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TANZANIA LIVESTOCK MARKETING PROJECT
KILIMO/ MDB/ TLMP, Dar es Salaam
ADF Credit F/TAN/LVS/92/27
Danagro Adviser Copenhagen ref 352.26
Systems Analyst - Alexander Weir
Report February 1995
MIS - Management Information System Improvement

Alex Weir HomePage

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ARUSHA-AVERAGE TOTAL VALUE/MARKET DAY.....Mis3007.htm
MOSHI-AVERAGE WEIGHT/STEER.....Mis3101.htm
MOSHI-AVERAGE PRICE/STEER.....Mis3102.htm
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MOSHI-AVERAGE GRADE - STEERS.....Mis3104.htm
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DAR-AVERAGE GRADE - STEERS.....Mis3204.htm
DAR-AVERAGE AGE - STEERS.....Mis3205.htm
Note above data is effectively 1989 thru 1994 and data below is effectively 1990 through 1995 - (presented separately due to shortcomings in Harvard Graphics version 2.3).
DAR-AVERAGE WEIGHT/STEER.....Mis3301.htm
DAR-AVERAGE PRICE/STEER.....Mis3302.htm
DAR-AVERAGE PRICE/EDIBLE KG.....Mis3303.htm
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DAR-AVERAGE PRICE/EDIBLE KG.....Mis3203.htm
DAR-AVERAGE GRADE - STEERS.....Mis3204.htm
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DAR-AVERAGE PRICE/EDIBLE KG.....Mis3303.htm
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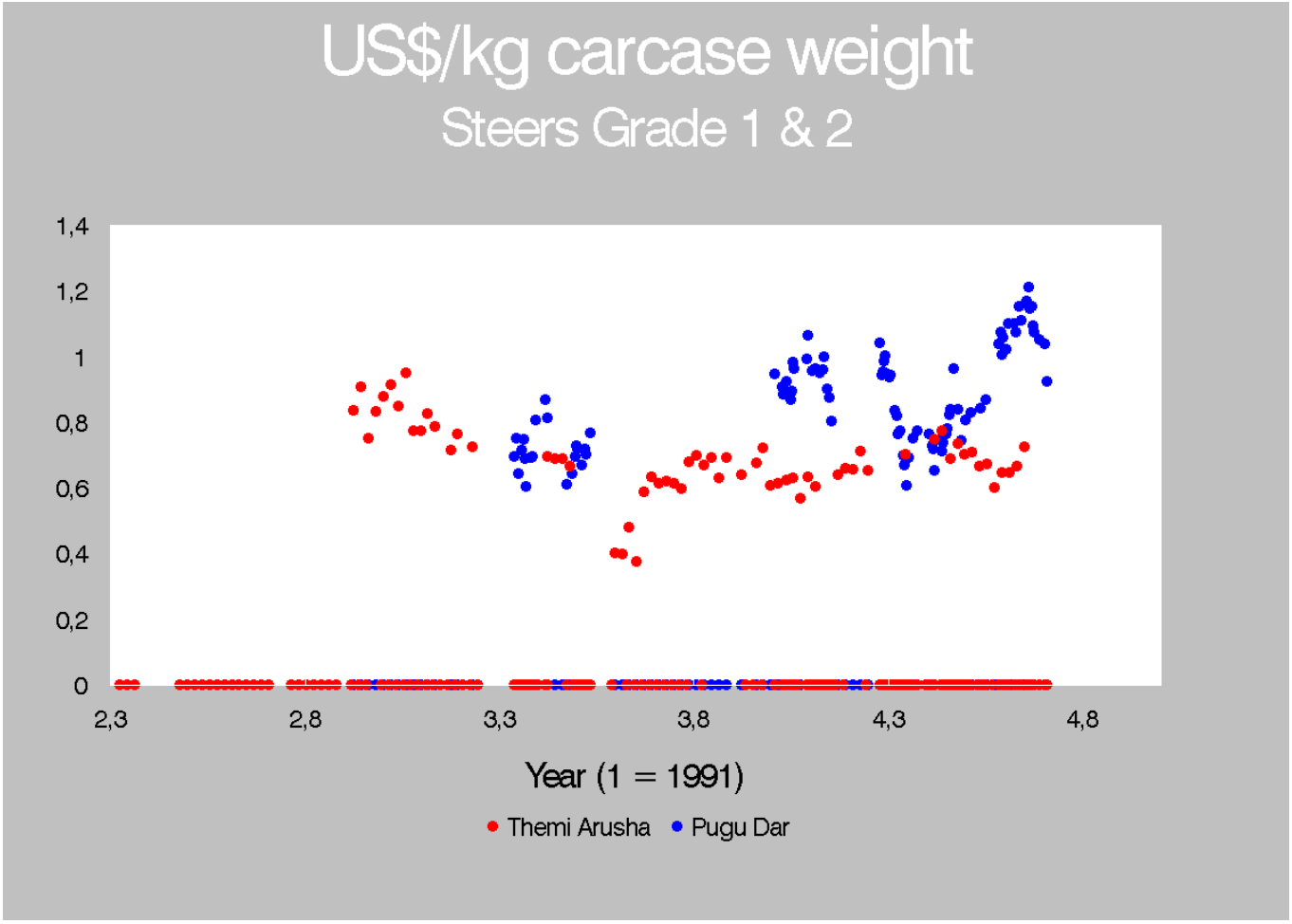
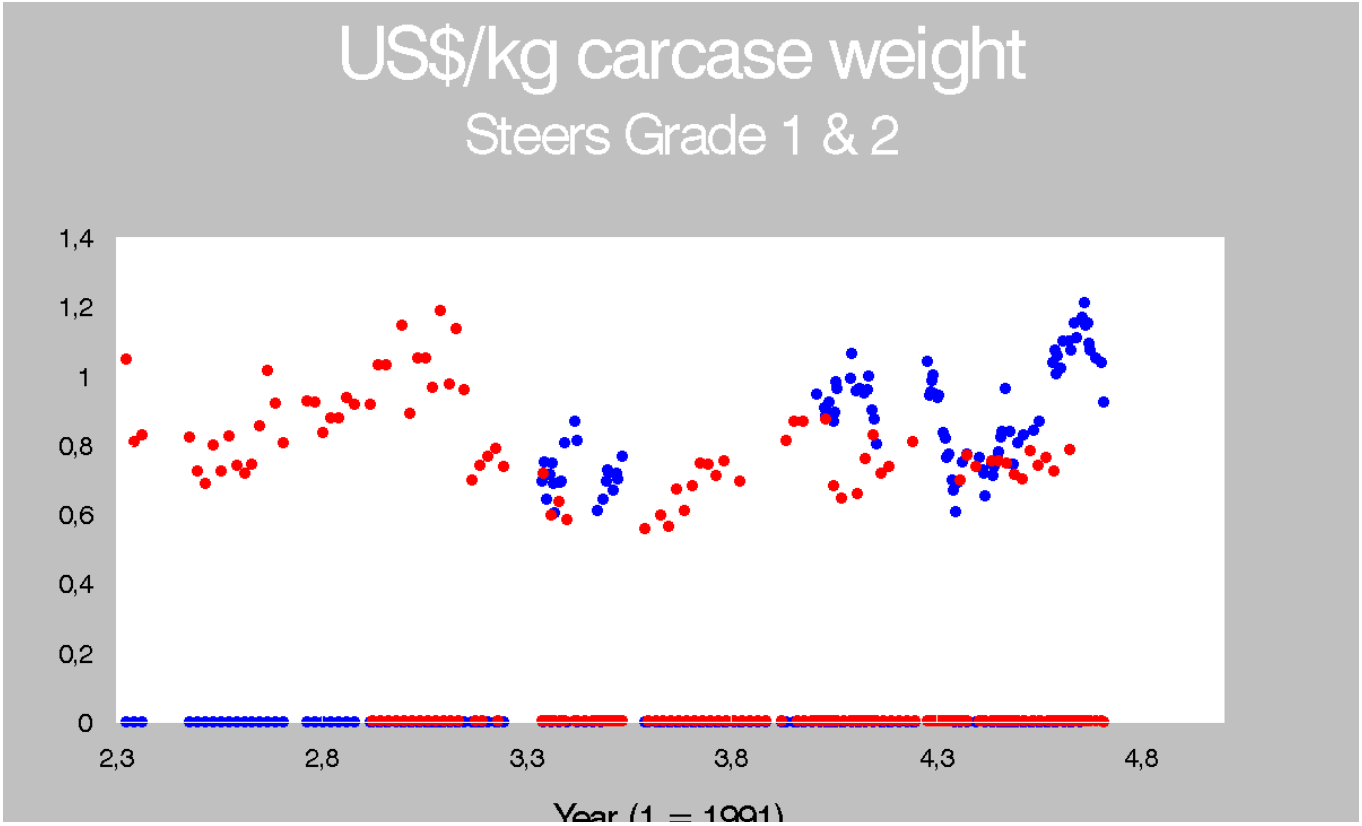
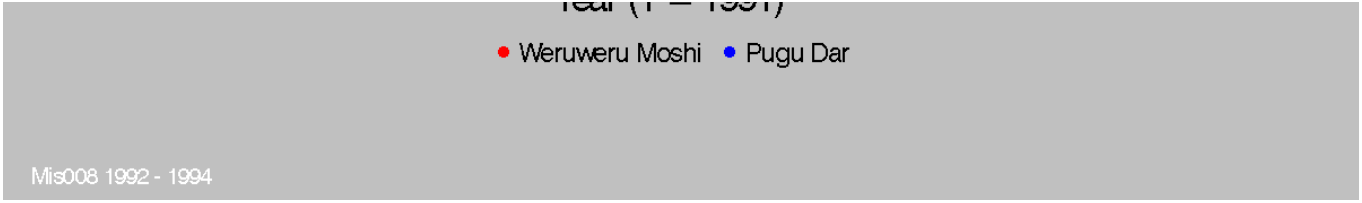

US$/kg carcase weight
Steers Grade 1 & 2
1,4
1,2
1
0,8
0,6
0,4
0,2
0
2,3
2,8
3,3
3,8
4,3
4,8
Year (1 = 1991)
Themi Arusha
Pugu Dar

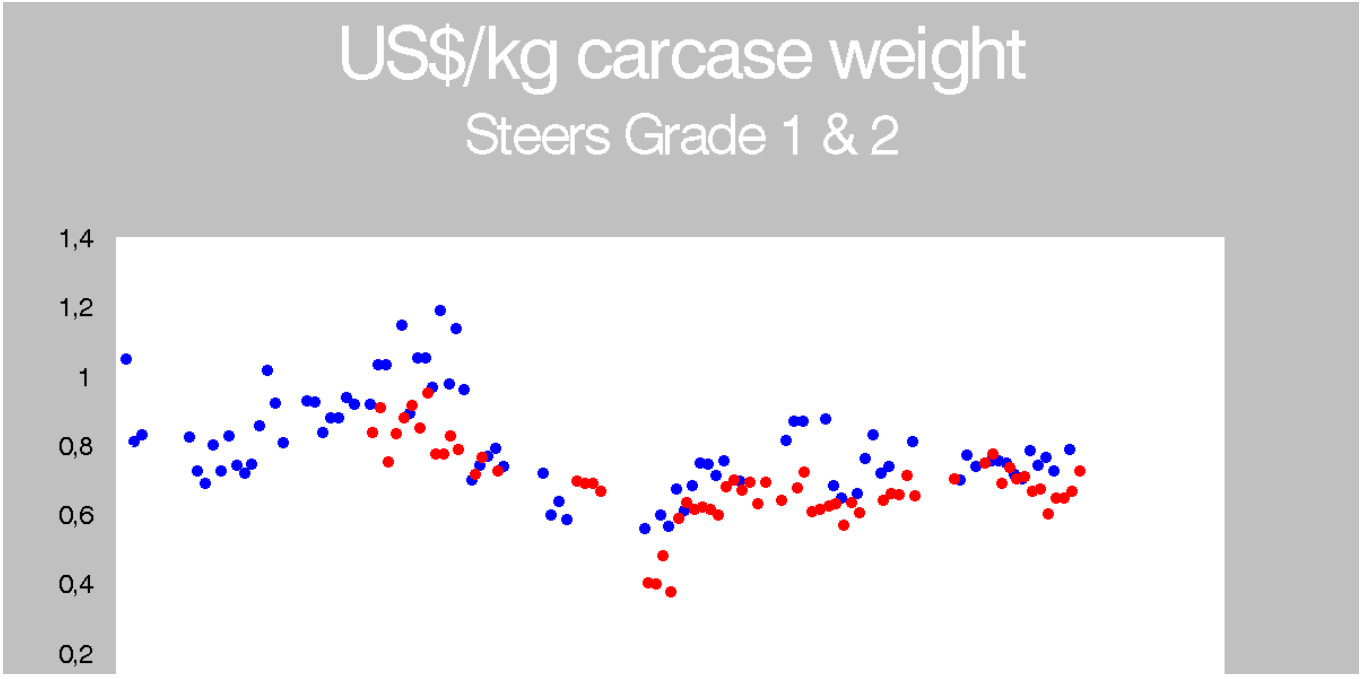
Mis007 - 1992-94

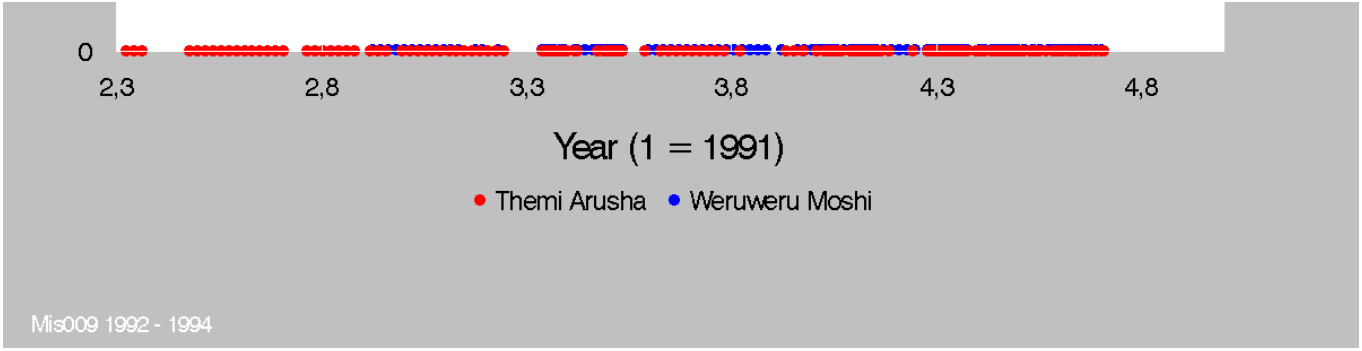
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis009.htm





home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis010.htm





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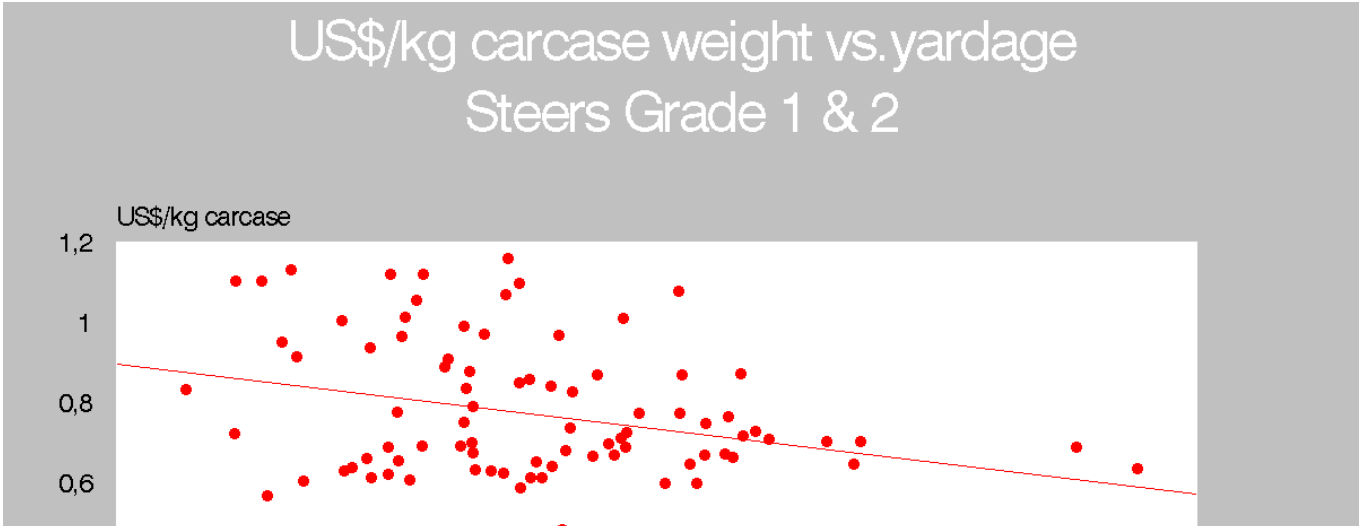

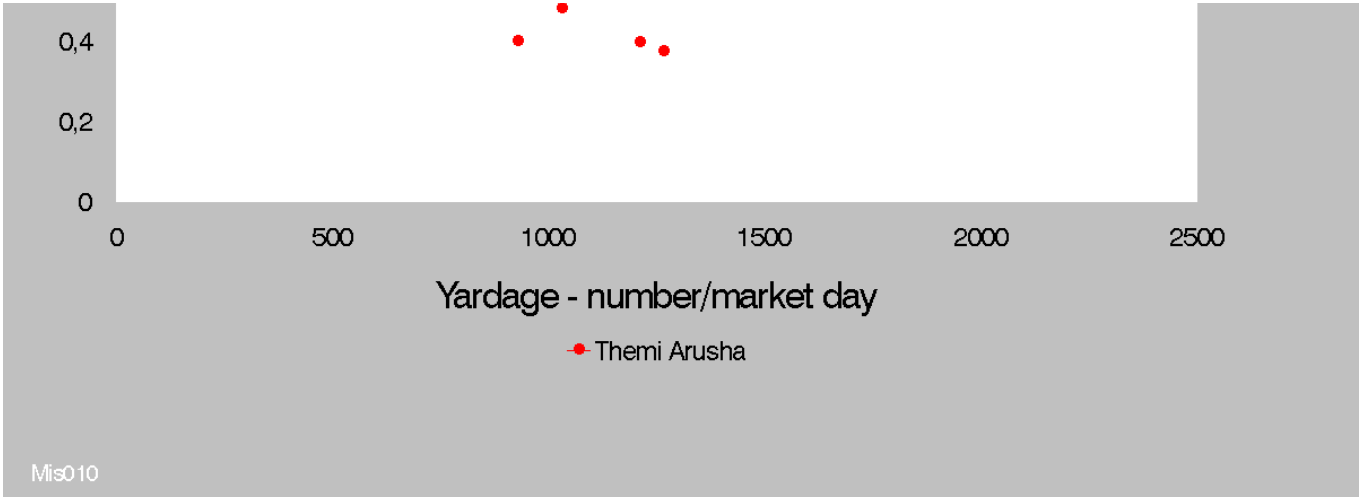

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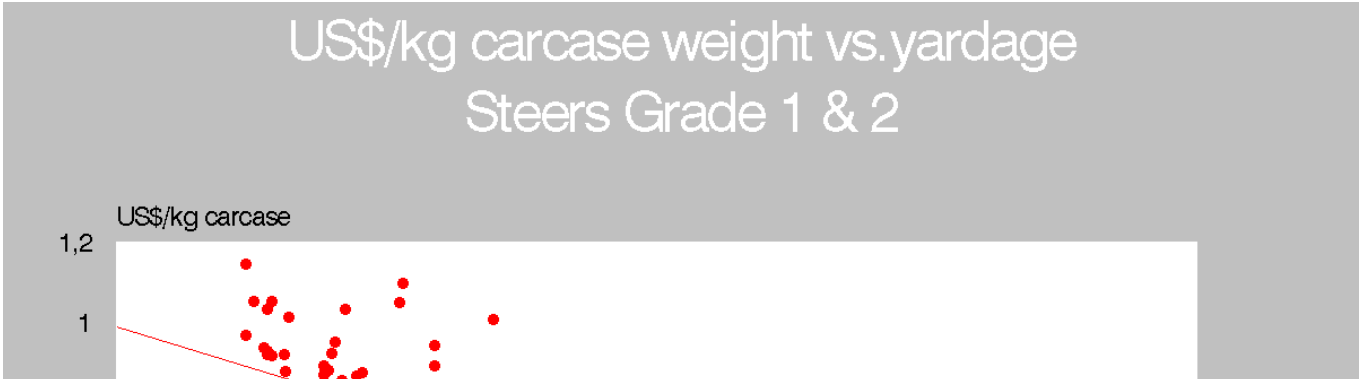

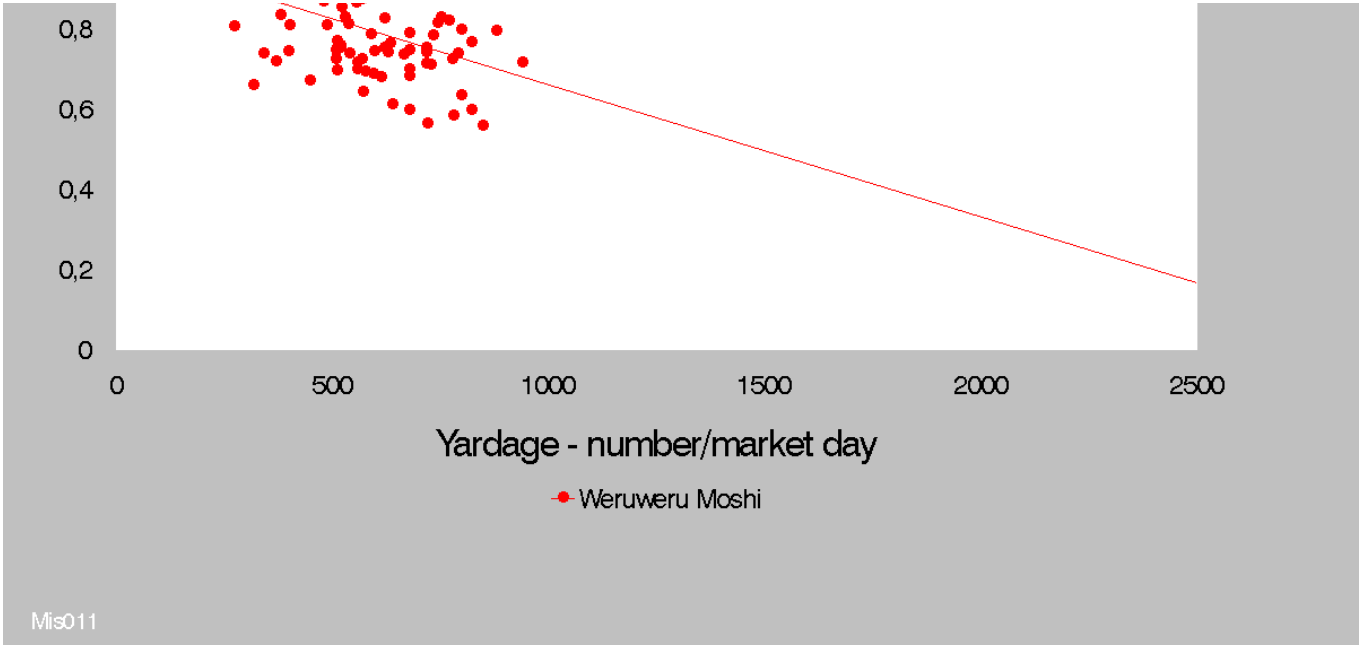

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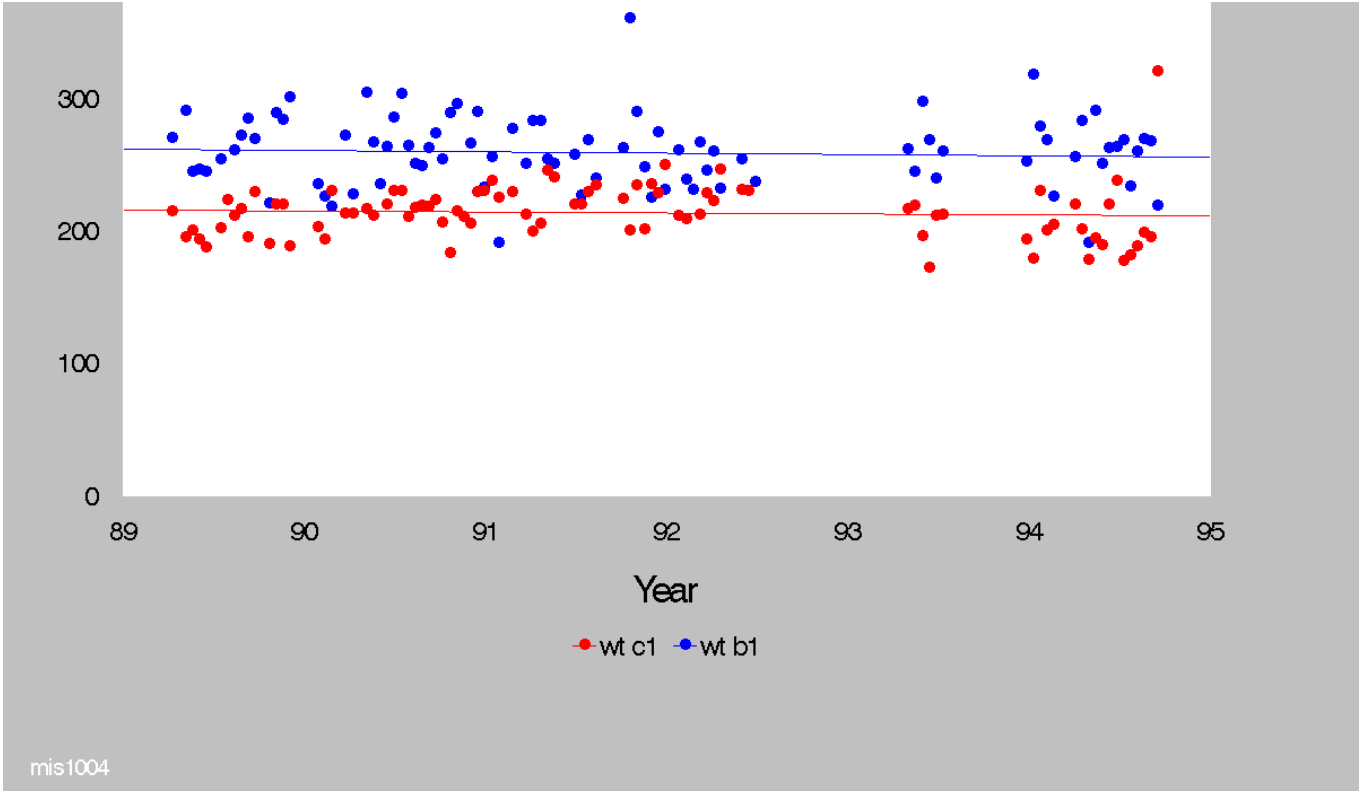
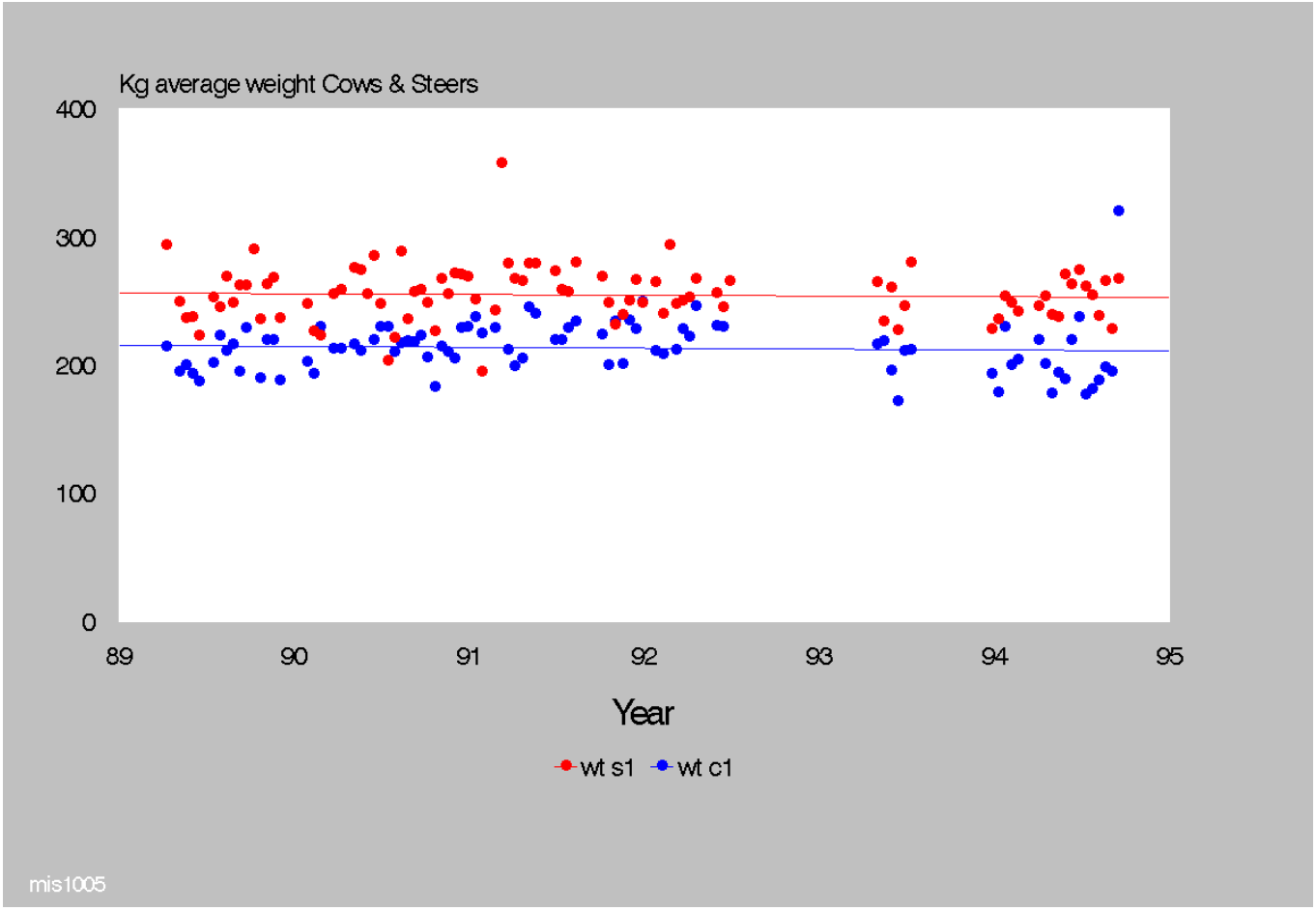
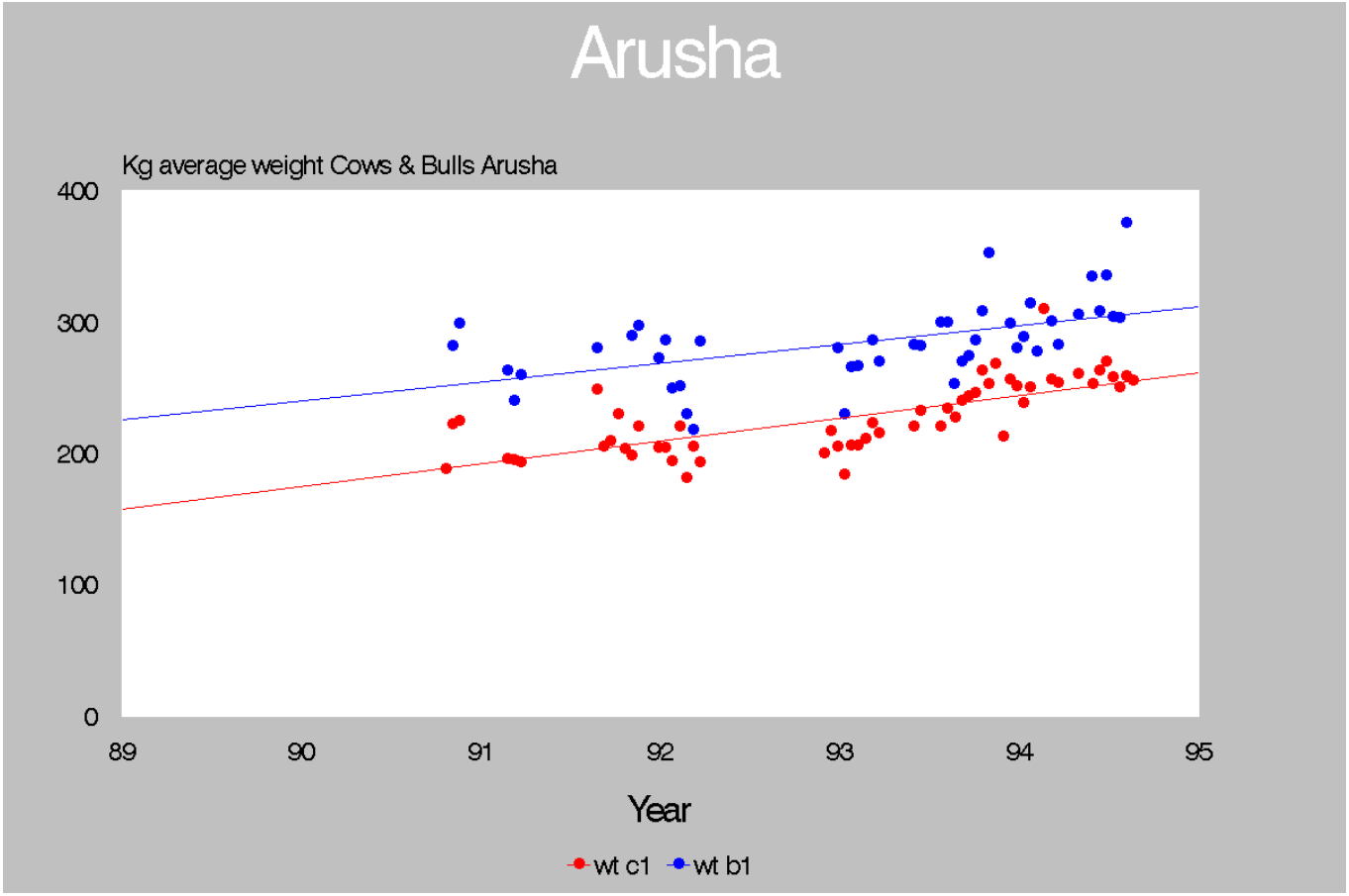


home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis1104.htm

Dar es Salaam


Kg average weight Cows & Steers
400
300
200
100
0
89
90
91
92
93
94
95
Year
wt s1
wt c1
mis1005

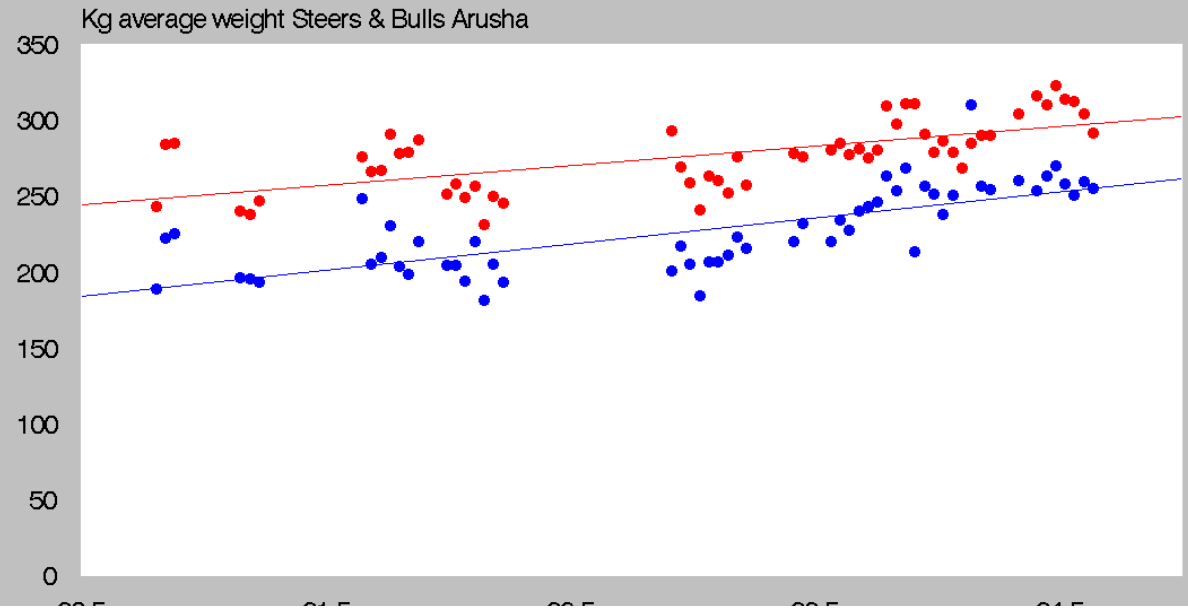
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis1105.htm

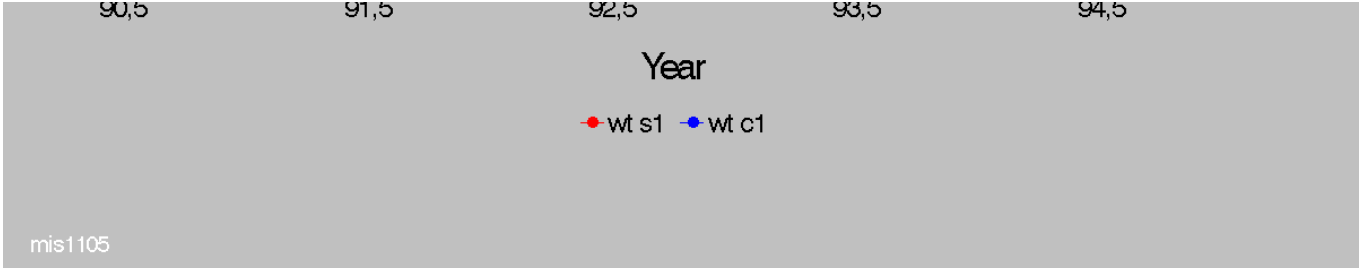


mis1104

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis1204.htm

Arusha





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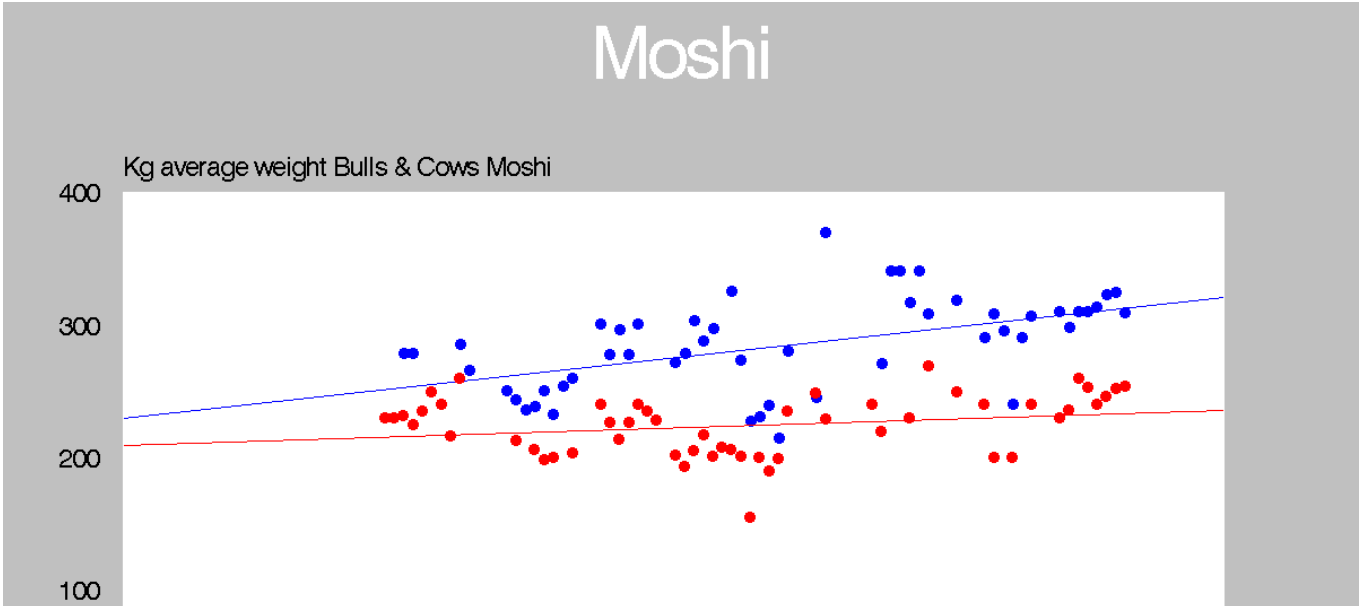

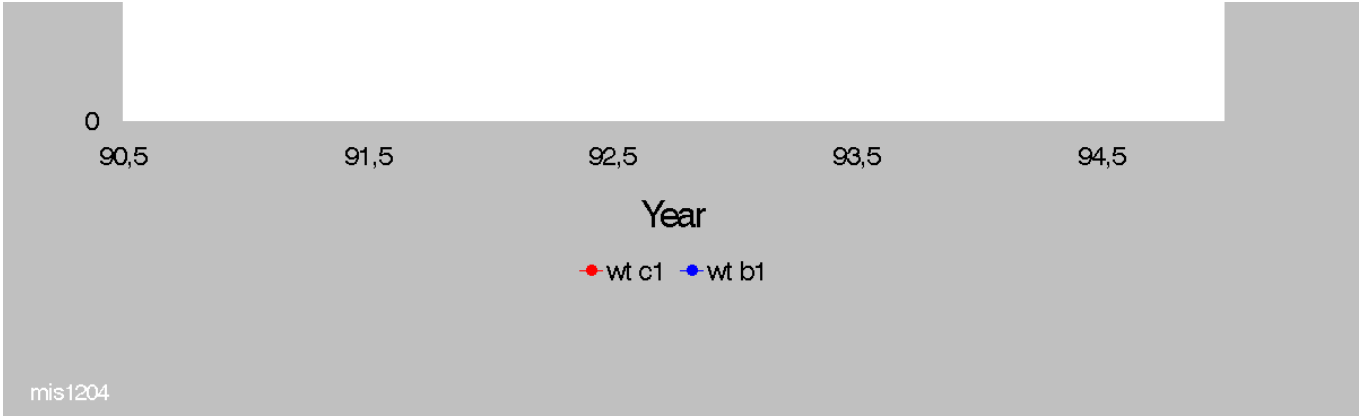

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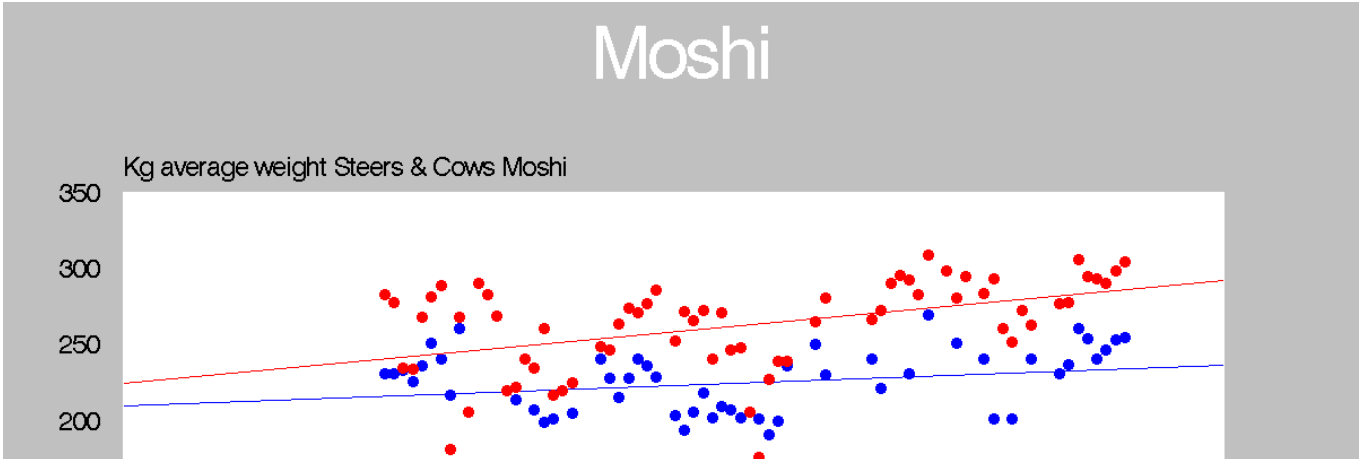

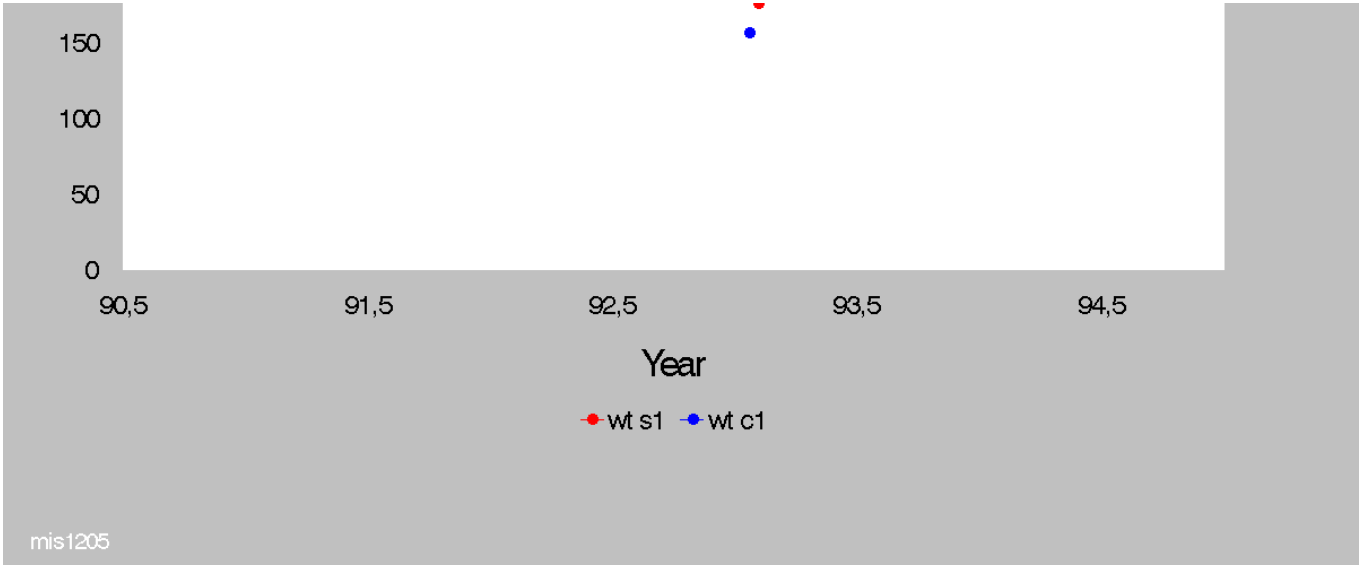

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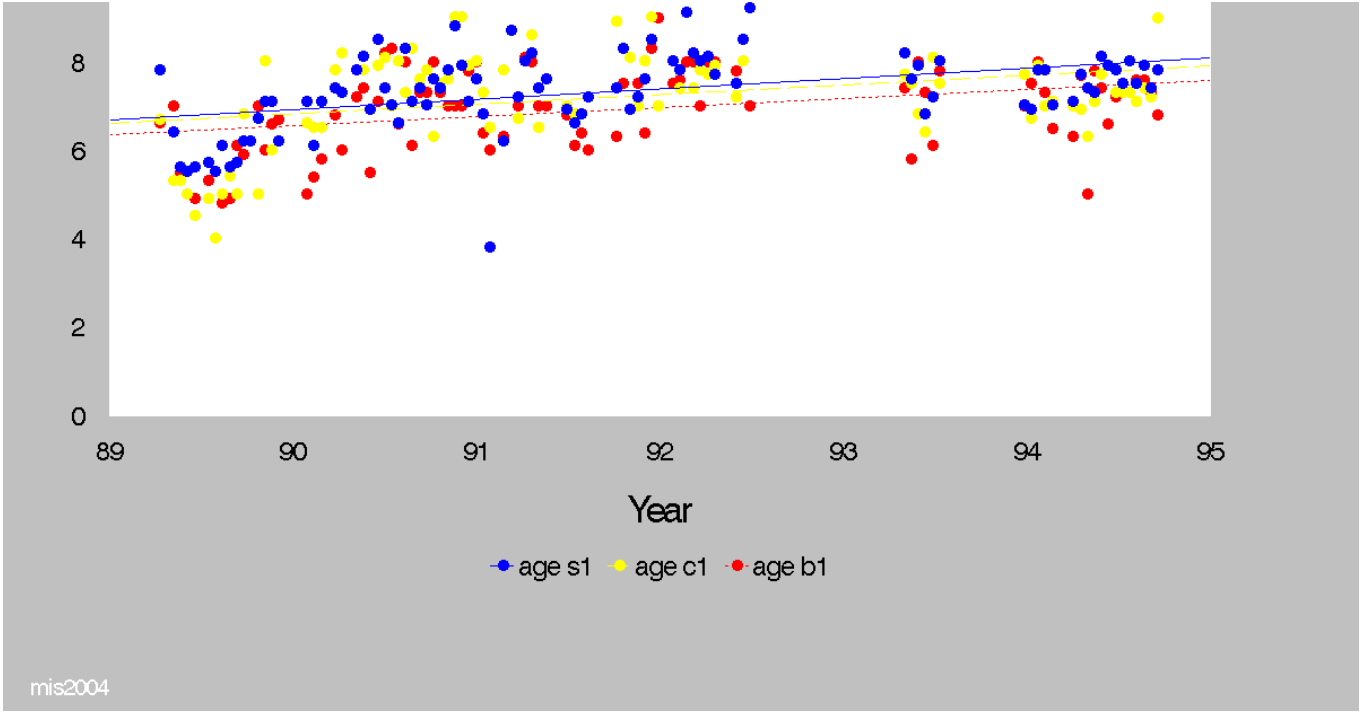
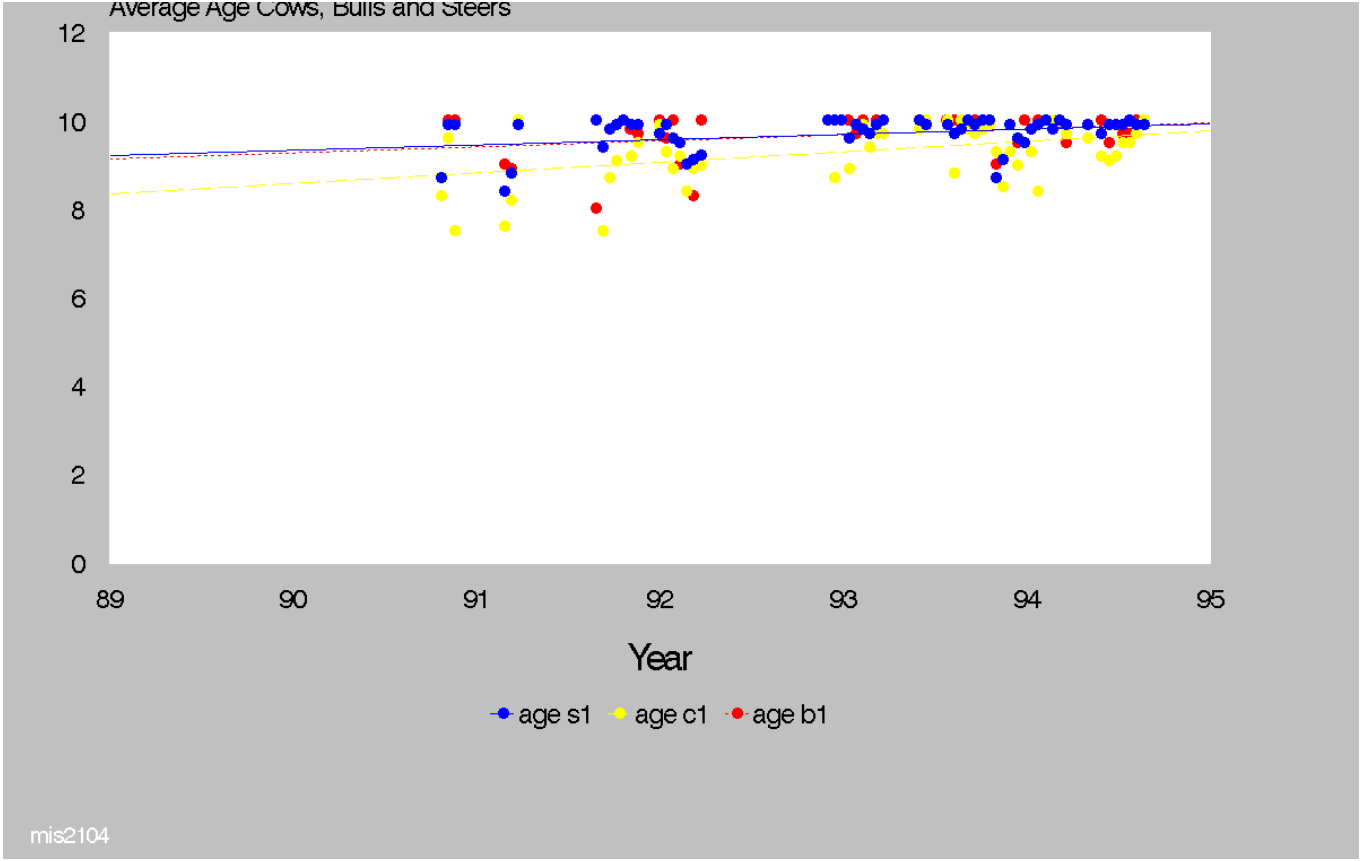


home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis2204.htm

Arusha



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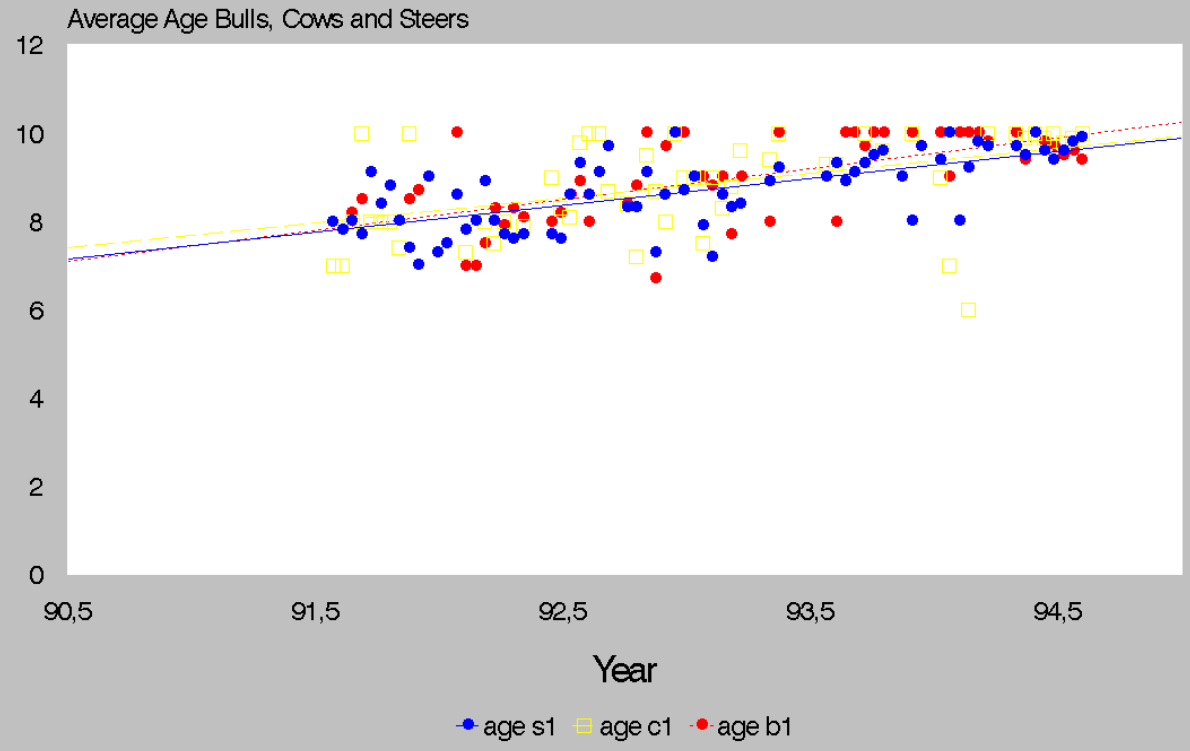
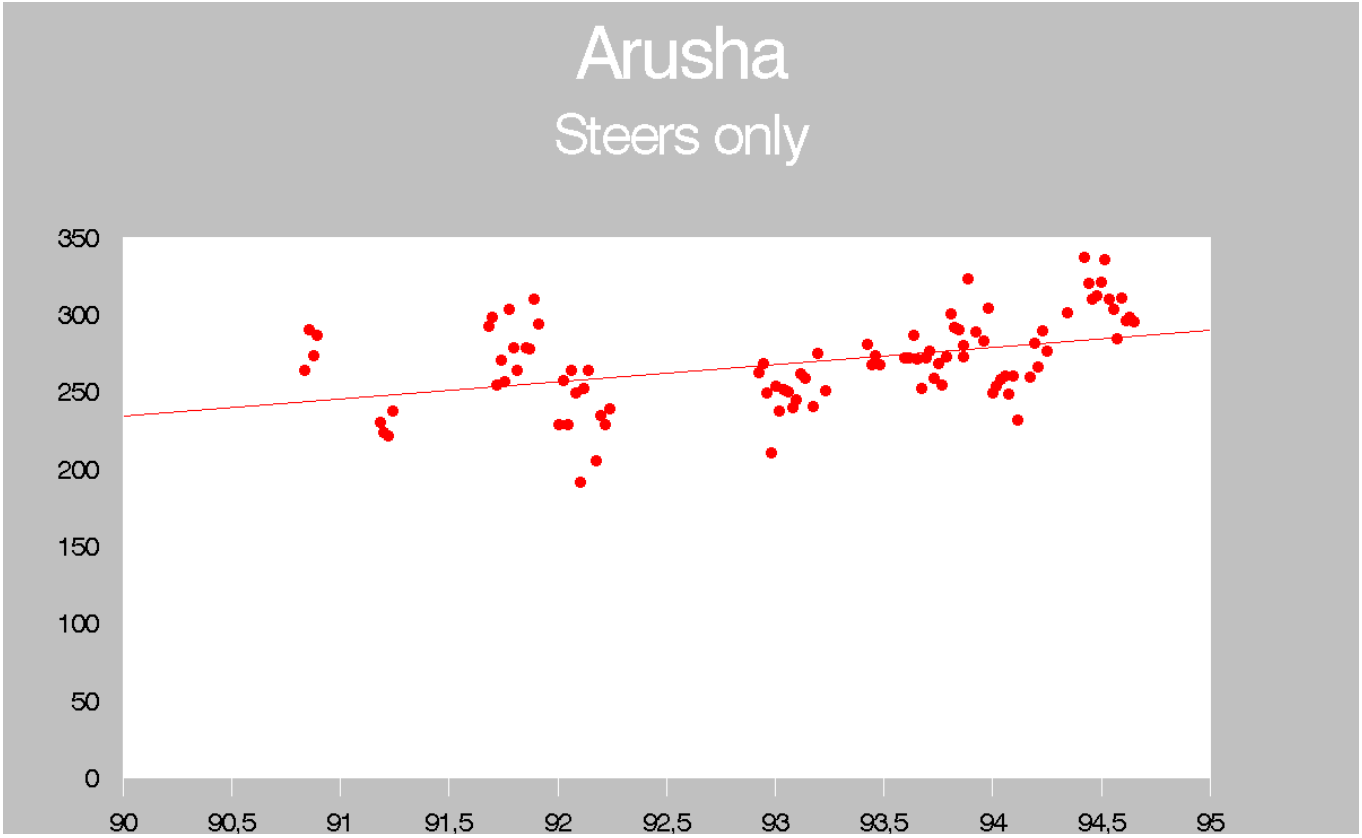
Moshi


Average Age Bulls, Cows and Steers
12
10
8
6
4
2
0
90,5
91,5
92,5
93,5
94,5
Year
age s1
age c1
age b1

mis2204

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis3002.htm



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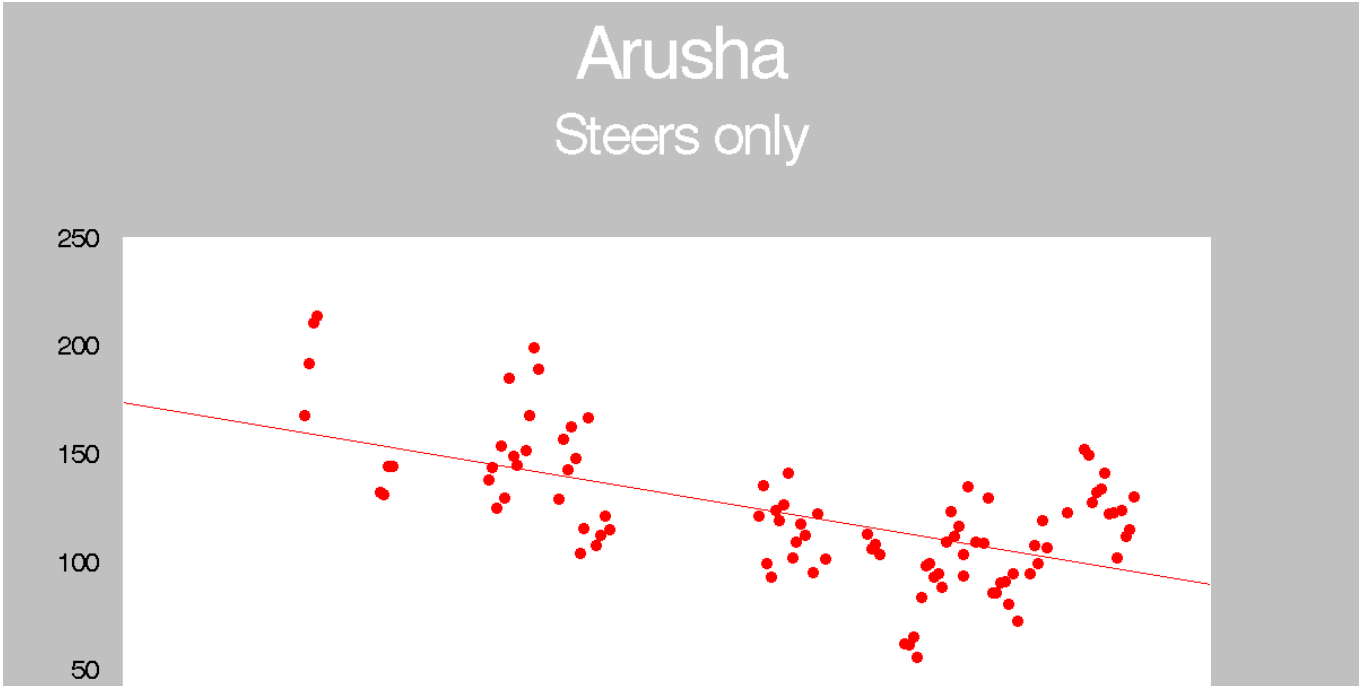

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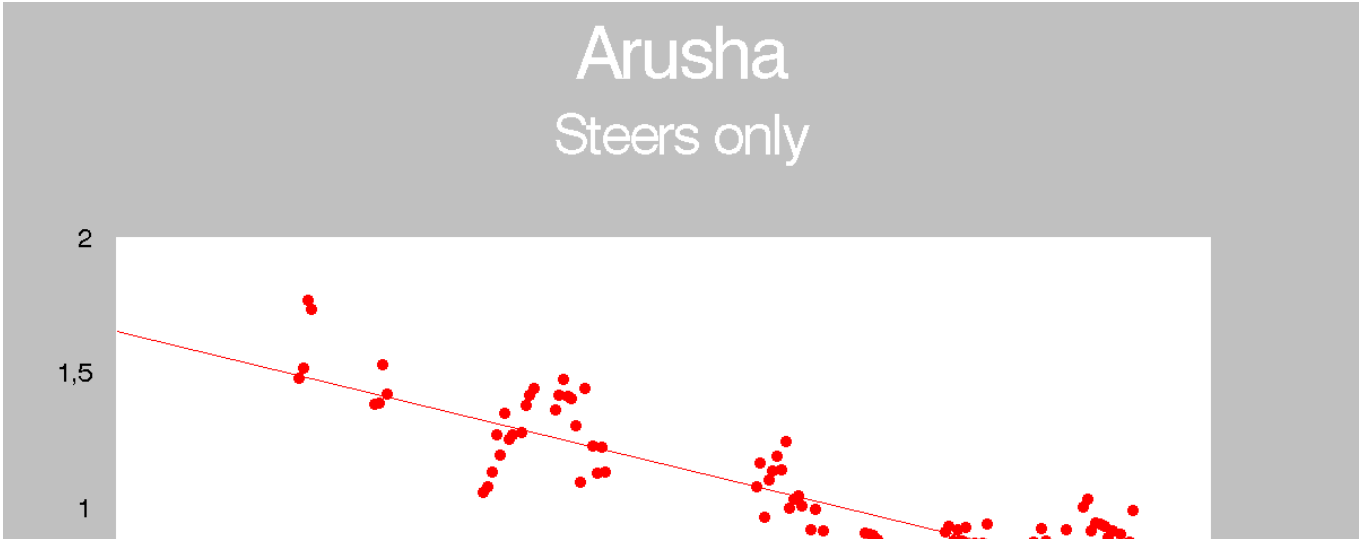

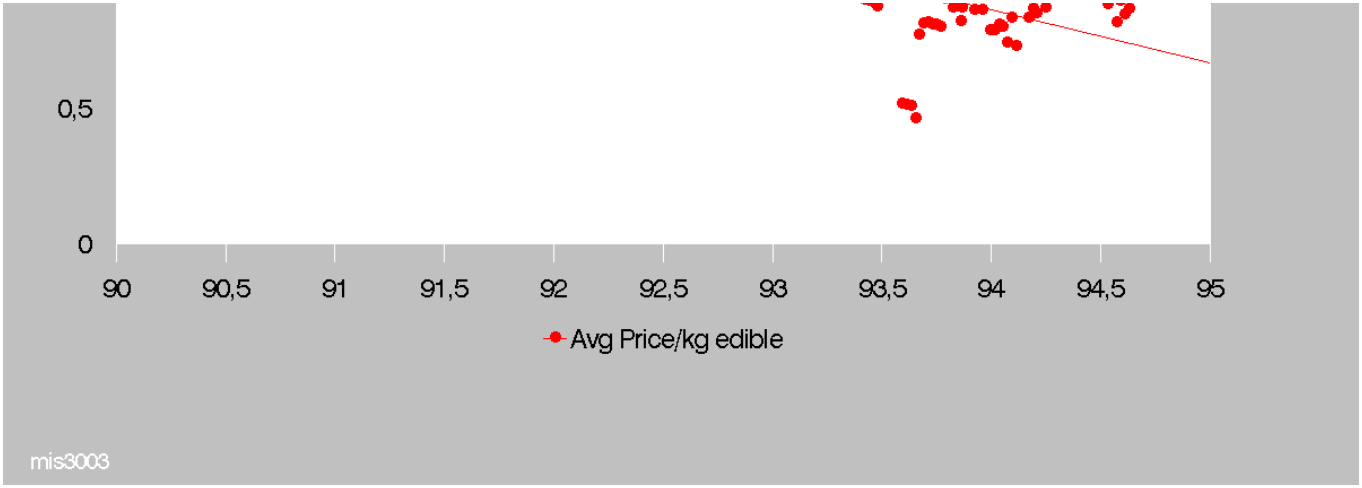

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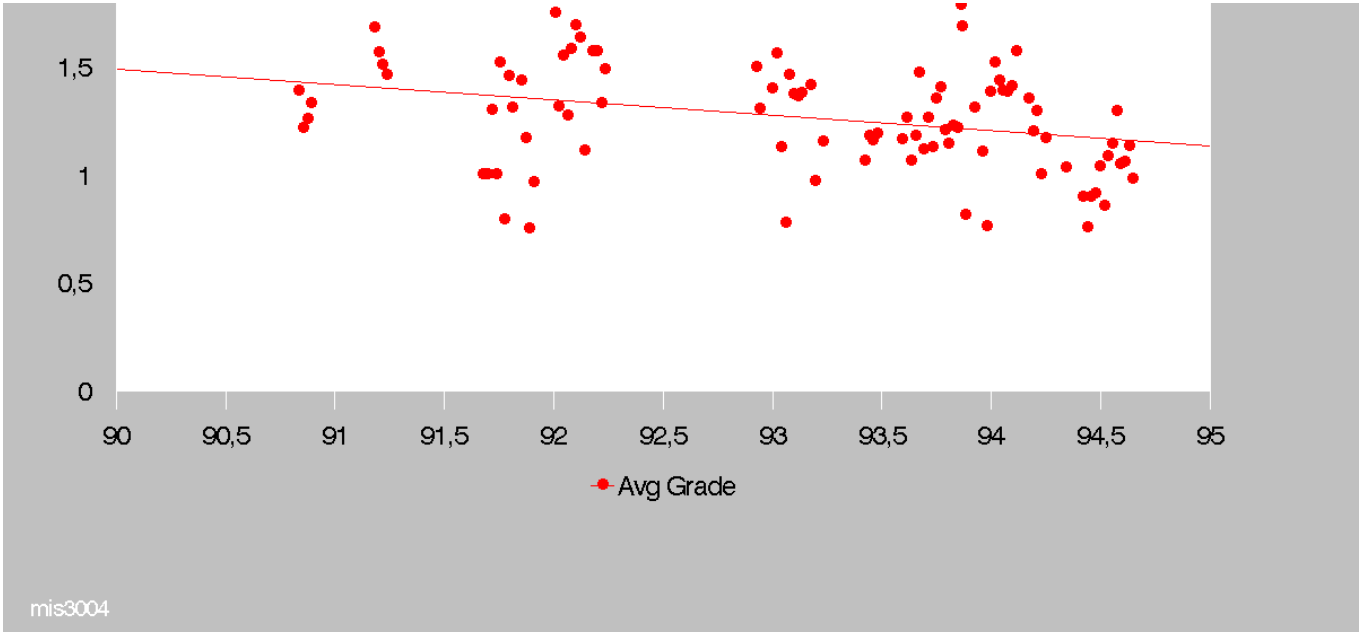

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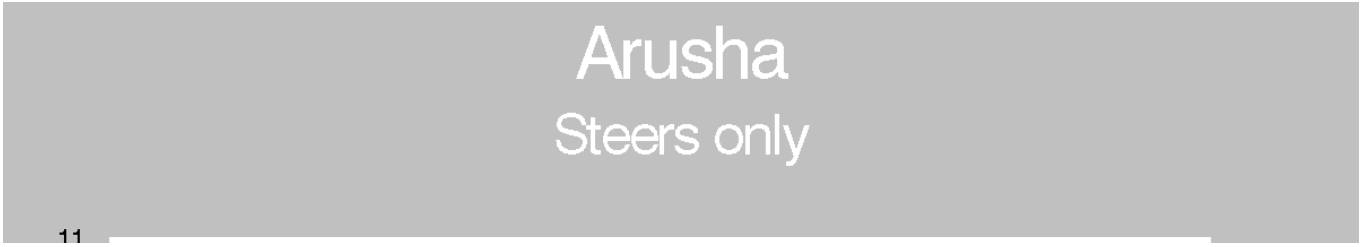

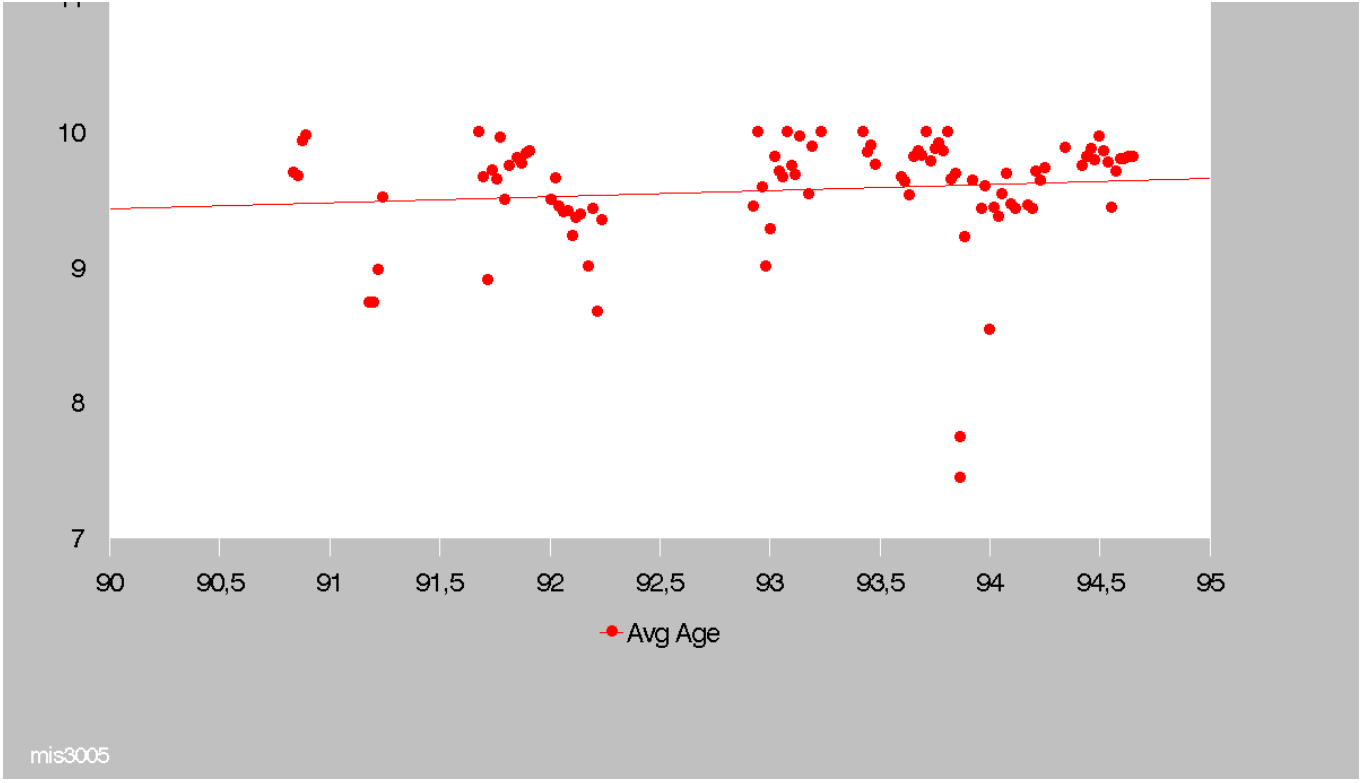

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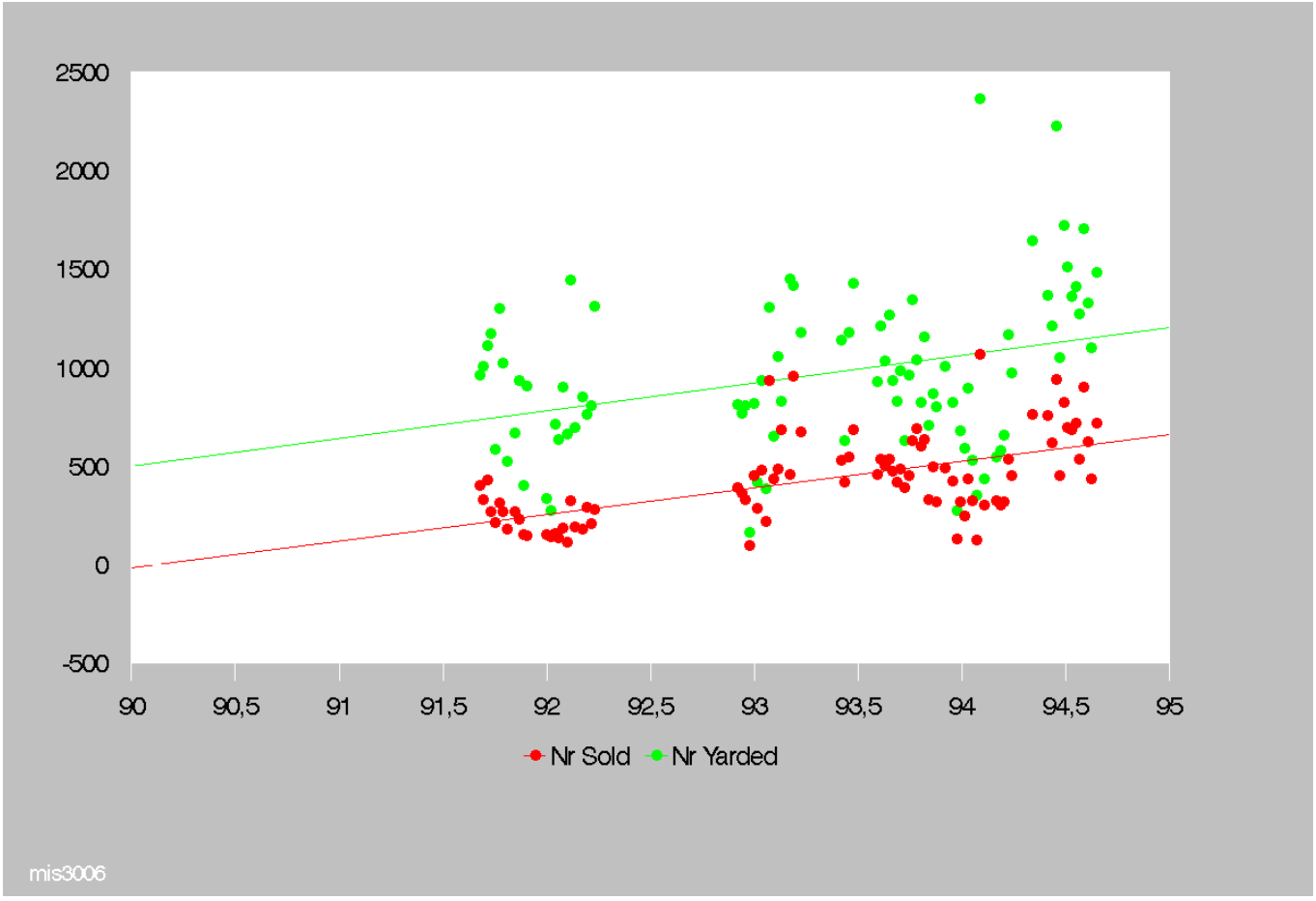
Arusha


2500
2000
1500
1000
500
0
-500
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Nr Sold
Nr Yarded
mis3006

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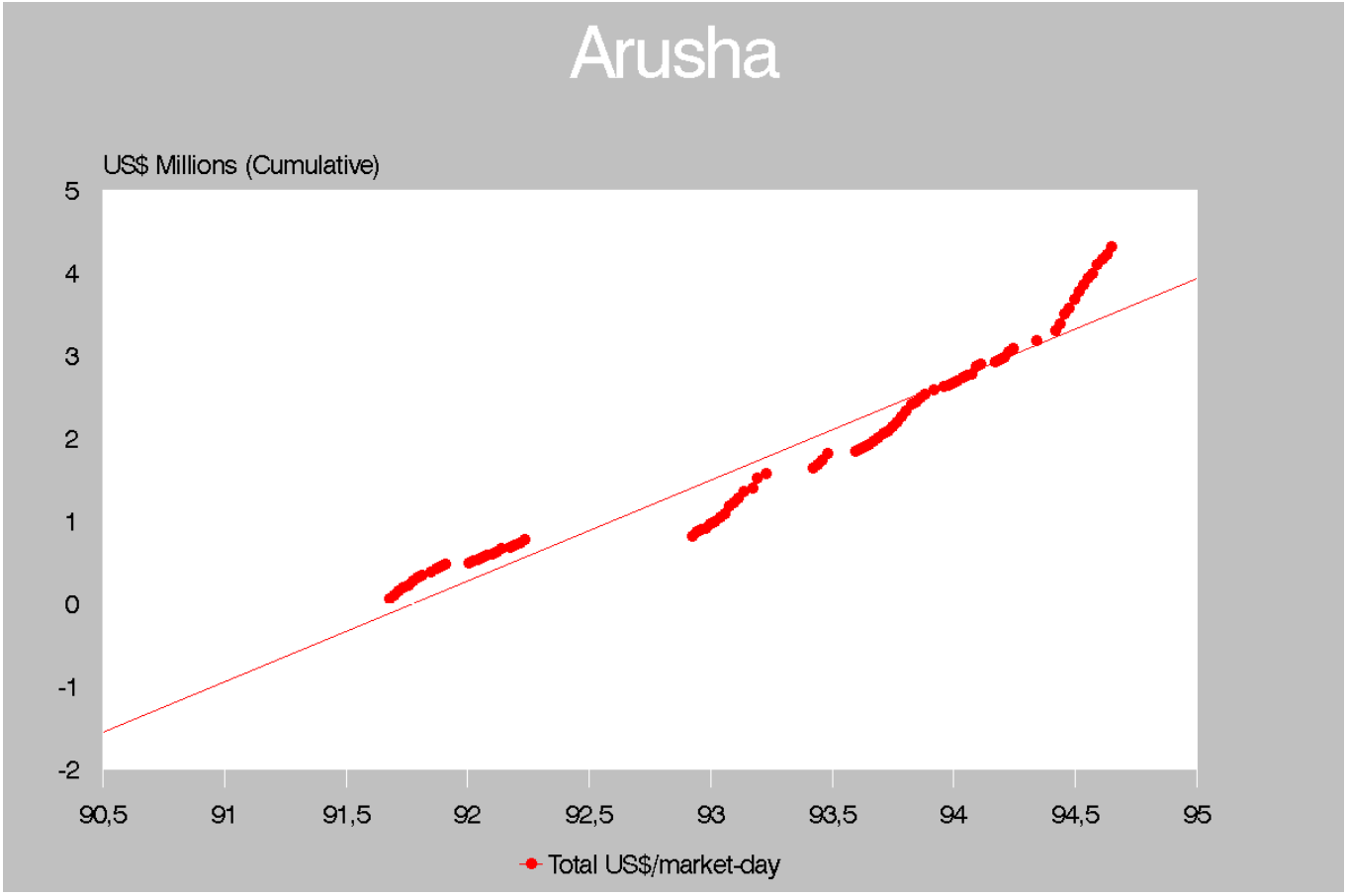

