

SOUTH AFRICAN IRRIGATION STATISTICS: AN ANALYSIS OF THE 2014 WARMS DATA

Isobel van der Stoep
South African Irrigation Institute

Cameron Tylcoat
Department of Water and Sanitation



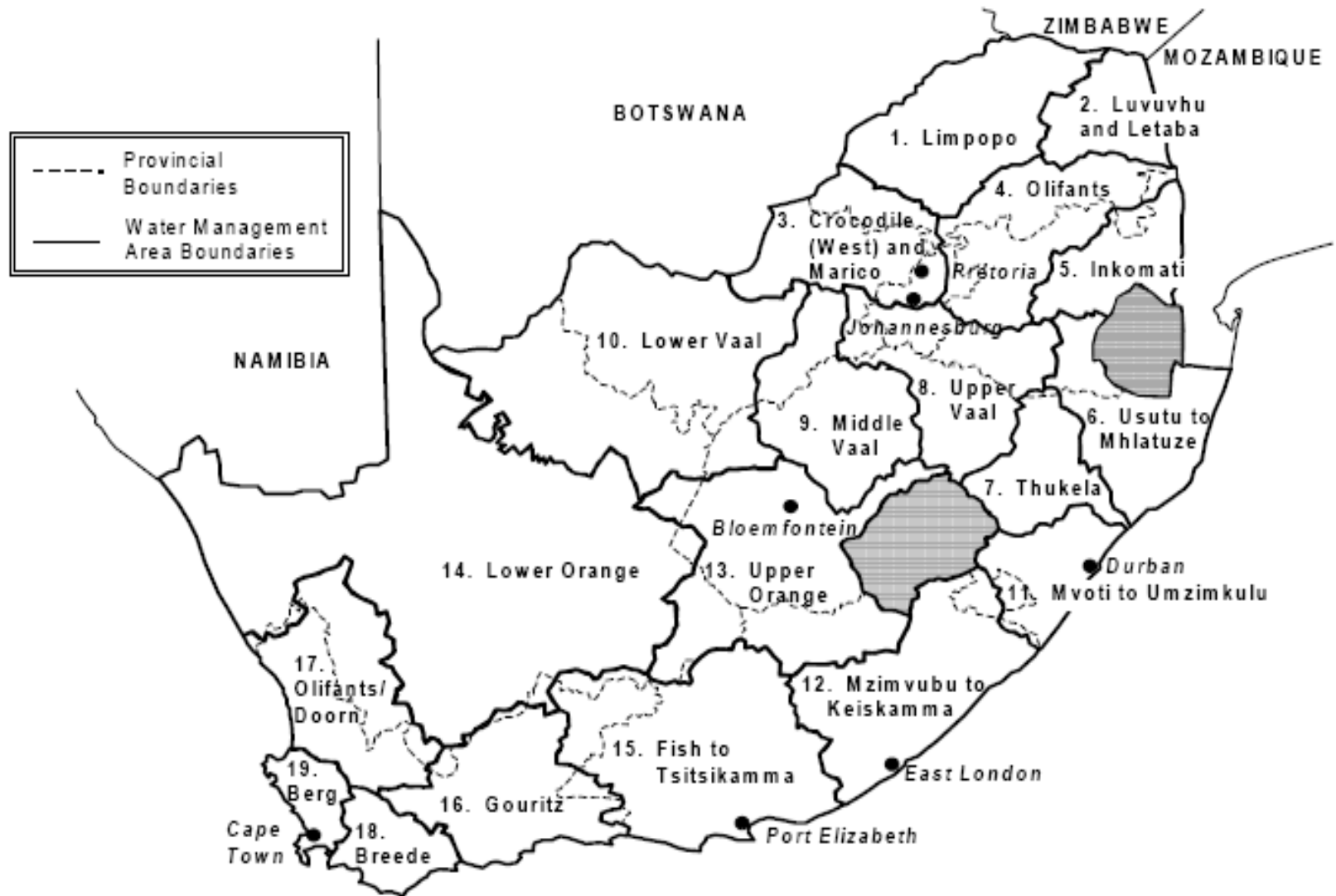
What is WARMS?

- ◎ Water use Registration Management System
 - It is a database
 - Of all registered water users
 - Across all water use sectors
 - Continuously updated
 - Used by both DWS regional and national offices

What is captured in WARMS?

