

GRAMINEAE

by

J. C. LINDEMAN and A. L. STOFFERS

(Instituut voor Systematische Plantkunde, Utrecht, and
Botanisch Laboratorium, Nijmegen)

Annual or perennial herbs, rarely shrubby. Leaves alternate, consisting of sheath, ligule and blade. Sheaths envelopping the stem, usually with free margins; ligule borne at the mouth of the sheath, membranaceous or a rim of hairs; blades mostly elongate, flat, convolute or terete, parallel-veined. Inflorescence spicate, racemose or paniculate, bearing spikelets which consist of a shortened axis (rhachilla) and two to many scales. The two lowest scales (glumes) empty, rarely wanting; the following scales (lemmas) bearing in their axil an usually enclosed prophyll (palea) and a perfect or reduced flower. Lemma, palea and flower together forming the floret. Perfect flower consisting of 2—3 hyaline or fleshy lodicules, usually 3 (1—6) stamens and a pistil. Stamens with at anthesis rapidly elongating, filiform or ribbon-like filaments with 2-celled anthers, opening with longitudinal splits. Ovary superior, 1-celled; ovule one, anatropous; styles usually 2 (1—3) with plumose stigmas. Fruit a caryopsis (i.e. the pericarp adnate to the seed) with mealy endosperm, rarely a nut, a berry or an utricle with free pericarp. Embryo small, at the base of the side opposite the hilus.

About 4000 species in 500 genera; of world-wide distribution.

Key to the genera:

1. Spikelets unisexual; the staminate spikelets in terminal panicles, the pistillate spikelets in axillary cobs and enclosed by broad sheaths
Zea (p. 203)
Spikelets perfect or unisexual, but not in different inflorescences . . . 2
2. Spikelets sessile or shortly pedicellate in one to several racemes on a common axis 3
Spikelets in cylindrical or paniculate inflorescences 20
3. Racemes digitate or solitary at the apex of the culm or only one raceme somewhat lower inserted 14
Racemes along a distinct rhachis 4

4. Spikelets with awned glumes; racemes 4—8, short, distant; creeping grass with small, lanceolate leaves *Oplismenus* (p. 183)
Spikelets without awns on the glumes, rarely short-awned on the lemma 5
5. Spikelets 1—2 mm long with 2—6 fertile florets along one side of the triquetrous rhachis of the spike-like racemes *Leptochloa* (p. 142)
Spikelets with one fertile floret and a sterile or male one below, deciduous with the glumes 6
6. Spikelets without definite orientation towards the rhachis 7
Spikelets in spike-like, one-sided racemes either abaxial (back of fertile lemma turned away from the rhachis) or adaxial (back of fertile lemma turned towards the rhachis) 8
7. Spikelets subtended by 1 or more slender bristles *Setaria* (p. 186)
Spikelets not subtended by bristles *Panicum* (p. 171)
8. Spikelets lanceolate, acute and with long silky hairs, or glabrous and then 2—3 mm long 9
Spikelets not with this combination of characters 10
9. Sheaths glabrous, flattened; blades short and with blunt apex
Axonopus (p. 164)
Sheaths keeled in the upper part, not flattened, pubescent; blades attenuate towards the apex *Digitaria* (p. 156)
10. Spikelets with a ring-like, usually dark callus at the base, formed by the top of the pedicel *Eriochloa* (p. 161)
Spikelets without a ring-like callus at the base 11
11. Spikelets hispid; fertile floret smooth; racemes short and dense
Echinochloa (p. 184)
Spikelets glabrous to puberulous 12
12. Fertile floret transversely rugose; first glume present 13
Fertile floret smooth; first glume wanting *Paspalum* (p. 165)
13. Spikelets abaxial, elliptic, in spreading or ascending racemes
Brachiaria (p. 162)
Spikelets adaxial, obovate, in short adpressed racemes
Paspalidium (p. 177)
- 14(3). Racemes solitary, continuing the culm 15
Racemes 2 to several, inserted at the top of the culm, rarely only one raceme somewhat lower inserted 16
15. Raceme narrow, cylindric; spikelets more or less imbricate; the mature fertile lemma with a robust, twisted, pubescent awn *Heteropogon* (p. 202)
Raceme loose and one-sided; spikelets divaricate, two- to several-flowered; lemmas with straight, slender awns *Bouteloua* (p. 153)

16. Spikelets with one perfect floret below and one or two rudimentary ones above; lemmas awned. *Chloris* (p. 148)
Spikelets with two or more perfect florets or with one perfect floret but no rudimentary ones above; lemmas not awned 17
17. Spikelets with one fertile floret, appressed on two sides of the rhachis 18
Spikelets with 3—5 florets, not appressed to the rhachis 19
18. Racemes usually 2; spikelets in pairs, plano-convex *Paspalum* (p. 165)
Racemes usually 4 or 5; spikelets solitary, laterally compressed
Cynodon (p. 147)
19. Racemes stiff; spikelets in two dense divaricate rows; rhachis prolonged beyond the spikelets as a naked point . . . *Dactyloctenium* (p. 146)
Racemes flexuous; spikelets in two slightly imbricate rows; rhachis terminated by a spikelet *Eleusine* (p. 144)
- 20 (2). Spikelets in dense spike-like cylindric inflorescences, on very short pedicels 21
Spikelets in open or contracted panicles with distinct branches . . 24
21. Spikelets subtended by groups of long yellow hairs *Pennisetum* (p. 190)
Spikelets not subtended by long yellow hairs 22
22. Spikelets with hooks or bristles 23
Spikelets in deciduous clusters, enclosed by the coriaceous first glumes, which are connate at base *Antheophora* (p. 139)
23. Spikelets in deciduous, 2—3 mm long, coriaceous clusters; glumes covered with short hooked spines *Tragus* (p. 140)
Spikelets included in a coriaceous involucre with straight bristles
Cenchrus (p. 191)
24. Inflorescence a sheathless panicle with the primary branches not in the axil of a sheath 25
Inflorescence formed by solitary or fasciculate racemes in the axils of sheaths 38
25. Leaves with a petiolate, lanceolate, 2.5—5 cm wide blade; petiole about 2 cm long *Pharus* (p. 155)
Leaves not petiolate, usually narrower 26
26. Coarse, erect grasses with a compact panicle; spikelets in groups of three, one sessile and perfect, about 5 mm long, turgid, the other two pedicellate, slender and sterile *Sorghum* (p. 200)
Spikelets not in groups of three of two different types 27
27. Spikelets awnless and not long-haired 28
Spikelets with distinct awn or with long hairs 34

28. Spikelets 4- or more-flowered *Eragrostis* (p. 125)
 Spikelets 1- or 2-flowered 29
29. Caespitose, coarse perennial with elongate linear, keeled, coriaceous leaves; panicle with whorled, filiform branches . . . *Vetiveria* (p. 199)
 Leaves not coriaceous 30
30. Spikelets 1-flowered, disarticulating above the glumes *Sporobolus* (p. 131)
 Spikelets with one perfect and a reduced floret or with 2 perfect florets, falling entire 31
31. Spikelets with 2 perfect florets *Isachne* (p. 181)
 Spikelets with one perfect and a reduced floret 32
32. Bamboo-like, branched, clambering grasses; fertile lemma bony-indurate with a tuft of wooly hairs in an excavation at the apex *Lasiacis* (p. 180)
 Caespitose or creeping grasses; fertile lemma different 33
33. Fertile lemma with scars at the base; leaves lanceolate with an auricle on one side at base *Ichnanthus* (p. 178)
 Fertile lemma without scars at the base; leaves not with unequal-sided base
Panicum (p. 171)
- 34 (27). Spikelets with distinct awns, in contracted, very slender panicles
Aristida (p. 135)
 Spikelets with long hairs 35
35. Spikelets with green glumes with tufts of purple hairs *Tricholaena* (p. 185)
 Spikelets with white or yellowish hairs 36
36. Very tall grass with wide panicles; spikelets with white hairs
Saccharum (p. 195) ~~*Pappophorum* (p. 130)~~
 Caespitose perennials up to 2 m tall with contracted panicles . . . 37
37. Spikelets elliptic; lemmas dissected into 13 hair-like awns
Pappophorum (p. 130) ~~*Pappophorum* (p. 131)~~
 Spikelets linear-lanceolate; lemmas awnless; glumes with very slender silky hairs *Imperata* (p. 194)
- 38 (24). Racemes solitary or 2 together; rhachis without hyaline centre 39
 Racemes 5—7, approximate in an exerted panicle; rhachis with flattened hyaline centre *Bothriochloa* (p. 197)
39. Racemes solitary; rhachis-internodes thickened upwards
Schizachyrium (p. 198)
 Racemes 2 together; rhachis-internodes slender, not thickened upwards 40
40. Cultivated aromatic grasses; lowest pair of spikelets homogamous
Cymbopogon (p. 198)
 Not aromatic *Andropogon* (p. 196)

Eragrostis Host, Icon. Gram. Austr. 4: 14, pl. 24. 1809

Annual or perennial grasses. Inflorescence paniculate. Spikelets few- to many-flowered, laterally compressed; the florets usually imbricate. Rhachilla disarticulating above the glumes and between the florets, or persistent; the lemmas deciduous and the paleas often persistent. Glumes more or less unequal, shorter than the first lemma. Lemmas membranaceous, keeled, 3-veined, awnless. Palea shorter than or nearly as long as the lemma, with 2 ciliate or scabrous keels.

About 100 species from the tropics to the temperate regions.

Key to the species:

1. Spikelets hairy (under the lens) by the long-ciliate keels of the palea; rhachilla easily breaking up between the florets 2
Spikelets not conspicuously hairy (under the lens), keels of the palea shortly ciliate or scabrous; rhachilla not easily breaking up 3
2. Panicle spike-like, dense; spikelets 2—3 mm long *E. ciliaris*
Panicle open, oblong; spikelets 1.5—2 mm long *E. amabilis*
3. Panicles open 4
Panicles contracted or spike-like, interrupted, at least below 5
4. Spikelets ovate-lanceolate, 1.5 mm wide; glumes ovate-oblong, not very unequal *E. tephrosanthos*
Spikelets linear, 1 mm wide; glumes lanceolate, the second twice as long as the first *E. pilosa*
5. Annual; culms spreading, 5—30 cm tall; spikelets crowded on the ascending branches; lemma 1—1.5 mm long; palea ciliate on the keels
E. urbaniana
Perennial; culms erect, 40—80 cm tall; spikelets loosely along the ascending branches; lemma 2 mm long; palea with scabrous keels
E. diversiflora

Eragrostis ciliaris (L.) Link

LINK, Hort. Berol. 1: 192. 1827; GRISEBACH, Fl. Br. W. Ind. Isl. 532. 1864; Duss, Fl. phan. Ant. franç. 502. 1897; URBAN, Symb. Ant. 4: 108. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 25. 1909; Fl. Ned. W. Ind. Eil. 128. 1913; Fl. D. W. Ind. Isl. 2: 9. 1914; URBAN, Symb. Ant. 8: 49. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 75. 1923; HITCHCOCK, Manual Grasses West Indies 34, fig. 14. 1936; QUESTEL, Fl. Isl. St. Bartholomew 75. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 8. 1942; LEON, Fl. Cuba 1: 100. 1946; HODGE, Lloydia 17: 115. 1954; — *Poa ciliaris* LINNAEUS, Syst. Nat. ed. 10. 2: 875. 1759.

var. *ciliaris*

Erect or spreading annual. Culms slender, branching, 10—40 cm tall. Sheaths glabrous, striate, long-ciliate in the upper part, especially at the mouth. Ligule a ciliate rim. Leaf-blades flat or somewhat involute, glabrous, 1—3 mm wide,

4—12 cm long. Panicle contracted, spike-like, interrupted near the base, 2—10 cm long; branches very short with crowded, divergent, almost sessile spikelets. Spikelets 2—3 (—4.5) mm long, 6—9 (—14)-flowered; rachilla disarticulating between the florets. Glumes scabrous on the keel, shorter than the lemmas. Lemma oblong, obtuse, 1—1.5 mm long, with green keel and green submarginal veins. Palea almost as long as the lemma, tuberculate-ciliate on the keels; hairs 0.5—0.7 mm long.

Warmer regions of both hemispheres. Apparently introduced in America.

Open grounds and waste places. A common weed around towns.

ARUBA: Along roads near Oranjestad (Stoffers 2070, fl. & fr. Feb.); garden in Savaneta (Stoffers 1601, fl. & fr. Jan.); roads near Savaneta (Boldingh 6519d, fl. & fr. Jan.); east of Sabana Serveta (Stoffers 1399, fl. & fr. Jan.); Matoguera (Stoffers 1423, fl. & fr. Jan.); calcareous soil near San Nicolas (Boldingh 6495c, fl. & fr. Jan.); calcareous plateau near Balashi (Boldingh 6433a, fl. & fr. Jan.); Sivi-Sivi (Boldingh 6332, fl. & fr. Jan.); Companashi (Arnoldo 71, fl. & fr. Dec.); Hooiberg, leeseid (Stoffers 2111, fl. & fr. Feb.); Seroe Alejandro (Stoffers 1973, fl. & fr. Jan.).

BONAIRE: Sabana (Arnoldo 433, fl. & fr. Dec.); Lima (Stoffers 496, fl. & fr. Nov.); behind a dam near Jatoe Macoe (Stoffers 633, fl. & fr. Nov.); Seroe Grandi (Stoffers 918, fl. & fr. Dec.); Brandaris (Stoffers 976, fl. & fr. Dec.); Hobau (Stoffers 1026, fl. & fr. Dec.); neighbourhood of Rincón (Boldingh 7147, fl. & fr. Feb.; 7115a, fl. & fr. Feb.); Soebi Rincón (Boldingh 7260, fl. & fr. Feb.; 7261 fl. & fr. Feb.); calcareous soil near Kralendijk (Boldingh 7443b, fl. & fr. Feb.); near the saltpans in the southern part of the island (Boldingh 7501a, fl. & fr. Feb.); road from Slagbaai to Brandaris (Boldingh 7314a, fl. & fr. Feb.); hills near Rincón (Boldingh 7036, fl. & fr. Feb.).