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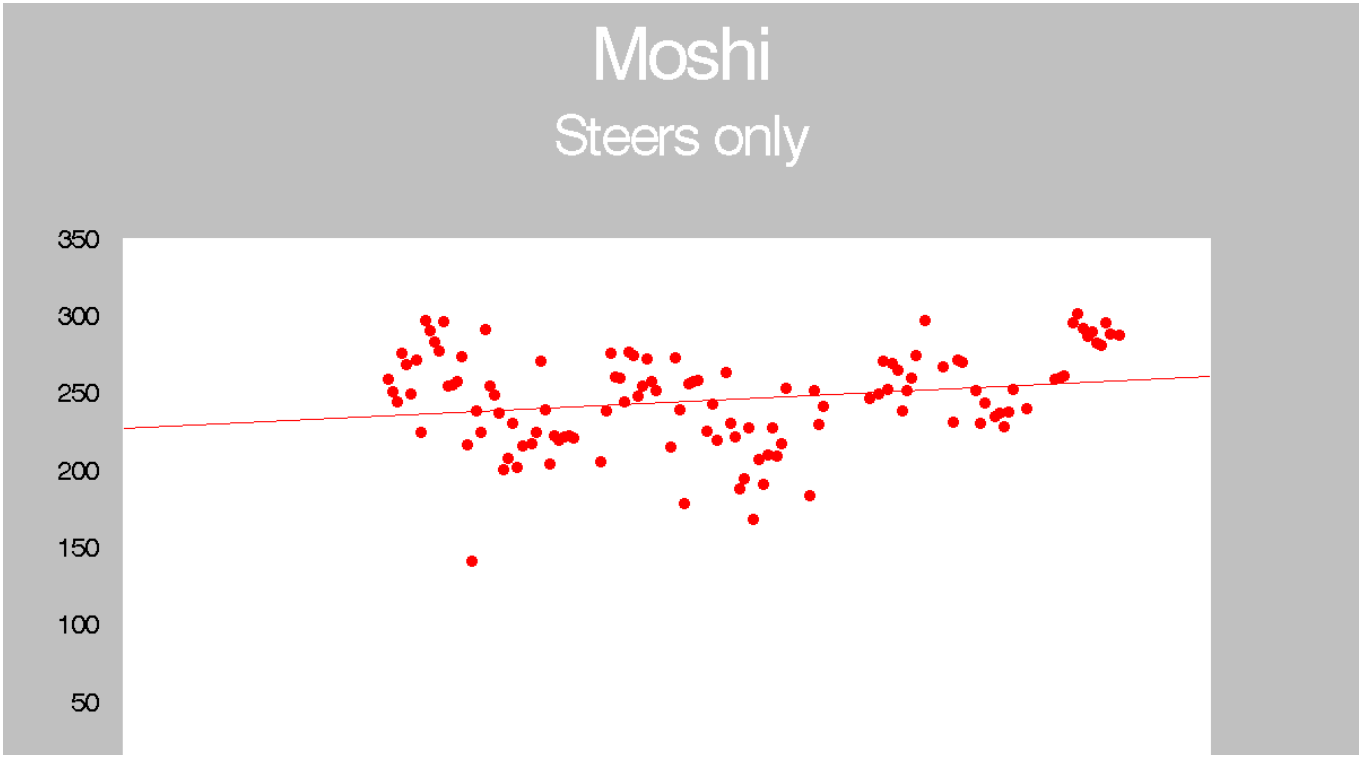

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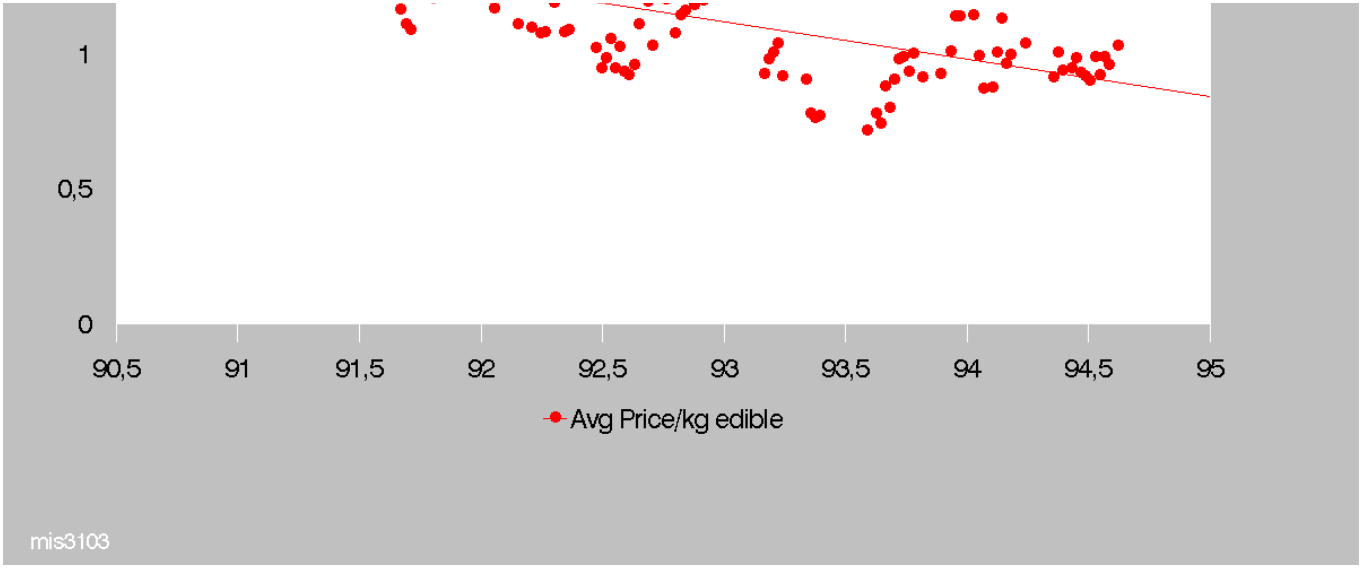

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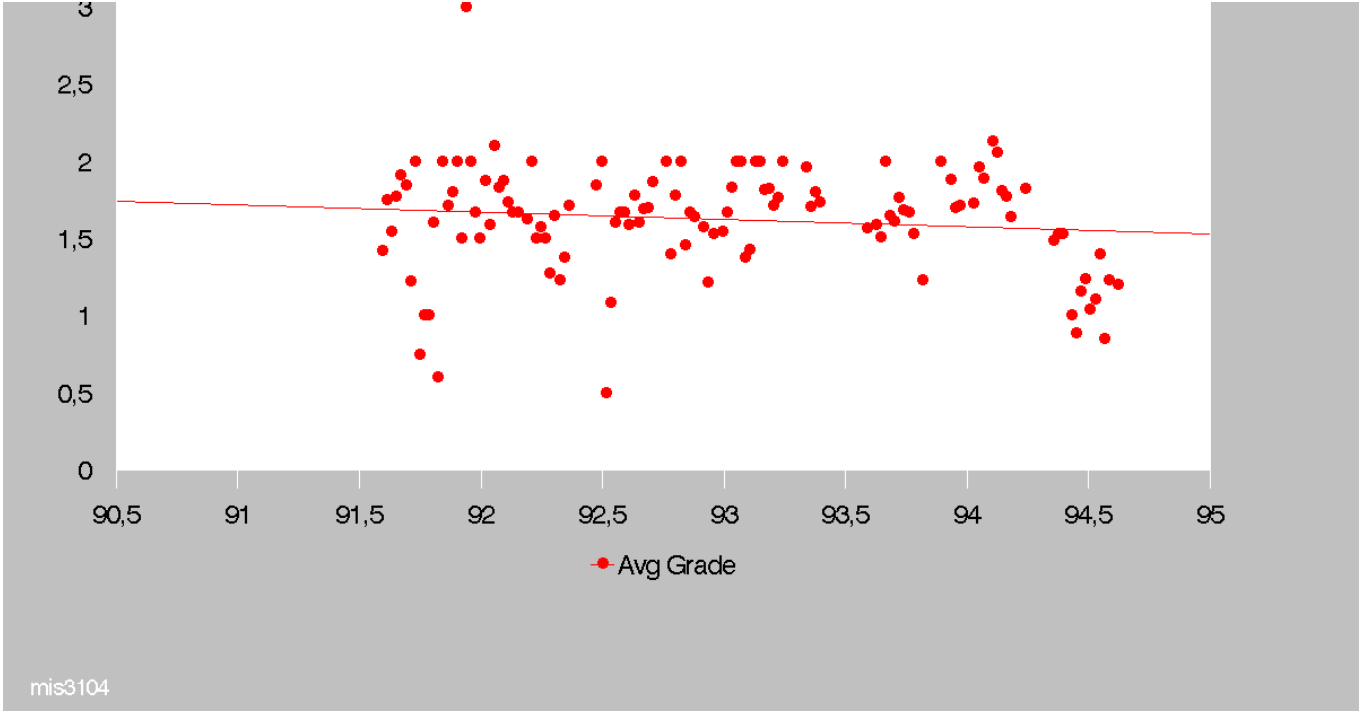

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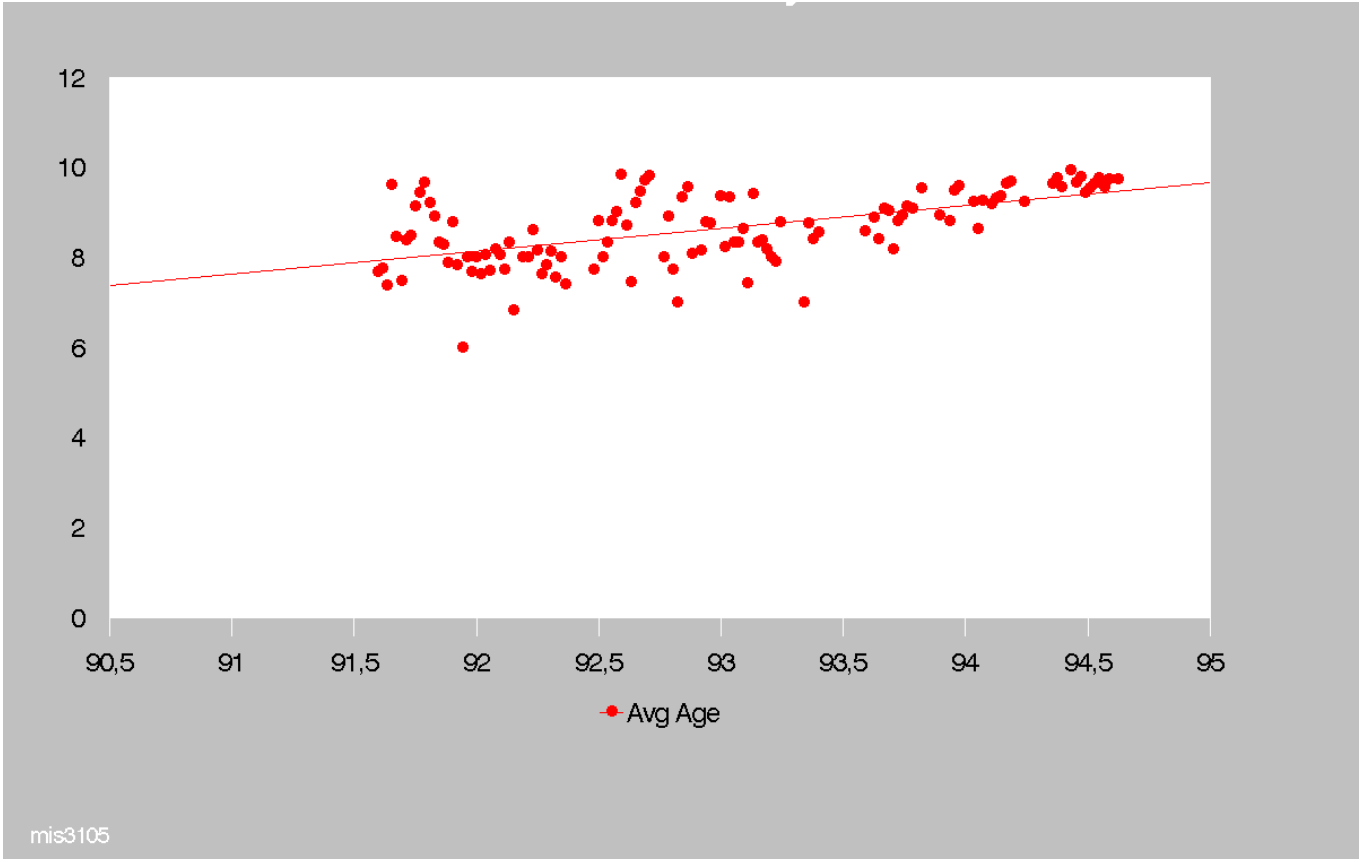
Moshi

Steers only



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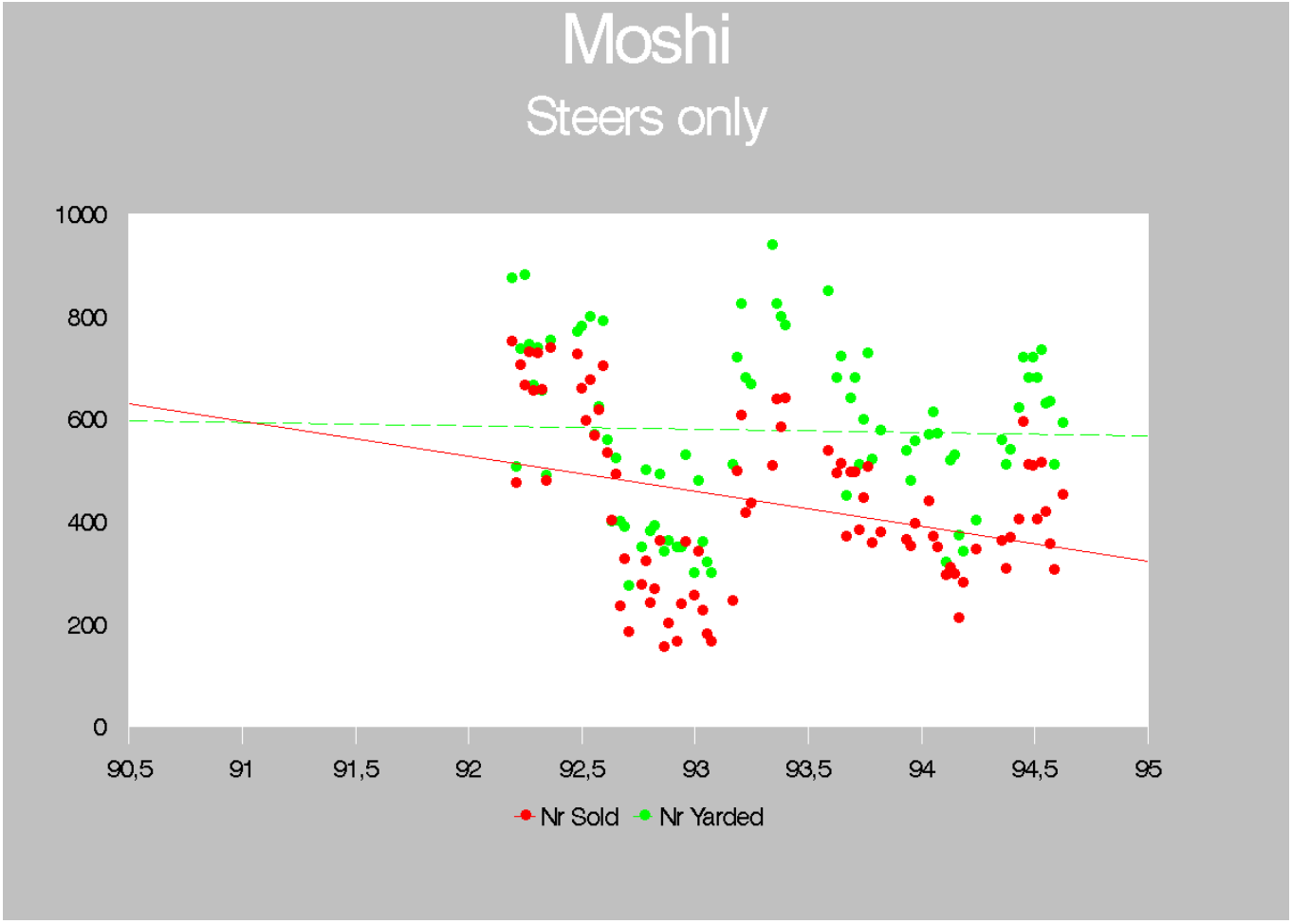
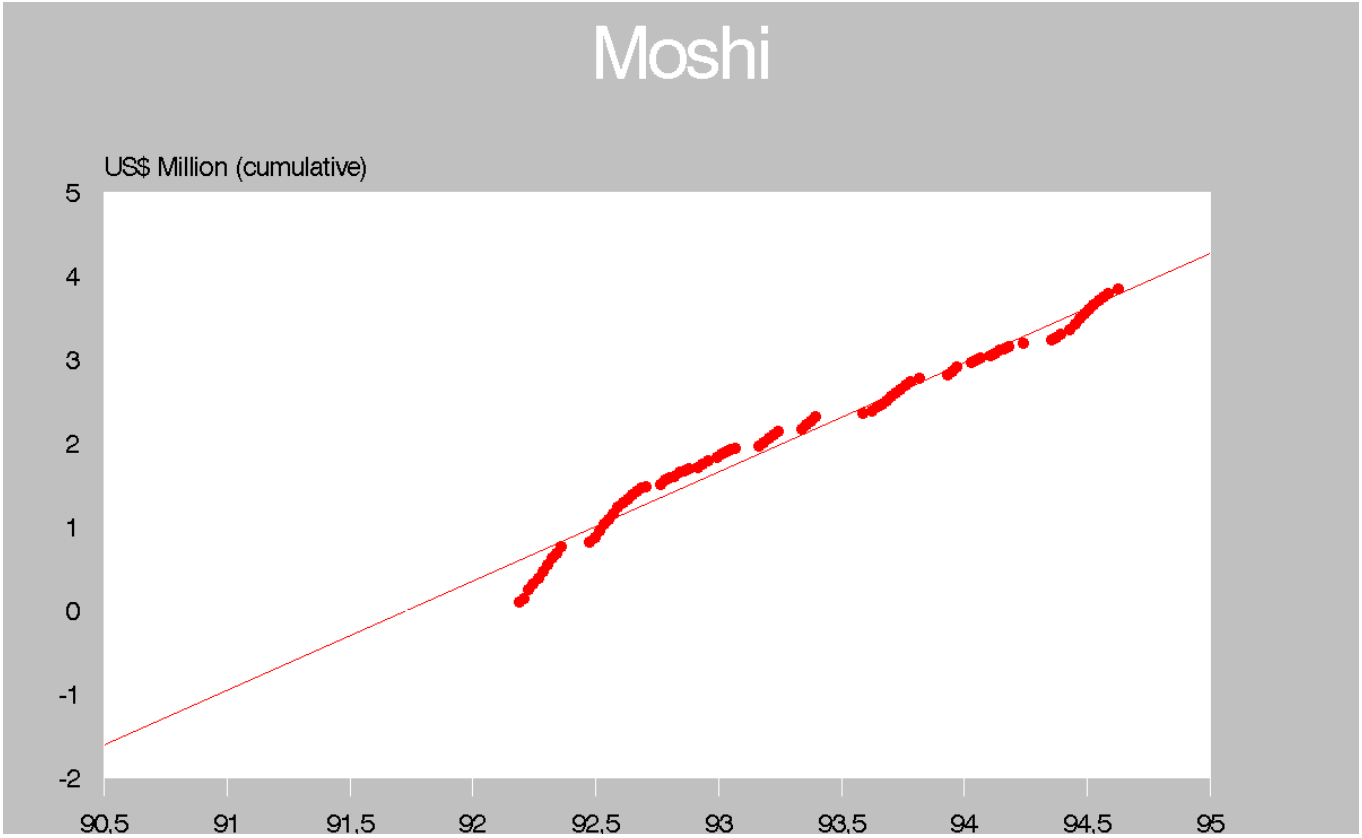

Moshi
Steers only
1000
800
600
400
200
0
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Nr Sold
Nr Yarded

mis3106

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis3201.htm



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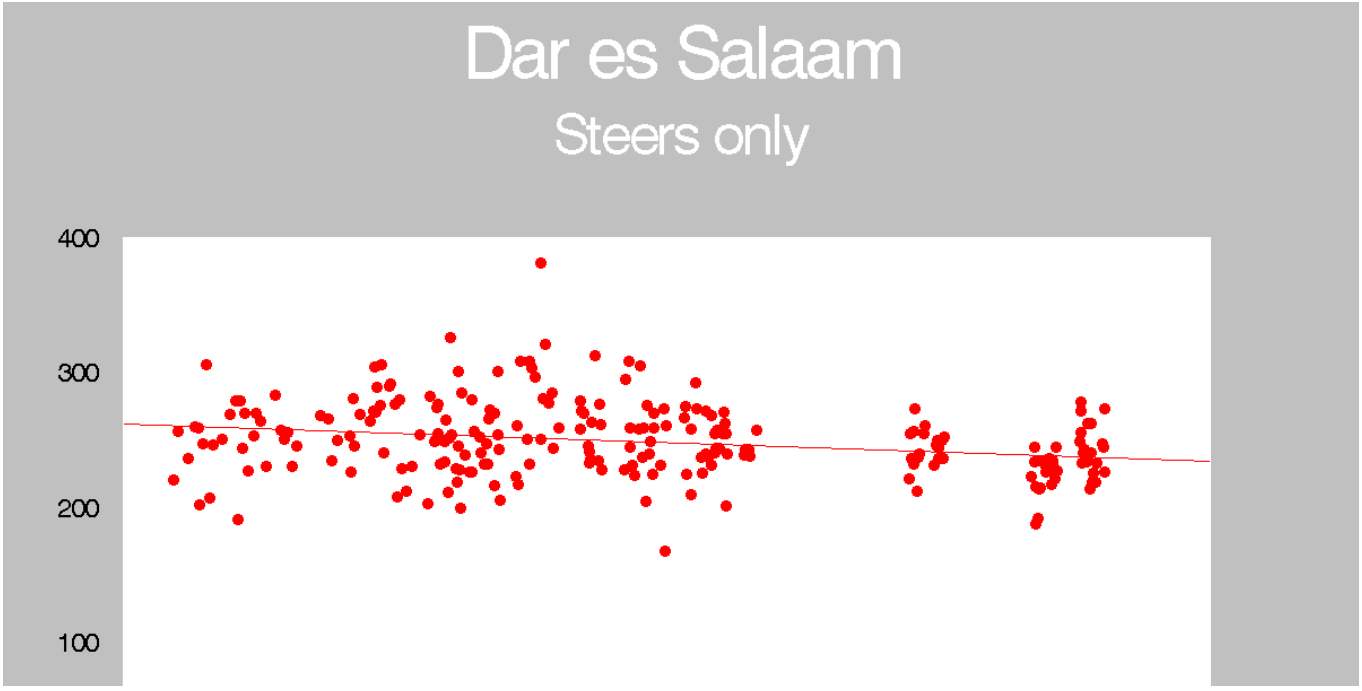

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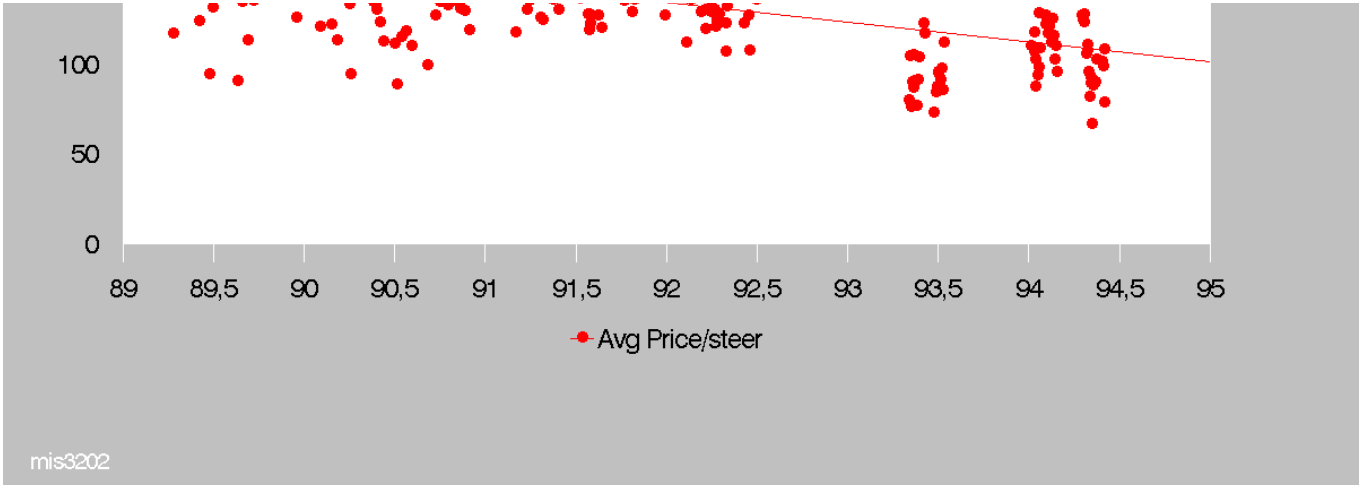

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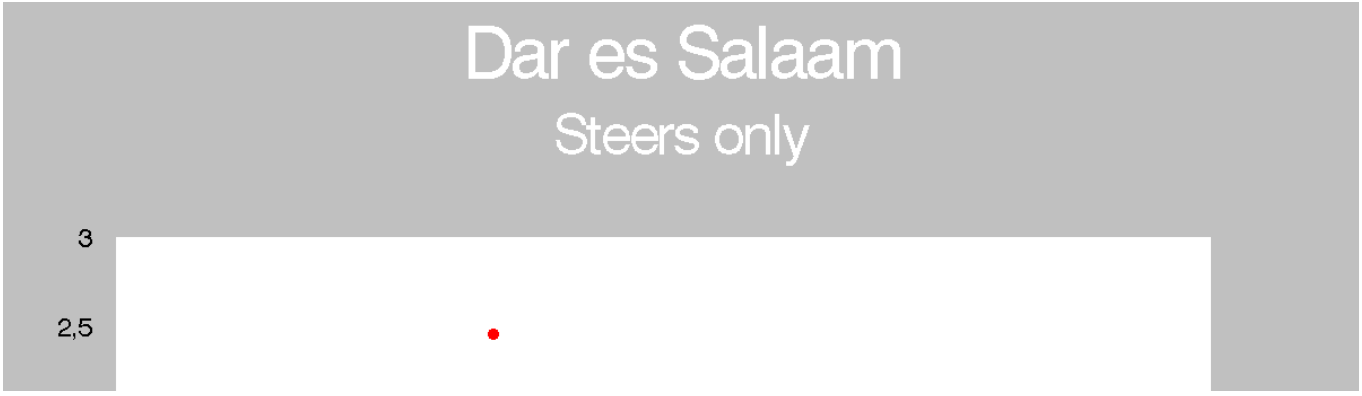

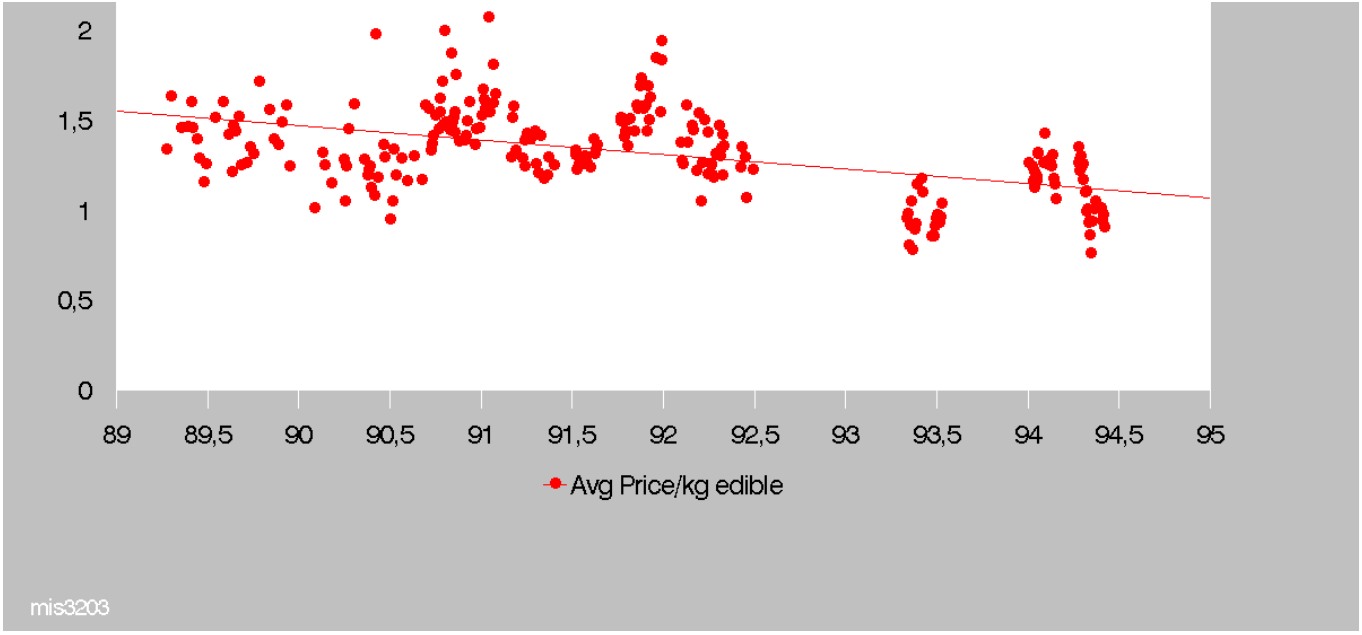

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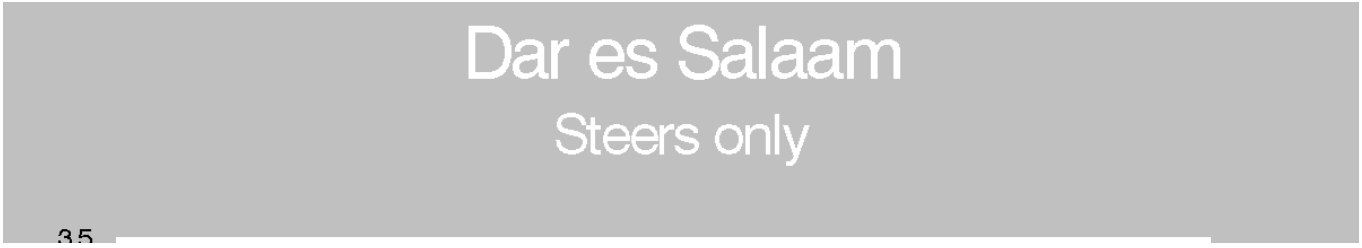
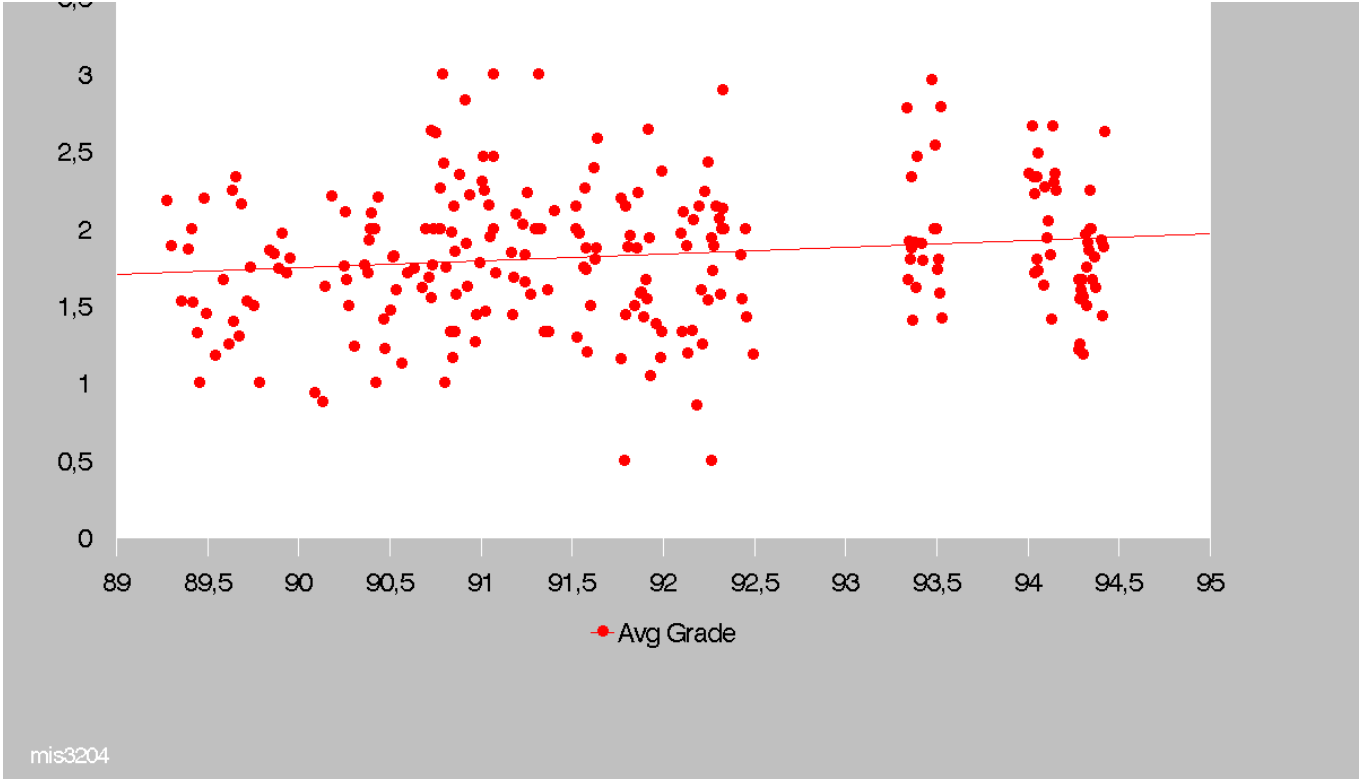
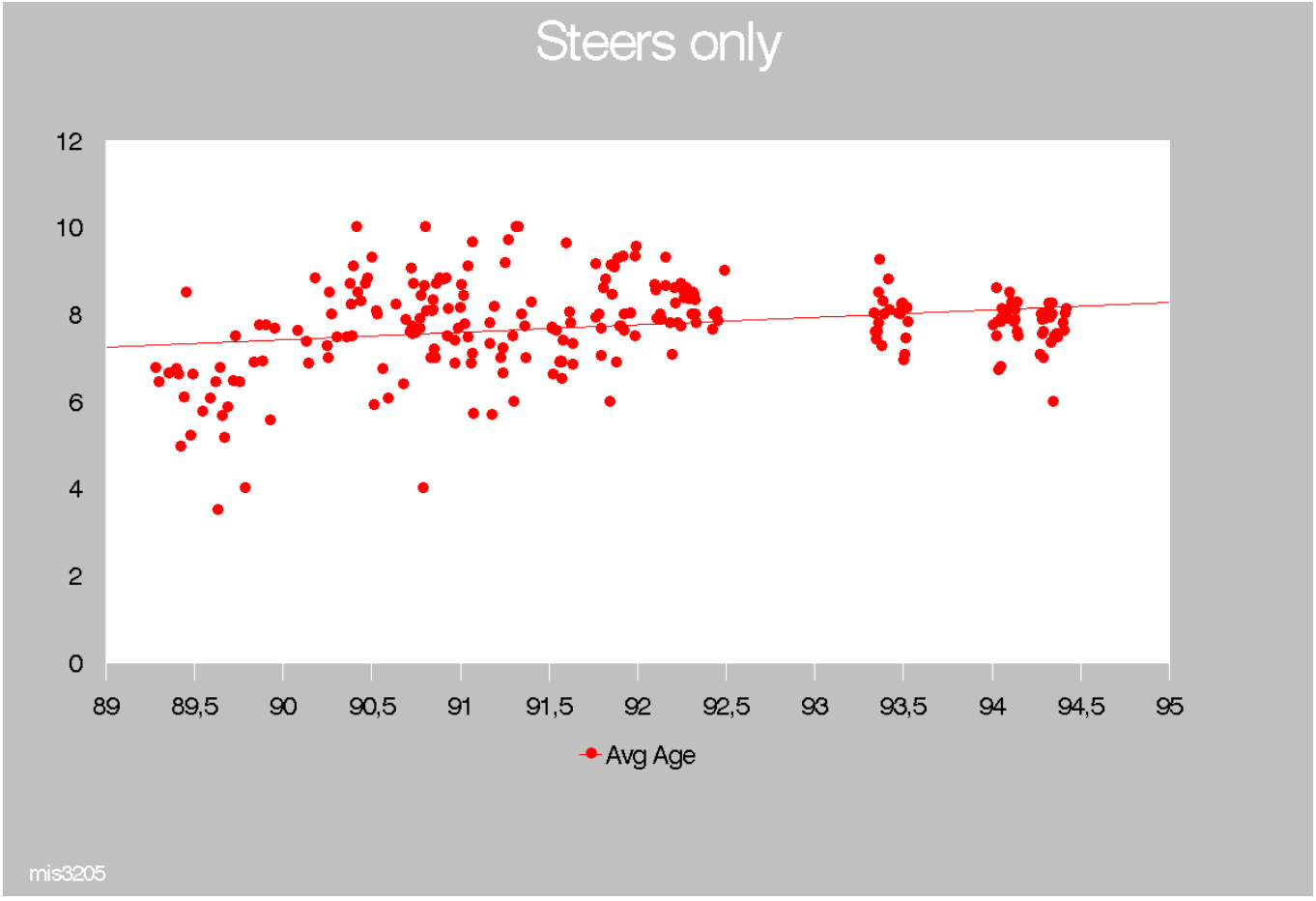


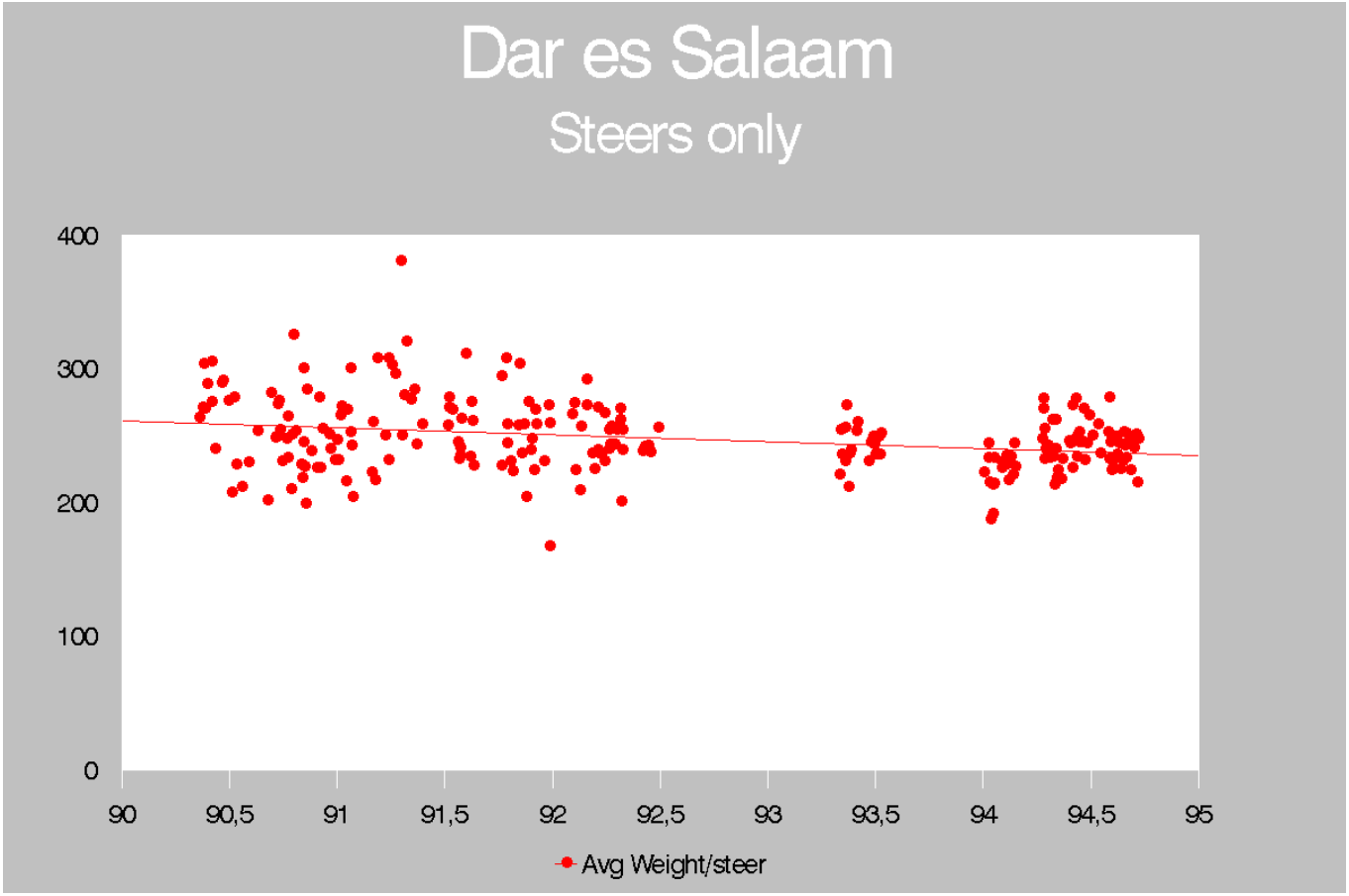


home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis3301.htm

Dar es Salaam


Steers only
12
10
8
6
4
2
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Avg Age
mis3205

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis3302.htm



mis3301

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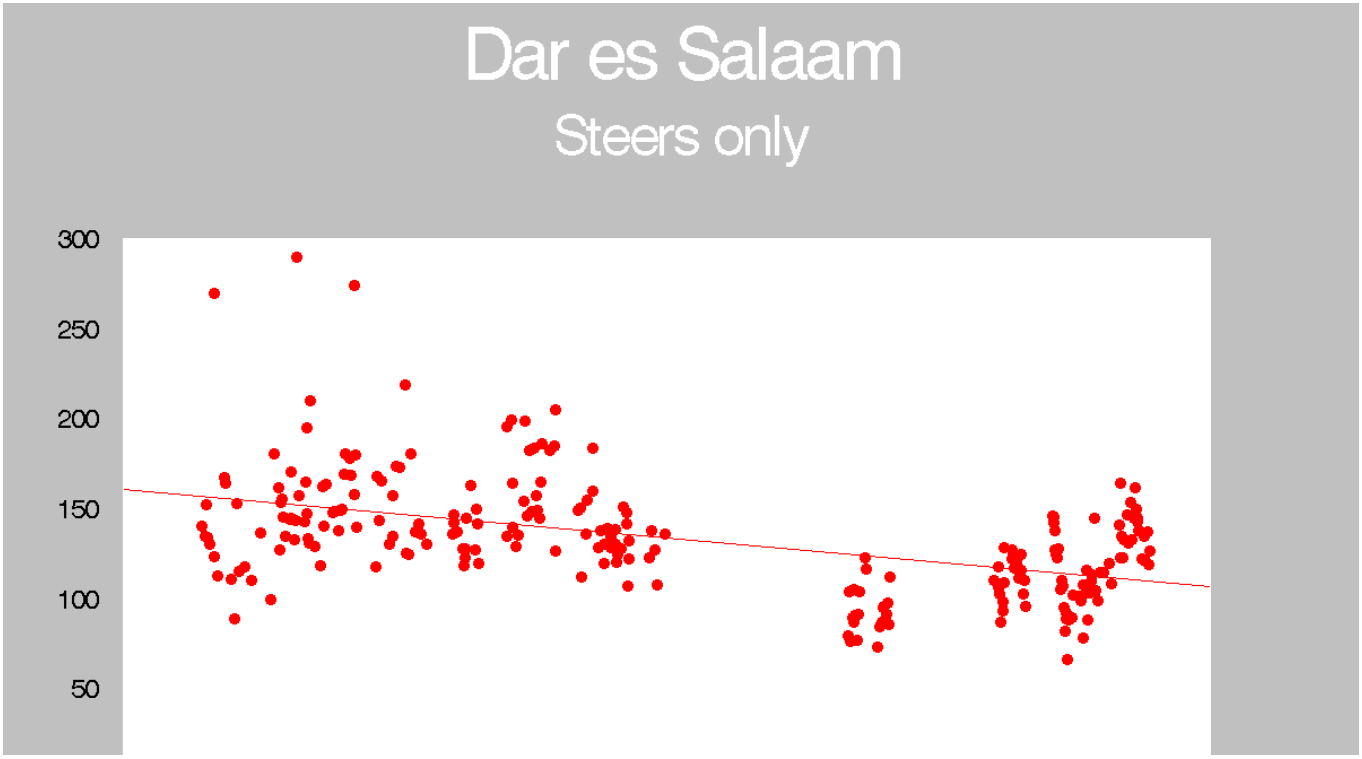

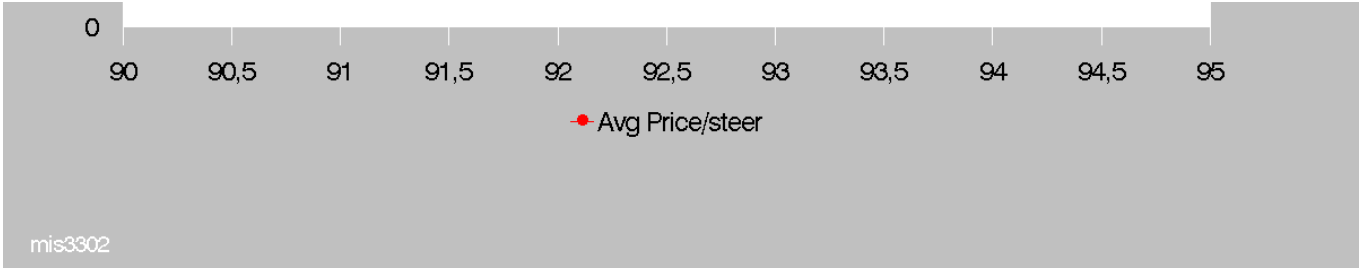

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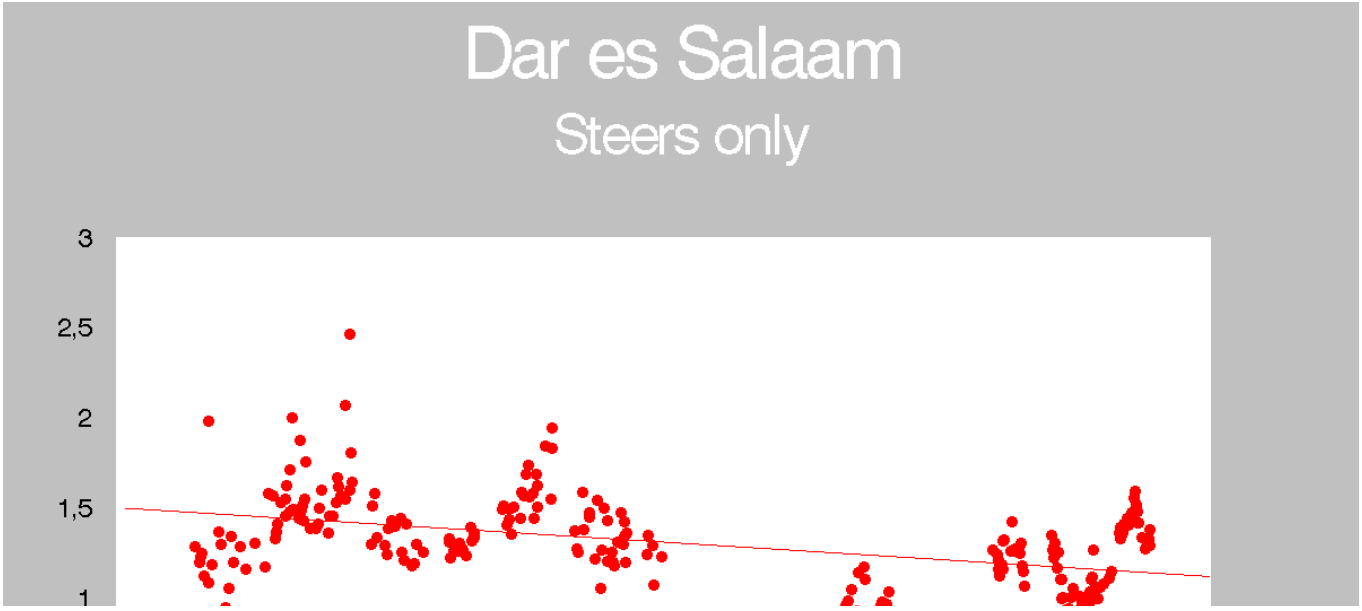

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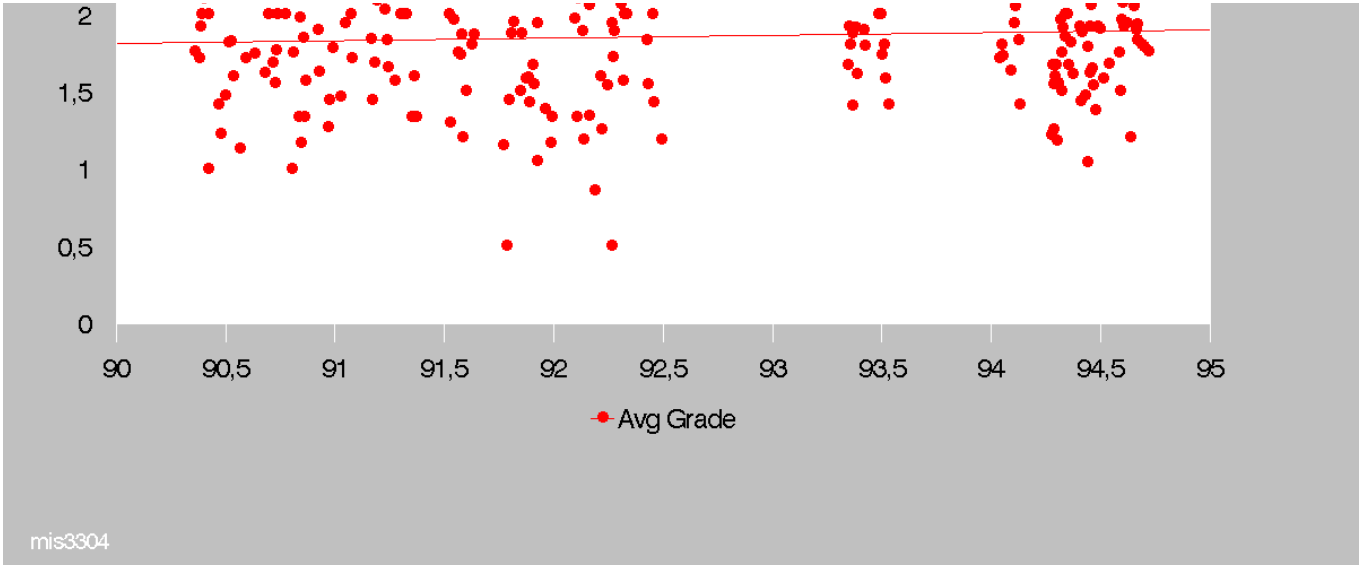
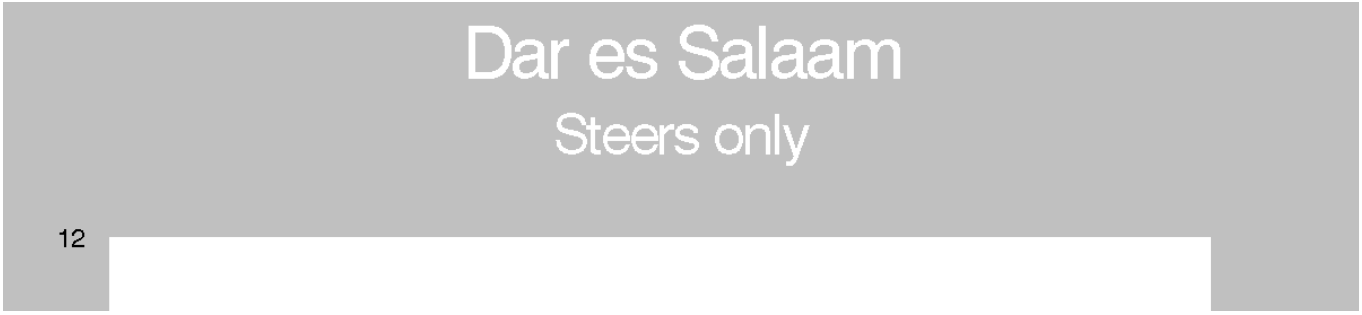
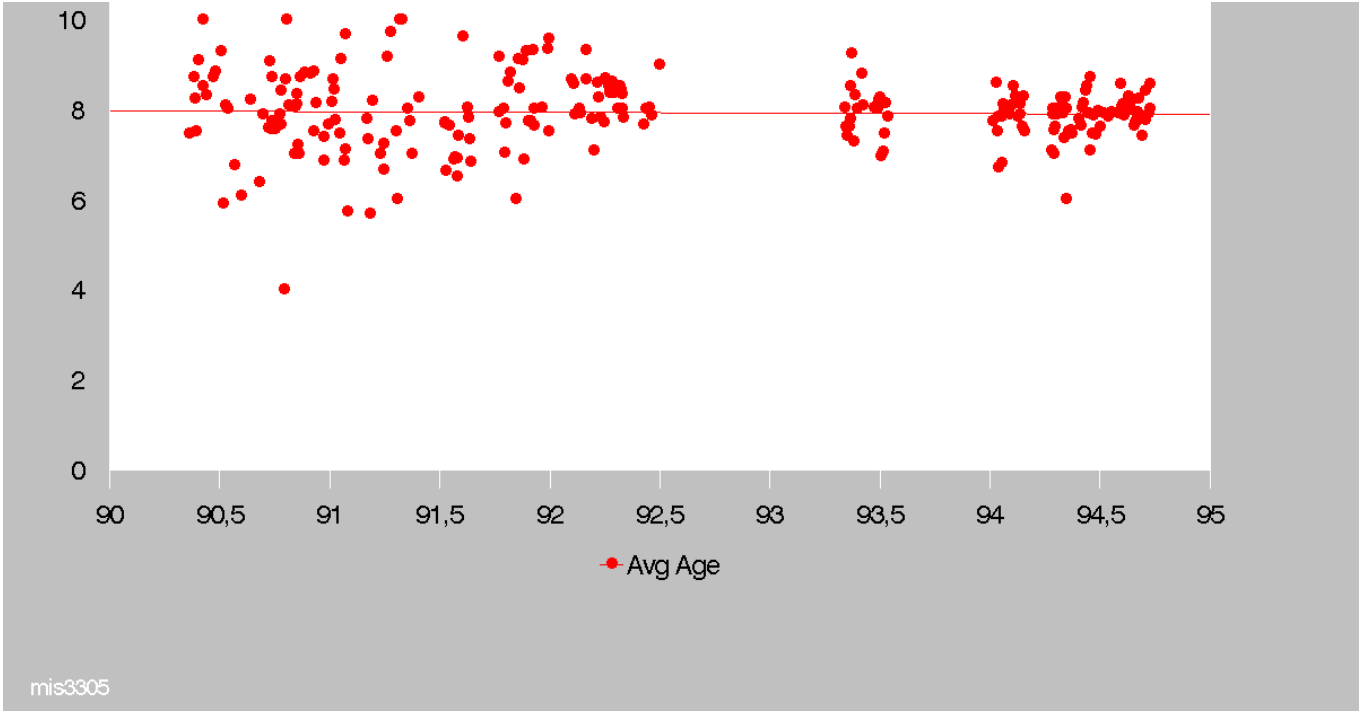


home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw

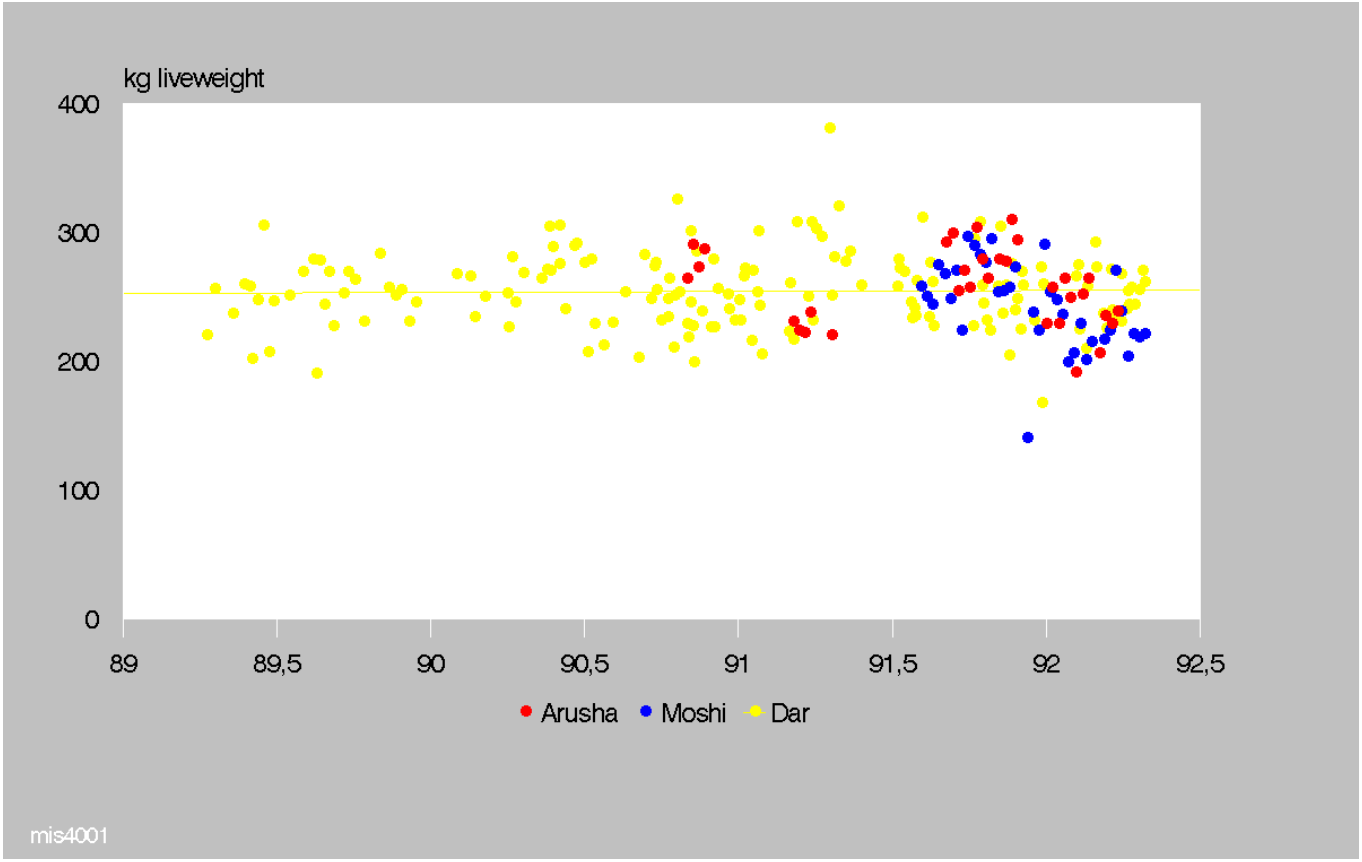




home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4002.htm

Weights - steers only

89-92



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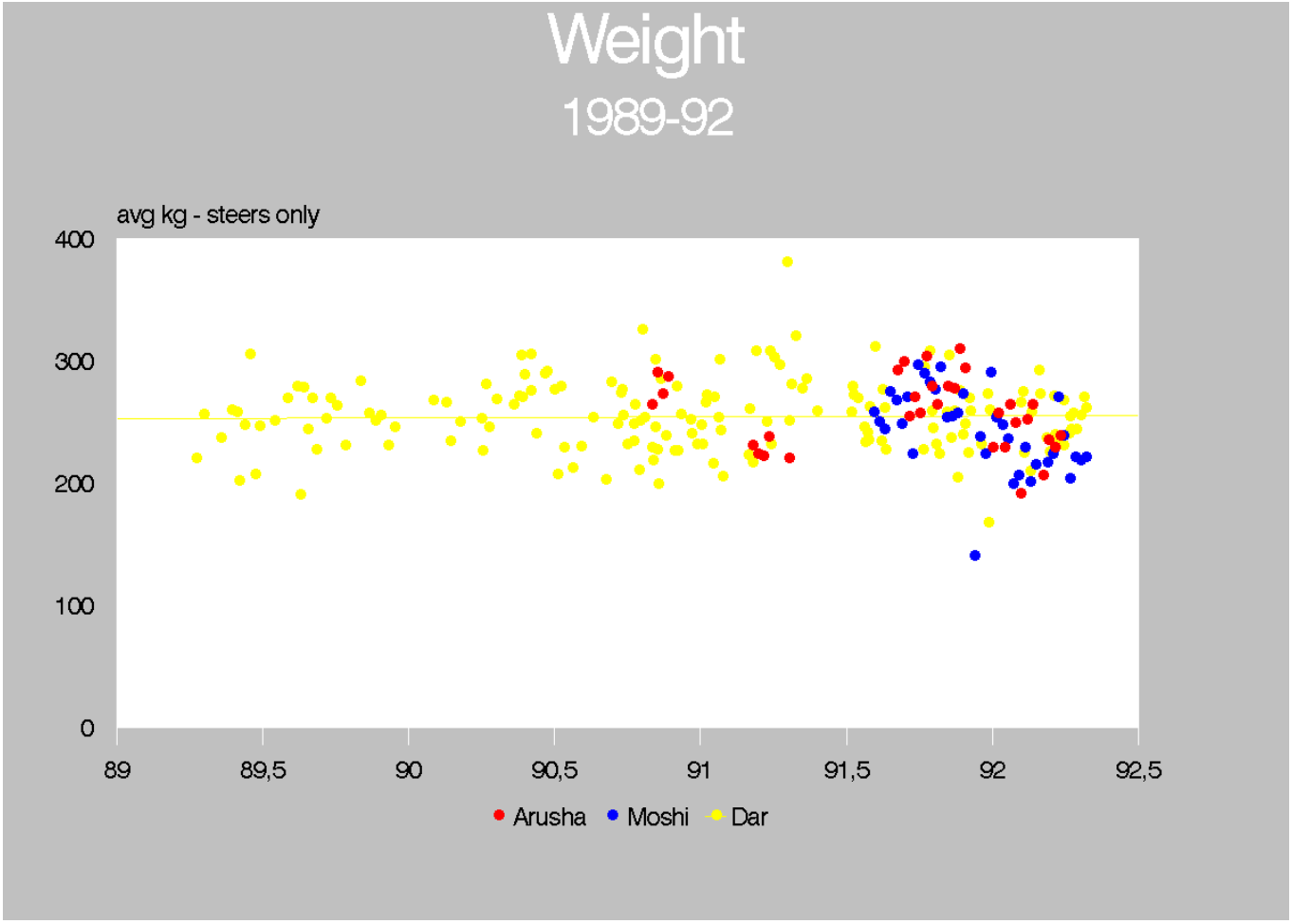
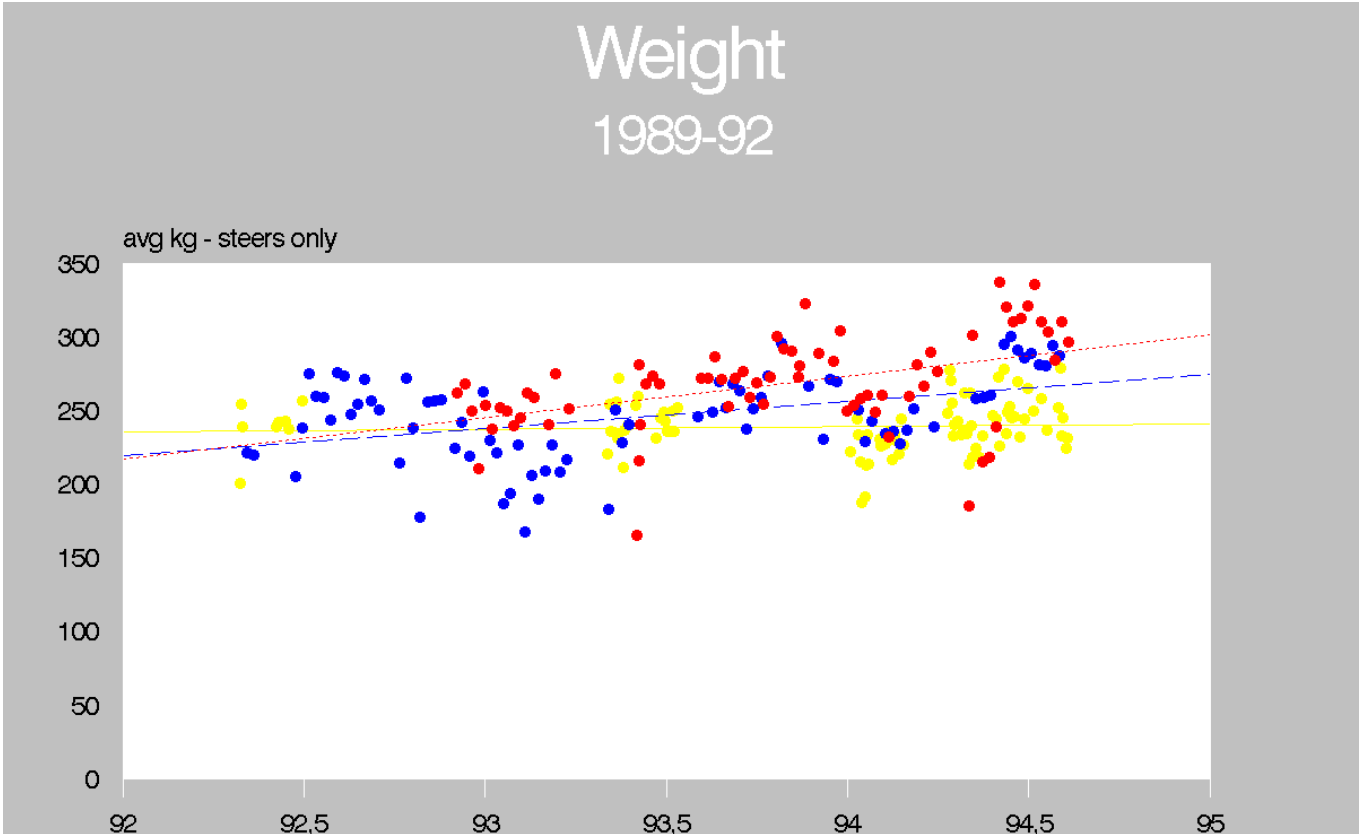

Weight
1989-92
avg kg - steers only
400
300
200
100
0
89
89,5
90
90,5
91
91,5
92
92,5
Arusha
Moshi
Dar

mis4002

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4012.htm



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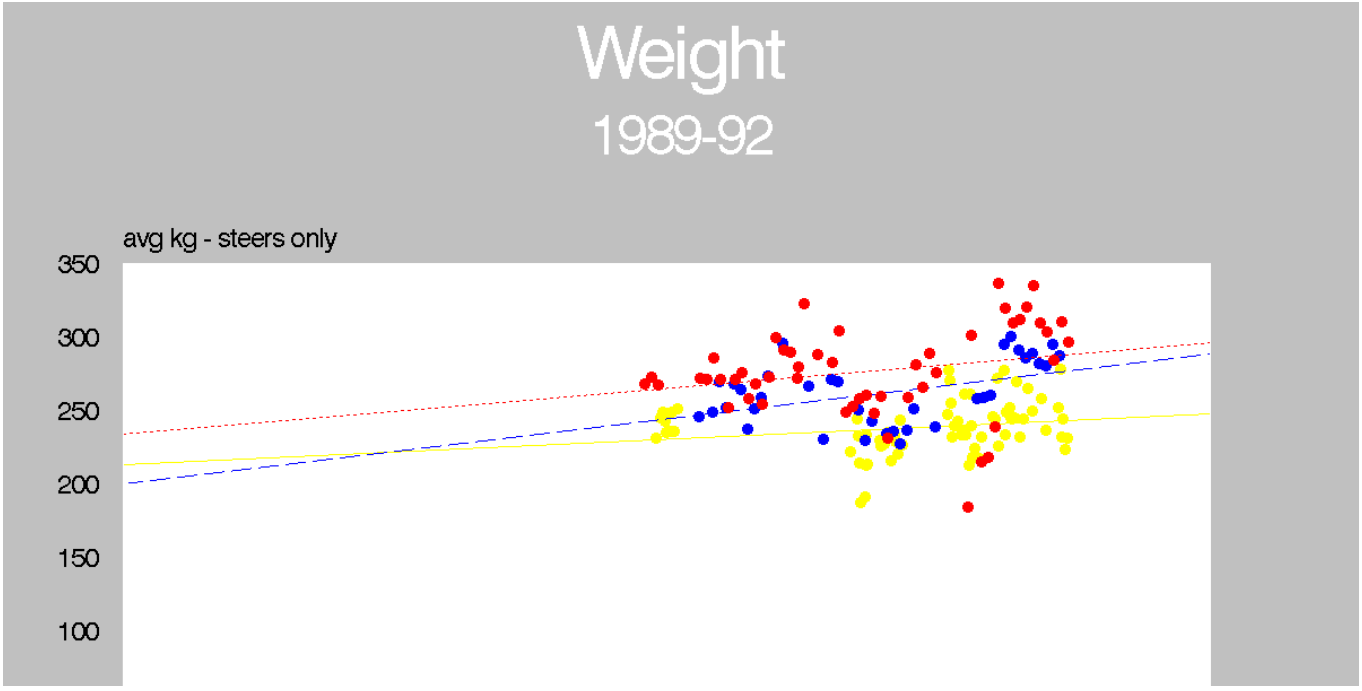

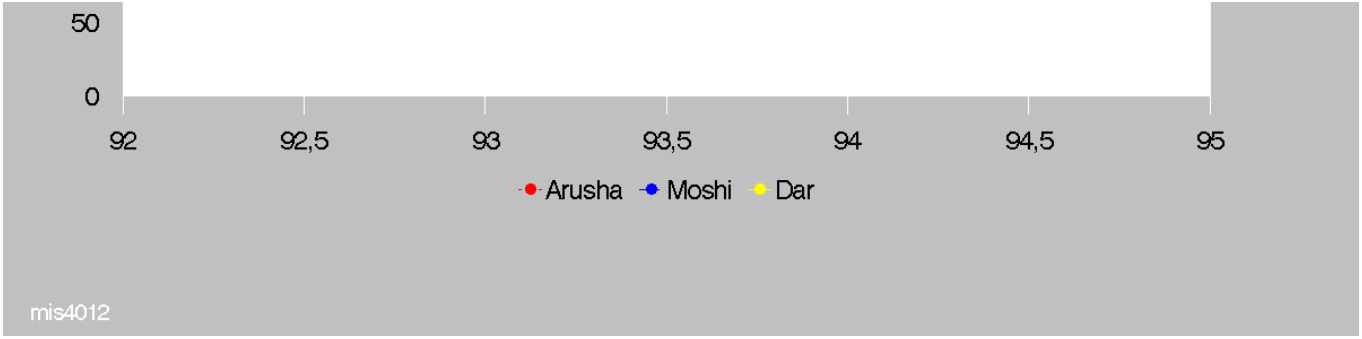

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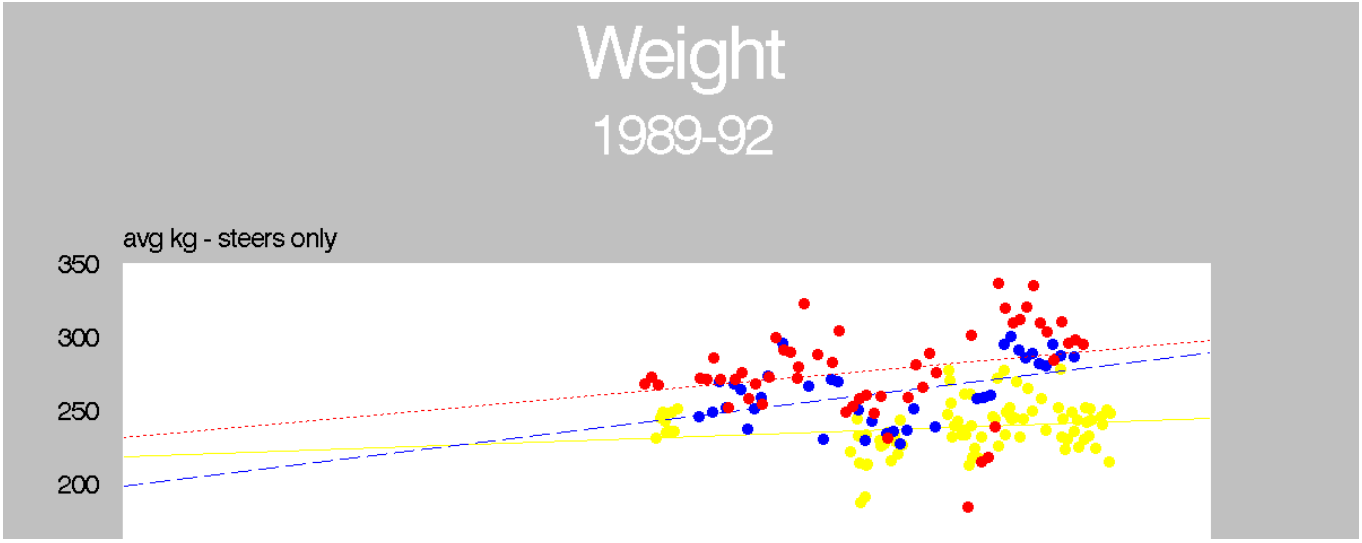

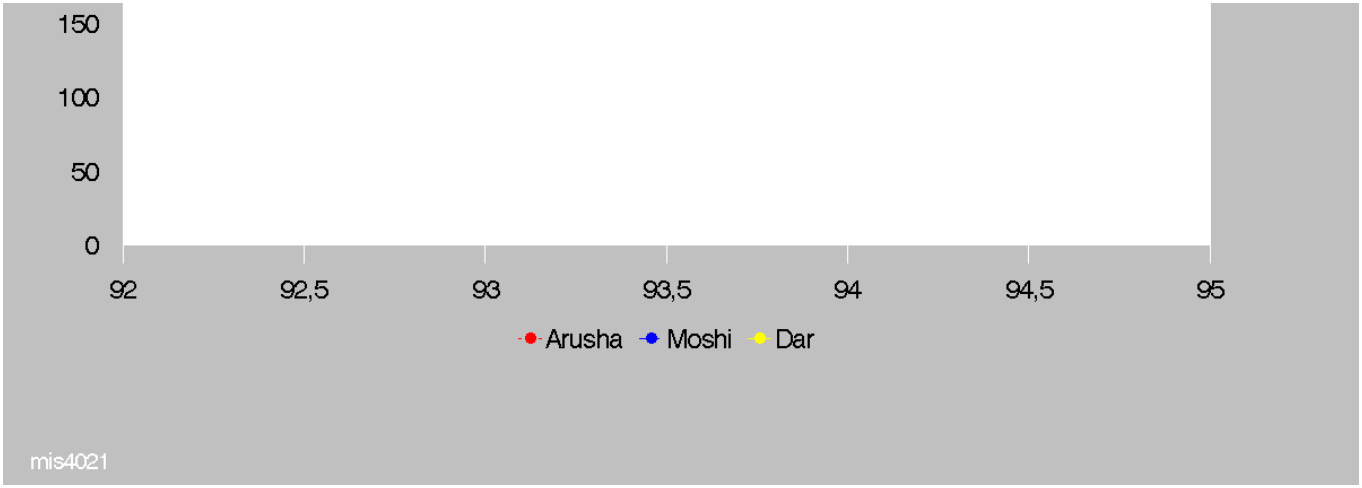

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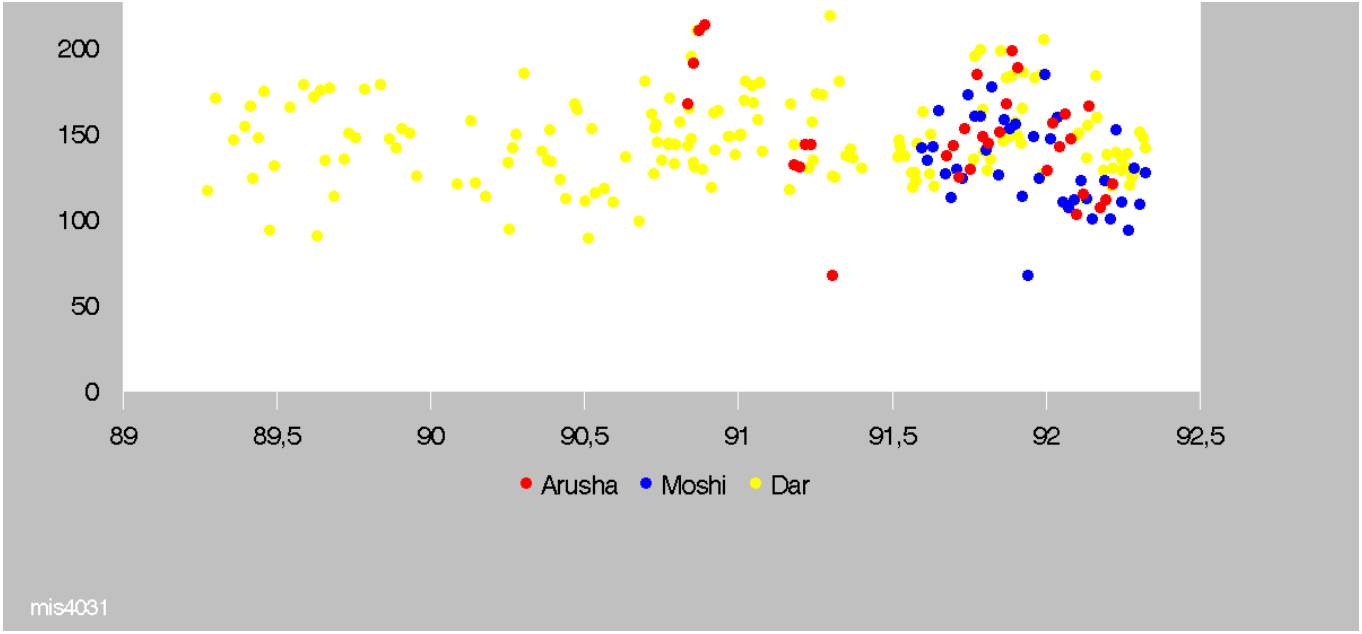