- On irrigation water users, amongst others:
 - Applicant name, Registration number, Water use number and WMA located in
 - Property name, property area and SG code
 - Quaternary sub-catchment, water source type and name, latitude & longitude, and WRM charge
 - Field number, area, crop, planting date, growing season, rotational factor, irrigation system and volume of water required per annum

WATER MANAGEMENT AREAS



WMA abbreviations

1	LIM	Limpopo
2	LUV	Levuvhu and Letaba
3	CRO	Crocodile (West) and Marico
4	OLI	Olifants
5	INK	Inkomati
6	USU	Usutu to Umhlatuze
7	THU	Thukela
8	UPV	Upper Vaal
9	MVA	Middle Vaal
10	LVA	Lower Vaal
11	MVO	Mvoti to Umzimkulu
12	MZI	Mzimvubu to Keiskamma
13	OUP	Upper Orange
14	OLO	Lower Orange
15	FIS	Fish to Tsitsikamma
16	GOU	Gouritz
17	OLD	Olifants/Doorn
18	BRE	Breede
19	BER	Berg

Irrigation systems

- Sprinkler: Dragline
- Sprinkler: Quick-coupling
- Sprinkler: Permanent
- Sprinkler: Hop-along
- Sprinkler: Big gun
- Sprinkler: Side roll
- Sprinkler: Boom
- Flood: Furrow
- Flood: Border
- Flood: Basin
- Centre pivot
- Linear
- Sprinkler: Travelling gun
- Sprinkler: Travelling boom
- Micro sprinkler
- Micro spray
- Drip
- Subsurface

Crops

- ALMONDS
- APPLES
- APRICOTS
- ARTICHOKES
- ASPARAGUS
- AUBERGINES
- AVOCADO'S
- BABALA
- BABY MARROWS
- BANANAS
- BARLEY
- BEANS
- BEANS-DRY
- BEANS-GREEN
- BEANS-KIDNEY
- BEANS-RUNNER
- BEANS-SUGAR
- BEETROOT
- BERRIES
- BRAMBLES
- BRINJALS
- BROCCOLI
- BUCHU
- BUTTERNUTS
- CABBAGE
- CANOLA
- CARROTS
- CASSAVA
- CAULIFLOWER
- CHERRIES
- CHICORY
- CHILLIES
- CITRUS
- COFFEE
- CORIANDER
- CORN
- COTTON
- COW PEAS
- CUCUMBERS
- CUCURBITS
- CUT FLOWERS
- DATES
- DEVIL'S CLAW
- FESCUE-GRAZING
- FIGS
- GARDEN
- GARLIC
- GHERKINS
- GINGER
- GOOSEBERRIES
- GRANADILLAS
- GRAPES-TABLE
- GRAPES-WINE
- GRAZING
- GREEN FEED
- GREEN PEPPERS
- GROUNDNUTS
- GUAVAS
- HAZEL NUTS
- HERBS
- HONEYBUSH TEA
- HOODIA
- HOPS
- HUBBARD SQUASH
- KIKUYU
- KIWIFRUIT
- LAVENDER
- LAWN
- LAWN/KIKUYI/GOLF COURSES
- LEEKs
- LEMON
- LENTILS
- LETTUCE
- LIME
- LITCHIES
- LUCERNE
- LUPIN
- MACADAMIA NUTS
- MAIZE
- MANGOES
- MARROWS
- MARULA
- MEALIES
- MELONS
- MIDMAR
- MUSHROOMS
- NECTARINES

Crops (continued)

- LAVENDER
- LAWN
- LAWN/KIKUYI/GOLF COURSES
- LEEKS
- LEMON
- LENTILS
- LETTUCE
- LIME
- LITCHIES
- LUCERNE
- LUPIN
- MACADAMIA NUTS
- MAIZE
- MANGOES
- MARROWS
- MARULA
- MEALIES
- MELONS
- MIDMAR
- MUSHROOMS
- NECTARINES
- NURSERY
- NUTS
- OATS
- OLIVES
- ONIONS
- ORANGES
- PAPRIKA
- PARSLEY
- PASTURES SUMMER & WINTER
- PASTURES-PERENNIAL
- PASTURES-SUMMER
- PAWPAW
- PEACHES
- PEANUTS
- PEARS
- PEAS
- PECAN NUTS
- PEPPADEWS
- PEPPERS
- PERSIMMON
- PINEAPPLES
- PLUMS
- POMEGRANATE
- POTATOES
- PRICKLEY PEARS
- PROTEAS
- PRUNES
- PUMPKINS
- QUINCE
- RADISHES
- RICE
- ROOIBOS TEA
- RYE GRASS
- SALT BUSH
- SCHEDULED WATER USE
- SORGHUM
- SOY BEANS
- SPINACH
- SQUASH
- STARFRUIT
- STONE FRUIT
- STRAWBERRIES
- SUGAR BEET
- SUGAR CANE
- SULTANAS
- SUNFLOWERS
- SUTHERLANDIA
- SWEET POTATOES
- SWEETCORN
- TEA
- TEFF
- TOBACCO
- TOMATOES
- TRITICALE
- TURNIPS
- VEGETABLES-SUMMER
- VEGETABLES-WINTER
- WALNUTS
- WATERMELONS
- WHEAT