CURAÇAO: beach behind saltpans of St. Willebrordus (Stoffers 366, fl. & fr. Oct.); hills near Rooi Behoenda (Boldingh 5529, fl. & fr. Nov.); near Willemstad (Went 1097, fl. & fr. Nov.); Wishi (Arnoldo s.n., fl. & fr. Feb.); Groot St. Joris (Burgers 115, fl. & fr. Jan.); hills to the east of Westpunt (Boldingh 5103b, fl. & fr. Nov.); Seroe Christoffel, 200 m (Burgers 27, fl. & fr. Dec.); Groot Piscadera (Burgers 142, fl. & fr. Jan.); San Pedro (Boldingh 5305, fl. & fr. Nov.); Caracas Baai (Britton & Shafer 3139, fl. & fr. March); calcareous soil near Knip (Boldingh 5569e, fl. & fr. Nov.); Hofje of Malpais (Boldingh 4864, fl. & fr. Jan.); Rif (Boldingh 4024a, fl. & fr. Oct.).

SABA: Ladder Gut, 0-100 m (Stoffers 2831, fl. & fr. Ap.; 2839, fl. & fr.; Suringar s.n., fl. & fr. Ap. [L]); *ibid.* 100-200 m (Stoffers 2761, fl. & fr. Ap.); top of the cliff near the seaside of Booby Hill (Boldingh 1602, fl. & fr. July); between The Bottom and Mary's Point, 100-200 m (Boldingh 1561, fl. & fr. July); slope of The Mountain, 600 m (Boldingh 1746, fl. & fr. July); between The Bottom and Windwardside, 200 m (Boldingh 1362, fl. & fr. July); Windwardside (Arnoldo 648, fr. & fr. Aug.).

ST. EUSTATIUS: Along roads in Cultuurvlakte (Stoffers 3794, fl. & fr. July; Suringar s.n., fl. & fr. May [L]); along roads in Oranjestad (Boldingh 1073, fl. & fr. June); top of the Cliff between Oranjestad and Fort de Windt, 40 m (Boldingh 794, fl. & fr. June; Suringar s.n., fl. & fr. May [L]); Bengalen (Boldingh 615, fl. & fr. June); in garden in Oranjestad (Boldingh 69, fl. & fr. May); slope of The Quill (Suringar s.n., fl. & fr. May [L]).

ST. MARTIN: Low Lands (Stoffers 2679, fl. & fr. Ap.); Airfield (Stoffers 2376, fl. & fr. March); in orchard near Bellevue (Boldingh 2847, fl. & fr. Aug.); Naked Boy Hill, 50-200 m (Boldingh 2686, fl. & fr. Aug.); top of hill on northern side of Cul de Sac, 200-300 m (Boldingh 2986, fl. & fr. Aug.); Cole Bay (George s.n. sub Boldingh 2511, fl. & fr. Aug.); in a plantation (Boldingh 3409, fl. & fr. Sept.).

var. brachystachya Boiss.

BOISSIER, Fl. Orient. 5: 582. 1884; ИТЧКОК, Manual Grasses West Indies 36. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 9. 1942.

Plants 7—20 cm tall. Panicles dense ovoid to oblong, not interrupted, 1—2 cm long.

Curaçao, Aruba, and Bonaire.

Open grounds and waste places.

Sometimes intermediate forms are to be found.

ARUBA: seashore near Savaneta (Boldingh 655, fl. & fr. Jan.); road near Ajó (Boldingh 6343, fl. & fr. Dec.); calcareous hill near Baicuri (Boldingh 6336, fl. & fr. Jan.); Westpunt (Arnoldo 202, fl. & fr. Dec.; Suringar s.n., fl. & fr. Feb. [L]); Boca Mahos (Stoffers 1478, fl. & fr. Jan.); Seroe Pretoe (Stoffers 1668, fl. & fr. Jan; 1672, fl. & fr. Jan.); vicinity of Noord (Stoffers 1562, fl. & fr. Jan.); Paloe Marca (Stoffers 1949, fl. & fr. Jan.); Palm Beach (Stoffers 1796, fl. & fr. Jan.); hills north-east of Andicouri Plantation (Stoffers 1822, fl. & fr. Jan.); along roads near Oranjestad (Stoffers 2066, fl. & fr. Feb.; 2043, fl. & fr. Jan.); north-eastern slope of Matavidiri (Stoffers 2030, fl. & fr. Feb.); along roads near Kleine Jamanota (Stoffers 2004, fl. & fr. March); between Noord and Westpunt (Stoffers 1778, fl. & fr. Jan.); along road near Seroe Pretoe (Stoffers 1677, fl. & fr. Jan.); salinja west of Tibushi (Stoffers 1355, fl. & fr. Jan.); Matoguerai (Stoffers 1432, fl. & fr. Jan.; 1429, fl. & fr. Jan.); Seroe Alejandro (Stoffers 1967, fl. & fr. Jan.); east of Sabana Serveta (Stoffers 1404, fl. & fr. Jan.); without loc. (Boldingh 6205, fl. & fr.).

BONAIRE: Slagbaai Plantation (Suringar s.n., fl. & fr. Feb. [L]); Bolivia (Suringar s.n., fl. & fr. Feb. [L]).

CURAÇAO: Brakkeput (Suringar s.n., fl. & fr. Jan. [L]); Burgers 161, fl. & fr. Feb.); neighbourhood of Westpunt (Boldingh 4927E, fl. & fr. Nov.; Suringar s.n., fl. & fr. Jan.); hills from Klein Santa Marta to Dokterstuin (Boldingh 5637, fl. & fr. Dec.); near Willemstad (Britton & Shafer 2908, fl. & fr. March); Seroe Christoffel (Burgers 21, fl. & fr. Dec.); Fort Nassau (Suringar s.n., fl. & fr. Jan. [L]); Zuikertuintje (Suringar s.n., fl. & fr. Feb. [L]); Hato (Suringar s.n., fl. & fr. Jan. [L]).

Eragrostis tephrosanthos Schultes

SCHULTES, Mant. 2: 316. 1824; URBAN, Symb. Ant. 4: 107. 1903; Symb. Ant. 8: 50. 1920, BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 74. 1923; ИТЧКОК, Manual Grasses West Indies 40, fig. 19. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 11. 1942; LEON, Fl. Cuba 1: 100. 1946; HODGE, Lloydia 17: 115. 1954.

Rather soft and lax annual. Culms branching at the base, erect or ascending, 5—20 cm tall. Sheaths glabrous, striate, long-pilose at the mouth. Ligule a row of hairs. Leaf-blades flat, 5—10 cm long and 1—2.5 mm wide, glabrous, scabrous above. Panicles open, 4—10 cm long; branches ascending or spreading, the axils with a few long hairs. Spikelets on filiform pedicels, ovate-lanceolate, 5—8-flowered, 3—7 mm long and 1.5 mm wide; rhachilla filiform, not disarticulating. Glumes deciduous ovate-oblong, distinctly keeled, the first glume slightly less than 1 mm long, the second somewhat more than 1 mm long. Lemma ovate-oblong, obtuse, about 1.5 mm long, deciduous with the fruit. Palea subpersistent, much shorter than the lemma, ciliate on the keels.

West Indies; Southern United States to Brazil.

Open grounds, fields, and waste places.

SABA: Windwardside (Boldingh 1891A, fl. & fr. July); along roads from The Bottom to Windwardside, 200 m (Boldingh 1308, fl. & fr. July); Crispine, 400 m (Boldingh 1767, fl. & fr. July); The Bottom (Suringar, fl. & fr. Ap. [L]).

ST. MARTIN: Lower part of Milldrum Hill (Boldingh 3157, fl. & fr. Sept.).

Eragrostis pilosa (L.) P. de Beauv.

P. DE BEAUVOIS, Ess. Agrost. 162. 1812; GRISEBACH, Fl. Br. W. Ind. Isl. 532. 1864; DUSS, Fl. phan. Ant. franç. 502. 1897; URBAN, Symb. Ant. 4: 107. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 25. 1909; Fl. Ned. W. Ind. Eil. 128. 1913; Fl. D. W. Ind. Isl. 2: 10. 1914; URBAN, Symb. Ant. 8: 49. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 74. 1923; HITCHCOCK, Manual Grasses West Indies 39, fig. 18, 1936; AMSHOFF, Grasses D. W. Ind. Isl. 10. 1942; LEON, Fl. Cuba 1: 100. 1946; — *Poa pilosa* LINNAEUS, Spec. Plant. 68. 1753.

Weedy annual. Culms slender, erect or ascending from a decumbent base, 20—50 cm tall. Sheaths glabrous, striate, long-pilose at the mouth. Ligule a row of hairs. Leaf-blades flat, 1—3 mm wide, up to 15 cm long, glabrous, scabrous above. Panicle open, 5—20 cm long; branches fascicled, flexuous, filiform, ascending or spreading, with a few long hairs in the lower axils. Spikelets on filiform pedicels, linear, scarcely compressed, 3—9-flowered, 3—5 mm long and 1 mm wide; rhachilla persistent. Glumes deciduous, lanceolate, very unequal, hardly keeled; the second glume twice as long as the first one, up to 1 mm long. Lemma oblong, obtuse, 1—1.5 mm long. Palea shorter than the lemma, with scabrous keels, commonly deciduous after the lemma.

Warm and temperate regions of both hemispheres.

Open grounds, fields, and waste places.

ARUBA: vicinity of Noord (Stoffers 1566, fl. & fr. Jan.; 1586, fl. & fr. Jan.); Savaneta (Arnoldo 288, fl. & fr. Dec.); Oranjestad (Suringar s.n., fl. & fr. Feb. [L]); Companashi (Arnoldo 76, fl. & fr. Dec.); along roads (Boldingh s.n., fl. & fr.); without loc. (Suringar, s.n., fl. & fr. [L]).

BONAIRE: calcareous plateau of Bolivia (Boldingh 7375, fl. & fr. Feb.); Hofje of Bacuna (Boldingh 7473a, fl. & fr. Feb.); Sabana (Stoffers 959, fl. & fr. Dec.); behind a dam near Jatoe Bacoë (Stoffers 649, fl. & fr. Nov.).

CURAÇAO: Willemstad (Arnoldo s.n., fl. & fr. March); calcareous hill near Santa Cruz (Boldingh 5590, fl. & fr. Dec.); Brievengat (Suringar s.n., fl. & fr. Feb. [L]).
ST. MARTIN: Between Mount Vernon and Orient Bay (Boldingh 2942, fl. & fr. Aug.); near Oyster Pond (Boldingh 3053, fl. & fr. Aug.); Naked Boy Hill, 50-200 m (Boldingh 2678, fl. & fr. Aug.).

Eragrostis urbaniana Hitchc.

HITCHCOCK in URBAN, Symb. Ant. 8: 167. 1912; BOLDINGH, Fl. Ned. W. Ind. Eil. 128. 1913; Fl. D. W. Ind. Isl. 2: 10. 1914; HITCHCOCK, Manual Grasses West Indies 36. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 9. 1942.

Annual. Culms slender or wiry, branching, spreading or prostrate, 5—30 cm tall. Sheaths glabrous, striate, pilose at the mouth. Ligule a row of hairs. Leaf-blades mostly involute, 1—4 cm long, 0.5—2 mm wide. Panicle spike-like, narrow, interrupted below, 3—7 cm long; branches short with crowded, ascending spikelets. Spikelets subsessile, 10—15-flowered, 3—6 mm long and 1 mm wide; rhachilla tardily disarticulating between the florets. Glumes shorter than the lemmas, with a scabrous, green keel. Lemmas elliptic, obtuse, 1—1.5 mm long and 0.3 mm wide, keel and submarginal veins prominent. Palea much shorter than the lemmas, ciliate on the keels, with hairs less than 0.1 mm long.

Bahamas to Curaçao.

Rather common grass, especially on limestone.

ARUBA: Paloe Marca (Stoffers 1956, fl. & fr. Jan.; 1960, fl. & fr. Jan.); Seroe Pretoe (Stoffers 1657, fl. & fr. Jan.); Dakota (Arnoldo 284, fl. & fr. Dec.); calcareous hills near Fontein (Boldingh 6565, fl. & fr. Jan.); calcareous seashore near Manchebo (Boldingh 6277, fl. & fr. Dec.); calcareous soil near San Nicolas (Boldingh 6495, fl. & fr. Jan.); east of Sabana Serveta (Stoffers 1403, fl. & fr. Jan.).

BONAIRE: Kralendijk (Arnoldo 504, fl. & fr. May); Aruba Plantation (Arnoldo 358, fl. & fr. Jan.); on rocks near Onima (Arnoldo 464, fl. & fr. Dec.); calcareous soil near Playa Grandi (Boldingh 7170, fl. & fr. Feb.); top of calcareous plateau Soebi Rincón (Boldingh 7258, fl. & fr. Feb.); neighbourhood of Tolo (Boldingh 7277, fl. & fr. Feb.); calcareous hills near Rincón (Boldingh 7064, fl. & fr. Jan.); calcareous soil near Kralendijk (Boldingh 7446, fl. & fr. Feb.); Slagbaai Plantation (Suringar s.n., fl. & fr. Feb. [L]); between coast and saltpans (Suringar s.n., fl. & fr. Feb. [L]).

CURAÇAO: Limestone rocks near Willemstad (Britton & Shafer 2939, fl. & fr. March; 3058, fl. & fr. March); calcareous hills near Fort Nassau (Boldingh 4692, fl. & fr. Oct.; Suringar s.n., fl. & fr. Jan. [L]); calcareous soil near San Pedro (Boldingh 5285, fl. & fr. Nov.); Fuik (Suringar s.n., fl. & fr. Jan. [L]); Schottegat (Suringar s.n., fl. & fr. Jan. [L]); Savonet (Suringar s.n., fl. & fr. Jan. [L]); without loc. (Curran & Haman 45, fl. & fr. Feb.).

Eragrostis diversiflora Vasey

VASEY, Contr. U. S. Nat. Herb. 1: 285. 1893; BOLDINGH, Fl. Ned. W. Ind. Eil. 128. 1913; Fl. D. W. Ind. Isl. 2: 10. 1914; AMSHOFF, Grasses D. W. Ind. Isl. 10. 1942.

Caespitose perennial. Culms erect, branching, 40—80 cm tall. Sheaths quite

glabrous, striate, shining. Ligule minute, ciliate. Leaf-blades flat or involute, elongate, 2—4 mm wide, glabrous, scabrous above. Panicle contracted, interrupted, 10—25 cm long; branches ascending, the lower up to 8 cm long. Spikelets 6—25-flowered, 5—15 mm long, 1—1.5 mm wide; rhachilla persistent. Glumes deciduous, 1.5—2 mm long. Lemma lanceolate-oblong, obtusish, with hyaline margins, about 2 mm long and 0.5 mm wide, scabrous on the keel, 3-veined. Palea persistent, slightly shorter than the lemma, with scabrous keels.