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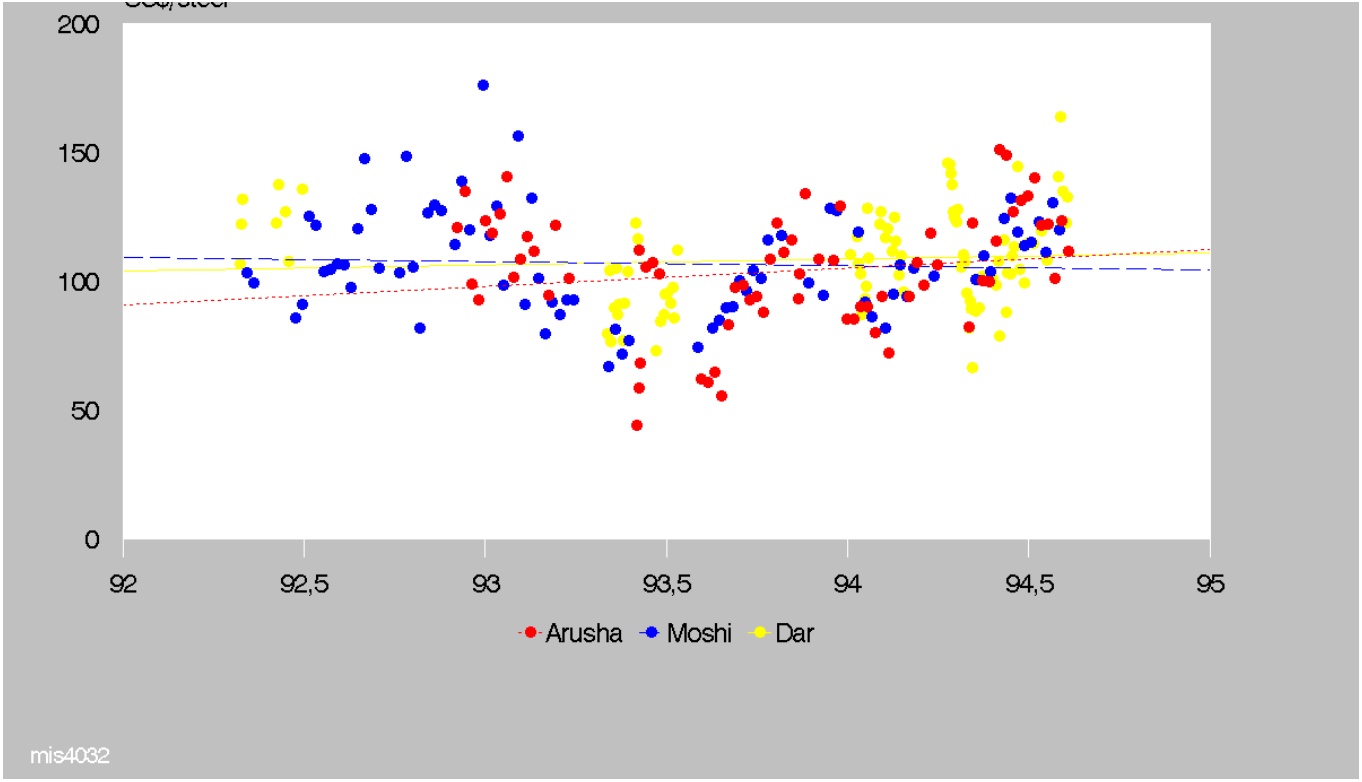
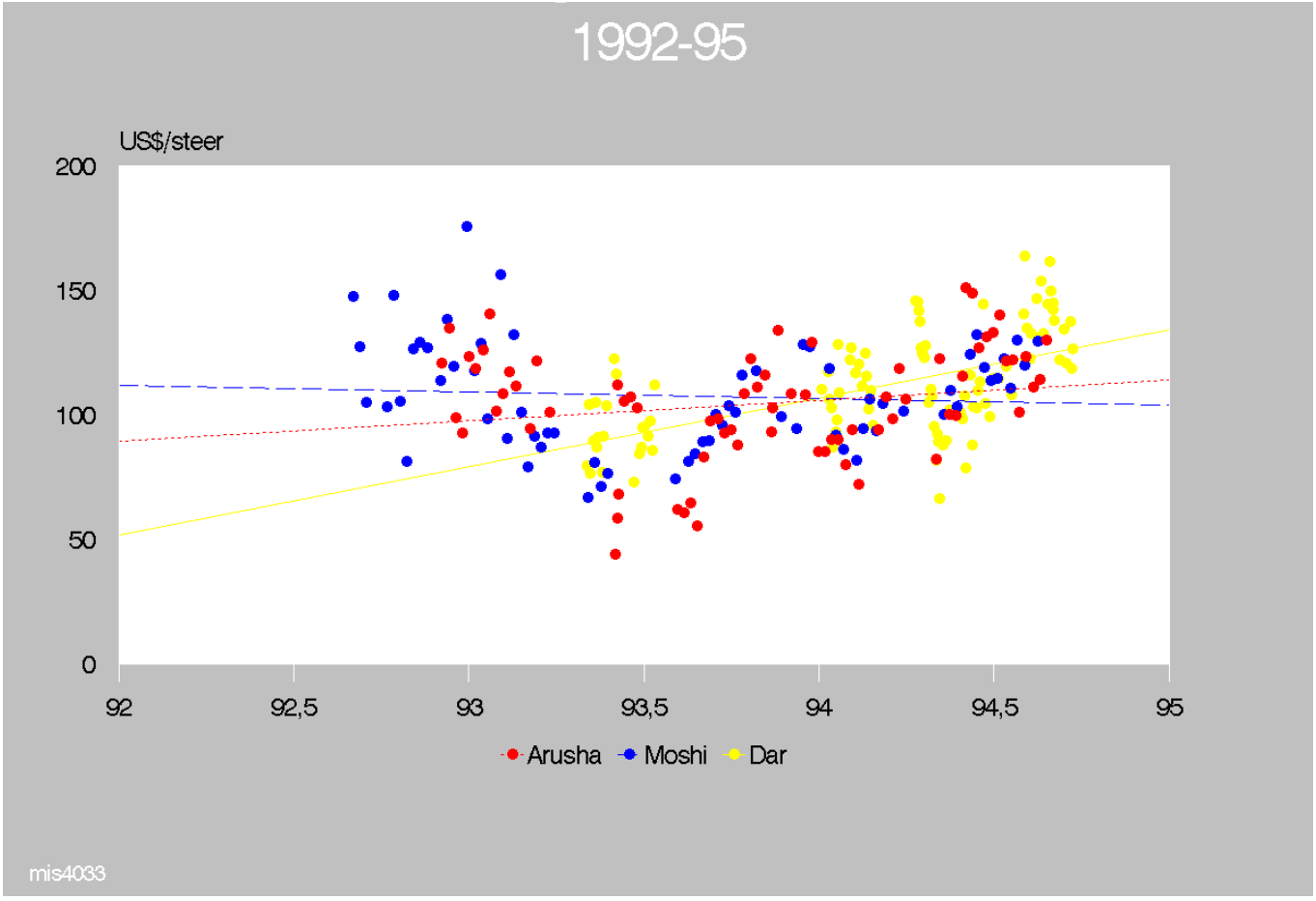
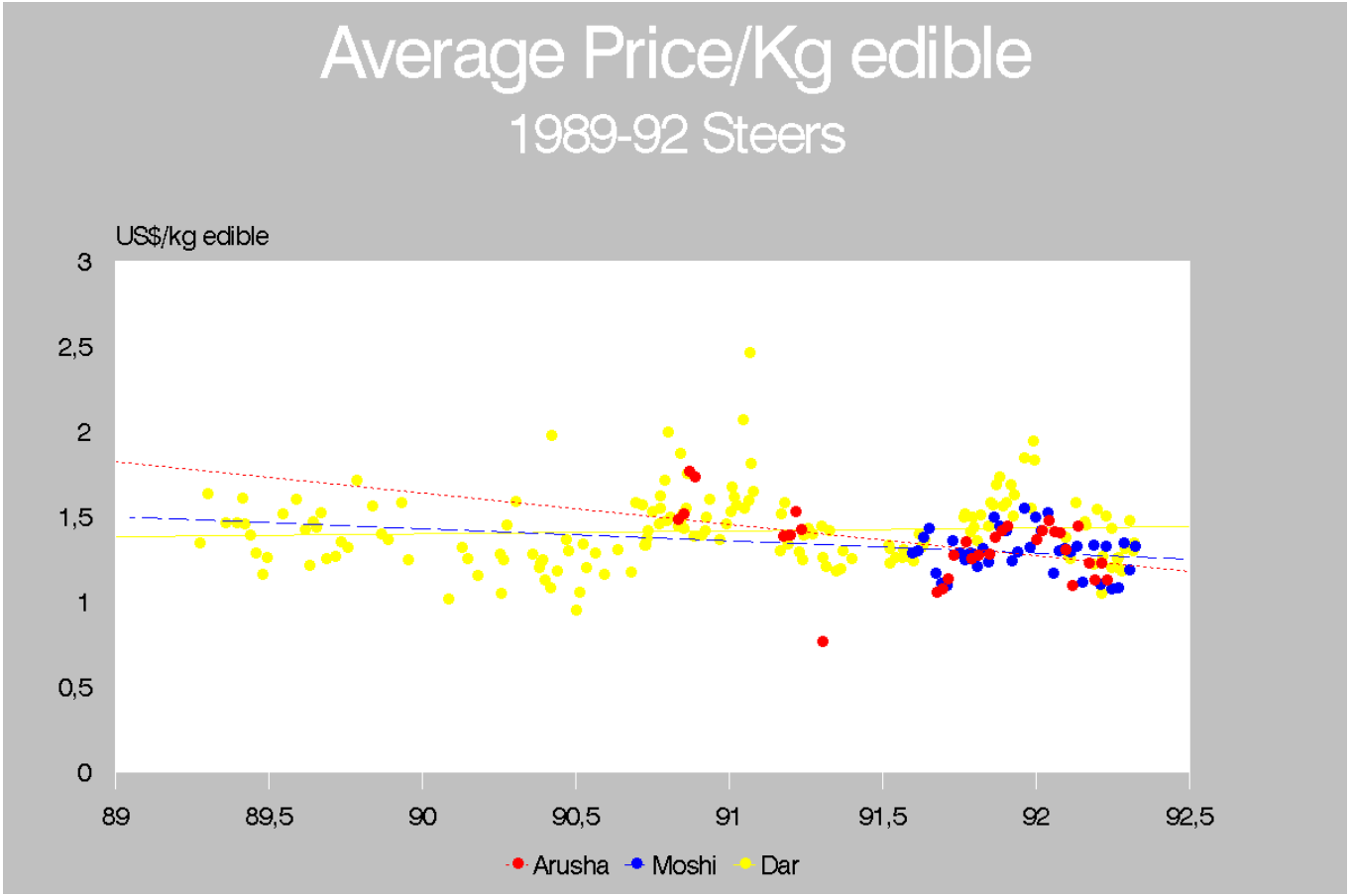


home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4051.htm

Average Price/steer


1992-95
US$/steer
200
150
100
50
0
92
92,5
93
93,5
94
94,5
95
Arusha
Moshi
Dar
mis4033

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4052.htm

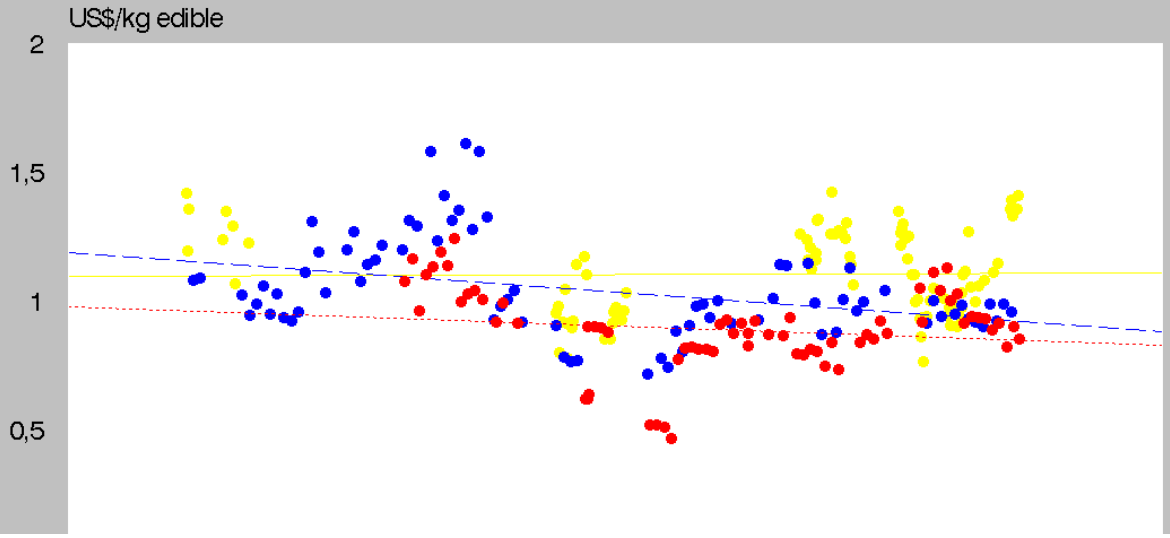


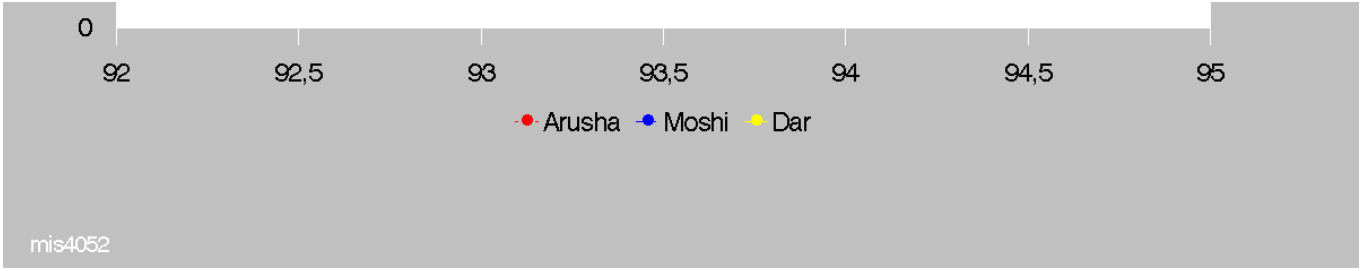
mis4051

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4053.htm

Average Price/Kg edible

1992-94 Steers





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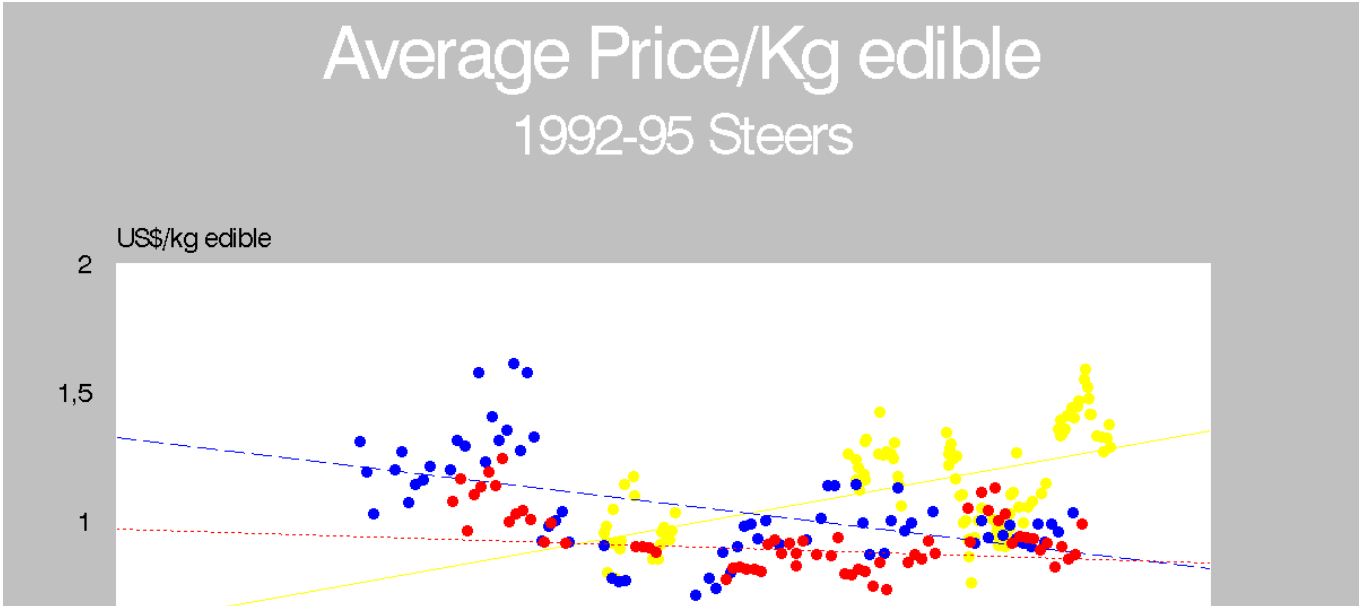

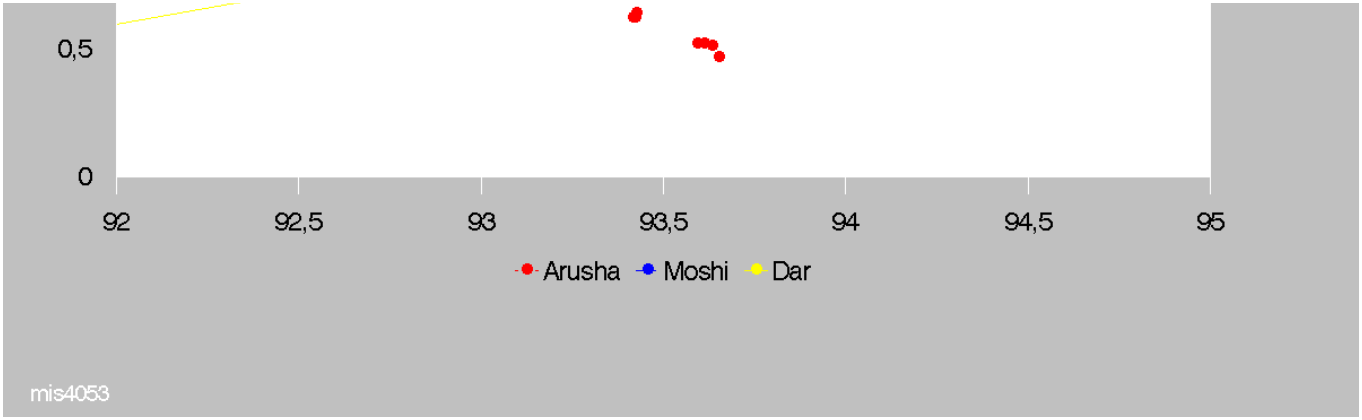

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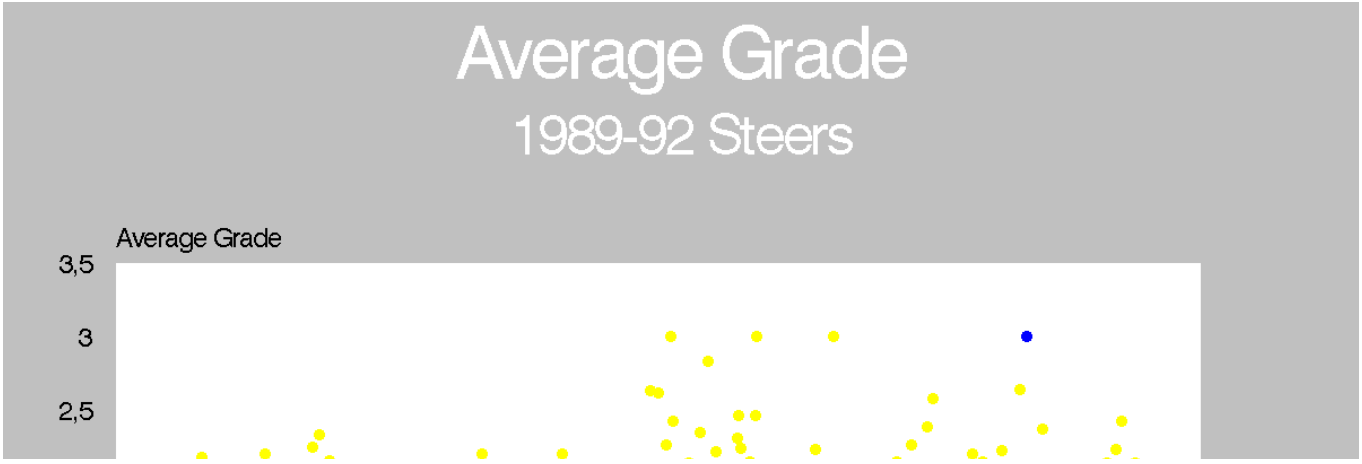

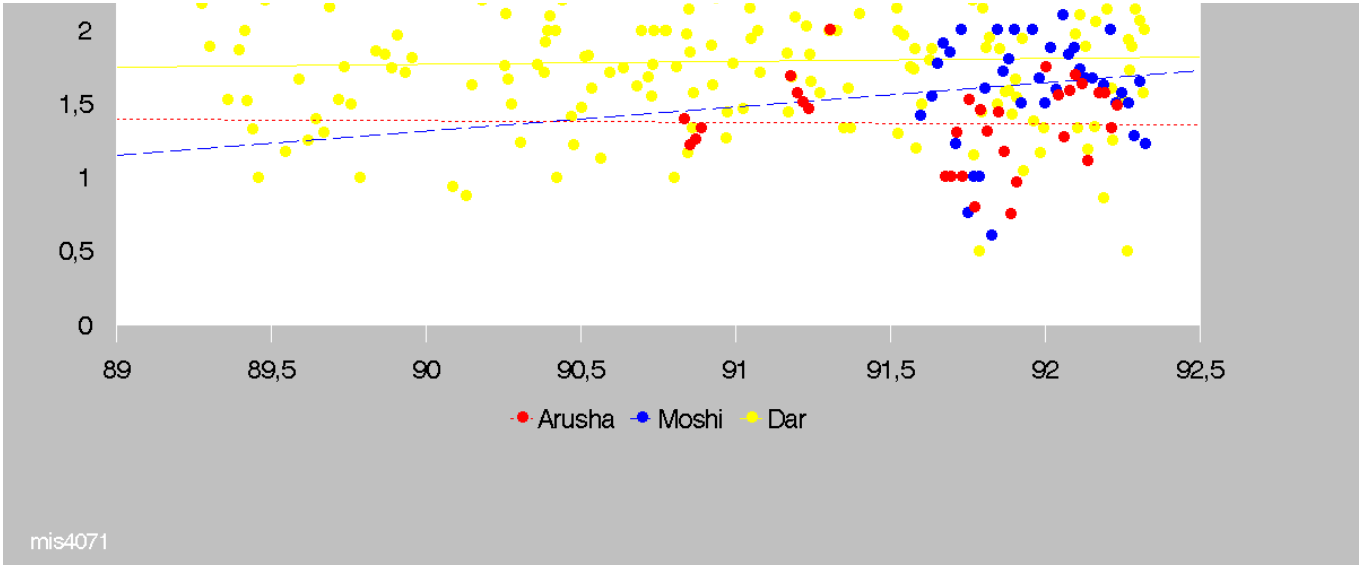

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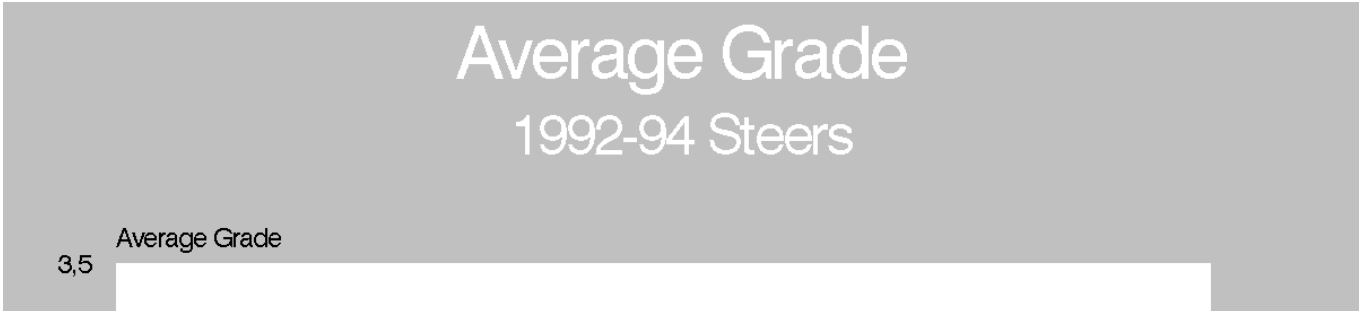
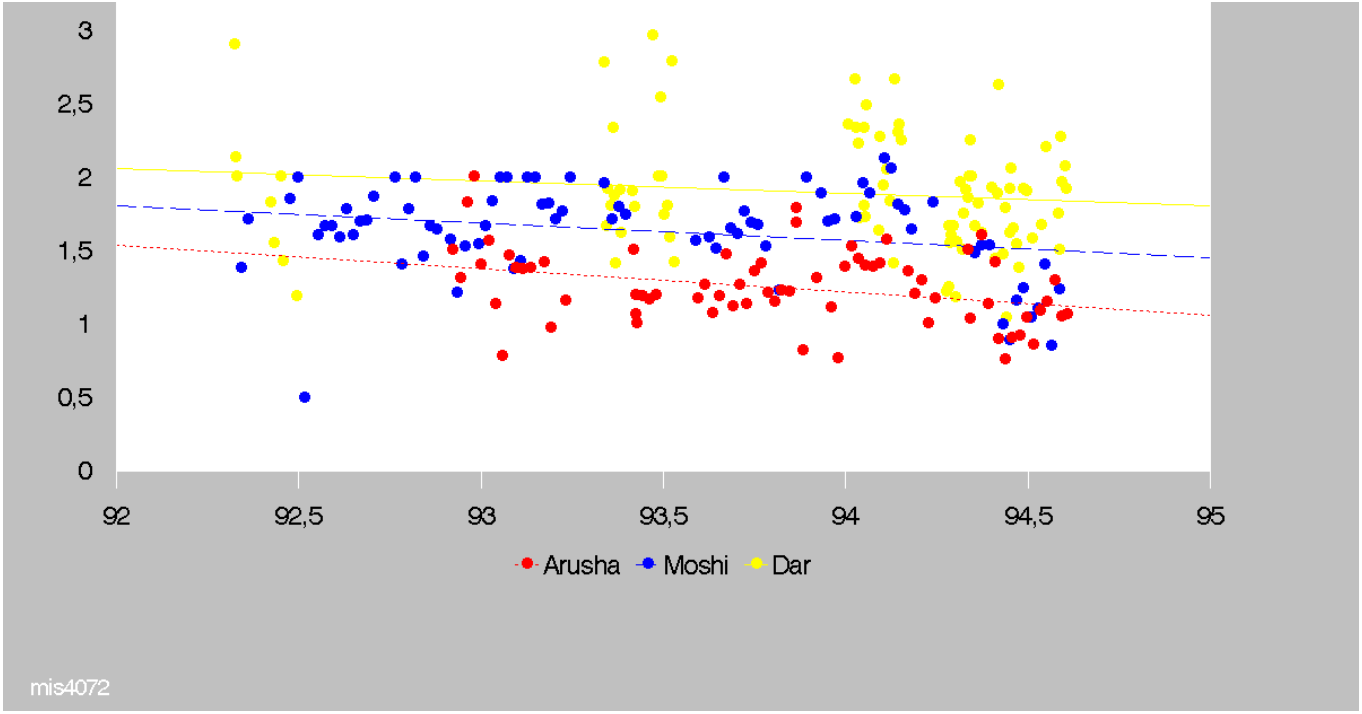
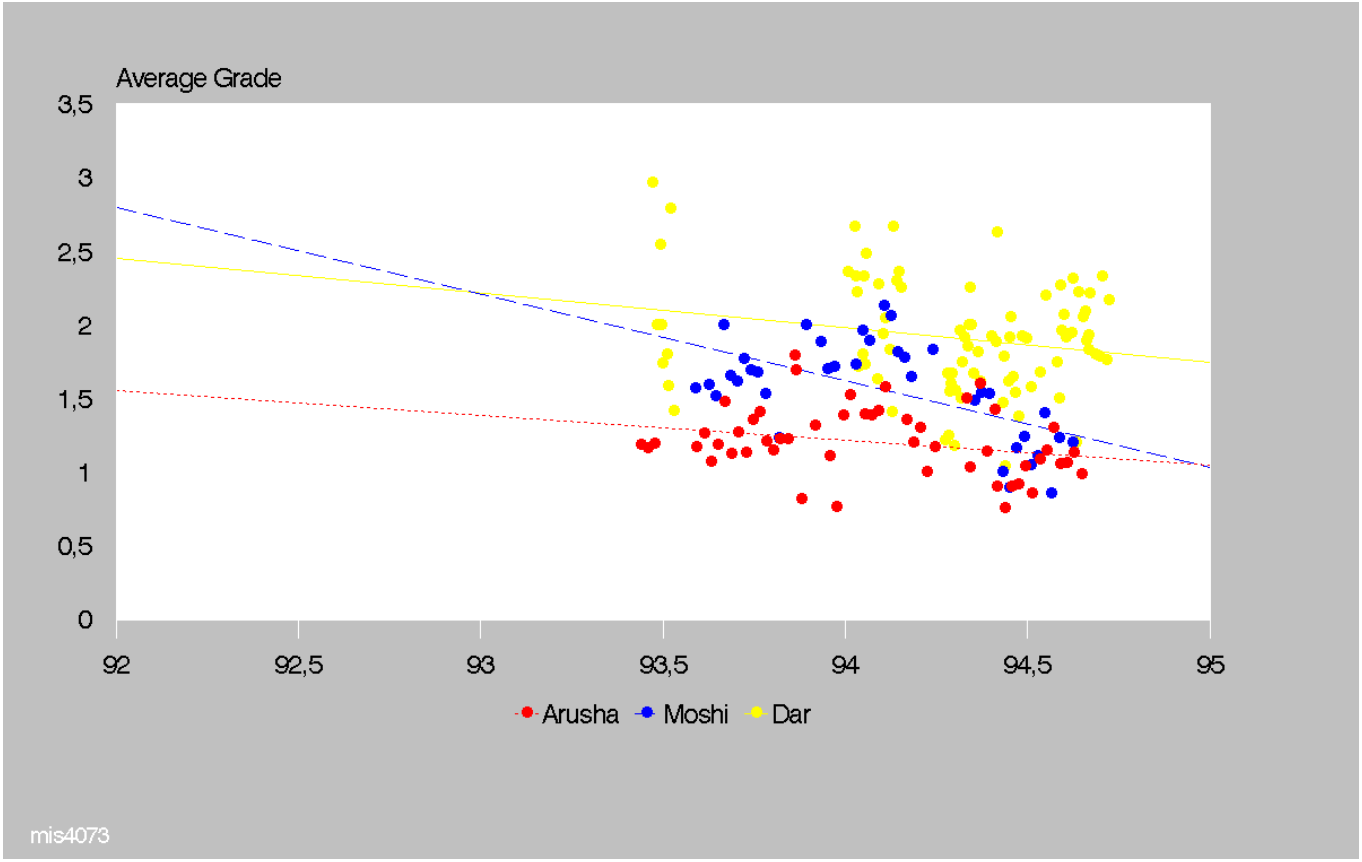




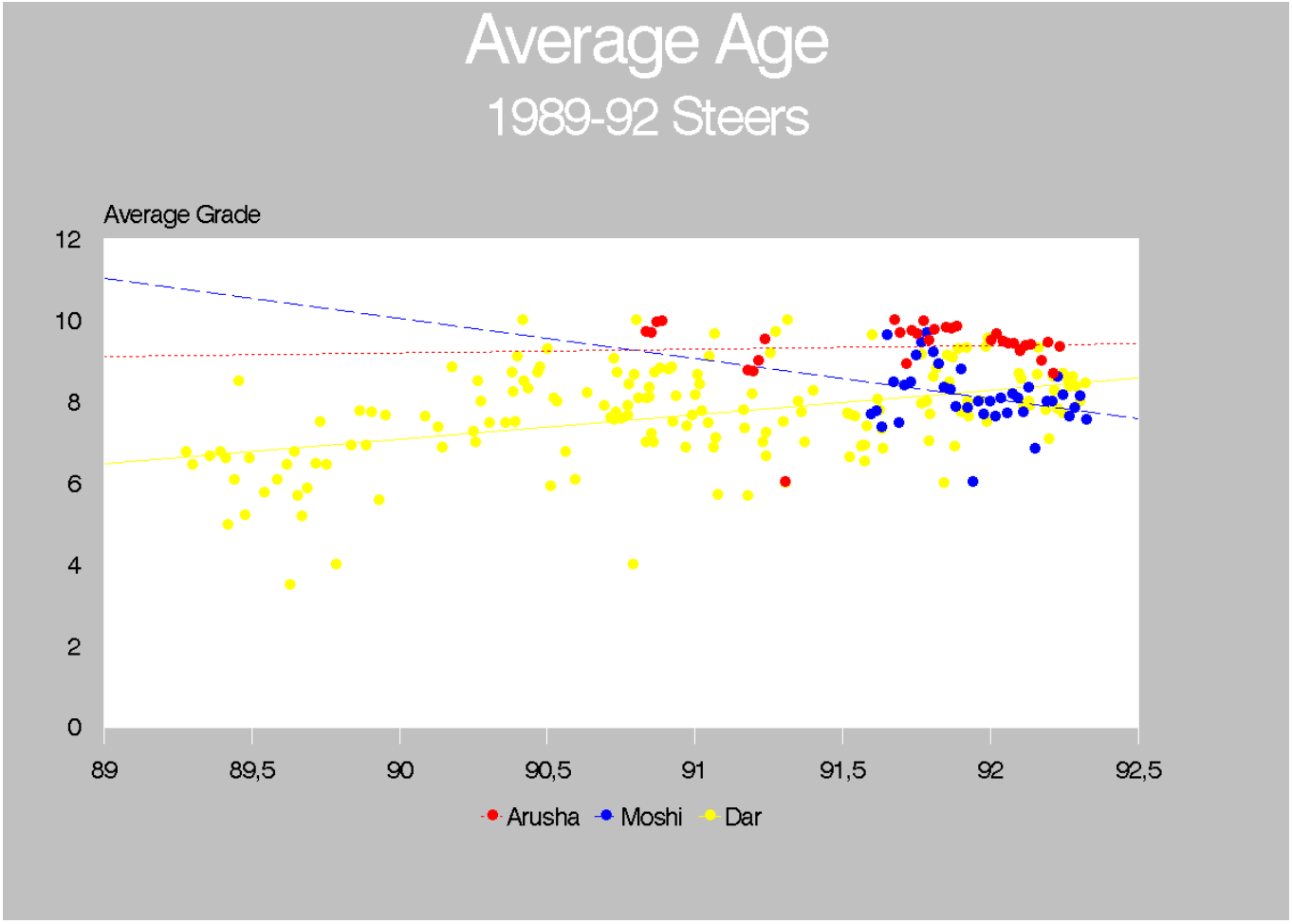
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4101.htm

Average Grade

1992-95 Steers

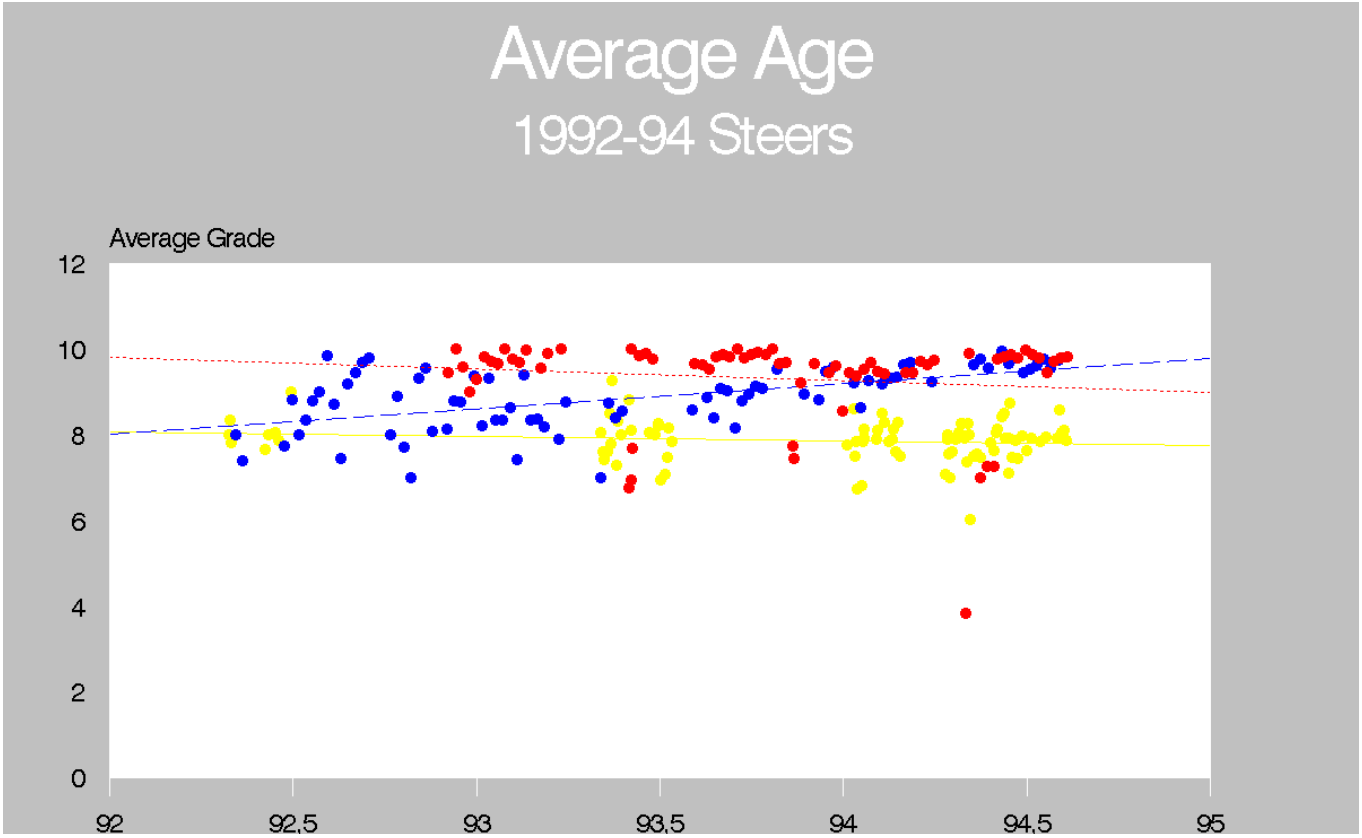


home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4102.htm


Average Age
1989-92 Steers
Average Grade
12
10
8
6
4
2
0
89
89,5
90
90,5
91
91,5
92
92,5
Arusha
Moshi
Dar

mis4101

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4103.htm



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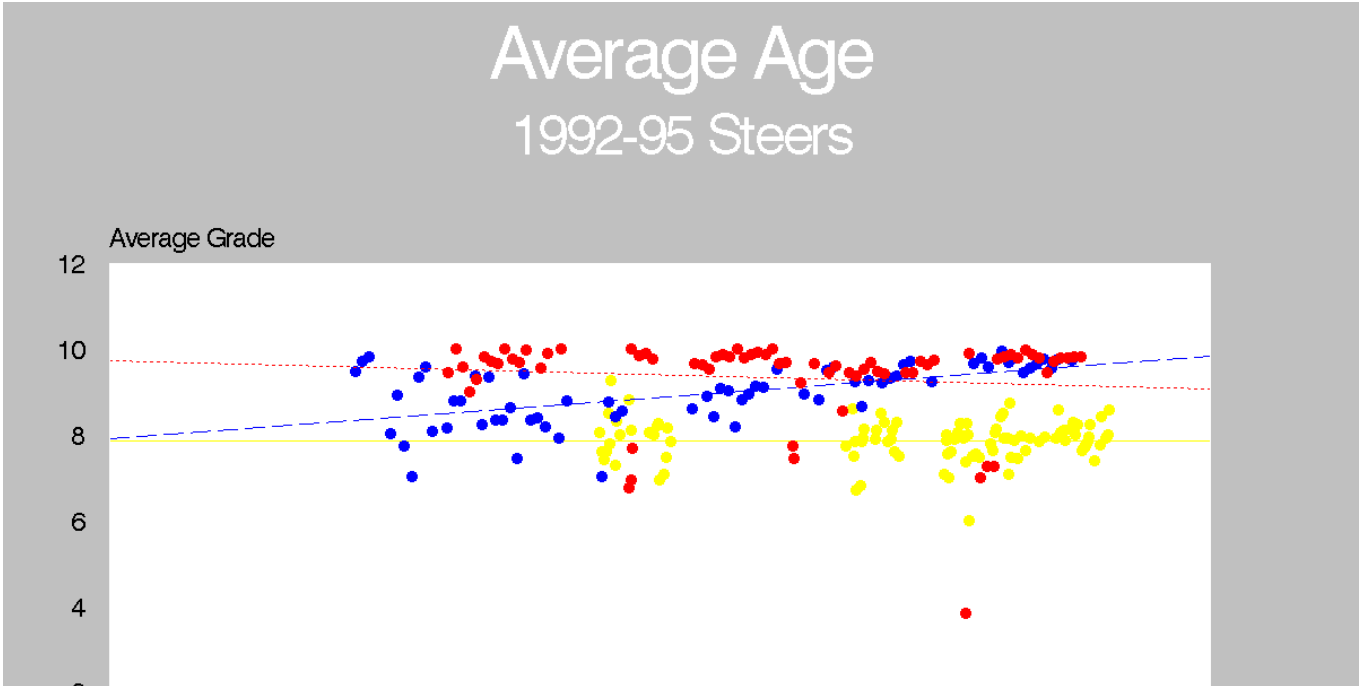

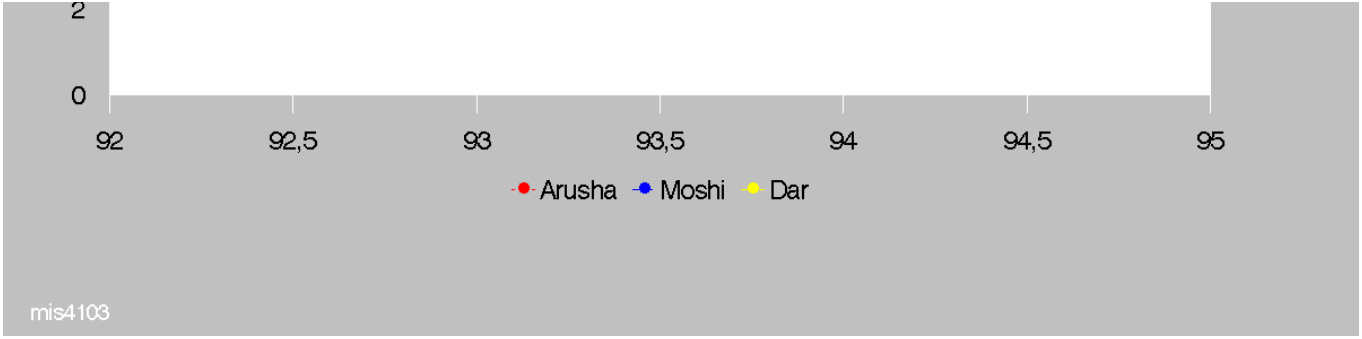

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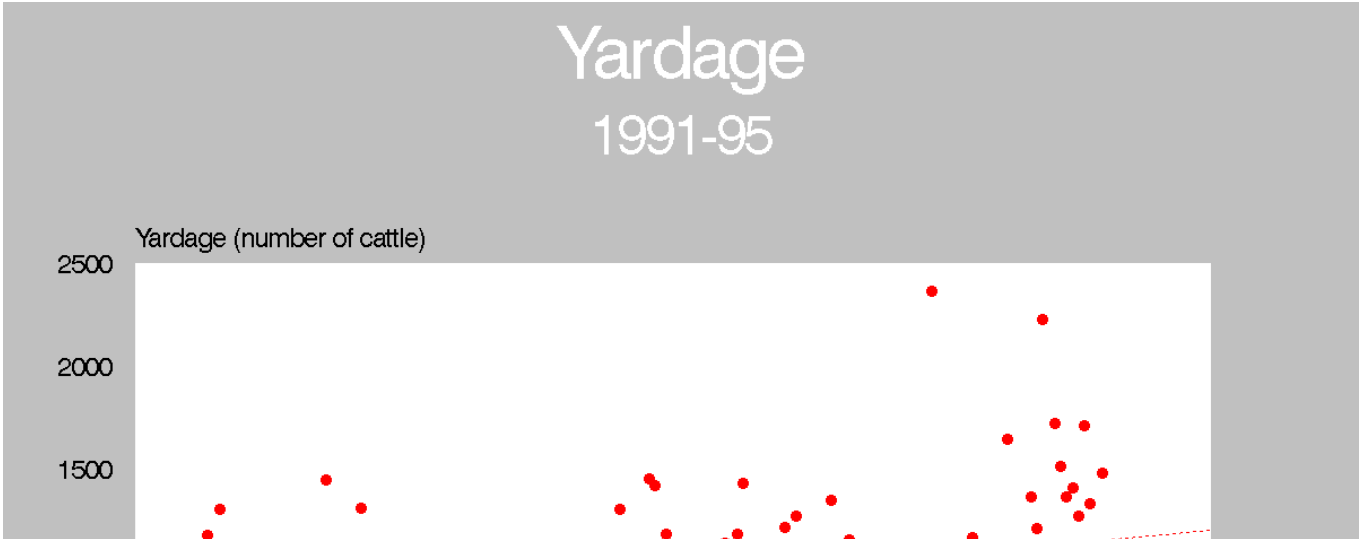

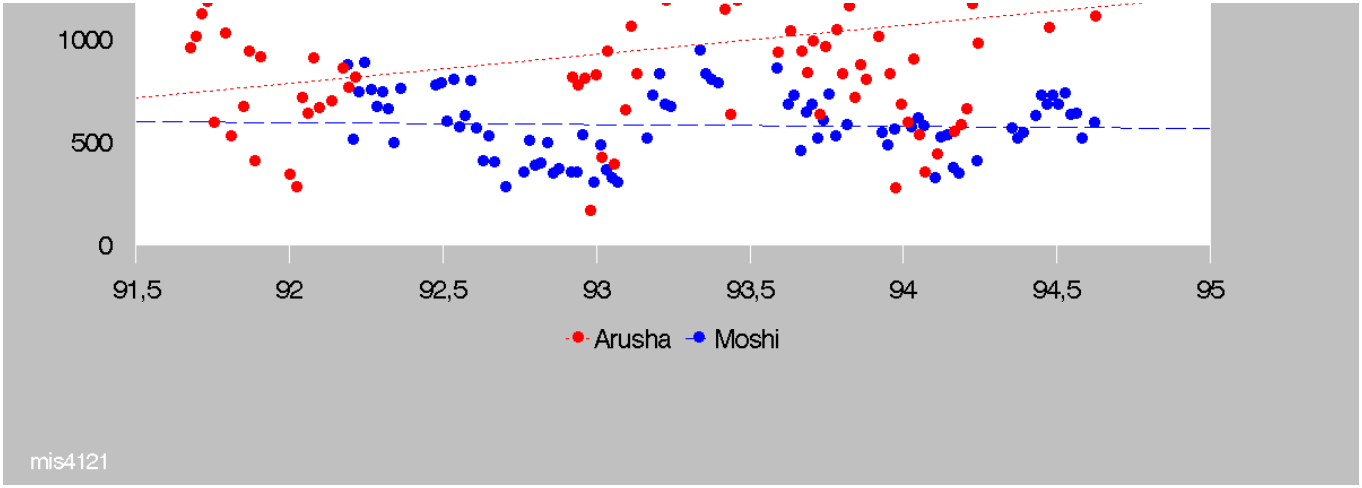

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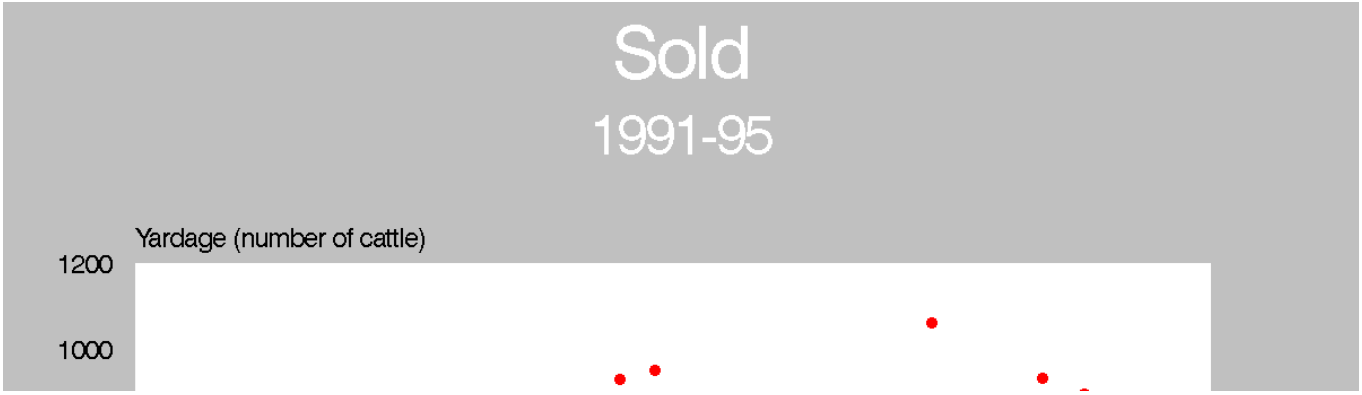
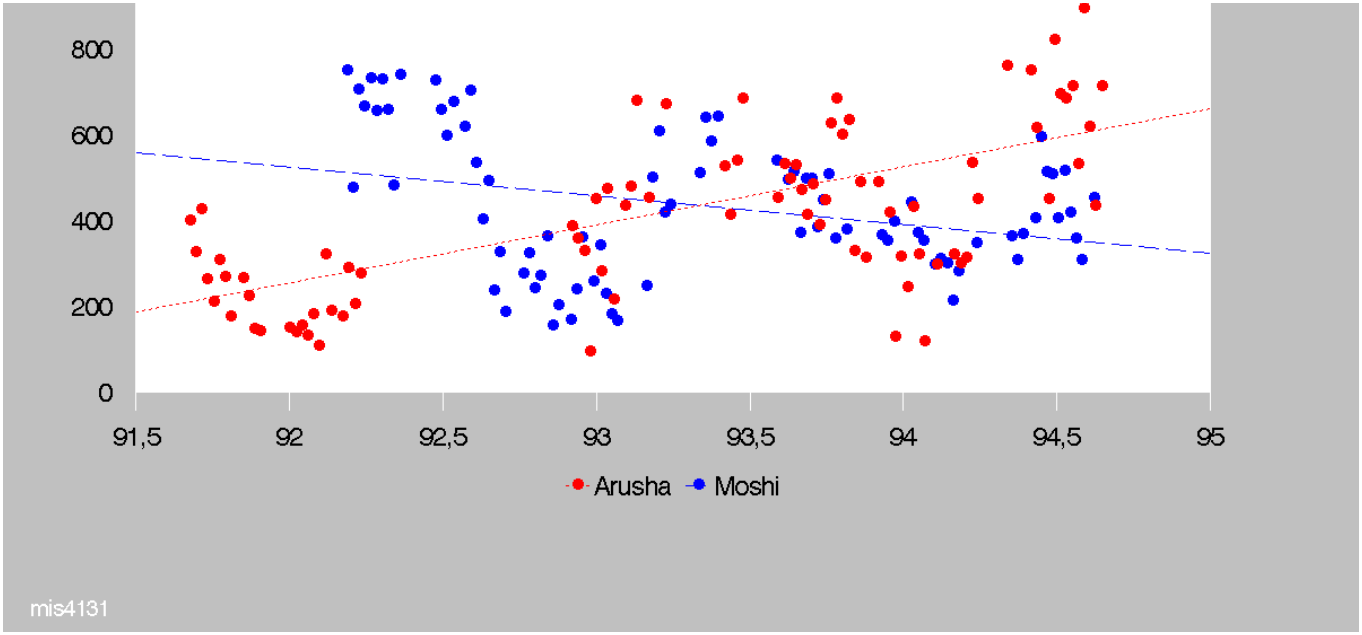
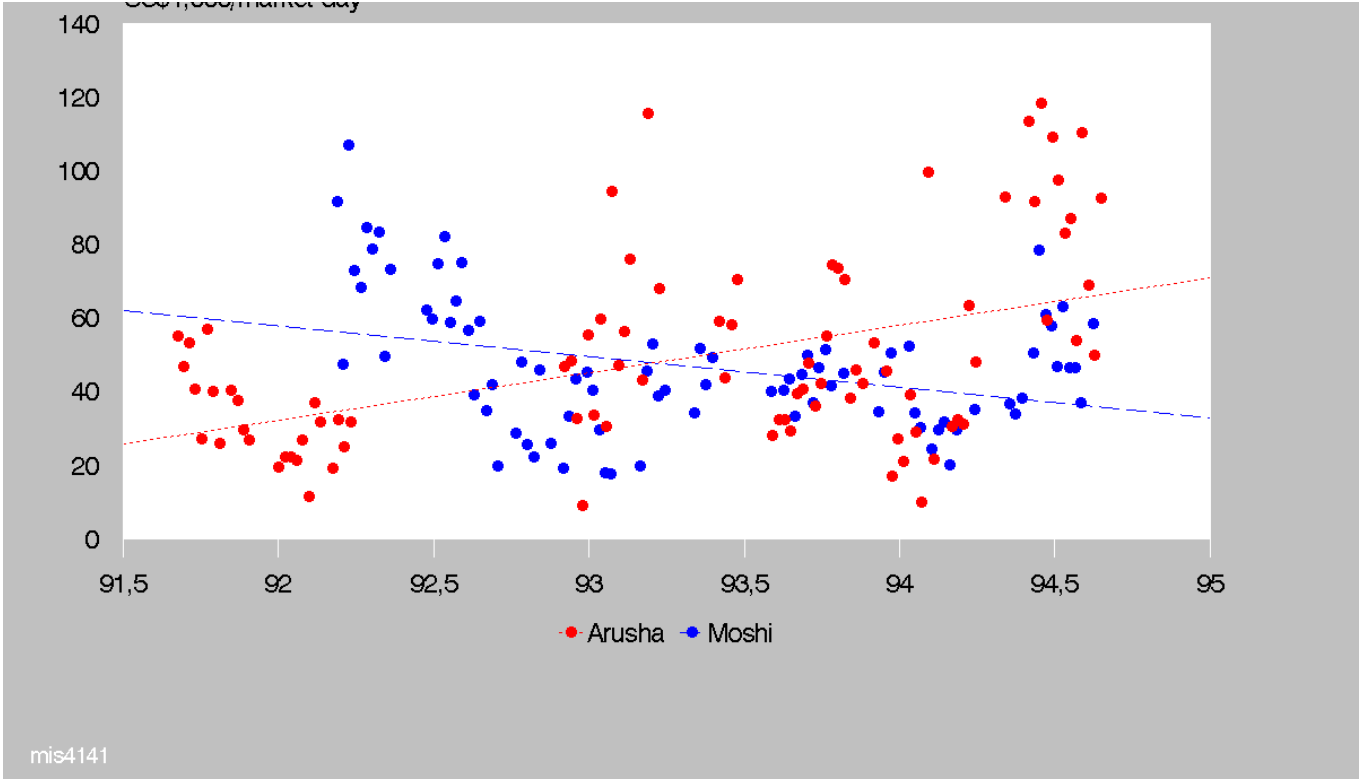


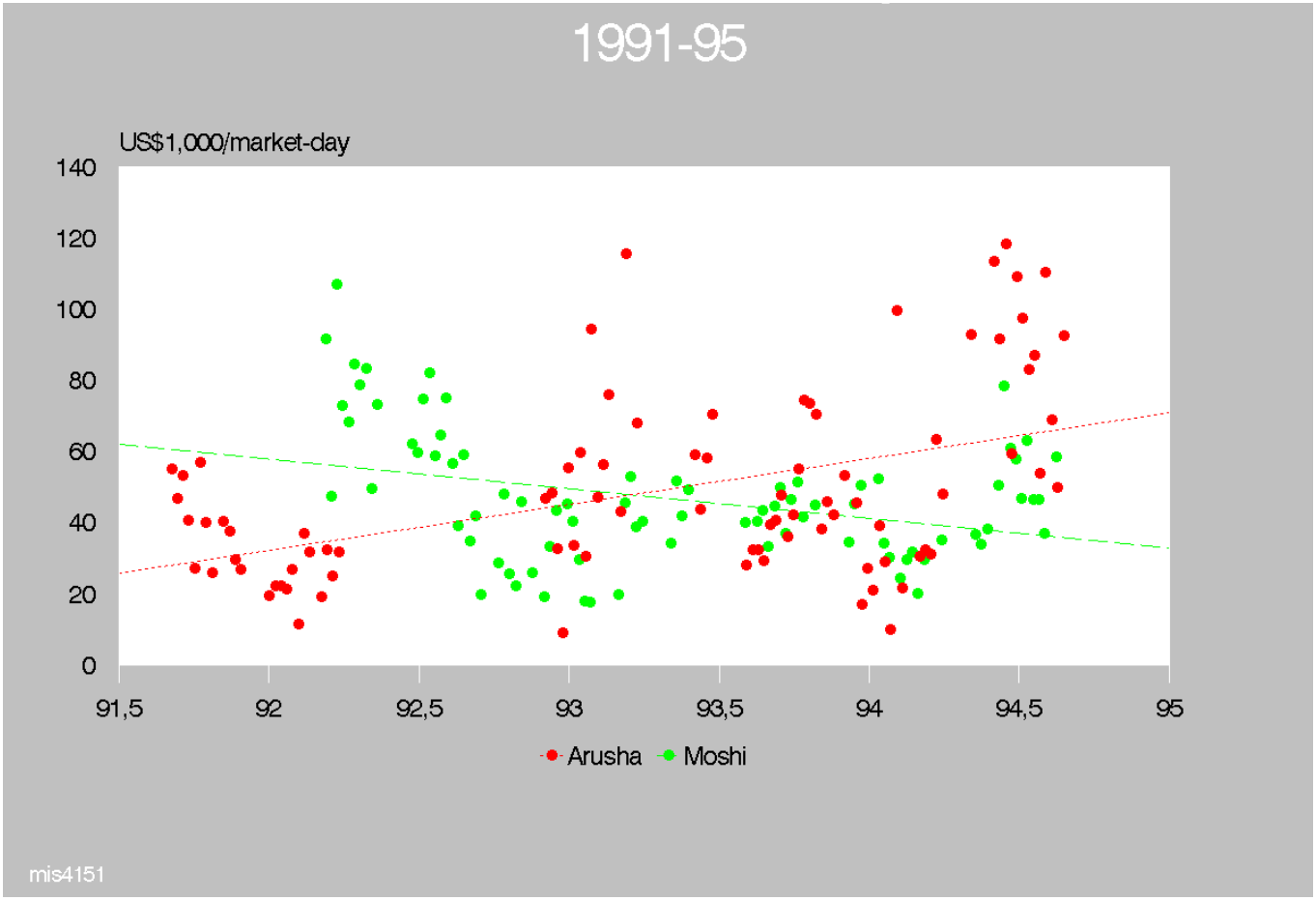


home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4151.htm

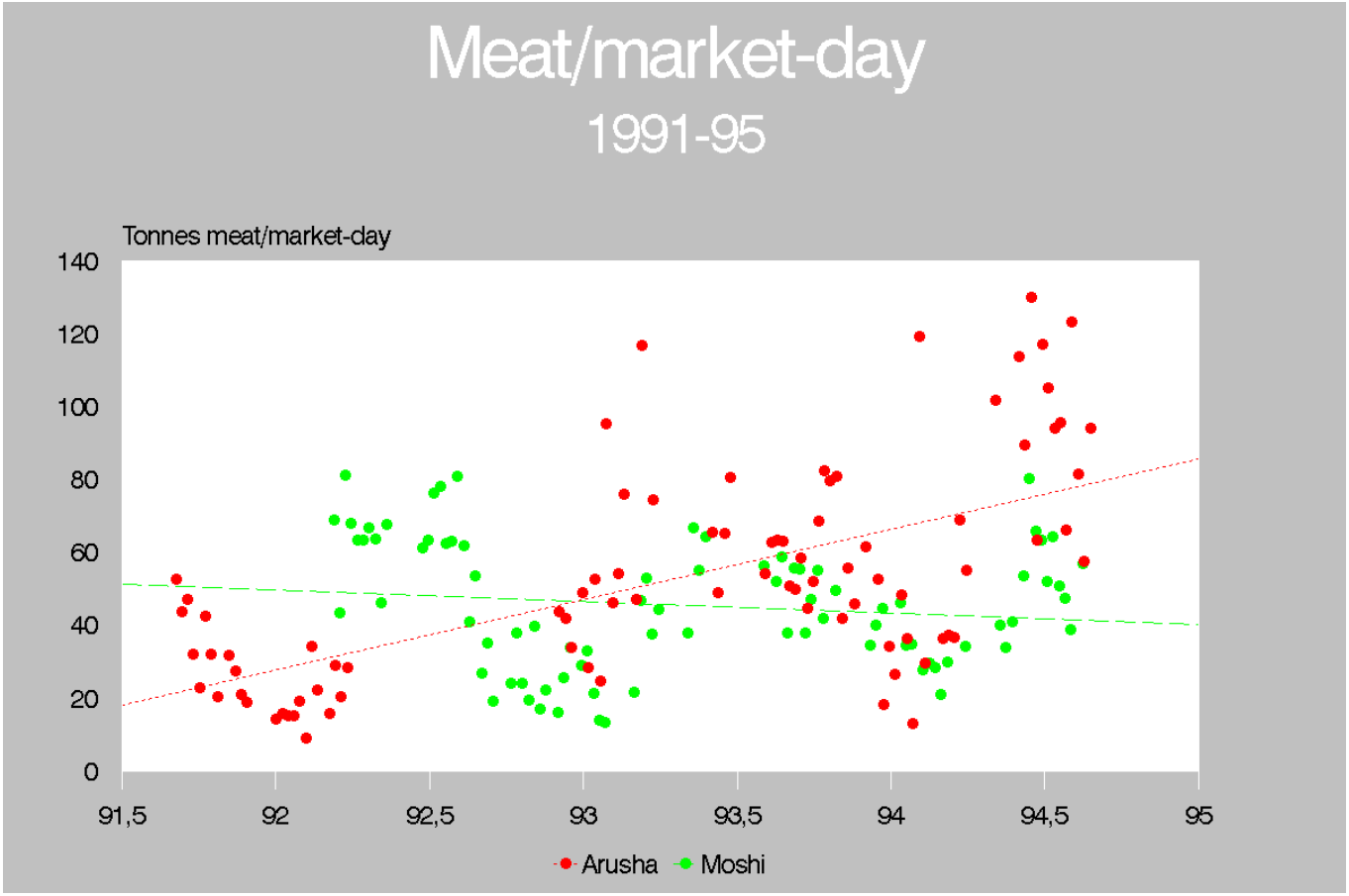


home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis4161.htm

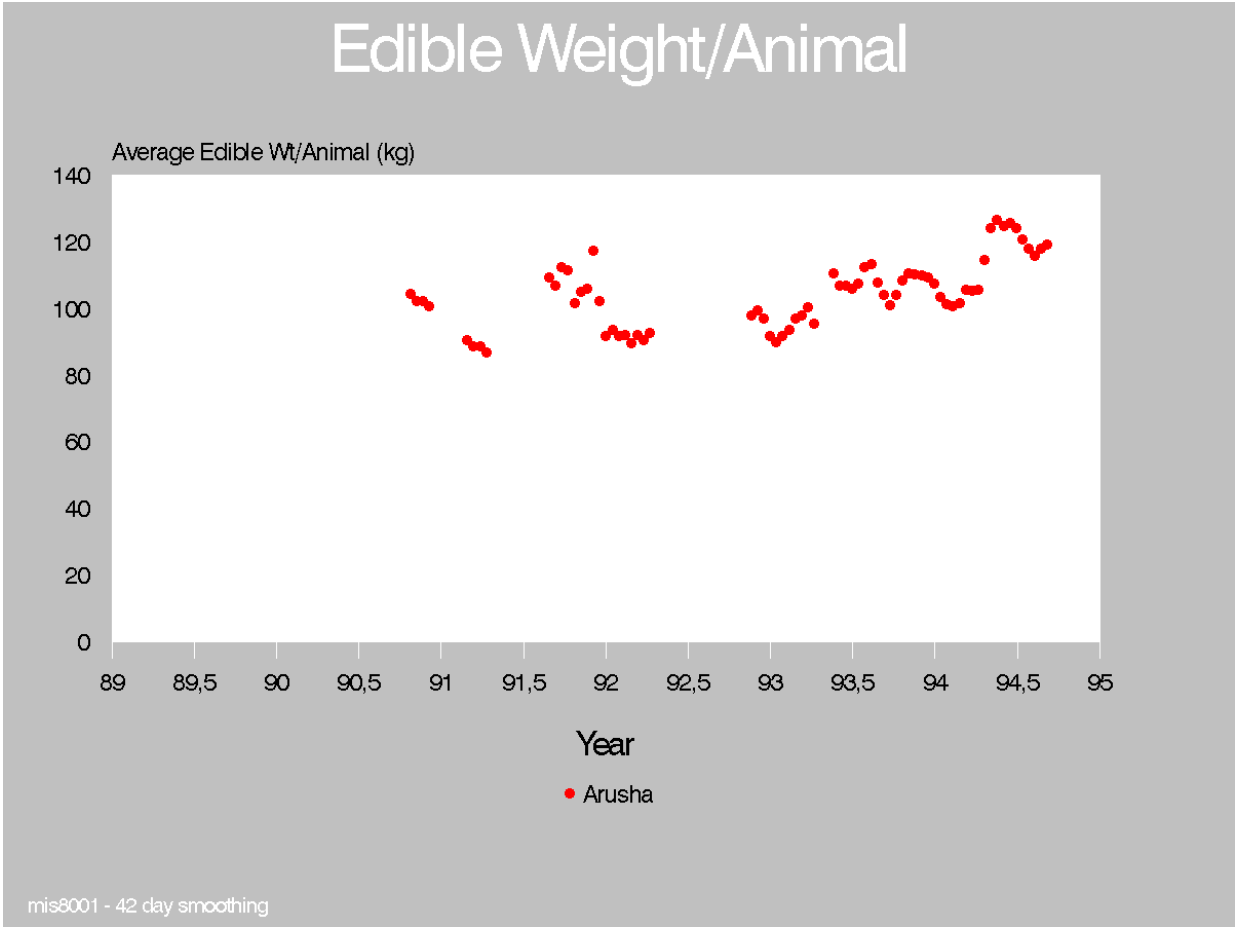
Value/market-day


1991-95
US$1,000/market-day
140
120
100
80
60
40
20
0
91,5
92
92,5
93
93,5
94
94,5
95
Arusha
Moshi
mis4151

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis3001.htm



home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8002.htm


Edible Weight/Animal
Average Edible Wt/Animal (kg)
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8001 - 42 day smoothing

GRAPHS MIS8001.CHT THROUGH MIS8005.CHT - AVERAGE EDIBLE WEIGHT PER ANIMAL.

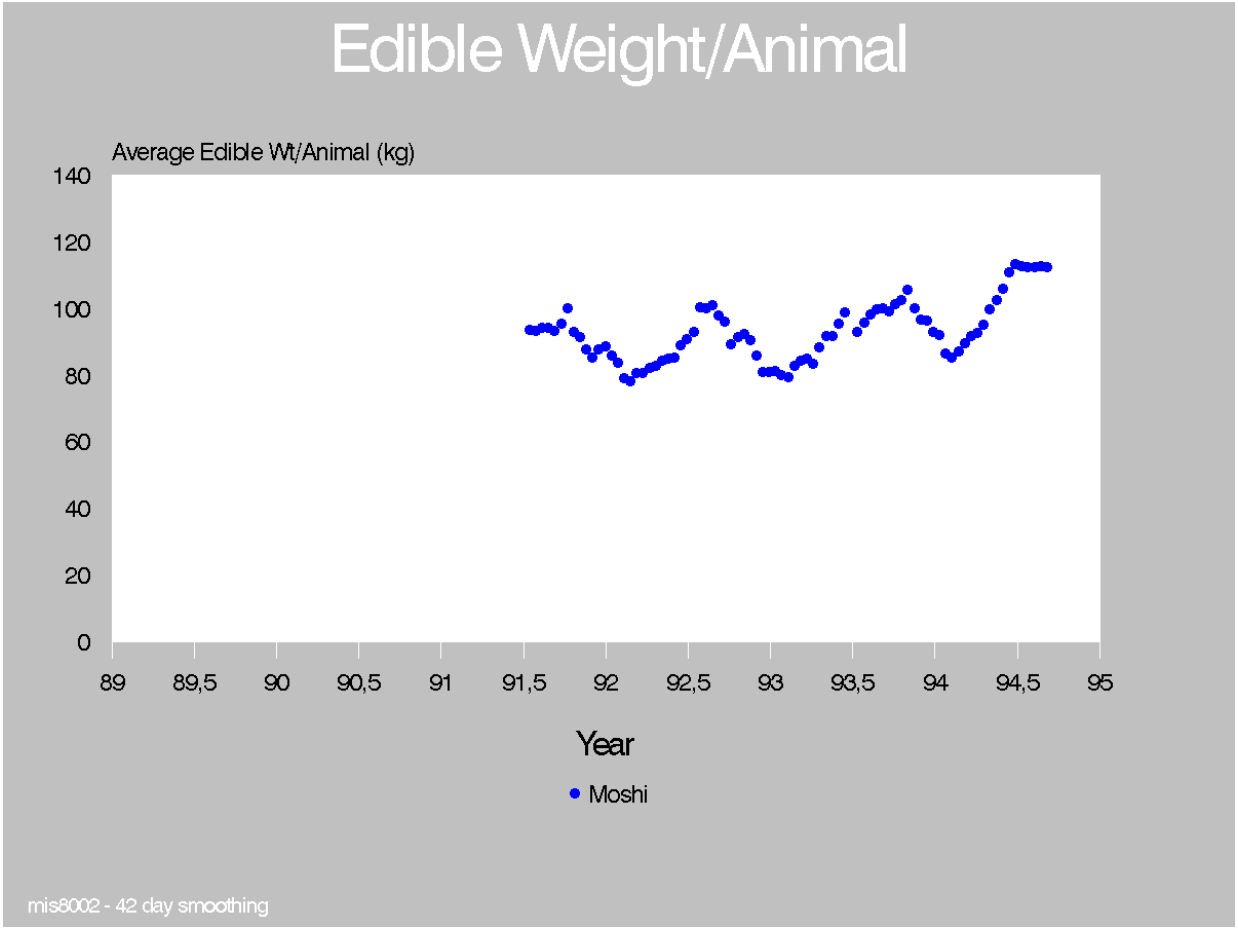
This graph is really a combination of animal liveweight and animal grade or quality, and is a good indication of animal quality variation.

All 3 locations show a strong annual cycle, with a peak of condition in June/July and a low in December/January. This variation is strongest for Arusha and Moshi, being approx 27%; it is only about 15% for Dar. The Dar peak and trough appear to be June and December, with Arusha and Moshi slightly later with July and January.

The pattern for Dar is a slight decline (3%) in both maximum and minimum over the period 1989 through 1994; Moshi has a slight increase per annum in the minimum values (2.5% p.a.) and a pronounced and accelerating increase per annum in the maximum values (5-11% p.a.); Arusha is making the most dramatic average quality increases with a jump of 12% p.a. from 1993 to 1994.

Current values for max and min are: Dar 100 and 85; Moshi 117 and 82; Arusha 127 and 100: Arusha has the highest quality animals, with Moshi second and Dar last.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8003.htm


Edible Weight/Animal
Average Edible Wt/Animal (kg)
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
mis8002 - 42 day smoothing

GRAPHS MIS8001.CHT THROUGH MIS8005.CHT - AVERAGE EDIBLE WEIGHT PER ANIMAL.

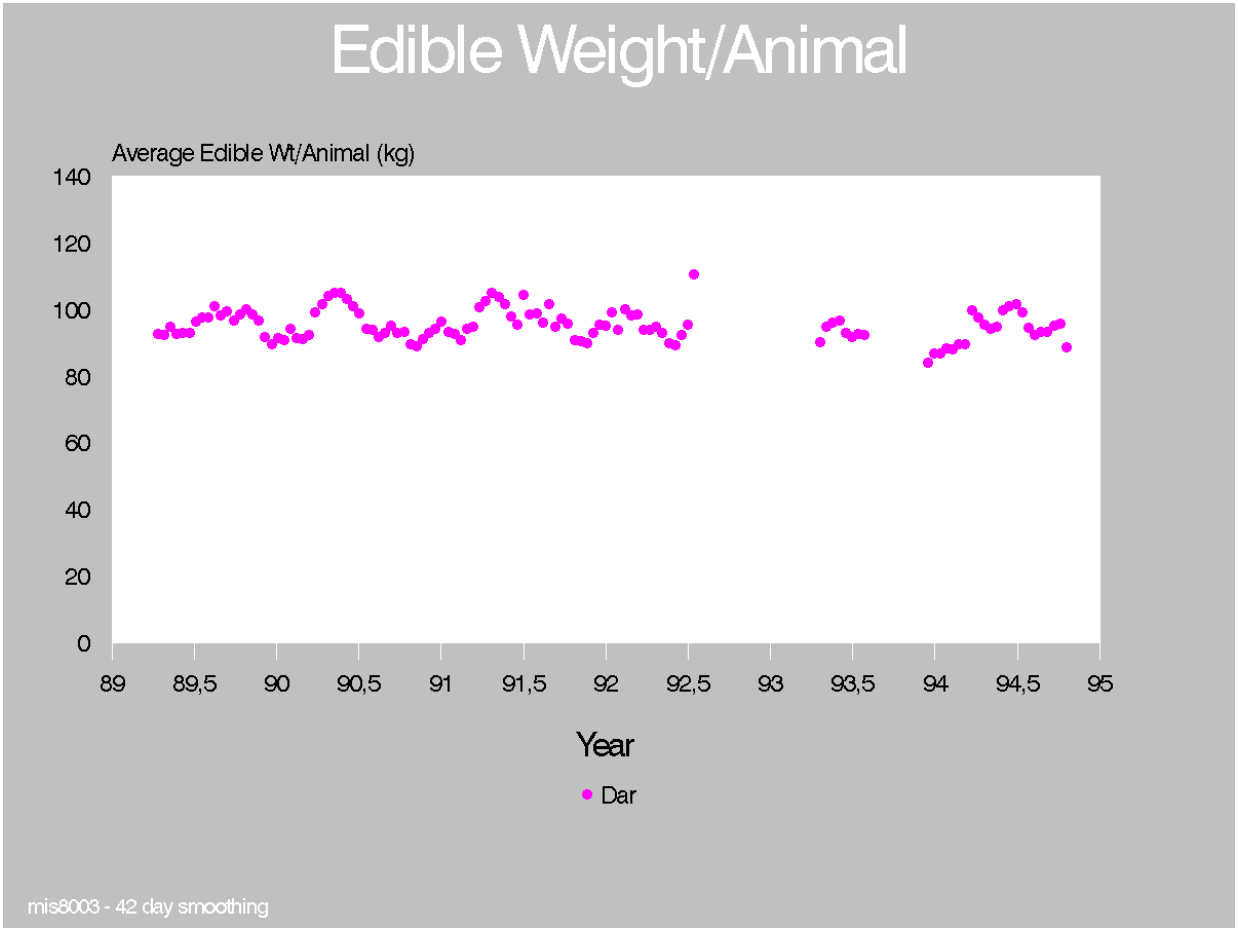
This graph is really a combination of animal liveweight and animal grade or quality, and is a good indication of animal quality variation.

All 3 locations show a strong annual cycle, with a peak of condition in June/July and a low in December/January. This variation is strongest for Arusha and Moshi, being approx 27%; it is only about 15% for Dar. The Dar peak and trough appear to be June and December, with Arusha and Moshi slightly later with July and January.

The pattern for Dar is a slight decline (3%) in both maximum and minimum over the period 1989 through 1994; Moshi has a slight increase per annum in the minimum values (2.5% p.a.) and a pronounced and accelerating increase per annum in the maximum values (5-11% p.a.); Arusha is making the most dramatic average quality increases with a jump of 12% p.a. from 1993 to 1994.

Current values for max and min are: Dar 100 and 85; Moshi 117 and 82; Arusha 127 and 100: Arusha has the highest quality animals, with Moshi second and Dar last.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8004.htm


Edible Weight/Animal
Average Edible Wt/Animal (kg)
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8003 - 42 day smoothing

GRAPHS MIS8001.CHT THROUGH MIS8005.CHT - AVERAGE EDIBLE WEIGHT PER ANIMAL.

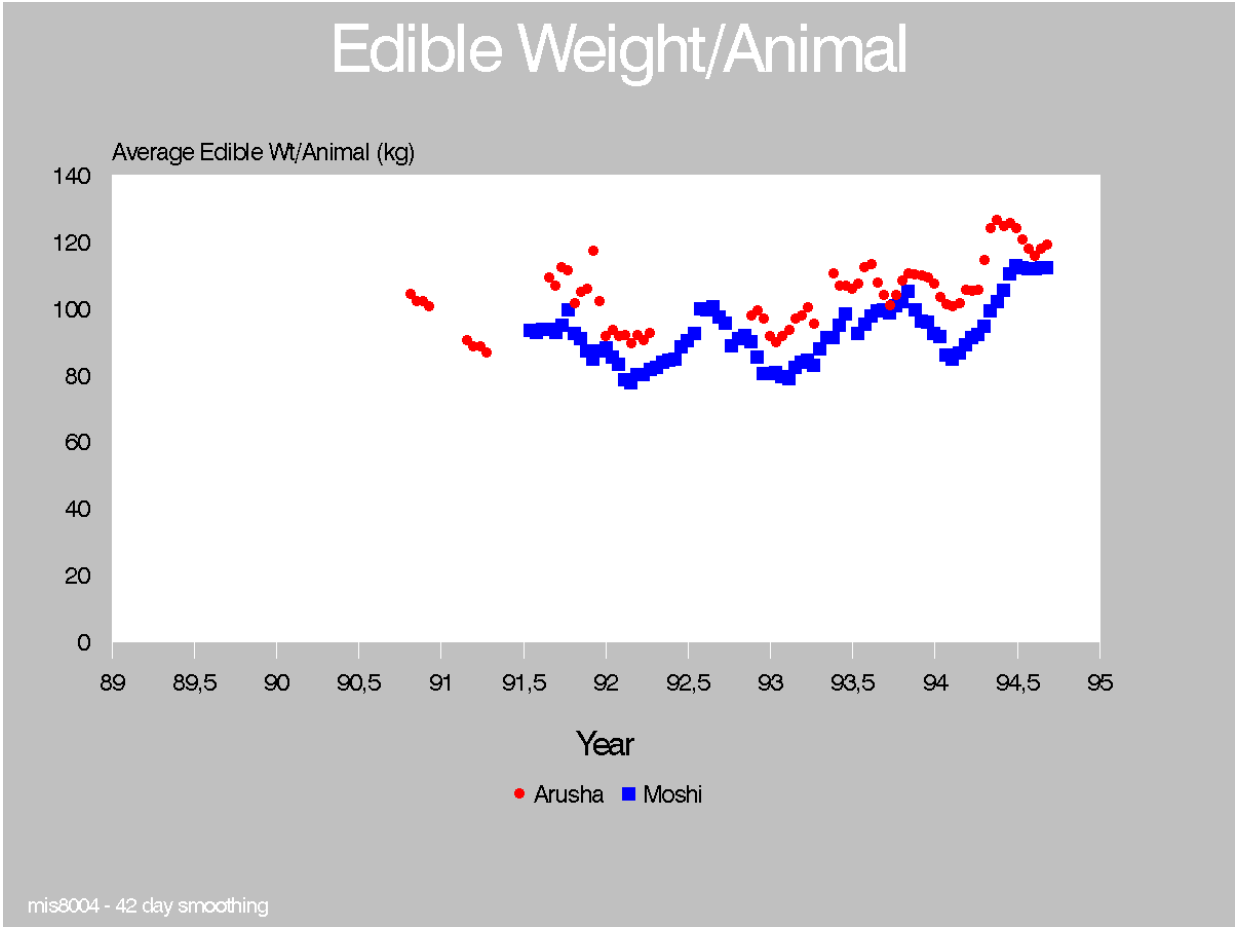
This graph is really a combination of animal liveweight and animal grade or quality, and is a good indication of animal quality variation.

All 3 locations show a strong annual cycle, with a peak of condition in June/July and a low in December/January. This variation is strongest for Arusha and Moshi, being approx 27%; it is only about 15% for Dar. The Dar peak and trough appear to be June and December, with Arusha and Moshi slightly later with July and January.

The pattern for Dar is a slight decline (3%) in both maximum and minimum over the period 1989 through 1994; Moshi has a slight increase per annum in the minimum values (2.5% p.a.) and a pronounced and accelerating increase per annum in the maximum values (5-11% p.a.); Arusha is making the most dramatic average quality increases with a jump of 12% p.a. from 1993 to 1994.

Current values for max and min are: Dar 100 and 85; Moshi 117 and 82; Arusha 127 and 100: Arusha has the highest quality animals, with Moshi second and Dar last.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8005.htm


Edible Weight/Animal
Average Edible Wt/Animal (kg)
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
mis8004 - 42 day smoothing

GRAPHS MIS8001.CHT THROUGH MIS8005.CHT - AVERAGE EDIBLE WEIGHT PER ANIMAL.

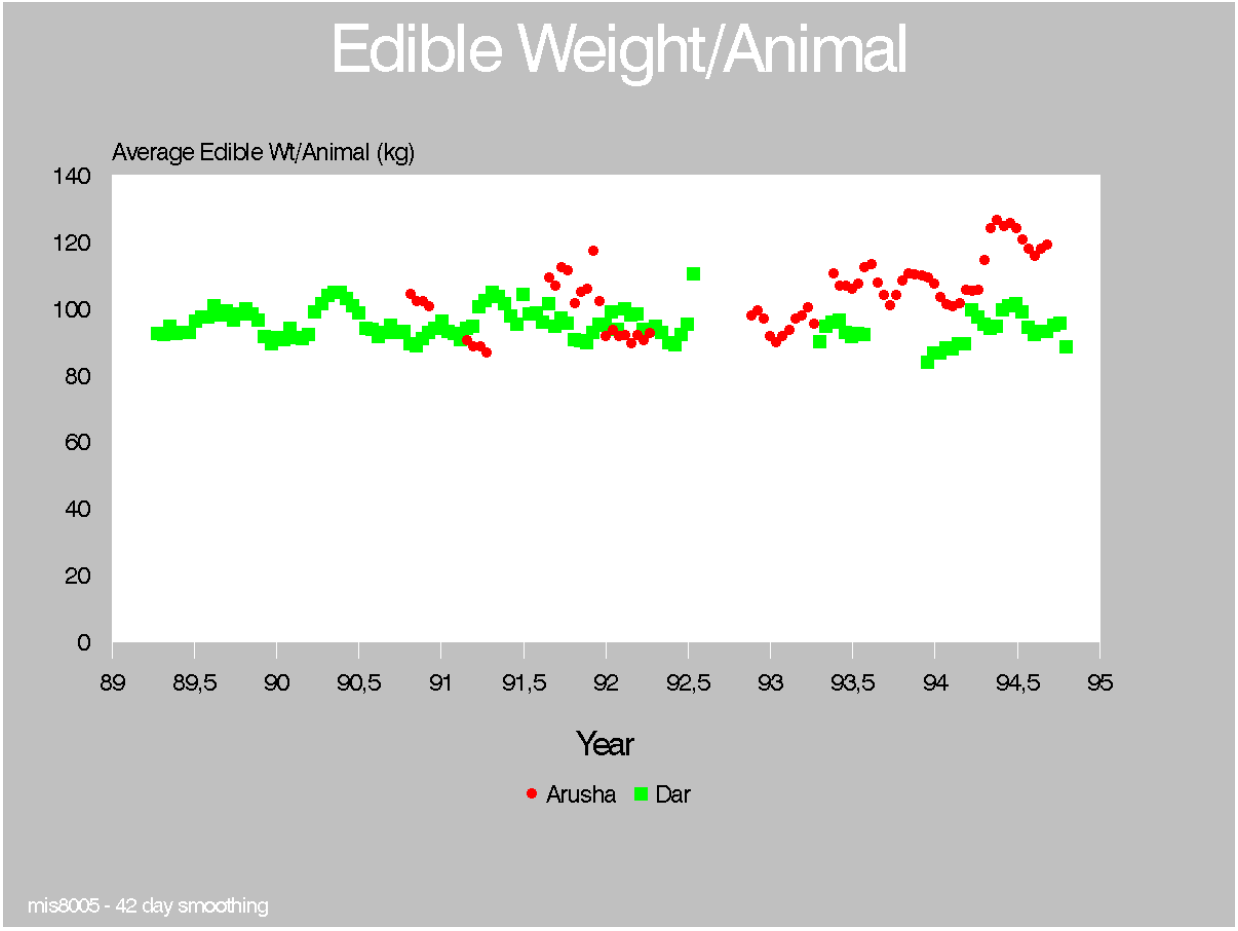
This graph is really a combination of animal liveweight and animal grade or quality, and is a good indication of animal quality variation.

All 3 locations show a strong annual cycle, with a peak of condition in June/July and a low in December/January. This variation is strongest for Arusha and Moshi, being approx 27%; it is only about 15% for Dar. The Dar peak and trough appear to be June and December, with Arusha and Moshi slightly later with July and January.

The pattern for Dar is a slight decline (3%) in both maximum and minimum over the period 1989 through 1994; Moshi has a slight increase per annum in the minimum values (2.5% p.a.) and a pronounced and accelerating increase per annum in the maximum values (5-11% p.a.); Arusha is making the most dramatic average quality increases with a jump of 12% p.a. from 1993 to 1994.

Current values for max and min are: Dar 100 and 85; Moshi 117 and 82; Arusha 127 and 100: Arusha has the highest quality animals, with Moshi second and Dar last.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8121.htm


Edible Weight/Animal
Average Edible Wt/Animal (kg)
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Dar
mis8005 - 42 day smoothing

GRAPHS MIS8001.CHT THROUGH MIS8005.CHT - AVERAGE EDIBLE WEIGHT PER ANIMAL.

This graph is really a combination of animal liveweight and animal grade or quality, and is a good indication of animal quality variation.

All 3 locations show a strong annual cycle, with a peak of condition in June/July and a low in December/January. This variation is strongest for Arusha and Moshi, being approx 27%; it is only about 15% for Dar. The Dar peak and trough appear to be June and December, with Arusha and Moshi slightly later with July and January.

The pattern for Dar is a slight decline (3%) in both maximum and minimum over the period 1989 through 1994; Moshi has a slight increase per annum in the minimum values (2.5% p.a.) and a pronounced and accelerating increase per annum in the maximum values (5-11% p.a.); Arusha is making the most dramatic average quality increases with a jump of 12% p.a. from 1993 to 1994.