Selected WARMS irrigation data

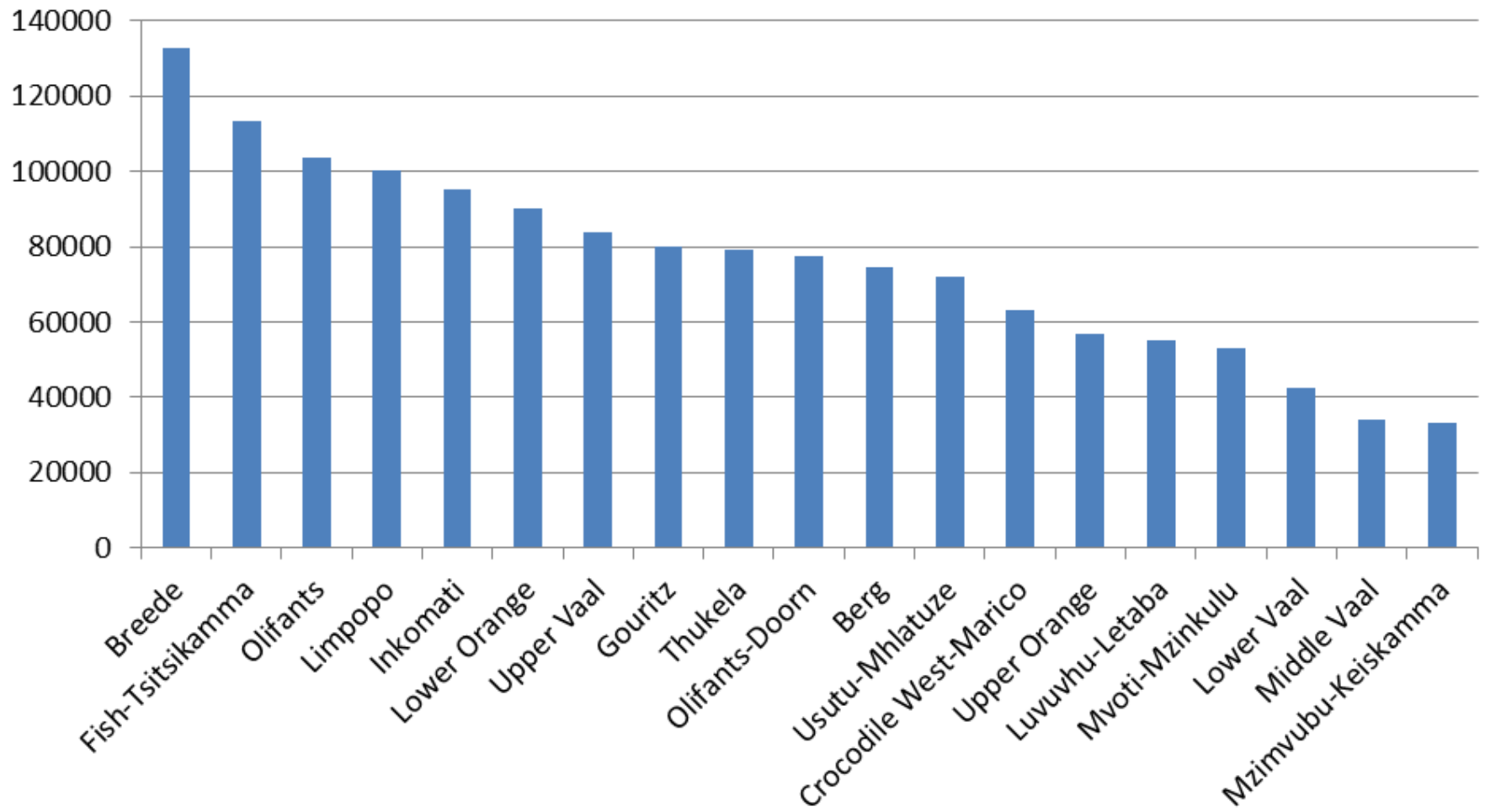
◎ 2008

- 73 237 entries
- 56 812 irrigation fields
- 38 243 registered water users
- 1 675 822 ha of registered irrigation area
- 1 399 221 ha of annually irrigated area (unique water user & field number combinations)