Mexico, Aruba, Bonaire, and Curaçao.

Waste places.

ARUBA: slope of Jaboribori (Boldingh 6275, fl. & fr. Dec.); road near Santa Cruz (Boldingh s.n., fl. & fr.); calcareous hills near Baicuri (Boldingh 6342, fl. & fr. Dec.); Rancho (Arnoldo 266, fl. & fr. Dec.); Westpunt (Suringar s.n., fl. & fr. Feb.); Kudarebe (Stoffers 1332, fl. & fr. Jan.).

BONAIRE: along the lower plateau near the salt pans in the southern part of the island (Boldingh 7501, fl. & fr. Feb.); south west of Lima (Hummelinck s.n., fl. & fr. March); Brandaris (Suringar s.n., fl. & fr. Feb.).

CURAÇAO: Seroe Christoffel, Rooi Beru (Arnoldo 1964, fl. & fr. Feb.).

***Eragrostis amabilis* (L.) Wight et Arn.**

WIGHT et ARNOTT in HOOKER et ARNOTT, Bot. Beechey Voy. 251. 1841; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 75. 1923; HITCHCOCK, Manual Grasses West Indies 34. 1936; QUESTEL, Fl. Isl. St. Bartholomew 75. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 8. 1942; LEON, Fl. Cuba 1: 100. 1946: — *Poa amabilis* LINNAEUS, Spec. Plant. 68. 1753.

Annual. Culms branching, slender, ascending or spreading, 10—30 cm tall. Sheaths glabrous but ciliate in the upper part and bearded at the mouth. Ligule a ciliate rim. Leaf-blades spreading, flat or involute, 2—10 cm long, 1—3 mm wide, ciliate at the base. Panicle open, oblong, 4—8 cm long; branches spreading, up to 1.5 cm long. Spikelets 1.5—2 mm long, 4—8-flowered, the rhachilla disarticulating between the florets. Glumes 1-veined; the second one larger, about as long as the lemmas. Lemma ovate, obtuse, 1 mm long with a green keel and green submarginal veins. Palea with long-ciliate keels; the hairs 0.2—0.3 mm long.

Warmer regions of both hemispheres; a native of the Old World.

Open grounds and waste places.

SABA: Road to Mary's Point (Arnoldo 846, fl. & fr. Aug.).

ST. MARTIN: Fort William, 0-50 m (Boldingh 2550, fl. & fr. Aug.); Philipsburg (Burgers 461, fl. & fr. March).

***Pappophorum* Schreber in Vahl, Symb. Bot. 3: 10. 1794**

Tufted perennial grasses, with narrow panicles. Spikelets 2—5-flowered, the upper florets reduced and closely appressed to the palea; rhachilla disarti-

culating above the glumes. Glumes membranaceous, acute, keeled, one- to several-veined. Lemmas subindurate, dissected upwards into numerous awns; the awns of all the florets together forming a pappus-like crown, falling attached to the fruit. Palea 2-veined.

Species about 30 in tropics and subtropics.

Pappophorum pappiferum (Lam.) O. Kuntze

O. KUNTZE, Rev. Gen. Plant. 3: 365. 1898; HITCHCOCK, Manual Grasses West Indies 60, fig. 33. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 7. 1942; LEON, Fl. Cuba 1: 105. 1946; — *Saccharum pappiferum* LAMARCK, Tabl. Encycl. 1: 155. 1791; — *Pappophorum alopecuroideum* VAHL, Symb. Bot. 3: 10. 1794; BOLDINGH, Fl. D. W. Ind. Isl. 1: 24. 1909; Fl. Ned. W. Ind. Eil. 127. 1913; Fl. D. W. Ind. Isl. 2: 9. 1914; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 72. 1923.

A caespitose perennial. Culms erect, 0.5—1 m tall or more. Sheaths ciliate in the upper part, striate. Ligule a band of hairs of varying length. Leaf-blades elongate, flat or involute, glabrous, ciliate at the base, scabrous above, up to 5 mm wide. Panicle dense, narrow or spike-like, silky, pale or whitish, 15—50 cm long, softly bristly by the numerous awns. Spikelets 7—10 mm long, awns included. Glumes hyaline, 1-veined, 3—4 mm long. Body of the fertile lemma about 1.5 mm long, silky along the midvein, the margins, and the base; the awns 13—15, scabrous.

Southern Mexico to Argentina; West Indies.

Waste places and along road-sides.

Vernacular name: crabgrass (Windward Group).

BONAIRE: Rocks near Fontein (Arnoldo 452, fl. & fr. Feb.; Boldingh 7235, fl. & fr. Feb.); calcareous hills of Rooi Samboe (Boldingh 7438, fl. & fr. Feb.); without loc. (Boldingh 7424, fl. & fr.).

CURAÇAO: Groot Santa Marta (Arnoldo s.n., fl. & fr. Feb.).

SABA: Fort Bay (Arnoldo 983, fl. & fr. Aug.); Ladder Gut, 50 m (Boldingh 1974, fl. & fr. July).

ST. EUSTATIUS: near White Wall (Stoffers 4760, fl. & fr. Aug.); seashore near White Wall (Boldingh 856, fl. & fr. June); on top of The Cliff near White Wall (Boldingh 1255, fl. & fr. July); between Oranjestad and Fort de Windt on top of The Cliff, 40 m (Boldingh 772, fl. & fr. June; Suringar s.n., fl. & fr. May [L]); near Boven, 200 m (Boldingh 1233, fl. & fr. June).

ST. MARTIN: Tintamarre (Boldingh 3386, fl. & fr. Sept.).

Sporobolus R. Brown, Prodr. Fl. Nov. Holl. 169. 1810

Perennial or annual grasses with flat or involute leaf-blades. Inflorescence an open or contracted panicle, often spike-like. Spikelets small, elliptic or oblong, one-flowered; the rhachilla disarticulating above the glumes. Glumes hyaline,

1-veined, usually unequal; the second one often as long as the spikelet. Lemma and palea membranaceous, awnless. Lemma 1-veined (in our species slightly longer than the 2-veined palea). Caryopsis free, readily falling away from lemma and palea.

Species about 100 in the warm regions of both hemispheres.

Key to the species:

1. Scaly, widely creeping rhizomes present. First glume nearly as long as the spikelets *S. virginicus*
Plants tufted; rhizomes wanting. First glume much smaller than the spikelet 2
2. Leaf-blades elongate, more than 15 cm long; spikelets 1.7—2 mm long, both glumes much shorter *S. poiretii*
Leaf-blades short, rarely over 8 cm long; spikelets 1.5 mm long, second glume as long as the spikelets *S. pyramidatus*

***Sporobolus poiretii* (R. et S.) Hitchc.**

HITCHCOCK, *Bartonia* 14: 32. 1932; *Manual Grasses West Indies* 82, fig. 47A. 1936; AMSHOFF, *Grasses D. W. Ind. Isl.* 17. 1942; LEON, *Fl. Cuba* 1: 107. 1946; — *Axonopus poiretii* ROEMER et SCHULTES, *Syst. Veg.* 2: 318. 1817; — *Sporobolus indicus* auct. non R. Br.: BOLDINGH, *Fl. D. W. Ind. Isl.* 1: 22. 1909; *Fl. Ned. W. Ind. Eil.* 125. 1913.

Caespitose perennial. Culms erect, 60—100 cm tall. Lower sheaths compressed, glabrous or nearly so; blades elongate, flat, folded or loosely involute, 1—5 mm wide, tapering into a long, slender, involute, flexuous tip. Ligule a narrow, ciliate rim. Panicle spike-like, 10—35 cm long; branches short, the lowest up to 5 cm long. Spikelets 1.7—2 mm long. Glumes unequal, often erose, elliptic, obtuse, the first about 0.5 mm long, the second about 1 mm long.

Southern United States to Argentine; West Indies.

Along road sides.

Vernacular name: lizard grass (Windward Group).

SABA: Booby Hill, 300 m (Boldingh 1618, fl. & fr. July); Windwardside (Boldingh 1916 fl. & fr. July); between The Bottom and Mary's Point, 100-200 m (Boldingh 1505, fl. & fr. July); Road to The Mountain (Arnoldo 772, fl. & fr. Aug.); Parish Hill, 400 m (Boldingh 1376, fl. & fr. July); St. John's, 250 m (Boldingh 1730, fl. & fr. July);

ST. MARTIN: along roads from Marigot to Grande Case (Boldingh 3356, fl. & fr. Sept.); Cole Bay (George sub. Boldingh 2507, st. Aug.).

***Sporobolus virginicus* (L.) Kunth**

KUNTH, *Rév. Gram.* 1: 67. 1829; GRISEBACH, *Fl. Br. W. Ind. Isl.* 533. 1864; DUSS, *Fl. phan. Ant. franç.* 503. 1897; URBAN, *Symb. Ant.* 4: 101. 1903; BOLDINGH, *Fl. D. W. Ind. Isl.*

1: 22. 1909 p.p.; Fl. Ned. W. Ind. Eil. 125. 1913; URBAN, Symb. Ant. 8: 40. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 64. 1923; HITCHCOCK, Manual Grasses West Indies 87, fig. 51. 1936; QUESTEL, Fl. Isl. St. Bartholomew 75. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 16. 1942; LEON, Fl. Cuba 1: 107. 1946; HODGE, Lloydia 17: 116. 1954 — *Agrostis virginica* LINNAEUS, Spec. Plant. 63. 1753.

Perennial with widely creeping, scaly rhizomes. Culms 10—50 cm tall or more, usually most of them sterile. Leaves numerous, conspicuously distichous. Sheaths overlapping, glabrous, ciliate at the mouth; blades firm, flat or involute, especially towards the apex, 3—15 cm long and 2—3 (—4.5) mm wide, antrorsely ciliate, finely scabrous-ribbed and sometimes sparingly hairy. Ligule a small ciliate rim, rarely eciliate in the broad-leaved form. Panicle dense, spike-like, narrowed at both ends, 3—8 cm long or rarely longer. Spikelets 2—3 mm long. First glume acuminate, glabrous, distinctly shorter than the second one; the latter acuminate, glabrous, as long as the spikelet and overtopping the fertile floret.

In coastal areas of tropics and subtropics.

On sandy or clayey, saline soils.

ARUBA: Salinja near Palm Beach (Stoffers 1799, st. Jan.; Hummelinck s.n., fl. Jan.); Bushiribana (Boldingh 6342, fl. & fr. Dec.); calcareous soil near Manchebo (Boldingh 6280, st. Dec.); San José (Arnoldo 312, fl. & fr. Dec.); vicinity of Boca Mahos (Stoffers 1488, st. Jan.); salinja west of Tibushi (Stoffers 1349, st. Jan.); Boca Grandi (Stoffers 1391, st. Jan.); along the coast near Oranjestad (Stoffers 2116, st. Feb.); coast near Fontein (Stoffers 1370, st. Jan.); near Kudarebe (Stoffers 1331, st. Jan.); Fontein (Stoffers 1723, st. Jan.; Suringar s.n., st. Feb. [L]); Westpunt (Suringar s.n., fl. & fr. Feb. [L]); Rif (Suringar s.n., st. Feb. [L]); without loc. (Aschenberg s.n., fl. & fr.).

BONAIRE: Pedro Keli (Arnoldo 420, fl. & fr. Dec.); neighbourhood of Rincón (Boldingh 7183a, fl. & fr. Jan.); dunes near Lac (Stoffers 981, st. Dec.); Boca Slagbaai (Stoffers 581, fl. & fr. Nov.); calcareous soil near Lac (Boldingh 7477, fl. Feb.); road to salt pans, near Punt Vierkant (Stoffers 750, fl. & fr. Nov.); north of Willemstoren (Stoffers 479, st. Oct.); Jatoe Bacoë (Suringar s.n., st. Feb. [L]); Kralendijk (Suringar s.n., st. Feb. [L]); Playa Foëchi (Stoffers 993, st. Nov.).

CURAÇAO: St. Patrick (Arnoldo s.n., st. Dec.); Hofje of Barber (Boldingh 5230, fl. & fr. Nov.); Pareira (Arnoldo 1890, fl. & fr. Jan.); Hofje of Valentijn (Boldingh 5365A, st. Nov.); Hofje of Klein Piscadera (Boldingh 4835, fl. & fr. Oct.); Randklippen (Suringar, st. Feb. [L]).

SABA: Ladder Gut, 50 m (Boldingh 1975, fl. June).

ST. EUSTATIUS: near White Wall (Boldingh 1261, fl. & fr. July; Suringar s.n., fl. & fr. Ap. [L]); Fort de Windt (Boldingh 800, st. June); near Boven, 200 m (Boldingh 1236, fl. & fr. June); seashore near English Quarter (Boldingh 1008, st. June); Turtle Bay (Suringar s.n., st. Ap. [L]); Concordia Bay (Suringar s.n., Ap. [L]); hill north of Concordia Bay (Stoffers 3832, st. May).

ST. MARTIN: along salt pan near Philipsburg (Boldingh 2445, st. Aug.; 2446, fl. & fr. Aug.); near Philipsburg (Boldingh 2339, fl. & fr. Aug.); Pointe Blanche salt pond (Hummelinck s.n., fl. May); along Great Bay (Stoffers 2222, st. March); along the road from Marigot to Philipsburg (Boldingh 3111, fl. & fr. Sept.); mountain

between Mont des Accords and Sentry Hill, 200-300 m (Boldingh 2905, fl. Aug.); Low Lands (Boldingh 3276, st. Sept.); between Belvedere and Oyster Pond (Boldingh 3067, st. Aug.).

***Sporobolus pyramidatus* (Lam.) Hitchc.**

HITCHCOCK, Manual Grasses West Indies 84, fig. 48. 1936; QUESTEL, Fl. Isl. St. Bartholomew 75. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 16. 1941; LEON, Fl. Cuba 1: 107. 1946; — *Agrostis pyramidatus* LAMARCK, Tabl. Encycl. 1: 161. 1791; — *Sporobolus argutus* (Nees) KUNTH, Rev. Gram. Sup. 17: 1. 1830; BOLDINGH, Fl. Ned. W. Ind. Eil. 125. 1913; Fl. D. W. Ind. Isl. 2: 7. 1914 p.p.; — *Vilfa arguta* NEES, Agrost. Bras. 395. 1829.