Current values for max and min are: Dar 100 and 85; Moshi 117 and 82; Arusha 127 and 100: Arusha has the highest quality animals, with Moshi second and Dar last.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8022.htm


Price/Kg Edible
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8021 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

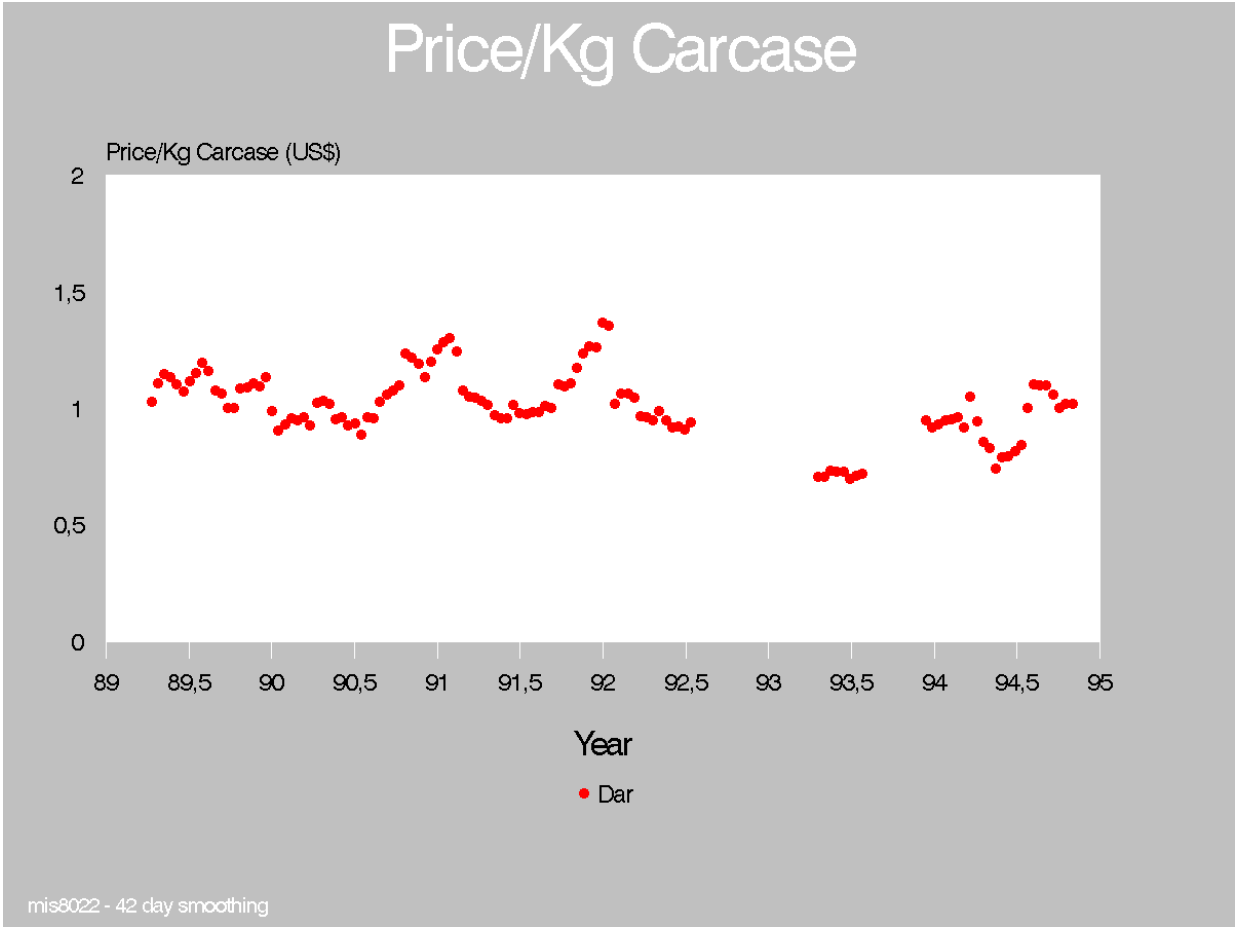
Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8023.htm


Price/Kg Carcase
Price/Kg Carcase (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8022 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8024.htm


Price/Kg Edible
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8023 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

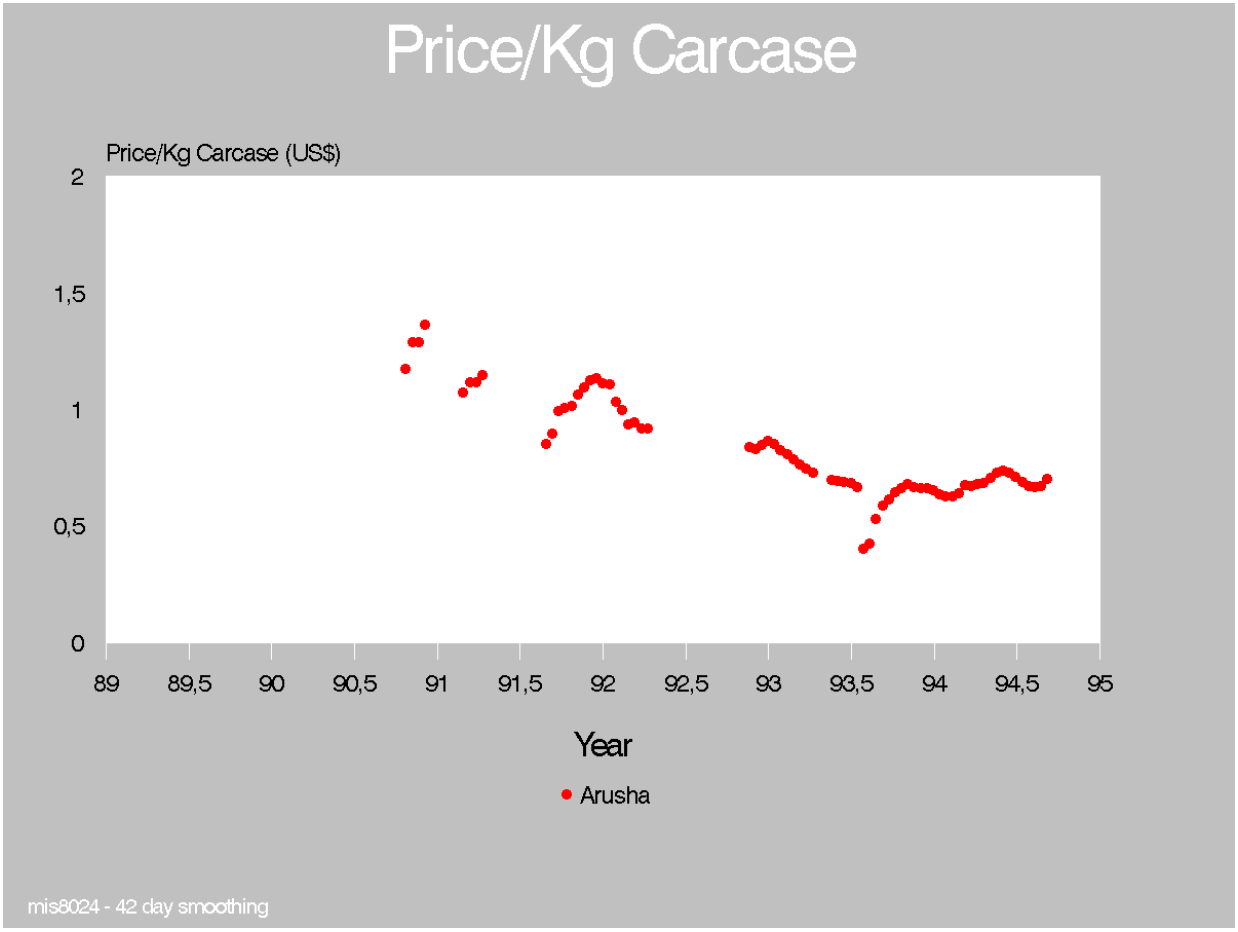
Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8025.htm


Price/Kg Carcase
Price/Kg Carcase (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8024 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8026.htm


Price/Kg Edible
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
mis8025 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

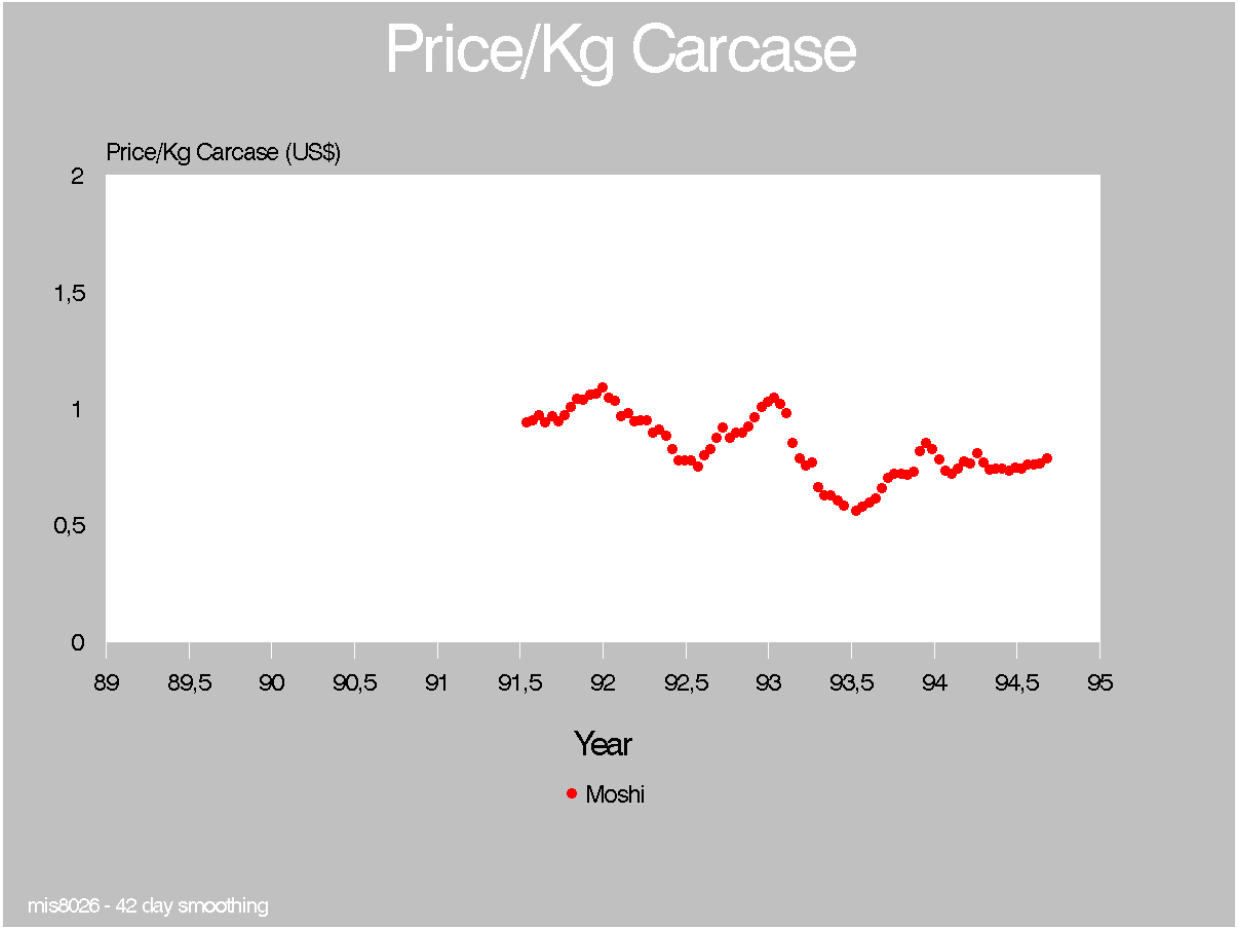
Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8027.htm


Price/Kg Carcase
Price/Kg Carcase (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
mis8026 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

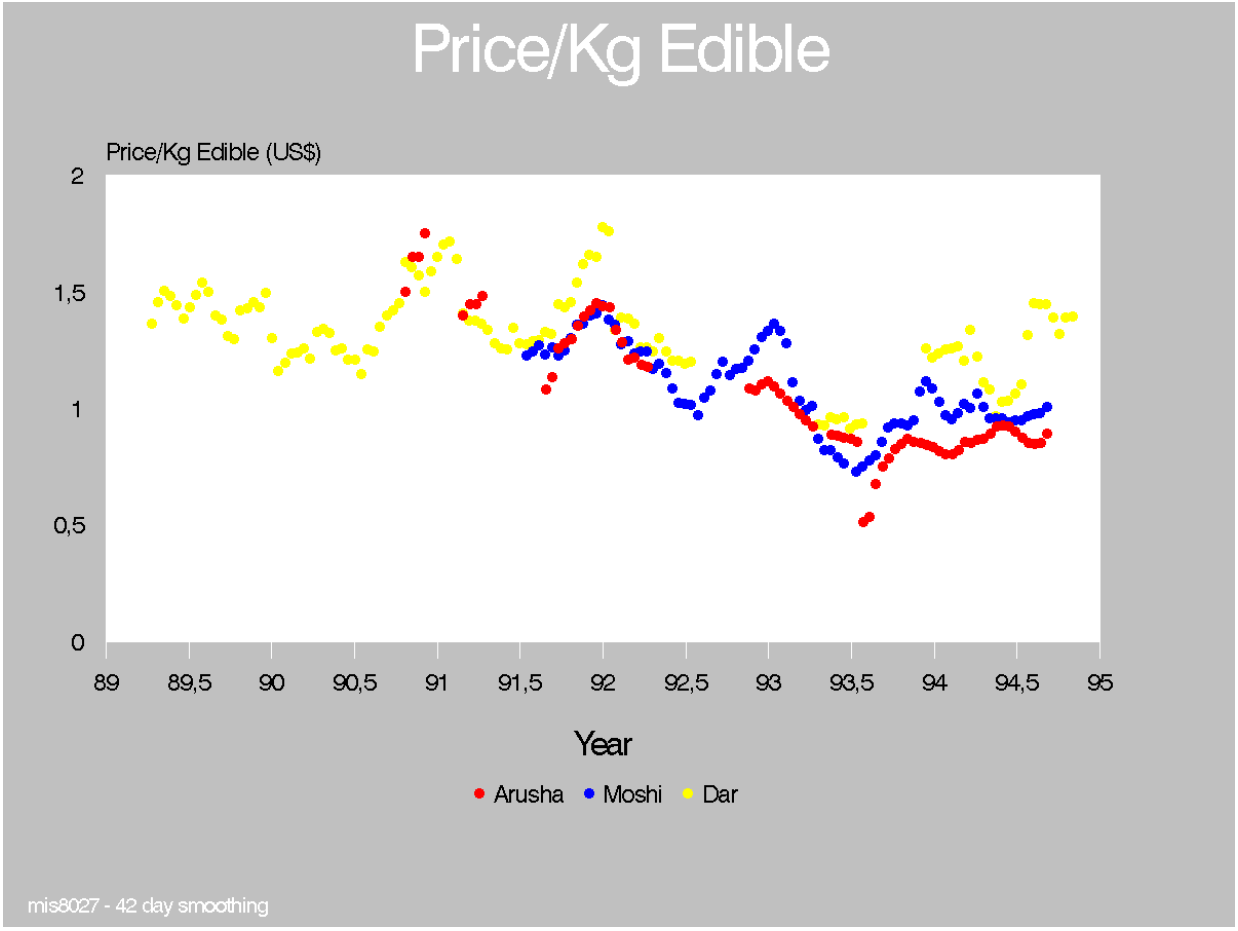
Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8028.htm


Price/Kg Edible
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis8027 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

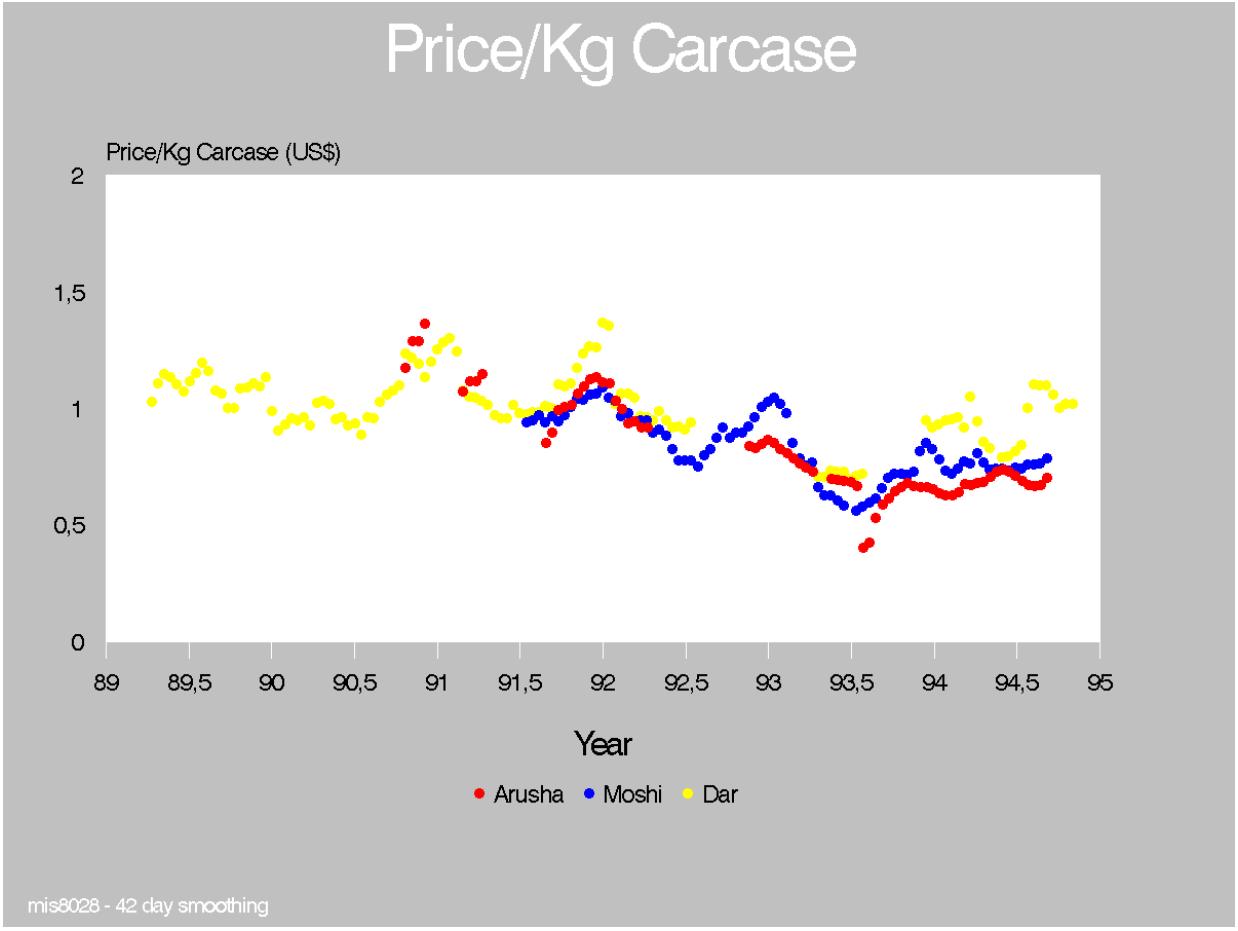
Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8029.htm


Price/Kg Carcase
Price/Kg Carcase (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis8028 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

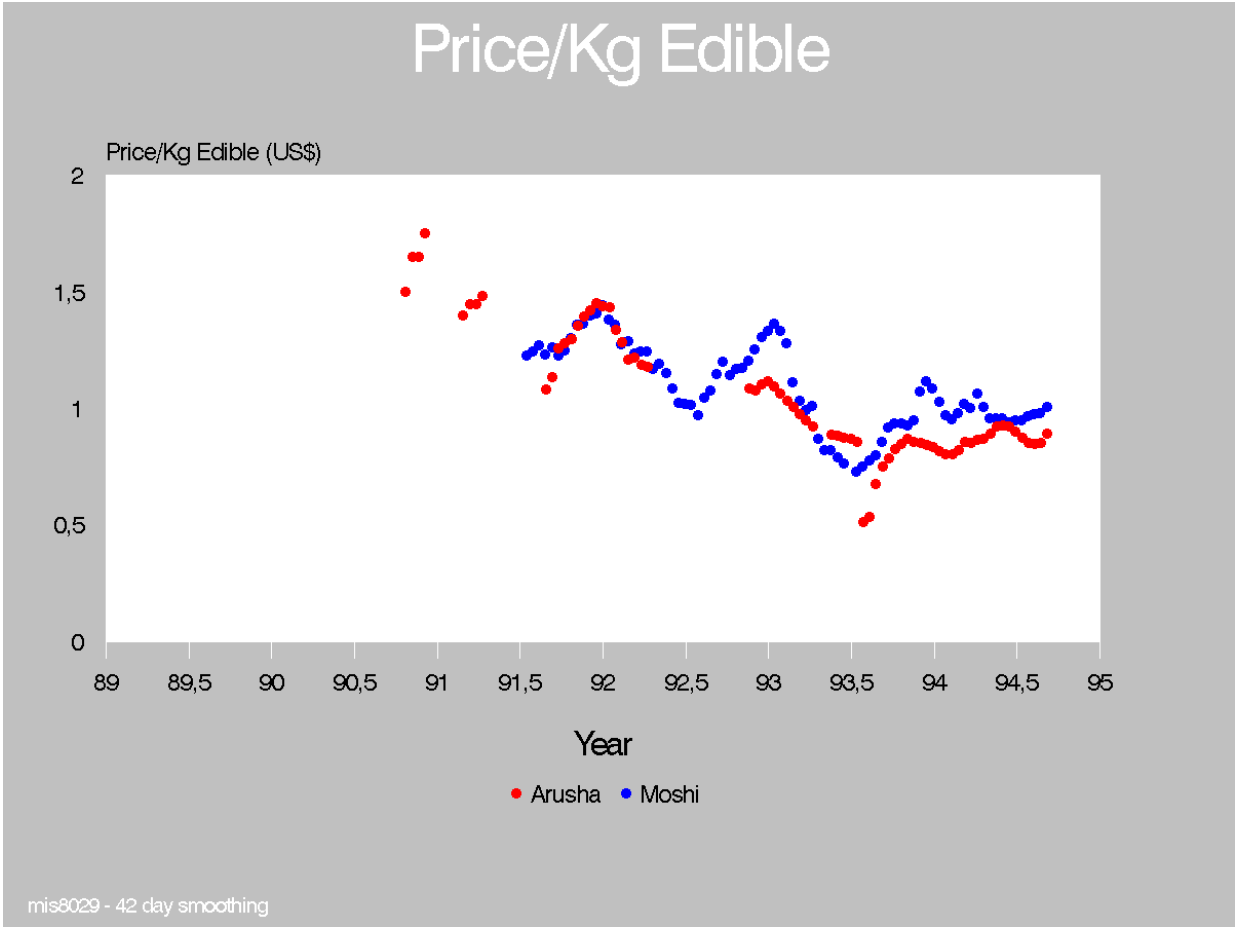
Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8030.htm


Price/Kg Edible
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
mis8029 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

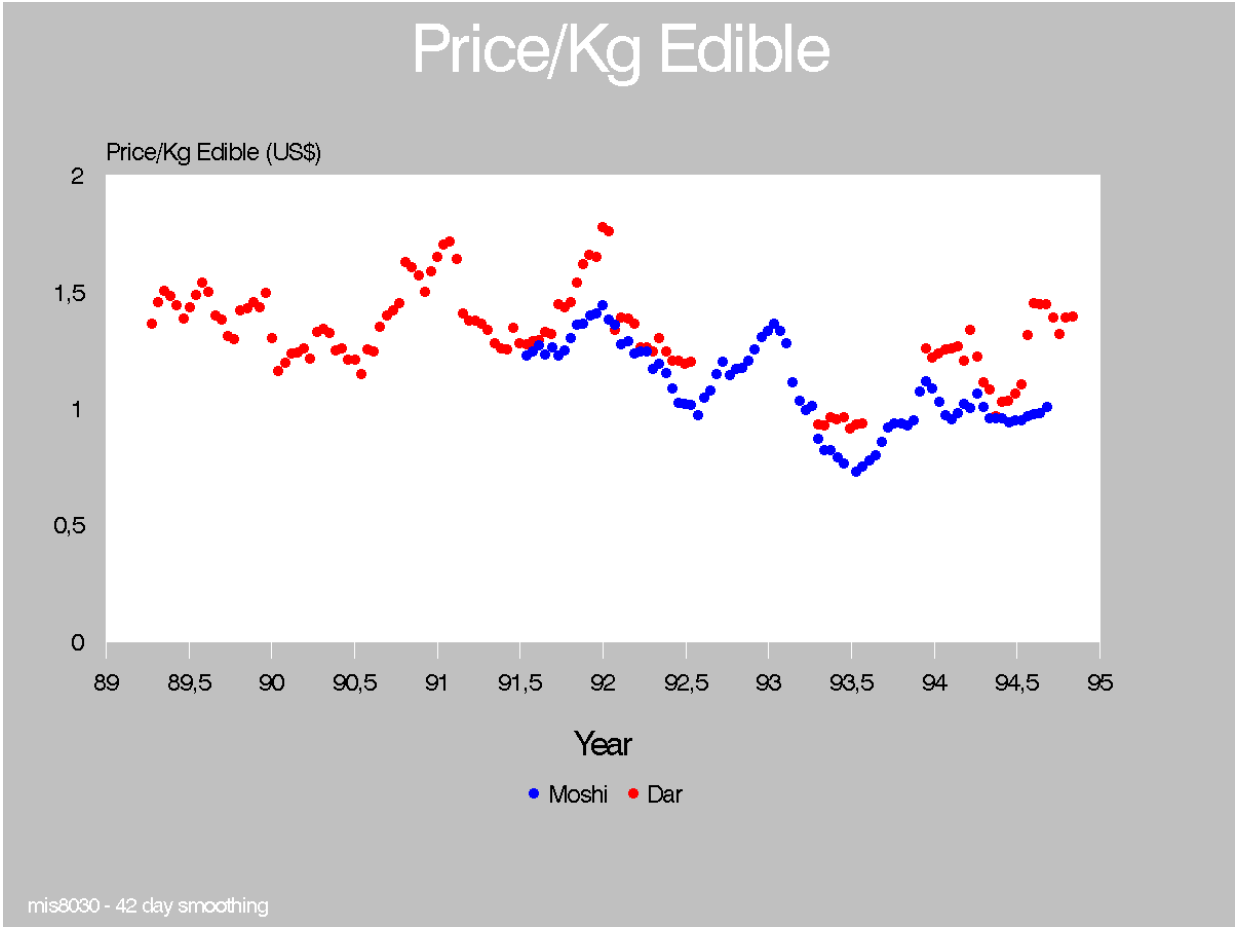
Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8041.htm


Price/Kg Edible
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
Dar
mis8030 - 42 day smoothing

GRAPHS MIS8021.CHT THROUGH MIS8030.CHT - AVERAGE PRICE/EDIBLE KG AND AVERAGE PRICE/CARCASE KG.

Dar shows a slow decline in prices from US$ 1.4/edible kg in 1989 to US$ 1.25/edible kg in 1994. There is a strong cycle with prices peaking in December and troughing in June. These seasonal cycles used to be +/- 20% but now appear to be +/- 15%. The above edible prices correspond on the graph to US$ 1/carcase kg in 1989 and to US$ 0.9/carcase kg in 1994. Note that the 1994 Government-fixed retail price of mixed beef is US$ 1.4 approximately (depending on exchange rate), giving butchers an average gross margin of 35% on sales.

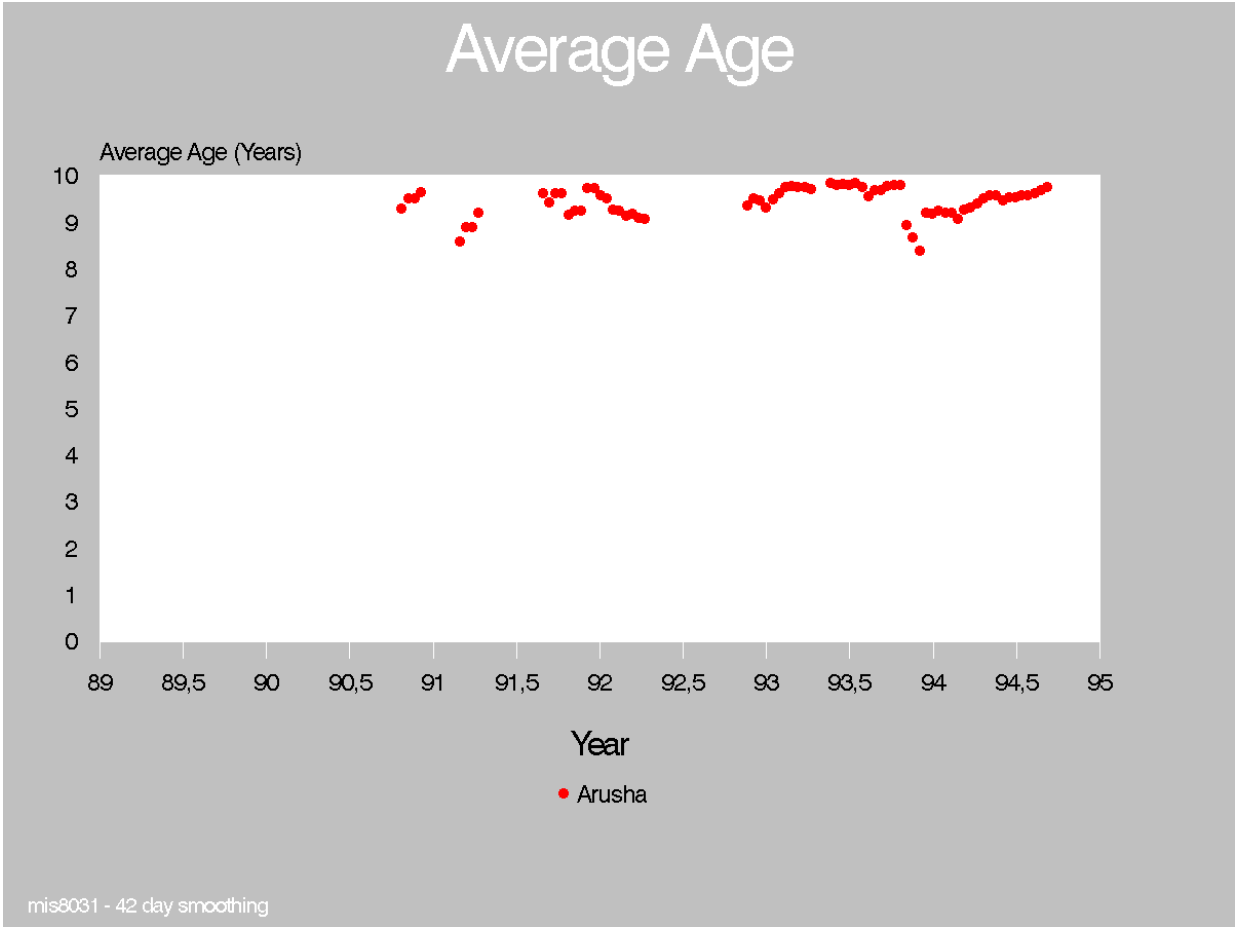
Arusha shows a strong decline from US$ 1.5/kg edible in 1992 to US$ 0.85/kg edible in 1994. There used to be an annual December/June peak and trough but average prices now appear constant throughout the year. Equivalent prices are US$ 1.1/carcase kg and US$ 0.7/carcase kg..

Moshi shows a moderate decline from US$ 1.25/edible kg in 1992 to US$ 1.0/edible kg in 1994. Like Arusha, previous annual December/June extremes are now flat. The equivalent prices are US$ 0.95/carcase kg and US$ 0.75/carcase kg..

Note that for Dar es Salaam the August 1994 peak was due to a severe problem with rail arrivals which caused a shortage of saleable cattle and resultant high prices.

Arusha now appears to be a very attractive market for buyers, in view of high quality and low prices; analysis of prices for the higher grades and weights of animals may however slightly lessen this advantage (see below).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8032.htm


Average Age
Average Age (Years)
10
9
8
7
6
5
4
3
2
1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8031 - 42 day smoothing

GRAPHS MIS8031.CHT THROUGH MIS8034.CHT - AVERAGE AGE PER ANIMAL

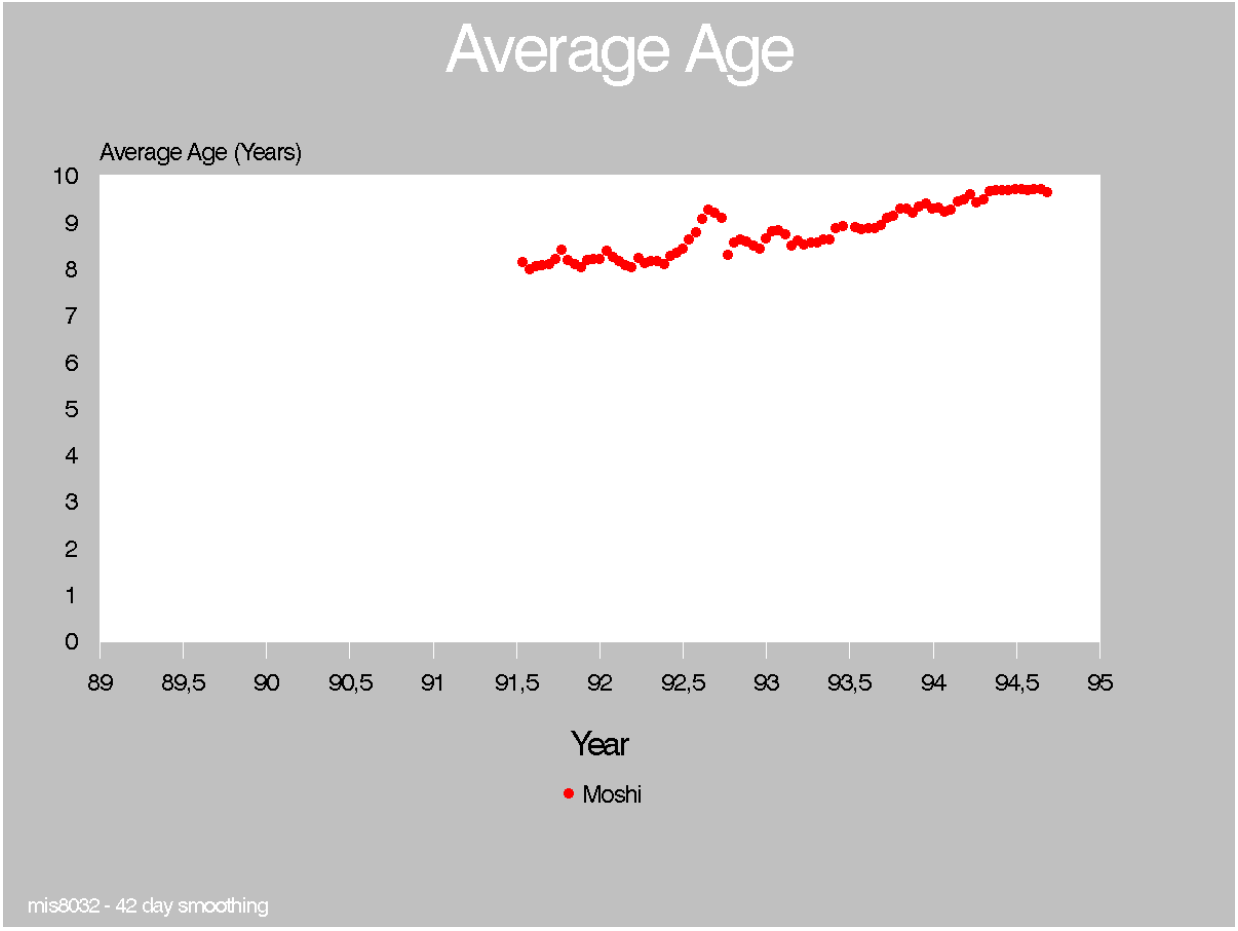
For Arusha, we see an average age for the period of 9-10 years, with no seasonal cycle or change with time.

For Moshi, we see a move from 8 years average age to 9.5 years average age over the period 1992 - 1994, with no apparent seasonal cycle.

For Dar, we see average age move from 6.5 years in 1989 to 8 years in 1994; in the first few years we seem to see a double cycle each year, with an age peak at June and December. This could in fact be an unloading of older animals in June when the general condition of almost all animals is good, and again an unloading of older animals in December when there is a serious shortage.

Remember however that ageing is a very difficult and subjective process (possibly worse than grading); therefore data between markets is probably not comparable, and even within a market with the passing of time and the changing of ageing personnel or the drifting of standards....

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8033.htm


Average Age
Average Age (Years)
10
9
8
7
6
5
4
3
2
1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
mis8032 - 42 day smoothing

GRAPHS MIS8031.CHT THROUGH MIS8034.CHT - AVERAGE AGE PER ANIMAL

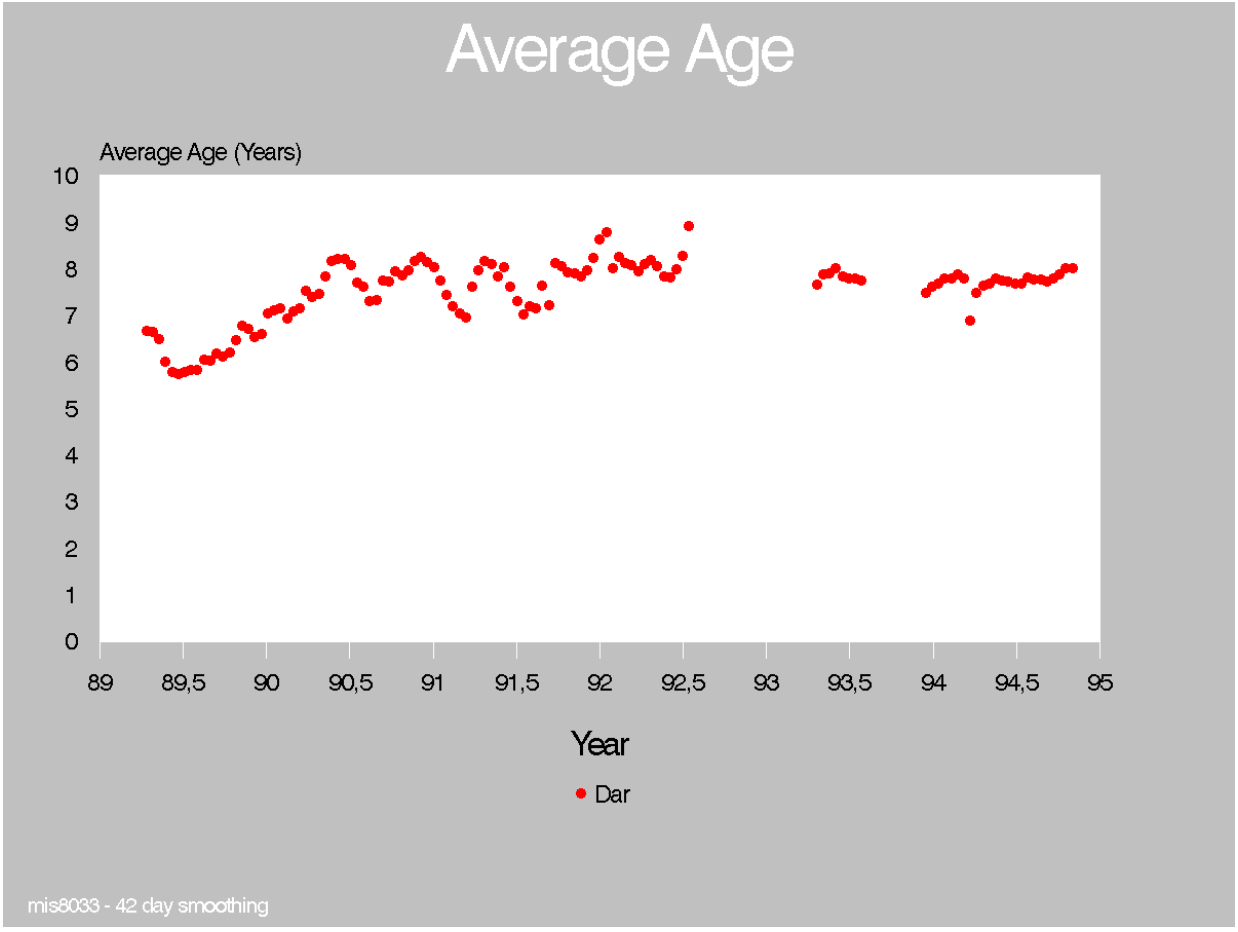
For Arusha, we see an average age for the period of 9-10 years, with no seasonal cycle or change with time.

For Moshi, we see a move from 8 years average age to 9.5 years average age over the period 1992 - 1994, with no apparent seasonal cycle.

For Dar, we see average age move from 6.5 years in 1989 to 8 years in 1994; in the first few years we seem to see a double cycle each year, with an age peak at June and December. This could in fact be an unloading of older animals in June when the general condition of almost all animals is good, and again an unloading of older animals in December when there is a serious shortage.

Remember however that ageing is a very difficult and subjective process (possibly worse than grading); therefore data between markets is probably not comparable, and even within a market with the passing of time and the changing of ageing personnel or the drifting of standards....

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8034.htm


Average Age
Average Age (Years)
10
9
8
7
6
5
4
3
2
1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8033 - 42 day smoothing

GRAPHS MIS8031.CHT THROUGH MIS8034.CHT - AVERAGE AGE PER ANIMAL

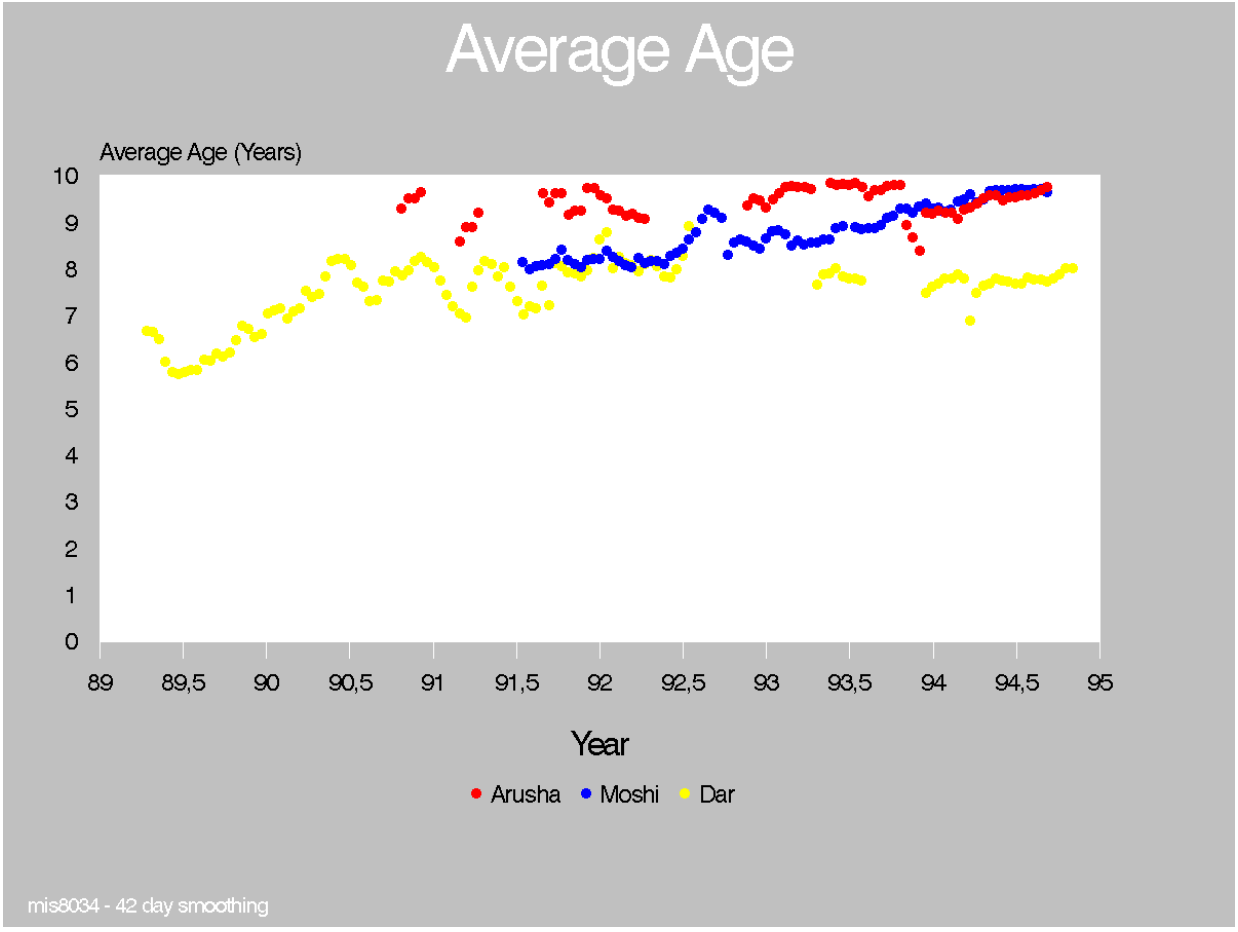
For Arusha, we see an average age for the period of 9-10 years, with no seasonal cycle or change with time.

For Moshi, we see a move from 8 years average age to 9.5 years average age over the period 1992 - 1994, with no apparent seasonal cycle.

For Dar, we see average age move from 6.5 years in 1989 to 8 years in 1994; in the first few years we seem to see a double cycle each year, with an age peak at June and December. This could in fact be an unloading of older animals in June when the general condition of almost all animals is good, and again an unloading of older animals in December when there is a serious shortage.

Remember however that ageing is a very difficult and subjective process (possibly worse than grading); therefore data between markets is probably not comparable, and even within a market with the passing of time and the changing of ageing personnel or the drifting of standards....

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8051.htm


Average Age
Average Age (Years)
10
9
8
7
6
5
4
3
2
1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis8034 - 42 day smoothing

GRAPHS MIS8031.CHT THROUGH MIS8034.CHT - AVERAGE AGE PER ANIMAL

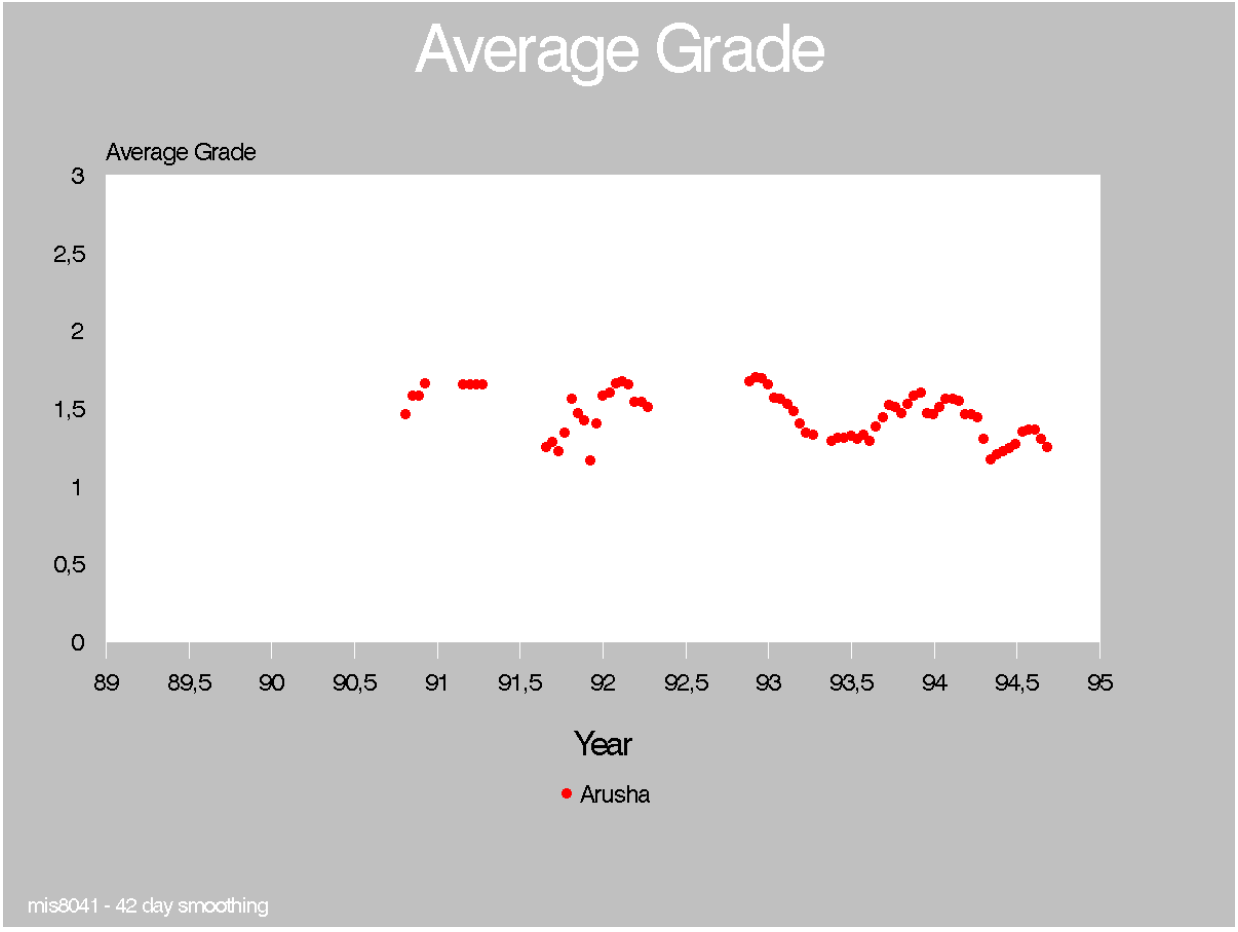
For Arusha, we see an average age for the period of 9-10 years, with no seasonal cycle or change with time.

For Moshi, we see a move from 8 years average age to 9.5 years average age over the period 1992 - 1994, with no apparent seasonal cycle.

For Dar, we see average age move from 6.5 years in 1989 to 8 years in 1994; in the first few years we seem to see a double cycle each year, with an age peak at June and December. This could in fact be an unloading of older animals in June when the general condition of almost all animals is good, and again an unloading of older animals in December when there is a serious shortage.

Remember however that ageing is a very difficult and subjective process (possibly worse than grading); therefore data between markets is probably not comparable, and even within a market with the passing of time and the changing of ageing personnel or the drifting of standards....

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8042.htm


Average Grade
Average Grade
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8041 - 42 day smoothing

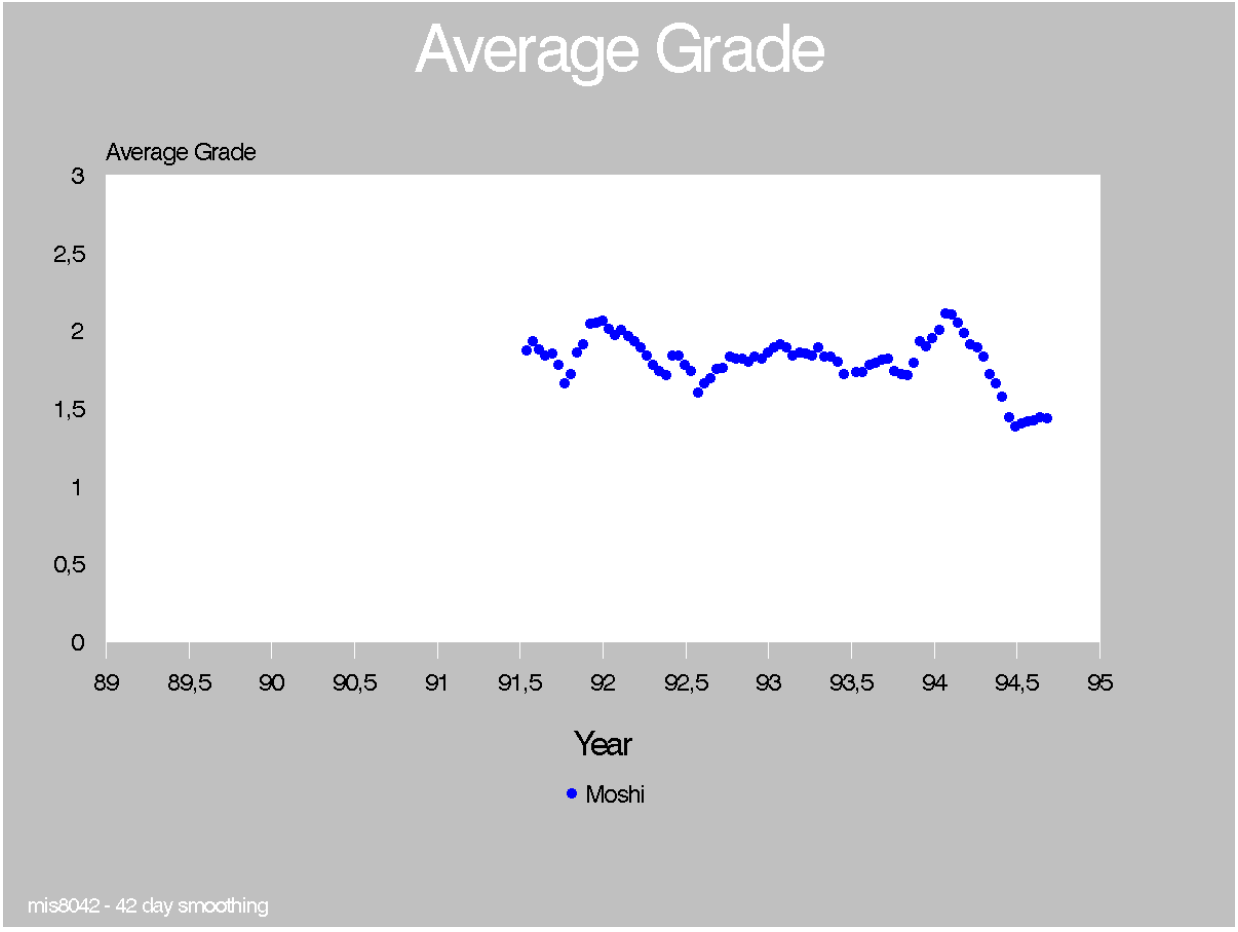
GRAPHS MIS8041.CHT THROUGH MIS8046.CHT - AVERAGE GRADE PER ANIMAL

This graph is similar in some ways to MIS8001.CHT (which graphed average edible weight/animal). For all 3 sites there are pronounced seasonal fluctuations, with top grade in June and lowest grade in December.

Arusha is the highest quality, with a peak of 1.05 grade average and a trough of 1.75 in December; Moshi is next with 1.6 peak and 2.1 trough; Dar is last with 1.7 peak and 2.1 trough.

Arusha and Dar are steady over the period 1989 - 1994, but Moshi has made a spurt in 1994, breaking out of its normal 1.6 - 2.1 annual cycle to hit a peak of 1.3.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8043.htm


Average Grade
Average Grade
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
mis8042 - 42 day smoothing

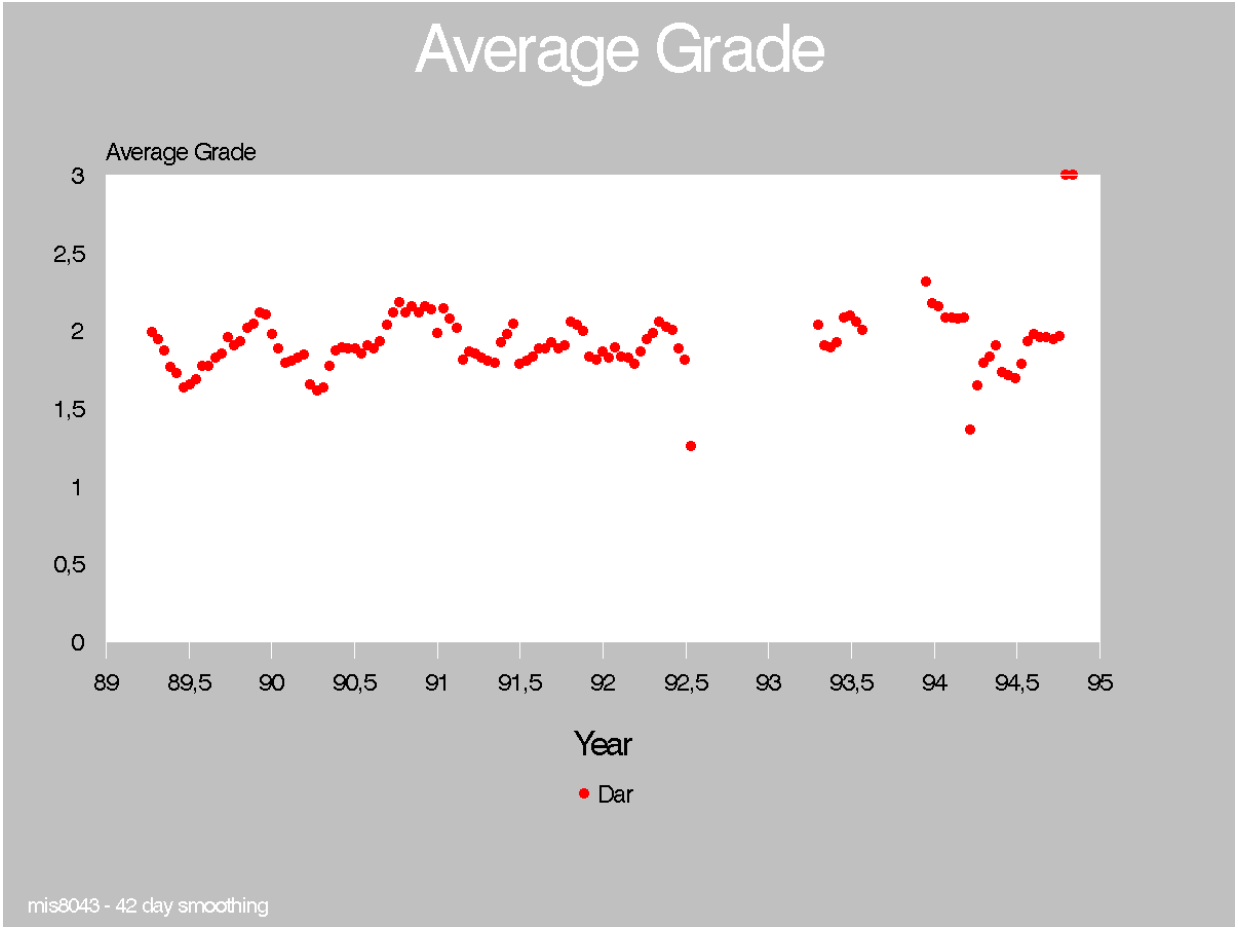
GRAPHS MIS8041.CHT THROUGH MIS8046.CHT - AVERAGE GRADE PER ANIMAL

This graph is similar in some ways to MIS8001.CHT (which graphed average edible weight/animal). For all 3 sites there are pronounced seasonal fluctuations, with top grade in June and lowest grade in December.

Arusha is the highest quality, with a peak of 1.05 grade average and a trough of 1.75 in December; Moshi is next with 1.6 peak and 2.1 trough; Dar is last with 1.7 peak and 2.1 trough.

Arusha and Dar are steady over the period 1989 - 1994, but Moshi has made a spurt in 1994, breaking out of its normal 1.6 - 2.1 annual cycle to hit a peak of 1.3.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8044.htm


Average Grade
Average Grade
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8043 - 42 day smoothing

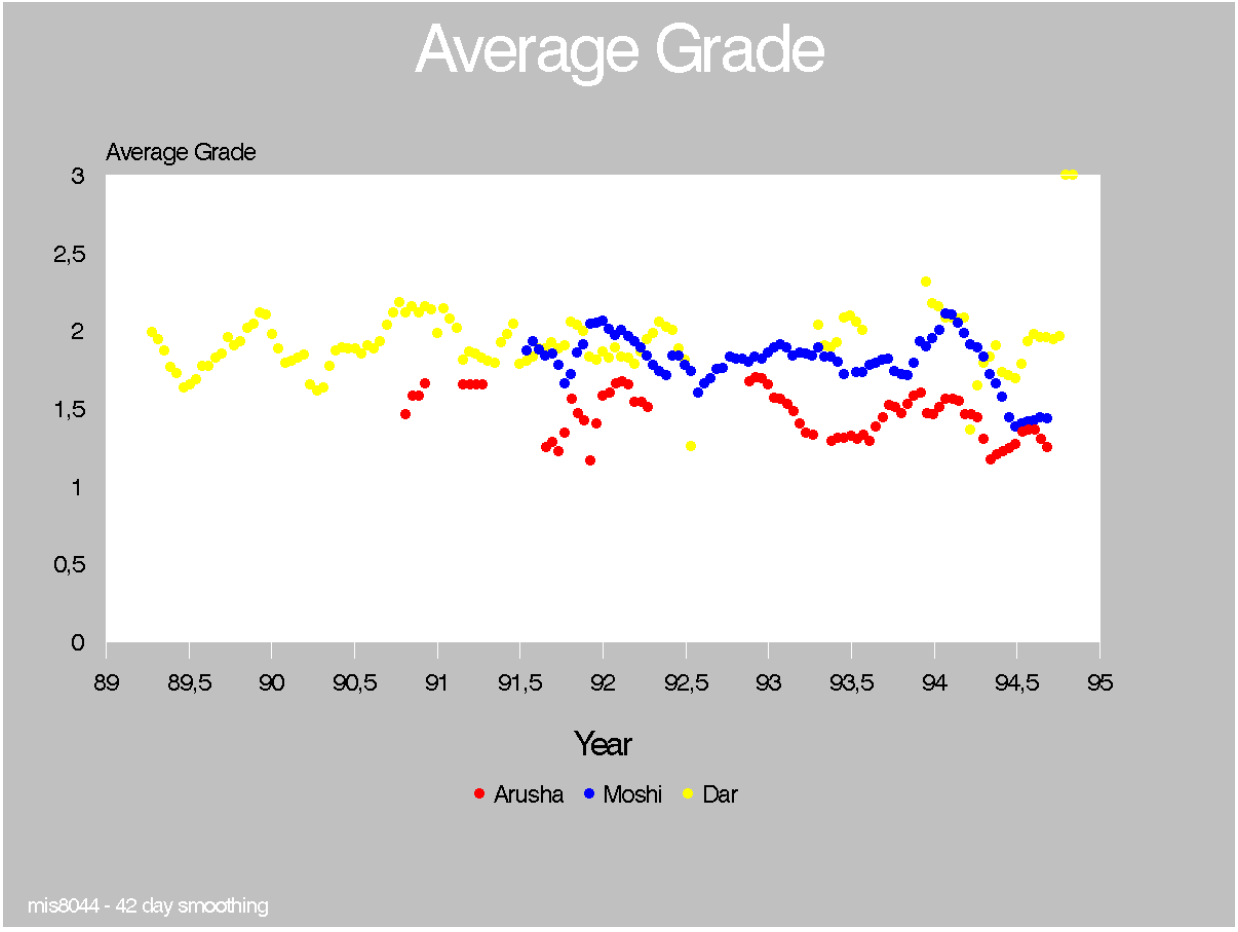
GRAPHS MIS8041.CHT THROUGH MIS8046.CHT - AVERAGE GRADE PER ANIMAL

This graph is similar in some ways to MIS8001.CHT (which graphed average edible weight/animal). For all 3 sites there are pronounced seasonal fluctuations, with top grade in June and lowest grade in December.

Arusha is the highest quality, with a peak of 1.05 grade average and a trough of 1.75 in December; Moshi is next with 1.6 peak and 2.1 trough; Dar is last with 1.7 peak and 2.1 trough.

Arusha and Dar are steady over the period 1989 - 1994, but Moshi has made a spurt in 1994, breaking out of its normal 1.6 - 2.1 annual cycle to hit a peak of 1.3.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8045.htm


Average Grade
Average Grade
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis8044 - 42 day smoothing

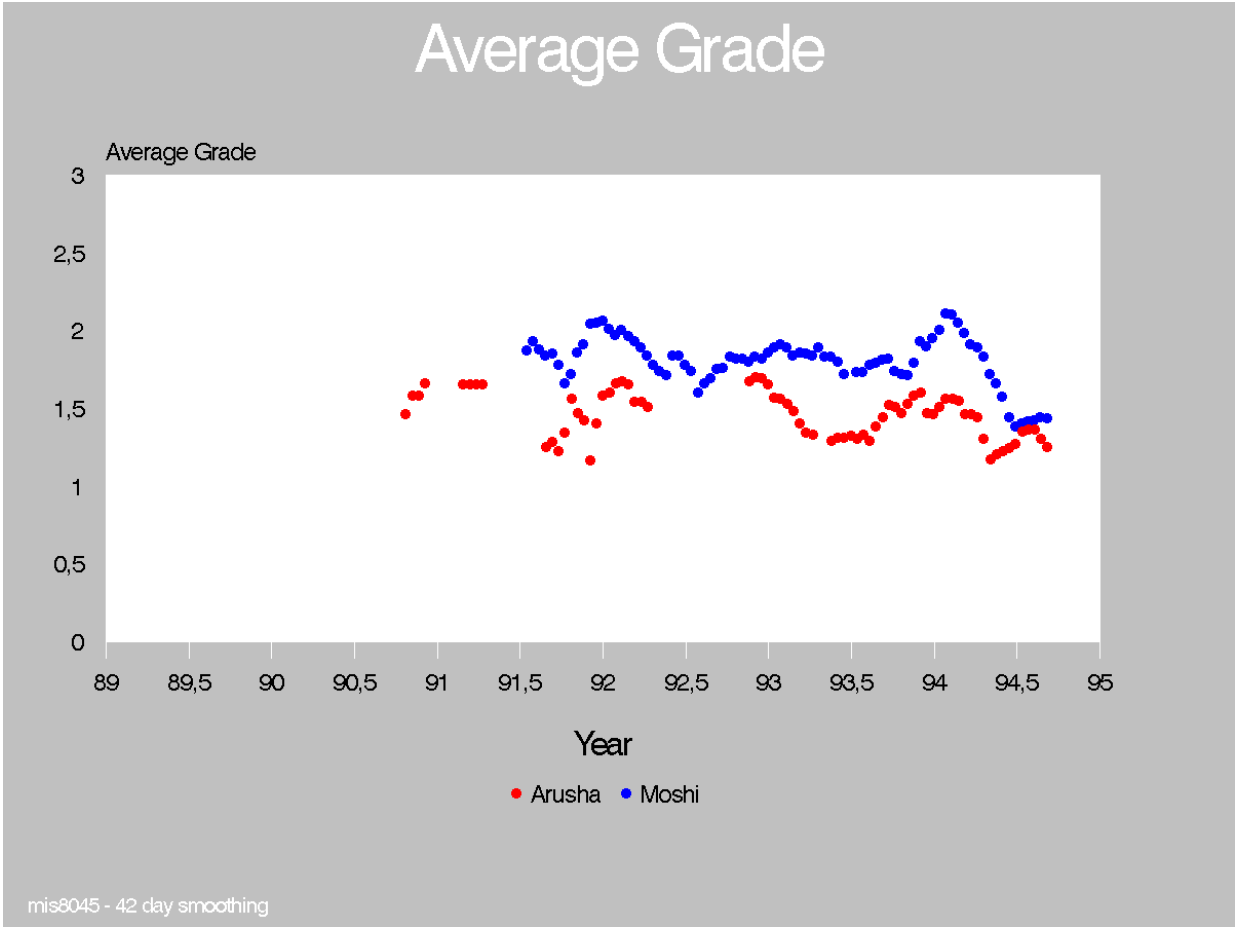
GRAPHS MIS8041.CHT THROUGH MIS8046.CHT - AVERAGE GRADE PER ANIMAL

This graph is similar in some ways to MIS8001.CHT (which graphed average edible weight/animal). For all 3 sites there are pronounced seasonal fluctuations, with top grade in June and lowest grade in December.

Arusha is the highest quality, with a peak of 1.05 grade average and a trough of 1.75 in December; Moshi is next with 1.6 peak and 2.1 trough; Dar is last with 1.7 peak and 2.1 trough.

Arusha and Dar are steady over the period 1989 - 1994, but Moshi has made a spurt in 1994, breaking out of its normal 1.6 - 2.1 annual cycle to hit a peak of 1.3.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8046.htm


Average Grade
Average Grade
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
mis8045 - 42 day smoothing

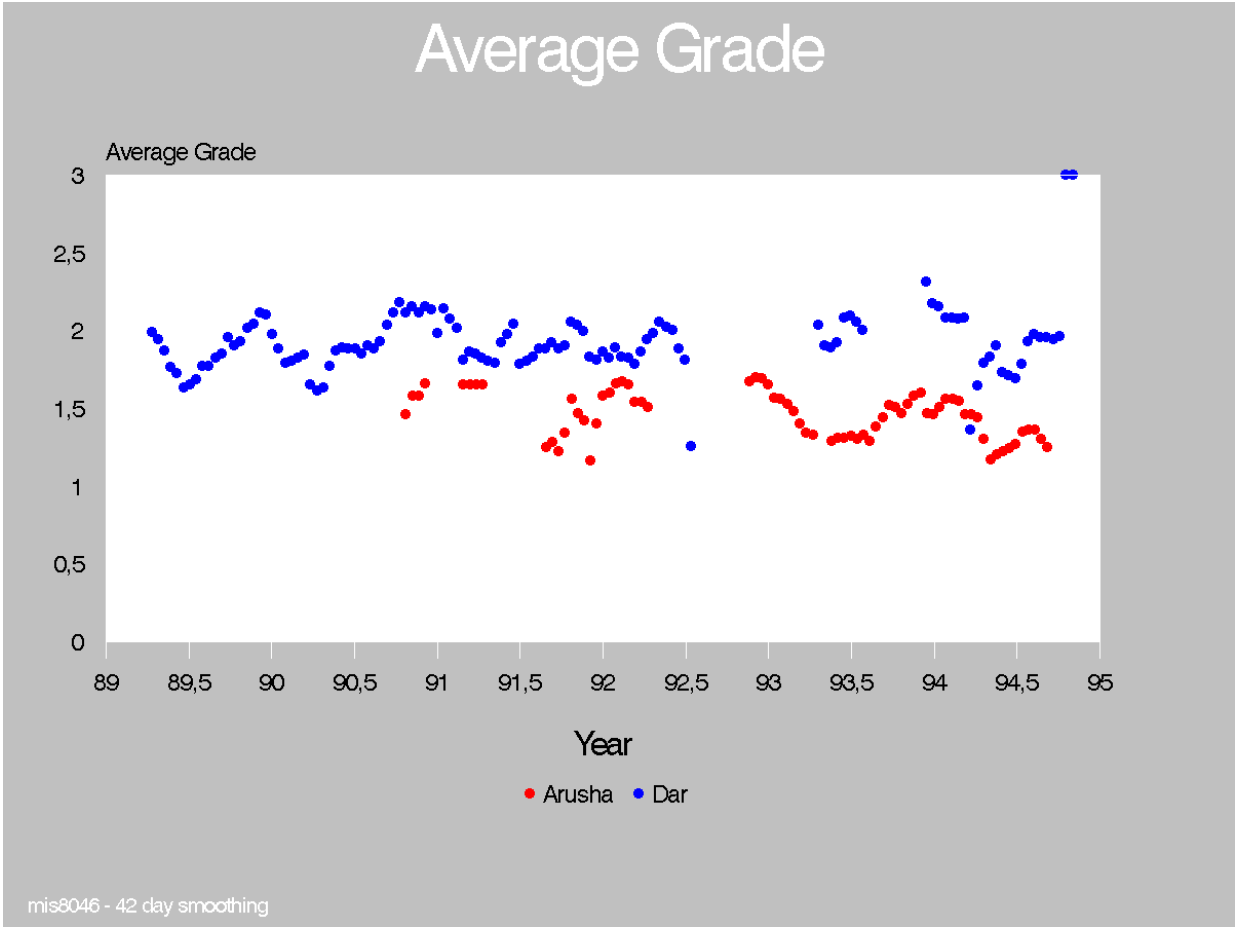
GRAPHS MIS8041.CHT THROUGH MIS8046.CHT - AVERAGE GRADE PER ANIMAL

This graph is similar in some ways to MIS8001.CHT (which graphed average edible weight/animal). For all 3 sites there are pronounced seasonal fluctuations, with top grade in June and lowest grade in December.

Arusha is the highest quality, with a peak of 1.05 grade average and a trough of 1.75 in December; Moshi is next with 1.6 peak and 2.1 trough; Dar is last with 1.7 peak and 2.1 trough.

Arusha and Dar are steady over the period 1989 - 1994, but Moshi has made a spurt in 1994, breaking out of its normal 1.6 - 2.1 annual cycle to hit a peak of 1.3.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8091.htm


Average Grade
Average Grade
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Dar
mis8046 - 42 day smoothing

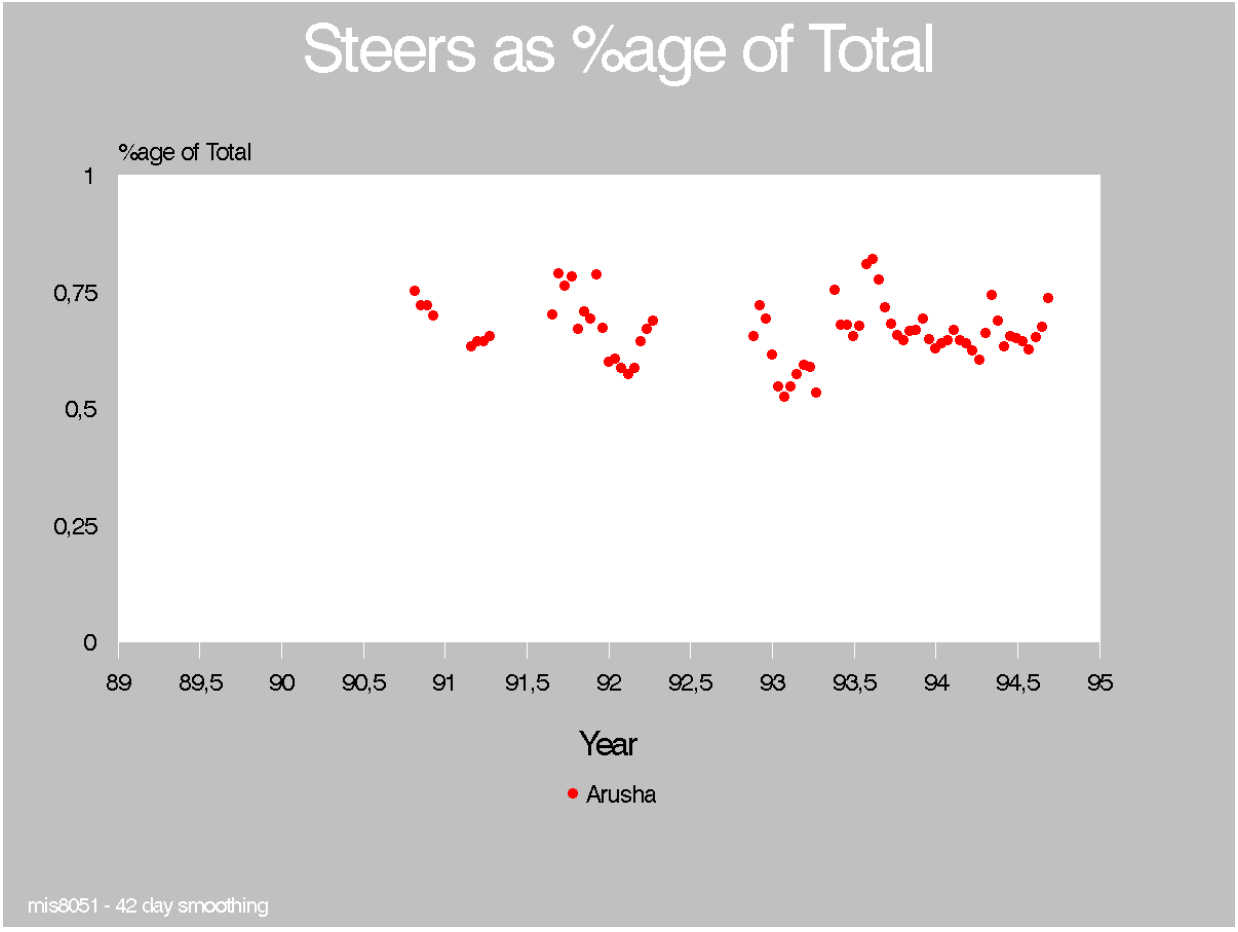
GRAPHS MIS8041.CHT THROUGH MIS8046.CHT - AVERAGE GRADE PER ANIMAL

This graph is similar in some ways to MIS8001.CHT (which graphed average edible weight/animal). For all 3 sites there are pronounced seasonal fluctuations, with top grade in June and lowest grade in December.

Arusha is the highest quality, with a peak of 1.05 grade average and a trough of 1.75 in December; Moshi is next with 1.6 peak and 2.1 trough; Dar is last with 1.7 peak and 2.1 trough.