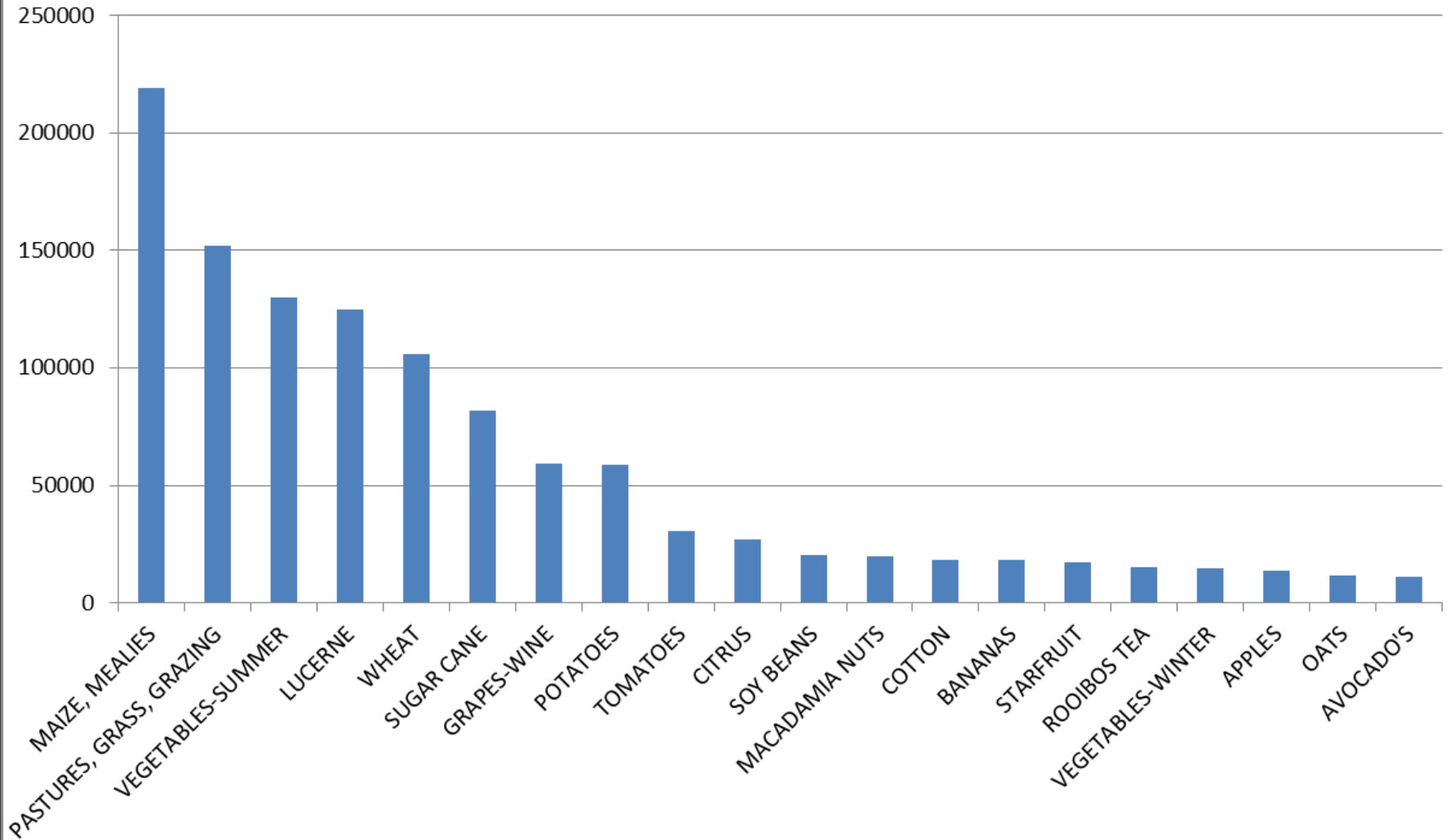
◎ 2014

- 74 292 entries
- 61 956 irrigation fields
- 35 642 registered water users
- 1 440 748 ha of registered irrigation area
- 1 252 601 ha of annually irrigated area

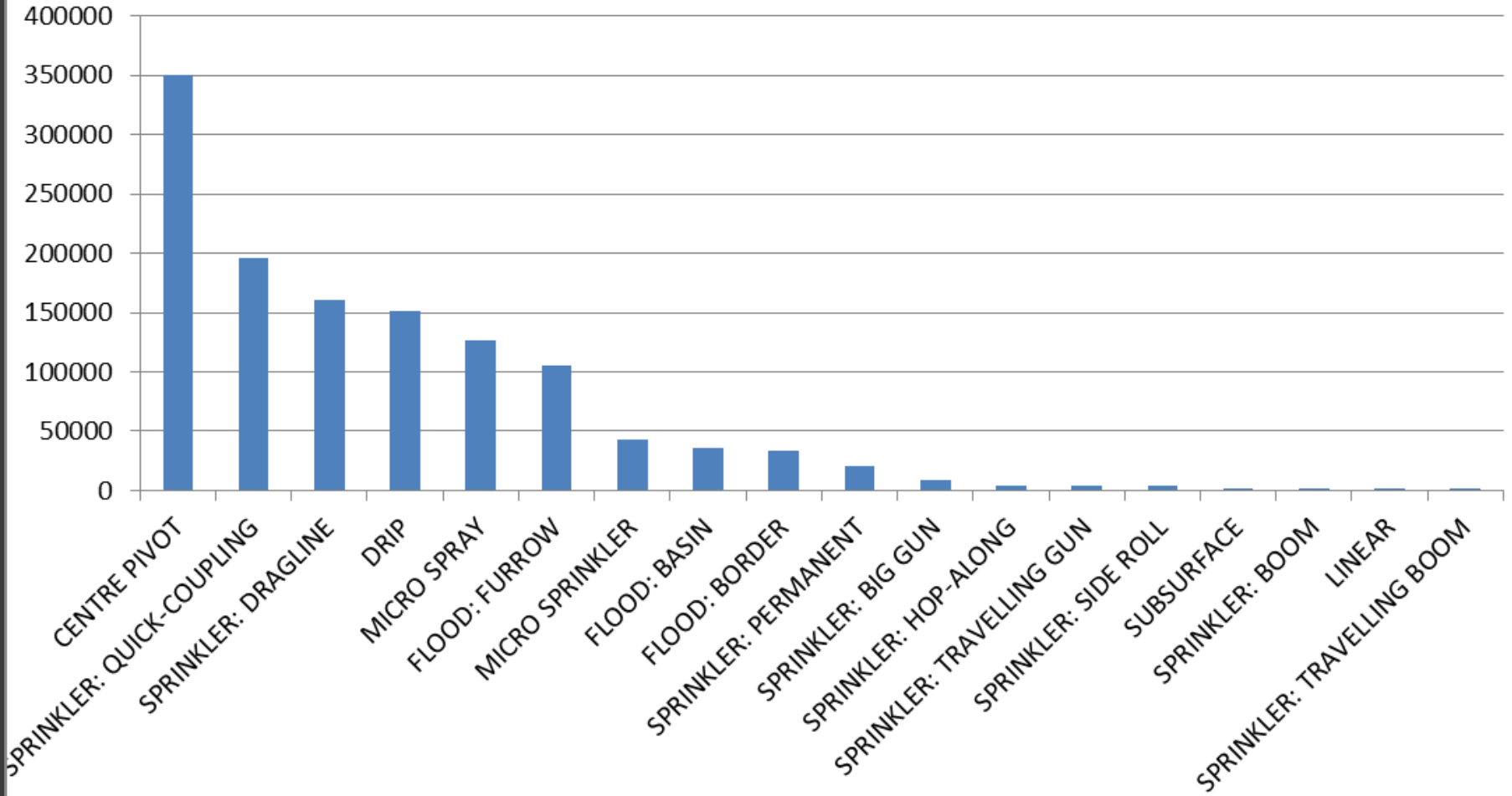
Registered irrigation area (ha)



