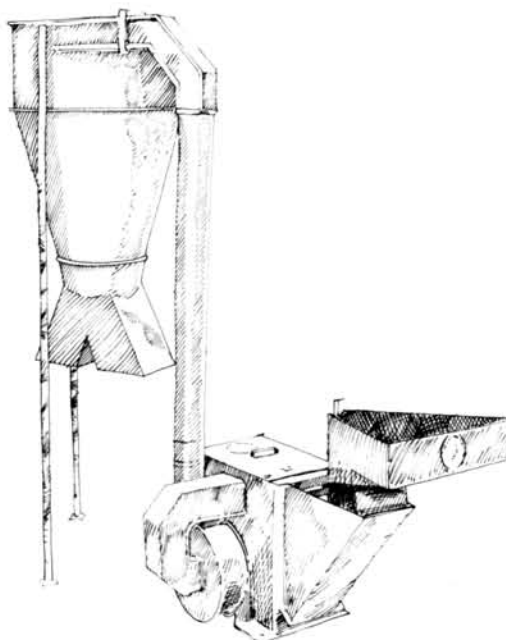
ND20, ND30 and GM40

Manufactured by:

Ndume Ltd
PO Box 62
GILGIL
Kenya

Telephone: Gilgil 223

Telex: 39801



Description: The Ndume hammer-mills are designed to mill a variety of crops: maize, wheat, oats, barley, millet, hay and straw, but are especially suitable for grinding maize into meal. There are 3 models: the ND20, ND30 and GM40, of differing sizes but all of a similar basic design. From the loading hopper, grain is fed into the central mill housing in which heavy duty hammers grind the grain. The hammers are reversible, and replaceable. From the mill-housing, a fan blows the meal up into an overhead screened hopper.

The ND20 is the smallest model, the cheapest and with the lowest capacity and can be driven from small power sources of 12-25 HP. The ND30 is the next in size. It has double the capacity of the ND20, and it is fitted with a special overhead screen which allows oversize meal particles to fall back into the mill for regrinding. The meal it produces is therefore finer. The ND30 can be driven from small power sources of 16Hp but also from larger sources up to 100HP. It is, of course, nearly twice the price of the ND20.

The GM40 is specially designed for power take-off from tractors, costing about the same and having about the same capacity as the ND30, but designed to operate at the lower r.p.m. given by tractor pulley-drive.

The price and approximate capacities of each mill, as quoted by the manufacturers, are shown below and the ND30 is illustrated.

Prices and capacities: (as at 1.11.79)

Model	Price (retail)	Capacity/hour	Power source	HP
ND20	Kshg.5110.00 (\$ 684)	200-250kg. 450-550kg.	Lister ST1 Lister ST2	12-25 HP
ND30	Kshg.9480.00 (\$1269)	750-900kg. 900-950kg.	Lister HR2 Lister HR3	16-100HP
GM40	Kshg.9780.00 (\$1309)	900kg.	45HP Tractor	25-100HP

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

MANIK GRINDING MILLS

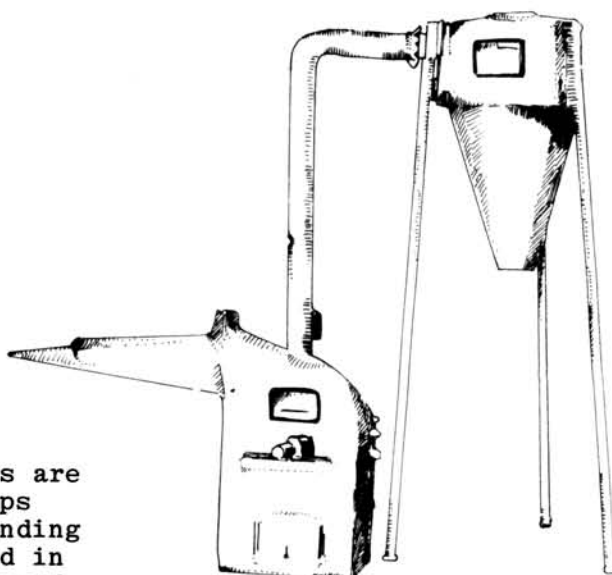
MGM2, MGM 5, MGM 7 and MGM 10

Manufactured by:

Manik Engineers
PO Box 1274
ARUSHA
Tanzania

Telephone: Arusha 3520

Description: Manik grinding mills are designed to mill a variety of crops but are especially useful for grinding maize. The mills are manufactured in 4 sizes: small, medium, standard and large. Construction of all models is from heavy welded steel, and the grinding mechanism is mounted on imported sealed bearing units. The hammers are reversible, and can be used on 4 different faces before replacement.



Prices and capacities (Small, medium & large models):

Model	Price (retail)	Capacity/hour	Power source
MGM 2	Tshg.3000.00 (\$369)	90kg - 180kg	8-12HP
MGM 5	Tshg.4000.00 (\$492)	250kg - 640kg	15-40HP
MGM 10	Tshg.5600.00 (\$689)	550kg - 1100kg	30-60HP

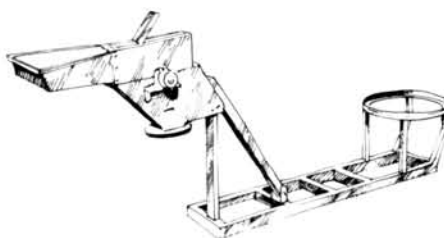
ATOM MAIZE MILL

Manufactured by: Brown & Clapperton
PO Box 52
BLANTYRE
Malawi

Telephone: Blantyre 34677

Telex: 4243

Telegrams: BEANCE



Descriptions: The Atom maize-mill is a small size hammer-mill designed to be powered by a 5-7HP diesel engine. It is fitted with reversible hammers, screens and sealed bearings. The average capacity is about 180kg per hour.

Price: (retail) (as at 1.7.80) 555 kwacha (\$677.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

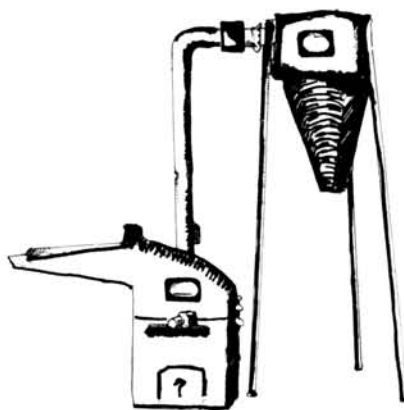
UNITED MAIZE MILLS

NM 25, NM 50, NM 75, NM 100

Manufactured by:

United Engineering Works Ltd
PO Box 3082
ARUSHA
Tanzania

Telephone: Arusha 3424



Description: United makes 4 sizes of hammer-mills with different capacities. The casing of each is made from durable heavy welded steel, inside which the steel shaft is mounted on scaled bearing units. The steel hammers are reversible and replaceable.

Prices and capacities: (as at 1.7.80)

<u>Model</u>	<u>Price (retail)</u>	<u>Capacity/hour</u>
NM 25	Tshg.1800.00 (\$221.00)	70kg - 270kg
NM 50	Tshg.2800.00 (\$345.00)	270kg - 600kg
NM 75	Tshg.3080.00 (\$380.00)	400kg - 900kg
NM 100	Tshg.3400.00 (\$420.00)	450kg - 1000kg

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

DUNIA HAND-OPERATED GRINDING MILL

Manufactured by:

Ndume Ltd
PO Box 62
GILGIL
Kenya

Telephone: Gilgil 223

Telex: 39801

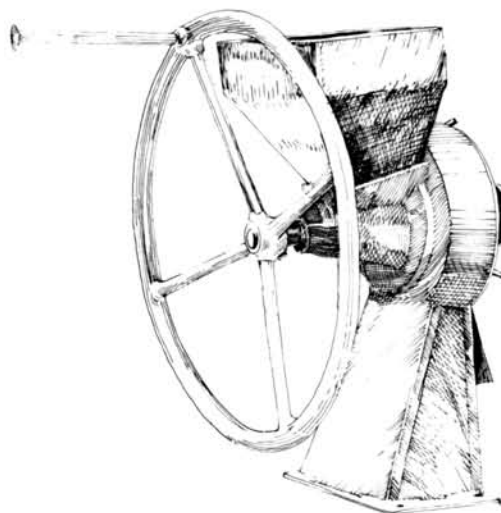
Description: The Dunia is a robust hand-operated mill that can be used for grinding many crops. Although principally designed for milling maize and wheat into flour, it can also be used to grind coffee.