Arusha and Dar are steady over the period 1989 - 1994, but Moshi has made a spurt in 1994, breaking out of its normal 1.6 - 2.1 annual cycle to hit a peak of 1.3.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8052.htm


Steers as %age of Total
%age of Total
1
0,75
0,5
0,25
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8051 - 42 day smoothing

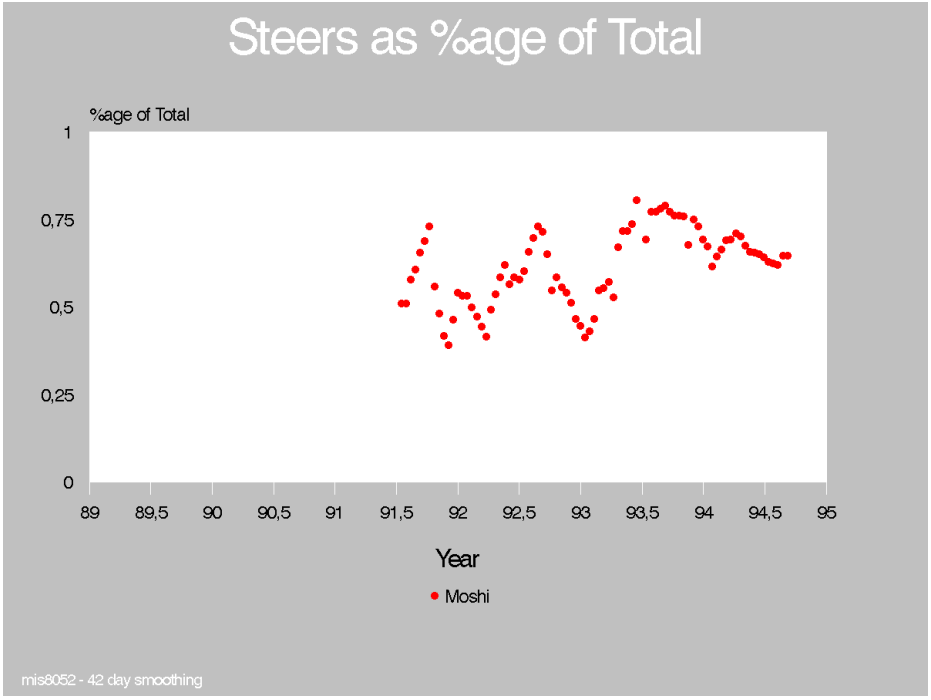
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8053.htm



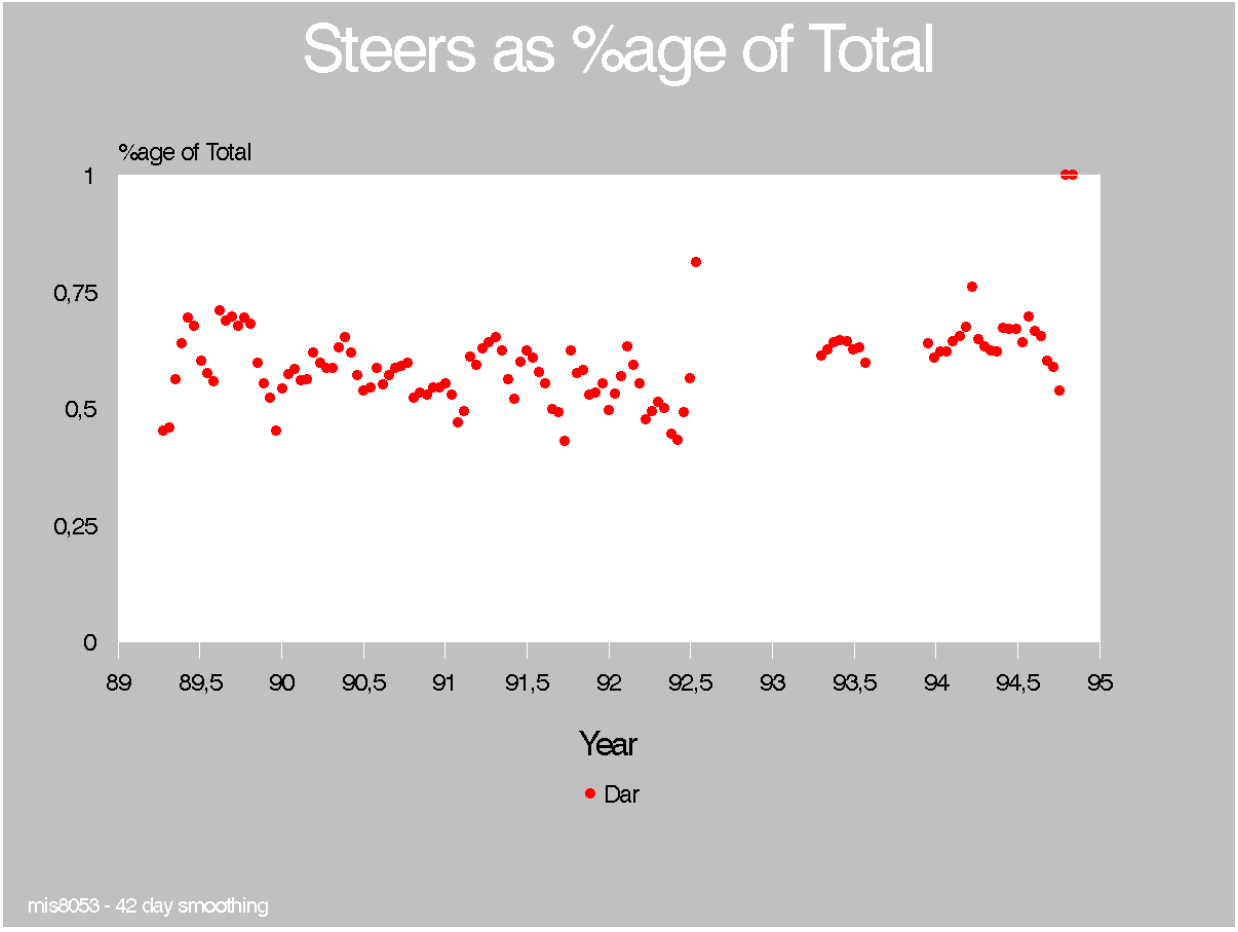
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8054.htm


Steers as %age of Total
%age of Total
1
0,75
0,5
0,25
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8053 - 42 day smoothing

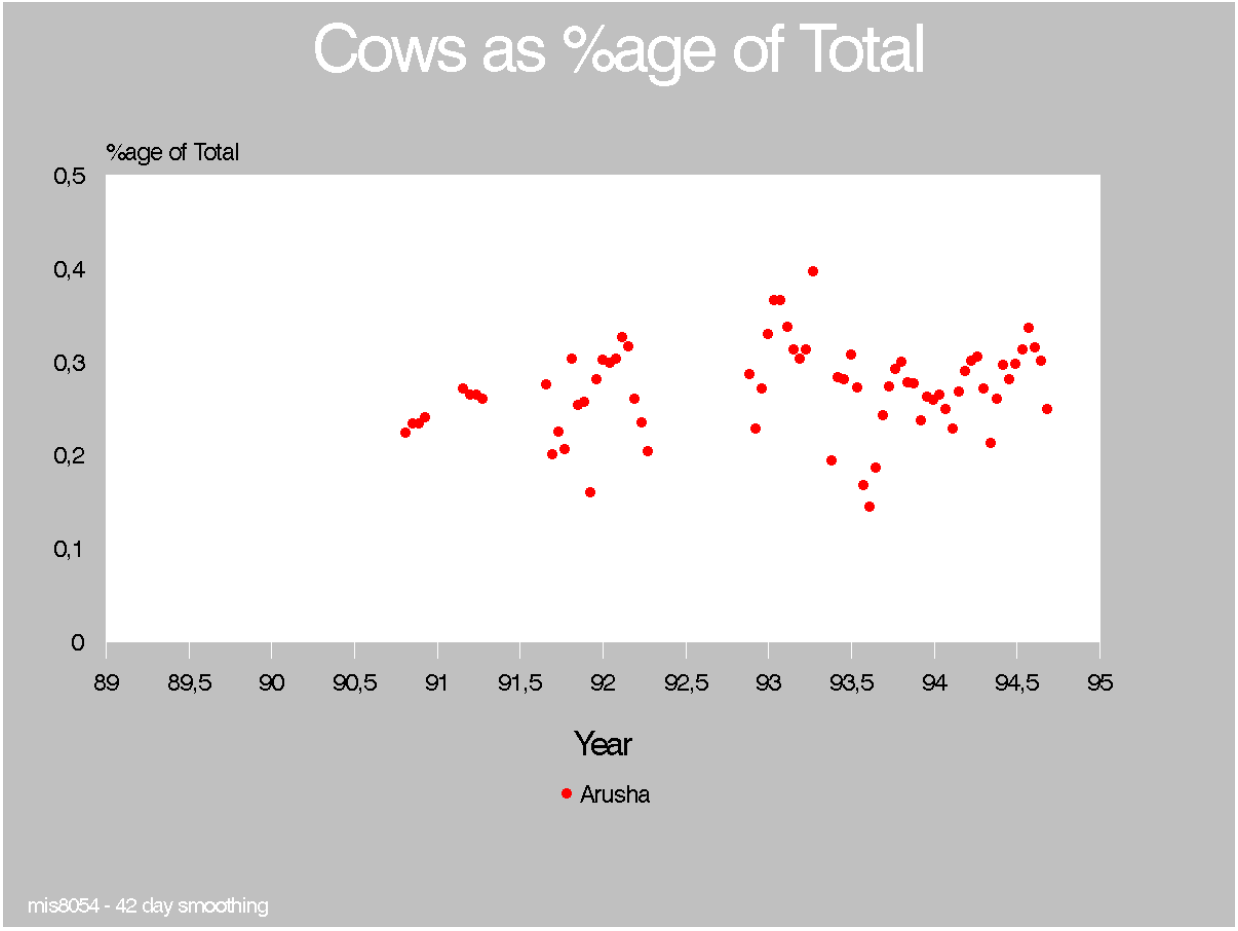
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8055.htm


Cows as %age of Total
%age of Total
0,5
0,4
0,3
0,2
0,1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8054 - 42 day smoothing

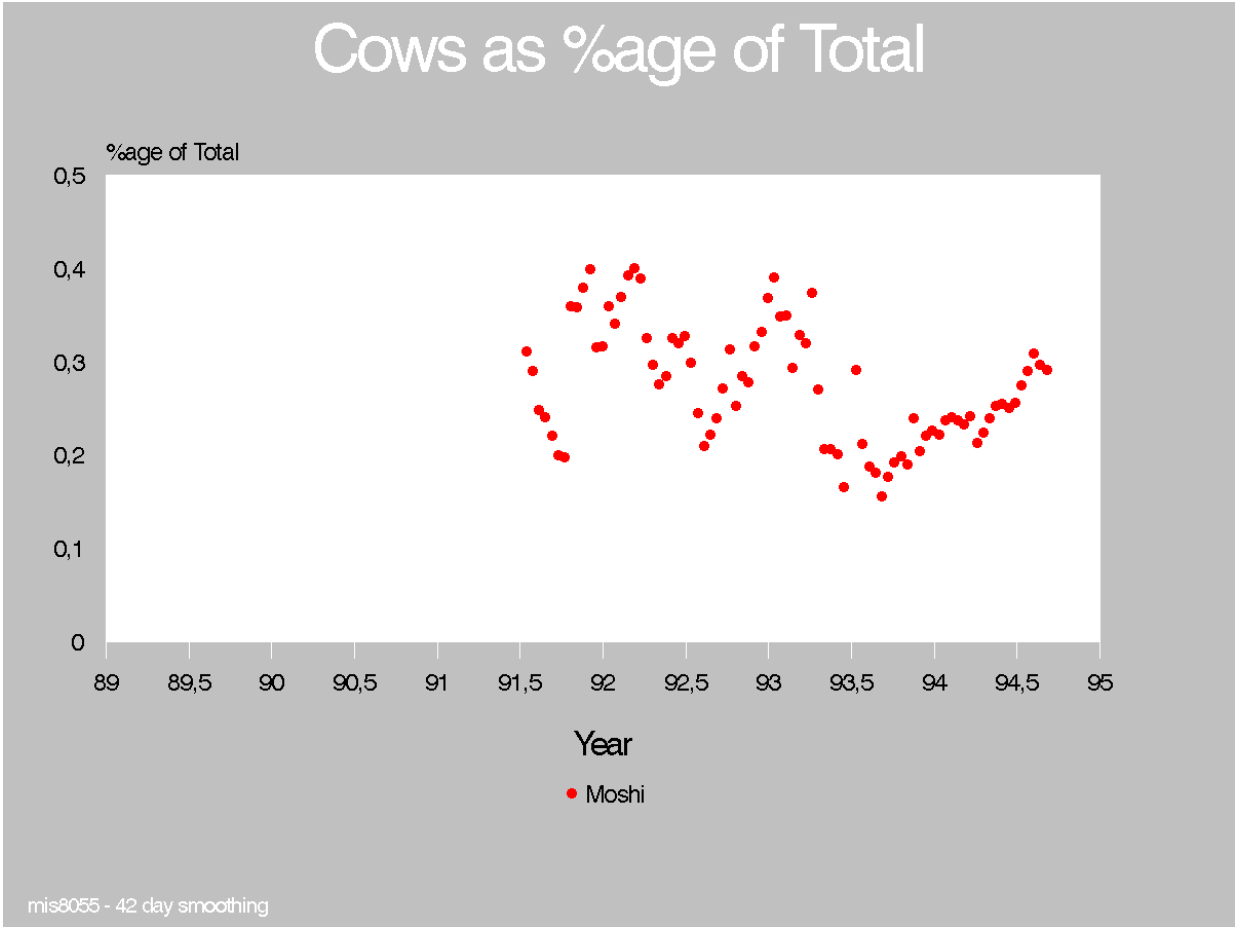
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8056.htm


Cows as %age of Total
%age of Total
0,5
0,4
0,3
0,2
0,1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
mis8055 - 42 day smoothing

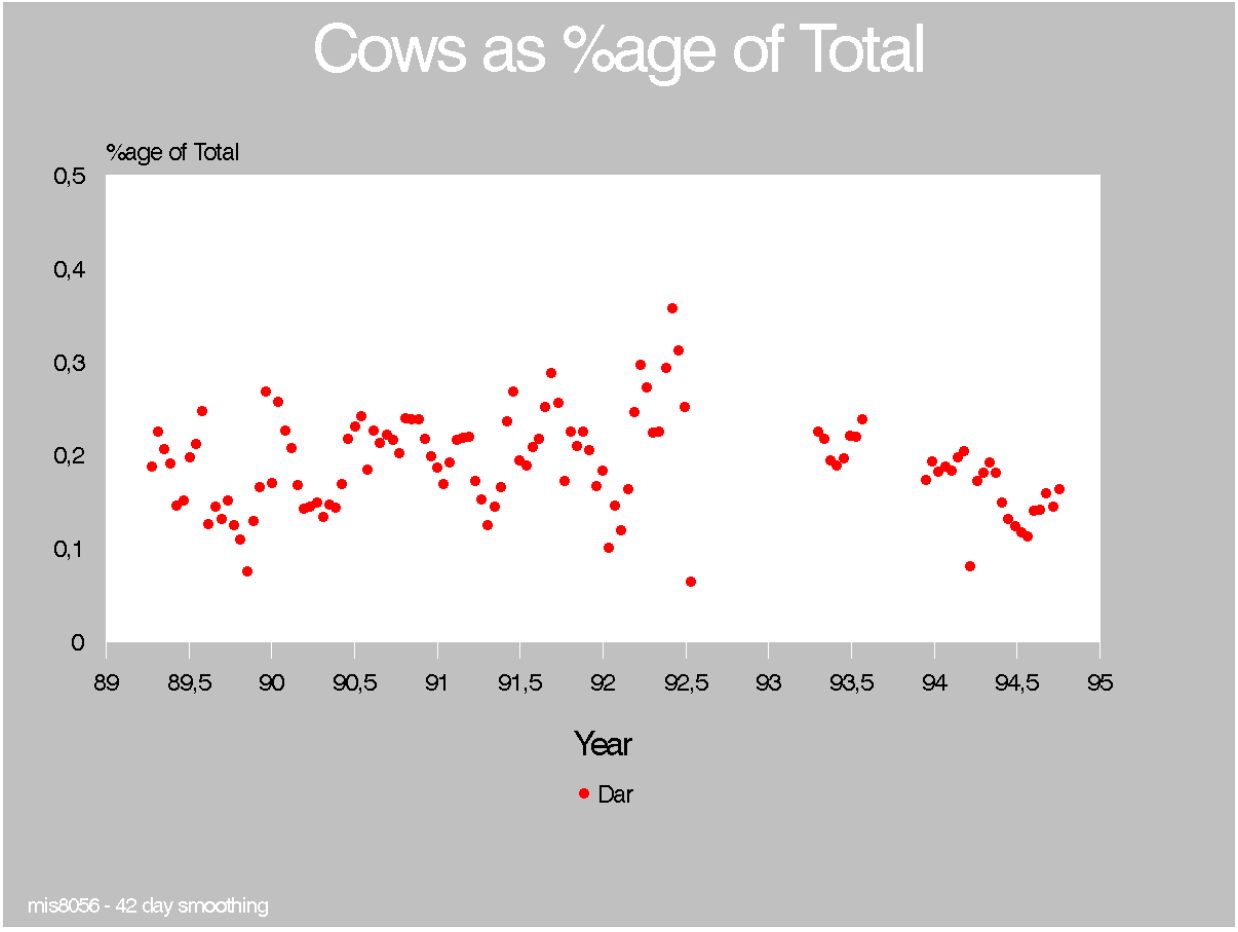
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8057.htm


Cows as %age of Total
%age of Total
0,5
0,4
0,3
0,2
0,1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8056 - 42 day smoothing

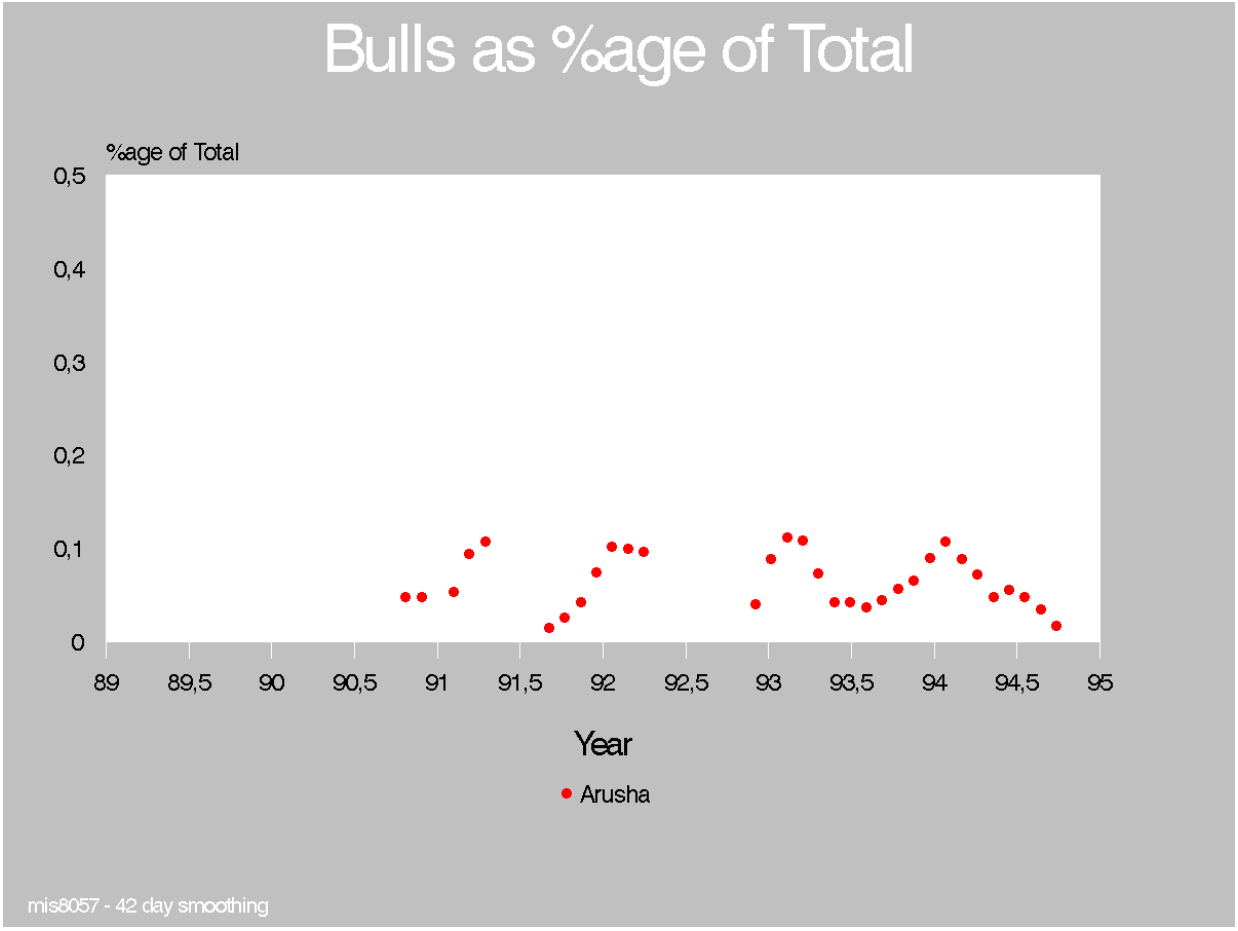
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8058.htm


Bulls as %age of Total
%age of Total
0,5
0,4
0,3
0,2
0,1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8057 - 42 day smoothing

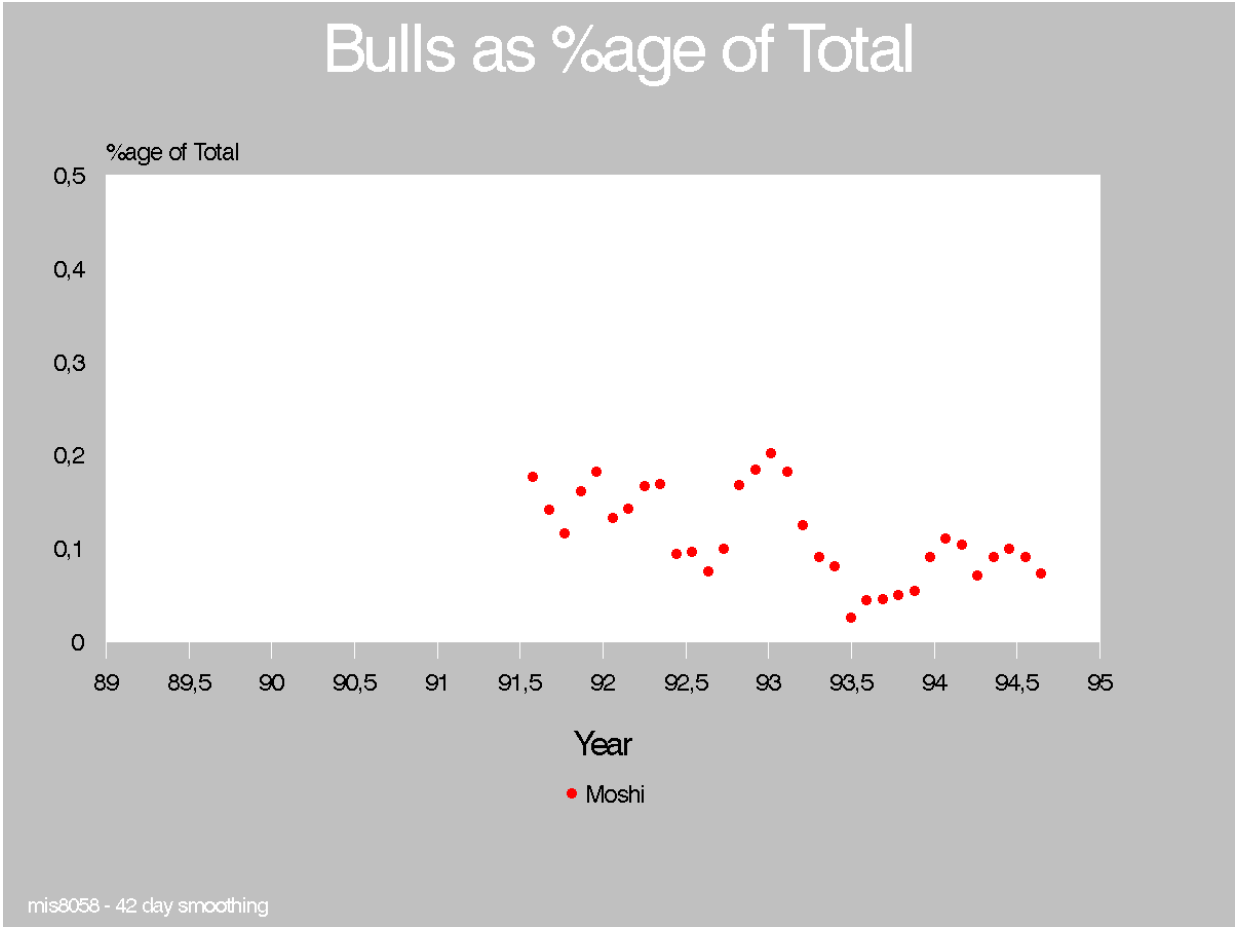
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8059.htm


Bulls as %age of Total
%age of Total
0,5
0,4
0,3
0,2
0,1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
mis8058 - 42 day smoothing

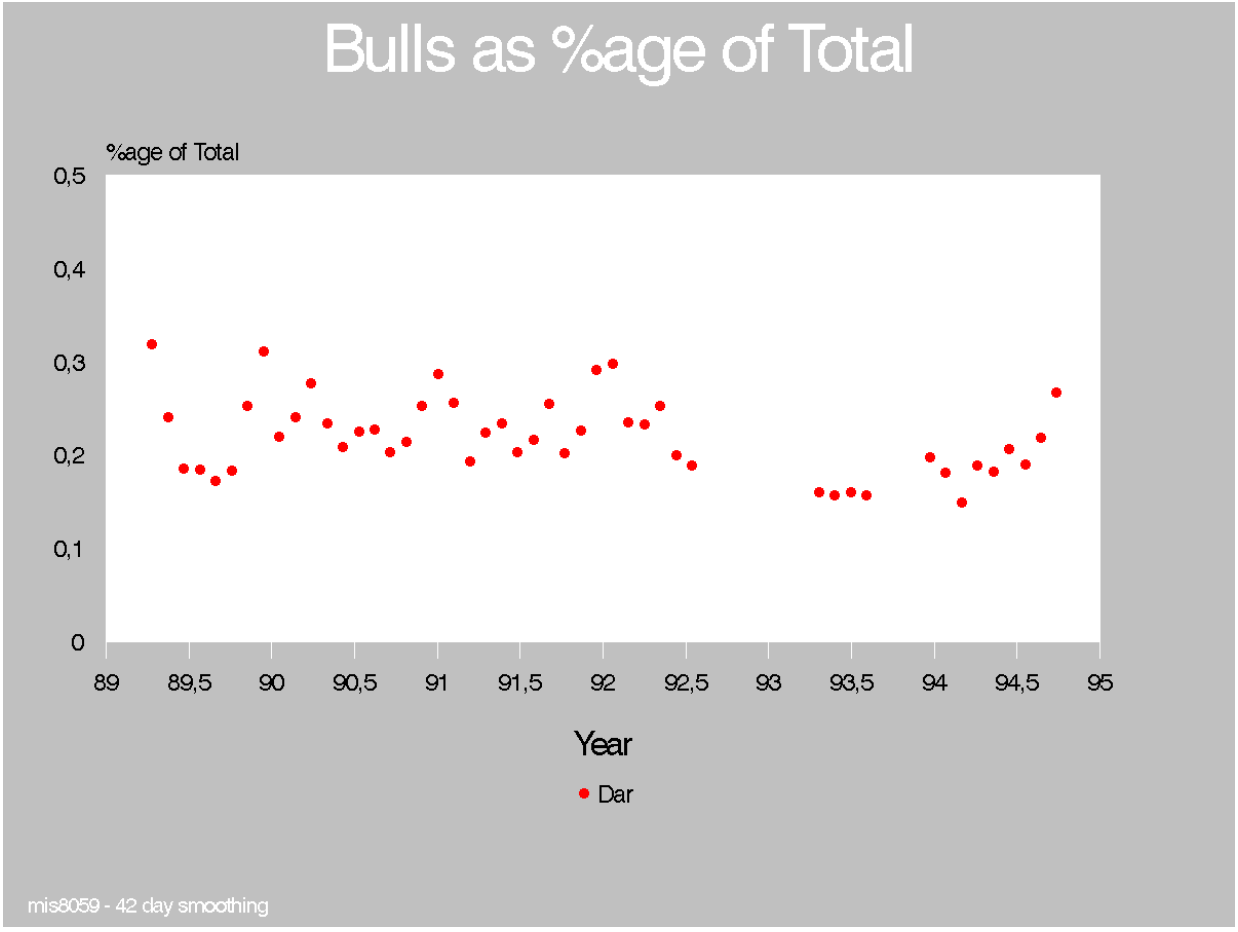
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8111.htm


Bulls as %age of Total
%age of Total
0,5
0,4
0,3
0,2
0,1
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8059 - 42 day smoothing

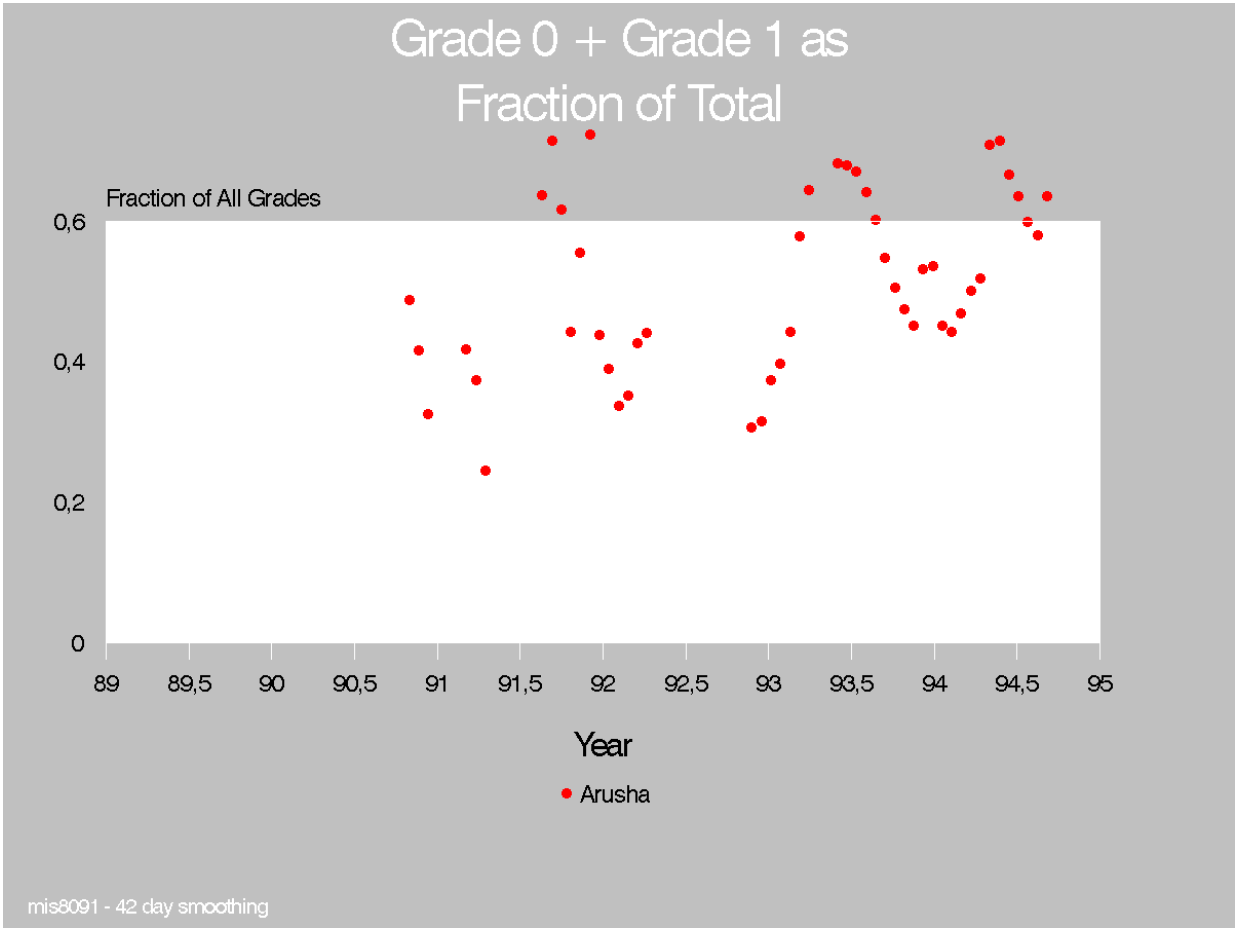
GRAPHS MIS8051.CHT THROUGH MIS8059.CHT - PERCENTAGES OF ANIMALS WHICH ARE STEERS, COWS AND BULLS.

These graphs show a fairly constant distribution of sexes with the years: Arusha 65:30:5, Moshi 60:30:10, Dar 60:20:20 (steers:cows:bulls).

Regarding seasonal variations, in general the proportions of cows and bulls peaks in December and troughs in July: Arusha with an average of 30% cows peaks at 37% in December and troughs at 15% in July; Moshi exactly the same; but Dar has no discernable pattern on cows. For bulls, Arusha with an average of 5% bulls peaks at 10% in December and troughs with 3% in July; Moshi with an average of 10% peaks at 20% in December and troughs with 5% in July; Dar with an average of 20% bulls peaks with 30% in December and troughs with 15% in July.

Once again, it looks like the cows and bulls are pulled out of the bag for the high prices prevalent at December.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8092.htm

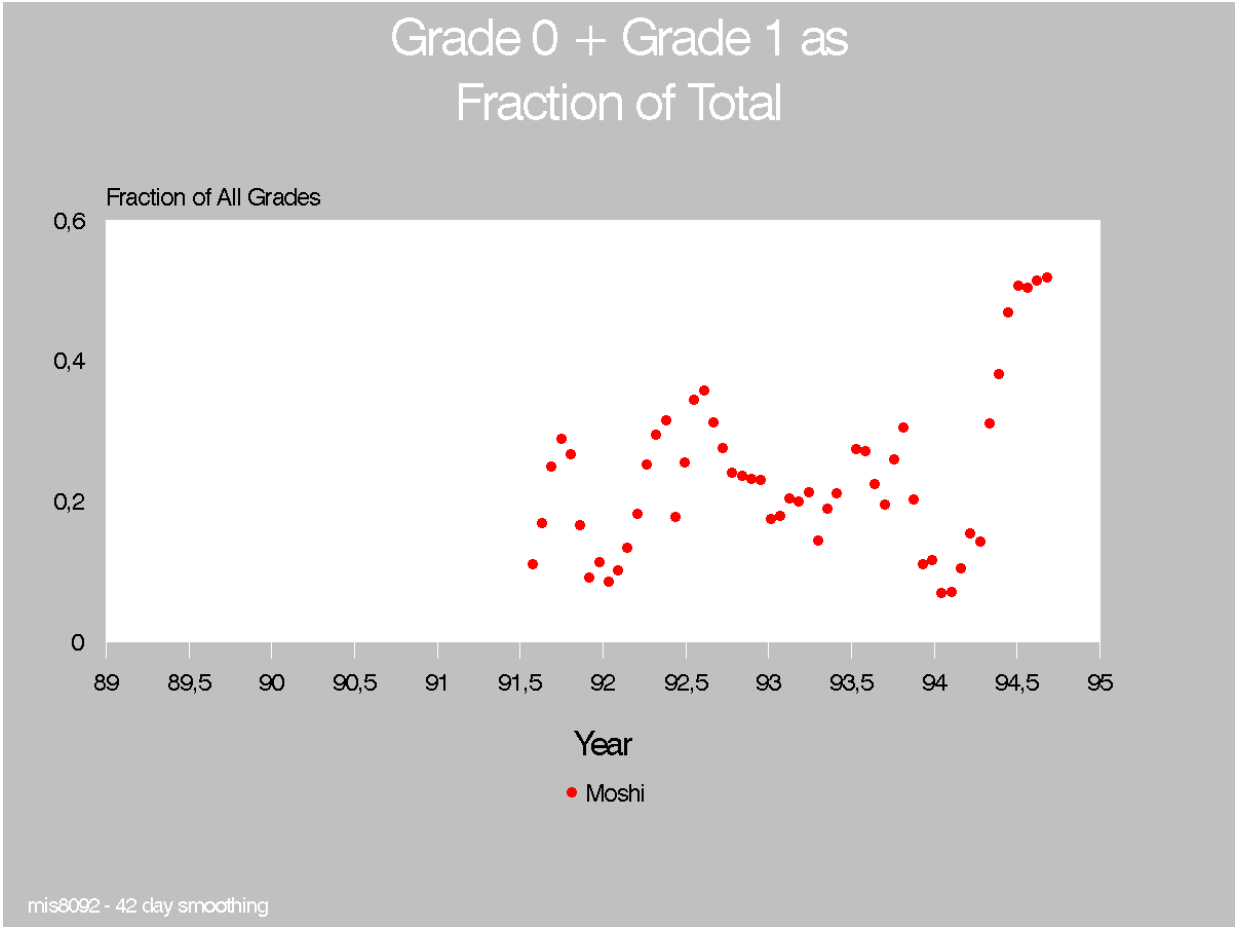

Grade 0 + Grade 1 as Fraction of Total
Fraction of All Grades
0,6
0,4
0,2
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
mis8091 - 42 day smoothing

GRAPHS MIS8091.CHT THROUGH MIS8094.CHT - 0% OF TOTAL ANIMALS WHICH ARE GRADE 0 OR GRADE 1

This is very much like the last graph MIS8041.CHT - it looks for the annual grade cycle and the variation with years.

For all 3 sites, the annual cycle is strong, with highest proportion of good grades in June and lowest in December. Arusha is top of course, with a cycle of 30% to 70% top grades, and in 1994 the situation improved to 43% to 72%; Moshi is next with 10% to 36% normal pattern and 8% to 50% in 1994; Dar is last with a regular 20% to 40% cycle.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8093.htm

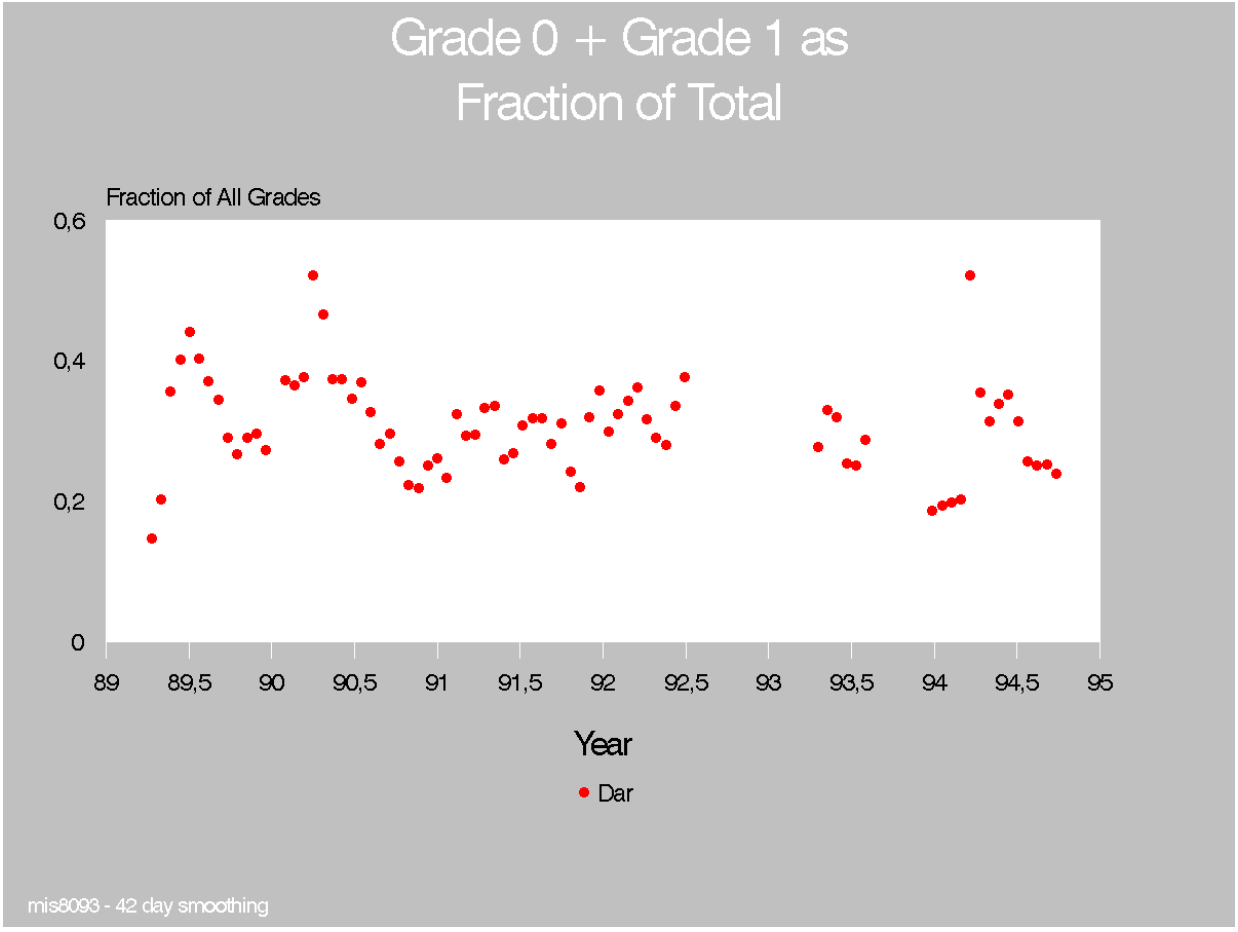

Grade 0 + Grade 1 as Fraction of Total
Fraction of All Grades
0,6
0,4
0,2
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
mis8092 - 42 day smoothing

GRAPHS MIS8091.CHT THROUGH MIS8094.CHT - 0% OF TOTAL ANIMALS WHICH ARE GRADE 0 OR GRADE 1

This is very much like the last graph MIS8041.CHT - it looks for the annual grade cycle and the variation with years.

For all 3 sites, the annual cycle is strong, with highest proportion of good grades in June and lowest in December. Arusha is top of course, with a cycle of 30% to 70% top grades, and in 1994 the situation improved to 43% to 72%; Moshi is next with 10% to 36% normal pattern and 8% to 50% in 1994; Dar is last with a regular 20% to 40% cycle.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8094.htm

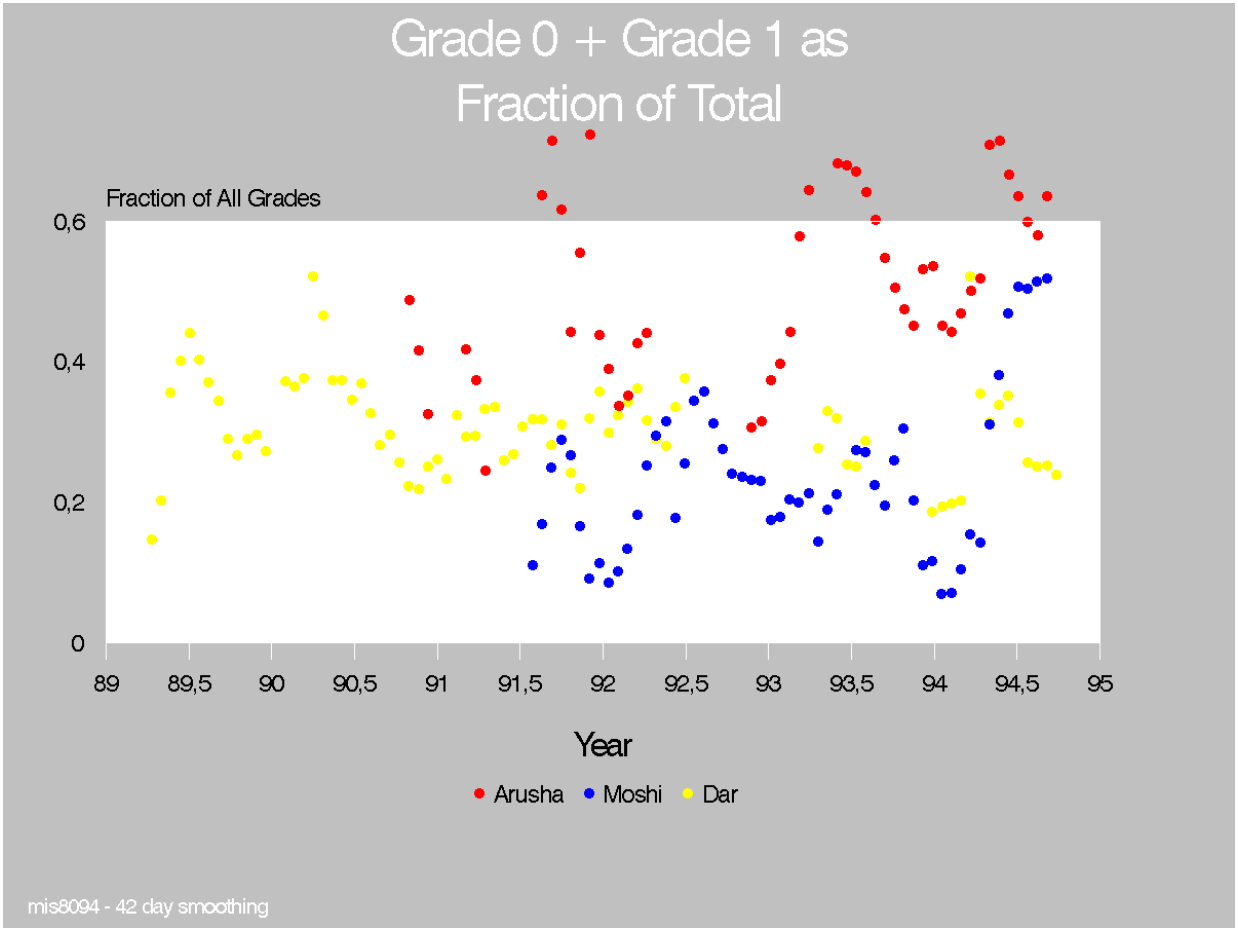

Grade 0 + Grade 1 as
Fraction of Total
Fraction of All Grades
0,6
0,4
0,2
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar
mis8093 - 42 day smoothing

GRAPHS MIS8091.CHT THROUGH MIS8094.CHT - 0% OF TOTAL ANIMALS WHICH ARE GRADE 0 OR GRADE 1

This is very much like the last graph MIS8041.CHT - it looks for the annual grade cycle and the variation with years.

For all 3 sites, the annual cycle is strong, with highest proportion of good grades in June and lowest in December. Arusha is top of course, with a cycle of 30% to 70% top grades, and in 1994 the situation improved to 43% to 72%; Moshi is next with 10% to 36% normal pattern and 8% to 50% in 1994; Dar is last with a regular 20% to 40% cycle.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8031.htm

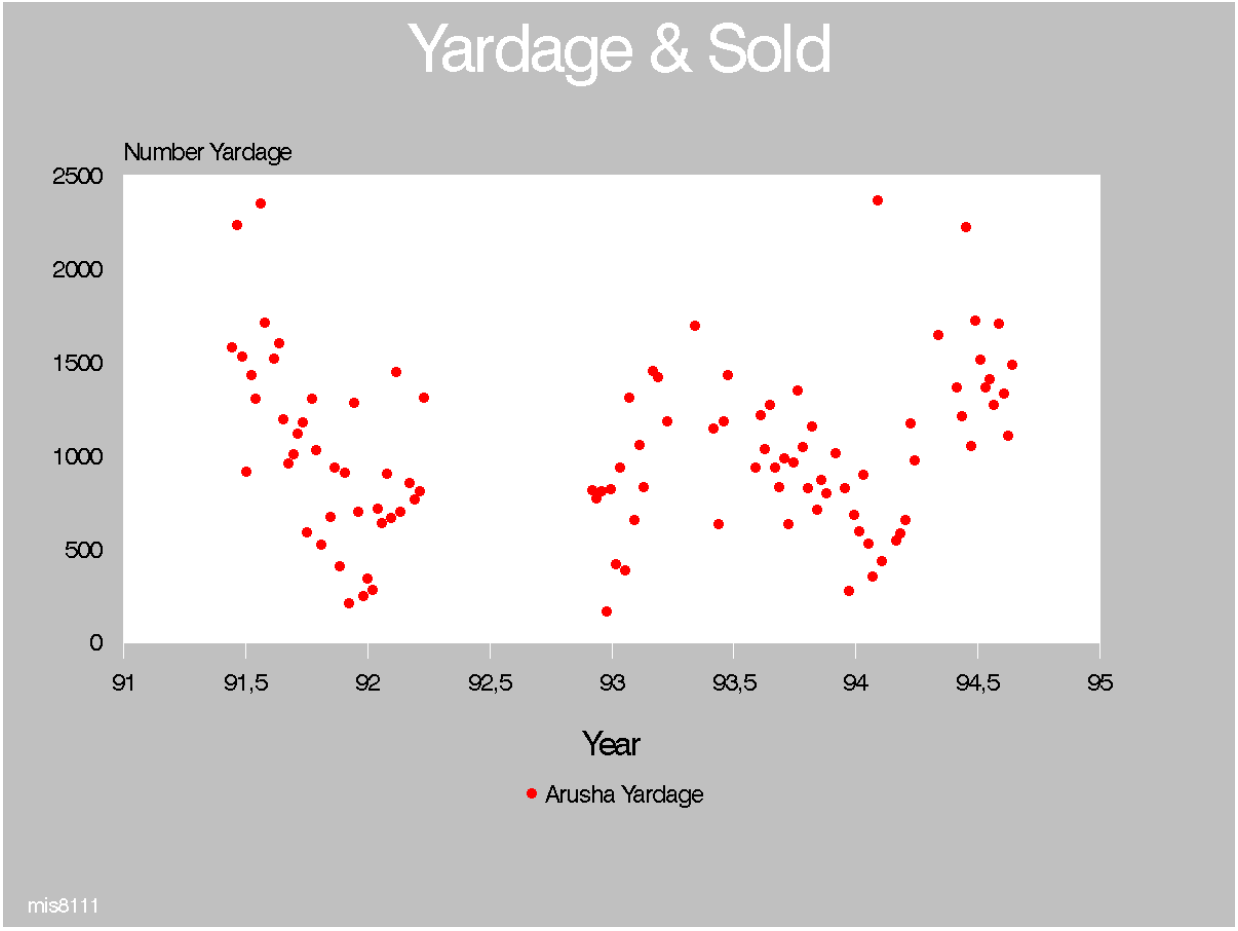

Grade 0 + Grade 1 as Fraction of Total
Fraction of All Grades
0,6
0,4
0,2
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis8094 - 42 day smoothing

GRAPHS MIS8091.CHT THROUGH MIS8094.CHT - 0% OF TOTAL ANIMALS WHICH ARE GRADE 0 OR GRADE 1

This is very much like the last graph MIS8041.CHT - it looks for the annual grade cycle and the variation with years.

For all 3 sites, the annual cycle is strong, with highest proportion of good grades in June and lowest in December. Arusha is top of course, with a cycle of 30% to 70% top grades, and in 1994 the situation improved to 43% to 72%; Moshi is next with 10% to 36% normal pattern and 8% to 50% in 1994; Dar is last with a regular 20% to 40% cycle.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8112.htm


Yardage & Sold
Number Yardage
2500
2000
1500
1000
500
0
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Yardage
mis8111

GRAPHS MIS8111.CHT THROUGH MIS8118.CHT - YARDAGE, NUMBER SOLD, AND RATIO NR SOLD/YARDAGE.

These graphs unfortunately only cover Arusha and Moshi; for Dar the information will be available from the processed output sheets from the Symphony system (for gross yardage from the rail station) and from the daily data sheets in the office at Pugu (for numbers sold).

An interesting pattern emerges: both Arusha and Moshi have peaks in yardage and in sold in June, with a 'trough with an upwards blip' at December - i.e. there is a downward trend towards December with a mini-peak at the bottom of that trough for Christmas itself.

For example, Arusha has a peak average yardage of 1600 per market-day in June, with a trough of 300 on either side of Christmas and an actual Christmas blip of 800 animals; similarly, Moshi has a peak yardage of approx 1000 per market-day, with a double-minimum of 300 around Christmas and a Christmas blip of 600.

For NUMBER SOLD, Arusha is 950/100/480 and Moshi is 700/150/400.

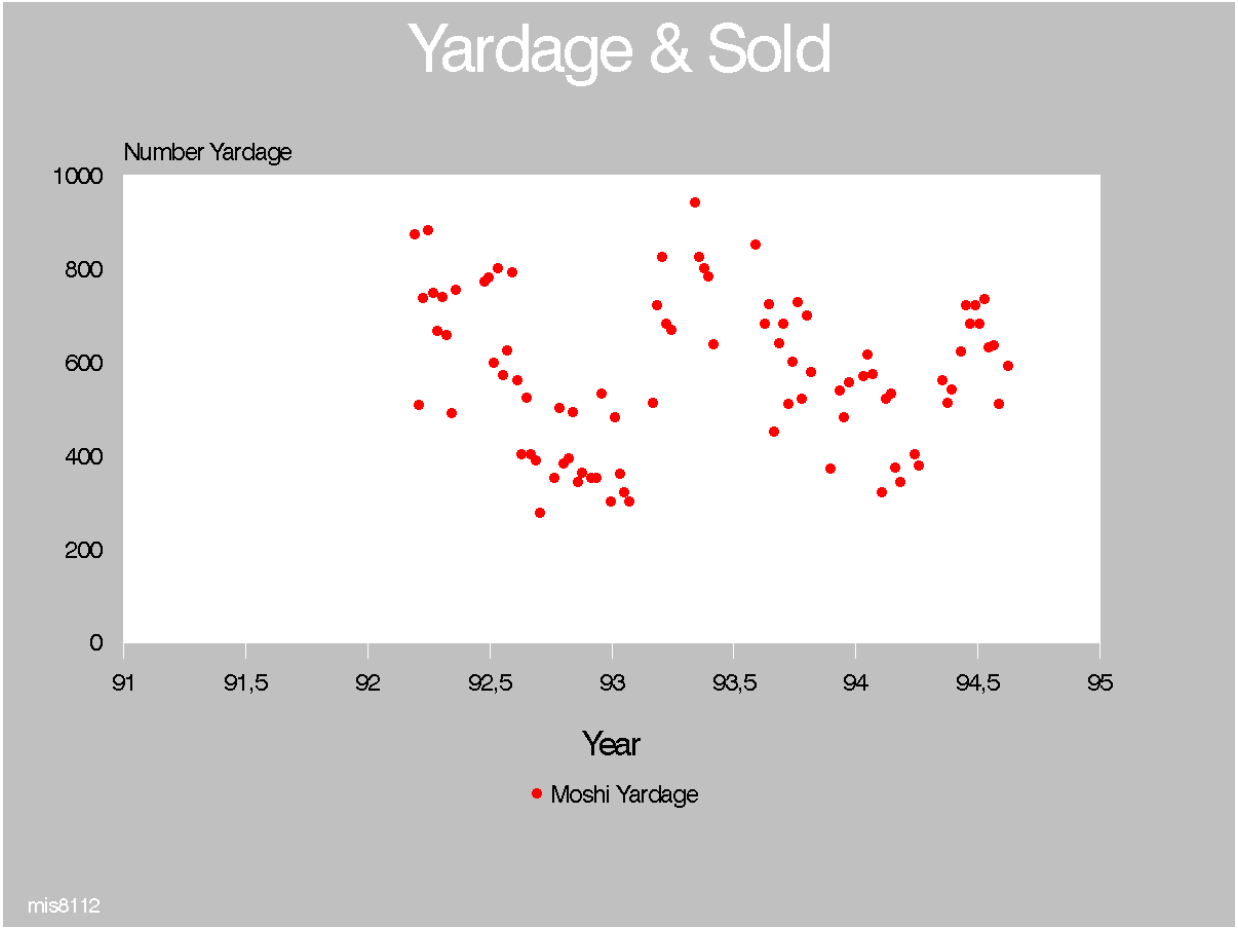
Looking at the ratio of number sold to yardage, Arusha in general has an average of sold/yarded of 50% (in the range 40% to 70%), while Moshi has an average of sold/yarded of 70% (in the range 60% to 80%). Arusha has risen appreciably since 1991, when average sold/yarded was 35%; whereas Moshi has dropped since 1992, when average sold/yarded was 90%.

Looking at the trend lines, we see that for yardage, figures are remarkably constant over the years - Arusha has risen just slightly from an average 1000 animals per market day in 1991 to 1050 in 1994; Moshi has remained constant at 600 animals per market day.

Also looking at trend lines, for number sold, we see that Arusha on average has risen from 350 animals sold per market-day in 1991 to 550 animals sold per market day in 1994; Moshi meanwhile has supposedly dropped from 550 in 1991 to 400 animals sold per market-day in 1994, according to the market records.

As background information, I am reliably informed that Arusha and Moshi are effectively twin markets. Lower grades not sold at Arusha on the Friday are then trekked to Moshi for sale the following Tuesday.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8113.htm


Yardage & Sold
Number Yardage
1000
800
600
400
200
0
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi Yardage
mis8112

GRAPHS MIS8111.CHT THROUGH MIS8118.CHT - YARDAGE, NUMBER SOLD, AND RATIO NR SOLD/YARDAGE.

These graphs unfortunately only cover Arusha and Moshi; for Dar the information will be available from the processed output sheets from the Symphony system (for gross yardage from the rail station) and from the daily data sheets in the office at Pugu (for numbers sold).

An interesting pattern emerges: both Arusha and Moshi have peaks in yardage and in sold in June, with a 'trough with an upwards blip' at December - i.e. there is a downward trend towards December with a mini-peak at the bottom of that trough for Christmas itself.

For example, Arusha has a peak average yardage of 1600 per market-day in June, with a trough of 300 on either side of Christmas and an actual Christmas blip of 800 animals; similarly, Moshi has a peak yardage of approx 1000 per market-day, with a double-minimum of 300 around Christmas and a Christmas blip of 600.

For NUMBER SOLD, Arusha is 950/100/480 and Moshi is 700/150/400.

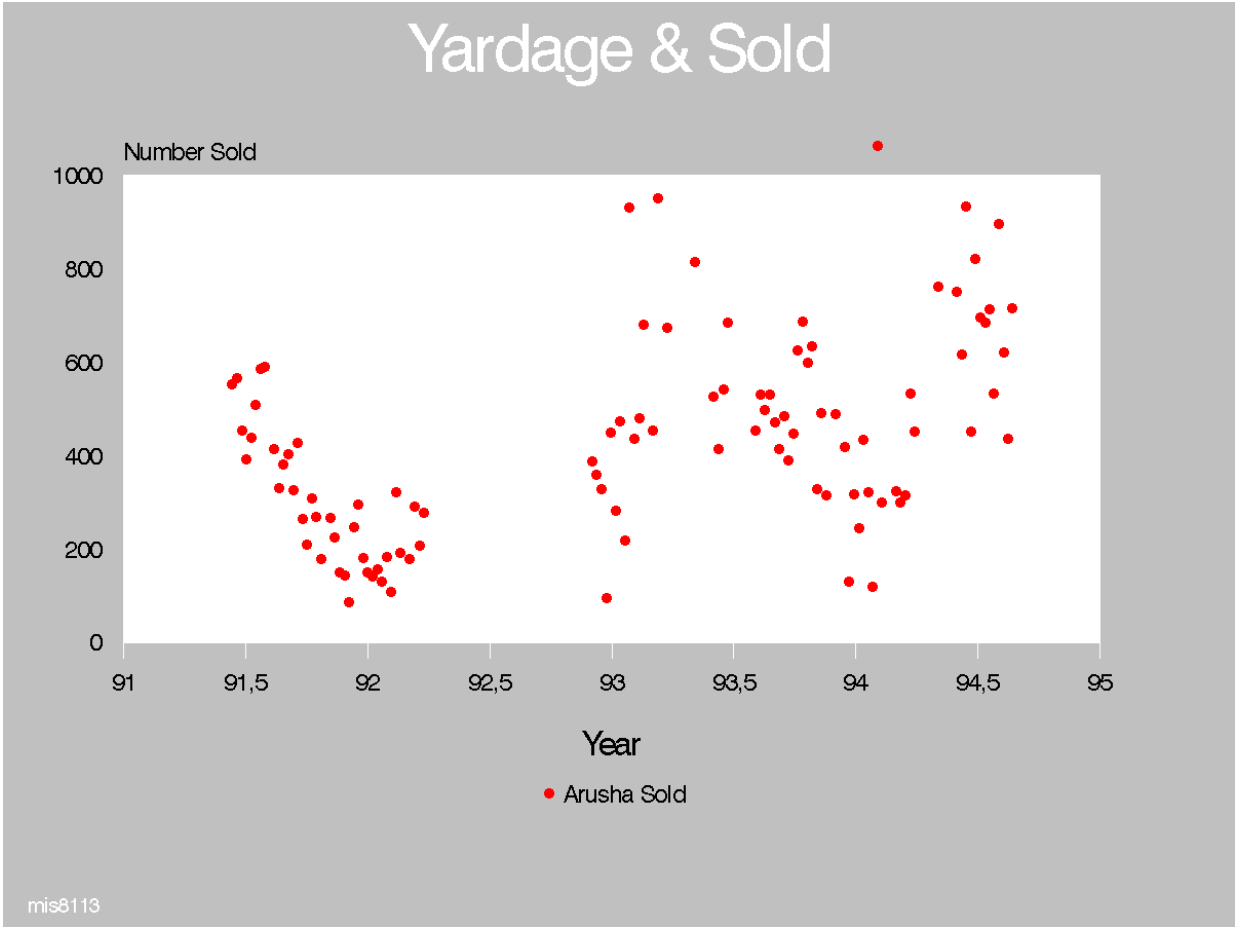
Looking at the ratio of number sold to yardage, Arusha in general has an average of sold/yarded of 50% (in the range 40% to 70%), while Moshi has an average of sold/yarded of 70% (in the range 60% to 80%). Arusha has risen appreciably since 1991, when average sold/yarded was 35%; whereas Moshi has dropped since 1992, when average sold/yarded was 90%.

Looking at the trend lines, we see that for yardage, figures are remarkably constant over the years - Arusha has risen just slightly from an average 1000 animals per market day in 1991 to 1050 in 1994; Moshi has remained constant at 600 animals per market day.

Also looking at trend lines, for number sold, we see that Arusha on average has risen from 350 animals sold per market-day in 1991 to 550 animals sold per market day in 1994; Moshi meanwhile has supposedly dropped from 550 in 1991 to 400 animals sold per market-day in 1994, according to the market records.

As background information, I am reliably informed that Arusha and Moshi are effectively twin markets. Lower grades not sold at Arusha on the Friday are then trekked to Moshi for sale the following Tuesday.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8114.htm


Yardage & Sold
Number Sold
1000
800
600
400
200
0
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Sold
mis8113

GRAPHS MIS8111.CHT THROUGH MIS8118.CHT - YARDAGE, NUMBER SOLD, AND RATIO NR SOLD/YARDAGE.

These graphs unfortunately only cover Arusha and Moshi; for Dar the information will be available from the processed output sheets from the Symphony system (for gross yardage from the rail station) and from the daily data sheets in the office at Pugu (for numbers sold).

An interesting pattern emerges: both Arusha and Moshi have peaks in yardage and in sold in June, with a 'trough with an upwards blip' at December - i.e. there is a downward trend towards December with a mini-peak at the bottom of that trough for Christmas itself.

For example, Arusha has a peak average yardage of 1600 per market-day in June, with a trough of 300 on either side of Christmas and an actual Christmas blip of 800 animals; similarly, Moshi has a peak yardage of approx 1000 per market-day, with a double-minimum of 300 around Christmas and a Christmas blip of 600.

For NUMBER SOLD, Arusha is 950/100/480 and Moshi is 700/150/400.

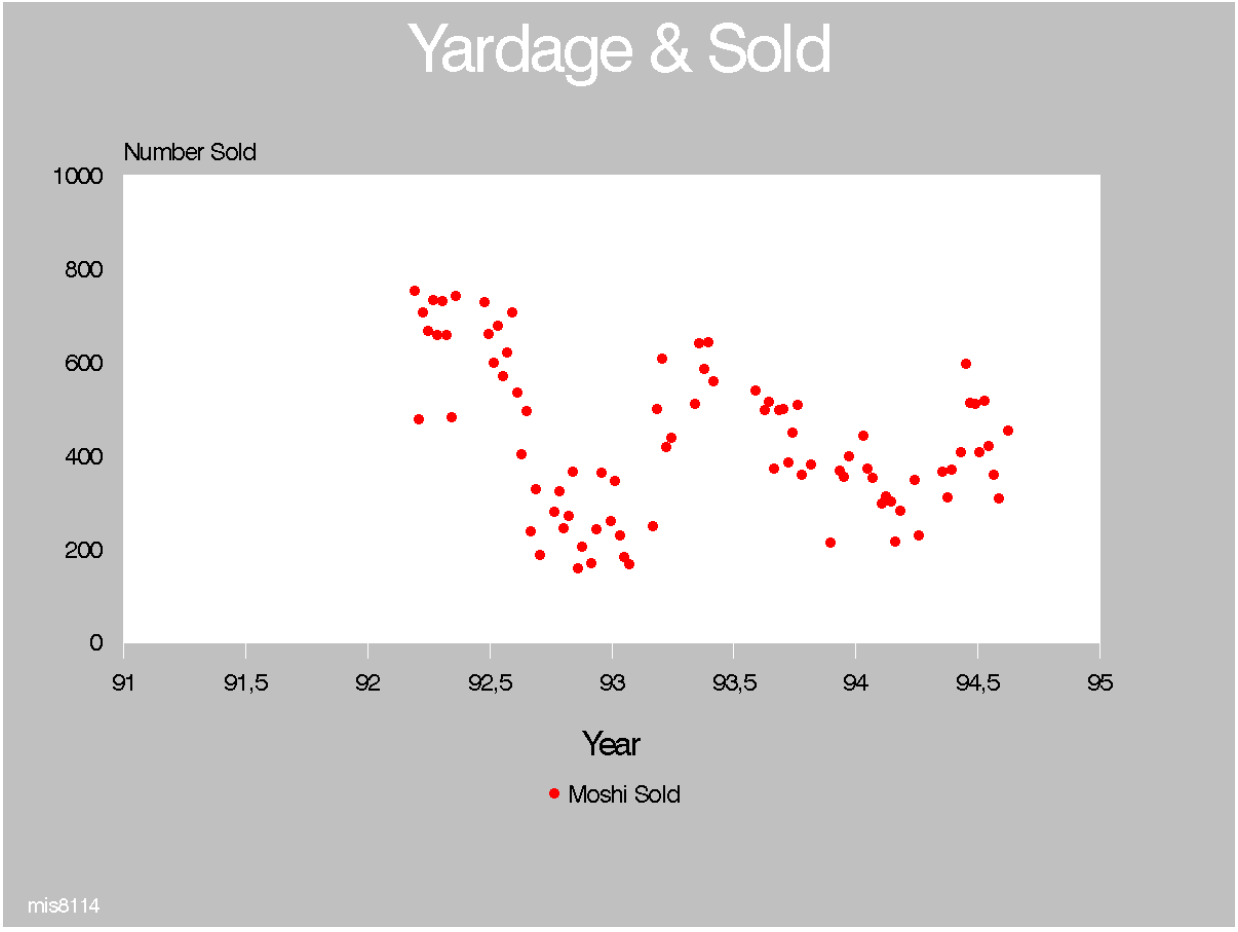
Looking at the ratio of number sold to yardage, Arusha in general has an average of sold/yarded of 50% (in the range 40% to 70%), while Moshi has an average of sold/yarded of 70% (in the range 60% to 80%). Arusha has risen appreciably since 1991, when average sold/yarded was 35%; whereas Moshi has dropped since 1992, when average sold/yarded was 90%.

Looking at the trend lines, we see that for yardage, figures are remarkably constant over the years - Arusha has risen just slightly from an average 1000 animals per market day in 1991 to 1050 in 1994; Moshi has remained constant at 600 animals per market day.

Also looking at trend lines, for number sold, we see that Arusha on average has risen from 350 animals sold per market-day in 1991 to 550 animals sold per market day in 1994; Moshi meanwhile has supposedly dropped from 550 in 1991 to 400 animals sold per market-day in 1994, according to the market records.

As background information, I am reliably informed that Arusha and Moshi are effectively twin markets. Lower grades not sold at Arusha on the Friday are then trekked to Moshi for sale the following Tuesday.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8115.htm


Yardage & Sold
Number Sold
1000
800
600
400
200
0
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi Sold
mis8114

GRAPHS MIS8111.CHT THROUGH MIS8118.CHT - YARDAGE, NUMBER SOLD, AND RATIO NR SOLD/YARDAGE.

These graphs unfortunately only cover Arusha and Moshi; for Dar the information will be available from the processed output sheets from the Symphony system (for gross yardage from the rail station) and from the daily data sheets in the office at Pugu (for numbers sold).

An interesting pattern emerges: both Arusha and Moshi have peaks in yardage and in sold in June, with a 'trough with an upwards blip' at December - i.e. there is a downward trend towards December with a mini-peak at the bottom of that trough for Christmas itself.

For example, Arusha has a peak average yardage of 1600 per market-day in June, with a trough of 300 on either side of Christmas and an actual Christmas blip of 800 animals; similarly, Moshi has a peak yardage of approx 1000 per market-day, with a double-minimum of 300 around Christmas and a Christmas blip of 600.

For NUMBER SOLD, Arusha is 950/100/480 and Moshi is 700/150/400.

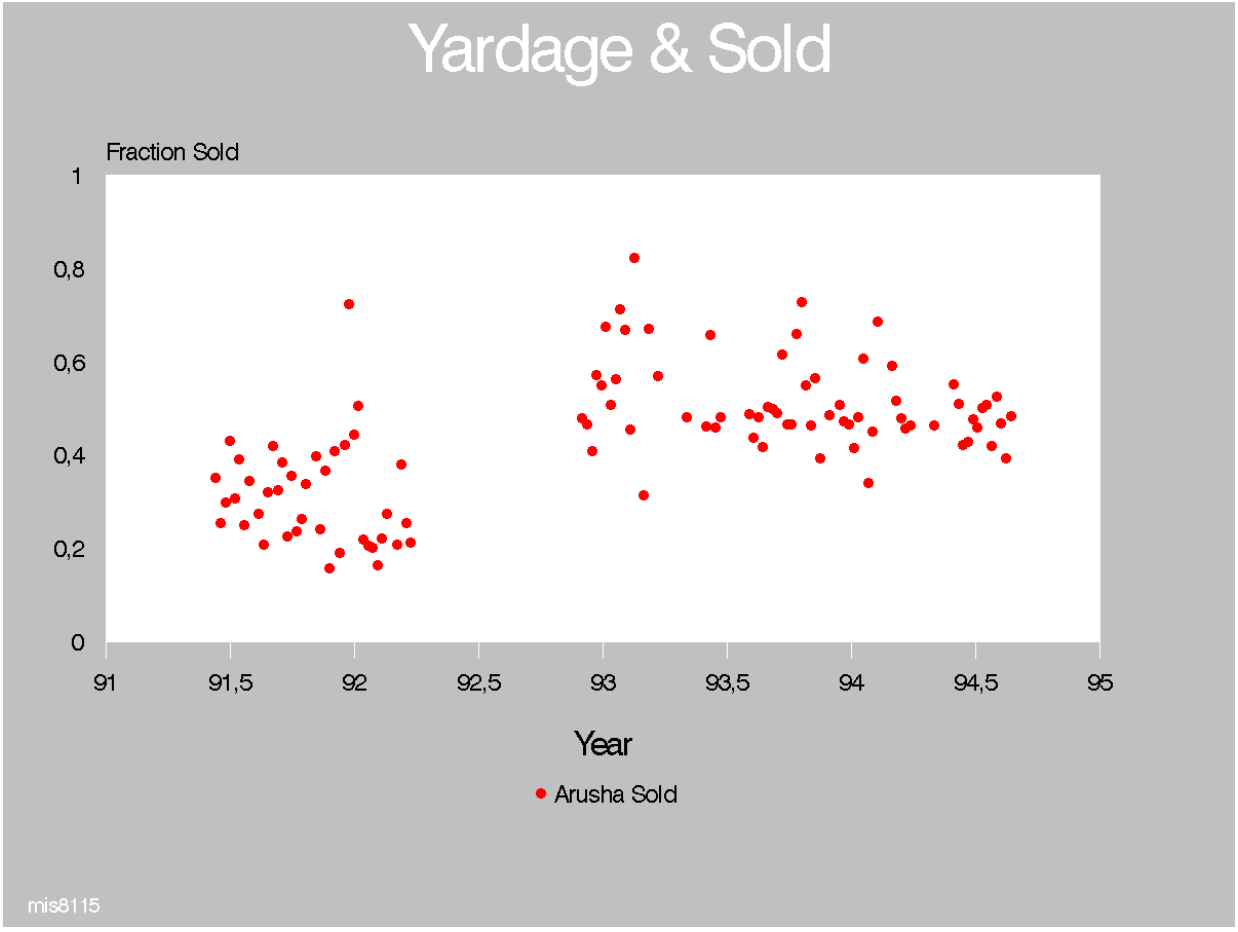
Looking at the ratio of number sold to yardage, Arusha in general has an average of sold/yarded of 50% (in the range 40% to 70%), while Moshi has an average of sold/yarded of 70% (in the range 60% to 80%). Arusha has risen appreciably since 1991, when average sold/yarded was 35%; whereas Moshi has dropped since 1992, when average sold/yarded was 90%.

Looking at the trend lines, we see that for yardage, figures are remarkably constant over the years - Arusha has risen just slightly from an average 1000 animals per market day in 1991 to 1050 in 1994; Moshi has remained constant at 600 animals per market day.

Also looking at trend lines, for number sold, we see that Arusha on average has risen from 350 animals sold per market-day in 1991 to 550 animals sold per market day in 1994; Moshi meanwhile has supposedly dropped from 550 in 1991 to 400 animals sold per market-day in 1994, according to the market records.

As background information, I am reliably informed that Arusha and Moshi are effectively twin markets. Lower grades not sold at Arusha on the Friday are then trekked to Moshi for sale the following Tuesday.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8116.htm


Yardage & Sold
Fraction Sold
1
0,8
0,6
0,4
0,2
0
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Sold
mis8115

GRAPHS MIS8111.CHT THROUGH MIS8118.CHT - YARDAGE, NUMBER SOLD, AND RATIO NR SOLD/YARDAGE.

These graphs unfortunately only cover Arusha and Moshi; for Dar the information will be available from the processed output sheets from the Symphony system (for gross yardage from the rail station) and from the daily data sheets in the office at Pugu (for numbers sold).

An interesting pattern emerges: both Arusha and Moshi have peaks in yardage and in sold in June, with a 'trough with an upwards blip' at December - i.e. there is a downward trend towards December with a mini-peak at the bottom of that trough for Christmas itself.

For example, Arusha has a peak average yardage of 1600 per market-day in June, with a trough of 300 on either side of Christmas and an actual Christmas blip of 800 animals; similarly, Moshi has a peak yardage of approx 1000 per market-day, with a double-minimum of 300 around Christmas and a Christmas blip of 600.

For NUMBER SOLD, Arusha is 950/100/480 and Moshi is 700/150/400.

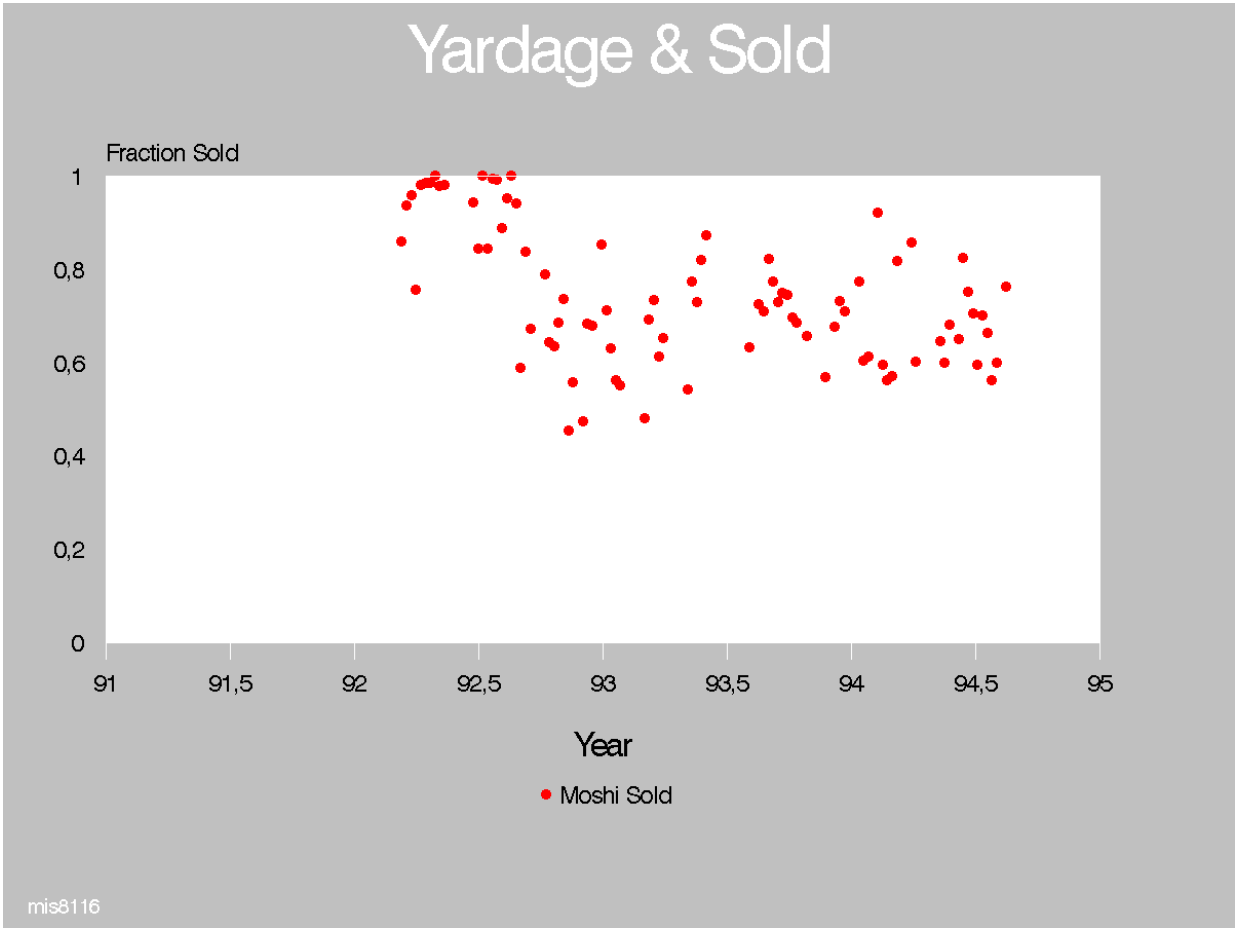
Looking at the ratio of number sold to yardage, Arusha in general has an average of sold/yarded of 50% (in the range 40% to 70%), while Moshi has an average of sold/yarded of 70% (in the range 60% to 80%). Arusha has risen appreciably since 1991, when average sold/yarded was 35%; whereas Moshi has dropped since 1992, when average sold/yarded was 90%.

Looking at the trend lines, we see that for yardage, figures are remarkably constant over the years - Arusha has risen just slightly from an average 1000 animals per market day in 1991 to 1050 in 1994; Moshi has remained constant at 600 animals per market day.

Also looking at trend lines, for number sold, we see that Arusha on average has risen from 350 animals sold per market-day in 1991 to 550 animals sold per market day in 1994; Moshi meanwhile has supposedly dropped from 550 in 1991 to 400 animals sold per market-day in 1994, according to the market records.

As background information, I am reliably informed that Arusha and Moshi are effectively twin markets. Lower grades not sold at Arusha on the Friday are then trekked to Moshi for sale the following Tuesday.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8117.htm


Yardage & Sold
Fraction Sold
1
0,8
0,6
0,4
0,2
0
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi Sold
mis8116

GRAPHS MIS8111.CHT THROUGH MIS8118.CHT - YARDAGE, NUMBER SOLD, AND RATIO NR SOLD/YARDAGE.

These graphs unfortunately only cover Arusha and Moshi; for Dar the information will be available from the processed output sheets from the Symphony system (for gross yardage from the rail station) and from the daily data sheets in the office at Pugu (for numbers sold).

An interesting pattern emerges: both Arusha and Moshi have peaks in yardage and in sold in June, with a 'trough with an upwards blip' at December - i.e. there is a downward trend towards December with a mini-peak at the bottom of that trough for Christmas itself.

For example, Arusha has a peak average yardage of 1600 per market-day in June, with a trough of 300 on either side of Christmas and an actual Christmas blip of 800 animals; similarly, Moshi has a peak yardage of approx 1000 per market-day, with a double-minimum of 300 around Christmas and a Christmas blip of 600.

For NUMBER SOLD, Arusha is 950/100/480 and Moshi is 700/150/400.

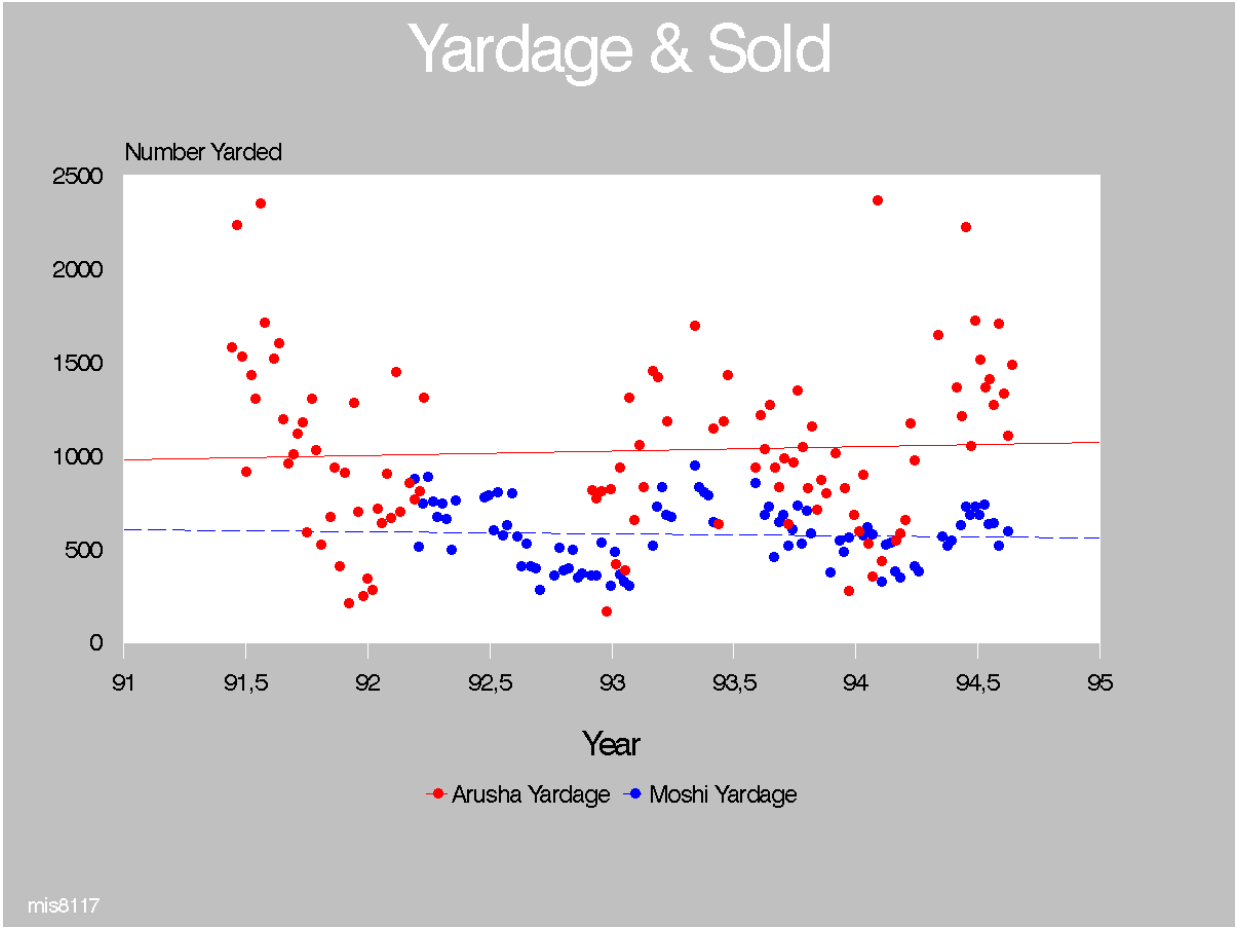
Looking at the ratio of number sold to yardage, Arusha in general has an average of sold/yarded of 50% (in the range 40% to 70%), while Moshi has an average of sold/yarded of 70% (in the range 60% to 80%). Arusha has risen appreciably since 1991, when average sold/yarded was 35%; whereas Moshi has dropped since 1992, when average sold/yarded was 90%.

Looking at the trend lines, we see that for yardage, figures are remarkably constant over the years - Arusha has risen just slightly from an average 1000 animals per market day in 1991 to 1050 in 1994; Moshi has remained constant at 600 animals per market day.

Also looking at trend lines, for number sold, we see that Arusha on average has risen from 350 animals sold per market-day in 1991 to 550 animals sold per market day in 1994; Moshi meanwhile has supposedly dropped from 550 in 1991 to 400 animals sold per market-day in 1994, according to the market records.

As background information, I am reliably informed that Arusha and Moshi are effectively twin markets. Lower grades not sold at Arusha on the Friday are then trekked to Moshi for sale the following Tuesday.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8118.htm


Yardage & Sold
Number Yarded
2500
2000
1500
1000
500
0
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Yardage
Moshi Yardage
mis8117

GRAPHS MIS8111.CHT THROUGH MIS8118.CHT - YARDAGE, NUMBER SOLD, AND RATIO NR SOLD/YARDAGE.

These graphs unfortunately only cover Arusha and Moshi; for Dar the information will be available from the processed output sheets from the Symphony system (for gross yardage from the rail station) and from the daily data sheets in the office at Pugu (for numbers sold).

An interesting pattern emerges: both Arusha and Moshi have peaks in yardage and in sold in June, with a 'trough with an upwards blip' at December - i.e. there is a downward trend towards December with a mini-peak at the bottom of that trough for Christmas itself.

For example, Arusha has a peak average yardage of 1600 per market-day in June, with a trough of 300 on either side of Christmas and an actual Christmas blip of 800 animals; similarly, Moshi has a peak yardage of approx 1000 per market-day, with a double-minimum of 300 around Christmas and a Christmas blip of 600.

For NUMBER SOLD, Arusha is 950/100/480 and Moshi is 700/150/400.

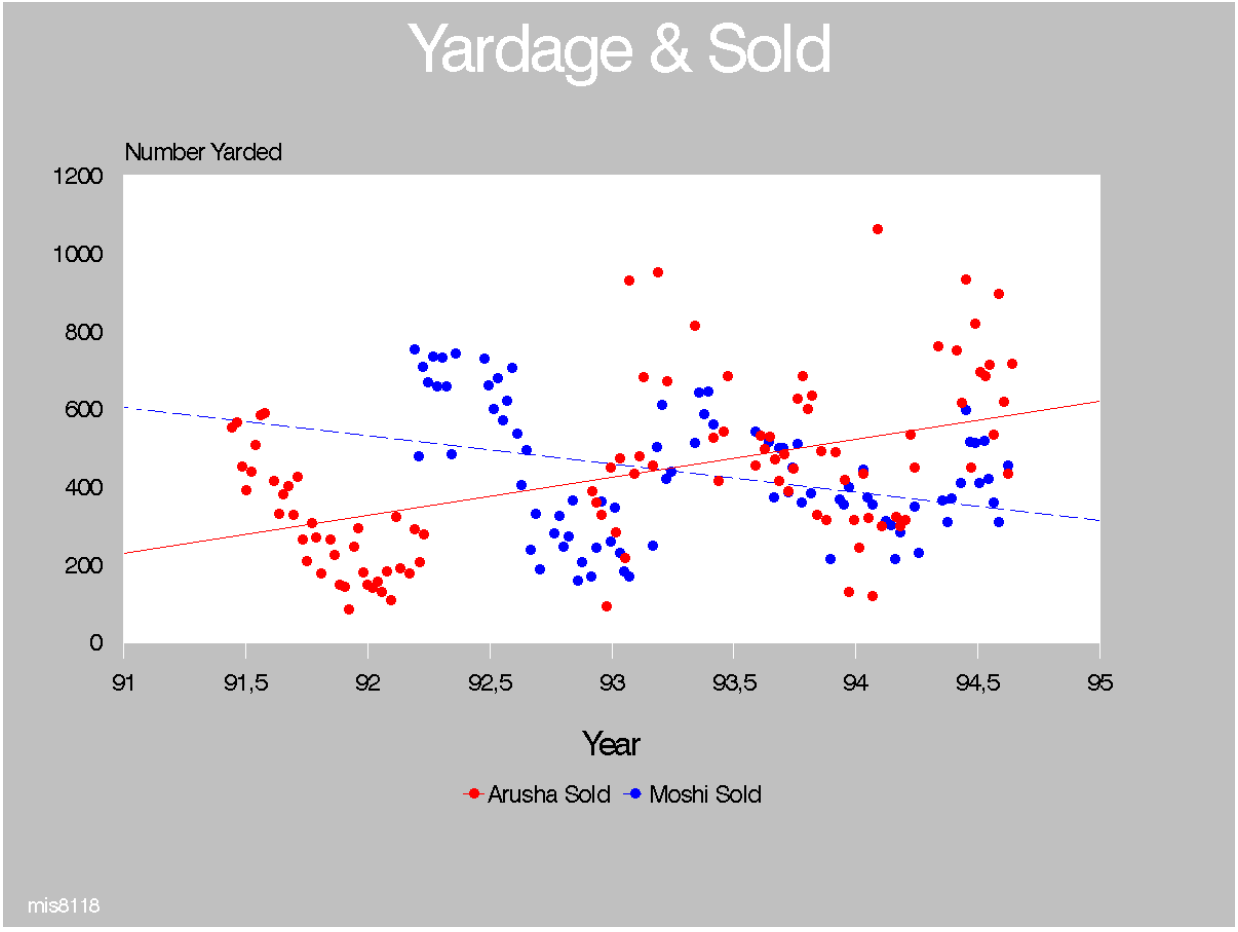
Looking at the ratio of number sold to yardage, Arusha in general has an average of sold/yarded of 50% (in the range 40% to 70%), while Moshi has an average of sold/yarded of 70% (in the range 60% to 80%). Arusha has risen appreciably since 1991, when average sold/yarded was 35%; whereas Moshi has dropped since 1992, when average sold/yarded was 90%.