Tufted perennial (or annual?). Culms 5—30 cm tall, erect or more or less spreading. Leaves as in *S. virginicus*, but the upper nodes longer than the sheaths. Panicle 2—8 cm long; lower branches 1.25—2.5 cm long, verticillate, at first contracted, at maturity narrowly pyramidal or oblong. Spikelets 1.5 mm long. First glume one fourth to half as long as the spikelet, obtuse or rounded. Second glume and lemma equal, acute. At maturity tips of lemma and palea free.

Southwestern United States to Argentine; West Indies.

Sandy and saline soil, at low altitudes.

Vernacular names: brak gras, yerba fini (Leeward Group).

ARUBA: Fontein (Stoffers 1717, fl. & fr. Jan.; 1735a, fl. & fr. Jan.); Boca Mahos (Stoffers 1481, fl. & fr. Jan.; 1486, fl. & fr. Jan.; 1492, fl. & fr. Jan.); north-eastern slope of Matavidiri (Stoffers 2031, fl. & fr. Feb.); salinja west of Tibushi (Stoffers 1354, fl. & fr. Jan.); Kudarebe (Stoffers 1358, fl. & fr. Jan.); coast near Fontein (Stoffers 1375, fl. & fr. Jan.); Annaboei (Stoffers 1340, fl. & fr. Jan.); Washington Plantation (Stoffers 1509, fl. & fr. Jan.; 1532, fl. & fr. Jan.); calcareous hills near Balashi (Boldingh 6424, fr. Jan.); Hooiberg (Arnoldo 108, fl. & fr. Dec.).

BONAIRE: Karpata, near Goto (Stoffers 1087, fl. & fr. Dec.); Oranje Pan (Stoffers 476, fl. & fr. Oct.); road to salt pans near Punt Vierkant (Stoffers 708, fl. & fr. Nov.); *ibid.*, near northern border of Lima (Stoffers 712, fl. & fr. Nov.); near Seroe Ventana (Stoffers 1059, fl. & fr. Dec.); Montagne (Stoffers 883, fl. Dec.); Tanki Maraka (Stoffers 850, fl. Dec.; 851, fl. & fr. Dec.); Blauwe Pan (Stoffers 727, fl. & fr. Nov.); Flambaai Put (Stoffers 462, fl. & fr. Oct.); Lac (Stoffers 930, fl. & fr. Dec.); calcareous soil near Kralendijk (Boldingh 7443c, fl. & fr. Feb.); Playa Foenchi (Stoffers 988, fl. & fr. Dec.); along the road from Kralendijk to Rincón (Stoffers 900, fl. & fr. Dec.); Kralendijk (Stoffers 1005, fl. & fr. Dec.); Angola (Stoffers 833, fl. & fr., Nov.); neighbourhood of Rincón (Boldingh 7025c, fl. & fr. Feb.); Pedro Keli (Arnoldo 419, fl. & fr. Dec.); Klein Bonaire, Salinja (Hummelinck s.n., fl. & fr. Sept. [L]).

CURAÇAO: Cas Chiquito (Versluys 1415, fl. & fr. Dec.); seashore near Savonet (Boldingh 5044, fl. & fr. Nov.); Hofje of Barber (Boldingh 5210, fr. Dec.); Ascencion (Britton & Shafer 3051, fl. & fr. March); from Blein to Valentijn (Boldingh 4779, fl. & fr. Oct.); Hofje Van Engelen (Boldingh 5433d, fl. & fr. Nov.); calcareous hills near Hato (Boldingh 5131b, fl. & fr. Nov.); road from Cas Chiquito to Veerisberg (Boldingh 4717, fl. & fr. Oct.); Santa Cruz (Britton &

Shafer 3019, fl. & fr. March); road near Blein (Boldingh 4754, fl. & fr. Oct.); calcareous hills near Mahoema (Boldingh 4825, fl. & fr. Oct.; 4826, fl. & fr. Oct.); neighbourhood of Westpunt (Boldingh 4927, fl. & fr. Nov.); Groot Piscadera (Burgers 104, fl. & fr. Jan.); Willemstad (Chase 12286, fl. & fr. Dec.); without loc. (Aschenberg s.n., fl. & fr.; Boldingh 6218, fl. & fr.; 4608, fl. & fr.; Arnaldo s.n., fl. & fr. March).

ST. EUSTATIUS: seashore near Oranjestad (Boldingh 12, fl. & fr. May).

ST. MARTIN: along salt pans near Philipsburg (Boldingh 2448, fl. & fr. Aug.); in pasture ground near Cole Bay (Boldingh 3024, fl. & fr. Aug.).

Aristida Linnaeus, Spec. Plant. 82. 1753

Annual or perennial caespitose grasses with narrow involute or flat leaf-blades. Ligule a short ciliate rim. Inflorescence a contracted or open panicle. Spikelets 1-flowered, articulate above the glumes. Glumes usually 1-veined, acuminate or awn-tipped. Lemma indurate, convolute around the palea, bearing a variously shaped bearded callus at base and passing upwards into a more or less developed, sometimes slightly twisted, column with three, often unequal, scabrous awns.

Species about 400 in tropics and subtropics.

Key to the species:

1. First glume longer than the second glume 2
 First glume shorter than the second glume 3
2. Culms much branched from nearly all the nodes; first glume 7—9 mm long
 A. suringari
 Culms simple or sparingly branched at the base only; first glume 11—12 mm long *A. arubensis*
3. Culms erect, simple or more or less branched; lemma scabrous above, awns unequal 2—2.5 cm long *A. swartziana*
 Culms much branched from the lower nodes; lemma scabrous on the keel only; awns about equal, 1—1.5 cm long 4
4. Annual; leaf-blades scaberulous above; first glume 3.5—5 (—8) mm long; lemma slightly shorter than the second glume *A. adscencionis*
 Perennial; leaf-blades scabrous above and with very long white hairs at the base; first glume 5—6 mm long; lemma as long as the second glume or a little longer *A. cognata*

Aristida arubensis Henrard

HENRARD, Meded. Rijksherb. Leiden 54: 41. 1926; AMSHOFF, Grasses D. W. Ind. Isl. 26. 1942.

Densely caespitose perennial. Culms erect, 20—30 cm tall, simple or sparingly

branched with intravaginal innovations. Lower sheaths slipping from the stems, upper ones tight; auricles, especially those of the basal leaves, long-bearded. Leaf-blades narrowly linear, involute, about 1 mm wide, scabrous above, glabrous beneath. Panicle erect, contracted, rather dense, up to 10 cm long, at first enclosed by the uppermost sheath, afterwards exerted; branches few-flowered. First glume 11—12 mm long, scabrous on the keel. Second glume about 8 mm long. Lemma shorter than the first glume, scabrous only on the keel upwards and below the awns; callus long-bearded, about 0.75 mm long. Awns unequal, the central one 20—25 mm long, the lateral ones 17—20 mm long.

Aruba and Curaçao.

ARUBA: Santa Cruz (Suringar s.n., fl. & fr. Jan. [L] Typel); Hooiberg (Suringar s.n., fl. & fr. Feb. [L]).

CURAÇAO: Seroe Christoffel (Suringar s.n., fl. & fr. Jan. [L]).

Aristida adscencionis L.

LINNAEUS, Spec. Plant. 82. 1753; URBAN, Symb. Ant. 8: 40. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 62. 1923; HITCHCOCK, Manual Grasses West Indies 89, fig. 53. 1936; QUESTEL, Fl. Isl. St. Bartholomew 76. 1941; AMSHOFF, Grasses D.W. Ind. Isl. 24. 1942; LEON, Fl. Cuba 1: 110. 1946; — *Aristida americana* auct. non Linnaeus: BOLDINGH, Fl. D. W. Ind. Isl. 1: 21. 1909 p.p.; — *Aristida swartziana* auct. non Steudel: BOLDINGH, Fl. Ned. W. Ind. Eil. 124. 1913 p.p.; Fl. D. W. Ind. Isl. 2: 7. 1914 p.p.

Annual. Culms branched from the base and some of the lower nodes, 10—80 cm tall. Sheaths glabrous, ciliate at the mouth. Leaf-blades thin, flat or involute, 1—2 mm wide and 2—7 cm long, auriculate, with prominent midvein, scabrous above, the tip scabrous. Panicle narrow, 5—20 cm long; lower branches often spreading. First glume lanceolate, scabrous on the keel, 3.5—5 (—8) mm long. Second glume 5—6.5 (—10) mm long, lanceolate, bifid at the apex with a short mucro between the lobes. Lemma slightly shorter than the second glume, scabrous on the keel; awns about equal, 1—1.5 cm long. Callus very short and bearded.

Tropical and subtropical America, Africa, and Asia.

Common weed, on open grounds.

Vernacular name: mule grass (Windward Group).

ARUBA: Rooi Taki (Stoffers 1853, fl. & fr. Jan.); Seroe Alejandro (Stoffers 1964, fl. & fr. Jan.; 1970, fl. & fr. Jan.); calcareous hill near Baicuri (Boldingh 633, fl. & fr. Dec.); slope of Hooiberg (Arnoldo 11, fl. & fr. Dec.); Companashi (Arnoldo 69, fl. & fr. Dec.); Andicouri (Stoffers 1819a, fl. & fr. Jan.); Boca Mahos (Stoffers 1476, fl. & fr. Jan.); Matoguerai (Stoffers 1443, fl. & fr. Jan.); Seroe LARGOE (Stoffers 1886, fl. & fr. Jan.); Rooi Prins (Stoffers 2179, fl. & fr. Jan.); near Annaboei (Stoffers 1341, fl. & fr. Jan.); without loc. (Suringar s.n., fl. & fr. Jan. [L]).

BONAIRE: Zuid Nikibokoweg (Stoffers 913, fl. & fr. Dec.); Hofje of Bacuna (Boldingh 7473c, fl. & fr. Feb.); Rincón (Boldingh 7009, fl. & fr. Jan.); Angola

(Stoffers 832, fl. & fr. Nov.); Seroe Grandi (Arnoldo 51, fl. & fr. Nov.); near Pos Calbas (Stoffers 763, fl. & fr. Nov.); calcareous soil near Kralendijk (Boldingh 7443a, fl. & fr. Feb.); slope Macutucao (Boldingh 7120, fl. & fr. Feb.); Airfield (Arnoldo 34, fl. & fr. Nov.); road from Fontein to Seroe Grandi (Boldingh 7355, fl. & fr. Feb.); slope of Lasanne (Boldingh 7227, fl. & fr. Feb.); Bolivia (Suringar s.n., fl. & fr. Feb. [L]); Jatoe Bacoe (Suringar s.n., fl. & fr. Feb. [L]).

CURAÇAO: hills between Hieronymus Berg and Savonet (Boldingh 5319, fl. & fr. Nov.); calcareous hills near Hermanus (Boldingh 5569a, fl. & fr. Nov.); rocky hillsides near Willemstad (Britton & Shafer 2958, fl. & fr. March); Hofje of Zuurzak (Boldingh 5383, fl. & fr. Nov.; 5381, fl. & fr. Nov.); neighbourhood of Westpunt (Boldingh 4927a, fl. & fr. Nov.); Seroe Pretoe (Arnoldo s.n., fl. & fr. March); Pareira (Arnoldo 1891, fl. & fr. Jan.); Ronde Klip (Stoffers 1242, fl. & fr. Dec.); Fort Nassau (Suringar s.n., fl. & fr. Jan. [L]); Emmastad (v. d. Bergh, fl. & fr.); foot of Tafelberg (Hummelinck s.n., fl. & fr. Dec.).

SABA: Ladder Bay (Arnoldo 909, fl. & fr. Aug.); Ladder Gut, 0-100 m (Stoffers 2840, fl. & fr. Ap.).

ST. EUSTATIUS: slope of The Quill (Suringar s.n., fl. & fr. Ap. [L]); without loc. (v. Groll-Meyer 215h, fl. & fr.).

***Aristida swartziana* Steudel**

STEUDEL, Syn. Pl. Gram. 137. 1854; BOLDINGH, Fl. Ned. W. Ind. Eil. 124. 1913 p.p.; Fl. D. W. Ind. Isl. 2: 7. 1914 p.p.; HITCHCOCK, Manual Grasses West Indies 94. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 25. 1942.

Densely caespitose perennial. Culms erect or somewhat geniculate at the nodes, with many innovations, 25—50 cm tall. Ligule short, ciliate. Sheaths more or less slipping from the stems, slightly compressed; auricles pubescent and bearded with long, early deciduous hairs. Leaf-blades involute, glabrous beneath, hirtellous to scabrous above, 15—30 cm long, the lowermost usually shorter than 15 cm. Panicle contracted; branches ascending. First glume 7—8 mm long, linear-lanceolate, scabrous on the keel. Second glume 8—9 mm long, bifid, with a very small awn from the sinus. Lemma tubulous, with an acute, 0.5—0.75 mm long callus; the body of the lemma about as long as the second glume or a little longer, glabrous below, scabrous upwards, slightly narrowed below the hardly twisted beak. Awns slightly unequal, the central one about 20—25 mm long, the lateral ones about 0.5 cm shorter.

Jamaica, Hispaniola and Leeward Islands.

Rocky savannas and open grounds.

ARUBA: calcareous soil near Oranjestad (Boldingh 6235, fl. & fr. Dec.); Andicouri (Stoffers 1819, fl. & fr. Jan.); hills north-east of Andicouri Plantation (Stoffers 1821, fl. & fr. Jan.; 1832, fl. & fr. Jan.; 1839, fl. & fr. Jan.); south-western slope of Matavidiri (Stoffers 2017, fl. & fr. Feb.); leeside of Hooiberg (Stoffers 2093, fl. & fr. Feb.).

BONAIRE: Seroe Grandi (Arnoldo 52, fl. & fr. Nov.); Hobau (Stoffers 1028, fl. & fr. Dec.); Seroe Caracao (Stoffers 1048, fl. & fr. Dec.).