No castings are used in the manufacture: it is all made from welded steel for durability. Cleaning the machine is relatively easy. The front cover can be removed by unscrewing wing-nuts and no spanners or special tools are needed for maintenance.

Using the Dunia, one man can grind about 20kg. of maize in one hour.

Price: (retail) (as at 1.11.79)

Kshg.880.00 (\$117.80)



KUSINJA MAIZE-MILL

Manufactured by:

Brown & Clapperton Ltd
PO Box 52
BLANTYRE
Malawi

Telephone: Blantyre 34677

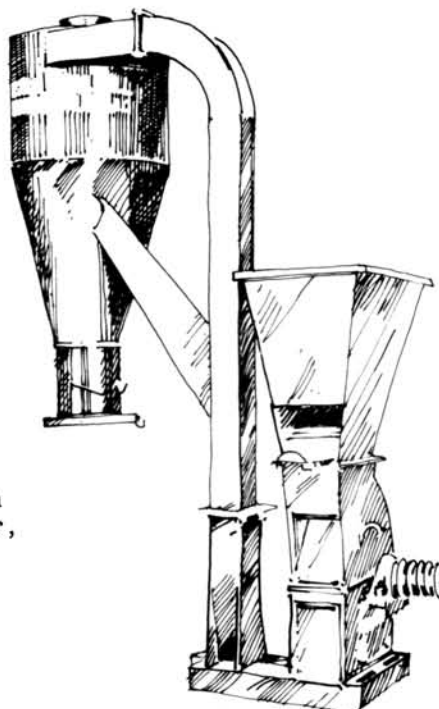
Telex: 4243

Telegrams: BEANCE

Description: The Kusinga Maize Mill is designed to be powered by diesel motors of between 10-20HP, and the milling capacity will vary according to the power source. With a 10HP motor, the capacity would be 150kg/hour, with a 20HP motor, 400kg/hour.

Price: (retail) (as at 1.7.80)

1050 kwacha (\$1280.00)



RIIC SORGHUM DE-HULLER AND MILL

Manufactured by:

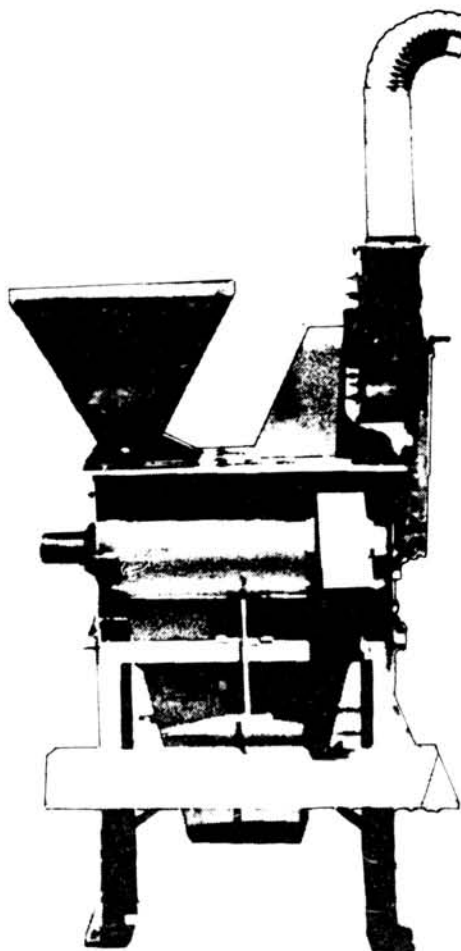
Rural Industries Innovation Centre
Private Bag 11
KANYE
Botswana

Telephone: Kanye 392/3

Description: In cooperation with the International Development Research Centre (IDRC) of Canada, RIIC at Kanye have developed a package of machinery that is of suitable scale for village operation in the making of sorghum flour.

The package consists of a de-huller and a hammer-mill and both are supplied together with extensive advice and operational brochure. The de-huller consists of a barrel-shaped container. The hammer-mill is of standard design, with interchangeable screens for different grades of flour.

Both can be powered with a single power source and whether petrol or diesel, it should be of a 24HP rating. The package of machinery is designed to operate either by batch method or continuous flow, and can thus be used either for milling individual lots or for commercial quantity milling.



Price: (ex-RIIC) (as at 1.1.80)

1. Sorghum de-huller, complete	1200 pula	(\$1519.00)
2. Hammer-mill, complete	850 pula	(\$1076.00)
3. Drive and pulleys	400 pula	(\$ 506.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

CROP STORAGE

FERRUMBU MAIZE STORAGE BIN

Designed by:

African Rural Storage Centre
Mt Makulu Research Station
PO Box 7
CHILANGA
Zambia

Telephone: Chilanga 315

Telegrams: Research, Chilanga

Description: The 'Ferrumbu' is a design of grain storage silo that is weather- and pest-proof and which can be made from commonly available materials - cement and chicken wire. The bin is built on a solid foundation of large stones, which acts as a damp-course; a cement floor and outlet spout are laid, and a wooden frame erected, around which is wrapped chicken-wire. Allowing for drying of the materials, a Ferrumbu bin can be built in 10 days.



It should be emphasised that this type of bin is designed for long-term storage, therefore fresh moist crops should not be stored until they have been dried. If they are, then moisture will encourage a high level of rotting.

Various sizes of bin can be built, and the cost of production depends on the size of bin. For example a 1.5 ton bin can be built with 4 bags of cement and 1 whole roll of 10 mm. chicken-wire.

The approximate costs in terms of material:

0.75 ton capacity Ferrumbu - 3 bags of cement, $\frac{1}{2}$ roll of chicken-wire

1.5 ton capacity Ferrumbu - 4 bags of cement, 1 roll of chicken-wire

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

PUMPING

SHALLOW-WELL HAND-PUMP

Developed by:

Department of Lands, Valuation
& Water

Office of the President
Private Bag 311
Capital City
LILONGWE 3
Malawi

Telephone: 731-688/731-136

Telegrams: PRESMIN

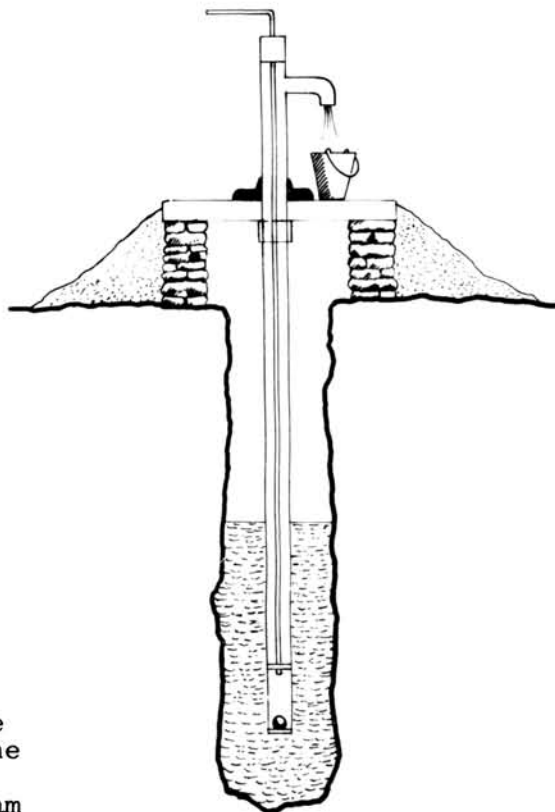
Description: The hand-pump is especially designed for a common site for groundwater supply in Malawi - the banks of 'dambos', which are shallow valleys in which, even when the stream is dry, groundwater is found near the surface.

