CHROMOSOME NUMBERS OF SOUTH AFRICAN GRASSES

By A. A. MOFFETT

Wattle Research Institute, University of Natal

and

R. HURCOMBE

John Innes Horticultural Institution, Bayfordbury

THE following list of chromosome numbers is a combination of the studies of Dr Moffett on grasses of Rhodesia and Miss Hurcombe on grasses of the provinces of the Union of South Africa. Dr Moffett's species were identified by Miss K. Sturgeon of the Department of Agriculture, Salisbury, Southern Rhodesia ; Miss Hurcombe's species were grown from seed supplied by Miss Wilman through the Director, Royal Botanic Gardens, Kew, or roots were sent directly from South Africa, and specimens of these have been preserved in the Kew Herbarium (Editor).

Notes after the numbers refer to comparison with previous counts given in the *Chromosome Atlas* where the full references to the original papers will be found.

TRIBE II.—*ANDROPOGONEÆ*

$x = 10$	ROTTBOELLIA		
	exaltata L. f. . . .	20	S. Rhodesia
	SORGHUM		
	sudanense (Piper) Stapf . .	20	,,
	friesii (Pilger) C. E. Hubbard (*micratherum* Stapf)	40	,,
	SCHIZACHYRIUM		
	glabrescens (Rendle) Stapf .	20	,,
	jeffreysii (Hack.) Stapf . .	40	,,
	DIECTOMIS		
	fastigiata (Swartz) Kunth .	20	,,
	ANDROPOGON		
	eucomus Nees . . .	20	,,
	schirensis Hochst. ex A. Rich .	40	,,
	amplectens Nees . . .	40	,,
	schinzii Hack . . .	40	,,
	gayanus Kunth *var. squamulatus* (Hochst.) Stapf	40	,,
	HYPARRHENIA		
	dissoluta (Nees ex Steud.) C. E. Hubbard (*ruprechtii* Fourn.)	40	,,
	newtonii (Hack.) Stapf . .	40	,,
	MONOCYMBIUM		
	ceresiiforme (Nees) Stapf .	20	,,

$x = 11$	HETEROPOGON		
	melanocarpus (Ell.) Benth.	22	*S. Rhodesia*
	contortus (L.) Beauv. ex R. & S.	44 (not 20)	,,
	Tribe III.—*PANICEÆ*		
$x = 7, 9$	UROCHLOA		
	pullulans Stapf	28	,,
	mosambicensis (Hack.) Dandy (= U. *pullulans var. mosambicensis* Stapf)	42	,,
	bolbodes (Schweinf.) Stapf	36	,,
	panicoides Beauv. (*helopus* Stapf)	36	,,
$x = 8, 10, 11$	PANICUM		
	maximum Jacq.	32 (not 36)	,,
	Dwarf type and green mutant	32	,,
	vars. Red Buffel, Coarse Guinea, Fine Guinea	32	,,
	two *vars.* Puerto Rico	32	Inst. Trop. Ag.
	"*makarikari*"	44	S. Rhodesia
$x = 9$	DIGITARIA		
	milanjiana (Rendle) Stapf	18	,,
	brazzæ (Franch.) Stapf	18	,,
	gazensis Rendle	18	,,
	eriantha Steud.	18	,,
	pentzii Stent	54	,,
	swazilandensis Stent	18	Frankenwald Turf Nursery, Transvaal
$x = 9, 17$	CENCHRUS		
	ciliaris L.	36 (not 34)	S. Rhodesia
$x = 9$	CHLORIDION		
	cameronii Stapf	54	,,
	ALLOTEROPSIS		
	semialata (R. Br.) Hitch.	54	,,
$x = 9, 21$	BRACHIARIA		
	viridula Stapf	36	,,
	nigropedata (Munro) Stapf	36	,,
	serrata (Thunb.) Stapf	36	,,
	brizantha (Hochst. ex A. Rich.) Stapf	54	,,
	dictyoneura (Fig. et De Not.) Stapf	42	,,
$x = 9$	SACCIOLEPIS		
	glaucescens Stapf	36	,,
$x = 9$	SETARIA		
	longiseta Beauv.	18	,,
	phragmitoides Stapf	36	,,
	pallide-fusca (Schumach.) Stapf et Hubbard	36	,,
	chevalieri Stapf	54	,,
	sphacelata (Schumach.) Stapf et Hubbard	36, 54	Rietondale, Transvaal
	sphacelata var. Kasingulu	36	...
	sphacelata var. Gomoti River	36	...
	splendida Stapf *	63 ($7x$)	Rietondale, Transvaal

* *Setaria splendida*—a tall vigorous grass which does not set viable seed—proved to be heptaloid.

	RHYNCHELYTRUM		
	repens (Willd.) C. E. Hubbard (*roseum* (Nees) Stapf et Hubbard)	36	S. Rhodesia
	nyassanum (Mez) Stapf et Hubbard	36	,,
	setifolium (Stapf) Chiov.	36	,,
	minutiflorum (Rendle) Stapf et Hubbard	36	,,
	minutiflorum var. melinoides (Stent)	36	,,
	MELINIS		
	macrochæta Stapf et Hubbard	36	,,
	ACROCERAS		
	macrum Stapf	36 ($n = 18$)	Rietondale, Transvaal
$x = 10$	PASPALUM		
	commersonii Lam. (*scorbiculatum* L. *var. commersonii* Stapf)	40	S. Rhodesia

Tribe IIIa.—*ARUNDINELLEÆ*

$x = 10$	LOUDETIA		
	simplex (Nees) C. E. Hubbard (*Trichopteryx simplex* Hack.)	60	,,
	TRISTACHYA		
	welwitschii Rendle *var. superbiens* (Pilger) C. E. Hubbard	40	,,