Top 20 registered crop groups by area (ha)

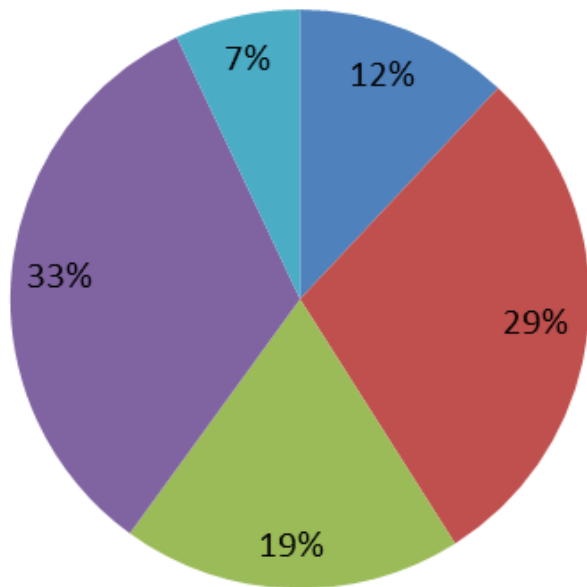


Irrigation systems per annually irrigated area (ha)

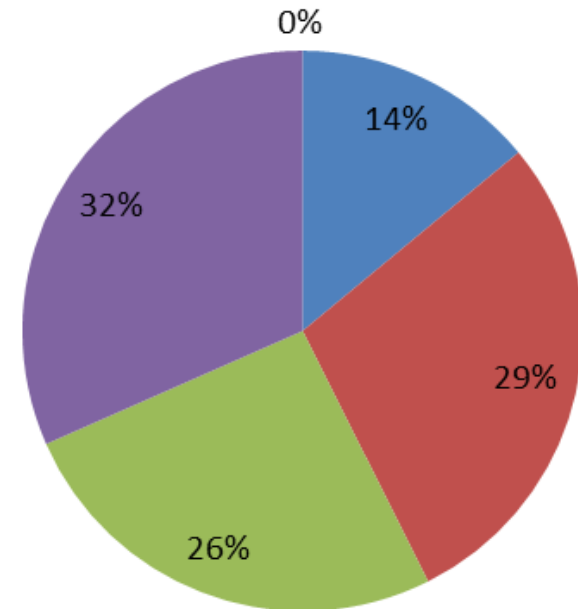