The pump is designed to be mounted on a well platform at the edge of the dambo for all-season use, and is made from steel and PVC tubing components that are locally available. Its design has been chosen to enable its construction and maintenance to be relatively simple. Early models were made entirely from PVC piping which was technically quite adequate, however, the rising cost of petroleum-based plastics has now made steel tubing relatively cheaper and much of the pump-stand assembly is made from steel.

The shallow-well pump will eventually be installed in over 5000 villages in Malawi.

Price: (cost of production) (1980)

120 kwacha (\$140)



(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

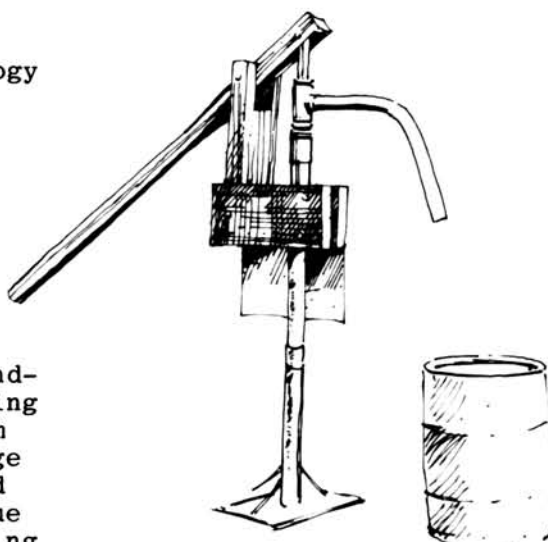
MAJENGO WATER PUMP

Manufactured by:

Majengo Cooperative Group
c/o Arusha Appropriate Technology
Project
PO Box 764
ARUSHA
Tanzania

Telephone: Arusha 3594

Telegrams: ATARU



Description: The Majengo is a hand-operated single-action reciprocating piston pump for raising water from shallow wells, suitable for village water-supply, minor irrigation and cattle watering purposes. A unique feature of the design is a 'stuffing box' which enables water to be pumped under pressure to an overhead storage tank.

The pump handle is wooden, and all the metal materials used in the construction of the rest of the pump are locally obtainable in Tanzania. The pump has furthermore been designed so that construction requires no gas or electric welding, and it is offered by the Majengo Cooperative Group as a kit for assembly on site. The pump, although designed for manual operation, can also be adapted for engine or wind-power.

Technical specifications:

Overall weight:	25 kg
Manual operative capacity:	1350 litres/hr (0.375 l/sec) from a 19 m. head

Price: (of kit) (as at 1.7.80)

Tshg.1500.00 (\$184.50)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

BORE-HOLE PUMPS

Manufactured by:

Brown & Clapperton Ltd
PO Box 52
BLANTYRE
Malawi

Telephone: Blantyre 34677

Telex: 4243

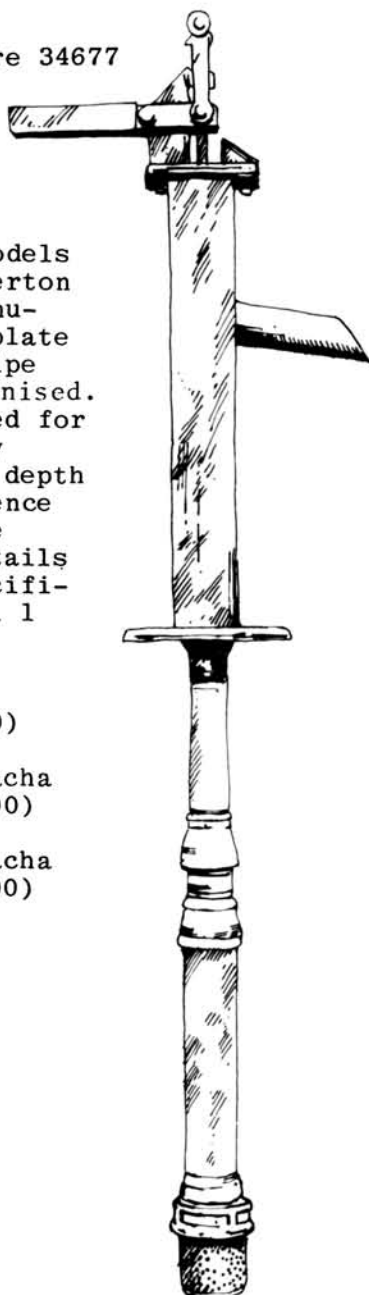
Telegrams: BEANCE

Description: Both models of the Brown & Clapperton Borehole Pump are manufactured from steel plate and pipes, and all pipe connections are galvanised. The pumps are designed for hand-operation on any shallow well up to a depth of 80 metres. Reference should be made to the manufacturers for details of the different specifications between Model 1 and Model 2.

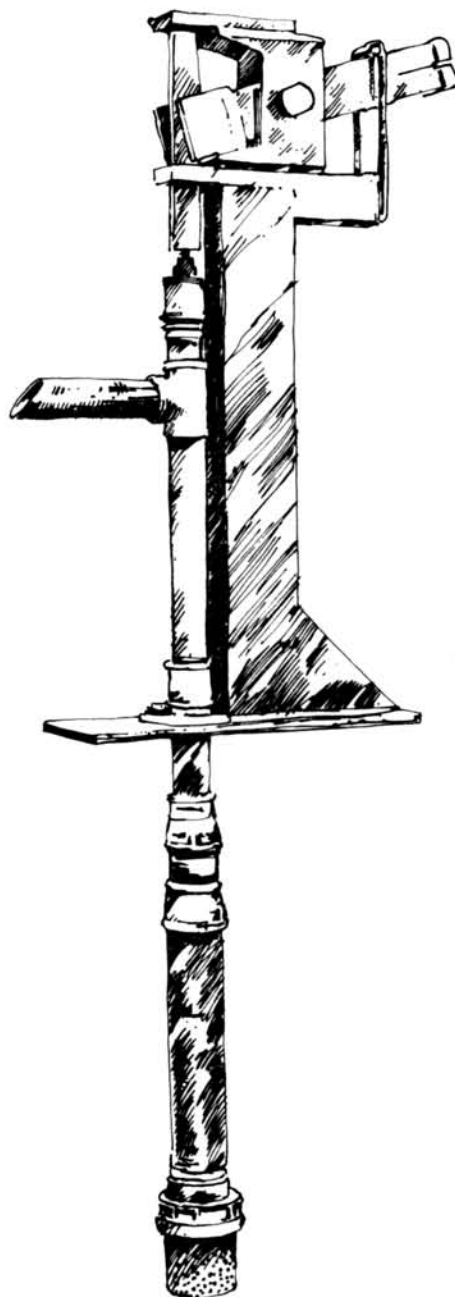
Price: (as at 1.7.80)

Model 1 570 kwacha
 (\$695.00)

Model 2 640 kwacha
 (\$780.00)



Model 1.



Model 2.

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

BRISAN PUMP

Manufactured by:

Component Parts (Swaziland) Ltd
Box 1087
MBABANE
Swaziland

(Factory at Manzini)

Telephone: Manzini 52900

Description: A compact water-pump designed to be fitted at the end of a PVC pipe and submersed in bore-holes for continuous pumping. The pump is electric powered and requires a mains-supply of 220-380 V(DC).

Submersible Franklin Electric motors are imported from the USA and attached to the pump unit which is made of plastic impeller rings manufactured in Swaziland. Different sizes of pumps (different power-ratings and lengths of pump unit) are made for differing lift requirements. The pump requires minimal servicing, as breakdown of the motor would mean replacement.

In a 400' bore-hole, the Brisan pump can lift 100 gallons/hour. Component Parts were manufacturing approximately 1000 units per year in 1979.