CURAÇAO: hills near Blein (Boldingh 4763, fl. & fr. Oct.); hills near Malpais

(Boldingh 4852a, fl. & fr. Jan.); calcareous hills near Siberië (Boldingh 5264, fl. & fr. Nov.); hills near Knip (Stoffers 1103, fl. & fr. Dec.); calcareous hills near Hato (Boldingh 5131 m, fl. & fr. Nov.); calcareous hills near Seroe Salinja (Boldingh 5327a, fl. & fr. Nov.); Wacao (Boldingh 5103a, fl. & fr. Nov.); slope of Hieronymus Berg (Boldingh 5069, fl. & fr. Nov.); near Cashero (Boldingh 4783, fl. & fr. Nov.; 4792, fl. & fr. Nov.).

ST. EUSTATIUS: gut near Fort de Windt, 500 m (Boldingh 829, fl. & fr. June).

***Aristida suringari* Henrard**

HENRARD, Meded. Rijksherb. Leiden 54B: 616. 1928; AMSHOFF, Grasses D. W. Ind. Isl. 25. 1942; — *Aristida americana* auct. non Linnaeus: BOLDINGH Fl. D. W. Ind. Isl. 1: 21. 1909 p.p.; — *Aristida swartziana* auct., non Steudel; BOLDINGH Fl. Ned. W. Ind. Eil. 124. 1913 p.p.; Fl. D. W. Ind. Isl. 2: 7. 1914 p.p.

Densely caespitose perennial. Culms much branched from nearly all the nodes, with few innovations, up to 60 cm or more tall. Ligule a rim of hairs, about 0.25 mm long. Sheaths somewhat shorter than the internodes, the lower slipping from the stems, the upper tight; auricles pubescent and long-bearded. Leaf-blades involute, up to 15 cm long, scabrous above, with scattered long hairs near the base. Panicle narrow, but lax and interrupted, 20 cm or more long; branches erect or slightly spreading. First glume 7—9 mm long, acute, scabrous on the keel, 1-veined, or sometimes with one additional lateral vein. Second glume 5.5—6.5 mm long, acute, 1-veined. Lemma narrowly tubulous, slightly narrowed upwards, scabrous in the upper part below the awns; callus about 0.5 mm long, long-bearded; awns about equal, erect, lateron divergent, straight, 1.5—2.5 cm long, with a distinct nodule just below their branching point.

Aruba, Bonaire, St. Eustatius, St. Martin, St. Croix, and St. Thomas.

Rocky and open grounds.

ARUBA: west of Kivarko (Stoffers 1985, fl. & fr. Jan.; 1994, fl. & fr. Jan.); hills north-east of Andicouri Plantation (Stoffers 1821a, fl. & fr. Jan.; 1834, fl. & fr. Jan.).

BONAIRE: calcareous plateau of Bolivia (Boldingh 7366, fl. & fr. Feb.).

ST. EUSTATIUS: between Oranjestad and Fort de Windt on the top of the cliff, 40 m (Boldingh 784, fl. & fr. June); Sugar Loaf (Suringar s.n., fl. & fr. May, [L]); slope of White Wall (Suringar s.n., fl. & fr. Ap. [L] Paratype !).

ST. MARTIN: Low Lands (Boldingh 3275, fl. & fr. Sept.).

***Aristida cognata* Trin. et Rupr.**

TRINIUS et RUPRECHT, Mem. Acad. St. Petersb. 6: 127. 1842; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 62. 1923; HITCHCOCK, Manual Grasses West Indies 96. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 24. 1942; — *Aristida americana* auct. non Linnaeus: BOLDINGH, Fl. D. W. Ind. Isl. 1: 21. 1909 p.p.; — *Aristida swartziana* auct. non Steudel: BOLDINGH, Fl. Ned. W. Ind. Eil. 124. 1913 p.p.

Laxly caespitose perennial. Culms erect or ascending, much branched with few

innovations, 20—50 cm tall. Lower sheaths slipping from the stems; auricles slightly pubescent. Ligule a ciliolate short rim. Leaf-blades narrowly involute, 5—15 cm long or longer, glabrous beneath, on the upper surface narrowly ribbed, scabrous, with scattered, very long white hairs, especially near the base. Panicle narrow, loose, 5—15 cm long; branches rather distant, ascending, mostly closely flowered, 1—4 cm long. First glume 5—6 mm long, slightly scabrous on the keel, the second one somewhat longer, bifid and with a short mucro in the sinus. Lemma mottled, as long as the second glume or a little longer; callus acute, about 0.5 mm long, bearded; awns about equal, ascending, 1—1.5 cm long.

Windward and Virgin Islands.

Rocky soil.

SABA: Parish Hill, 400 m (Boldingh 1372, fl. & fr. June); seashore near Fort Bay (Boldingh 2147, fl. & fr. June; 1648, fl. & fr. June); along Fort Cut, 150—200 m (Boldingh 1631, fl. & fr. June).

Anthephora Schreber, Besch. Gräs. 2: 105. 1810

Tufted, annual (or perennial) grasses with flat leaves. Inflorescence a spike of clusters of spikelets, which fall entire and consist of 3—4 (—10) spikelets enveloped by their first glumes. These glumes basically united, rigid, coriaceous. Sterile lemma membranaceous, 3—7-veined. Fertile lemma firm, 3—5-veined. Stamens 3.

Species about 15, in tropical regions, mainly in Africa.

Anthephora hermaphrodita (L.) O. Kuntze

KUNTZE, Rev. Gen. Plant. 2: 759. 1891; URBAN, Symb. Ant. 4: 80. 1903; BOLDINGH; Fl. D. W. Ind. Isl. 1: 13. 1909; Fl. Ned. W. Ind. Eil. 117. 1913; Fl. D. W. Ind. Isl. 2: 4. 1914; URBAN, Symb. Ant. 8: 17. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 30. 1923; HITCHCOCK, Manual Grasses West Indies 98, fig. 58. 1936; QUESTEL, Fl. Isl. St. Bartholomew 82. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 53. 1942; LEON, Fl. Cuba 1: 111. 1946; HODGE, Lloydia 17: 118, fig. 55. 1954; — *Tripsacum hermaphroditum* LINNAEUS, Syst. Nat. ed. 10. 2: 1261. 1759; — *Anthephora elegans* SCHREBER, Besch. Gräs. 3: 105, t. 44. 1810; GRISEBACH, Fl. Br. W. Ind. Isl. 556. 1864.

Annual. Culms ascending or spreading, mostly 20—60 cm tall. Blades flat, lax, 5—20 cm long, 3—8 mm wide, glabrous or hirsute. Ligule 1 mm long. Inflorescence spike-like, 4—10 cm long; rhachis slender, flexuous or more or less spiral-like. Clusters of spikelets sessile or subsessile, 4—7 mm long. First glumes of a cluster united below a basal constriction, oblong and acuminate, tips more or less spreading, more or less puberulous. Second glume setaceous. Sterile lemma hyaline, puberulous. Fertile lemma glabrous, glossy.

Throughout the West Indies and tropical continental America.

A common weed at lower elevation.

ARUBA: vicinity of Noord (Stoffers 1535, fl. & fr. Jan., 1541, fl. & fr. Jan., 1543, fl. & fr. Jan., 1550, fl. & fr. Jan., 1776, fl. & fr. Jan., 1782, fl. & fr. Jan., 1785, fl. & fr. Jan.); Companashi (Arnoldo 78, fl. & fr. Dec.); vicinity of Savaneta (Stoffers 1755, fl. & fr. Jan., 1760, fl. & fr. Jan., 1765, fl. & fr. Jan.); Fontein (Stoffers 1698, fl. & fr. Jan., 1707, fl. & fr. Jan., 1715, fl. & fr. Jan., 1725, fl. & fr. Jan.); seashore near Fontein (Stoffers 1372, fl. & fr. Jan.); Matoguerai (Stoffers 1421, fl. & fr. Jan., 1437, fl. & fr. Jan., 1442, fl. & fr. Jan.); Boca Mahos (Stoffers 1470, fl. & fr. Jan., 1480, fl. & fr. Jan., 1485, fl. & fr. Jan.); Matavidiri (Stoffers 2016, fl. & fr. Feb.); west of Kivarko (Stoffers 1983, fl. & fr. Jan.); along roads in Oranjestad (Stoffers 2068, fl. & fr. Feb., 2069, fl. & fr. Feb., 2085, fl. & fr. Feb.); Andicouri (Stoffers 1804, fl. & fr. Jan., 1816, fl. & fr. Jan., 1828, fl. Jan.); east of Sabana Serveta (Stoffers 1398, fl. & fr. Jan., 1405, fl. & fr. Jan.); Seroe Pretoe (Stoffers 1665, fl. & fr. Jan.); Hooiberg (Stoffers 2104, fl. & fr. Feb., 2101A, fl. Feb.); near Kudarebe (Stoffers 1357, fl. & fr. Jan.); Miralamar (Stoffers 1615, fl. & fr. Jan.); Jamanota (Stoffers 1620, fl. & fr. Jan.); Palm Beach (Stoffers 1792, fl. & fr. Jan.); Sivi-Sivi (Boldingh 6329, fl. Jan.); calcareous seashore near Manchebo (Boldingh 6278, fr. Dec.); without loc. (Suringar s.n., fl. & fr.).

BONAIRE: Playa Foenchi (Stoffers 990, fl. & fr. Dec.); calcareous soil near Kralendijk (Boldingh 7445, fr. Feb.); vicinity of Rincón (Boldingh 7025E, st. Feb.); gardens in Rincón (Boldingh 7154, fr. Jan., 7159, fr. Jan.); Hobau (Stoffers 1031, fl. & fr. Dec.); Dos Pos (Stoffers 577, fl. Nov.); Slagbaai Plantation (Stoffers 594, fl. & fr. Nov.); Zuid-Nikibokoweg (Stoffers 905, fl. & fr. Dec., 908, fl. & fr. Dec.); Seroe Grandi (Stoffers 919, fl. & fr. Dec.); calcareous hills near Rincón (Boldingh 7095A, fl. Jan.); Karpata near Goto (Stoffers 1089, fl. & fr. Dec.).

CURAÇAO: Brakkeput (Burgers 163, fl. Feb.; 169, fl. Feb.; 171, fr. Feb.); Seroe Christoffel, 200 m (Suringar s.n., fl. & fr. Feb.; Burgers 39, fr. Dec.; Stoffers 1195, fl. & fr. Dec.); Choloma (Stoffers 17, fl. & fr. Sept.); Wishi (Arnoldo s.n., fr. March); near Savonet (Burgers 125, fr. Feb.); Casparito (Lens s.n., fr. Jan.); calcareous hills near Hato (Boldingh 5320, fr. Nov.); road from Cas Chiquito to Veeris Berg (Boldingh 4713, fr. Oct.); near Willemstad (Britton & Shafer 2918, fr. March); Hofje of Knip (Boldingh 5500, fr. Dec.); calcareous soil near Knip (Boldingh 5569, st. Dec.); vicinity of Westpunt (Boldingh 4926B, fr. Nov.); Fort Nassau (Suringar s.n., fl. & fr. Feb.); Savonet (Suringar s.n., fl. & fr. Feb.); without loc. (Versluys s.n., fl. & fr.).

SABA: road to Windwardside (Arnoldo 690, fr. Aug.; Boldingh 1342, fr. July); Ladder Bay (Suringar s.n., fl. & fr. Ap. [L]).

ST. EUSTATIUS: along roads in Oranjestad (Boldingh 559, fl. June; 1107, fr. June; 1094, fl. & fr. June); Little Mountains (Stoffers 3728, fl. & fr. July; 3752, fr. July); between Oranjestad and Fort de Windt (Stoffers 3528, fr. July); northern slope of The Quill (Stoffers 3989, fl. & fr. July; 4009, fl. & fr. July).

ST. MARTIN: Guana Bay (Boldingh 2427, st. Aug.).

Tragus A. Haller, Hist. Stirp. Helv. 2: 203. 1768, nom. cons. 143.

Low, annual grasses with flat blades. Inflorescence a dense, spike-like panicle, with a slender common axis bearing groups of spikelets in several rows. Groups bur-like, falling entire, formed by the second glumes of the two lower spikelets,

which are strongly convex with 5 thick veins, bearing a row of squarrose, stout, hooked prickles. The first two spikelets plano-convex and sometimes 1—3 rudimentary spikelets included between them. First glume small or wanting. Lemma and palea thin, with enrolled margins; the lemma slightly longer than the palea.

About 5 species in the warmer regions.

Tragus berteronianus Schultes

SCHULTES, Mant. 2: 205. 1824; HITCHCOCK, Manual Grasses West Indies 101, fig. 59. 1936; QUESTEL, Fl. Isl. St. Bartholomew 76. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 26. 1942; LEON, Fl. Cuba 1: 111. 1946; — *Tragus racemosus* auct. non Haller: BOLDINGH, Fl. D. W. Ind. Isl. 1: 14. 1909; Fl. Ned. W. Ind. Eil. 117. 1913; Fl. D. W. Ind. Isl. 2: 4. 1914.

Annual. Culms branching from the base, 10—40 cm tall. Lower sheaths less than 1 cm long, the upper ones gradually longer, up to 5 cm long. Leaf-blades flat, stiff, mostly less than 5 cm long, 2—4 mm wide, the cartilaginous margins bearing stiff white hairs near the base which reduce to short teeth towards the apex. Ligule a row of white hairs, about 0.5 mm long. Panicle dense, 4—10 cm long and 4—5 mm thick. Burs sessile. Spikelets 2—3 mm long, with stout, up to 0.5 mm long spines; the apex scarcely exceeding the spines. The first glume hyaline, less than 0.5 mm long. Rudimentary spikelet wanting. Caryopsis oblong, plano-convex.

West Indies and continental America from the south-western United States to Brazil.

Open, arid grounds.

ARUBA: Companashi (Arnoldo 74, fl. & fr. Dec.); Hooiberg (Arnoldo 165, fl. & fr. Dec.; Stoffers 2092, fl. & fr. Feb.); Rooi Taki (Stoffers 1856, fl. & fr. Jan.; 1890, fl. & fr. Jan.); Andicouri (Stoffers 1820, fl. & fr. Jan.); Boca Mahos (Stoffers 1472, fl. & fr. Jan.; 1469, fl. & fr. Jan.); near Annaboei (Stoffers 1344, fl. & fr. Jan.); Sivi-Sivi (Boldingh 6313A, fr. Jan.); calcareous soil near Oranjestad (Boldingh 6236, fl. & fr. Jan.); Jamanota (Stoffers 1635, fl. & fr. Jan.); Miralamar (Stoffers 1617, fl. & fr. Jan.; 1605, fl. & fr. Jan.); along roads near Oranjestad (Stoffers 2084, fl. & fr. Feb.); Matavidiri (Stoffers 2025, fl. & fr. Feb.; 2021, fl. & fr. Feb.; 2015, fl. & fr. Feb.); Rooi Prins (Stoffers 2162, fl. & fr. Feb.); east of Sabana Serveta (Stoffers 1397, fl. & fr. Jan.); west of Kivarko (Stoffers 1991A, fl. & fr. Jan.); Seroe LARGOE (Stoffers 1872, fl. & fr. Jan.); Canashito (Suringar s.n., fl. & fr. Feb. [L]).