Irrigation systems

2008

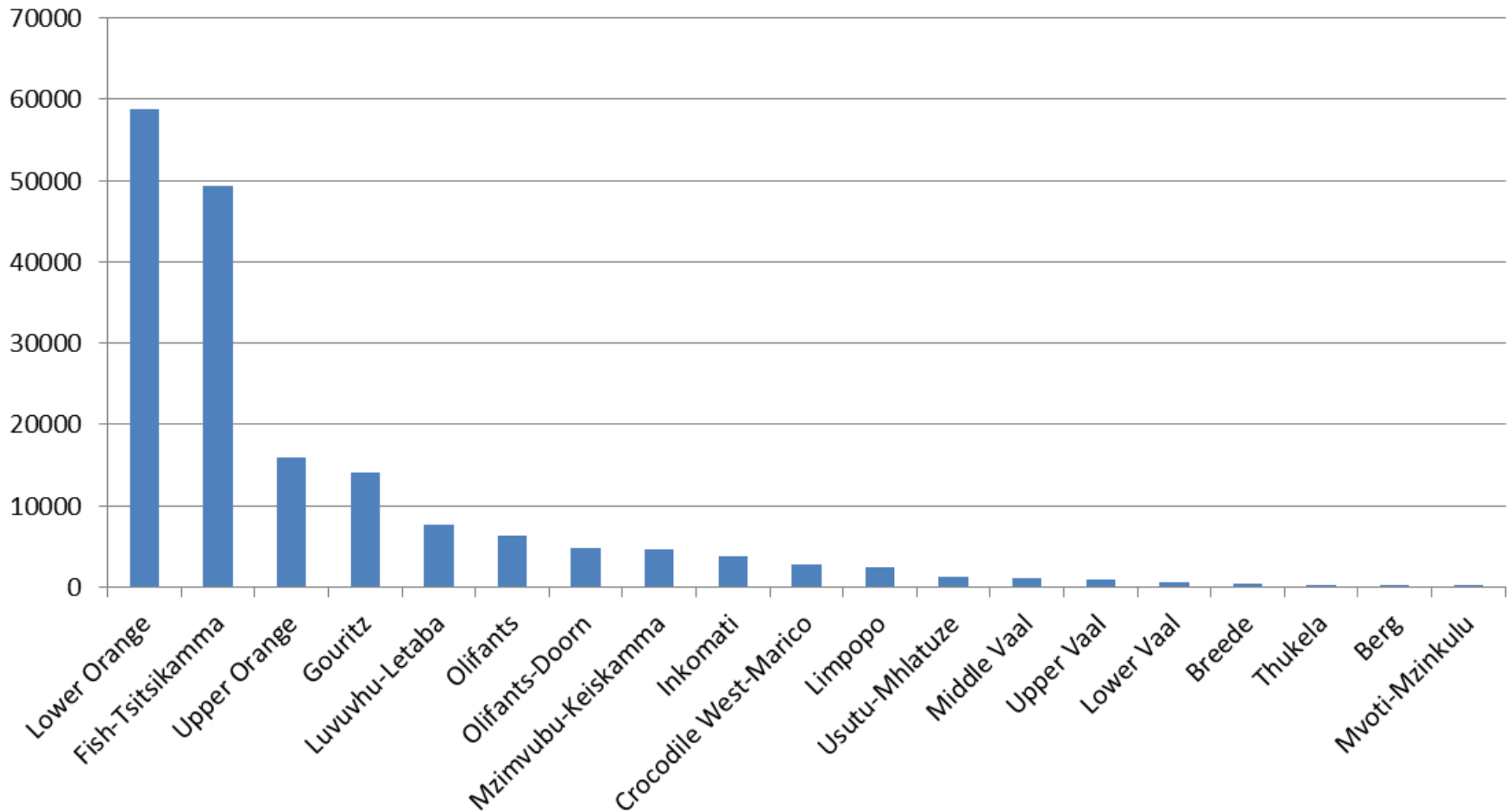


2014

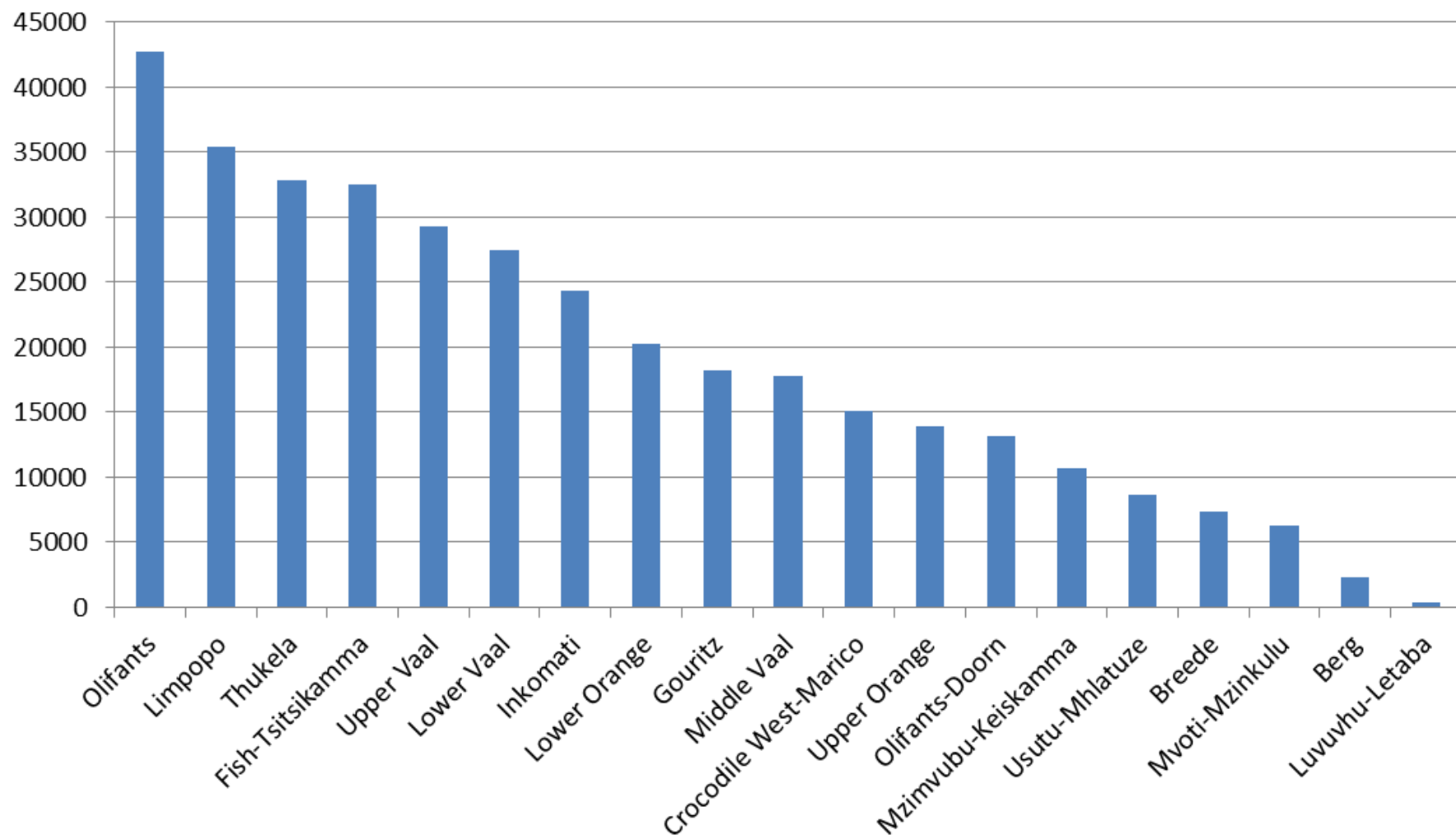


- Flood irrigation