Tribe IV.—*ERAGROSTEÆ*

$x = 10, 21$	POGONARTHRIA		
	squarrosa (Licht.) Pilger and *var.*	40	,,
	squarrosa	42	Kimberley, Cape
$x = 10$	TETRACHNE		
	dregei Nees *	20	Middelburg, Cape
	ERAGROSTIS		
	aspera (Jacq.) Nees	20	S. Rhodesia
	aspera	20 †	Kimberley, Cape
	biflora Hack. I	20	Mafeking, Cape
	biflora Hack. II	20	Kimberley, Cape
	chapelieri Nees	20	...
	cilianensis (All.) Lutati	20 †	Irene, Transvaal
	namaquensis Nees	20	...
	pallens Hack.	20	Andalusia, N. Cape
	patens Oliv.	20	...
	truncata Hack.	20	Fauresmith, O.F.S.

* *Tetrachne* is a monotypic genus which has not previously been studied. Stapf (*Flora Capensis*, 7, 318, 1898) places this genus in the tribe Festuceæ. The somatic chromosomes of true members of the Festuceæ, e.g. *Festuca*, *Poa* and *Dactylis* are twice as long as those of *T. dregei*. Also, the majority of the Festuceæ have a basic number of 7 whereas the count for *T. dregei* indicates a basic number of 10. Mr C. E. Hubbard has found that this grass differs from the genera of the tribe Festuceæ and from allied tribes of the festucoid group in certain morphological and anatomical features. The morphological, anatomical and cytological evidence both indicate that *Tetrachne* should be removed from the Festuceæ. For the present the genus might be conveniently included in the Eragrosteæ.

† Confirming Avdulov 1931.

$x = 10$	ERAGROSTIS—*continued*		
	wilmaniæ Hubb. et Schw.	20	Hay Division, Griqualand West
	atherstonei Stapf I	40	Mafeking, Cape
	atherstonei Stapf II	40	,, ,,
	ciliaris (L.) R. Br.	40	...
	denudata Hack.	40	...
	echinochloidea Stapf	40	Barkly West, Cape
	margaritacea (?)	40	...
	obtusa Munro	40	Kimberley, Cape
	sclerantha Nees (small type)	40	S. Rhodesia
	sclerantha Nees (large type)	40	,,
	superba Peyr.	40	Kimberley, Cape
	tef (Zucc.) Trotter (*E. abyssinica* Link)	40	S. Rhodesia
	viscosa (Retz.) Trin.	40	,,
	barrelieri Daveau	60	Kimberley, Cape
	capensis Trin. (*brizoides* Nees)	60	S. Rhodesia
	habrantha Rendle	60, 90 (6x and 9x)	,,
	TRIBE V.—*SPOROBOLEÆ*		
$x = 9, 10$	SPOROBOLUS		
	fimbriatus Nees	18	Kimberley, Cape
	panicoides A. Rich.	24	S. Rhodesia
	pyramidalis Beauv.	24	,,
	pyramidalis	30 (3x)	Irene, Transvaal
	capensis (Willd.) Kunth	36	S. Rhodesia
	TRIBE VI.—*ZOISIEÆ*		
$x = 10$	PEROTIS		
	patens Gand.	40	S. Rhodesia
	TRIBE VII.—*CHLORIDEÆ*		
$x = 9, 10$	CRASPEDORHACHIS		
	rhodesiana Rendle	27 (3x)	S. Rhodesia
	ELEUSINE		
	indica (L.) Gaertn.*	36 (not 18)	,,
	DACTYLOCTENIUM		
	ægytium (L.) Beauv.	36	,,
	CYNODON		
	dactylon (L.) Pers.	40	,,
	plectostachyum (K. Schum.) Pilger	18, 54	,,
$x = 9, 10$	CHLORIS		
	gayana Kunth	20, 40	,,
	,, ,, *var.* Trans Nzoia	20	,,
	,, ,, *var.* Giant Rhodes Grass	40	,,
	,, ,, *var.* Kafue Strain	40	,,
	,, ,, *var.* Hunyani Grass	40	,,

* *Eleusine indica* $2n = 36$ and not $2n = 18$. This may be tetraploid strain. It is generally considered that this species becomes larger and more aggressive as one proceeds north from S. Africa. It is certainly much more formidable in Rhodesia than in Natal, but this may be due to climate and soil as much as to any inherent differences.

$x = 9,10$	CHLORIS—*continued*		
	virgata Swartz * . . .	20 (not 14)	Mafeking, Cape
	pycnothrix Trin. . . .	40	Irene, Transvaal
	MICROCHLOA		
	Kunthii Desv. . . .	40	S. Rhodesia
	TRICHONEURA		
	grandiglumis (Rendle) Ekman	20	,,

TRIBE IX.—*ARISTIDEÆ*

$x = 11$	ARISTIDA		
	meridionalis Henrard . .	22	S. Rhodesia
	scabrivalvis Hack. . . .	22	,,
	macilenta Henrard (*contractinodis* Stent et Rattray)	22	,,
	congesta Roem. et Schult. .	22	,,
	scabrivalvis (?) . . .	22	,,
	leucophæa Henrard . .	44	,,

* Nielsen and Humphrey (1937) counted 14 chromosomes in *Chloris virgata*. The present revised count of $2n = 20$ agrees with previous counts of other species of *Chloris*.

N.B.—The manuscripts have been arranged and edited by Mr C. E. Hubbard of the Royal Botanic Gardens, Kew, and Dr C. D. Darlington.

REFERENCES

DARLINGTON, C. D., AND JANAKI AMMAL, E. K. 1945.
Chromosome Atlas of Cultivated Plants. London : Allen & Unwin.