Price: (1980) 300 emalangenis \$287.50



GUEROULT BORE-HOLE PUMP

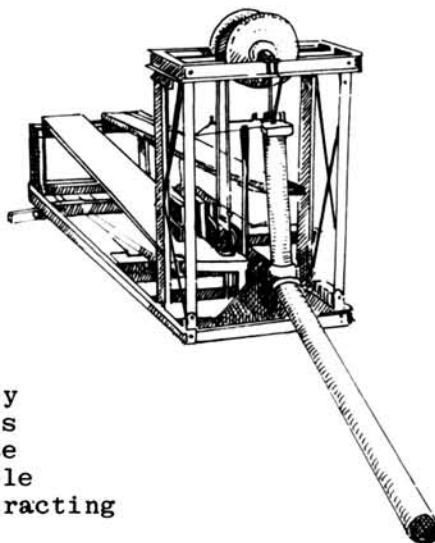
Manufactured by:

SISCOMA (Factory at
BP 3214 Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

Description: The Gueroult bore-hole pump can be powered in 3 ways: by beam, by pedal or by animal drive. The pump-body is submersible and is connected to the surface power source by cable-drive. It is possible to replace the piston assembly without extracting the piping.



<u>Performance:</u>	Lift potential:	10-60 m.	(1 litre/sec -
	Output:	3600-80 litre/hr	0.2 litre/sec)

Price: 250,000 CFA (\$1174.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

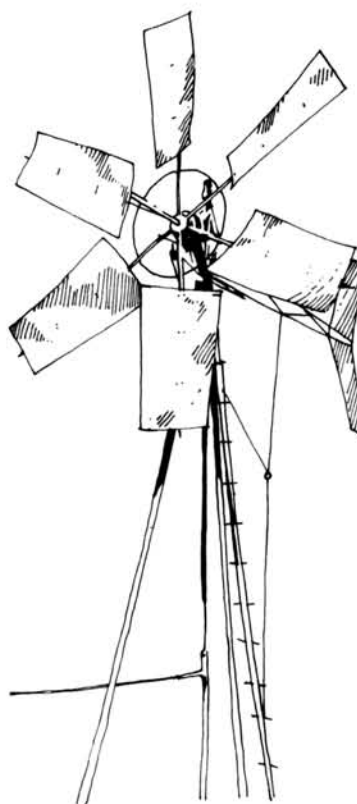
ARUSHA WINDMILL

Manufactured by:

Ujuzi Leo Industries
PO Box 7146
ARUSHA
Tanzania

Telephone: Arusha 3297

Description: The Arusha windmill is a 6 blade low-speed windmill built entirely of locally available raw materials capable of pumping 1 litre/sec in a 19km/hr wind, to a 55m delivery head. The sails are made of corrugated iron sheets, and the legs and pump shaft from tubular steel.



Technical Specifications:

Tower height: 12.0m
Rotor diameter: 5.03m
Total wt. of Fan and Tail: 122.5kg
Total overall weight: 360kg

Static Torque (in 20 kph wind)

1355 Nm (1000 lbf)
developing 2.2 kw at 24 kph

Price: (as at 1.7.80) Tshg.16,000.00 (\$1970.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

PAP DRAGON WINDMILL WATER PUMP

Manufactured by:

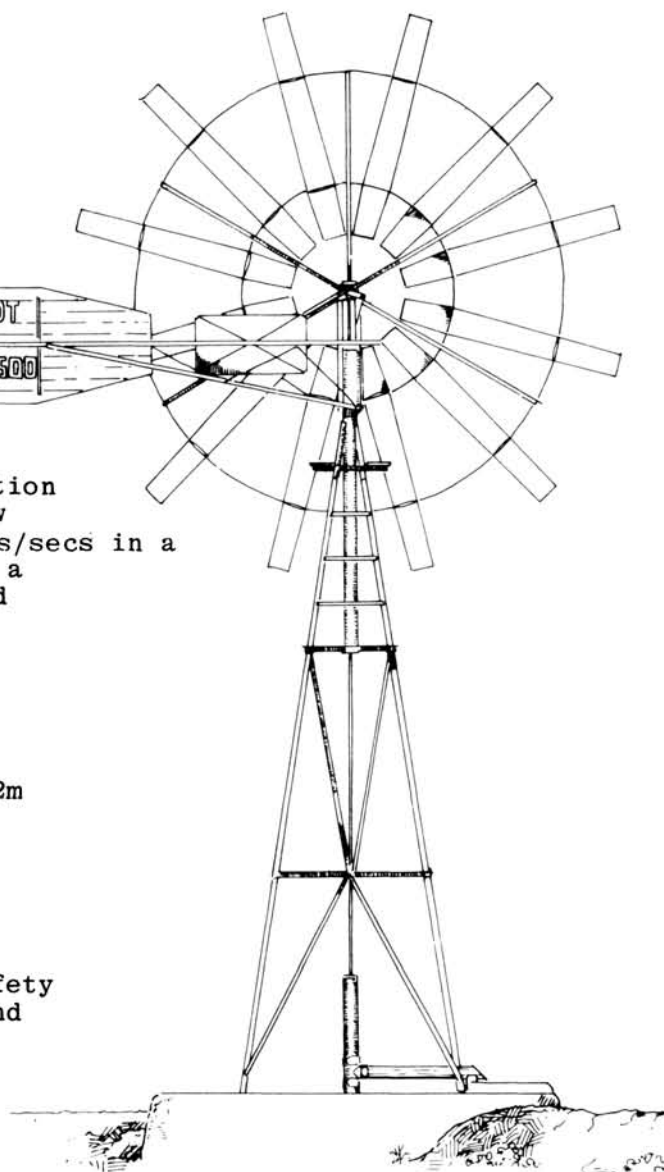
Ploughs & Allied Products Ltd
PO Box 467
KISUMU
Kenya

Telephone: Kisumu 40512

Description: The PAP Dragon Windmill has entered production to a design developed in cooperation with UNDP. It is a 12 blade low speed pump lifting about 2 litres/secs in a 16km/hr wind, or 4 litres/sec in a 30km/hr wind. It is manufactured from locally available materials and has the following technical specifications:-

Tower Height	6m
Rotor Diameter	5m
Tower Base	2m x 2m
Max RPM	120
Suction Head	6m
Delivery Head	10m
Pump Diameter	15cm
Pump Stroke	24cm

It is fitted with a side vane safety system which operates at high wind speed. This is linked to a ratcheting tail-vane lock which ensures that the rotor will not turn again until re-set by the operator. The pump is made from PVC piping with a wooden piston and leather valves, reducing maintenance costs and ensuring a low torque on starting.



Price: (ex-factory) (as at 1.7.80)

Kshg.16,000.00 (\$2140.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

KIJITO WINDMILL

Manufactured by:

BobsHarries Engineering Ltd
Karamaini Estate
PO Box 40
THIKA
Kenya

Telephone: Thika 47234, 47250

Telex: 22776 SPECMOULD

Telegrams: BOBS THIKA

Description: Kijito windmills have been developed from a design by ITDG (Intermediate Technology Development Group) and are particularly designed for deep-bore-hole pumping.

Kijito windmills are made from steel plate mounted on tubular steel towers and the rotor hub is designed to be fitted with between 6 and 24 blades. The blades are moulded from fibreglass in order to maximise aero-dynamic efficiency.

The number of blades, as well as the diameter of the rotor can be variable, according to the performance required. Kijito windmills are supplied with rotors of the following diameters:-

3.7m., 4.9m., 6.1m. and 7.3m.