- Moving systems
- Micro irrigation
- Sprinkler irrigation
- Not specified

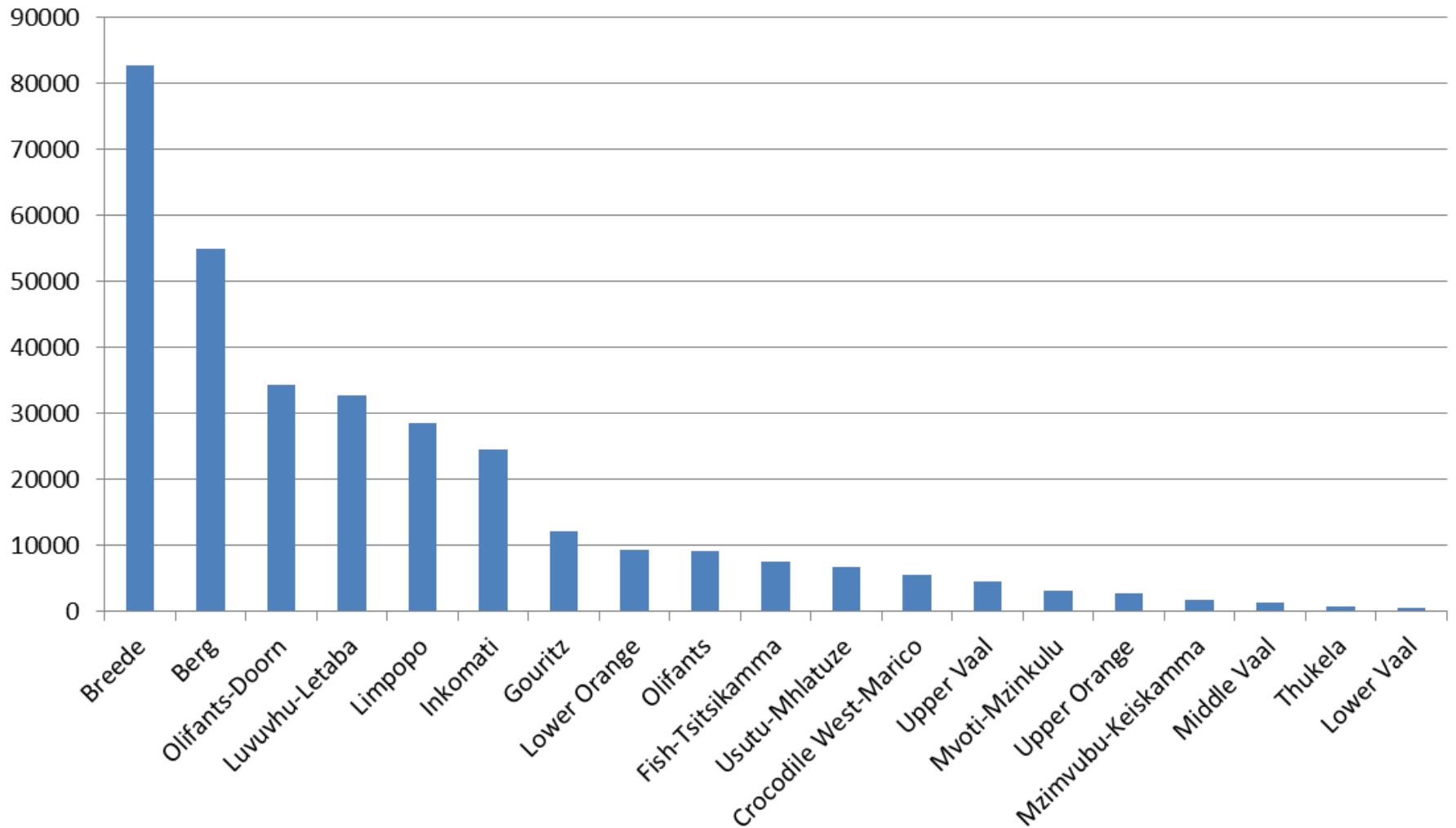
Annually irrigated area (ha): Flood irrigation