BONAIRE: Sabana (Stoffers 954, fl. & fr. Dec.); Tanki Maraka (Stoffers 848, fl. Dec.); Rincón (Boldingh 7380, fl. & fr. Jan.; 7025B, fl. & fr. Jan.).

CURAÇAO: Wishi (Arnoldo s.n., fl. & fr. March); near Savonet (Burgers 124, fl. Feb.); Willemstad (Britton & Shafer 2960, fl. & fr. March); road from Westpunt to Savonet? (Boldingh 5065, fl. & fr. Nov.); Cashero (Boldingh 4790, fl. & fr. Nov.); Hofje of Valentijn (Boldingh 5372, fl. & fr. Nov.); Klein Santa Marta (Arnoldo 1904, fl. & fr.); Veeris (Suringar s.n., fl. & fr. Jan. [L]).

SABA: Giles Quarter (Boldingh 1870, fl. & fr. July).

ST. EUSTATIUS: Solitude (Stoffers 3725, fl. & fr. July); between Oranjestad and

Fort de Windt (Stoffers 3504, fl. & fr. July; Boldingh 770, fl. & fr. June); hill north of Concordia Bay (Boldingh 946, fl. & fr. June; Stoffers 3834, fl. & fr. July); near White Wall (Boldingh 1259, fl. & fr. July).

ST. MARTIN: between Philipsburg and Point Blanche (Boldingh 3404, fl. & fr. Sept.); Naked Boy Hill, 50—200 m (Boldingh 2676, fl. & fr. Aug.); between Philipsburg and Guana Bay (Boldingh 2367, st. Aug.).

Leptochloa P. de Beauvois, Ess. Agrost. 71, 166, pl. 15. f. 1. 1812

Annual or perennial grasses with usually flat leaf-blades. Inflorescence a panicle of numerous spike-like racemes, scattered along the common axis. Spikelets laterally compressed, few- to several-flowered, subsessile along one side of a triquetrous rhachis; the upper florets reduced to an often small rudiment. Rhachilla glabrous, disarticulating above the glumes and above the lower two florets. Glumes keeled, 1-veined, the second usually broader and longer than the first. Lemmas obtuse or acute, 3- or 5-veined, keeled, mucronate or short-awned from a sinus, often with some pubescence. Palea 2-keeled.

Species about 20, in the warm regions of both hemispheres.

Key to the species:

1. Lower sheaths slipping from the stem; spikelets 6—12-flowered, 7—12 mm long *L. fascicularis*
 Sheaths not slipping from the stem; spikelets 2—6-flowered, 1.5—3 mm long 2
2. Lemmas awned; awn of lower floret 1—3 mm long *L. domingensis*
 Lemmas awnless or the lower very shortly awned 3
3. Annual; lemmas puberulous along the veins, 1—1.5 mm long; panicle with ascending racemes *L. panicea*
 Perennial; lemmas sparsely pilose along the margin, 1.5—2 mm long; panicle with arching racemes *L. virgata*

Leptochloa fascicularis (Lam.) A. Gray

A. GRAY, Man. 588. 1848; HITCHCOCK, Manual Grasses West Indies 104, fig. 61. 1936; LEON, Fl. Cuba 1: 112. 1946; — *Diplachne fascicularis* (Lamarck) P. DE BEAUVOIS, Ess. Agrost. 160. 1812; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 72. 1923; — *Festuca fascicularis* LAMARCK, Tabl. Encycl. 1: 189. 1791.

Annual, somewhat succulent. Culms erect to spreading or prostrate, 15—100 cm tall. Sheaths loose, scabrous upwards. Ligule 2 mm long. Leaf-blades flat to loosely involute, scabrous on both sides, up to 3 mm wide. Panicle included at base, 10—20 cm long; the racemes several to numerous, 2—10 cm long, ascending or at maturity spreading. Spikelets usually overlapping, 7—12 mm long, 6—12-flowered. Glumes oblong, with scabrous keels, the first 1.5 mm

long, the second 3 mm long. Lemmas 3.5—5 mm long, the lateral veins often excurrent in a short tooth below the tip, pilose along the margins except near the tip, and along the lower part of the keel and the lateral veins; awns from short to as long as the lemma.

United States, Mexico, and the West Indies.

Ditches and moist ground.

BONAIRE: Sabana (Arnoldo 366, fl. & fr. Jan.; 992, fl. & fr. Jan.); behind a dam near Jatoe Bacoe (Stoffers 662, fl. & fr. Nov.).

***Leptochloa panicea* (Retzius) Ohwi**

OHWI, Bot. Mag. Tokyo 55: 311. 1941; — *Poa panicea* RETZIUS, Obs. 3: 11. 1783; — *Festuca filiformis* LAMARCK, Tabl. Encycl. 1: 191. 1791; — *Leptochloa filiformis* (Lamarck) P. DE BEAUVOIS, Ess. Agrost. 71, 166. 1812; URBAN, Symb. Ant. 4: 104. 1903; Symb. Ant. 8: 47. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 71. 1923; HITCHCOCK, Manual Grasses West Indies 102, fig. 60. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 12. 1942; LEON, Fl. Cuba 1: 112. 1946; — *Eleusine filiformis* (Lamarck) PERSOON, Syn. 1: 87. 1805.

Annual. Culms erect or branching and geniculate at the lower nodes, 10—80 cm tall. Sheaths papillose-pilose or glabrous. Ligule 0.5—1 mm long and erose. Leaf-blades flat, lax, 4—10 mm wide, glabrous or with a few papillose-pilose hairs, scaberulous on both sides. Panicle nearly half the length of the culm, enclosed at base; racemes numerous, slender, 2—10 (—15) cm long. Spikelets 2—3-flowered, 1.5—2 mm long. Glumes nearly equal, 1—1.5 (—2.5) mm long, acuminate, longer than the first floret, scaberulous on the keels. Lemmas awnless, 1—1.5 mm long, 5-veined, puberulous along the veins.

Southern United States to Argentine; West Indies.

Fields and open ground.

Vernacular name: windgras (Leeward Group).

BONAIRE: hills near Rincón (Boldingh 7035, fl. & fr. March).

CURAÇAO: Cas Chiquito (Versluys 1411, fl. & fr. Dec.; 1421, fl. & fr. Jan.); Hofje Van Engelen (Boldingh 5433C, fl. & fr. Feb.); Antonieberg (Boldingh 5145, fl. & fr. Feb.); Hofje of Siberië (Boldingh 5054H, fl. & fr. Feb.; 5054V, fl. & fr. Feb.); Savonet (Arnoldo s.n., fl. & fr. Dec.; Suringar s.n., fl. & fr. Jan. [L]); near Wacao (Boldingh 5101A, fl. & fr. Feb.); Casparito (Lens 830, fl. & fr. Jan.); Hofje of Barber (Boldingh 5232A, fl. & fr. Feb.); Zuurzak (Suringar s.n., fl. & fr. Jan. [L]); without loc. (Aschenberg s.n., fl. & fr.).

SABA: Booby Hill, 300 m (Boldingh 1615, fl. & fr. July).

***Leptochloa domingensis* (Jacq.) Trin.**

TRINIUS, Fund. Agrost. 133. 1820; URBAN, Symb. Ant. 8: 47. 1920; HITCHCOCK, Manual Grasses West Indies 106, fig. 66. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 12. 1942; LEON, Fl. Cuba 1: 112. 1946; — *Cynosurus domingensis* JACQUIN, Misc. Austr. 2: 363. 1781; — *Leptochloa virgata* (Linnaeus) P. DE BEAUVOIS var. *domingensis* (Jacquin) LINK ex GRISEBACH, Fl. Br. W. Ind. Isl. 538. 1864.

Perennial. Culms erect or ascending, 30—100 cm tall or more. Sheaths sparsely papillose-pilose along the margins, at least the lower ones keeled. Ligule a minute rim. Leaf-blades elongate, flat (or loosely involute in drying), with prominent mid-vein, 5—10 mm wide, usually sparsely pilose. Panicle elongate, 10—30 cm long; racemes arching, numerous, slender, 5—15 cm long. Spikelets 3—6-flowered, 2—3 mm long. First glume 1.5 mm long, the second 2 mm long. Lemmas 1.5—2 mm, long, with scabrous keels, appressed-pubescent and ciliate, awned. Awn of the lower lemmas 1—3 mm long. Palea appressed-pubescent.

Southern United States to Argentina; West Indies.

Open ground.

SABA: Castle Hill, sea-side, 300—350 m (Stoffers 4143, fl. & fr. Aug.); gut between Hellsgate and Mastic Gut, 300—400 m (Boldingh 2055, fl. & fr. July); between The Bottom and Mary's Point, 100—200 m (Boldingh 1530, fl. & fr. July); slope of The Mountain, 600 m (Boldingh 1751, fl. & fr. July).

ST. EUSTATIUS: Lower part of the hills near Concordia (Boldingh 940, fl. & fr. June); near Boven, 200 m (Boldingh 1250, fl. & fr. June).

***Leptochloa virgata* (L.) P. de Beauv.**

P. DE BEAUVOIS, Ess. Agrost. 166. 1812; GRISEBACH, Fl. Br. W. Ind. Isl. 538. 1864; DUSS, Fl. phan. Ant. franç. 507. 1897; URBAN, Symb. Ant. 4: 105. 1903; Symb. Ant. 8: 47. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 71. 1923; HITCHCOCK, Manual Grasses West Indies 106, fig. 65. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 13. 1942; LEON, Fl. Cuba 1: 112. 1946; — *Cynosurus virgatus* LINNAEUS, Syst. Nat. ed. 10. 2: 876. 1759.

Perennial grass. Culms coarse, erect, glabrous, up to 100 cm tall. Sheaths usually somewhat glaucous, glabrous. Ligule a rim of short hairs. Leaf-blades flat, glabrous, 5—10 mm wide. Inflorescence drooping, up to 20 cm long; racemes several to many, slender, laxly ascending, 5—10 cm long, the lower ones distant. Spikelets nearly sessile, 3—5-flowered, 2—3 mm long. Glumes nearly equal, 1.5—2 mm long. Lemmas 1.5—2 mm long, more or less pilose on the margins, otherwise nearly glabrous, awnless or the lower with a very short awn.

West Indies, Southern United States to Argentine.

Open grounds and grassy slopes.

CURAÇAO: Savonet (Suringar s.n., fl. & fr. Jan. [L]).

SABA: Peperpot, near Spring Bay Gut (Suringar s.n., defl. Ap. [L]).

***Eleusine* Gaertner, Fruct. et Sem. 1: 7. 1788**

Tufted annuals with compressed culms and two to several spikes, digitate at the apex of the culm, often 1 (—3) spikes at a short distance below. Spikelets few- to several-flowered, compressed, sessile in two rows along one side of the

flattened rhachis. Rhachilla disarticulating above the glumes and between the florets. Glumes unequal, keeled, the first one shorter than the lemmas. Lemmas acute, with a keel formed by 3 green veins. Palea bi-keeled. Seed loosely enclosed in a thin pericarp.

Species 6, natives of the Old World.

***Eleusine indica* (L.) Gaertn.**

GAERTNER, *Fruct. et Sem.* 1: 8. 1788; GRISEBACH, *Fl. Br. W. Ind. Isl.* 540. 1864; DUSS, *Fl. phan. Ant. franç.* 508. 1897; URBAN, *Symb. Ant.* 4: 104. 1903; BOLDINGH, *Fl. D. W. Ind. Isl.* 1: 23. 1909; *Fl. Ned. W. Ind. Eil.* 127. 1913; *Fl. D. W. Ind. Isl.* 2: 8. 1914; URBAN, *Symb. Ant.* 8: 46. 1920; BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 69. 1923; HITCHCOCK, *Manual Grasses West Indies* 113, fig. 72. 1936; QUESTEL, *Fl. Isl. St. Bartholomew* 76. 1941; AMSHOFF, *Grasses D. W. Ind. Isl.* 13. 1942; LEON, *Fl. Cuba* 1: 115, fig. 46. 1946; HODGE, *Lloydia* 17: 118, fig. 56. 1954; — *Cynosurus indicus* LINNAEUS, *Spec. Plant.* 72. 1753.

Culms erect, often branched in the lower part, compressed, 20—50 (—100) cm tall. Ligule erose, 0.5—0.75 mm. Sheaths keeled, compressed, long-ciliate towards the apex. Blades flat to folded, up to 30 cm long, 3—8 mm wide, sparsely pilose above near the base, slightly scabrous towards the apex. Spikes mostly 2 to 6, 3—15 cm long. Glumes scabrous on the keel, the first one 2 (—3.5) mm long, with one green vein, the second about 3 (—5) mm long with 5—7 green veins. Lemma 2.5—3 mm long, acute, with 3 green veins in the keel and 2 lateral veins. Seed elliptic to ovate obtusely trigonous, dark brown, with a groove on the inner face and a fan of transversely striate ridges on the lateral faces. Pericarp olive-green.

Native of the warmer regions of the Old World; introduced in America.

A common weed.

Vernacular names: dutch grass (Windward Group).

kamuchi, pia di galiña (Leeward Group).

ARUBA: Hofje of Fontein (Arnoldo 339, fl. & fr. Dec.).

CURAÇAO: along roads in Willemstad (Went 1099, fl. Nov.); Hofje of Siberië (Boldingh 5041i, fl. & fr. Nov.); Cas Chiquito (Versluys 1406, fl. & fr. Dec.; Boldingh 4807, fl. & fr. Oct.); Wishi (Arnoldo s.n., fl. & fr. Feb.); Choloma (Stoffers 24, fl. & fr. Sept.); Hato (Suringar s.n., fl. & fr. Jan.); without loc. (Aschenberg s.n., fl. & fr.).