Kijito windmills are fitted with a self-governing safety mechanism which turns the rotor out of wind for wind-speeds over 40k.p.h. Performance depends upon the combination of rotor and water-pump but average performance of different rotor sizes, pumping from different depths is shown in the table:-

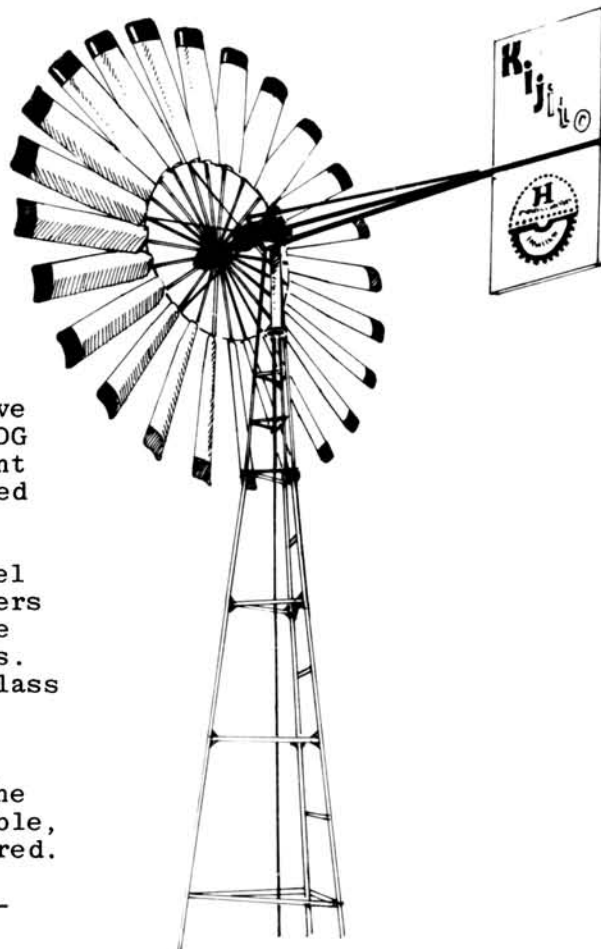
Performance of Kijito Windmills at constant 12 k.p.h. wind-speed (litres per sec.)

		<u>Pumping Head</u>			
		30m.	60m.	120m.	240m.
<u>Rotor Diameter:</u>	3.9m.	0.60	0.30	0.15	-
	6.1m.	1.16	0.58	0.29	-
	7.3m.	2.01	1.01	0.50	0.25

Prices: (as at 1.3.80)

	<u>Windmill</u>	<u>plus Installation</u>
3.9m rotor	Kshg.51,750.00 (\$6,900)	57,750.00 (\$ 7,700)
6.1m "	Kshg.69,000.00 (\$9,200)	76,500.00 (\$10,200)
7.3m "	Kshg.86,250.00 (\$11,500)	93,750.00 (\$12,500)

These prices include a 10m. tower; for larger towers an extra charge is levied, e.g. for a 20m. tower, the total cost would increase by Kshg.34,000 (\$4,500)



JANDU HYDRAULIC RAM

Manufactured by:

Jandu Plumbers Ltd
PO Box 409
ARUSHA
Tanzania

Telephone: Arusha 3410, 3468

Telex: 42093 JAPCON

Description: Hydrams are designed to lift water for delivery to a relatively great height from a given driving water source whose fall may be relatively moderate. The Jandu Hydram will lift water according to the following relationship:-

$$q = Q \times h/H \times 4/5$$

where q = the flow delivered,
 Q = the flow of the source,
 h = the fall of the source and
 H = the delivery lift.

Thus a Hydram installed in a stream whose flow was 100 litres/minute, falling 5 metres, could lift water to a height of 40 metres with a delivery flow of 10 litres per minute.

Jandu make several sizes of Hydram to suit different conditions, and will supply appropriate Hydrams to these conditions if informed of the specific conditions such as the rate of flow of the source, its fall, and the lift required.

Price: (as at 1.1.80) (SJR 1.5) Tshg.3000.00 (\$370.00)

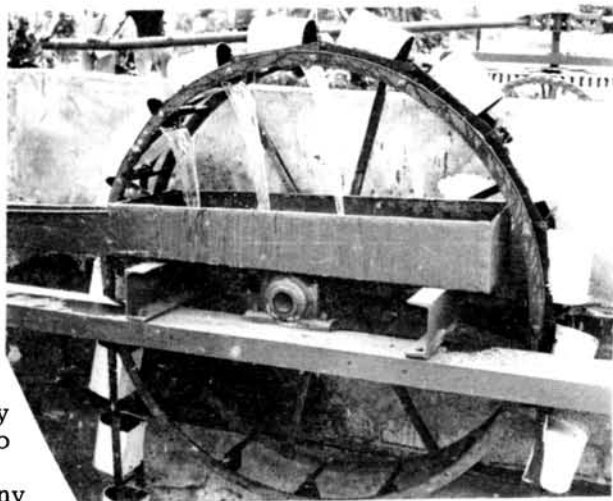


JANDU PERSIAN-WHEEL

Designed by:

Jandu Plumbers Ltd
PO Box 409
ARUSHA
Tanzania

Description: Jandu Plumbers have designed and built a Persian wheel that is powered by a pair of oxen turning a rotor arm. As the use of ox-power for water-pumping is hardly developed in East Africa there is no effective demand for manufacture of Persian wheels. However, the company would be happy to discuss the likely cost of manufacturing Persian wheels to order, as well as supplying details of the likely performance.



(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

PRESSED STEEL WATER TANKS

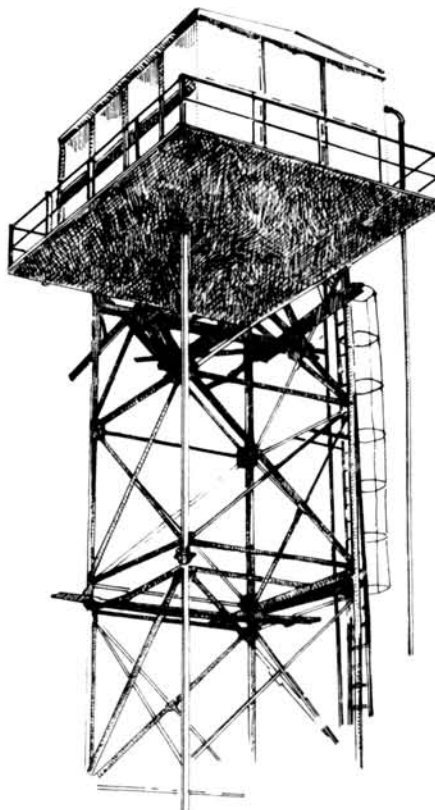
Manufactured by:

Warren Engineering Ltd
PO Box 30151
NAIROBI
Kenya

Telephone: Nairobi 335671-5

Telex: 22032 Interlink

Description: Warren water tanks can be made in any size whose depth does not exceed 365 cm., by the assembly of standard pressed steel plates which measure 122 cm. square. The plates are supplied together with nuts and bolts and fixing strip, although the prices quoted below are just for the cost of steel plates required for different sizes of tank. The supporting structure and connecting plumbing-ware for the tank are not included but may be supplied separately.



Price of steel plate components for different sized tanks: (as at 1.4.80)

<u>Size of tank</u>	<u>Price</u>	
1800 litres	Shg. 8,750.00	(\$1,170.00)
7200 litres	Shg. 24,500.00	(\$3,300.00)
14400 litres	Shg. 35,000.00	(\$4,700.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

POWER

HUTCHINSON METHANE PLANTS

Manufactured By:

Tunnel Co. Ltd.
Tunnel Estate
FORT TERNAN
Kenya

Telephone: Fort Ternan 7Y7

Description: There are two types of Hutchinson Methane Plant: the Continuous System Plant and the Batch System Plant. Various models of each have been developed at the Tunnel Company: some models are supplied in kit form, others are ready-to-use.

The Continuous System: operates on solid organic matter such as stalks, coffee pulp etc. and requires an inoculation of anaerobic bacteria. The manufacturers also recommend the purchase of an accompanying continuous plant, of at least the smallest size.

Batch System: Both plants, in addition to producing gas, also yield valuable organic manure as a residue and the manufacturers have observed that, for every twelve cows whose manure is used for methane production, one hectare of land can be fertilised with significant results. Of course, effective use of the continuous plants is very much dependent on the husbandry practiced and the ease of collecting the manure. Methane plants are more easy to use when cattle are gathered together at least once daily, as for milking.

As well as supplying the larger units in kit-form for the local market, the manufacturer is agreeable to licencing agreements with foreign manufacturers who are interested in the larger units. The smaller units which are supplied ready-made from the factory come with a two-ring gas cooker and a gas mantle-lamp ready for use.