Looking at the trend lines, we see that for yardage, figures are remarkably constant over the years - Arusha has risen just slightly from an average 1000 animals per market day in 1991 to 1050 in 1994; Moshi has remained constant at 600 animals per market day.

Also looking at trend lines, for number sold, we see that Arusha on average has risen from 350 animals sold per market-day in 1991 to 550 animals sold per market day in 1994; Moshi meanwhile has supposedly dropped from 550 in 1991 to 400 animals sold per market-day in 1994, according to the market records.

As background information, I am reliably informed that Arusha and Moshi are effectively twin markets. Lower grades not sold at Arusha on the Friday are then trekked to Moshi for sale the following Tuesday.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9003.htm


Yardage & Sold
Number Yarded
1200
1000
800
600
400
200
0
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Sold
Moshi Sold
mis8118

GRAPHS MIS8111.CHT THROUGH MIS8118.CHT - YARDAGE, NUMBER SOLD, AND RATIO NR SOLD/YARDAGE.

These graphs unfortunately only cover Arusha and Moshi; for Dar the information will be available from the processed output sheets from the Symphony system (for gross yardage from the rail station) and from the daily data sheets in the office at Pugu (for numbers sold).

An interesting pattern emerges: both Arusha and Moshi have peaks in yardage and in sold in June, with a 'trough with an upwards blip' at December - i.e. there is a downward trend towards December with a mini-peak at the bottom of that trough for Christmas itself.

For example, Arusha has a peak average yardage of 1600 per market-day in June, with a trough of 300 on either side of Christmas and an actual Christmas blip of 800 animals; similarly, Moshi has a peak yardage of approx 1000 per market-day, with a double-minimum of 300 around Christmas and a Christmas blip of 600.

For NUMBER SOLD, Arusha is 950/100/480 and Moshi is 700/150/400.

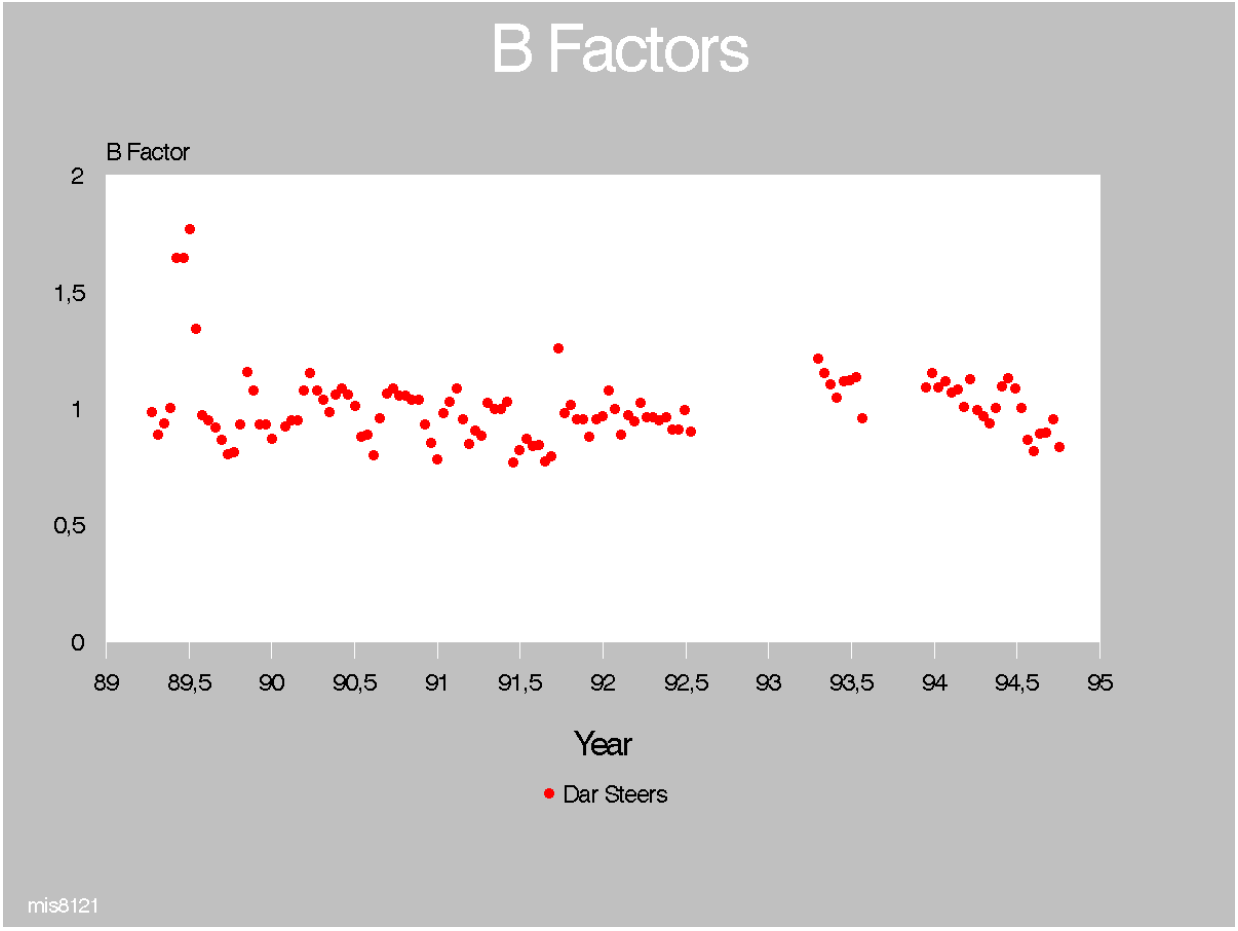
Looking at the ratio of number sold to yardage, Arusha in general has an average of sold/yarded of 50% (in the range 40% to 70%), while Moshi has an average of sold/yarded of 70% (in the range 60% to 80%). Arusha has risen appreciably since 1991, when average sold/yarded was 35%; whereas Moshi has dropped since 1992, when average sold/yarded was 90%.

Looking at the trend lines, we see that for yardage, figures are remarkably constant over the years - Arusha has risen just slightly from an average 1000 animals per market day in 1991 to 1050 in 1994; Moshi has remained constant at 600 animals per market day.

Also looking at trend lines, for number sold, we see that Arusha on average has risen from 350 animals sold per market-day in 1991 to 550 animals sold per market day in 1994; Moshi meanwhile has supposedly dropped from 550 in 1991 to 400 animals sold per market-day in 1994, according to the market records.

As background information, I am reliably informed that Arusha and Moshi are effectively twin markets. Lower grades not sold at Arusha on the Friday are then trekked to Moshi for sale the following Tuesday.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8122.htm


B Factors
B Factor
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar Steers
mis8121

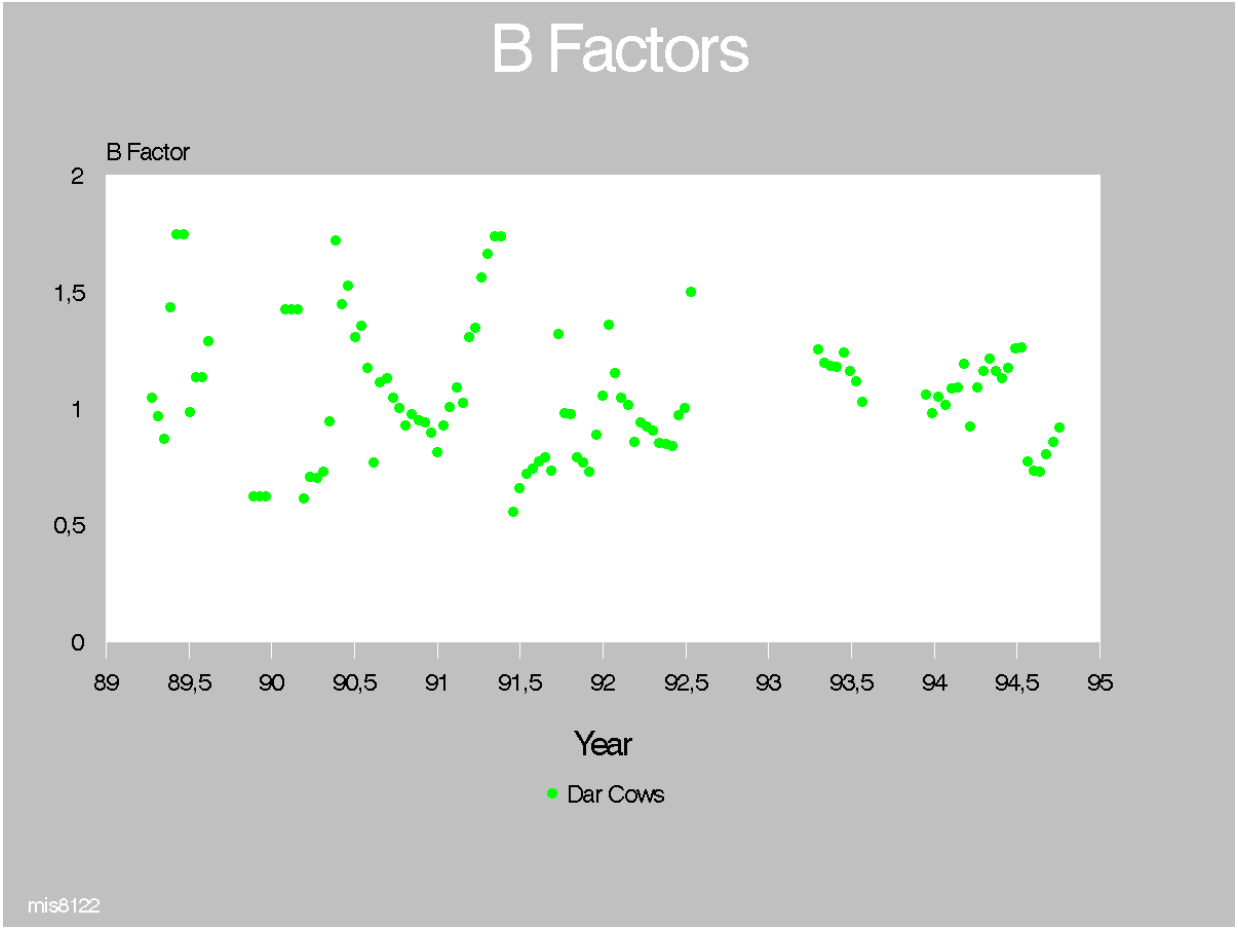
GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

It is of interest that Moshi figures for 1991 appear to indicate that the factor for steers was then 1.3 (as compared with 1.0 for Moshi for 1992). This may imply that the pattern for these 2 northern markets is traditionally one of producing premiums for better quality cattle, and that 1992 saw a temporary fall-off in that situation...

These average edible weight per animal graphs plus the B factor graphs between them really encapsulate the most exciting findings of the MIS Project - that given a market which awards premiums for higher quality cattle, then producers and traders will rise to the occasion. This is truly a triumph for market forces. What remains to be done is to examine what are the factors which produce this quality market (we assume the informal exports to Kenya), examine how the producers and traders provide these quality animals (e.g. feedlots?), and consider whether it is desirable and/or possible that this experience be transferred to Dar or to other markets.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8123.htm


B Factors
B Factor
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar Cows
mis8122

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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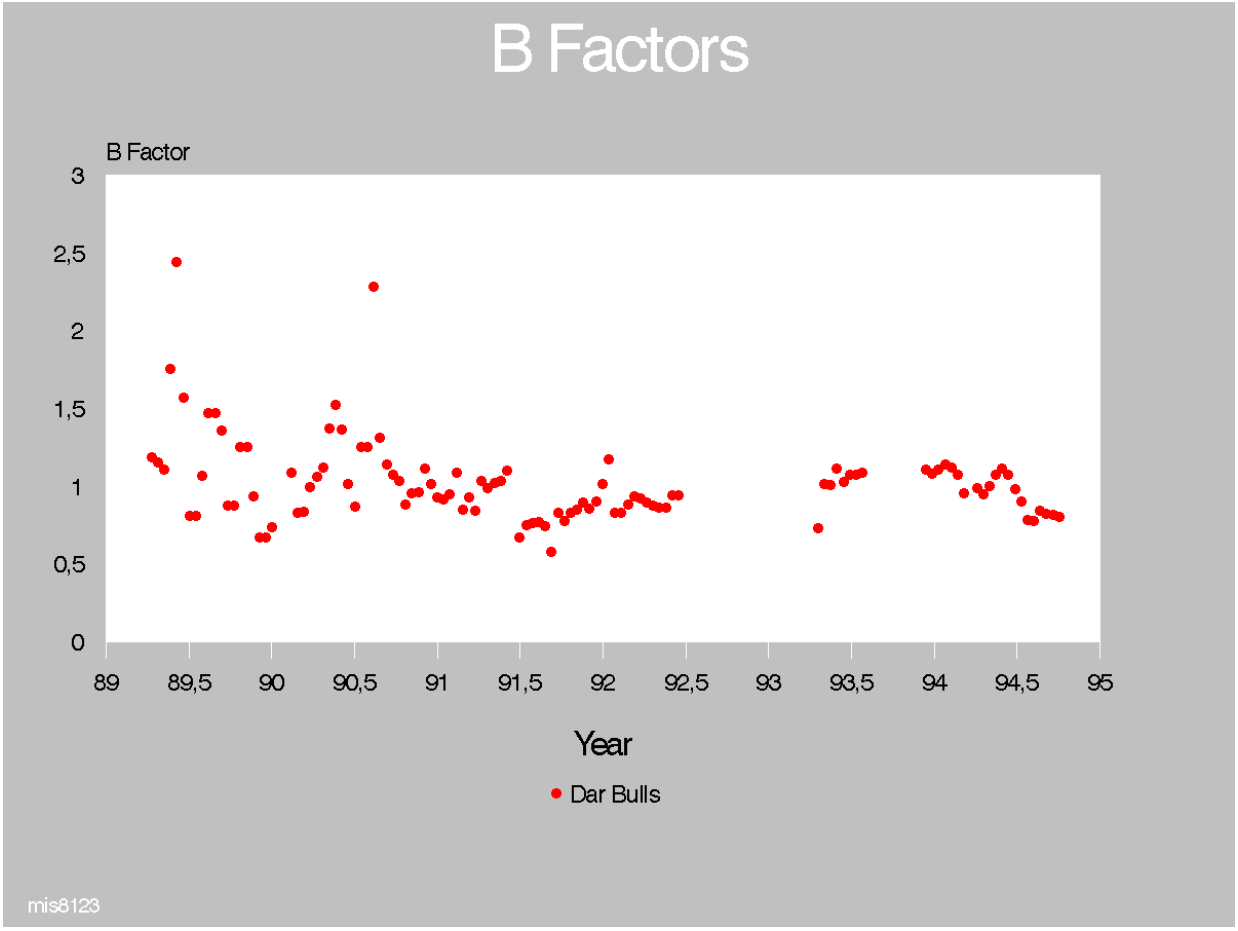
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8124.htm


B Factors
B Factor
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar Bulls
mis8123

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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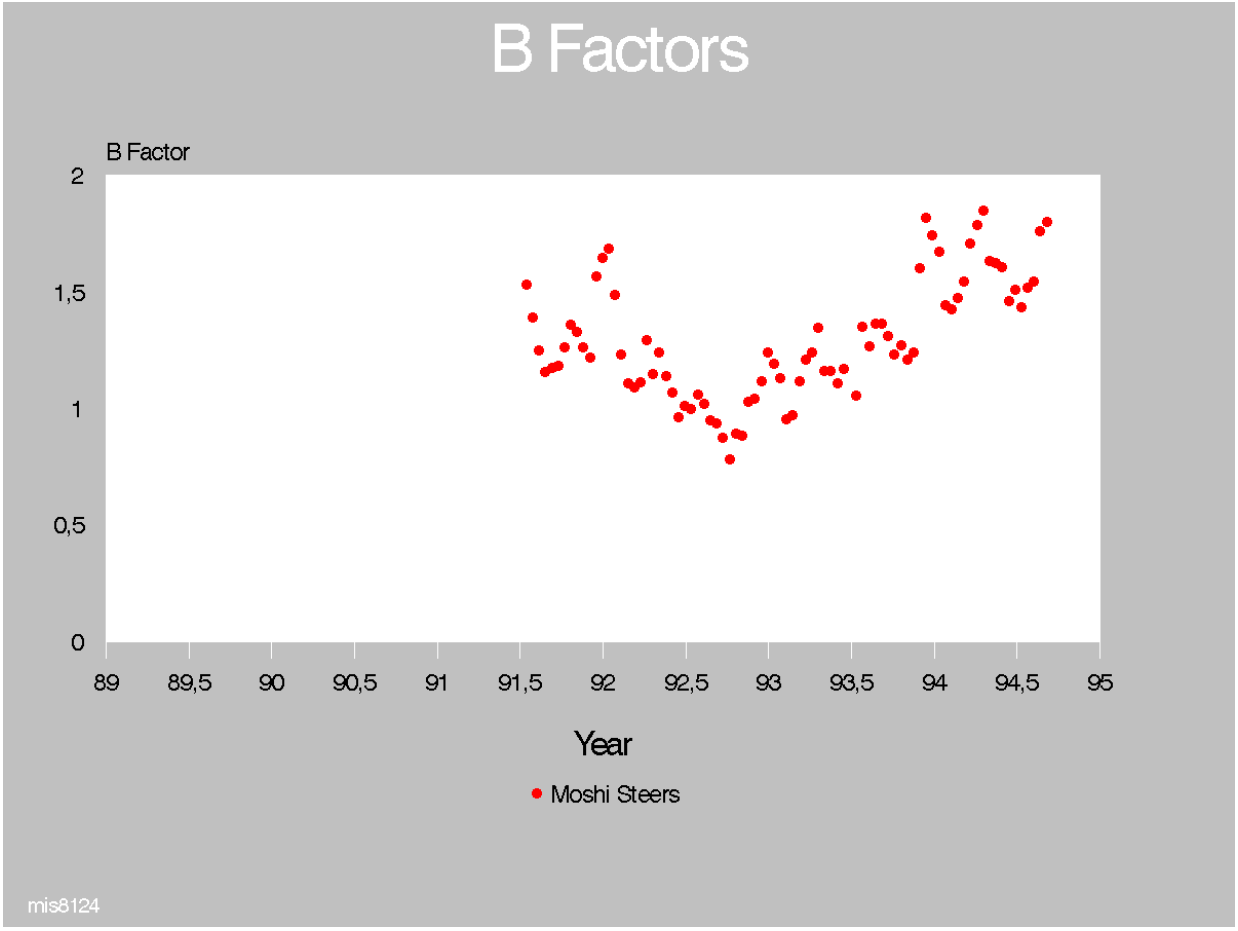
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8125.htm


B Factors
B Factor
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi Steers
mis8124

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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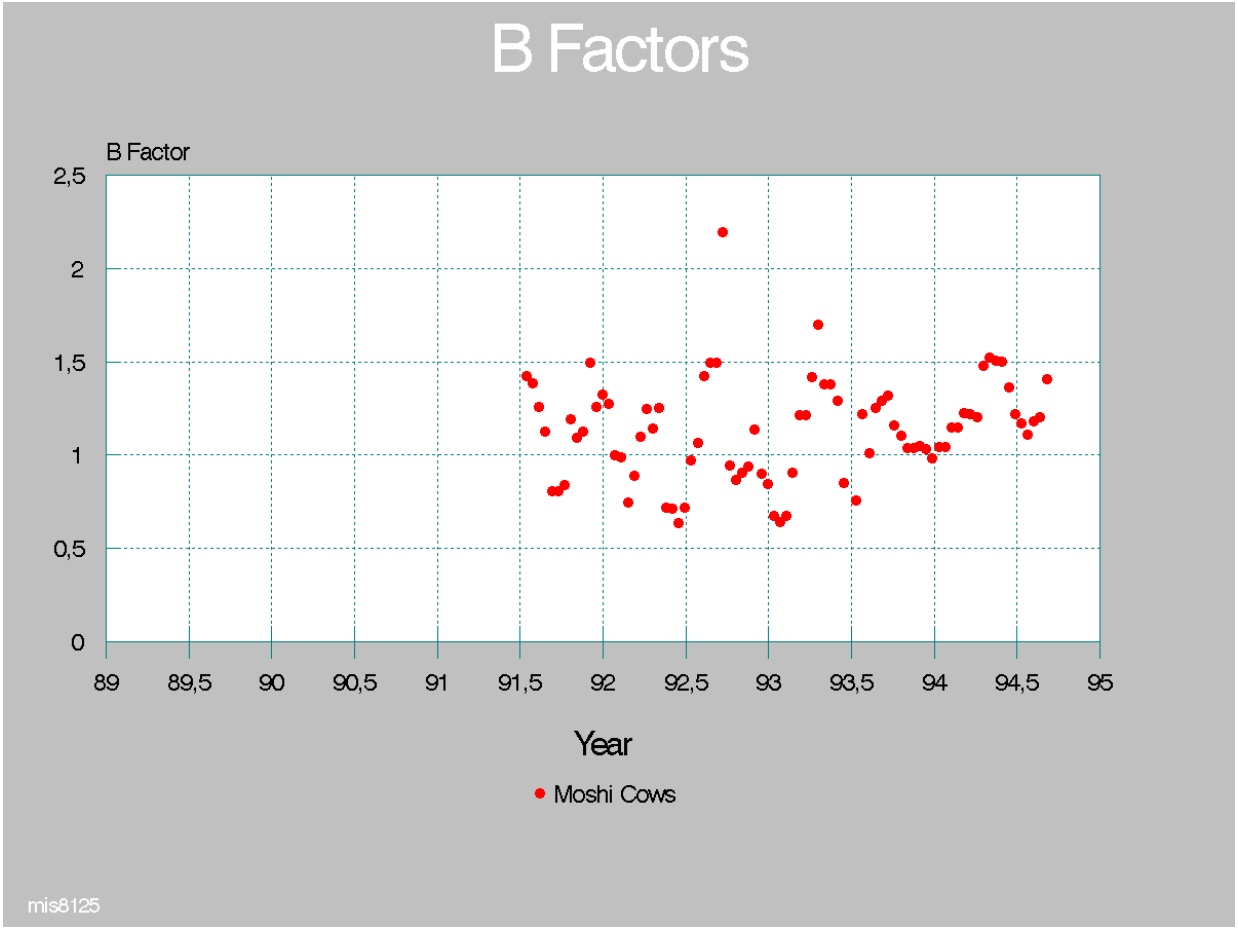
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8126.htm


B Factors
B Factor
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi Cows
mis8125

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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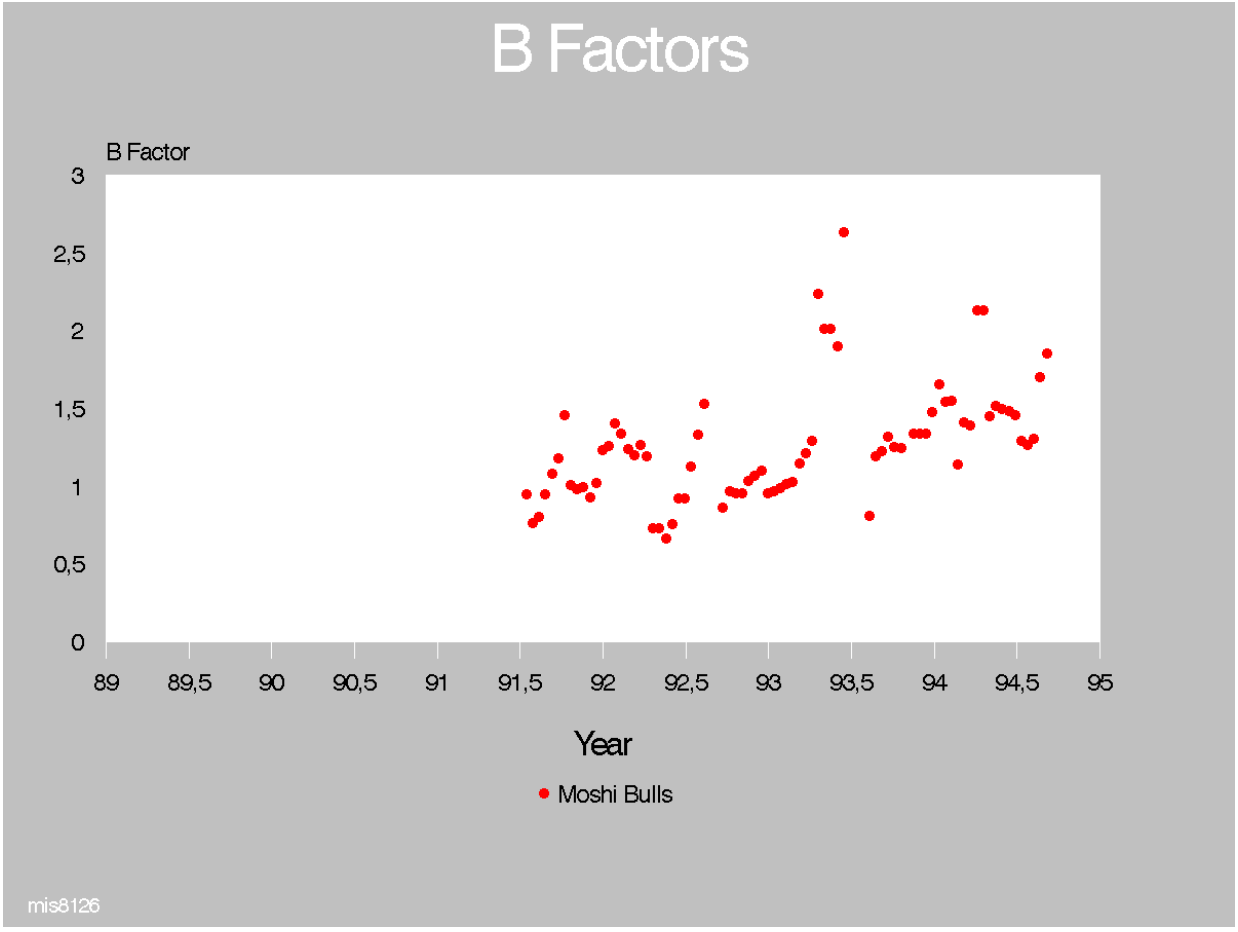
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8127.htm


B Factors
B Factor
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi Bulls
mis8126

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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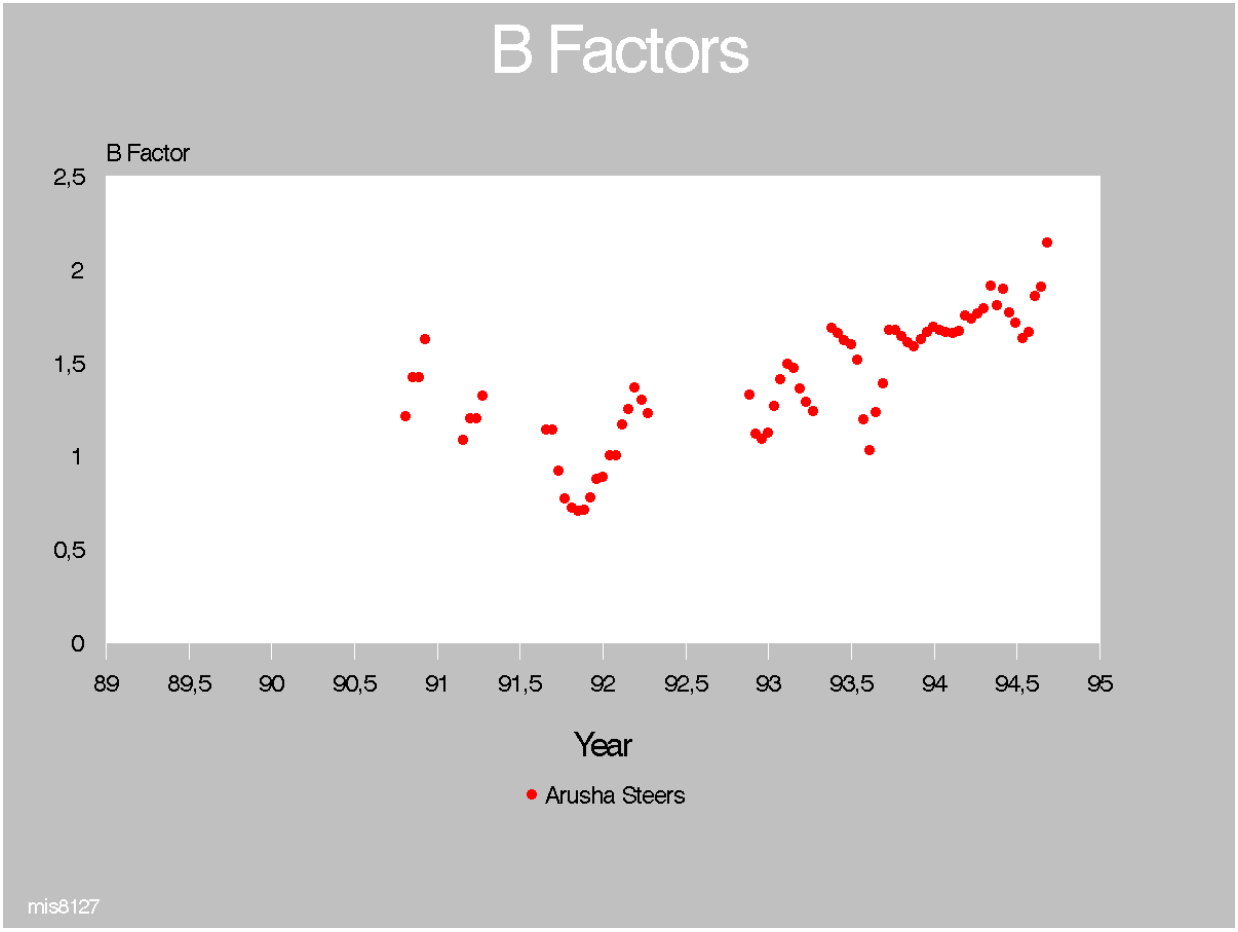
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8128.htm


B Factors
B Factor
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Steers
mis8127

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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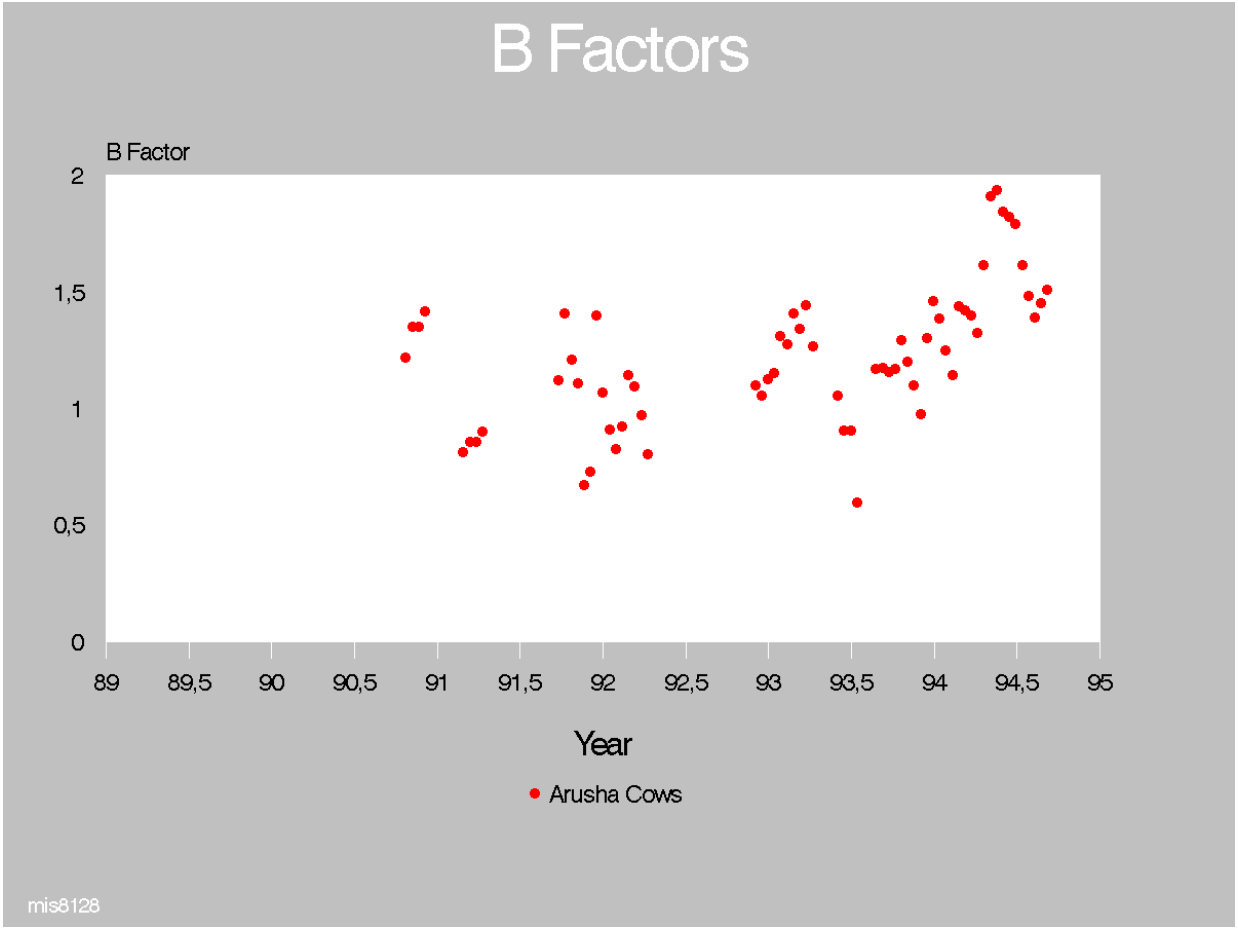
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8129.htm


B Factors
B Factor
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Cows
mis8128

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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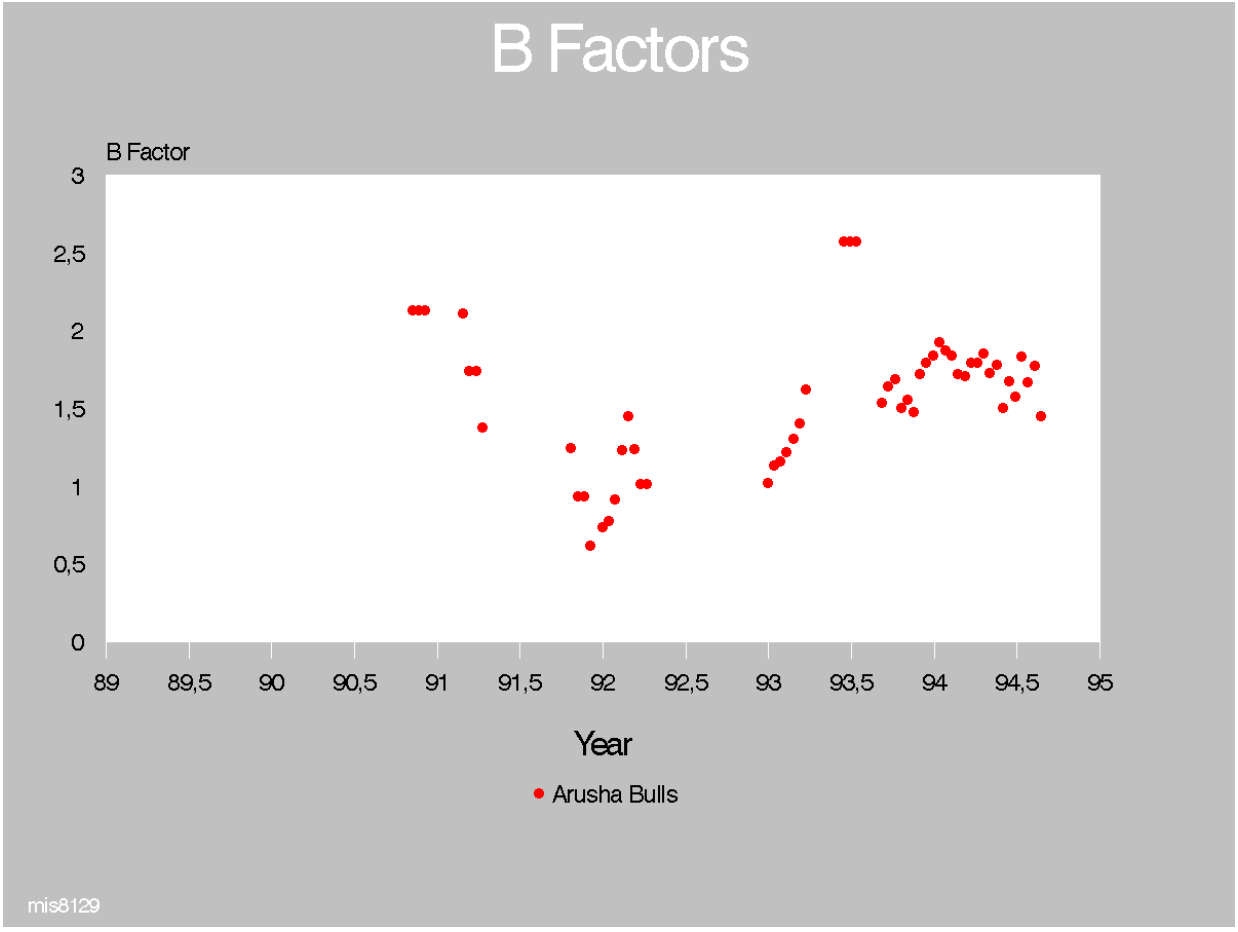
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8130.htm


B Factors
B Factor
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2,5
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1,5
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0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Bulls
mis8129

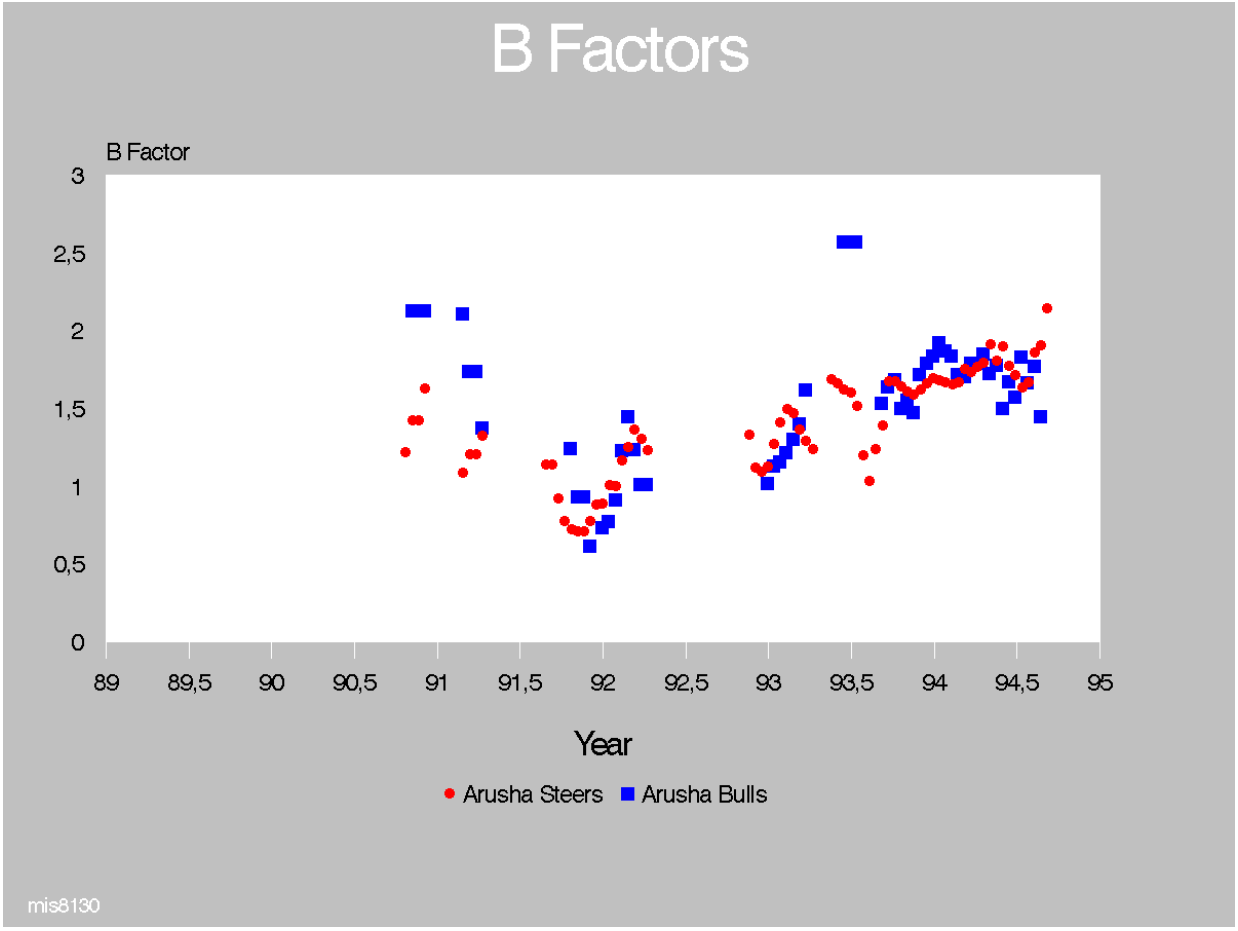
GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

It is of interest that Moshi figures for 1991 appear to indicate that the factor for steers was then 1.3 (as compared with 1.0 for Moshi for 1992). This may imply that the pattern for these 2 northern markets is traditionally one of producing premiums for better quality cattle, and that 1992 saw a temporary fall-off in that situation...

These average edible weight per animal graphs plus the B factor graphs between them really encapsulate the most exciting findings of the MIS Project - that given a market which awards premiums for higher quality cattle, then producers and traders will rise to the occasion. This is truly a triumph for market forces. What remains to be done is to examine what are the factors which produce this quality market (we assume the informal exports to Kenya), examine how the producers and traders provide these quality animals (e.g. feedlots?), and consider whether it is desirable and/or possible that this experience be transferred to Dar or to other markets.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8131.htm


B Factors
B Factor
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Steers
Arusha Bulls
mis8130

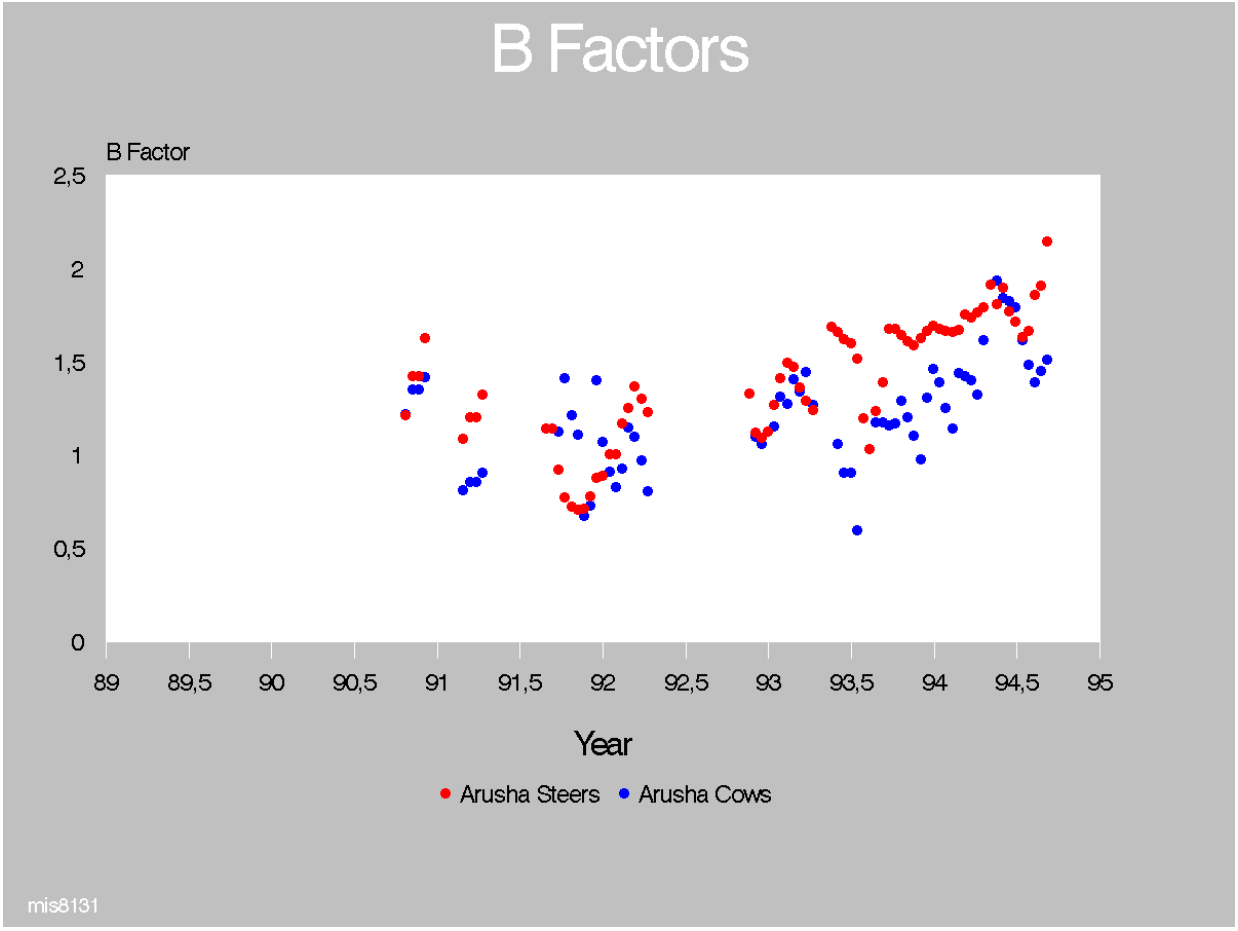
GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

It is of interest that Moshi figures for 1991 appear to indicate that the factor for steers was then 1.3 (as compared with 1.0 for Moshi for 1992). This may imply that the pattern for these 2 northern markets is traditionally one of producing premiums for better quality cattle, and that 1992 saw a temporary fall-off in that situation...

These average edible weight per animal graphs plus the B factor graphs between them really encapsulate the most exciting findings of the MIS Project - that given a market which awards premiums for higher quality cattle, then producers and traders will rise to the occasion. This is truly a triumph for market forces. What remains to be done is to examine what are the factors which produce this quality market (we assume the informal exports to Kenya), examine how the producers and traders provide these quality animals (e.g. feedlots?), and consider whether it is desirable and/or possible that this experience be transferred to Dar or to other markets.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8132.htm


B Factors
B Factor
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha Steers
Arusha Cows
mis8131

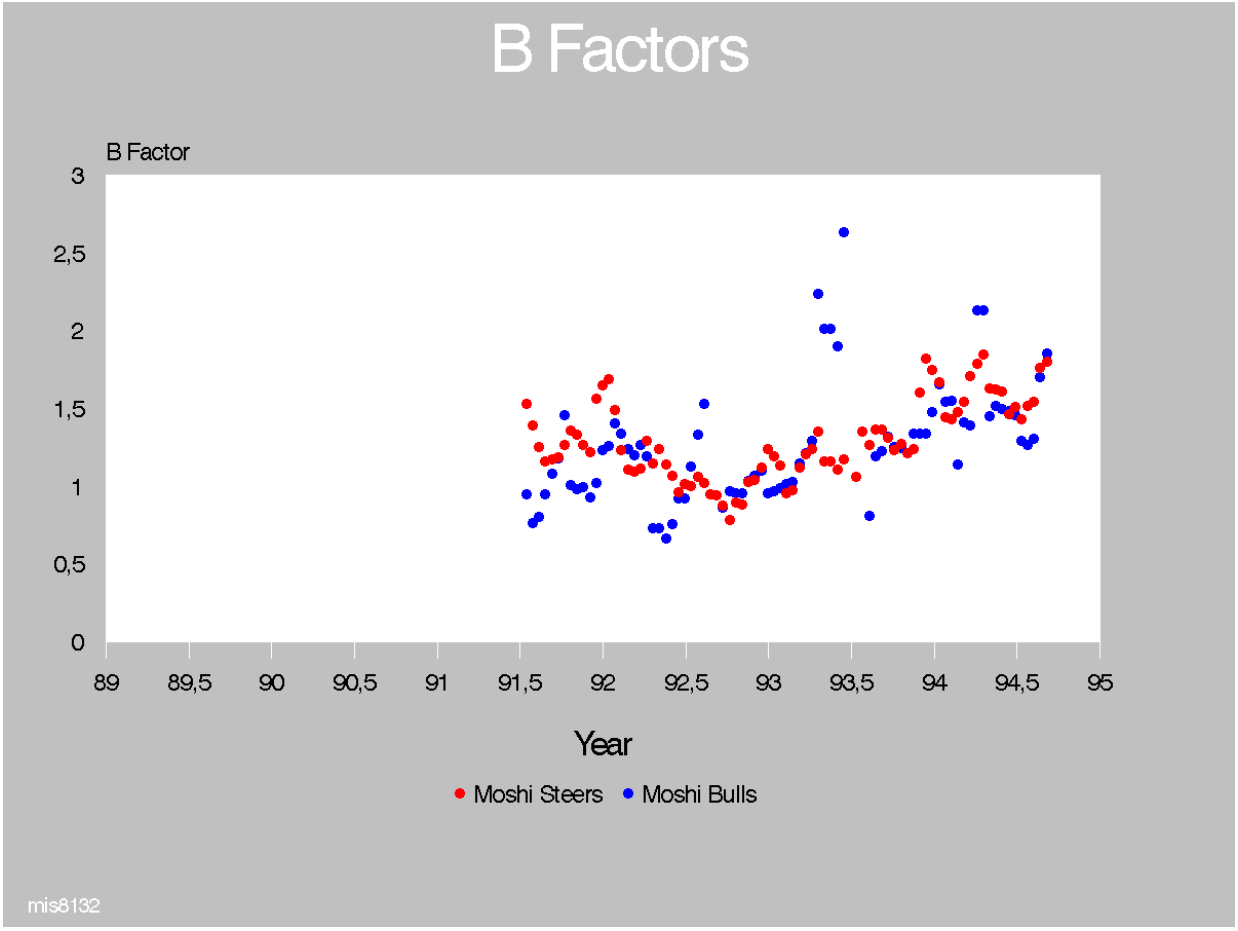
GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

It is of interest that Moshi figures for 1991 appear to indicate that the factor for steers was then 1.3 (as compared with 1.0 for Moshi for 1992). This may imply that the pattern for these 2 northern markets is traditionally one of producing premiums for better quality cattle, and that 1992 saw a temporary fall-off in that situation...

These average edible weight per animal graphs plus the B factor graphs between them really encapsulate the most exciting findings of the MIS Project - that given a market which awards premiums for higher quality cattle, then producers and traders will rise to the occasion. This is truly a triumph for market forces. What remains to be done is to examine what are the factors which produce this quality market (we assume the informal exports to Kenya), examine how the producers and traders provide these quality animals (e.g. feedlots?), and consider whether it is desirable and/or possible that this experience be transferred to Dar or to other markets.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8133.htm


B Factors
B Factor
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi Steers
Moshi Bulls
mis8132

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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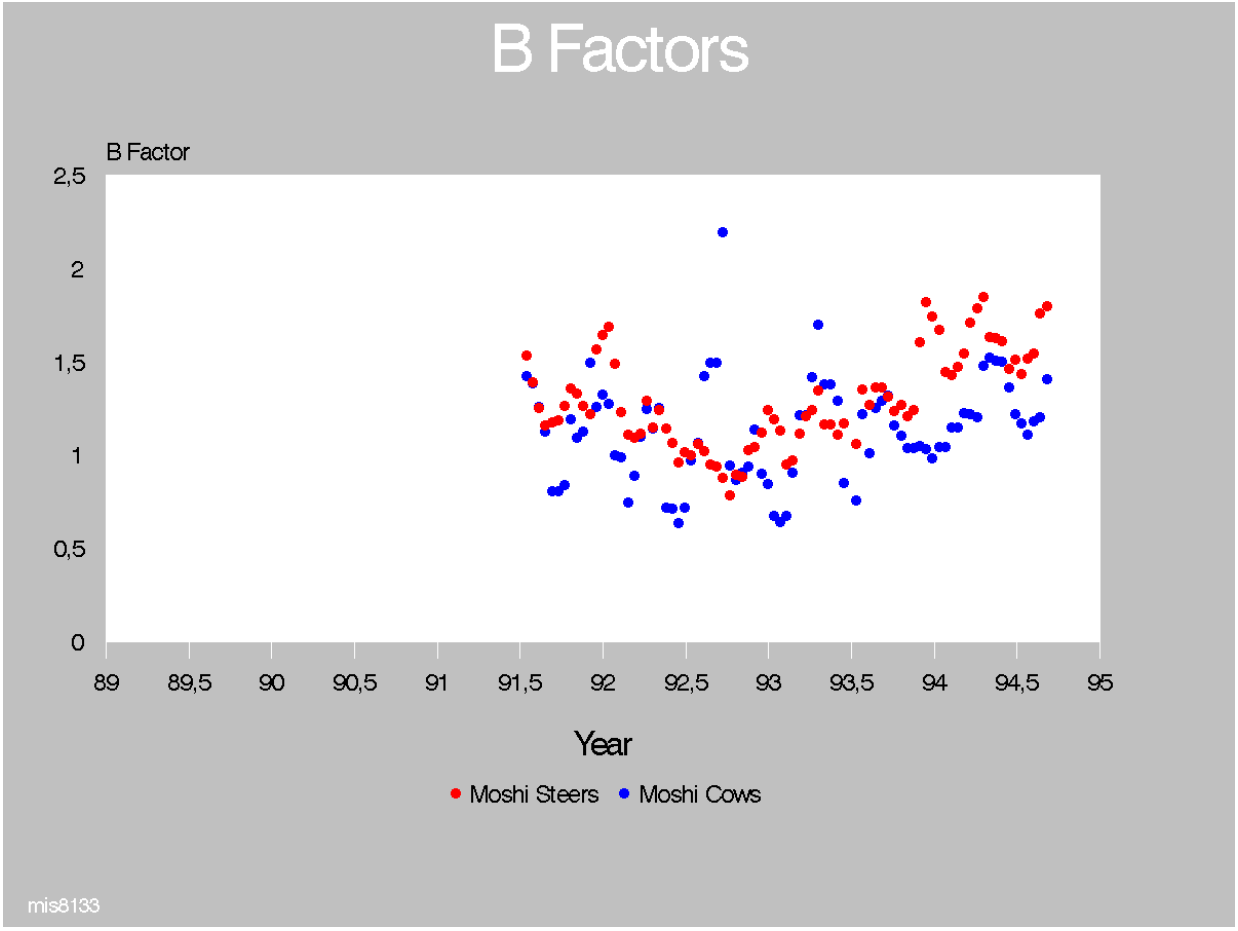
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8134.htm


B Factors
B Factor
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi Steers
Moshi Cows
mis8133

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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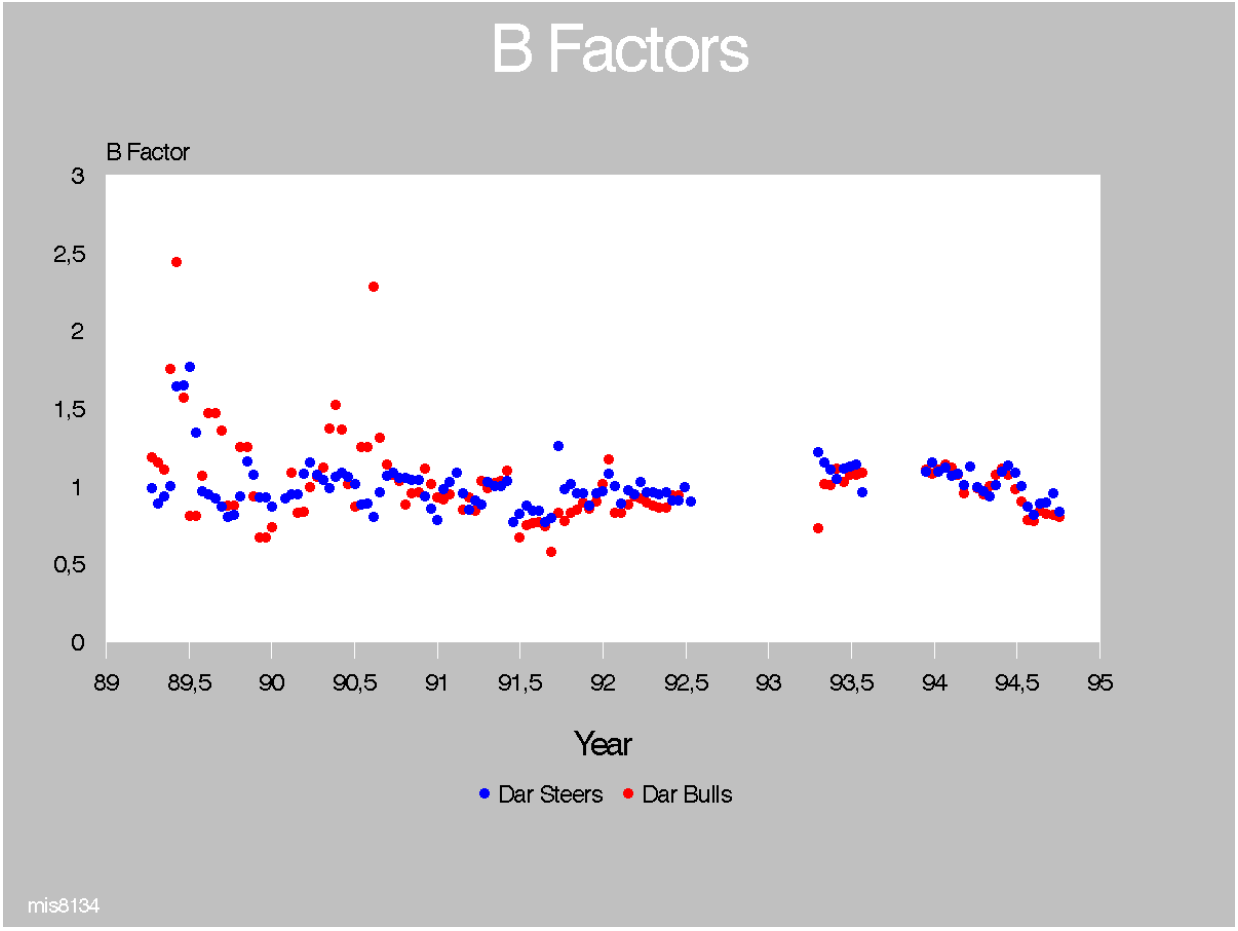
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8135.htm


B Factors
B Factor
3
2,5
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar Steers
Dar Bulls
mis8134

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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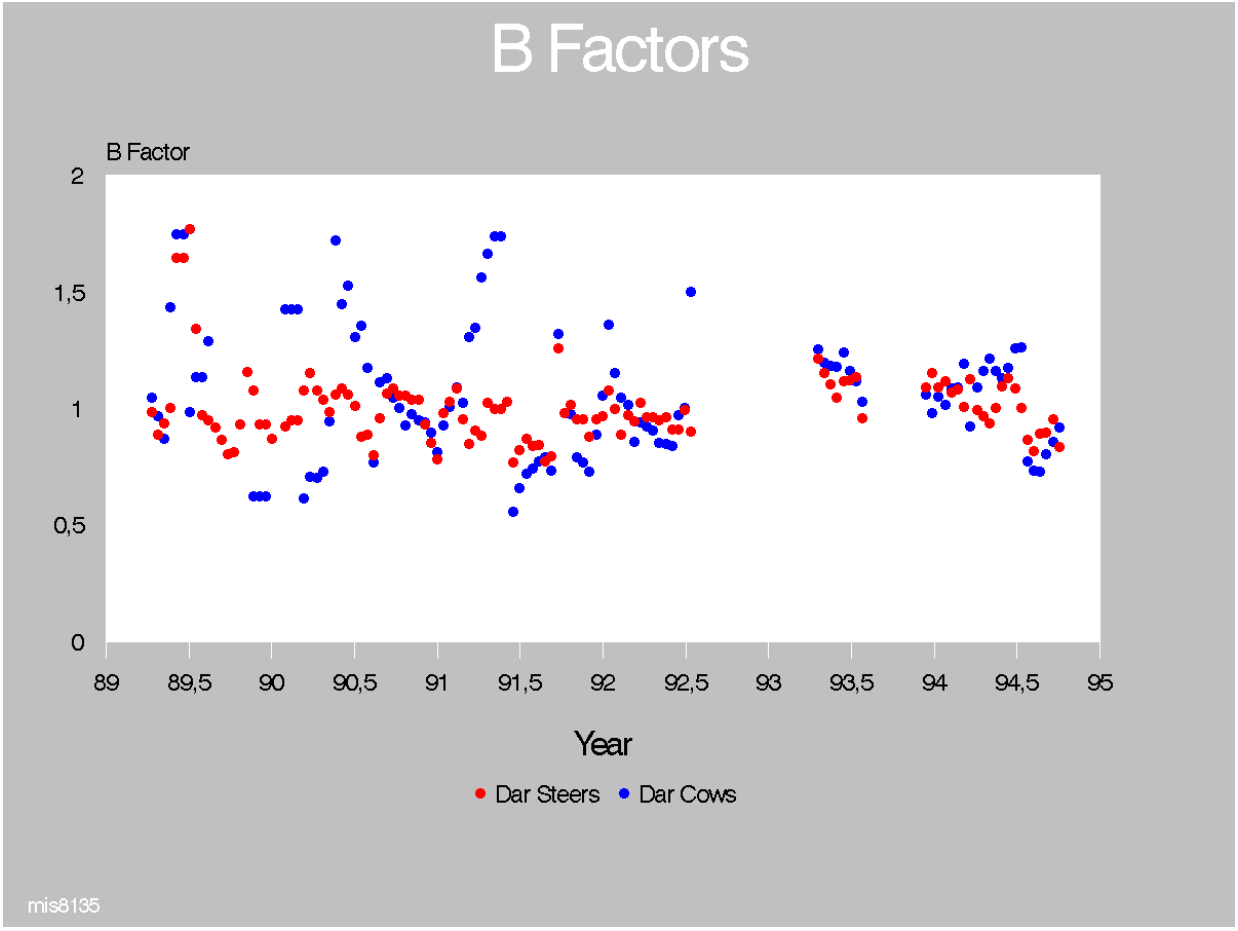
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis8021.htm


B Factors
B Factor
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Dar Steers
Dar Cows
mis8135

GRAPHS MIS8121.CHT THROUGH MIS8135.CHT - B FACTORS (SLOPE OF LOG-LOG GRAPH PRICE VS. EDIBLE WEIGHT)

It is my theory that this graph explains the behaviour of producers and traders for the graph MIS8001.cht above: The Graphs show that for Dar es Salaam, for all 3 sexes, the B values remain pretty constant over time at a value for B of 1.0. This in effect means that there is no price premium for better quality animals. Compare this with the graphs for Moshi and especially for Arusha: both were at 1.0 in 1992, but Moshi is now in 1994 at 1.6 for steers, 1.2 for cows and 1.5 for bulls; Arusha is now in 1994 at 1.7 for steers and bulls, and at 1.5 for cows. These are significant incentives to producers and traders to produce higher quality animals. For example, a B factor of 1.7 means that if an animal is fattened so as to have 10% more edible meat on its frame, then it will fetch a 17% higher price.

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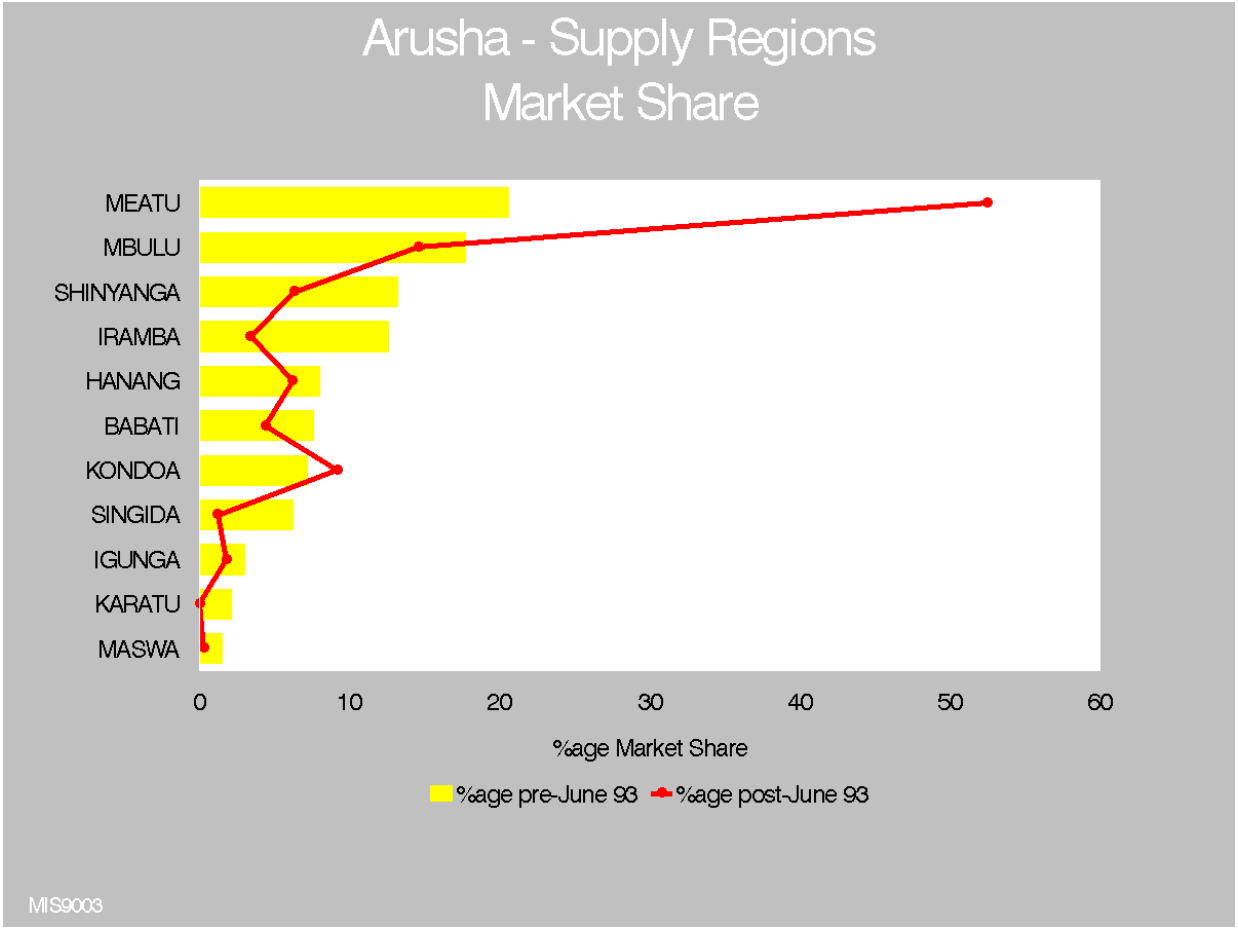
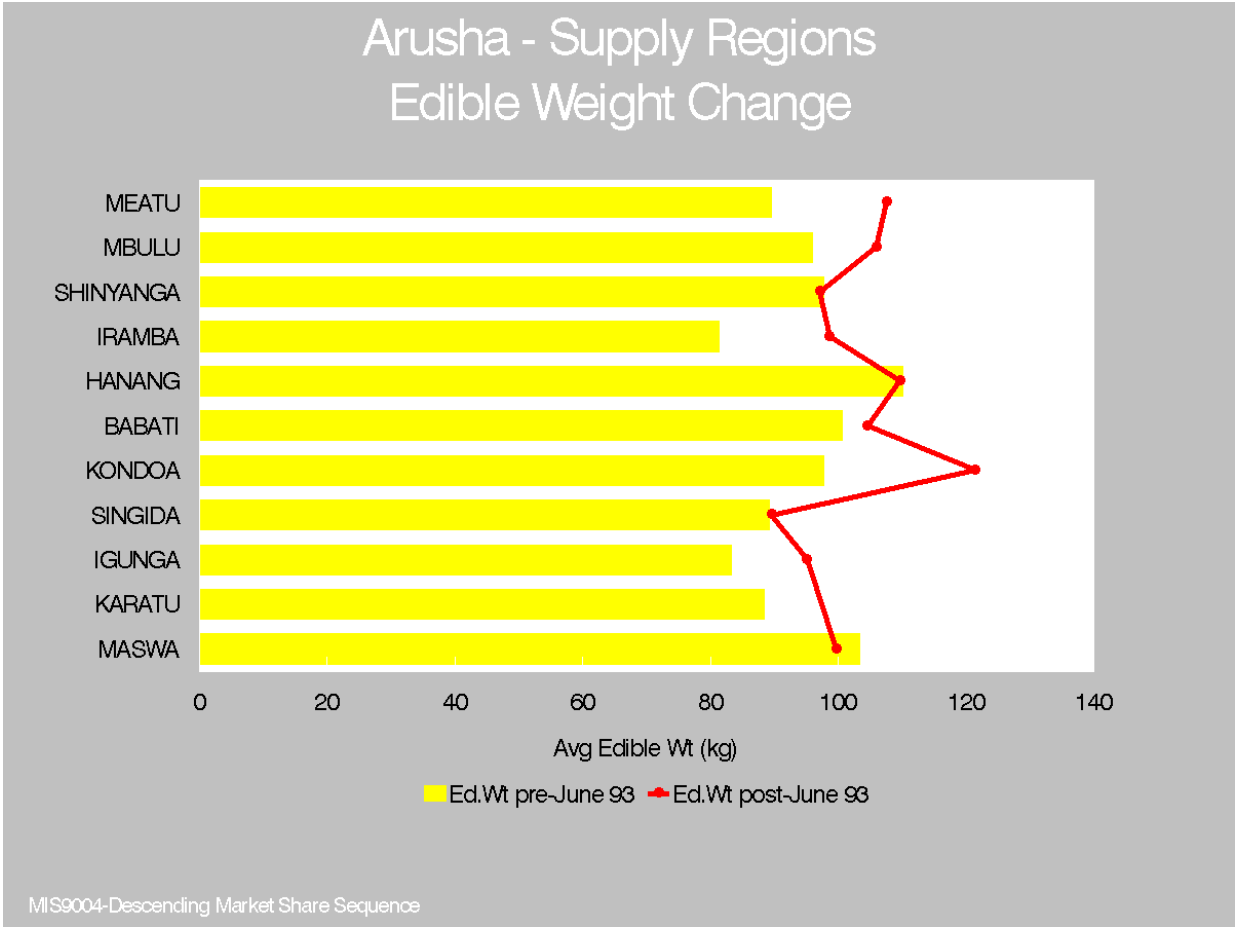
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9004.htm


Arusha - Supply Regions
Market Share
MEATU
MBULU
SHINYANGA
IRAMBA
HANANG
BABATI
KONDOA
SINGIDA
IGUNGA
KARATU
MASWA
0
10
20
30
40
50
60
%age Market Share
%age pre-June 93
%age post-June 93
MIS9003

GRAPH MIS9003.CHT - ARUSHA - SUPPLY REGIONS - MARKET SHARE.

These graphs shows that, pre-June 93, Meatu supplied 20% of the animals to Arusha, Mbulu 18%, Shinyanga 13% etc.; post-June 1993, Meatu jumped to 53% of the market, and all others fell back, except Kondoa, which registered a gain from 8% to 10% of the market. Of these falls in market share, Shinyanga, Iramba and Singida fared the worst, with the biggest drops.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9005.htm


Arusha - Supply Regions
Edible Weight Change
MEATU
MBULU
SHINYANGA
IRAMBA
HANANG
BABATI
KONDOA
SINGIDA
IGUNGA
KARATU
MASWA
0
20
40
60
80
100
120
140
Avg Edible Wt (kg)
Ed.Wt pre-June 93
Ed.Wt post-June 93
MIS9004-Descending Market Share Sequence

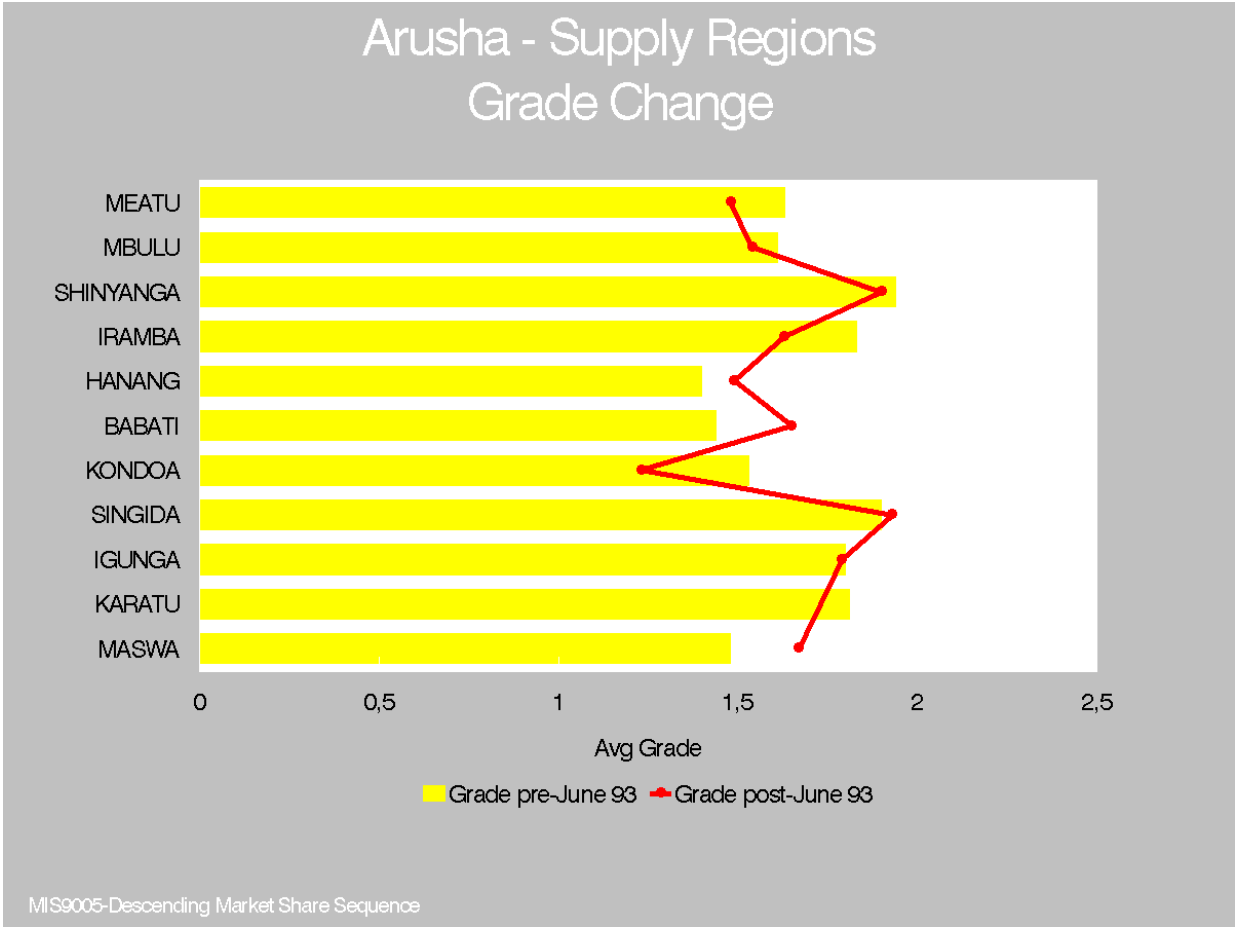
GRAPH MIS9004.CHT - ARUSHA - SUPPLY REGIONS - AVERAGE EDIBLE WEIGHT.

As we know, average edible weight is a good measure of animal quality, being a combination of liveweight and grade information (the only drawback is that a big shift in the percentage of cows in a population also affects the average edible weight, even without any real change in animal quality).

This graph shows that after June 1993, there were significant gains in animal quality for animals coming from Meatu, Iramba, Kondoa, Igunga, and Karatu; there was a static situation for animals from Shinyanga, Hanang, Singida and Maswa (but Hanang already had a very high animal quality).

Kondoa stands out as not only registering a very high percentage gain in animal quality, but also in getting to top value for animal quality. Combine this with the gain in market share in MIS9003.cht as above, and we have a very interesting situation in Kondoa. I very strongly recommend that the cattle production business in Kondoa is investigated as possibly being a model for other regions (as is of course Meatu).

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9013.htm

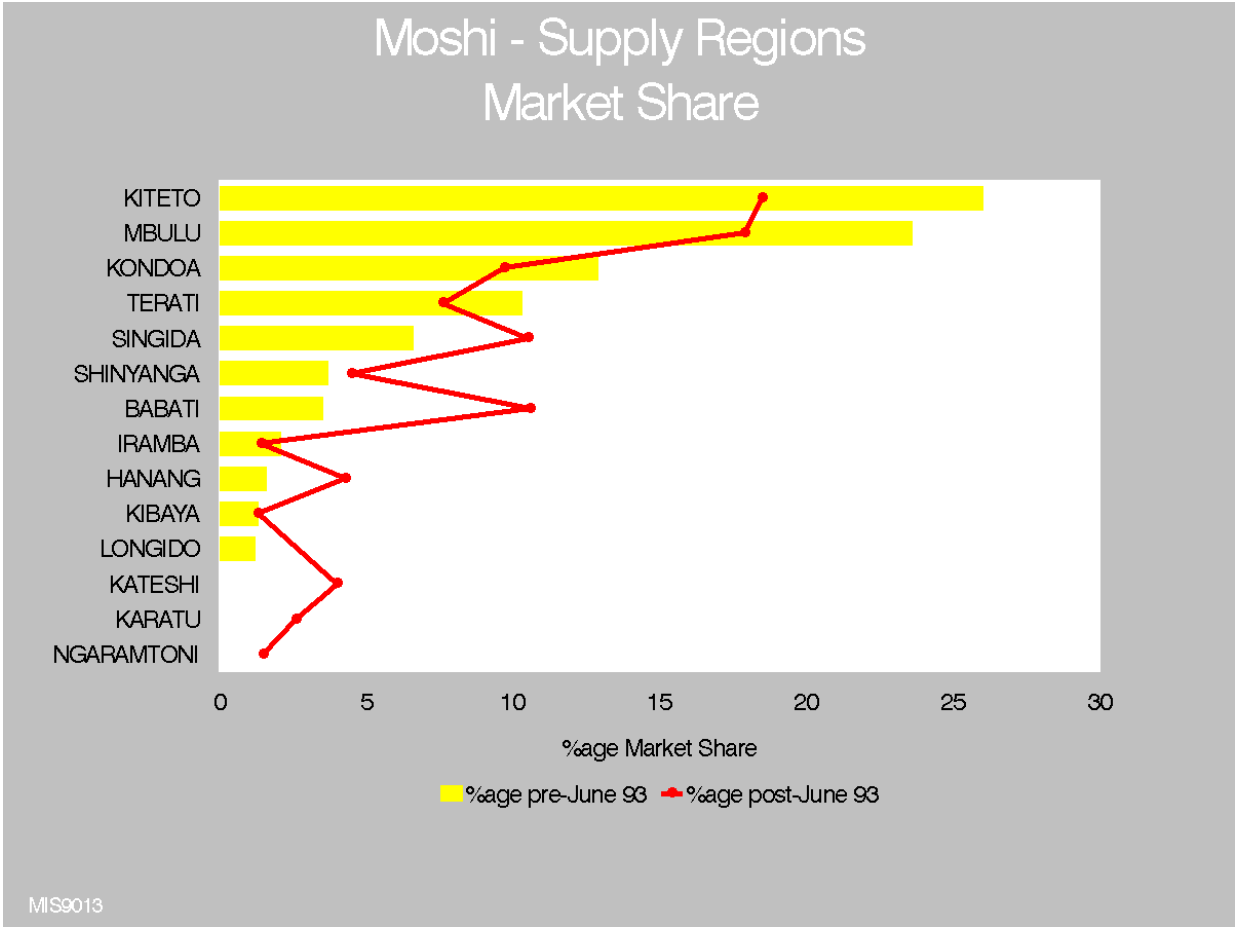

Arusha - Supply Regions
Grade Change
MEATU
MBULU
SHINYANGA
IRAMBA
HANANG
BABATI
KONDOA
SINGIDA
IGUNGA
KARATU
MASWA
0
0,5
1
1,5
2
2,5
Avg Grade
Grade pre-June 93
Grade post-June 93
MIS9005-Descending Market Share Sequence

GRAPH MIS9005.CHT - ARUSHA - SUPPLY REGIONS - AVERAGE GRADE.

This is really effectively just another way of presenting the information which is present in MIS9004.cht as above. It says the same, but is a cruder measure in some ways.

Note that for these 3 graphs, the accuracy of the market share information may be suspect, since it is based on sampling accuracy (or luck), but that the average edible weight information should be treated as quite accurate.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9014.htm

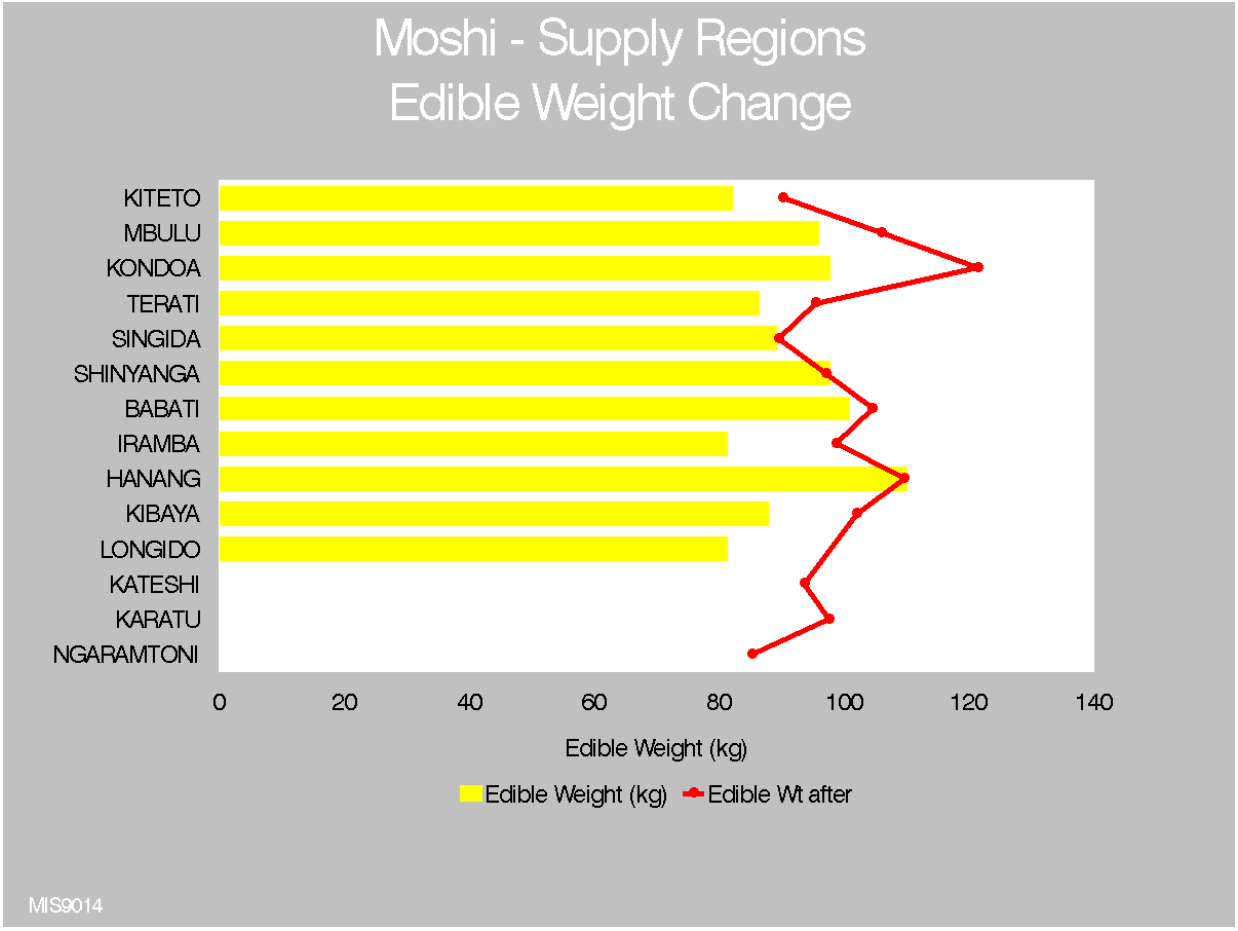

Moshi - Supply Regions
Market Share
KITETO
MBULU
KONDOA
TERATI
SINGIDA
SHINYANGA
BABATI
IRAMBA
HANANG
KIBAYA
LONGIDO
KATESHI
KARATU
NGARAMTONI
0
5
10
15
20
25
30
%age Market Share
%age pre-June 93
%age post-June 93
MIS9013

GRAPH MIS9013.CHT - MOSHI - SUPPLY REGIONS - MARKET SHARE.