SABA: Windwardside (Boldingh 1890, fl. & fr. July; 1917A, fl. & fr. July); between Crispine and Small Rendez-Vous (Stoffers 3052, fl. & fr. Ap.); Booby Hill, 400 m (Stoffers 4286, fl. & fr. Aug.); Castle Hill, seaside, 300—350 m (Stoffers 4163, fl. & fr. Aug.); The Bottom (Arnoldo 730, fl. & fr. July; Suringar s.n., fl. & fr. Ap.); Ladder Gut, 0—200 m (Boldingh 2014, fl. & fr. Aug.); lower part of the Bottom Mountain, 250 m (Boldingh 1390, fl. & fr. July).

ST. EUSTATIUS: in garden near Glass Bottle (Boldingh 1211, fl. & fr. June); along roads in Cultuurvlakte (Stoffers 3792, fl. & fr. July; 3798, fl. & fr. July; Suringar s.n., fl. & fr. May); Oranjestad (Boldingh 1278, fl. & fr. July; 554, fl. & fr.

June; Stoffers 3904, fl. & fr. July); without loc. (v. Groll-Meyer 264, fl. & fr.; 237h, fl. & fr.).

ST. MARTIN: Cole Bay (George s.n. sub Boldingh 2521, fl. & fr. Aug.); in pasture ground near Bellevue (Boldingh 2823, fl. & fr. Aug.); near Great Salt Pond (Arnoldo 1272, fl. & fr. March); Philipsburg (Stoffers 2311, fl. & fr. March); Experimental garden, Cul de Sac (Stoffers 2344, fl. & fr. March; 2352, fl. & fr. March); Marigot Hill to Marigot, 200—0 m (Boldingh 2655, fl. & fr. Aug.); pasture ground between Belvedere and Oyster Pond (Boldingh 3086, fl. & fr. Aug.).

Dactyloctenium Willdenow, Enum. Plant. 1029. 1809

Annual or perennial grasses with flat blades. Spikes two to several, digitate, spreading, the rhachis prolonged beyond the spikelets. Spikelets 3—5-flowered, laterally compressed, sessile, spreading, in two laterally imbricate rows along one side of the flattened rhachis. Rhachilla disarticulating above the first glume and between the florets. Glumes unequal, broad, 1-veined, keeled, the first persistent, acute; the second deciduous, mucronate or short-awned below the tip. Lemmas broad, keeled, acuminate or short-awned, 3-veined; the lateral veins indistinct. Upper floret reduced. Palea about as long as the lemma, with 2 keels, enclosing the base of the next floret. Seed subglobose, ridged or wrinkled, enclosed in a thin, early disappearing pericarp.

About 3 species in the tropics of the Old World.

Dactyloctenium aegyptium (L.) Richter

RICHTER, Pl. Eur. 1: 68. 1890; GRISEBACH, Fl. Br. W. Ind. Isl. 540. 1864; DUSS, Fl. phan. Ant. franç. 508. 1897; URBAN, Symb. Ant. 4: 104. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 24. 1909; Fl. Ned. W. Ind. Eil. 127. 1913; Fl. D. W. Ind. Isl. 2: 8. 1914; URBAN, Symb. Ant. 8: 46. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 69. 1923; HITCHCOCK, Manual Grasses West Indies 113, fig. 73. 1936; QUESTEL, Fl. Isl. St. Bartholomew 76. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 14. 1942; LEON, Fl. Cuba 1: 115. 1946; HODGE, Lloydia 17: 118, fig. 57. 1954; — *Cynosurus aegyptius* LINNAEUS, Spec. Plant. 72. 1753.

Annual. Culms tufted and spreading from short stolons, 10—50 cm long. Sheaths compressed, keeled, glabrous. Leaf-blades flat, 2—6 mm wide, sparsely papillose-pilose on both sides, inserted with yellow, long-ciliate triangles to the sheath. Ligule a 0.5 mm high, ciliolate rim. Spikes 1 to 6, 1—5 cm long. Spikelets pectinate, about 3 mm long. First glume scabrous on the keel, about 1.5 mm long; second glume nearly 2 mm long with a short, curved, scabrous awn. Lemma scabrous on the keel, about 3 mm long, awn-pointed. Palea scabrous on the keels, shorter than the lemma, bi-acuminate. Seed flattened-globose, about 1 mm in diam., tuberculate, dark-brown.

Warmer regions of both hemispheres.

Common weed in pastures and along roadsides.

Vernacular names: bosopata, habriman, maria bo kee,
beendemi, pia warawara (Leeward Group).

ARUBA: Hooiberg (Arnoldo 166, fl. & fr. Dec.); Mataguerai (Stoffers 1441, fl. & fr. Jan.); Andicouri (Stoffers 1810, fl. & fr. Jan.); hills north-east of Andicouri (Stoffers 1824, fl. & fr. Jan.); north-east of Jamanota (Stoffers 1648, fl. & fr. Jan.); near Boca Mahos (Stoffers 1484, fl. & fr. Jan.); east of Sabana Serveta (Stoffers 1402, fl. & fr. Jan.); salinja west of Tibushi (Stoffers 1353, fl. & fr. Jan.); near Fontein (Stoffers 1366, fl. & fr. Jan.; 1365, fl. & fr. Jan.); north-eastern slope of Matavidiri (Stoffers 2029, fl. & fr. Feb.); Seroe Alejandro (Stoffers 1971, fl. & fr. Jan.); calcareous soil near Oranjestad (Boldingh 6231, fl. & fr. Dec.); Sivi-Sivi (Boldingh 6331, fl. & fr. Dec.; 6342, fl. & fr. Dec.); near Santa Cruz (Stoffers 1740, fl. & fr. Jan.); near Washington (Stoffers 1523, fl. & fr. Jan.).

BONAIRE: Rincón (Boldingh 7025d, fl. & fr. Jan.; 7059, fl. & fr. Jan.; 7151, fl. & fr. Jan.); calcareous soil near Kralendijk (Boldingh 7443, fl. & fr. Feb.; 7444a, fl. & fr. Feb.); Dos Pos (Stoffers 576, fl. & fr. Nov.); south of Kralendijk (Stoffers 510, fl. & fr. Nov.); Put Bronswinkel (Stoffers 678, fl. & fr. Nov.); Sabana (Arnoldo 401, fl. & fr. Jan.).

CURAÇAO: Cas Chiquito (Versluys s.n., fl. & fr. Dec.); calcareous soil near Santa Cruz (Boldingh 5591, fr. Dec.); Hofje of Barber (Boldingh 5232d, fl. & fr. Dec.; Arnoldo s.n., fl. & fr. Dec.); calcareous soil near Knip (Boldingh 5569d, fl. & fr. Dec.); Hofje of Siberië (Boldingh 5054a, fl. & fr. Nov.); neighbourhood of Westpunt (Boldingh 4926c, fl. & fr. Nov.); near Willemstad (Went 1102, fl. & fr. Nov.); Beekenburg (Lens s.n., fl. & fr. Oct.); Pareira (Arnoldo 1876, fl. & fr. Jan.); Jan Thiel (Burgers 107, fl. & fr. Jan.); Groot Piscadera (Burgers 119, fl. & fr. Jan.); without loc. (Aschenberg s.n., fl. & fr.).

SABA: between The Bottom and Mary's Point, 100—200 m (Boldingh 1514, fl. & fr. July); along the seashore near Fort Bay (Boldingh 1647, fr. July).

ST. EUSTATIUS: White Wall (Boldingh 820, fl. June); near White Wall (Stoffers 1260, fl. & fr. July); near Oranjestad (Boldingh 39, fl. & fr. May).

ST. MARTIN: between Belvedere and Oyster Pond (Boldingh 3087, fl. & fr. Aug.); near Cole Bay (Boldingh 3023, fl. & fr. Aug.); Marigot Hill to Marigot, 200—0 m (Boldingh 2656, fl. & fr. Aug.).

Cynodon L. C. Richard in Persoon, Syn. Plant. 1: 85. 1805, nom. cons. 282.

Perennials with creeping stolons or rhizomes and short blades. Spikes several, digitate at the apex of the culms. Spikelets 1-flowered, awnless, laterally compressed, sessile to subsessile in two rows along one side of the triangular rhachis. Rhachilla disarticulating above the glumes, prolonged beyond the floret as a naked bristle. Glumes narrow, acuminate, 1-veined, about equal, shorter than the floret. Lemma firm, keeled, 3-veined, the lateral veins submarginal. Palea as long as the lemma, keeled.

About 6 species in the warmer regions of the world.

Cynodon dactylon (L.) Pers.

PERSOON, Syn. Plant. 1: 85. 1805; GRISEBACH, Fl. Br. W. Ind. Isl. 540. 1864; DUSS, Fl. phan. Ant. franç. 509. 1897; URBAN, Symb. Ant. 4: 102. 1903; BOLDINGH, Fl. D. W.

Ind. Isl. 1: 22. 1909; Fl. Ned. W. Ind. Eil. 125. 1913; Fl. D. W. Ind. Isl. 2: 8. 1914; URBAN, Symb. Ant. 8: 42. 1920; HITCHCOCK, Manual Grasses West Indies 116, fig. 74. 1936; QUESTEL, Fl. Isl. St. Bartholomew 77. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 18. 1942; LEON, Fl. Cuba 1: 115. 1946; HODGE, Lloydia 17: 118, fig. 58. 1954; — *Panicum dactylon* LINNAEUS, Spec. Plant. 58. 1753; — *Capriola dactylon* (Linnaeus) O. KUNTZE, Rev. Gen. Plant. 764. 1891; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 66. 1923.

Widely creeping perennial with scaly rhizomes and stolons. Sheaths keeled, commonly overlapping, glabrous or pilose in the upper part. Leaf-blade inserted by yellow, pilose triangles in a wide angle to the sheath, flat or enrolled when dry, 2—10 cm long or more, 1—4 mm wide, glabrous or sparsely pilose at base, the margins scabrous. Ligule minute and ciliate, and a row of slender, long hairs behind. Spikes commonly 4 to 5, 2—5 cm long, slender arcuate-spreading. Rhachis scabrous on two sides. Glumes 1—1.5 mm long, scabrous on the keel. Lemma broadly ovate, 2 mm long, pubescent on the keel, with 2 submarginal veins. Palea lanceolate, somewhat pubescent on the keel. Caryopsis ellipsoid, 1 mm long, apiculate.

Warmer regions of both hemispheres; apparently introduced in America.

Open ground and road-sides.

Vernacular names: brak gras saloe (Leeward Group).
bahama grass (Windward Group).

ARUBA: Companashi (Arnoldo 70, fl. & fr. Dec.).

BONAIRE: Onima (Arnoldo 986, fl. & fr. July).

CURAÇAO: Marchena (Arnoldo s.n., fl. & fr. Feb.); Cas Chiquito (Versluys s.n., fl. & fr. Dec.).

SABA: Windwardside (Arnoldo 647, fl. & fr. Aug.); slope of The Mountain near Windwardside (Stoffers 3320, fl. & fr. May).

ST. EUSTATIUS: Oranjestad (Stoffers 3900, fl. & fr. July; Boldingh 1061, fl. & fr. June); slope of The Quill near Glass Bottle (Boldingh 1200, fl. & fr. June).

ST. MARTIN: pasture ground between Belvedere and Oyster Pond (Boldingh 3084, fl. & fr. Aug.); between Grande Case and Marigot (Boldingh 3093, fl. & fr. Sept.); Philipsburg (Stoffers 2305, fl. & fr. March); Rolands Canal (Hummelinck s.n., fl. & fr. May); pasture ground near Belvedere (Boldingh 3050, fl. & fr. Aug.).

Chloris Swartz, Prodr. Veg. Ind. Occ. 25. 1788

Perennial or annual grasses, with flat, folded or sometimes involute blades. Spikes digitate or racemose on a shortened axis, rarely solitary. Spikelets sessile in two rows on one side of the rhachis, with one perfect floret and one or two sterile ones above it, consisting of empty lemmas. Rhachilla disarticulating above the glumes. Glumes unequal, commonly 1-veined, with hyaline margins. Fertile lemma keeled, 3-veined, bifid at the apex, with a scabrous awn arising from the sinus, ciliate in the upper part on the lateral

veins; the upper margin hyaline, inflexed. Sterile lemmas awned or awnless. Palea bi-keeled with induplicate margins. Caryopsis trigonous or plano-convex. About 60 species in the warmer regions of both hemispheres.

Key to the species:

1. Spikes digitate; rudiment with broad, truncate, inflated sterile lemmas 2
 Spikes solitary or on a shortened axis; rudiment with one narrow sterile lemma 4
2. Rudiment with two distinct lemmas; keel of fertile lemma straight . . 3
 Rudiment with one distinct tubular lemma; keel of fertile lemma curved outward *C. virgata* (p. 149)
3. All lemmas with long, slender awns *C. inflata* (p. 150)
 Fertile and first sterile lemma with firm, short awns, the second sterile lemma awnless *C. ciliata* (p. 151)
4. Spikes racemose; leafblades flat 5
 Spike solitary or sometimes two together; leaves crowded at the base with short woolly sheaths *C. suringari* (p. 151)
5. Sheaths not compressed; first glume as long as the spikelet, the second one slightly shorter *C. mollis* (p. 152)
 Sheaths strongly compressed; first glume slightly shorter than the spikelet, the second one about half as long *C. radiata* (p. 153)

***Chloris virgata* Swartz**

SWARTZ, Fl. Ind. Occ. 203. 1797; URBAN, Symb. Ant. 8: 43. 1920; HITCHCOCK, Manual Grasses West Indies 134, fig. 84. 1936; QUESTEL, Fl. Isl. St. Bartholomew 77. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 19. 1942; LEON, Fl. Cuba 1: 118. 1946; — *Chloris paraguayensis* auct. non Steudel: BOLDINGH, Fl. Ned. W. Ind. Eil. 126. 1913 p.p.; Fl. D. W. Ind. Isl. 2: 8. 1914 p.p.

Annual. Culms ascending, 20—50 cm tall, scarcely compressed. Upper sheaths slightly inflated, the lower ones compressed. Leaf-blades flat, almost glabrous, 5—20 cm long, 3—7 mm wide, with scabrous margins. Ligule 0.5 mm long, fimbriate. Spikes 5 to 10 (—15), digitate, 3—5 (—10) cm long, suberect, somewhat flexuous in age. The first glume about 4 mm long, the second one about 2 mm long. Fertile lemma about 3 mm long, keel curved outward, long-ciliate on the margins near the apex, with a 5—10 mm long awn. Palea with a strong, ciliate vein in the keels. Rudiment 2—2.5 mm long, the lemma obliquely truncate and tubular, with a 4—7 mm long awn arising just below the apex, enclosing a very small second sterile lemma. Caryopsis lanceolate, trigonous, 1.5 mm long.