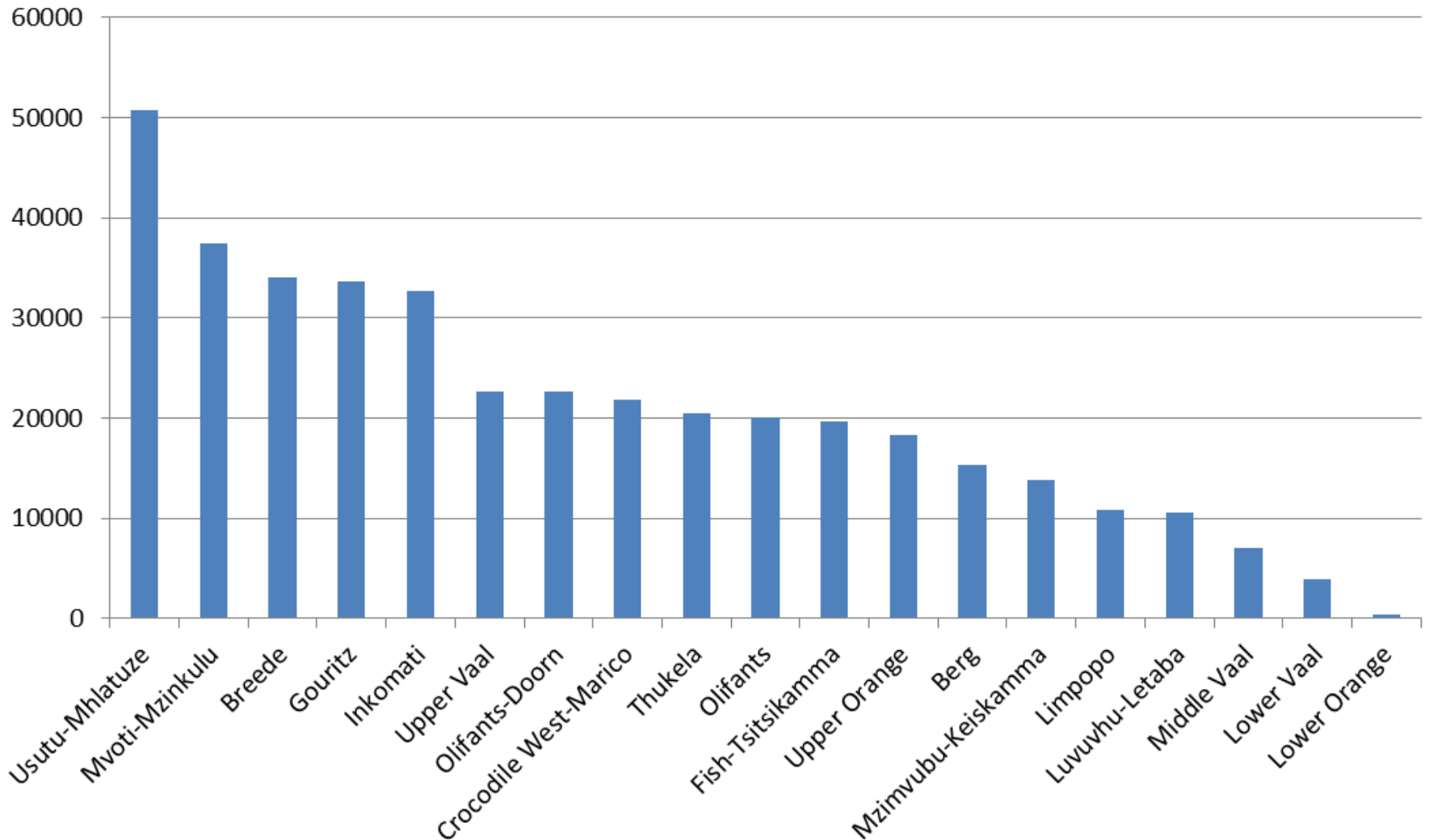
Annually irrigated area (ha): Moving systems



Annually irrigated area (ha): Micro irrigation



Annually irrigated area (ha): Sprinkler irrigation



Conclusion

- Accuracy of the WARMS data is difficult to evaluate and verification still ongoing or required in most WMAs
- The WARMS contain valuable information of the irrigation sector for the irrigation sector that can be useful for all involved – from extension to engineering – and effort put into the improvement of the data will be time and resources well spent