The information for Moshi is not so exciting as for Arusha above, since (as we know) the animal quality gains for Moshi are not quite so outstanding. Also of course Moshi is very much a second market to Arusha, and mainly deals in the lower quality animals which were unsold at Arusha on the previous week.

This graph shows that Kiteto's market share fell from 26% to 18%, Mbulu from 24% to 18%, and Kondoa from 13% to 10%; Singida rose from 7% to 10%, Babati from 4% to 11%, and Hanang from 2% to 4%.

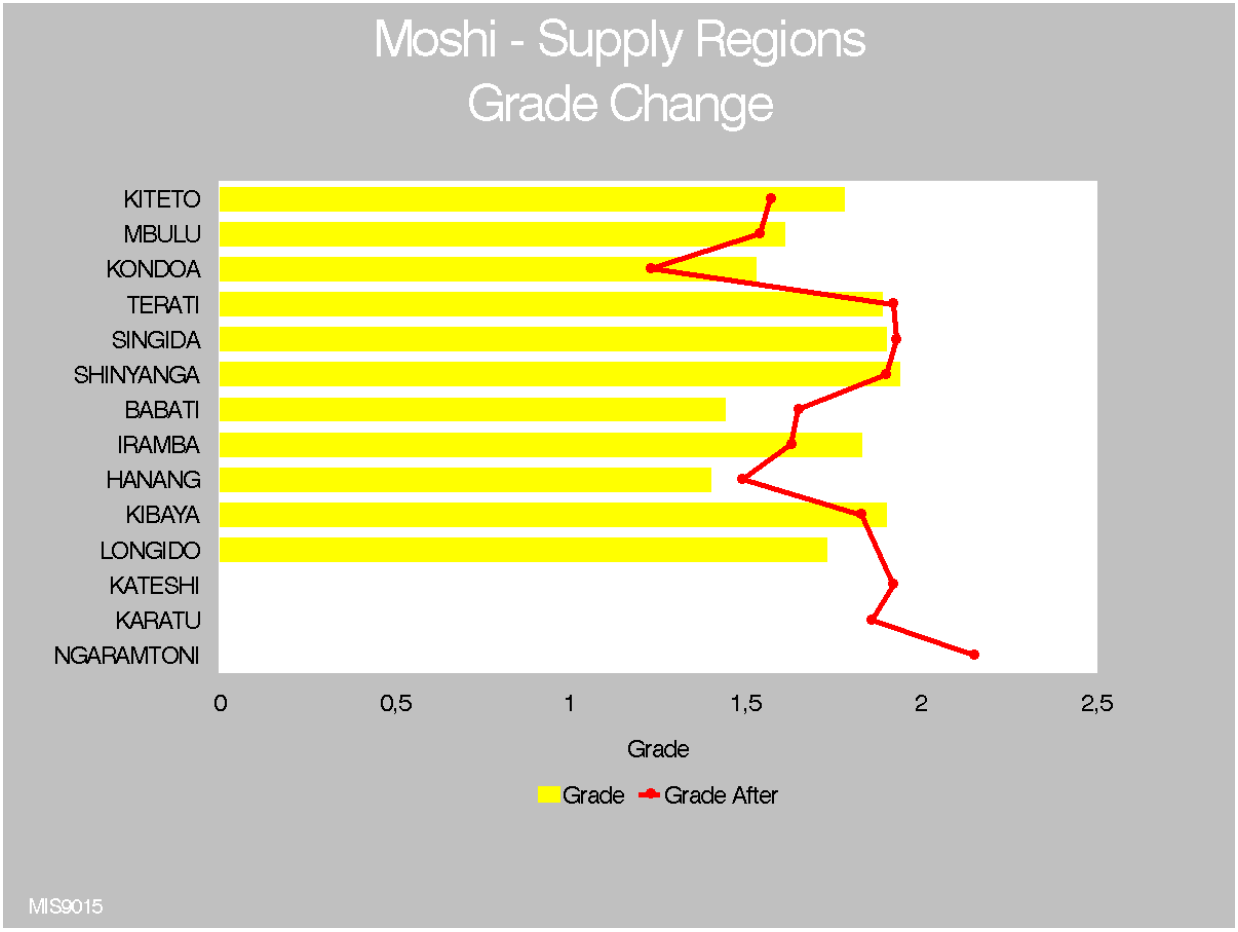
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9015.htm


Moshi - Supply Regions
Edible Weight Change
KITETO
MBULU
KONDOA
TERATI
SINGIDA
SHINYANGA
BABATI
IRAMBA
HANANG
KIBAYA
LONGIDO
KATESHI
KARATU
NGARAMTONI
0
20
40
60
80
100
120
140
Edible Weight (kg)
Edible Weight (kg)
Edible Wt after
MIS9014

GRAPH MIS9014.CHT - MOSHI - SUPPLY REGIONS - AVERAGE EDIBLE WEIGHT.

This graph shows data similar to that of MIS9004.CHT: that after June 1993, there were significant gains in animal quality for animals coming from Kondoa and Iramba; there was a static situation for animals from Shinyanga, Hanang, and Singida (but Hanang already had a very high animal quality).

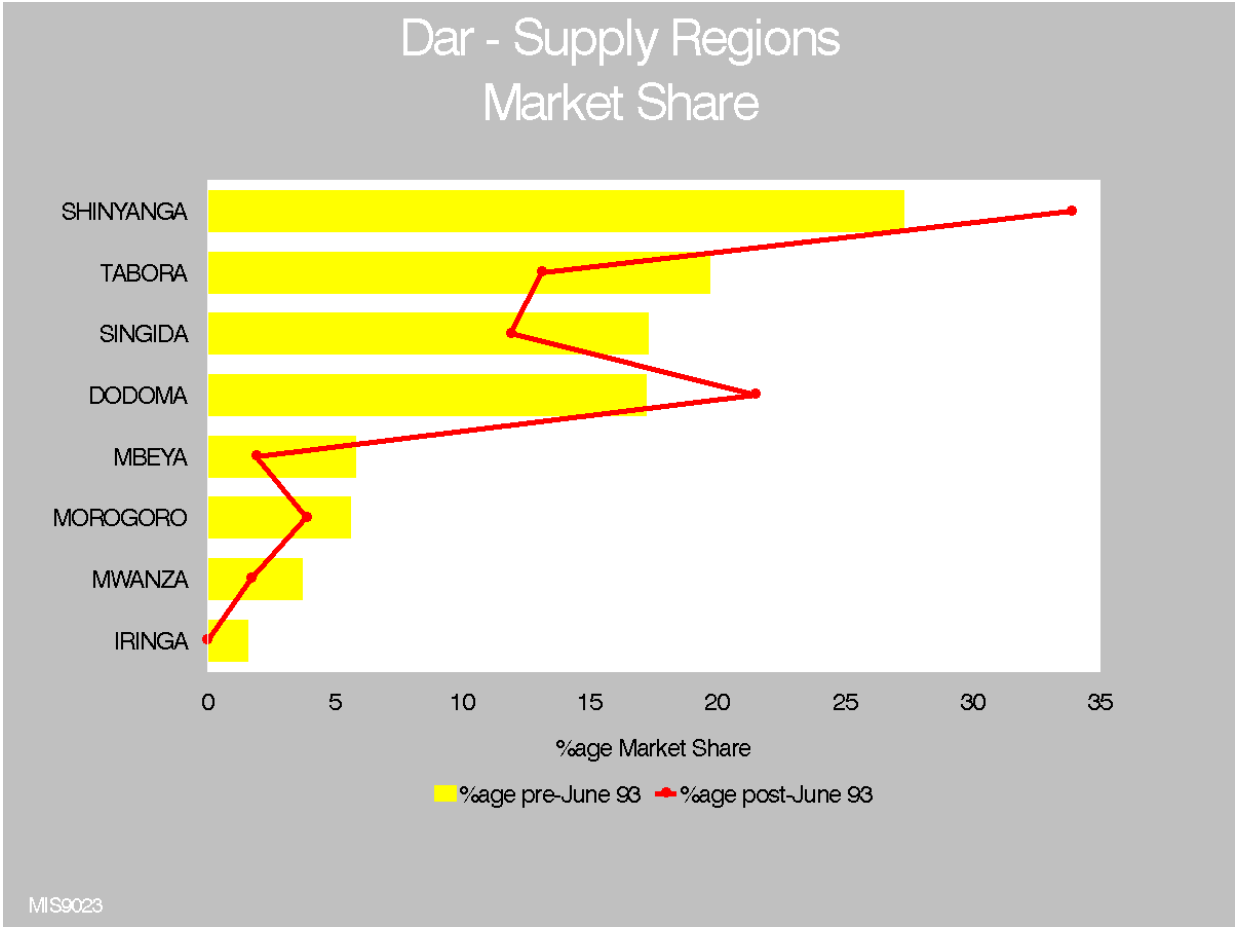
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9023.htm


Moshi - Supply Regions
Grade Change
KITETO
MBULU
KONDOA
TERATI
SINGIDA
SHINYANGA
BABATI
IRAMBA
HANANG
KIBAYA
LONGIDO
KATESHI
KARATU
NGARAMTONI
0
0,5
1
1,5
2
2,5
Grade
Grade
Grade After
MIS9015

GRAPH MIS9015.CHT - MOSHI - SUPPLY REGIONS - AVERAGE GRADE.

This is really effectively just another way of presenting the information which is present in MIS9014.cht as above. It says the same, but is a cruder measure in some ways.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9024.htm

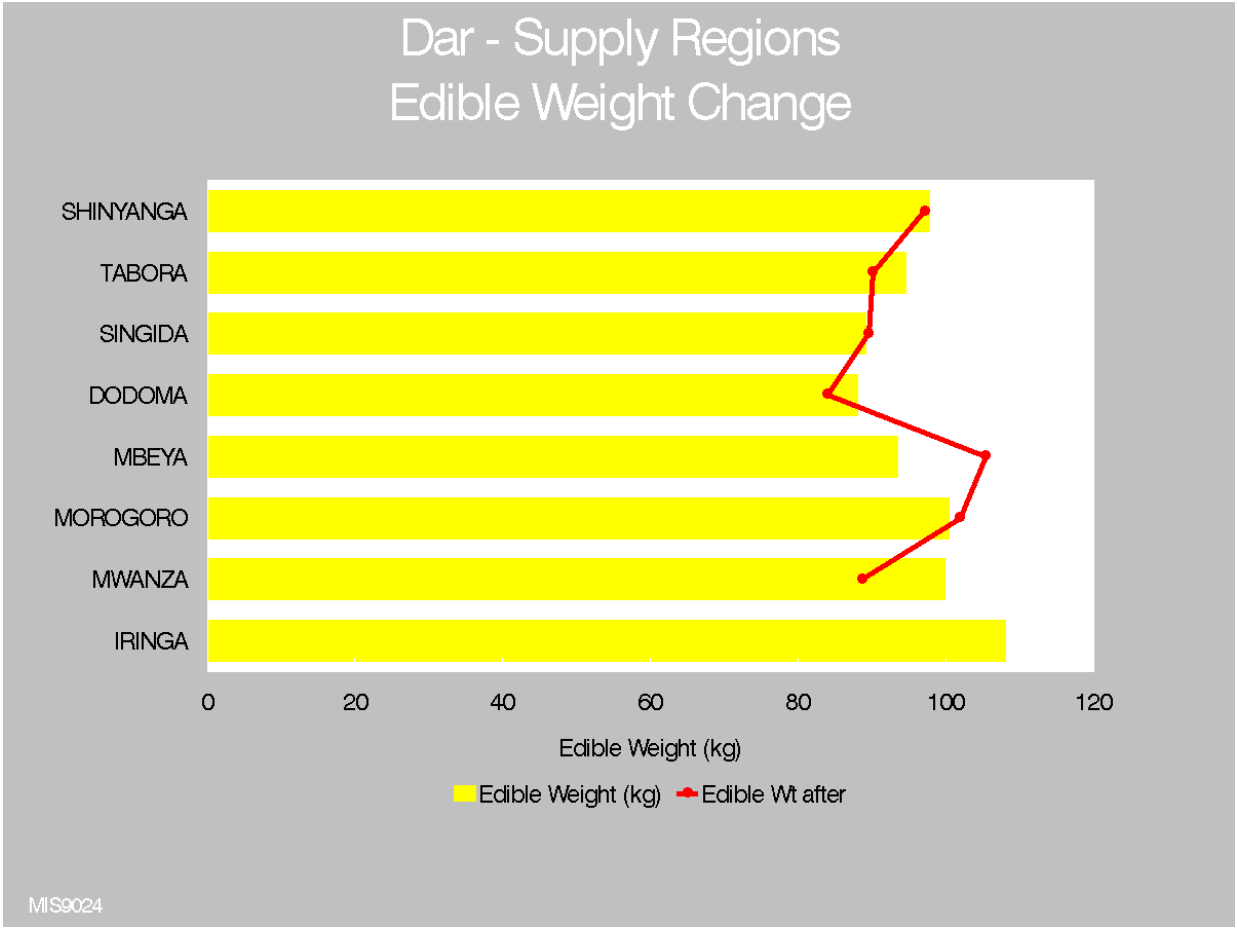

Dar - Supply Regions
Market Share
SHINYANGA
TABORA
SINGIDA
DODOMA
MBEYA
MOROGORO
MWANZA
IRINGA
0
5
10
15
20
25
30
35
%age Market Share
%age pre-June 93
%age post-June 93
MIS9023

GRAPH MIS9023.CHT - DAR - SUPPLY REGIONS - MARKET SHARE.

The information for Dar is the least exciting, since (as we know) there were effectively zero animal quality gains for Dar.

This graph shows that Shinyanga gained from 27% to 34% of the market, and Dodoma gained from 17% to 21% of the market; Tabora fell from 20% to 13%, and Singida from 17% to 12%.

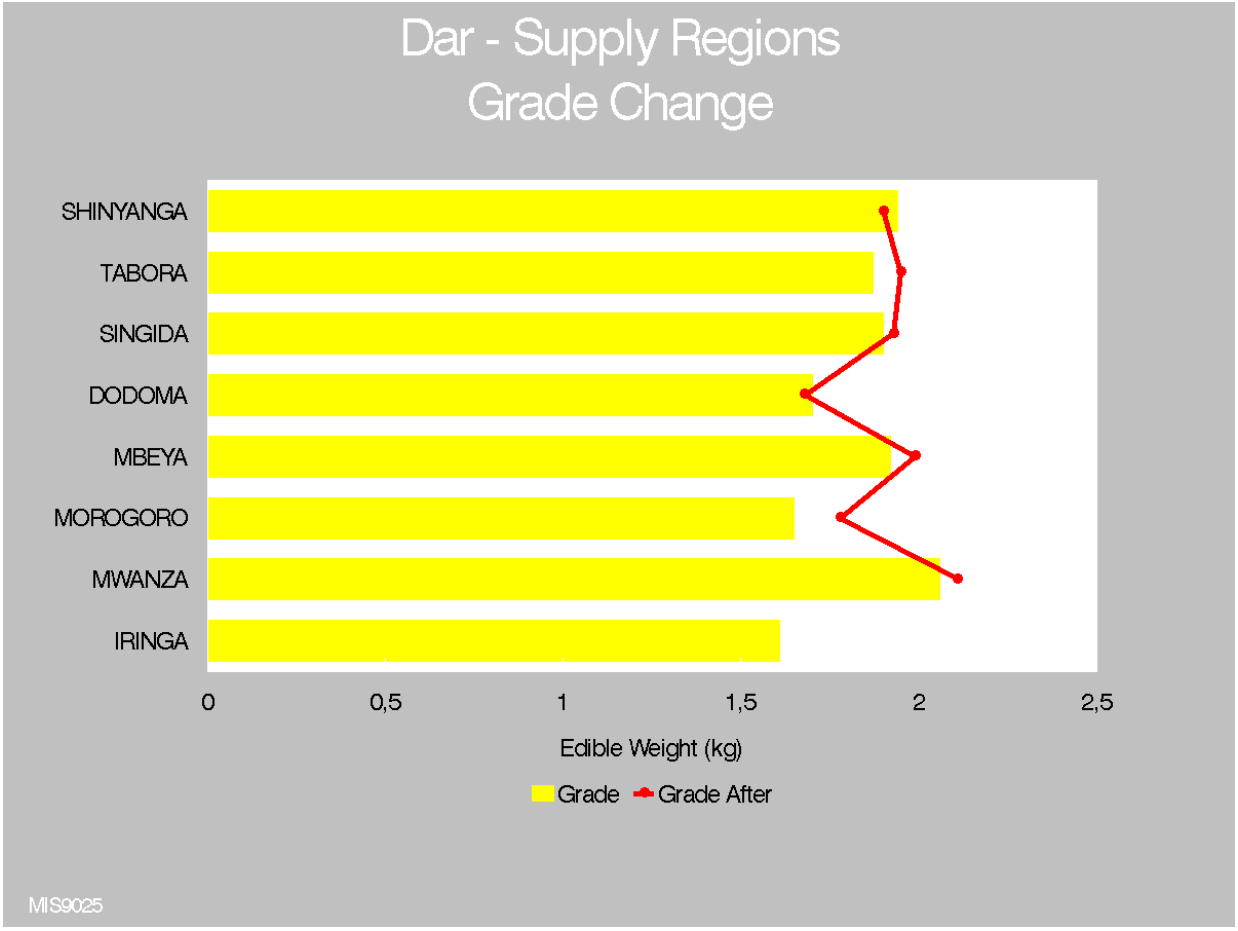
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9025.htm


Dar - Supply Regions
Edible Weight Change
SHINYANGA
TABORA
SINGIDA
DODOMA
MBEYA
MOROGORO
MWANZA
IRINGA
0
20
40
60
80
100
120
Edible Weight (kg)
Edible Weight (kg)
Edible Wt after
MIS9024

GRAPH MIS9024.CHT - DAR - SUPPLY REGIONS - AVERAGE EDIBLE WEIGHT.

This graph shows that only Mbeya (a fairly minor player by market share) gained in animal quality terms (from 93 kg to 104 kg); the other supply regions were either static or falling in animal quality terms.

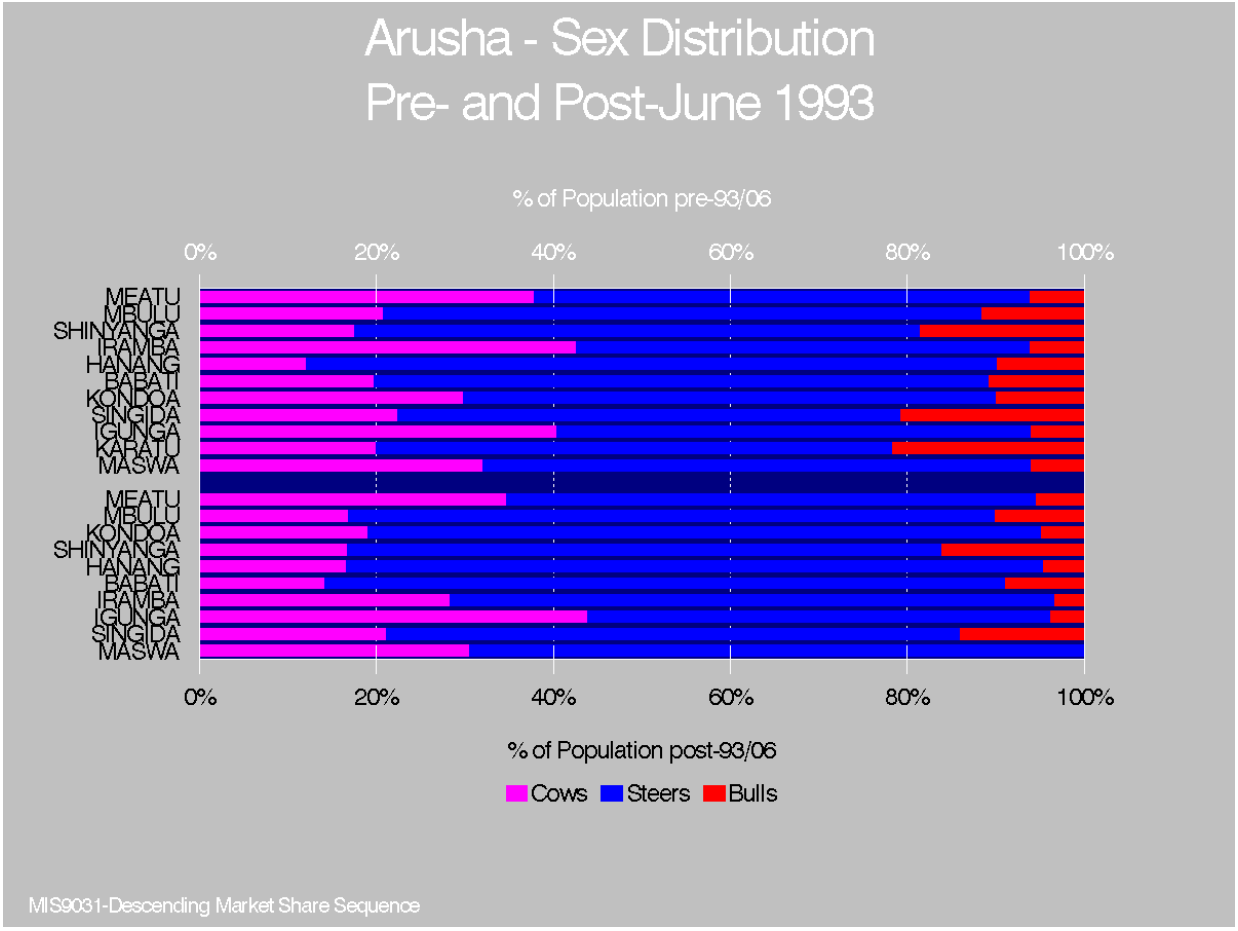
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9031.htm


Dar - Supply Regions
Grade Change
SHINYANGA
TABORA
SINGIDA
DODOMA
MBEYA
MOROGORO
MWANZA
IRINGA
0
0,5
1
1,5
2
2,5
Edible Weight (kg)
Grade
Grade After
MIS9025

GRAPH MIS9025.CHT - DAR - SUPPLY REGIONS - AVERAGE GRADE.

This is really effectively just another way of presenting the information which is present in MIS9024.cht as above. It says the same, but is a cruder measure in some ways.

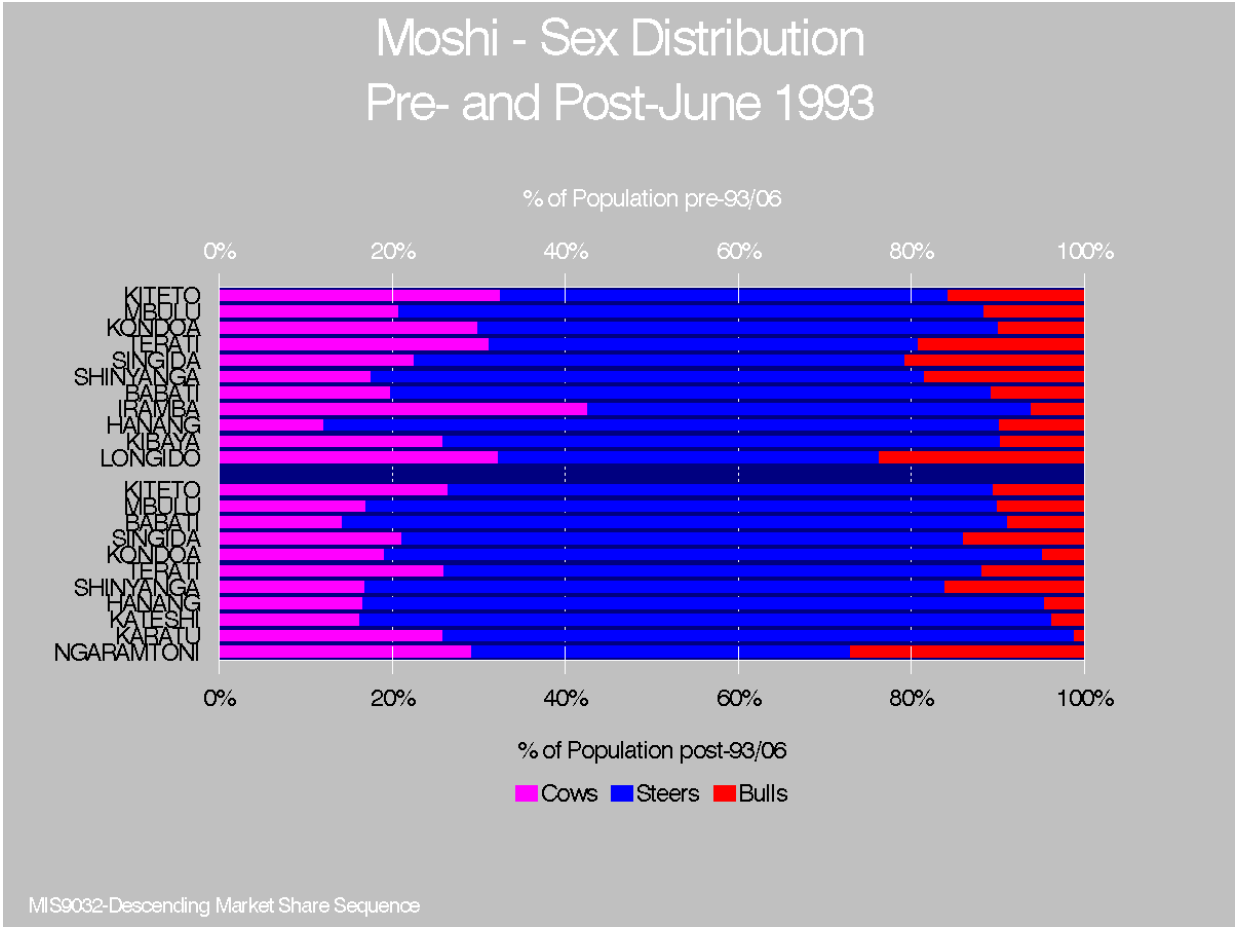
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9032.htm


Arusha - Sex Distribution
Pre- and Post-June 1993
% of Population pre-93/06
0%
20%
40%
60%
80%
100%
MEATU
MBULU
SHINYANGA
IRAMBA
HANANG
BABATI
KONDOA
SINGIDA
IGUNGA
KARATU
MASWA
MEATU
MBULU
KONDOA
SHINYANGA
HANANG
BABATI
IRAMBA
IGUNGA
SINGIDA
MASWA
0%
20%
40%
60%
80%
100%
% of Population post-93/06
Cows
Steers
Bulls
MIS9031-Descending Market Share Sequence

GRAPH MIS9031.CHT through MIS9033.CHT - SUPPLY REGIONS - SEX DISTRIBUTION.

These graphs show the sex distributions coming from the various regions to the 3 major markets, both before and after June 1993. There is nothing very startling about the information, but like all other information, it may reveal something useful to the cattle specialists on the TLMP Team.

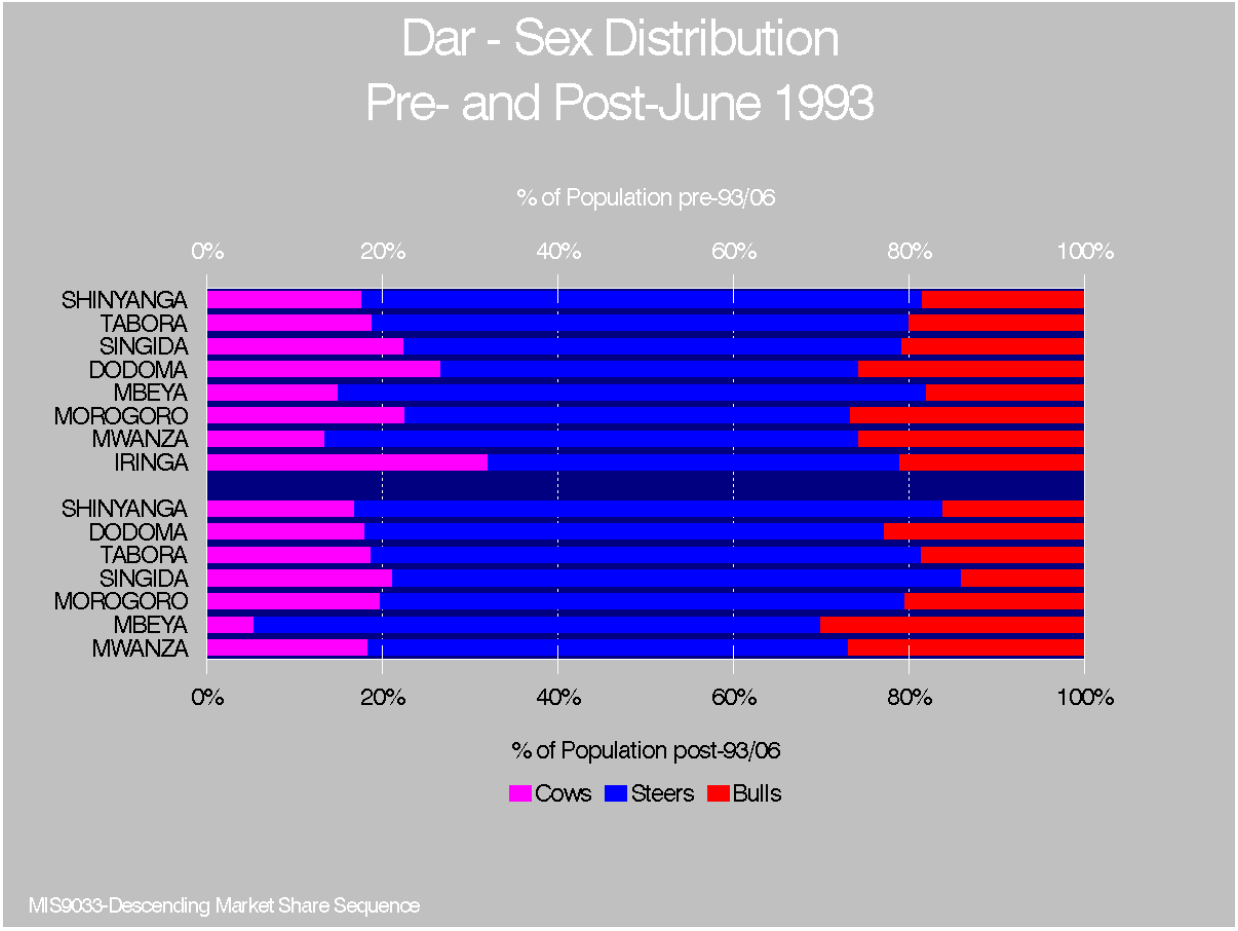
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9033.htm


Moshi - Sex Distribution
Pre- and Post-June 1993
% of Population pre-93/06
0%
20%
40%
60%
80%
100%
KITETO
MBULU
KONDOA
TERATI
SINGIDA
SHINYANGA
BABATI
IRAMBA
HANANG
KIBAYA
LONGIDO
KITETO
MBULU
BABATI
SINGIDA
KONDOA
TERATI
SHINYANGA
HANANG
KATESHI
KARATU
NGARAMTONI
0%
20%
40%
60%
80%
100%
% of Population post-93/06
Cows
Steers
Bulls
MIS9032-Descending Market Share Sequence

GRAPH MIS9031.CHT through MIS9033.CHT - SUPPLY REGIONS - SEX DISTRIBUTION.

These graphs show the sex distributions coming from the various regions to the 3 major markets, both before and after June 1993. There is nothing very startling about the information, but like all other information, it may reveal something useful to the cattle specialists on the TLMP Team.

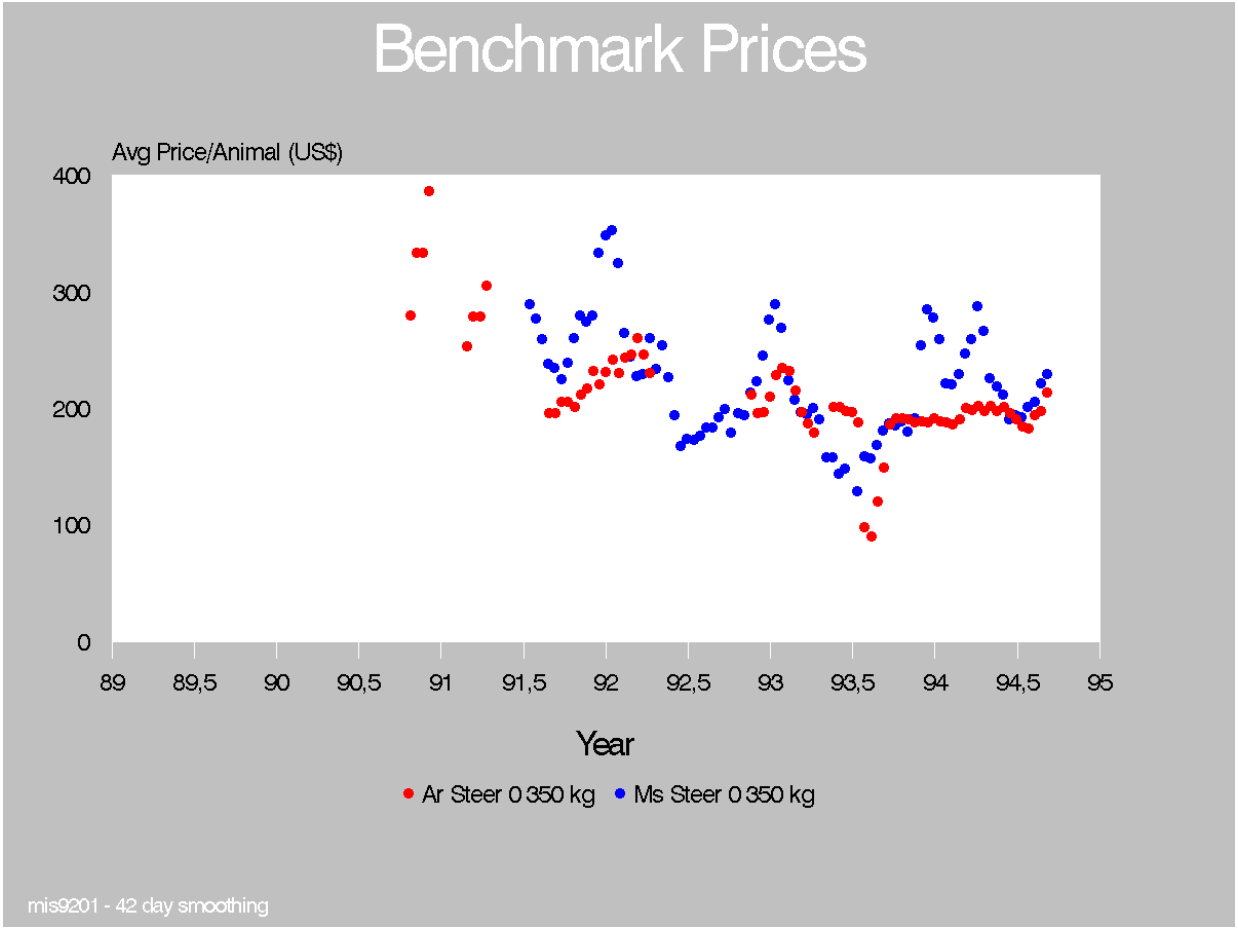
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9201.htm


Dar - Sex Distribution
Pre- and Post-June 1993
% of Population pre-93/06
0%
20%
40%
60%
80%
100%
SHINYANGA
TABORA
SINGIDA
DODOMA
MBEYA
MOROGORO
MWANZA
IRINGA
SHINYANGA
DODOMA
TABORA
SINGIDA
MOROGORO
MBEYA
MWANZA
0%
20%
40%
60%
80%
100%
% of Population post-93/06
Cows
Steers
Bulls
MIS9033-Descending Market Share Sequence

GRAPH MIS9031.CHT through MIS9033.CHT - SUPPLY REGIONS - SEX DISTRIBUTION.

These graphs show the sex distributions coming from the various regions to the 3 major markets, both before and after June 1993. There is nothing very startling about the information, but like all other information, it may reveal something useful to the cattle specialists on the TLMP Team.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9202.htm


Benchmark Prices
Avg Price/Animal (US$)
400
300
200
100
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 0 350 kg
Ms Steer 0 350 kg
mis9201 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

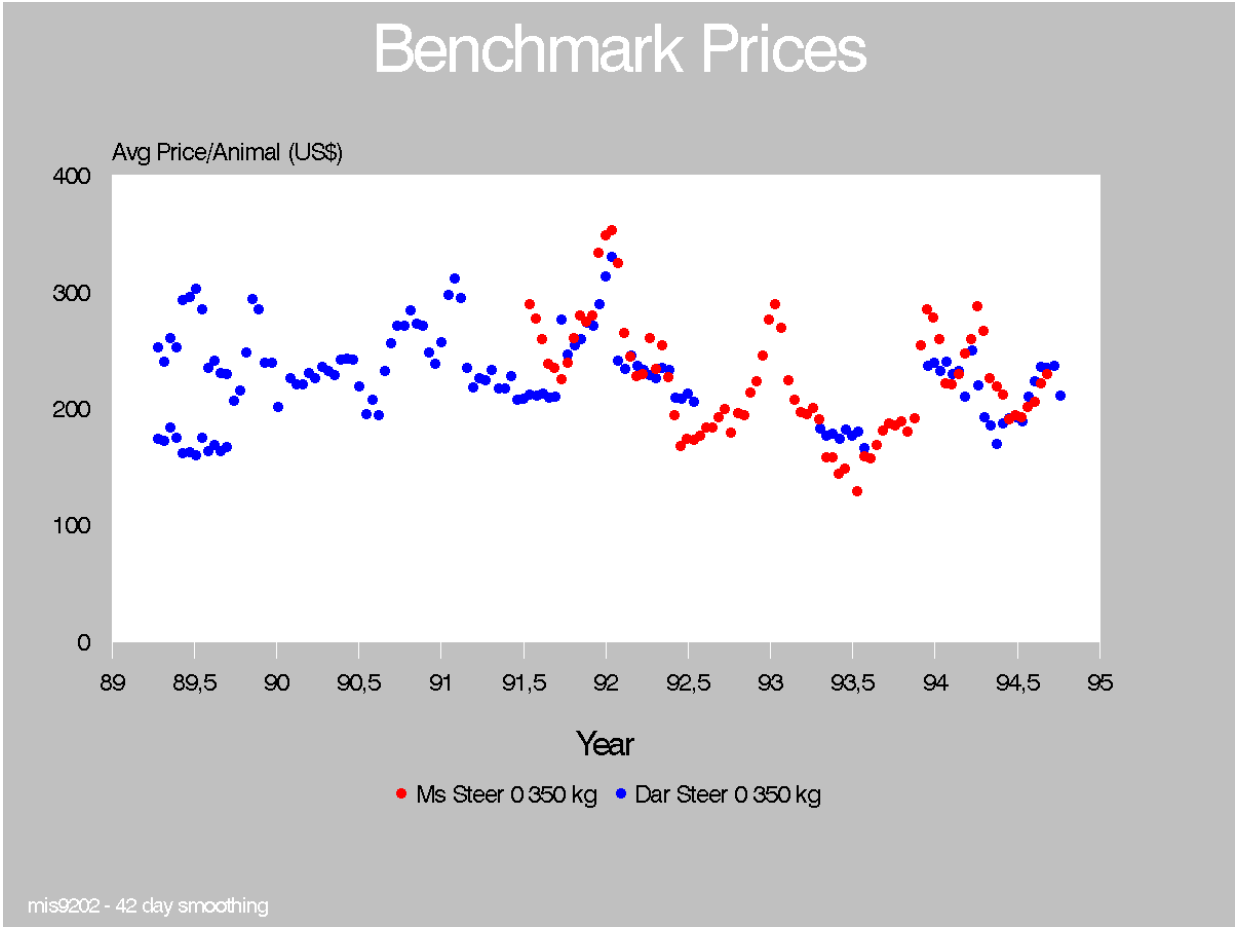
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9203.htm


Benchmark Prices
Avg Price/Animal (US$)
400
300
200
100
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ms Steer 0 350 kg
Dar Steer 0 350 kg
mis9202 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

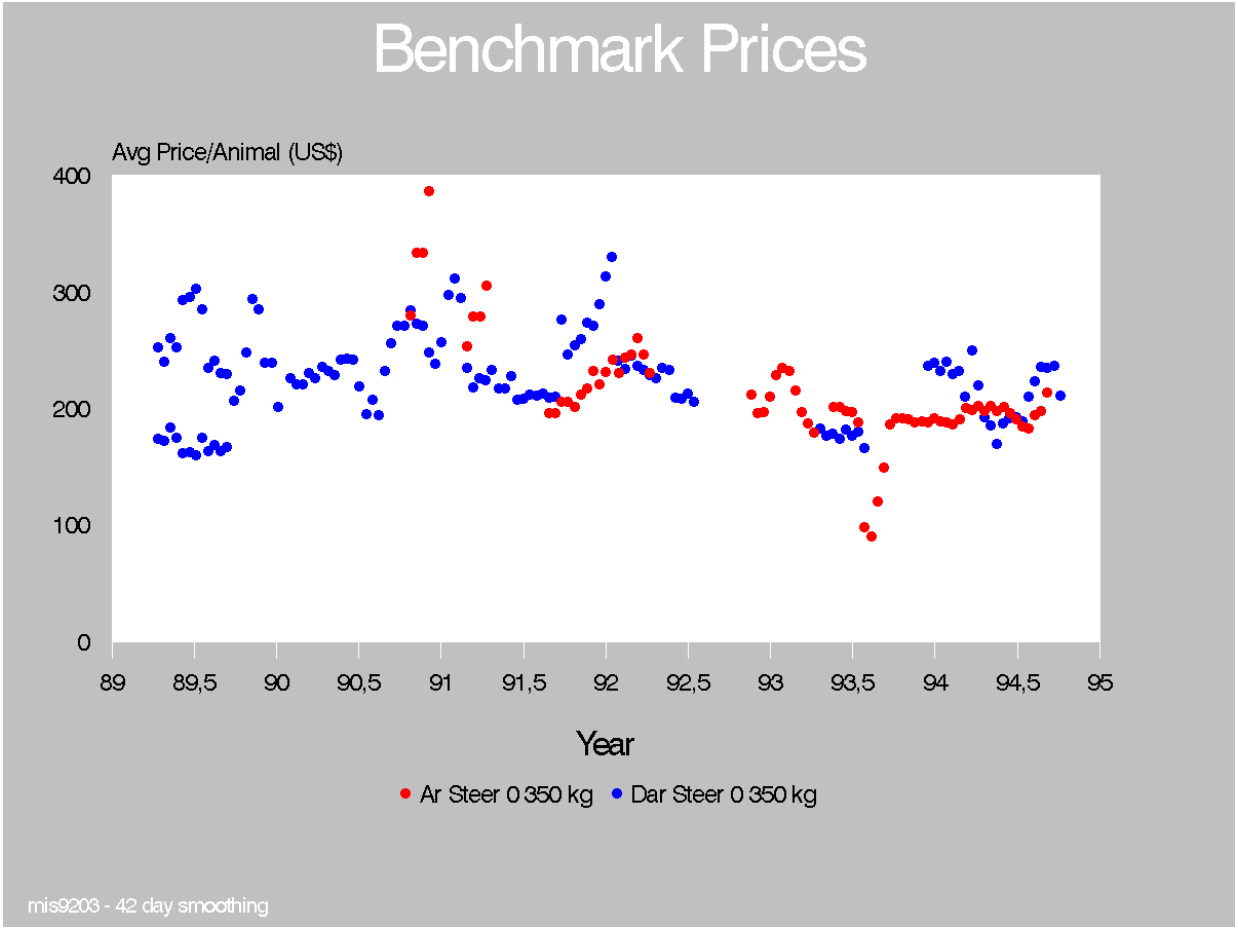
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9204.htm


Benchmark Prices
Avg Price/Animal (US$)
400
300
200
100
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 0 350 kg
Dar Steer 0 350 kg
mis9203 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

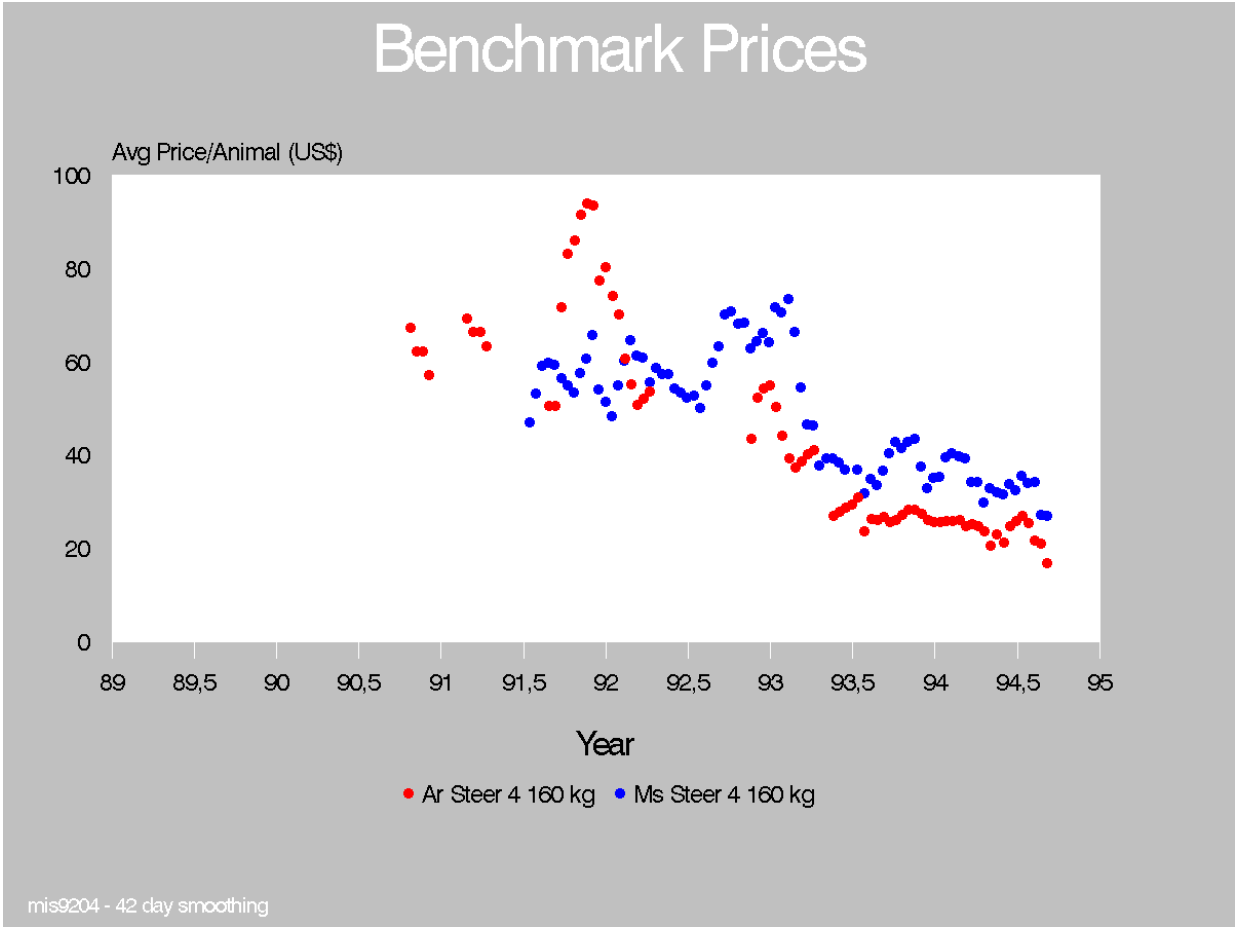
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9205.htm


Benchmark Prices
Avg Price/Animal (US$)
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 4 160 kg
Ms Steer 4 160 kg
mis9204 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

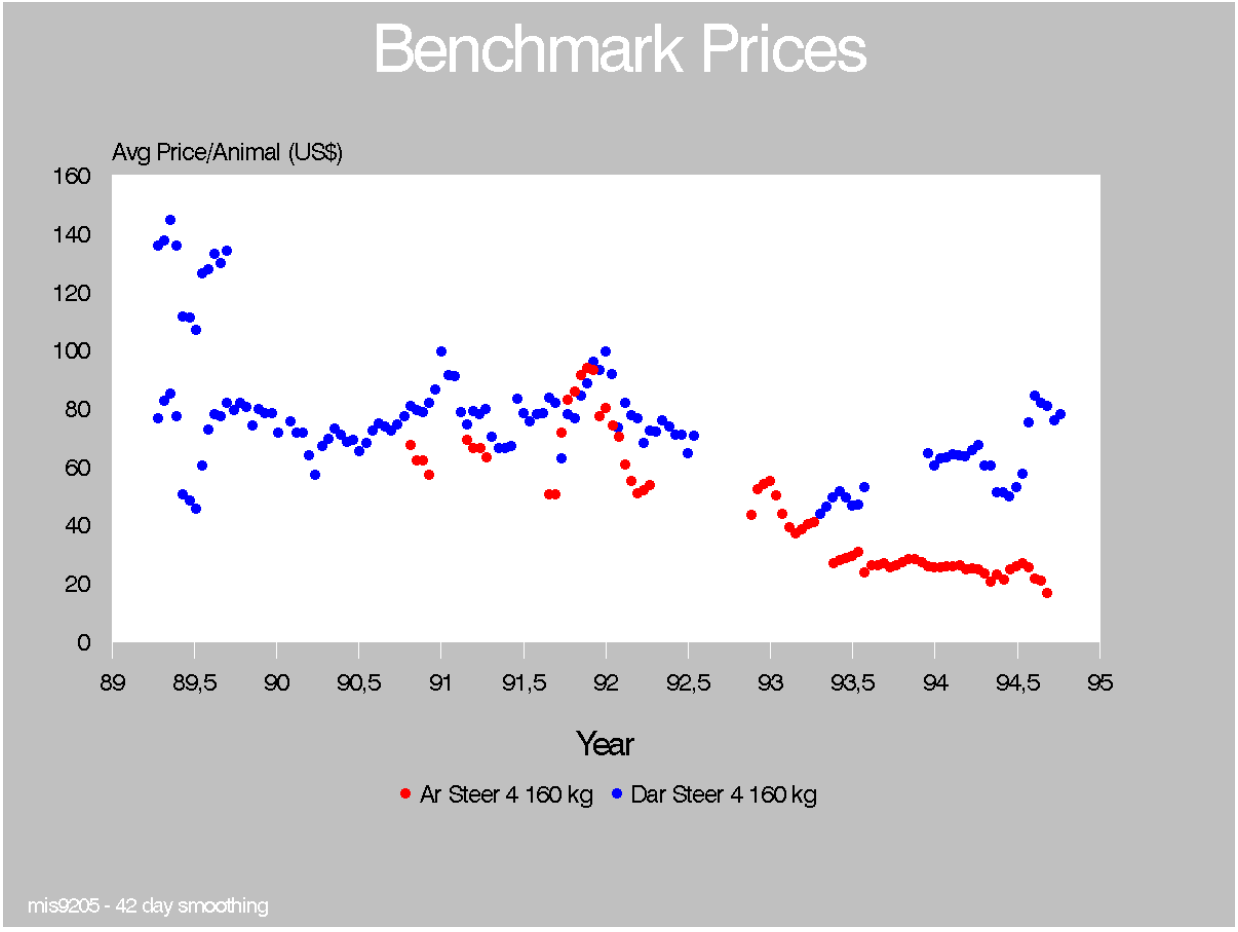
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9206.htm


Benchmark Prices
Avg Price/Animal (US$)
160
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 4 160 kg
Dar Steer 4 160 kg
mis9205 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

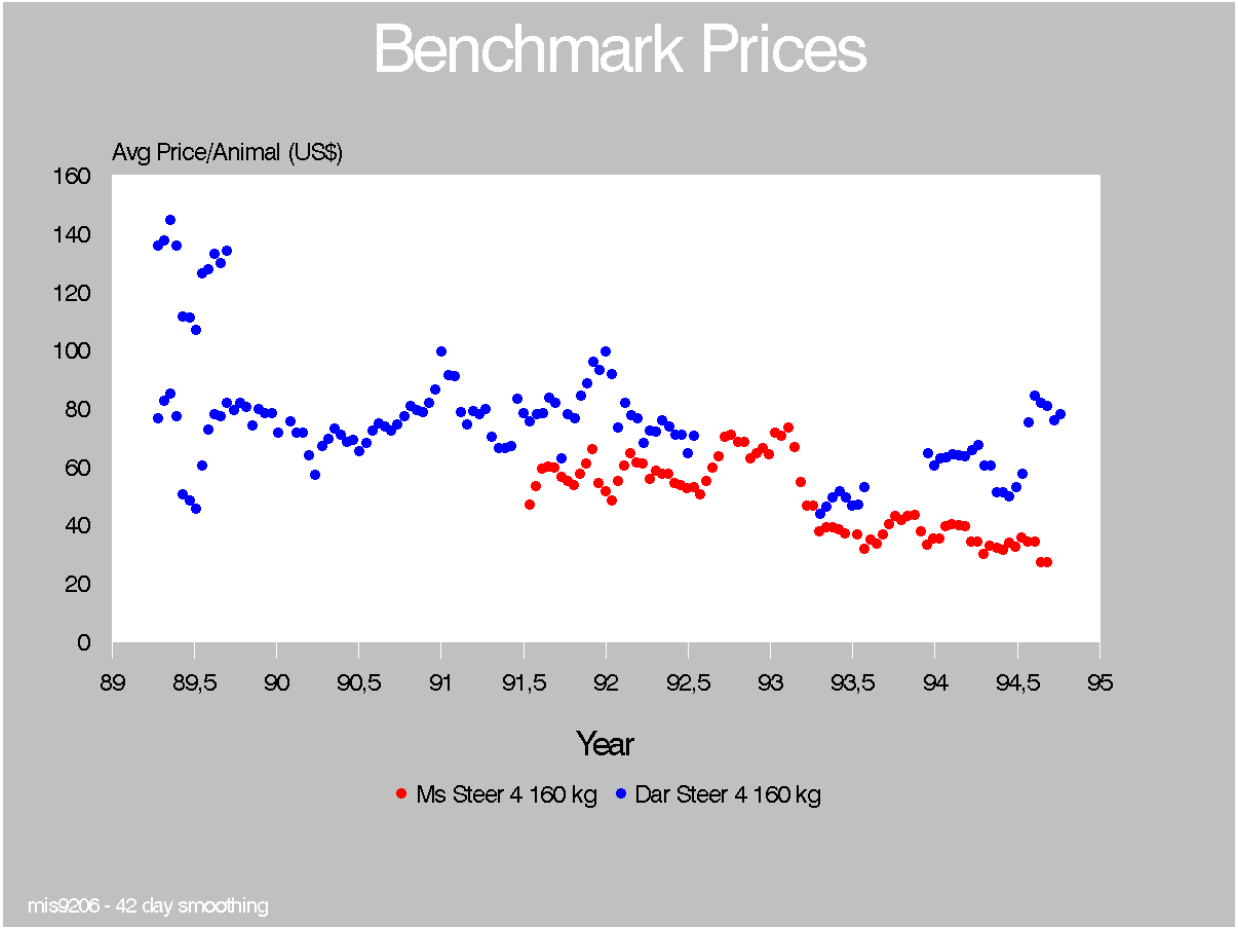
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9207.htm


Benchmark Prices
Avg Price/Animal (US$)
160
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ms Steer 4 160 kg
Dar Steer 4 160 kg
mis9206 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

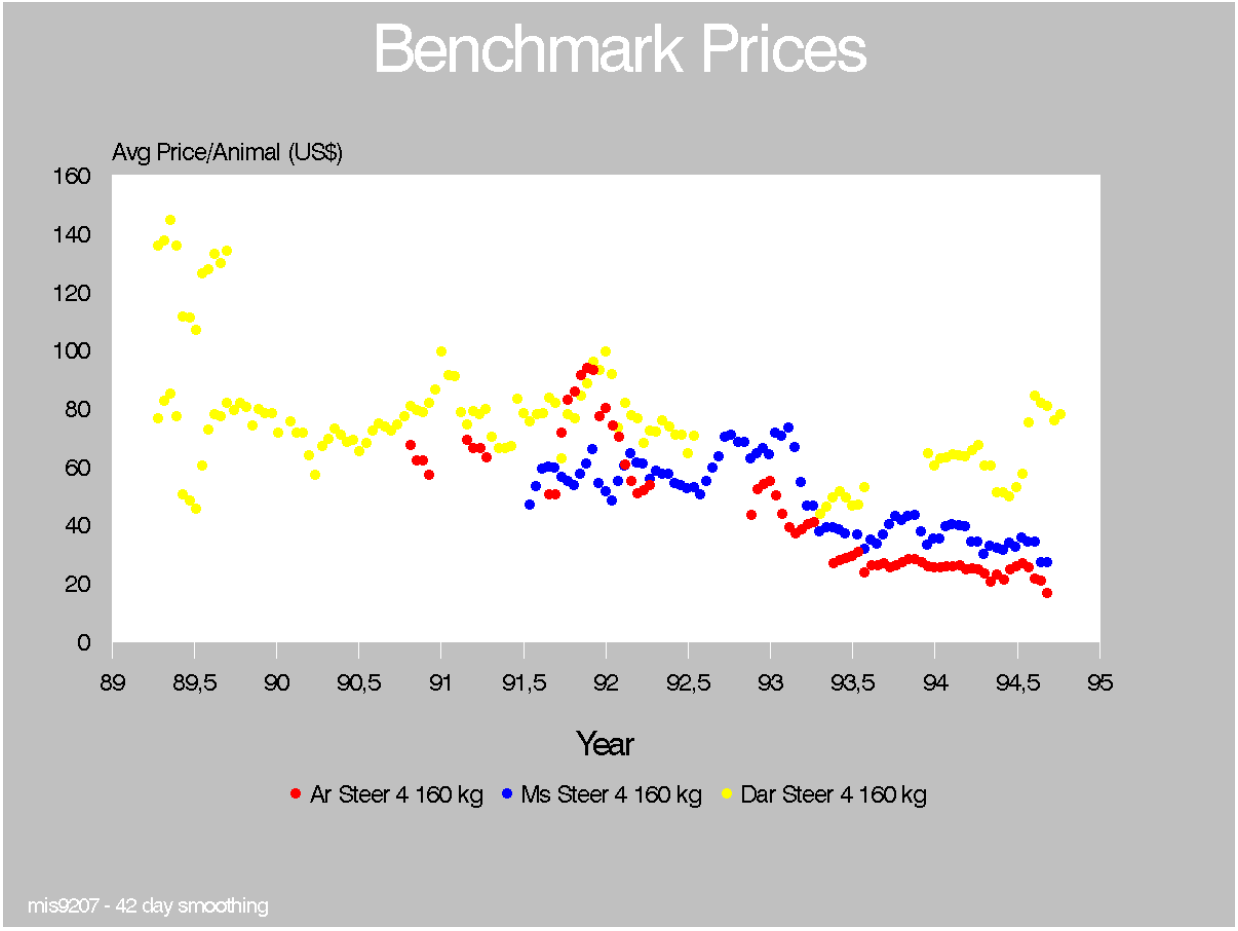
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9211.htm


Benchmark Prices
Avg Price/Animal (US$)
160
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 4 160 kg
Ms Steer 4 160 kg
Dar Steer 4 160 kg
mis9207 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

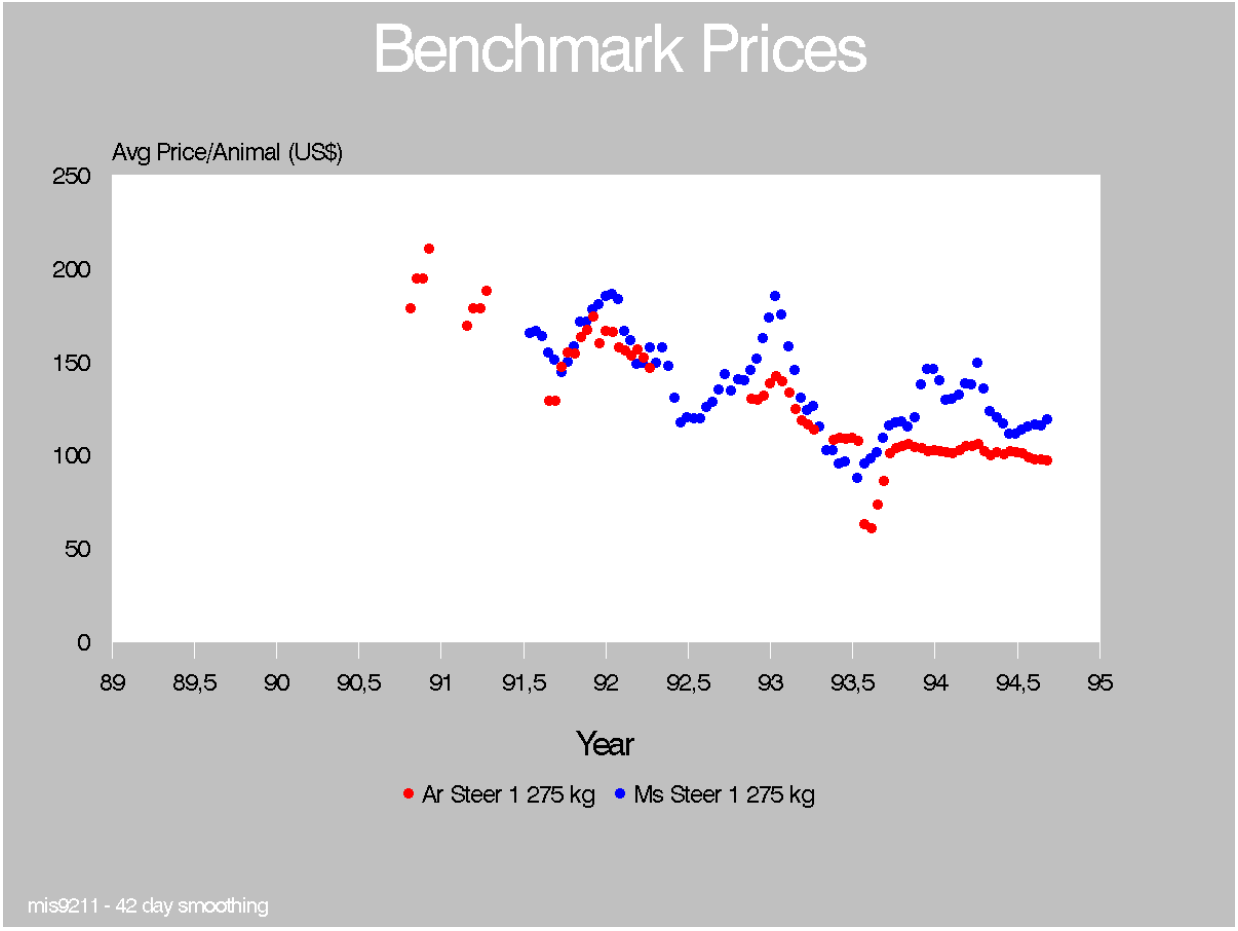
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9212.htm


Benchmark Prices
Avg Price/Animal (US$)
250
200
150
100
50
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 1 275 kg
Ms Steer 1 275 kg
mis9211 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

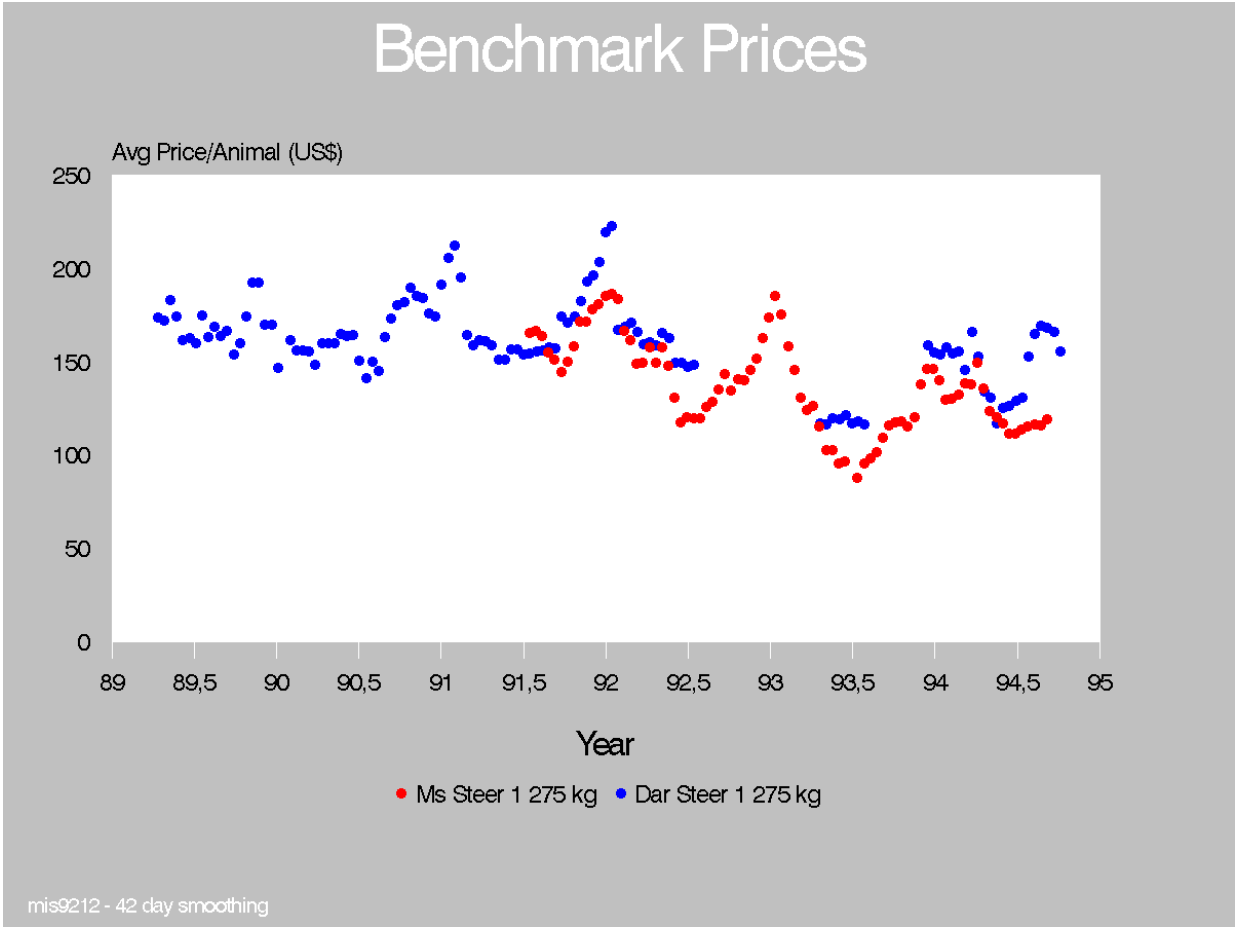
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9213.htm


Benchmark Prices
Avg Price/Animal (US$)
250
200
150
100
50
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ms Steer 1 275 kg
Dar Steer 1 275 kg
mis9212 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

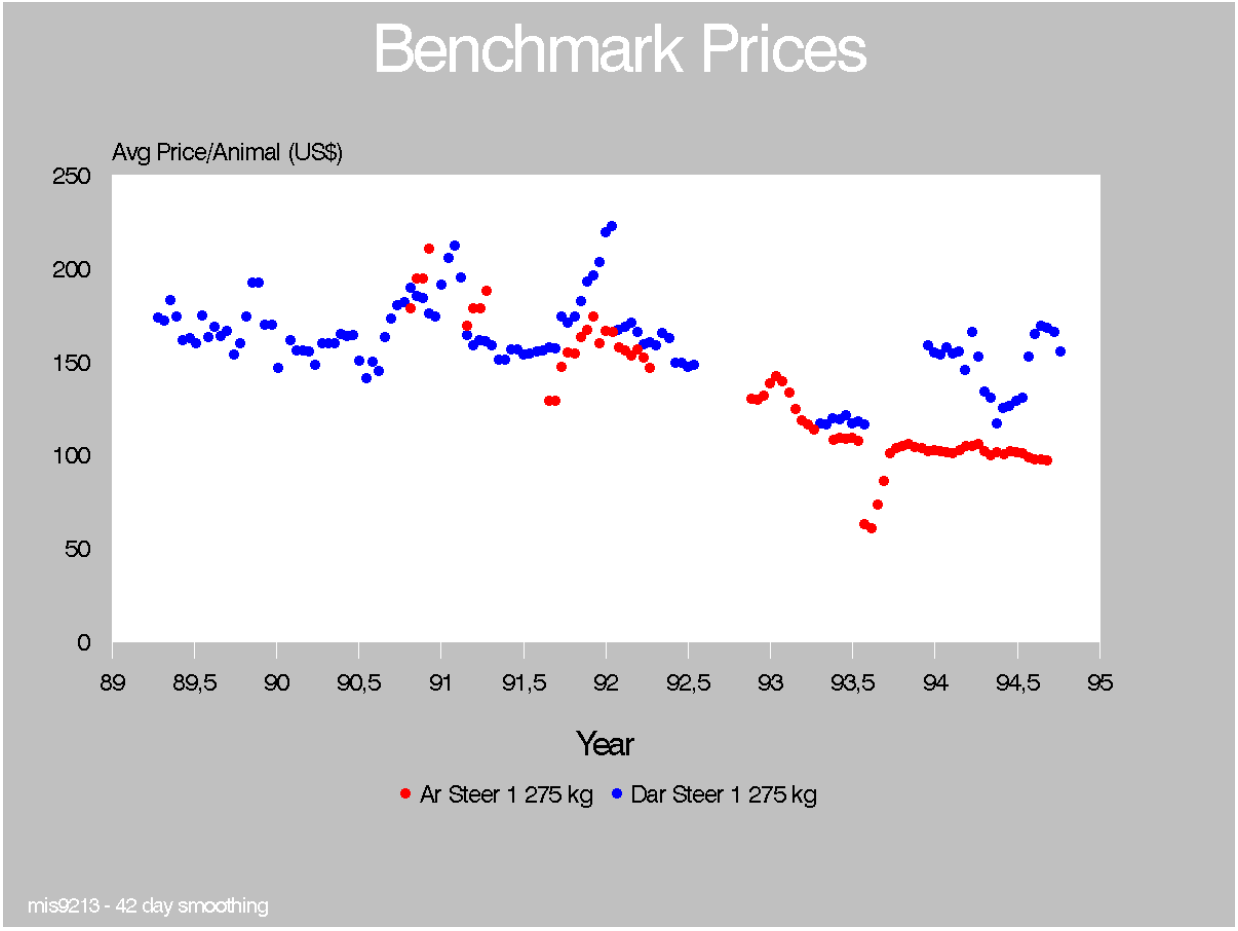
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9214.htm


Benchmark Prices
Avg Price/Animal (US$)
250
200
150
100
50
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 1 275 kg
Dar Steer 1 275 kg
mis9213 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

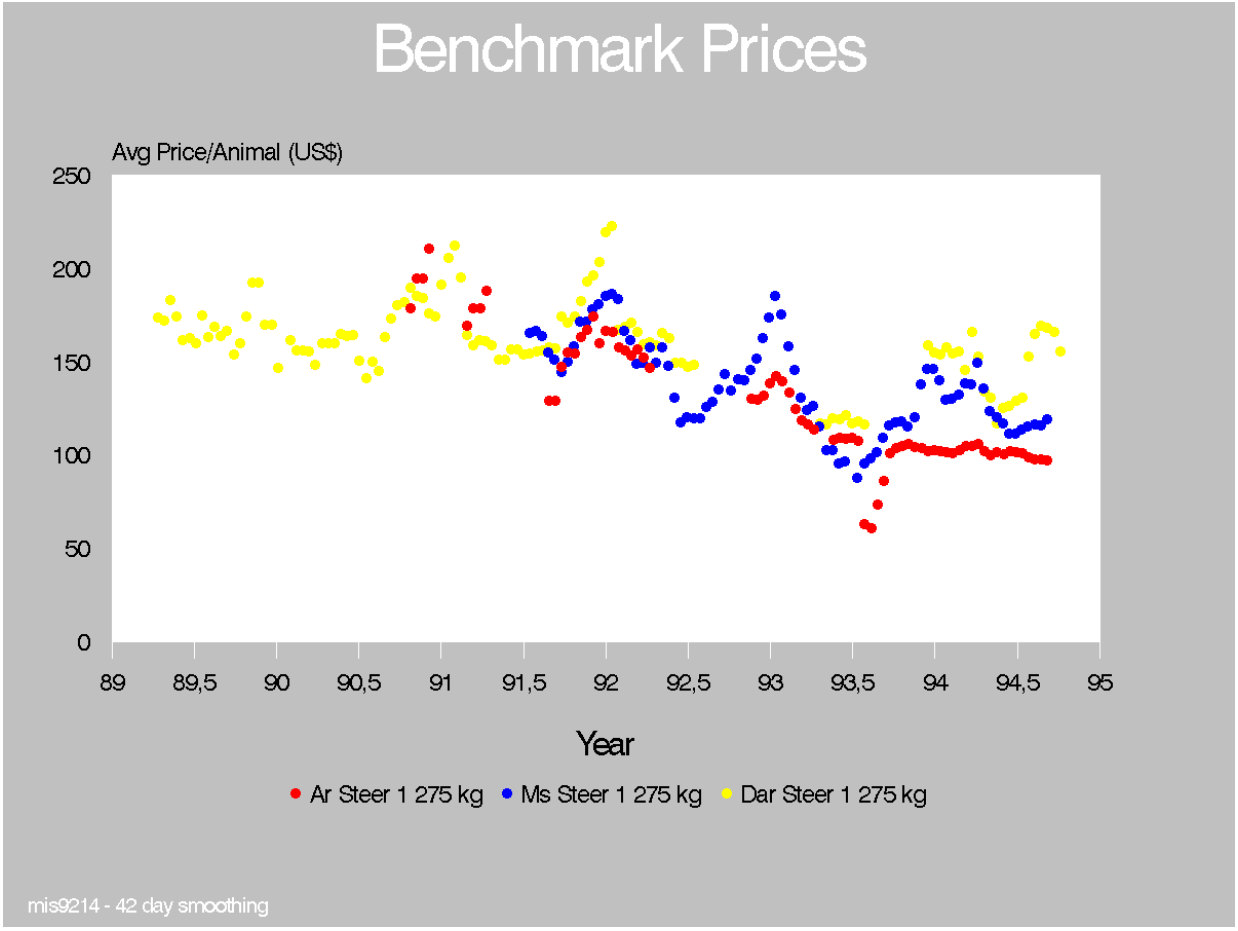
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9215.htm


Benchmark Prices
Avg Price/Animal (US$)
250
200
150
100
50
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 1 275 kg
Ms Steer 1 275 kg
Dar Steer 1 275 kg
mis9214 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

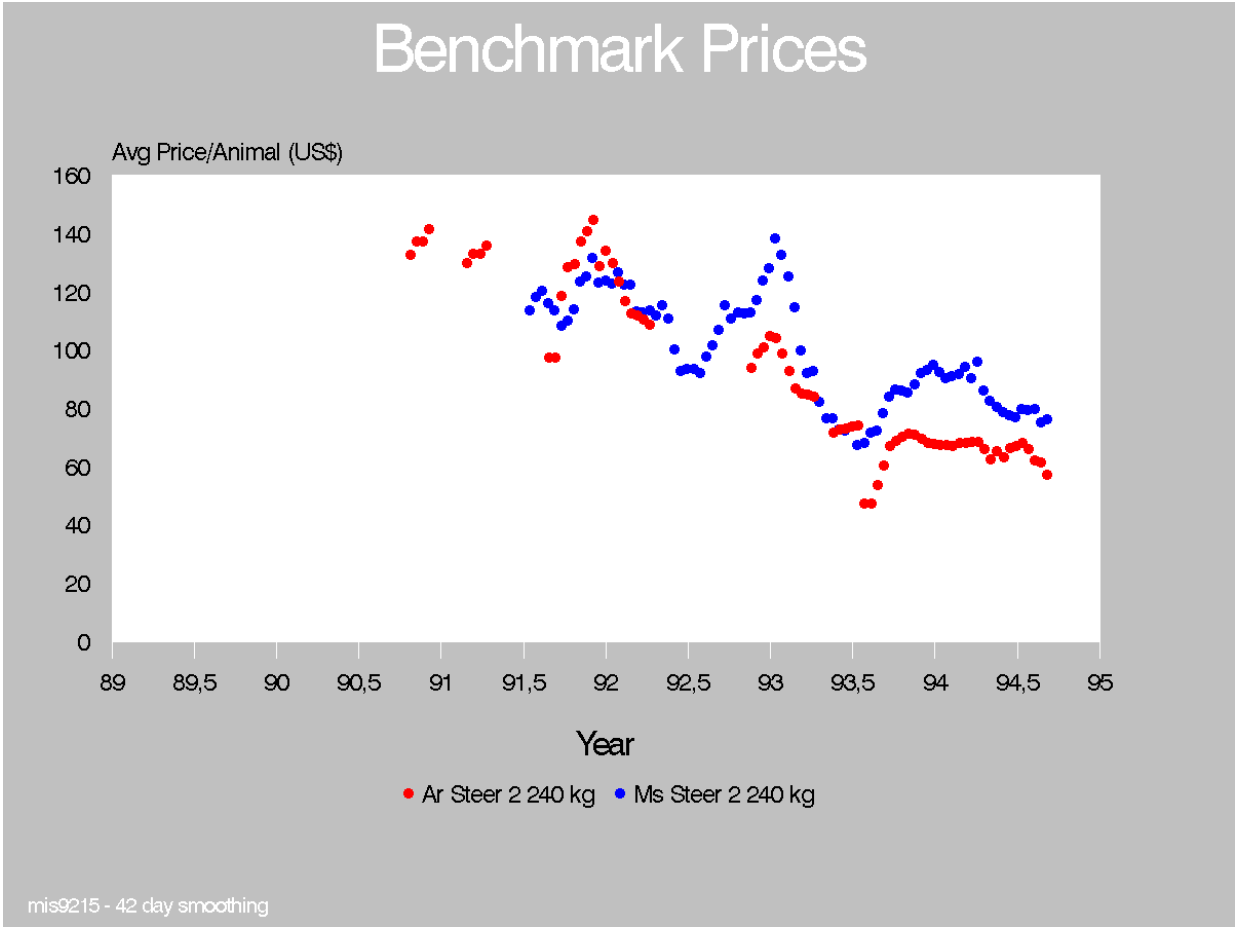
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9216.htm


Benchmark Prices
Avg Price/Animal (US$)
160
140
120
100
80
60
40
20
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 2 240 kg
Ms Steer 2 240 kg
mis9215 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

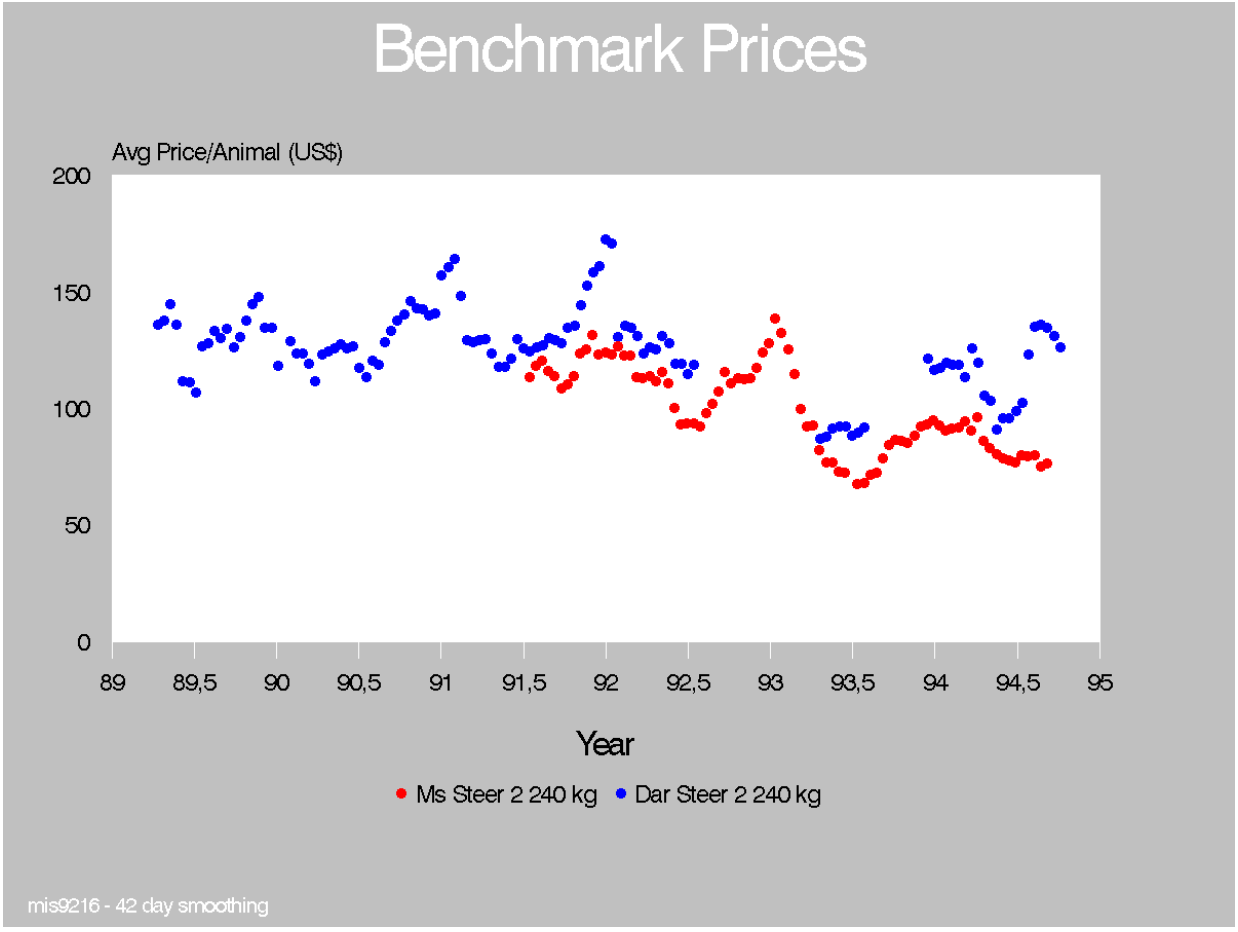
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9217.htm


Benchmark Prices
Avg Price/Animal (US$)
200
150
100
50
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ms Steer 2 240 kg
Dar Steer 2 240 kg
mis9216 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

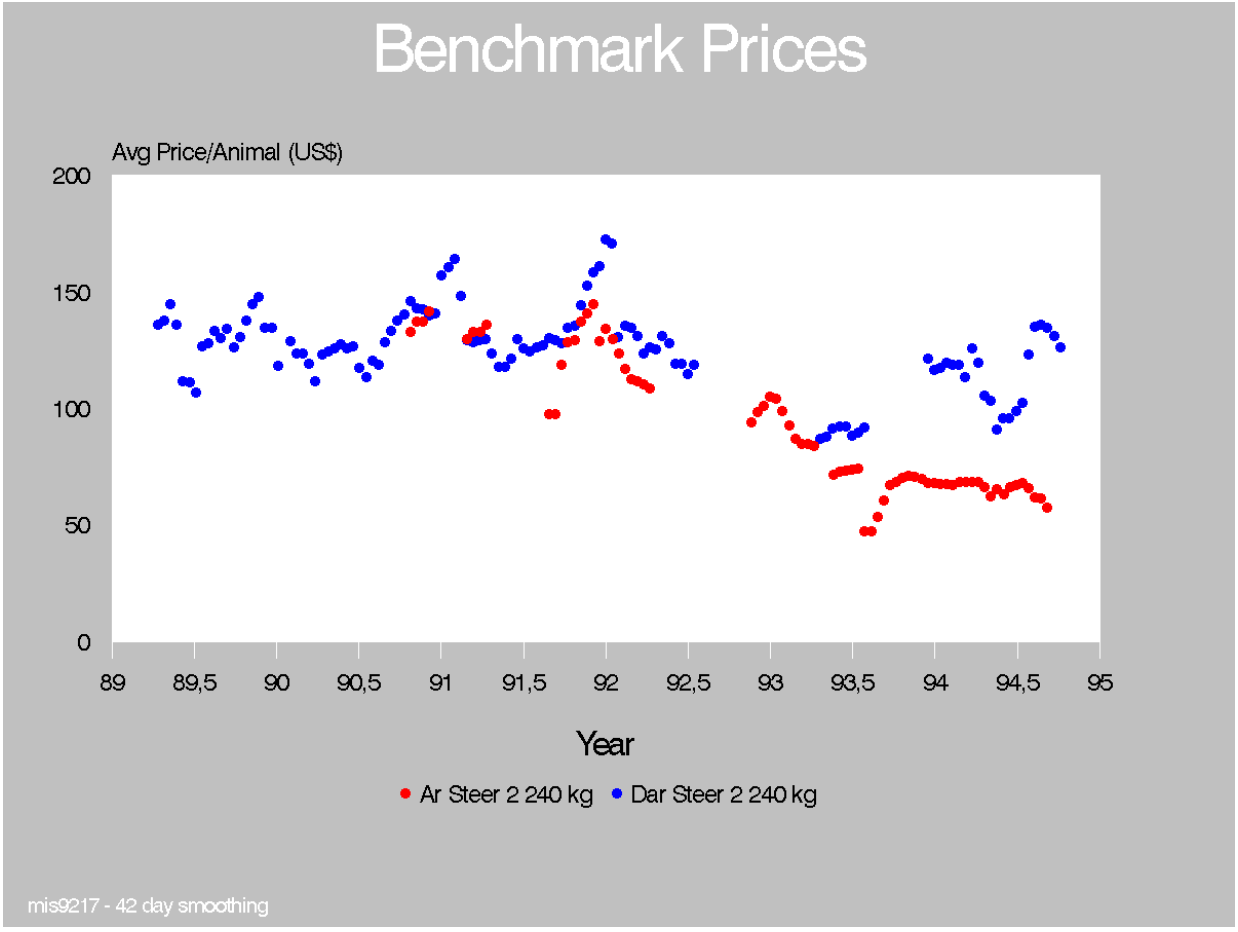
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9218.htm


Benchmark Prices
Avg Price/Animal (US$)
200
150
100
50
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 2 240 kg
Dar Steer 2 240 kg
mis9217 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

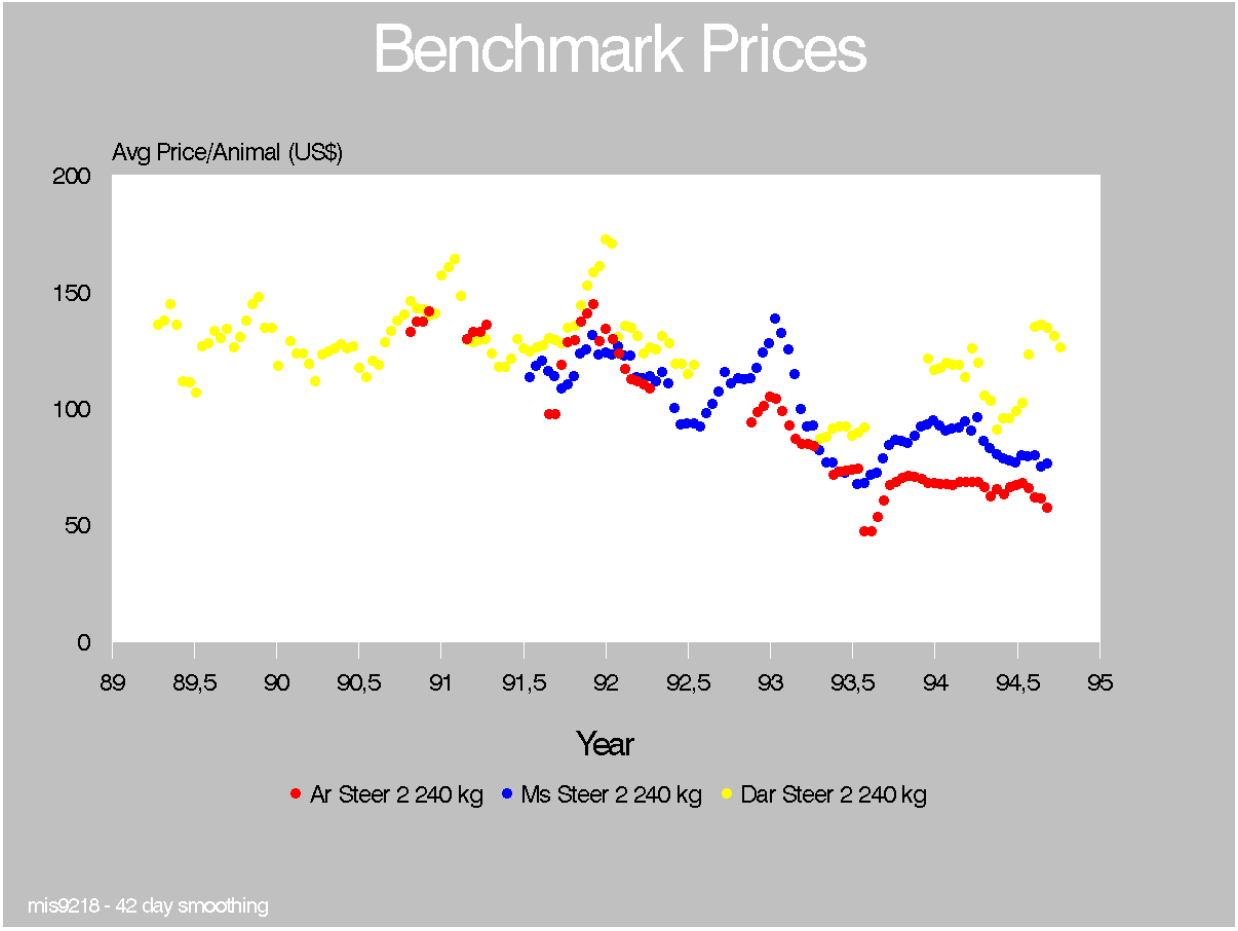
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9221.htm


Benchmark Prices
Avg Price/Animal (US$)
200
150
100
50
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Ar Steer 2 240 kg
Ms Steer 2 240 kg
Dar Steer 2 240 kg
mis9218 - 42 day smoothing

The graphs MIS9201.CHT through MIS9207.CHT inclusive and MIS9211.cht through MIS9218.cht inclusive show average benchmark prices corresponding to real data for the 3 markets 1989 through 1994. For each sex and market, the shape will be the same over the same period, but the values will be higher or lower depending on the weight and grade used. These graphs are composed in the following way:

- for each market day, the data points for each sex are analysed to get a best fit straight line on graph of the log(price obtained) vs. log(animal edible weight). This is done using mathematical formulae and also discounting up to 33% data points which are outside the envelope of +/- 2.5 standard deviations (to discount stray or erroneous measurements).