The table shows the 1980 price and the output of each model, its type, and the recommended size according to the manure supply from varying herd sizes.

Model No.	System	Kit form/ Ready to use	Gas Output	Dairy Herd Size	Price (1980) Kshg. US
Mk.I	Batch	Kit form	2.5 m ³	-	7000.00 (\$ 937)
Mk.II (Domestic)	Continuous	Kit form	12.8 m ³	50	6000.00 (\$ 803)
Mk.II Large	Continuous	Kit form	21.5 m ³	80	7000.00 (\$ 937)
Mk.II 2 Lid	Continuous	Kit form	43.0 m ³	150	8000.00 (\$1071)
Mk.II 3 Lid	Continuous	Kit form	57.0 m ³	200	9000.00 (\$1205)
Mk.III No.1	Continuous	Ready to use	0.7 m ³	5	1760.00 (\$ 236)
Mk.III No.2	Continuous	Ready to use	1.4 m ³	10	2500.00 (\$ 335)
Mk.III No.3	Continuous	Ready to use	2.1 m ³	15	3630.00 (\$ 486)
Mk.III No.4	Continuous	Ready to use	2.8 m ³	20	4235.00 (\$ 567)
Mk.III No.4 (Double)	Continuous	Ready to use	5.6 m ³	40	7700.00 (\$1031)
Mk.IV	Batch	Ready to use	1.0 m ³	-	2000.00 (\$ 268)

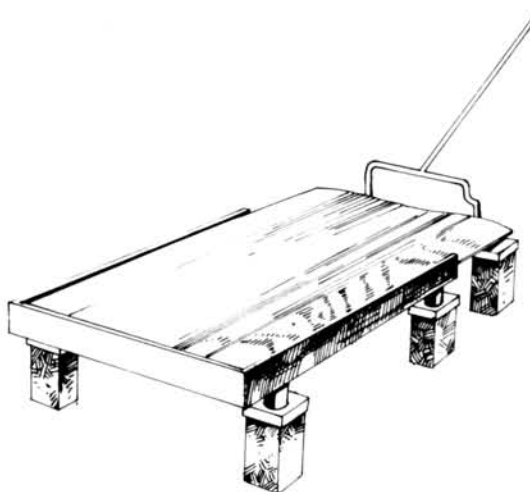
HUTCHISON SOLAR HOT-WATER UNITS

Manufactured by:

Tunnel Co Ltd
Tunnel Estate
FORT TERNAN
Kenya

Telephone: Fort Ternan 7Y7

Description: These units heat water for domestic purposes. They are supplied as complete units of solar panels and insulated storage tanks. They can be obtained in various capacities, according to the number of standard sized panels in each unit. Each panel measures 300 cm x 70 cm.



The manufacturers claim that normal daily insolation will heat water to 60°C, and that 40°C can be achieved in overcast conditions.

Corrugated steel absorber panels are used, coated with anti-corrodant, covered with u/v-resistant polyester envelopes whose durability is approximately 2-4 years. Spare covers can be obtained.

The prices and capacities of each available model are:

Model	Capacity	Price: Kshg.	US\$(as at 1.1.80)
SHWU No.1	45 litre	1815.00	243
SHWU No.2	90 litre	3025.00	405
SHWU No.3	135 litre	3630.00	486
SHWU No.4	180 litre	4840.00	648

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

METHANE GENERATOR

Developed by:

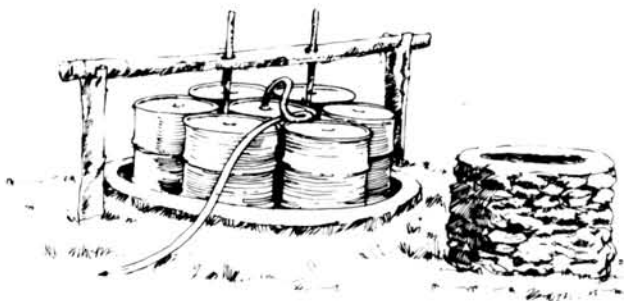
Uhandisi Cooperative Society
PO Box 849
ARUSHA
Tanzania

Telephone: Arusha 2625

In conjunction with:

Arusha Appropriate Technology
Project
PO Box 764
ARUSHA
Tanzania

Telephone: 3594



Description: The AATP have developed a methane generator made from seven 200 litre oil drums, whose tops are removed and are then inverted over a sunken pit into which cattle/chicken dung can be poured and mixed with water. Methane generated from this slurry rises into the drums and is piped off for storage in a simple gasometer before domestic use. The design is being used by Uhandisi for the manufacture of generators to local demand - made to order according to the size required.

Price: (as at 1.7.80)

Variable to size - from Tshg.1200.00 (\$150.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

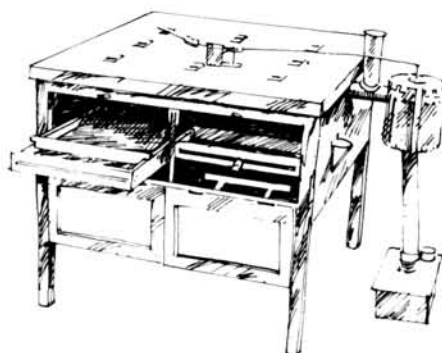
INCUBATOR, HONEY, MOHAIR

KILACHA INCUBATOR

Manufactured by:

Kilacha Production & Training
Centre
PO Box 21
HIMO
near Moshi
Tanzania

Telephone: Himo 19



Description: The Kilacha Production & Training Centre is part of the Diocese of Moshi in Tanzania and the incubator has been designed to meet the needs of small farmers and small poultry production units whose only fuel source is kerosene. The incubators are fitted with kerosene burners, thermometers and thermostats and enable successful incubation of eggs. Seven sizes of incubator are made (to order) for capacities between 100-1000 eggs. Price varies with sizes, thus:

Price: (as at 1.6.80)

<u>Incubator capacity</u>		
100 eggs	Tshg.1700.00	(\$210.00)
200 "	Tshg.1900.00	(\$235.00)
300 "	Tshg.2200.00	(\$270.00)
400 "	Tshg.2500.00	(\$305.00)
500 "	Tshg.2800.00	(\$345.00)
600 "	Tshg.3000.00	(\$370.00)
1000 "	Tshg.5500.00	(\$675.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

WOOL-MOHAIR SPINNING WHEEL

Developed by:

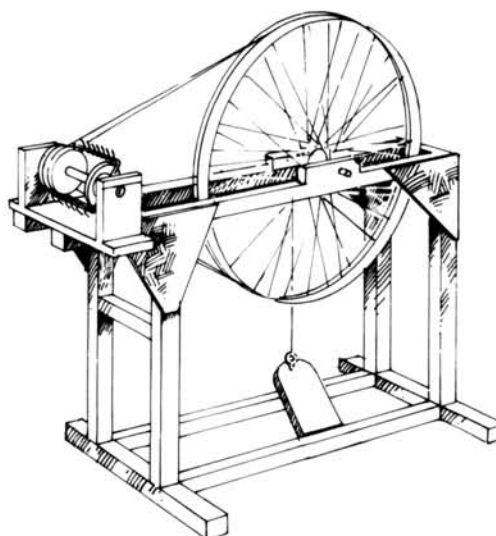
CARE
PO Box MS682
MASERU
Lesotho

Telephone: MS3982

Manufactured by:

Save the Children Vocational
Workshop
PO Box MS286
MASERU
Lesotho

Telephone: MS2279



Description: A foot-treadle spinning wheel for spinning wool and mohair yarn. The fibre must first be carded carefully with carding combs. After carding, the fibre is ready for spinning, and after spinning it must be washed before being used for the manufacture of knit-wear.

Thus, although the spinning process alone can process 4 kg. of fibre per day, the whole process brings down production to about 4 kg. per month per wheel.

The wheel is constructed from a standard 26 in. bicycle wheel, and local timber. The bobbin-assembly is made from aluminium tube, hard-board discs, and medium gauge steel wire.

The spinning wheels are manufactured in the Save the Children Workshop which also manufactures carding combs.

<u>Price:</u> (1979)	Spinning Wheel	:	27 loti	(\$34.00)
	Carding Comb	:	15 loti	(\$19.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

UNITED HONEY PRESS

Manufactured by:

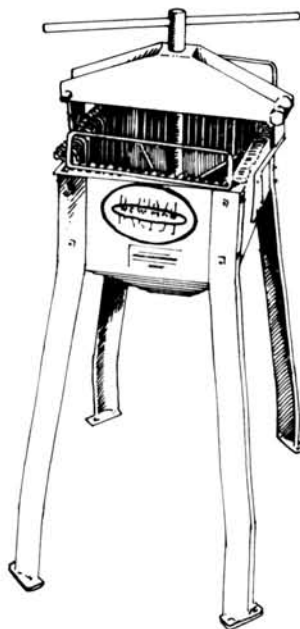
United Engineering Works Ltd
PO Box 3082
ARUSHA
Tanzania

Telephone: Arusha 3424

Description: The honey press is a hand-operated screw-press which extracts honey from the honey-comb. It is made of metal, and could be used to extract up to 15 kg. of honey per hour from combs.

Price: (as at 1.6.80)

Tshg.285.00 (\$72.00)



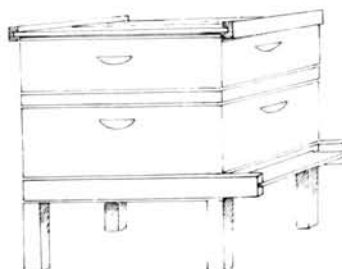
TENGERU BEEHIVE

Manufactured by:

Tengeru Furniture Mart
PO Duluti
ARUSHA
Tanzania

Telephone: Duluti 41

Description: The Tengeru beehive is a top-bar hive made with 13 frames, spaced at 18 mm. apart. The box of the hive is made from a timber frame faced with chip-board and the outside is painted with a durable white paint. Each frame contains 3 longitudinal wires as comb supports. Replacement frames can be supplied, and super chambers are fitted.



Prices: (1980) Tshg.240.00 (\$30.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

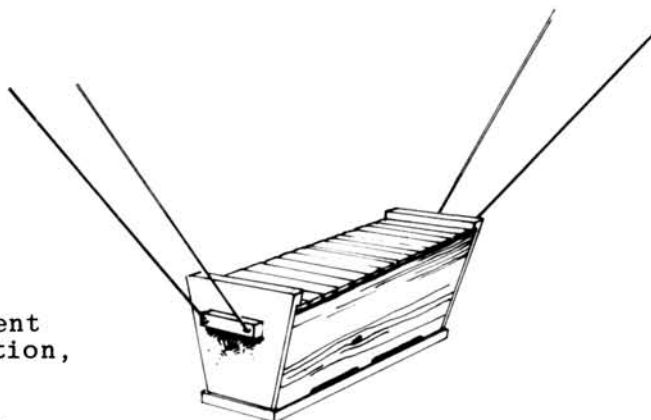
BEEKEEPING EQUIPMENT

Distributed by:

Beekeeping Section
Ministry of Agriculture
PO Box 30028
NAIROBI
Kenya

Telephone: Nairobi 48211

Description: The Beekeeping Section stocks beekeeping equipment some of which is made by the section, some of which by external contractors. The hive is the Kenya Top-Bar Hive, as illustrated, and the other equipment is listed in the price-list below:-



Prices: (wholesale) (as at 1.7.80)

1. Kenya Top-Bar Hives	Kshg. 60.00	(\$ 8.00)
2. Catcher Boxes	Kshg. 30.00	(\$ 4.00)
3. Feeders	Kshg. 10.00	(\$ 1.35)
4. Queen Excluders	Kshg. 20.00	(\$ 2.70)
5. Smokers	Kshg. 35.00	(\$ 4.70)
6. Bee Brushes	Kshg. 12.00	(\$ 1.60)
7. Hive Tools	Kshg. 12.00	(\$ 1.60)
8. Gloves	Kshg. 25.00	(\$ 3.35)
9. Veils	Kshg. 20.00	(\$ 2.70)
10. Bee Suits	Kshg.100.00	(\$13.40)

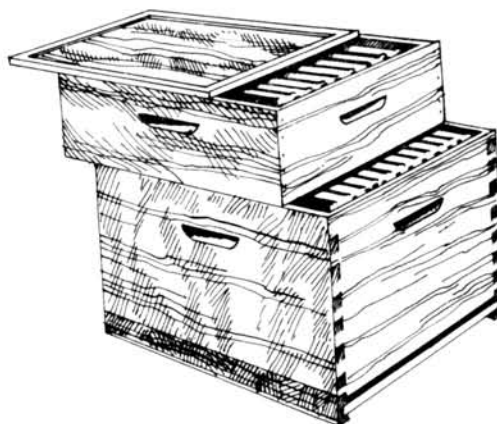
(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

BEEKEEPING EQUIPMENT

Manufactured by:

John Rau & Co Ltd
PO Box 2893
SALISBURY
Zimbabwe

Telephone: Salisbury 707682



Description: Rau & Co manufacture and sell a complete range of bee-keeping equipment. Their hives, as illustrated, are made from timber planks, and are of Langstroth design, with brood and super chambers. The other equipment is listed below with prices.

Prices: (ex-works) (as at 1.7.80)

1. Complete Hives	Zim\$25.00	(\$38.60)
2. Super Chamber only	Zim\$ 2.85	(\$ 4.40)
3. Frame (each)	Zim\$ 0.45	(\$ 0.70)
4. Queen Excluders	Zim\$ 3.30	(\$ 5.00)
5. Fire-Box Smokers	Zim\$13.75	(\$21.15)
6. Bee Brushes	Zim\$ 2.16	(\$ 3.30)
7. Uncapping Knives	Zim\$ 3.95	(\$ 6.00)
8. Hive Tools	Zim\$ 2.60	(\$ 4.00)
9. Gloves	Zim\$ 3.25	(\$ 5.00)
10. Veils complete	Zim\$17.00	(\$26.00)
11. Overalls	Zim\$ 8.20	(\$12.60)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

TRANSPORT

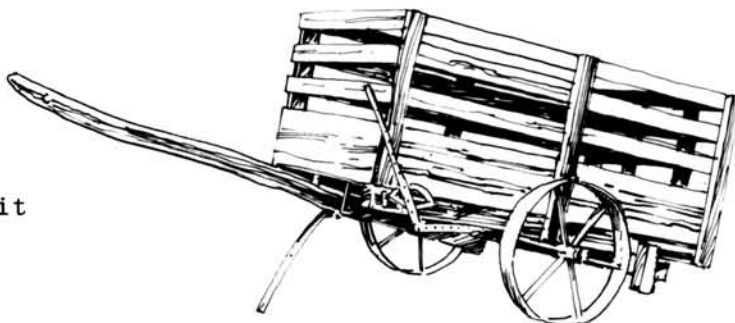
TAMTU OX-CART

(metal or rubber wheeled)

Manufactured by:

Tanzania Agricultural
Machinery Testing Unit
PO Box 1389
ARUSHA
Tanzania

Telephone: Arusha 3666



Description: A 2 wheel ox-cart that can be built with either metal or rubber wheels. The model as shown is designed for oxen: a derivative can be constructed for donkey draught, in which case the shafts can be lighter and attached laterally to the front of the cart rather than centrally. The cart is fitted with wooden bushes and brakes, can be serviced quite simply by lubricating the bearing grease-cup, and can carry up to 750kg.

<u>Price:</u> (as at 1.7.80) Metal Rim, large	:	Tshg.2750.00	(\$338.00)
Metal Rim, small	:	Tshg.2650.00	(\$326.00)
Rubber Wheels, large	:	Tshg.2900.00	(\$357.00)
Rubber Wheels, small	:	Tshg.2800.00	(\$344.00)

WHEELBARROW

Manufactured by:

African Steel Fabricators Ltd
PO Box 82694
MOMBASA
Kenya

Telephone: Mombasa 491912



Description: A heavy-duty, deep tray wheelbarrow, whose capacity is 0.1 cu.metre. It is made from locally available raw-materials and the wheel is fitted with a rubber tyre.