- if for this market-day and each of the 3 sexes, the value of the slope of this best fit straight line is between 0.5 and 3.0, then the slope value (B) and the y intercept value (K) are used in a formula to calculate the price for the 7 benchmark weights and grades which I chose from averaging historical data.

- thus for every market day there may be 0, 7, 14 or 21 values of benchmark prices corresponding to the 21 benchmark weights and grades.

- each of the graphs above chooses only 2 of these 21 benchmark prices and shows them for 2 or all 3 of the 3 major markets.

The graphs themselves show what we are getting used to seeing:

- mis9201 to mis9003 - for the top steer benchmark - 350 kg grade 0 - show that prices between the 3 markets are in general very close to each other.

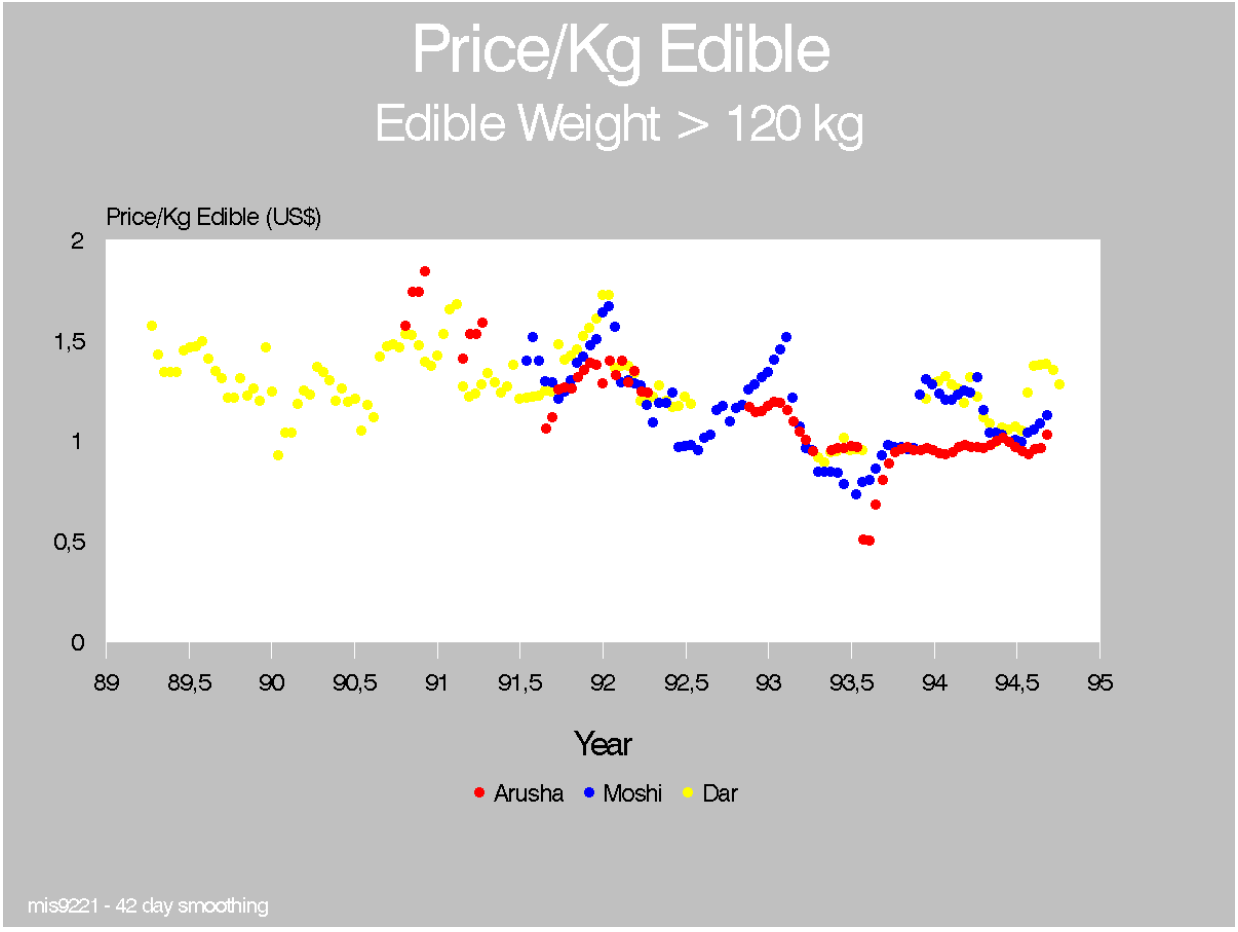
- mis9204 to mis9207 - for the lowest steer benchmark - 160 kg grade 4 - show that Dar is rather

higher than Moshi which in turn is higher than Arusha. Note that when comparing Arusha in particular with the real data points it appears that the theoretical curve fit understates the prices at low weights and grades for high B values. I recognise as a legitimate weakness of the log-log approach, but am totally convinced that the benefits of the approach easily outweigh this weakness, which only shows at this kind of benchmark.

- mis9211 to 9214 - for steer 275 kg grade 1 - show that Dar and Moshi are pretty much on par, but with a Dar bulge upwards in August 1994 due to the rail disruption mentioned above; Moshi is generally a bit above Arusha, but with a significant bulge upwards during the period December 1993 through May 1994 (reason unknown).

- mis9215 through mis9218 - for steer 240 kg grade 2 - shows similar behaviour to the 275 kg graphs above, but with Dar prices spacing out above Moshi and Arusha numbers.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9222.htm


Price/Kg Edible
Edible Weight > 120 kg
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis9221 - 42 day smoothing

GRAPHS MIS9221.CHT THROUGH MIS9226.CHT INCLUSIVE

These graphs compare the average price per edible kg for the 3 major markets, but subselected according to high and low quality animals. These graphs show the following:

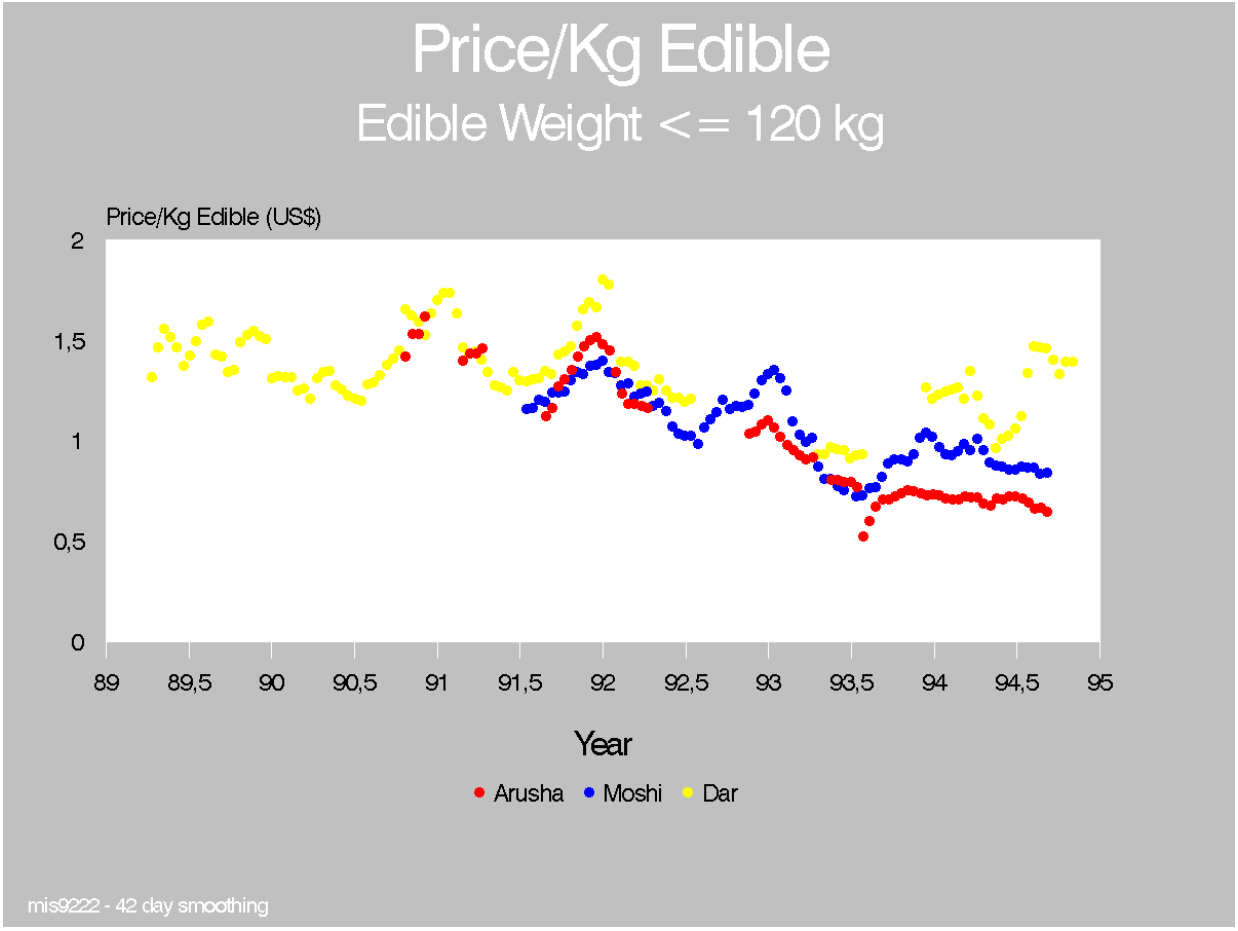
- that the average price per edible kg for Dar is very much independent of the animal quality band examined

- that the average price per edible kg for Arusha and Moshi is much higher for better animal qualities. This is the B factor being higher than 1.0, i.e. a non-linear relationship between price and edible weight, which encourages producers to supply higher quality animals to market.

The following table summarises the current (1994) values from these graphs:

	Arusha	Moshi	Dar
>140kg edible wt	US$ 1.0/kg edible	US$ 1.1/kg edible	US$ 1.25/kg edib
>120 kg edible wt	US$ 1.0/kg edible	US$ 1.0/kg edible	US$ 1.2/kg edib
<120 kg edible wt	US$ 0.7/kg edible	US$ 0.9/kg edible	US$ 1.2/kg edib
<80 kg edible wt	US$ 0.6/kg edible	US$ 0.8/kg edible	US$ 1.1/kg edib

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9223.htm


Price/Kg Edible
Edible Weight <= 120 kg
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis9222 - 42 day smoothing

GRAPHS MIS9221.CHT THROUGH MIS9226.CHT INCLUSIVE

These graphs compare the average price per edible kg for the 3 major markets, but subselected according to high and low quality animals. These graphs show the following:

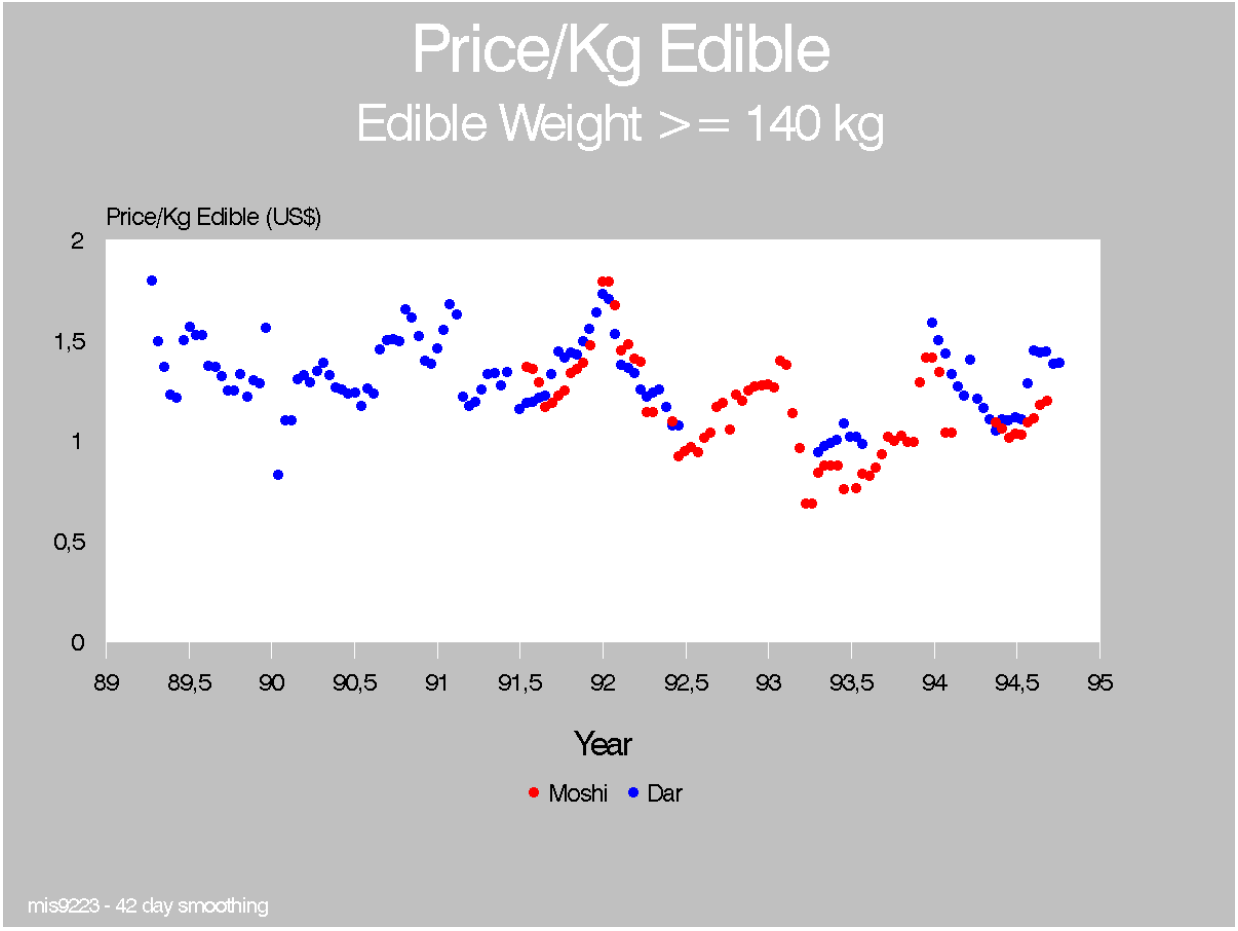
- that the average price per edible kg for Dar is very much independent of the animal quality band examined

- that the average price per edible kg for Arusha and Moshi is much higher for better animal qualities. This is the B factor being higher than 1.0, i.e. a non-linear relationship between price and edible weight, which encourages producers to supply higher quality animals to market.

The following table summarises the current (1994) values from these graphs:

	Arusha	Moshi	Dar
>140kg edible wt	US$ 1.0/kg edible	US$ 1.1/kg edible	US$ 1.25/kg edib
>120 kg edible wt	US$ 1.0/kg edible	US$ 1.0/kg edible	US$ 1.2/kg edib
<120 kg edible wt	US$ 0.7/kg edible	US$ 0.9/kg edible	US$ 1.2/kg edib
<80 kg edible wt	US$ 0.6/kg edible	US$ 0.8/kg edible	US$ 1.1/kg edib

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Mis9224.htm


Price/Kg Edible
Edible Weight >= 140 kg
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Moshi
Dar
mis9223 - 42 day smoothing

GRAPHS MIS9221.CHT THROUGH MIS9226.CHT INCLUSIVE

These graphs compare the average price per edible kg for the 3 major markets, but subselected according to high and low quality animals. These graphs show the following:

- that the average price per edible kg for Dar is very much independent of the animal quality band examined

- that the average price per edible kg for Arusha and Moshi is much higher for better animal qualities. This is the B factor being higher than 1.0, i.e. a non-linear relationship between price and edible weight, which encourages producers to supply higher quality animals to market.

The following table summarises the current (1994) values from these graphs:

	Arusha	Moshi	Dar
>140kg edible wt	US$ 1.0/kg edible	US$ 1.1/kg edible	US$ 1.25/kg edib
>120 kg edible wt	US$ 1.0/kg edible	US$ 1.0/kg edible	US$ 1.2/kg edib
<120 kg edible wt	US$ 0.7/kg edible	US$ 0.9/kg edible	US$ 1.2/kg edib
<80 kg edible wt	US$ 0.6/kg edible	US$ 0.8/kg edible	US$ 1.1/kg edib

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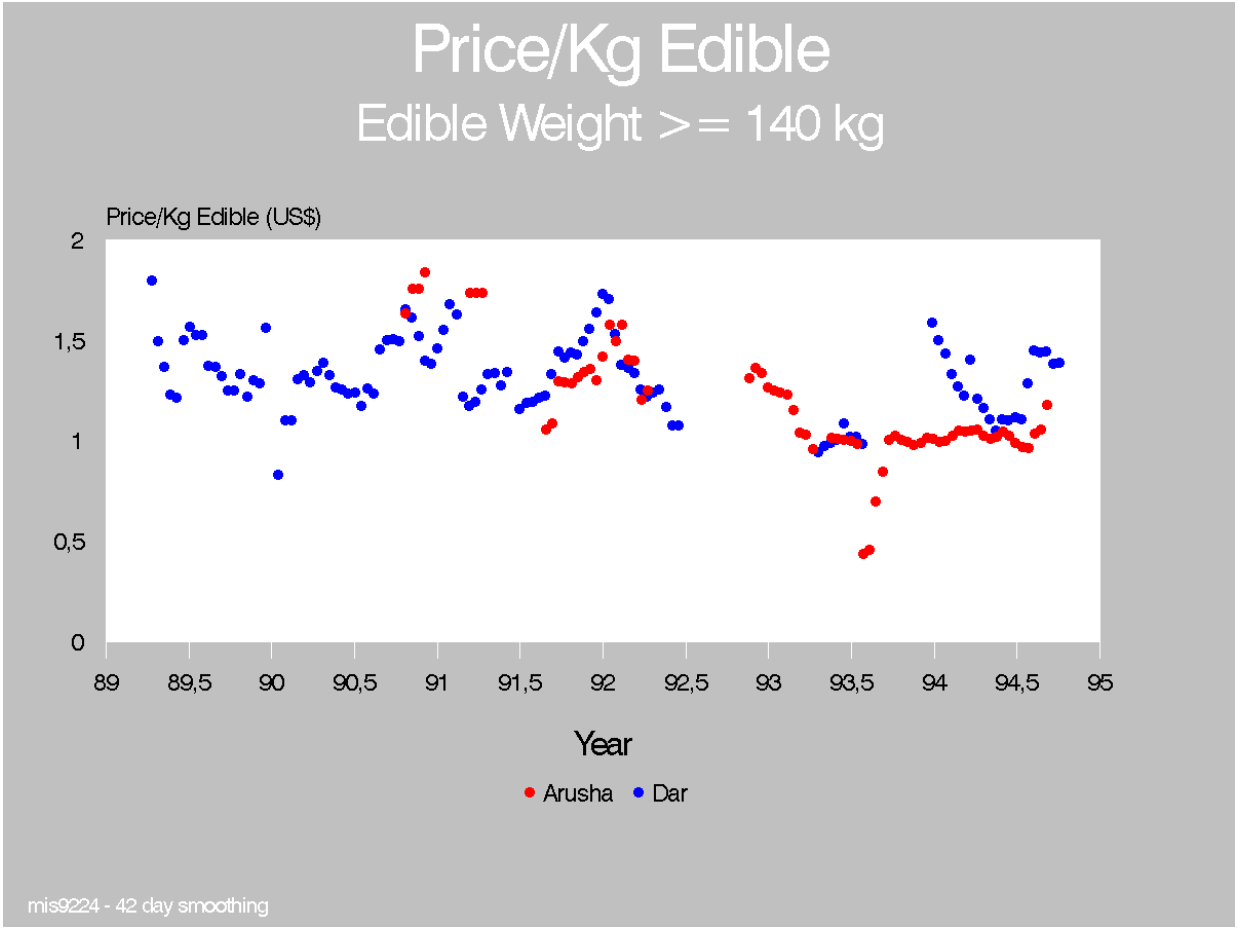
Price/Kg Edible
Edible Weight >= 140 kg
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Dar
mis9224 - 42 day smoothing

GRAPHS MIS9221.CHT THROUGH MIS9226.CHT INCLUSIVE

These graphs compare the average price per edible kg for the 3 major markets, but subselected according to high and low quality animals. These graphs show the following:

- that the average price per edible kg for Dar is very much independent of the animal quality band examined

- that the average price per edible kg for Arusha and Moshi is much higher for better animal qualities. This is the B factor being higher than 1.0, i.e. a non-linear relationship between price and edible weight, which encourages producers to supply higher quality animals to market.

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<120 kg edible wt	US$ 0.7/kg edible	US$ 0.9/kg edible	US$ 1.2/kg edib
<80 kg edible wt	US$ 0.6/kg edible	US$ 0.8/kg edible	US$ 1.1/kg edib

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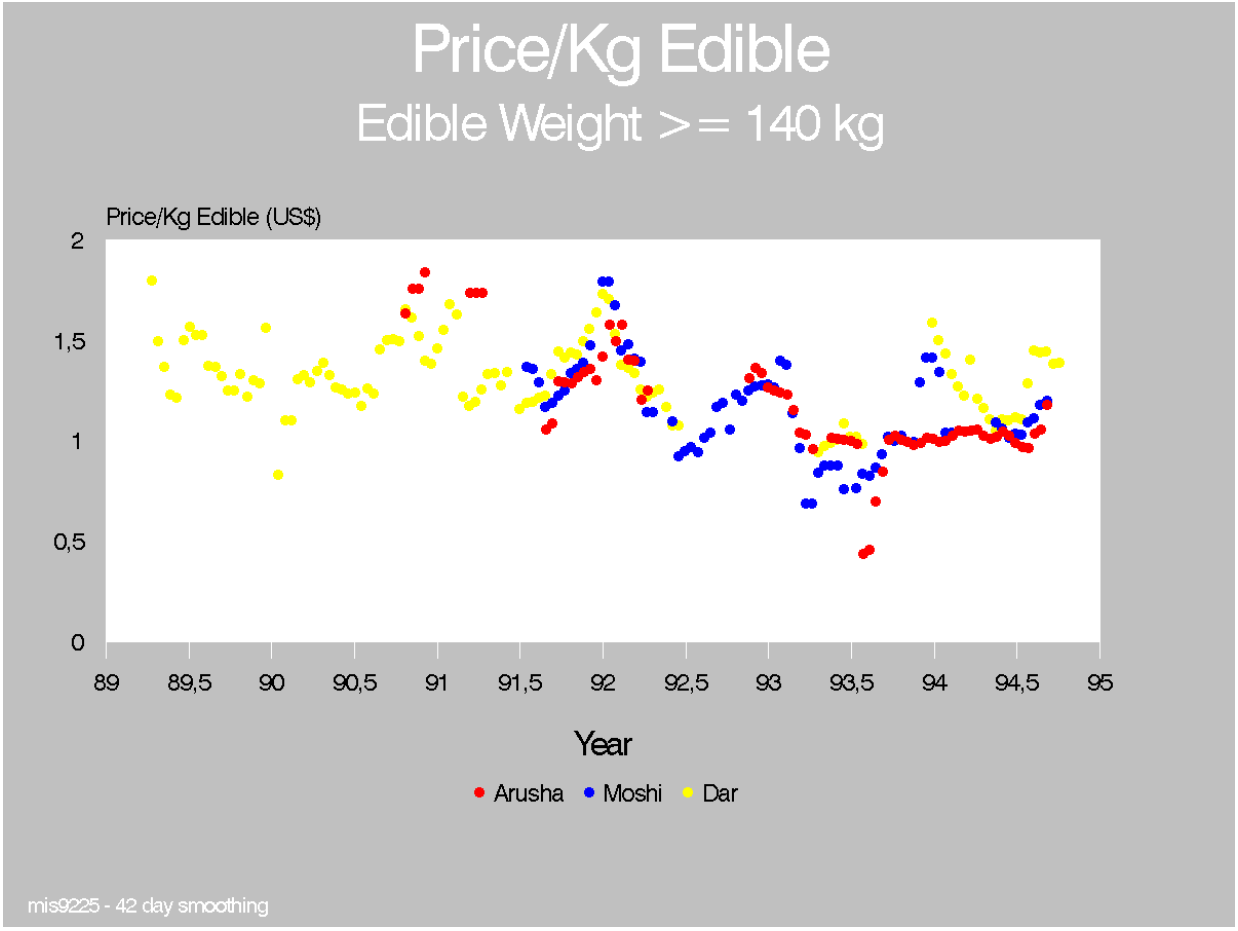
Price/Kg Edible
Edible Weight >= 140 kg
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis9225 - 42 day smoothing

GRAPHS MIS9221.CHT THROUGH MIS9226.CHT INCLUSIVE

These graphs compare the average price per edible kg for the 3 major markets, but subselected according to high and low quality animals. These graphs show the following:

- that the average price per edible kg for Dar is very much independent of the animal quality band examined

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	Arusha	Moshi	Dar
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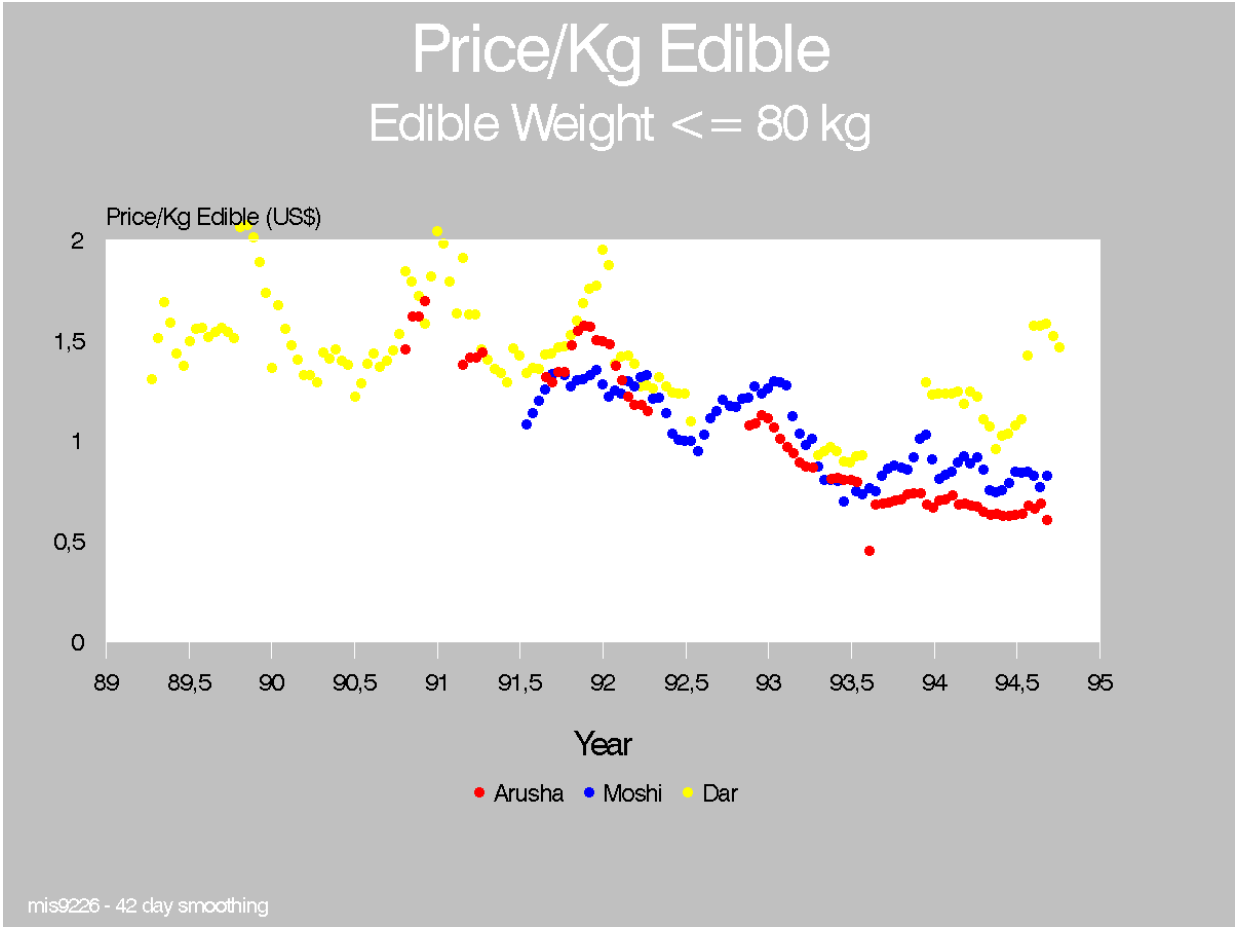
>120 kg edible wt	US$ 1.0/kg edible	US$ 1.0/kg edible	US$ 1.2/kg edib
<120 kg edible wt	US$ 0.7/kg edible	US$ 0.9/kg edible	US$ 1.2/kg edib
<80 kg edible wt	US$ 0.6/kg edible	US$ 0.8/kg edible	US$ 1.1/kg edib


Price/Kg Edible
Edible Weight <= 80 kg
Price/Kg Edible (US$)
2
1,5
1
0,5
0
89
89,5
90
90,5
91
91,5
92
92,5
93
93,5
94
94,5
95
Year
Arusha
Moshi
Dar
mis9226 - 42 day smoothing

GRAPHS MIS9221.CHT THROUGH MIS9226.CHT INCLUSIVE

These graphs compare the average price per edible kg for the 3 major markets, but subselected according to high and low quality animals. These graphs show the following:

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<120 kg edible wt	US$ 0.7/kg edible	US$ 0.9/kg edible	US$ 1.2/kg edib
<80 kg edible wt	US$ 0.6/kg edible	US$ 0.8/kg edible	US$ 1.1/kg edib

CATTLE MARKET PRICE AVERAGING AND FORECASTING - TANZANIA 1994

MARKETING INFORMATION SYSTEM (MIS)

INTRODUCTION 1999

This report with graphs was done by me 1994 and 1995.

I am reissuing it because:

- it is a good report, with interesting methodology
- because of internal politics it was never released or even fully utilised at the time

The whole job was in several parts:

- investigating existing data collection and analysis methods and recommending better ones
- writing a computer system for data input, data processing, and reporting
- analysing historical data (1989 thru 1994) which had never been fully analysed before

So I enclose here the Data Collection and Analysis methods and the analysis of historical data; I exclude the computer system at this point in time. Anyone who wants dbase tables of the historical data or an Access database (only 882k when winzipped (TM), 7 megabytes when unzipped) of the historical data just email me on alexweir@usa.net and I can email the stuff to you. Also the Harvard Graphics .cht data files can be supplied for anyone who wants them. I am also always interested in rewriting the data input, processing and reporting system in some modern programming language like VB.

I think this report and the related data and program as above should or may be relevant to:

- Tanzanian and Donor organisations working in this field in Tanzania
- Organisations , public and private, working in the field of cattle markets and cattle market Management Information Systems or Marketing Information Systems. This may be relevant to 1st world programs and well as 3rd world programs

- Universities and agricultural colleges

The complete system can be run from your hard disc using any browser, and it is also intranet and internet-ready - just drop all the .htm , .gif and .jpg files into one directory and double click on INDEX.HTM to start up the system.

The report comprises 160 graphs (100 with explanation and 60 largely self-explanatory), about 10 photos, and approximately 56 pages of text. Total 231 .htm files @ 2.4k bytes average, plus 160 .gif files for the Harvard Graphics graphs @ 14k average, plus 14 .jpg files for the photos @ 100k average size. Total size is 4.1 megabytes (approx 3 floppy discs) or 3.6 megabytes when zipped using WinZip (TM). Takes about 15 minutes to upload or download using dialup email at 33k baud.

Since my original report in 1994/95 had no Acknowledgements let me do a quick one here:

Dominic Massawe , Sophia, Kadigi and the others at TLMP for their help and cooperation during and after my work there September 1994. Percy Robb, Frank Skov, Verner Jensen, Jan Stryffert, Ole Jepsen and others at Danagro in Copenhagen. All the people we interviewed and who helped otherwise during the Project. Percy Robb I am particularly grateful to towards the end of my initial 7 weeks onsite work by suggesting that the phenomenon we were seeing were more related to cattle liveweight than to cattle grade as such - that led to the log-log relationship between price and edible weight which forms a large (but not complete) part of this report. Jim Airey and Martin Doran without whose initial work and without whose massive data collection

effort this report could not have existed. UNFAO and UNDP Dar es Salaam for employing Jim and Martin.

Speaking of which, one does not have to accept that log log methodology in order to gain something or even a lot from this report and from the data contained. That 5 years data itself is worth a goldmine even without my interpretation - it is open to re-interpretation by anyone and everyone.

And by the way we never ever compared the weights data with the rainfalls for those years - that could even produce results which will enable forecasts to be made based on recent rainfall figures.

Weighing was regarded (correctly I think) in this report as a onerous, labour-intensive and problematic activity - now that digital cameras are commonplace and almost affordable, I am sure that they could be used along with PC's for weighing - one shot sideview with 2 metre sticks fastened at 90 degrees held just in front of the animal like a cross; then one shot from the rear with a single metre stick held horizontally again just in front of the animal. Bring up on the computer screen in a suitable software package enables precise measurement of body length, body height and body maximum width. Experimentally-derived formulae enable immediate calculation of liveweight, carcase weight and edible weight to within a few kilogrammes plus or minus - i.e. the system not only calculates liveweight but also automatically grades the animal (based on the body maximum width).

Apologies for not checking through the report and rewriting parts or the whole - there just isnt enough interest guaranteeable in this kind of stuff to justify that. I did rework the colours and backgrounds to the graphs to make them nicer to look at, and I did reinclude some graphs (the 60 without comment) from earlier drafts which seem very relevant. Also the photos of grades and grading and some photos from Moshi cattle market are included.

Anyone who wants more info, data or just to discuss anything related to the Project, please email me on alexweir@usa.net If you are viewing on internet or an intranet, and you want the report for your hard disc,

then email me and I can email you the zip file at 3.6 megabytes.

EXECUTIVE SUMMARY 1999 - I dont think I summarised too well in 1994 what this report is about, so I do it again here - In Tanzania there is very little or no auctioning of cattle - all or most sales are done through private deals. Because of that someone (probably correctly) thought that there would be scope for an information system which gave sellers and buyers and idea of what prices would be like at the various markets for the various weights and grades of cattle. Up till 1994 this market weight, grade, sex and price sampling would typically sample 35 cattle per market day. This report works out a way to reduce that to about 6 - 8 cattle, and with increased accuracy. Since the sampling 1989 thru 1994 was REPRESENTATIVE, then this report also collates and graphs lots of interesting and useful data regarding patterns and trends for the 3 major markets - Dar es Salaam, Arusha and Moshi. One of the really interesting things we found was that Arusha awards financial incentive to better grade heavier cattle, but Dar treats all cattle alike in terms of US$/edible kilogram.

Alex Weir, December 1999
2 Pepper Close
Hatfield
Harare
Zimbabwe
Africa
Tel 00 263 4 571 062
alexweir@usa.net
Note that Don Farris and Greg Sullivan were connected with University Texas A & M Programs on Beef Cattle appraisal in Tanzania in the past, and still have some interest in that area. I enclose their email addresses:
Greg Sullivan - advmktsys.aol.com
Professor Don Farris, Texas A & M - defarris@alpha1.net

EXECUTIVE SUMMARY

The existing situation regarding the operation of the MIS project in the TLMP was surveyed and reviewed. The MIS was in fact found to be two quite separate projects with similar sampling, data collection and data presentation techniques, but with quite different data input, data storage and data processing methods.

There was found to be a potential wealth of data available, scanning the period 1989 through 1994. This information however was fragmented and (as above) stored in 2 different systems. In relation to the information available, insufficient analysis and reporting had been done (at least as regards the reports made available to me in Moshi, at MDB and at TLMP).

The physical processes of sampling, initial data recording, and secondary data recording was observed at the 3 major markets plus 2 other markets. The various information presentation formats were reviewed.

At the markets visited, both buyers and sellers were interviewed for their opinion of the MIS. Most were indifferent and some were dismissive, stating that the MIS was inaccurate, not timely, and irrelevant.

The 2 computer systems were both examined with regards to data input, data processing, data storage and information presentation.

The fragmented data from both systems was collected together and translated into one single dbase-format database; this was then examined for data quality. The findings pinpointed weaknesses in sampling - the systems were attempting to produce accurate numbers for 15 Grade-Sex Combinations (GSC's) with net sample sizes which were large in terms of the data collection work involved, but which were small in relation to the need without any proper data smoothing technique; to complicate matters, the systems were using

population-representative sampling techniques, with a resulting lack of data for many of the 15 GSC's on most market-days.

In order to get more accurate pricing, and to open the possibility for smaller net sample sizes, I recommended that sampling was changed from a population-representative basis to a sex-weight-grade representative basis; the downside of this of course is losing possibly important information on population trends from this point onwards. I feel that the wealth of information unearthed in the 5 year analysis conducted in this report may compensate for this impending loss of population trend information (or may enable specialised focused searches to continue).

This composited data was also examined for seasonal fluctuations and for time trends during the period 1989-1994 in animal weight, animal quality, grade, price, unit price, sex, age, origin, buyer, yardage and number sold. These trends were graphed using Harvard Graphics, and the graphs are presented with this Report. The trends should be of significant use for the overall TLMP Project Team and for any other relevant parties. Of particular interest was the fact that certain producers and traders supplying the Arusha and Moshi markets have over the period 1993 - 1994 greatly increased animal quality in response to market forces and price incentive.

The composited data was also examined to determine whether there were useable practical relationships between price, weight, sex and grade on individual market-days (i.e. a potential for data smoothing). There was found to be a strong exponential relationship between price and edible weight for each sex on each market-day, regardless of grade; this strong relationship was suspected to extend across the sexes to all data points, but the sampling was such that this was difficult to confirm.

From this exponential relationship, a methodology (log-log best-fit - LLBF) was developed for data processing,

which effects data smoothing in a pragmatic way, without making any assumptions that buying or selling behaviour on the current market-day is necessarily influenced by the behaviour last week or last month; this LLBF technique takes into account the non-linear price vs weight relationships, and puts emphasis on live and edible weights (and thus animal quality), with grade taking a smaller (but still important) role than it has up till now.

Because of the non-linear price vs. weight relationships which were observed to occur in practice, I recommended that the presentation format be changed radically from a price per kilo basis to a price per benchmark animal basis; 21 benchmark sex-weight-grade combinations were proposed, based on average values for the 3 markets for the period 1989-1994. I estimate that this type of presentation should also be more understandable and more accepted by our major target group - the buyers and sellers at the 3 major markets.

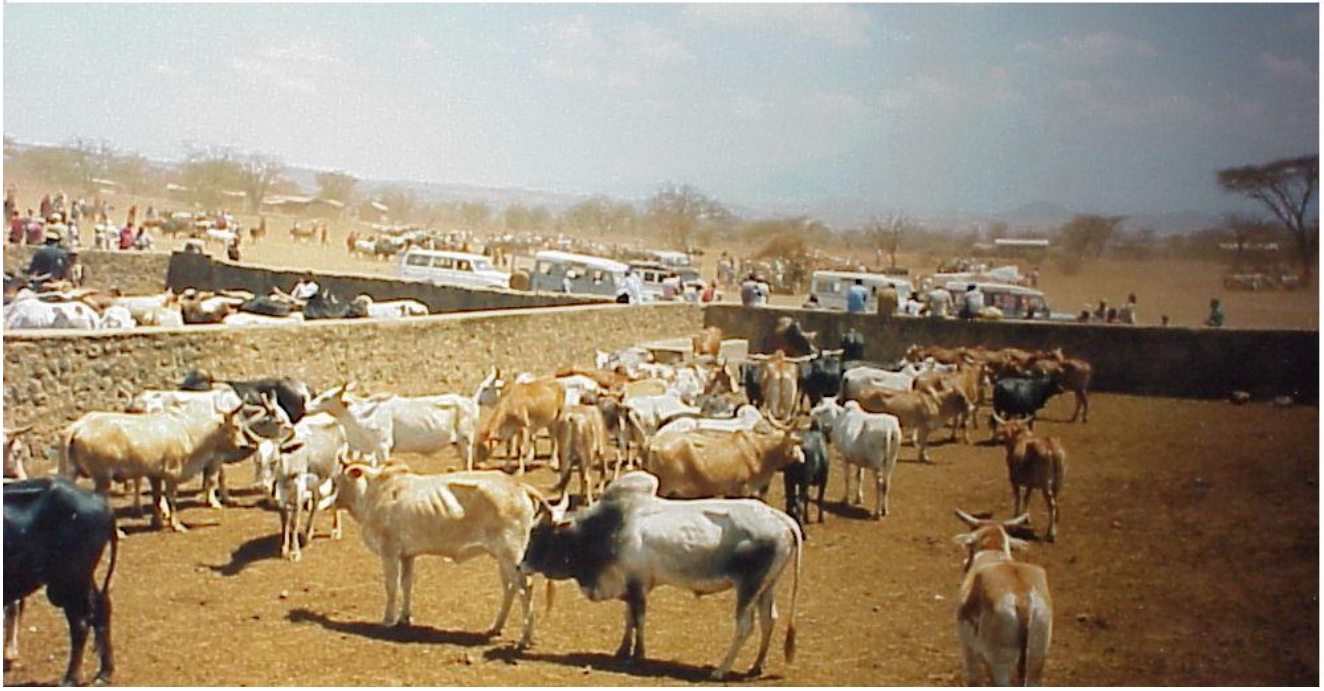
In addition to the work as above on sampling, data processing and information presentation, it was found that the existing physical systems had weaknesses in initial and secondary data recording, and that both computer systems had weaknesses in data input and in data storage.

Practical and detailed recommendations were made to improve initial and secondary data recording; a computer program was written in Clipper (a 4GL programming language) to improve data input, data storage, data processing (using the LLBF Technique), and data presentation (using the Benchmark Animal Information Presentation Technique).

Recommendations were also made as to which computer hardware and software should be procured for the Project.

Seminars on the findings were conducted for the TLMP staff and training of the Dar TLMP MIS Staff was effected.

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Misd013.htm



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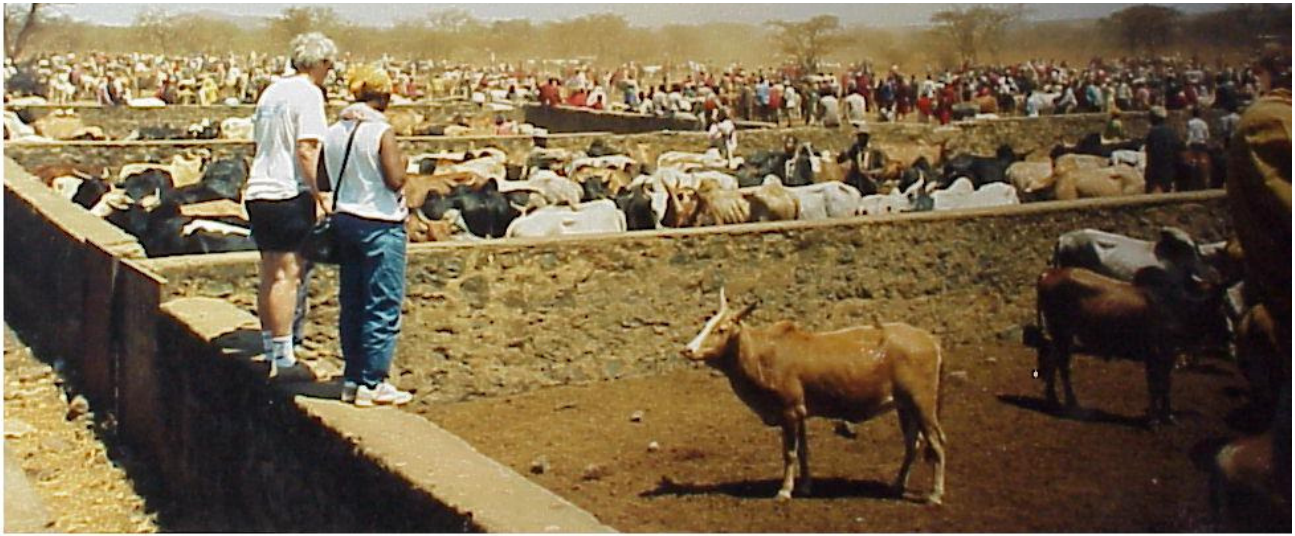
home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Misd015.htm Sophia and Alex Weir at Moshi Cattle Market September 1994



home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Misd016.htm Percy Robb, Moshi 1994

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Misd017.htm Alex Weir near Arusha 1994

home.cd3wd.ar.cn.de.en.es.fr.id.it.ph.po.ru.sw Misd018.htm The Dar Info Release Sheet

PUGU CATTLE MARKET REPORT - DAR ES SALAAM - TANZANIA

Provided by: Marketing Development Bureau - Ministry of Agriculture
Fax: 255 51 32979 Phone: 2151/25191 P.O. Box 9182 Dar es Salaam

Pugu Market situated on the Central Rail:- 7km from Tanzania - Zambia Rail
15km from Dar es Salaam International Airport, 20km from Kurasini Port, Dar es Salaam.

CATTLE GRADES

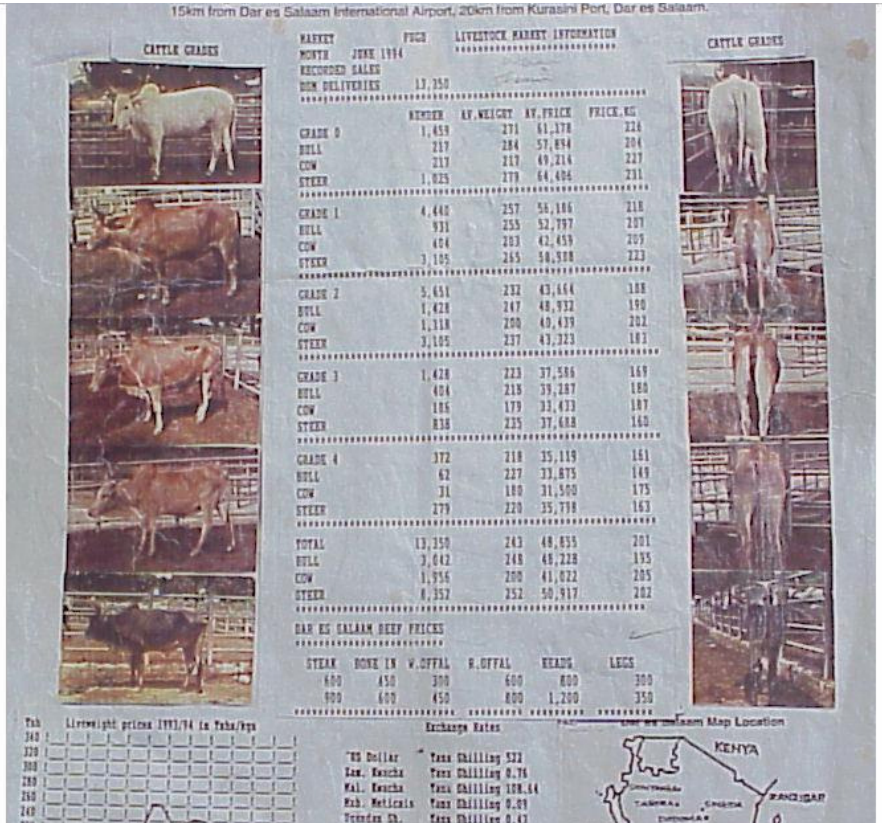
CATTLE GRADES

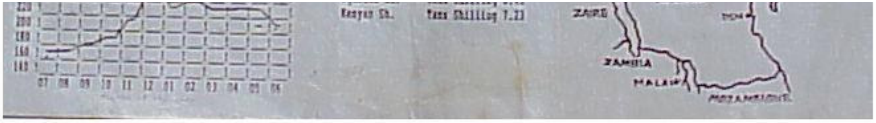
MARKET PUGU LIVESTOCK MARKET INFORMATION
MONTH JUNE 1994
RECORDED SALES
DEW DELIVERIES 13,350

	NUMBER	AV.WEIGHT	AV.PRICE	PRICE/KG
GRADE 0	1,459	271	61,178	226
BULL	217	284	57,894	204
COW	217	317	69,214	227
STEER	1,025	279	64,476	231
GRADE 1	4,440	257	56,186	218
BULL	931	255	52,797	207
COW	404	283	62,459	209
STEER	3,105	265	58,908	223
GRADE 2	5,651	232	43,664	188
BULL	1,428	247	48,932	190
COW	1,118	260	60,439	202
STEER	3,105	237	47,323	183
GRADE 3	1,428	223	37,586	168
BULL	494	218	39,287	180
COW	186	179	33,433	187
STEER	818	225	37,688	168
GRADE 4	372	218	35,119	161
BULL	62	227	33,875	149
COW	31	180	31,500	175
STEER	279	220	35,798	163
TOTAL	13,350	243	48,855	201
BULL	3,042	248	48,228	195
COW	1,956	200	41,022	205
STEER	8,352	252	50,917	202

DAR ES SALAAM BEEF PRICES

STEAK BONE IN W.OFFAL B.STEAK


15km from Dar es Salaam International Airport, 20km from Kurasini Port, Dar es Salaam.
CATTLE GRADES
LIVESTOCK MARKET INFORMATION
MARKET FUGA
MONTH JUNE 1994
RECORDED SALES
DON DELIVERIES 13,250
NUMBER AV.WEIGHT AV.PRICE PRICE/KG
GRADE 0 1,459 271 61,178 226
BULL 217 284 57,894 204
COW 213 217 49,214 227
STEER 1,025 279 64,406 231
GRADE 1 4,440 257 56,186 218
BULL 931 255 52,797 207
COW 404 203 42,459 209
STEER 3,105 265 58,508 223
GRADE 2 5,651 232 43,464 188
BULL 1,428 247 48,932 198
COW 1,118 200 40,439 202
STEER 3,105 237 43,223 183
GRADE 3 1,428 223 37,586 169
BULL 404 218 39,287 180
COW 186 179 33,473 187
STEER 838 235 37,688 160
GRADE 4 372 218 35,119 161
BULL 62 237 33,875 143
COW 31 180 31,500 175
STEER 279 220 35,798 163
TOTAL 13,250 243 48,855 201
BULL 3,042 248 48,228 195
COW 1,956 200 41,022 205
STEER 8,352 252 50,917 202
DAR ES SALAAM BEEF PRICES
STEAK BONE IN V.OFFAL R.OFFAL HEADS LEGS
600 450 300 600 800 300
900 600 450 800 1,200 350
CATTLE GRADES
Exchange Rates
Dar es Salaam Map Location
KENYA
ZANZIBAR



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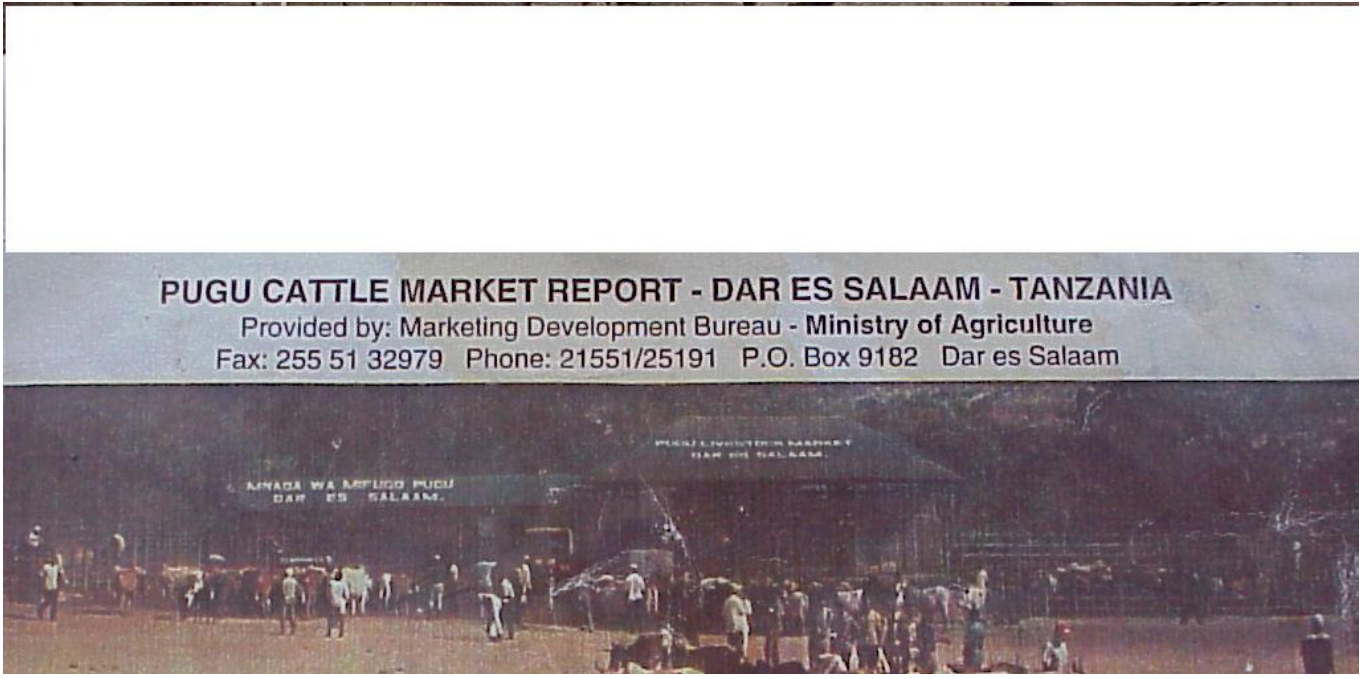

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INTRODUCTION

Tanzania has a cattle population of approximately 13 million (for a human population of 27 million). It has potential to be a cattle exporter for the Region.

Annual cattle offtake is estimated to be about 9% per annum, i.e. 1.2 million slaughters per year. Of this 1.2 million, approx 140,000 per year are sold in Dar es Salaam, 30,000 per year in Arusha, and 20,000 per year in Moshi. These 3 markets therefore account for 16% of total offtake/consumption and 1.5% of total herd size/year.

Most cattle production is extensive, relying on natural rainfed grasslands in the semi-arid and arid interior of the country. Cattle are trekked to the markets in Arusha and Moshi, and are mainly trekked to railheads and then railed to Dar es Salaam from locations such as Dodoma. There is a small dairy sector, which provides only a small proportion of the demand for milk, the majority of which is satisfied by imports of powdered

milk.

Beef consumption in Tanzania is moderate to low by international standards, being approximately 7.1 kg per person per year (20 grams per person per day).

Cattle prices at these 3 terminal markets varies between market and by season and other factors, but can be taken as a 1994 average of approximately US$ 100.00 per animal. Thus we total turnover of the 3 major markets is about US$ 20 million per annum. The other markets trade at lower prices, so we can estimate the total Tanzanian wholesale beef business to be in the region of US$ 80 million per annum, 1.3 million animals per year, 130,000 tonnes of edible beef per year, 170,000 tonnes of carcase beef per year.

It is reckoned that approximately 115,000 head (11,500 tonnes) per year are unofficially exported, mostly to Kenya. For comparison of export markets, Europe imports approximately 85,000 tonnes of corned beef p.a., the Middle East 40,000 tonnes of corned beef p.a., and the Middle East 250,000 tonnes of live or unprocessed beef p.a..

Over the years since Independence in 1964, and especially since 1974 when Tanganyika Packers corned beef operation was nationalised, the industry has gone downhill in terms of exports, infrastructure, animal disease, animal quality and revenue. Animal health (or lack of it) is potentially a great obstacle to the exports of live animals and of beef to Regional and International markets.

The retail price of beef is in theory a Government Controlled Price, presently for Dar es Salaam in the region of US$ 1.4/kg for mixed beef and US$ 2.4 / kg for fillet; wholesale cattle prices are not controlled, and although very variable, are in the region of US$ 1.00 per kg of edible tissue (meat plus fat), although they vary by market and by season (see graphs and comment in this Report).

The TLMP is a Project worth approximately US$ 10 million over 5 years. It has inputs in the areas of railway

cattle wagons, slaughter facilities, improvements of cattle markets and other infrastructure, and the cattle pricing (MIS) system.

An existing MIS has been active since 1989, and the recent departure of 2 UNFAO experts who were running operations in Dar and in Moshi/Arusha has made 1994/1995 a useful point at which to review the existing operations and to consider making changes and improvements.

The MIS has 2 dimensions - to assist in the workings of the free market system by providing information on which producers, traders, buyers and sellers can base their decisions and behaviour; and also to assist Ministry of Agriculture and other interested parties by providing information regarding trends in the cattle business.

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EXISTING SITUATION

The MARKETS

Cattle Markets in Tanzania do not use the auction system - they operate using a system of private deals, where sellers turn up with their cattle and stand around while buyers and potential buyers move from seller to seller, negotiating and making deals.

This, especially in the absence of a good Market Information System, will probably lead to a greater variability in price than would be the case with an auction system.

Note also that with an auction system, it is relatively easy for any observer to quickly build a picture of prices and values; with a private-deal system, however, there is much less transparency, and thus some kind of

Market Information System is much more necessary.

Much of the selling in Arusha and Moshi is done by the Masai; much of the buying in all 3 markets is done by Islamics, Arabs and/or Somalis. Everything is done using cash, in Tanzanian Shillings as far as can be determined; sometimes deals are done on a credit basis, when buyer and seller are known to each other, and cattle are handed over today on a promise of cash in 7 days time or less.

There is a reasonable level of provision of food, drink and other goods at all 3 markets, especially at Themi. This is done by private traders, who as far as I could determine were not levied for being at the market.

All of the markets had no electricity or human sanitation. All had primitive slaughter slabs which were used from time to time. All 3 had a single weighing scales (spring balance type) with cattle crushes, and some cattle pens. Dar had a fence around the market area, but neither Themi nor Weruweru had any fence.

There is a distinct lack of infrastructure at markets regarding drinking water and fodder for cattle; therefore there is distinct pressure on sellers to sell their cattle if possible on the same or next day as the cattle arrive at the market. This arrival can also of course come at the end of a gruelling trek or a gruelling rail trip with little or no water or food in either case.

Another infrastructural consideration is that there is little or zero provision within Tanzania for the cold storage or frozen storage of beef - i.e. most beef is sold within a short time period of being slaughtered.

Furthermore, there are few or no urban feedlots for the fattening or holding of cattle before slaughter.

Thus there are few factors to cushion supply and demand for beef.

The overall result of these factors is that, especially in a large urban market such as Dar, there can be a high

variability in the wholesale price of cattle from day to day, depending on the arrivals situation.

For the record, the Dar Pugu market depends almost totally on arrivals by rail, and operates effectively 7 days a week; the Themi Arusha market operates only on Fridays, and the Weruweru Moshi market operates only on Tuesdays. Approximate volumes are 400/day (2800 per week) for Dar, 350 /week for Moshi and 600/week for Arusha, but seasonal variations are sizeable. See graphs later for information.

All 3 markets are at the moment run by the Ministry of Agriculture. There is a levy of approximately US$ 1.00 per animal sold (regardless of sex, weight, or grade), or a movement fee of approximately US$ 0.15 per head for animals which are unsold. Because of this situation, there is some temptation for the number sold to be understated by the records (see more discussion below); however, because the tax or fee is independent of animal price, weight or grade, then at least there is no temptation to distort declaration of those values. This sales levy amounts on average to about 1% of animal value (with an average animal value of US$ 100-00).

The ledger record-keeping system at the 3 markets vary slightly, with Dar having the best system. See the appendix on market visits for details.

The slaughter fee at Government or private abattoirs is in the region of US$ 1-00 per animal, or about US$ 0.01 per kg of edible meat.

It must be emphasised that pricing of wholesale live cattle is a complex business, far removed from the much simpler business of crop pricing for most crops, where there may be a few grades and qualities - for cattle there are 3 sexes (steers, cows and bulls), 5 grades in the current Tanzanian system, and a range of liveweights from probably 160 kg through 350 kg.. The previous 2 systems produced average prices per kg liveweight for each of the 3 sexes and each of the 5 grades, i.e. for 15 Grade-Sex Combinations (GSC's).

EXISTING SITUATION - The MIS System

The MIS was in fact found to be two quite separate projects (each with a different UNFAO expert attached) with similar sampling, data collection and data presentation techniques, but with quite different data input and data processing methods.

People.

One of these projects had run in Dar es Salaam for the Dar Pugu market, with the supervisor being Jim Airey; the other had run in Moshi for the Moshi Weruweru market and the Arusha Themi market, with the supervisor being Martin Doran. Airey was active 1989 through August 1994, and Doran was active approx 1992 through December 1993. Both had statistical backgrounds, and both were working for UNFAO, with their immediate supervisor being based in Dar es Salaam. Airey operated from the Marketing Development Bureau in Dar, whereas Doran operated from the RDD offices in Moshi. To complicate matters, the Tanzanian counterpart to Airey, James Bokella, left for long-term study in the UK 7 days after I arrived on the Project (he has been replaced by Mr Kadigi). The Moshi and Arusha counterparts, Mr Swai, Mr David Kilimba, and Mr Ali Semajaila, are still on the Project.

Documentation.

There was little documentation on the computer systems, and also little documentation on the sampling, data collection, data input, data processing, and

data presentation. There were some sections of other documents which produced numbers and statistics from the MIS programs, e.g. as regards trends in yardage, sales, grade and price with seasonal and year-to-

year changes, but the last of these had been done in 1992 (These are listed and reviewed in the appendix of visits and discussions). There was a 4 page xeroxed users' manual for the Dar es Salaam computer system, which covered the practicalities of operation only. No documentation has ever yet been found on the 'Marker' system which was used to smooth data for the Dar computer system.

Raw Data

The original data recording sheets were as far as can be determined all available for use - the Dar data (and some data for Korogwe) at the Dar MDB Office, and the Arusha and Moshi data at the Moshi RDD Office.

The processed weekly and monthly reports were also all available at the same locations.

Raw data existed for Dar for the period 1989 - 1994, with some gaps, and for Moshi and Arusha for the period 1992 - 1994, again with some gaps. Sometimes the gaps were due to rains when it was physically impossible to get to the market sites using motorbike.

Computer Data

The computer files with the computer raw data and the computer processed data were found in the Dar MDB Office and the Moshi RDD Office on computer hard discs and on computer floppy discs. These were relatively complete for the Moshi and Arusha data, but with a few gaps for the Dar data. The gaps in the Dar

data may be due to the theft of a notebook computer in 1993 from the MDB Office, for which insufficient or no backup discs existed. If it is required now or in the future, and if it is considered necessary and economic, then the missing data could be reinput from the raw paper records. This applies also to some gaps in the Moshi and Arusha data.

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AIMS, GOALS AND OBJECTIVES OF THE MIS AND OF THE MIS IMPROVEMENT PROGRAM

AIMS

To improve the management information system which provides information to cattle buyers, cattle sellers, researchers, and the Ministry of Agriculture; the objective of this information provision is to help create a cattle business in Tanzania with higher turnover and higher profitability; and also to help provide the consumer with more better quality beef at a lower price; also if possible to encourage a live cattle or fresh, frozen, canned or otherwise preserved beef export business.

GOALS

1. To maximise information usefulness in terms of accuracy, timeliness

and relevance.

2. To minimise the amount of field and desk work required to

produce this accurate, timely and relevant information.

3. To present information in a format or formats most useful to

buyers, sellers and researchers.

4. To enable the production of this information by privatised

organisations.

OBJECTIVES of Current MIS Study

1. To present historical information for the 3 major cattle markets in ways to show time trends and seasonal fluctuations in price, grade, weight, age, sex distribution, etc.. To analyse these trends and fluctuations so as to advise export and domestic buyers and domestic sellers as to how to improve their business; to find good production trends and to learn from smart producers with a viewpoint of educating other non-improving producers; to find bad trends and to try to counter these.

2. To examine the 2 existing computer processing systems and if necessary to create a 3rd new computer system to supplant the existing 2 systems. If so, to port over or translate the information in the 2 existing systems to enable future historical analysis of a combination of pre-October 94 and post-October 94 data.

3. To examine the methodologies used so far by the 2 systems to analyse the data. If these appear

inadequate, to examine the data and to come up with a new methodology which is superior to the previous and which appears capable of handling present and future types of data; the prime aim of the methodology should be to produce sufficiently accurate information with the minimum of sample size; it will probably utilise averaging or best-fit techniques, and may have provision to identify and discard bad data points.

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THE MIS Activity

In brief, the activity consists of the following interrelated components:

- sample selection

- initial recording, covering weighing, grading, sexing, aging, numbering, and logging location of origin; also yardage and number sold for the market-day in question

- secondary recording, covering pricing and the logging of buyer ID

- data input to the computer system

- data processing within the computer system

- information reporting from the computer system, presentation, and dissemination

All these areas of activity were examined, and substantial room for improvement was found in all the areas.

Each of the above 6 areas is covered in the following sections, detailing present practices, and including for most of the 6 detailed recommendations for improvement. I do not present them in activity sequence, choosing to cover information presentation and dissemination first, since that is the Final Product or Service of the MIS activity; any recommendation to modify this Product or Service may impact back on the other production activities.

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INFORMATION REPORTING, PRESENTATION AND DISSEMINATION

The Product - present practice.

The whole exercise at the moment is oriented towards producing average prices per liveweight kilo for each of 15 cattle grade-sex combinations (GSC's) (Bulls, Steers and Cows, grades 0-4 inclusive). This is done on a weekly and again on a monthly basis. Additionally, the system produces an estimate of the number of animals, average weight and average price for each grade and sex of animal.

The weekly information for Dar es Salaam (only) is put out on national radio in Swahili (this is charged for - rate not known to me); it is also given to several English language newspapers, of which only the Daily News (the Government newspaper) publishes the information. No file of newspaper cuttings or radio transcripts is kept by either MDB or TLMP at the moment. About 30 copies of the weekly report are disseminated.

The weekly information for Moshi and Arusha markets is express-mailed to MDB Dar es Salaam by the Moshi RDD Office; it is filed there.

The monthly report for Dar es Salaam (only) is mounted with a small line map of Tanzania; a small table of current exchange rates of Tanzania Shilling against US Dollar, Zambian, Malawian, Mozambiquan, Ugandan

and Kenyan currencies; a small rolling 12 month line graph of average price for all grades and sexes in Tanzanian Shillings; a colour photograph heading of the Dar es Salaam Pugu Market, and a colour representation of the 5 grades in the grading system used in Tanzania. This montage is colour photocopied about 20 times at a cost of US$ 2.40 per copy, and those 20 reports are airmailed to mainly Middle-Eastern dealers and Middle-Eastern Tanzanian High Commissions, with the intention of stimulating export sales of live animals by sea or air.

An Annual Report for Dar (only) gives a 12 month summary with numbers sold each month by grade and by sex (but NOT by grade-sex combination), with average weights by grade and by sex (but NOT by grade-sex combination), and with average price per liveweight kg (in current non-inflation-adjusted Tanzanian Shillings per kg) by grade and sex (but NOT by grade-sex combination).

There are Information Blackboards at each of the 3 major markets on which price information can be displayed, but none of these are used.

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Perception of the Product by the Users.

I held several interviews at each of the markets visited. Most of the users or potential users were indifferent to or dismissive of the MIS program. Typical reasons for not using the MIS were:

- the prices are out of date by the time they are issued

- the prices are inaccurate (usually the prices are too low)

One buyer commented 'It is a complete waste of time'.

In general, buyers and sellers were much more concerned about the very erratic rail situation (at Dar), and about the lack of water and fodder for their cattle.

My Comment on the Product

- users are indifferent or hostile

- numbers are considered as inaccurate or are just badly presented

- information should be displayed at the markets themselves, where the majority of the potential users are

- information should be input, processed and displayed within hours of

  collection; this obviously would involve data input and reporting atthe market

  the markets themselves

  - present information displays have too many numbers - for 99% of users the figures for numbers, average weight and average price are of no interest and should be dispensed with.

- graphical information display should be considered in addition to tabular

- Arusha and Moshi markets are being ignored, and there is little or no analysis between different markets

- there is too little market analysis over time

- information display for average price of representative animals with a benchmark sex, weight and grade should be considered, instead of the present system of price/kg; this is more understandable to non-statistical or non-mathematical people.

- for export market reports, tabular and/or graphical information should be presented in the target currency or in US Dollars, NOT in Tanzanian Shillings; this is particularly important for price variations with time, where the Tanzanian inflation rate makes information meaningless

We should be trying to get over the following indices for any and every market-day:

- one absolute number which indicates whether prices are high or low

- an indication of premiums (if any) for higher grades and discounts for lower grades

- an indication of whether the variation with sex is normal or abnormal

- an indication of yardage and number sold

- an indication of the variability of deals within that market-day

1. The historical data 1990 - 1994 was processed in terms of average weight for each grade-sex combination, and the following benchmarks are proposed:

Steer Grade 0 - 350 kg

Steer Grade 0 - 310 kg

Steer Grade 1 - 275 kg

Steer Grade 2 - 240 kg

Steer Grade 3 - 230 kg

Steer Grade 4 - 220 kg

Steer Grade 4 - 160 kg

Bull Grade 0 - 350 kg

Bull Grade 0 - 310 kg

Bull Grade 1 - 275 kg

Bull Grade 2 - 240 kg

Bull Grade 3 - 230 kg

Bull Grade 4 - 220 kg

Bull Grade 4 - 160 kg

Cow Grade 0 - 275 kg

Cow Grade 0 - 230 kg

Cow Grade 1 - 220 kg

Cow Grade 2 - 200 kg

Cow Grade 3 - 190 kg

Cow Grade 4 - 180 kg

Cow Grade 4 - 160 kg

Note that the above weights may be considered low for Arusha, high for Dar, and about right for Moshi; the intention in choosing is however of course so that inter-market comparison can be carried out, as well as intra-market and inter-market comparison over time...

Note that 7 data points are chosen for each sex - an average weight for each grade (from our data 1989-94) plus 2 extremes at high and low weights.

Note that for concise reporting presentation, the average prices for Steer Grade 1 275 kg, Bull Grade 1 275 kg and Cow Grade 2 200 kg should probably be quoted, again based on average frequency for the 3 major markets on a historical basis 1990 - 1994.

2. Note that the intention is that a WEEKLY report should quote for

all 3 major markets.

Numbers will probably be quoted to the nearest 100 Tsh for a domestic report, and to the nearest US$ 0.10 for export reports, but this may be modified to the nearest 1000 Tsh and nearest US$ 1.00.

Whether TLMP attempts to monitor Dar 5,6, or 7 days a week is debateable, and depends largely on findings of sample sizes required for reasonable accuracy and also of course on stability of behaviour, especially on the apparent price relationships between steers, bulls and cows over time (this is analysed and commented on below); also on yardage fluctuations and demand fluctuations.

3. Note that as the TLMP Market Information System starts to be accepted and even referred to by buyers and sellers, then that in itself should be a stabilising influence on price behaviour (within the framework of a possibly unstable rail supply situation prevailing at Dar es Salaam).

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OVERVIEW of the SAMPLING, INITIAL AND SECONDARY DATA RECORDING ACTIVITIES

The objective of the above 3 activities is to record sex, weight, grade and price for a sufficient sample size of cattle. The weighing in particular is a labour-intensive operation (which may involve as much as 3 minutes per animal with up to 5 people being required). The conventional way of doing this is to use a combination of Market Organiser and Seller's manpower to organise and perform the weighing, which takes place usually before the trading starts. This technique also requires that the weighed animals are marked with a Temporary Recognition Number (TRN) so that after sale the buyer can be approached to find the price which he paid for that particular animal.

An alternative technique which should be very strongly considered is to encourage self-weighing - where the buyer and/or the seller weigh the animal themselves and declare the weight and price to the recorder; the recorder can then quickly also note the sex and grade. This technique eliminates the labour requirement for the weighing staff and also eliminates the TRN application.

It may be necessary to go through an interim phase of course in order to produce accurate and useable Market Price Information; once the buyers and sellers are persuaded that the data processing system is producing reliable and useful information, they should have a strong interest in contributing towards that system, by conducting self-weighing.

Note that most but not all of the 3 following sections on Sampling, Initial Recording and Secondary Recording would be nullified if this self-weighing concept is implemented. I very strongly recommend that the self-weighing concept is explored.

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SAMPLE SELECTION

Present Practice

The rule up till now at the 3 major markets is that the data collectors must try to ensure that the sample is representative of the total population in terms of grade and sex.

Beyond that, approximately 6% of the population is sampled at Arusha, 8% at Moshi, and 3% at Dar. At Moshi and Arusha, actually 6% and 8% of each market-day is sampled, whereas for Dar (where there are up to 7 market-days per week), then usually only 2 market-days per week are actually sampled; the sample for those 2 market days is thus approximately 10%. For Dar, the rules are actually quite loose, and so long as approximately 100 animals are sampled per week, regardless of the numbers per day or the number of days, then the requirements are regarded as met. Note that these 6%, 8% and 3% samples referred to above are equivalent to 50, 30 and 40 animals respectively per market-day.

The sampling procedure at all 3 sites is that a group of cattle is identified, and then 20% of those cattle are taken for weighing etc etc.. At Dar, in theory at least, the group of cattle are physically driven through a crush and literally 1 in 5 is stopped and weighed etc.; the intention of this very work-intensive method is that a random 20% sample is obtained.

Note that the numbers above refer to NET sample - animals for which both initial and secondary data is available - i.e. weight AND price - for a percentage of animals weighed the price cannot for various reasons be obtained (more below).

The table below (9.2.95-1) shows average gross and net sample sizes for the 3 major markets for the period 1989 - 1994. It appears that 60% is a reasonable conversion factor in practice for gross to net sample. It appears also that 100 animals per market-day is a reasonable maximum gross sample for a once-per-week

market, and 70 animals per market-day is a reasonable maximum gross sample size for an every-day-per-week market (based on there being only a single weighing scale at the market).

	Weight > 0	Wt&price>0	Market-days	Avg Net Sample	%net/gross sample
Arusha 94	2632	1668	25	67	63%
Arusha 93	3731	1751	35	51	47%
Arusha All	9483	4863	97	50	51%
Moshi 94	1795	1051	22	48	59%
Moshi 93	2535	1260	32	39	50%
Moshi All	8001	3676	118	31	46%
Dar 94	5361	3551	80	44	66%
Dar 93	937	650	21	31	69%
Dar All	17376	10344	282	37	60%

Table: Net Samples Sizes and Net/Gross Sample Size Conversion Ratios by Market and Time.