<u>Price:</u> (retail) (as at 1.5.80)	Kshg. 250.00	(\$33.00)
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(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

OX-DRAWN BOWSER

Manufactured by:

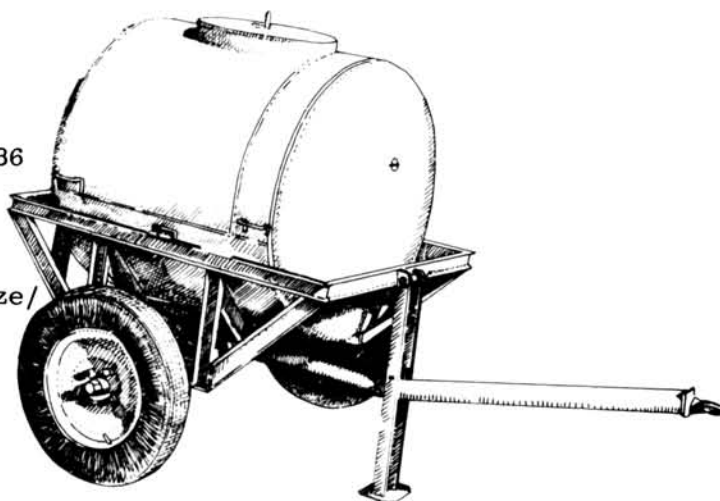
SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA
rue du Dr Theze/
Grammont
DAKAR
Senegal

Telephone: 22375-84



Description: The ox-drawn bowser has an unladen weight of 290kg. and a capacity of 800 litres (175 gallons).

Price: (as at 1.1.80) 236,900 CFA (\$1112.00)

M'BAM DONKEY-CART

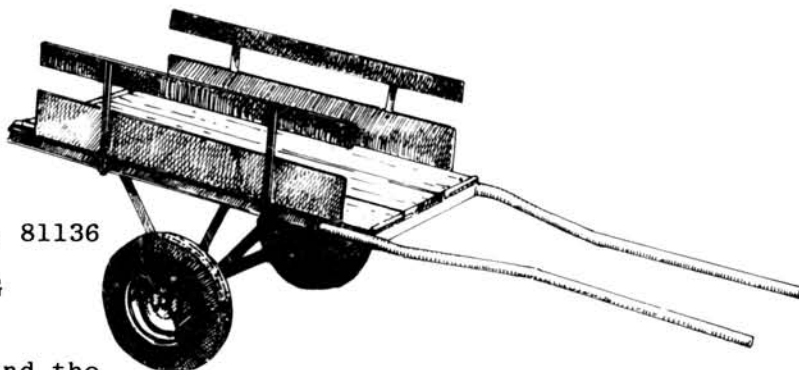
MALAV HORSE-CART

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG



Description: The M'bam and the Malav are two simple carts, mounted on pneumatic-tyred wheels. The donkey cart has a $\frac{1}{2}$ ton capacity, the horse-cart a 1 ton capacity.

The unladen weights are: M'bam - 108kg., Malav - 190kg.

<u>Price:</u> (as at 1.1.80)	M'bam	54,900 CFA	(\$258.00)
	Malav	67,700 CFA	(\$318.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

HEAVY DUTY OX-CART

Manufactured by:

SISCOMA (Factory
BP 3214 at Pout)
DAKAR
Senegal

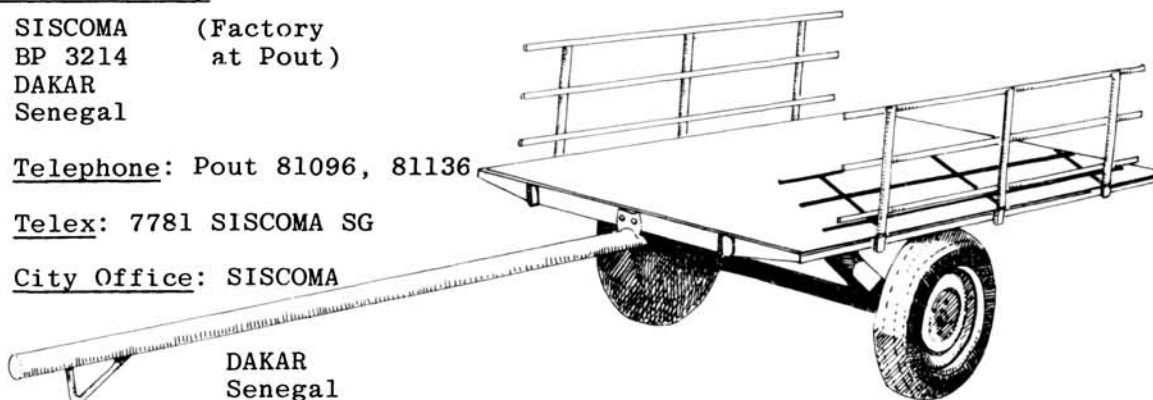
Telephone: Pout 81096, 81136

Telex: 7781 SISCOMA SG

City Office: SISCOMA

DAKAR
Senegal

Telephone: 22375-84



Description: The ox-cart, mounted on pneumatic tyres, has a capacity of 1.5 tons, with a low loader configuration.

Price: (complete) (as at 1.1.80)
204,859 CFA (\$962.00)

OX-CART

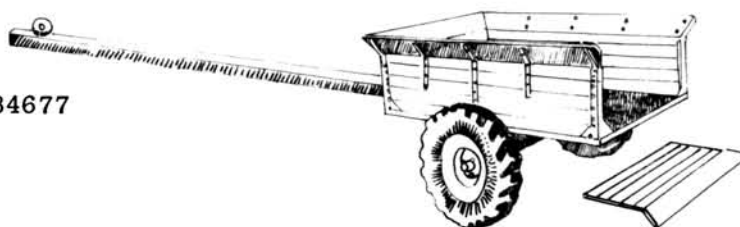
Manufactured by:

Brown & Clapperton Ltd
PO Box 52
BLANTYRE
Malawi

Telephone: Blantyre 34677

Telex: 4243

Telegrams: BEANCE



Description: The B&C ox-cart is a strong heavy-duty cart, mounted on a single axle fitted with tyred wheels. The front and rear panels of the body can be removed for taking long loads, and a specially designed 600 litre galvanized water tank is available as an extra.

Price: (as at 1.7.80) 528 kwacha (\$644.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)

NGOLO OX-CART

Manufactured by:

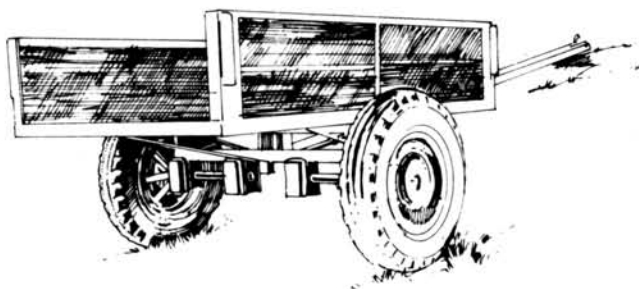
Ngolo Industries
LILONGWE

Distributed by:

ADMARC
P O Box 5052
LIMBE
Malawi

Telephone: Blantyre 651244

Telex: 4121



Description: A two-wheel ox-cart with a wooden body, and solid timber shaft. The wheels are fitted with pneumatic tyres and are mounted on a metal axle with sealed bearings.

Price: (Wholesale) (as at 1.1.80)

Kwacha 200.00 (\$244.00)

WHEELS

Manufactured by:

Ploughs & Allied Products Ltd
P O Box 467
KISUMU
Kenya

Telephone: Kisumu 40512

Description: Pairs of metal-rimmed, spoked wheels suitable for ox-carts.

Price: (ex-works) (as at 1.7.80)

Kshg. 860.00 (\$115.00)

(PRICES LATEST AVAILABLE FOR GUIDANCE ONLY. REFER MANUFACTURER FOR ACTUAL)