A common weed in tropical and subtropical regions.

ARUBA: Sivi-Sivi (Boldingh 6305, fl. & fr.).

BONAIRE: Hofje of Bacuna (Boldingh 7473, fl. & fr. Feb.); garden in Rincón (Boldingh 7152, fl. & fr. Jan.).

CURAÇAO: Hofje of Zuuzzak (Boldingh 5383, fl. & fr. Nov.); Cas Chiquito (Versluys 1410, fl. & fr. Dec.); Casparito (Lens 829, fl. & fr. Jan.).

ST. MARTIN: without loc. (Arnoldo 1319, fl. & fr. March).

Chloris inflata Link

LINK, Enum. Pl. 1: 105. 1821; HITCHCOCK, Manual Grasses West Indies 133, fig. 83. 1936; QUESTEL, Fl. Isl. St. Bartholomew 77. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 20. 1942; LEON, Fl. Cuba 1: 118, fig. 48. 1946; HODGE, Lloydia 17: 120, fig. 59. 1954; — *Chloris paraguayensis* STEUDEL, Syn. Gram. 204. 1854; URBAN, Symb. Ant. 4: 102. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 23. 1909; Fl. Ned. W. Ind. Eil. 126. 1913 p.p.; Fl. D. W. Ind. Isl. 2: 8. 1914 p.p.; URBAN, Symb. Ant. 8: 43. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 67. 1923; — *Chloris barbata* SWARTZ, Fl. Ind. Occ. 1: 200. 1797; DUSS, Fl. phan. Ant. franç. 508. 1897.

Tufted annual. Culms erect or ascending, 30—75 cm tall, slightly compressed. Sheaths compressed, keeled, glabrous, the upper ones inflated. Leaf-blades flat or folded, lax, 4—12 cm long and 2—4 mm wide, glabrous beneath, puberulous above, with long-ciliate auricles at the base. Ligule minute, fimbriate. Spikes 5 to 10, digitate, 3—7 cm long, yellow-green when young, becoming purplish later on, more or less flexuous. Fertile lemma 2—2.5 mm long, long-ciliate on the lateral veins and also sparsely pilose in the upper half, pilose at base, with a slender, flexuous, scabrous, 5—8 mm long awn. Palea ciliate on the keels. Rudiment of two sterile, obtriangular, inflated lemmas, both awned as the fertile lemma, but somewhat shorter. Caryopsis oblong, acute, brown.

West Indies and continental America from Mexico to Argentine.

Common weed.

ARUBA: plantation near Washington (Stoffers 1510, fl. & fr. Jan.); Fontein (Stoffers 1708, fl. & fr. Jan.; 1727, fl. & fr. Jan.); near Noord (Stoffers 1567, fl. & fr. Jan.); Matoguerai (Stoffers 1436, fl. & fr. Jan.); Oranjestad (Arnoldo 279, fl. & fr. Dec.); without loc. (Kruyt 7, fl. & fr. Dec.).

BONAIRE: Slagbaai Plantation (Stoffers 593, fl. & fr. Dec.); Pos Bronswinkel (Stoffers 677, fl. & fr. Nov.); Kralendijk (Stoffers 1004, fl. & fr. Dec.); Airfield (Stoffers 779, fl. & fr. Nov.); south of Kralendijk (Stoffers 509, fl. & fr. Nov.).

CURAÇAO: Pareira (Burgers 7, fl. & fr. Dec.); Santa Cruz (Britton & Shafer 2989, fl. & fr. March); Willemstad (v. d. Klip 3, fl. & fr. March); Noordkant Plantation (Stoffers 129, fl. & fr. Oct.); Groot Piscadera (Burgers 118, fl. & fr. Jan.).

SABA: road to The Mountain (Arnoldo 768, fl. & fr. Aug.); along roads, 200—300 m (Boldingh 1712, fl. & fr. July); Ladder Gut, 100—200 m (Stoffers 2772, fl. & fr. Ap.); Fort Bay Gut, 100—200 m (Stoffers 2873, fl. & fr. Ap.); along seashore near Fort Bay (Boldingh 1644, fl. & fr. July); without loc. (Lionarons

268, fl. & fr.); between The Bottom and Windwardside (Boldingh 1299, fl. & fr. July).

ST. EUSTATIUS: Little Mountains (Stoffers 3540A, fl. & fr. July; 3730, fl. & fr. July; 3750, fl. & fr. July); along roads in Cultuurvlakte (Stoffers 3813, fl. & fr. July).

ST. MARTIN: Philipsburg (Burgers 451, fl. & fr. March); Rolands Canal (Hummelincx s.n., fl. & fr. May; Stoffers 2265, fl. & fr. March); near Lemoentuin Juliana (Stoffers 2235, fl. & fr. March); without loc. (Boldingh 2914, fl. & fr.).

***Chloris ciliata* Swartz**

SWARTZ, Prodr. Veg. Ind. Occ. 25. 1788; GRISEBACH, Fl. Br. W. Ind. Isl. 539. 1864; DUSS, Fl. phan. Ant. franç. 508. 1897; BOLDINGH, Fl. D. W. Ind. Isl. 1: 23. 1909; Fl. Ned. W. Ind. Eil. 126. 1913; URBAN, Symb. Ant. 8: 43. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 67. 1923; HITCHCOCK, Manual Grasses West Indies 133, fig. 82. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 19. 1942; LEON, Fl. Cuba 1: 118. 1946; — *Chloris paraguayensis* auct. non Steudel: BOLDINGH, Fl. D. W. Ind. Isl. 2: 8. 1914 p.p.

Erect or spreading annual. Culms 30—60 cm tall. Sheaths slightly compressed when young, glabrous. Leaf-blades flat, 7—20 cm long and 3—5 mm wide. Ligule fimbriate. Spikes 3 to 6, digitate, 3—8 cm long, flexuous, pale. Fertile lemma 2—2.5 mm, pale-brown, long-ciliate on keel and marginal veins, the awn 1—1.5 mm long, scabrous. Rudiment of two or three sterile lemmas, obtriangular, the first one with a 1 mm long, scabrous awn, the second and third one awnless. Palea bi-keeled, ciliate on the keels. Caryopsis brown, trigonous, elliptic-oblong and acute.

West Indies and continental America from Texas to Argentine.

CURAÇAO: calcareous hills near Siberië (Boldingh 5188, fl. & fr. Nov.).

ST. MARTIN: mountain between Mont des Accords and Sentry Hill, 200—300 m (Boldingh 2877, fl. & fr. Aug.).

***Chloris suringari* Hitchc.**

HITCHCOCK in URBAN, Symb. Ant. 7: 167. 1912; BOLDINGH, Fl. Ned. W. Ind. Eil. 126. 1913; Fl. D. W. Ind. Isl. 2: 8. 1914; AMSHOFF, Grasses D. W. Ind. Isl. 20. 1942; LEON, Fl. Cuba 1: 119. 1946.

Perennial. Culms caespitose or arising from short stolons, 10—20 cm tall. Leaves crowded at the base, with white-woolly, up to 1 cm long sheaths; blades involute, arcuate, stiff, 1.5—4 cm long, about 0.5 mm wide, glabrous; cauline leaves 1 or 2, with narrow, glabrous, up to 4 cm long sheaths. Ligule ciliate. Spike solitary, terminal, 2—4 cm long, sometimes with a second one (or rudiment) a little below. The first glume 3—3.5 mm long, patent, longer than the spikelet, the second one hyaline and shorter than the spikelet. Fertile lemma ovate-lanceolate, with white tip, white-pilose along the veins, awn

5 mm long. Palea ciliolate on the keels. Rudiment narrow, with about 2 mm long lemma and an awn, about 5 mm long, arising from the base.

Curaçao.

On calcareous soil at lower elevation.

CURAÇAO: calcareous hills near Malpais (Boldingh 4888, fl. & fr. Jan.; 4895, fl. & fr. Jan.); Seroe Domi (Arnoldo 1136, fl. & fr. Nov.); calcareous hills near Siberië (Boldingh 5187, fl. & fr. Nov.); calcareous soil near San Pedro (Boldingh 5281, fl. & fr. Nov.).

***Chloris mollis* (Nees) Swallen**

SWALLEN in North Am. Fl. 17: 597. 1939; AMSHOFF, Grasses D. W. Ind. Isl. 20. 1942; — *Gymnopogon mollis* NEES, Agrost. Bras. 427. 1829; — *Gymnopogon rupestre* RIDLEY, J. Linn. Soc. 27: 73. 1890; — *Chloris leptantha* HITCHCOCK in URBAN, Symb. Ant. 7: 166. 1912; BOLDINGH, Fl. Ned. W. Ind. Eil. 126. 1913; Fl. D. W. Ind. Isl. 2: 8. 1914; URBAN, Symb. Ant. 8: 44. 1920; — *Chloris rupestris* (Ridley) HITCHCOCK, Manual Grasses West Indies 126. 1936.

Annual. Culms erect or ascending, 20—60 cm tall. Sheaths not compressed, ciliate; blades flat or enrolled, 5—15 cm long and 2—6 mm wide, 3 or 5 veins prominent beneath, pubescent, the margins scabrous, auriculate at the base. Ligule a row of 1 mm long hairs. Spikes 4 to 10, slender, ascending or appressed, 6—12 cm long, aggregate on an axis as much as 5 cm long. Spikelets narrow, loosely imbricate, with one perfect floret and a narrow rudiment. First glume as long as the spikelet. Second one slightly shorter. Fertile lemma linear, 4 mm long, the margins ciliate towards the apex, with a 4—6 mm long awn. Rudiment very narrow, 2—2.5 mm long, ciliate near the apex, sometimes with stamens, the awn a little shorter than that of the first floret. Caryopsis linear, plano-convex, brown.

West Indies and continental America from the southern United States to Ecuador and Brazil.

Common weed.

ARUBA: along roads near Oranjestad (Stoffers 2041, fl. & fr. Feb., 2042, fl. & fr. Feb., 2074, fl. & fr. Feb., 2077, fl. & fr. Feb.); Rooi Taki (Stoffers 1852, fl. Jan.); Companashi (Arnoldo 72, fl. & fr. Dec.); Hooiberg (Stoffers 2101, fl. & fr. Feb., 2108, fl. Feb.); along roads in Oranjestad (Stoffers 2125, fl. & fr. Feb.); Miralamar (Stoffers 2213, fl. & fr. Feb., 1614, fl. Jan.; Boldingh 6445A, fl. Jan.); Matoguera (Stoffers 1430, fl. Jan.); Andicouri (Stoffers 1812, fl. Jan.); Jamanota (Stoffers 1628, fl. Jan.); near Noord (Stoffers 1551, fl. & fr. Jan.); road near Savaneta (Boldingh 6520, fl. & fr. Jan.); hills near Savaneta (Boldingh 6535A, fl. & fr. Jan.); calcareous soil near Oranjestad (Boldingh 6233, fl. Dec.); calcareous hills and plateau near Balashi (Boldingh 6421A, fl. Jan.; 6428H, fl. & fr. Jan.); road from Santa Cruz to Hooiberg (Boldingh 6360, fl. & fr. Dec.); Sivi-Sivi (Boldingh 6322, fl. & fr.); without loc. (Koolwijk s.n. sub Suringar s.n., fl. & fr. [L]).

BONAIRE: calcareous soil near Kralendijk (Boldingh 7444, fl. & fr. Feb.); Joewa Hills (Boldingh 7208, fl. Feb.); Hobau (Stoffers 1024, fl. Dec.); vicinity of

Rincón (Boldingh 7031, fl. Jan.); Sabana (Arnoldo 432, fl. Dec.); Soebi Rincón (Arnoldo 371, fl. & fr. Jan.); Fontein (Suringar s.n., fl. & fr. Feb. [L]).

CURAÇAO: Seroe Christoffel (Stoffers 1299, fl. Dec.; Suringar s.n., fl. & fr. Jan. [L]); Burgers 139, fl. & fr. Feb., 142A, fl. & fr. Feb.); Pareira (Arnoldo 1854, fl. Jan.); hills from Klein Santa Marta to Dokterstuin (Boldingh 5636, fl. & fr. Dec.); from Antonieberg to the northern seashore (Boldingh 5115, fl. Nov.); calcareous top of Hieronymusberg (Boldingh 5569, fl. & fr. Nov.); Brakkeput ariba (Boldingh 5556, fl. & fr. Nov.); rooi Behoenda (Boldingh 5531, fl. & fr. Nov.); calcareous hills near Santa Cruz (Boldingh 5591B, fl. & fr. Dec.); near Willemstad (Britton & Shafer 2906, fl. March); without loc. (Arnoldo s.n., fl. Feb.); Kopermijnen (Suringar s.n., fl. & fr. Jan. [L]); Hato (Suringar s.n., fl. & fr. Jan. [L]); Fort Nassau (Suringar s.n., fl. & fr. Jan. [L]); Brievengat (Suringar s.n., fl. & fr. Feb. [L]).

Chloris radiata (L.) Swartz

SWARTZ, Prodr. Veg. Ind. Occ. 26. 1788; GRISEBACH, Fl. Br. W. Ind. Isl. 539. 1864; DUSS, Fl. phan. Ant. franç. 507. 1897; BOLDINGH, Fl. D. W. Ind. Isl. 1: 23. 1909; Fl. Ned. W. Ind. Eil. 126. 1913; URBAN, Symb. Ant. 8: 44. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 67. 1923; HITCHCOCK, Manual Grasses West Indies 126, fig. 80. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 21. 1942; LEON, Fl. Cuba 1: 118. 1946; HODGE, Lloydia 17: 120. 1954; — *Agrostis radiata* LINNAEUS, Syst. Nat. ed. 10. 2: 873. 1759.

Weedy, branching, decumbent or ascending annual. Culms compressed, 20—60 cm tall. Sheaths strongly compressed, with a sharp keel, pilose near the margins; blades thin, flat or folded, 10—20 cm long and 3—7 mm wide, very scabrous, more or less pilose. Ligule minute, fimbriate. Spikes (5—) 10 to 20, slender, 4—8 cm long, approximate on a very short axis, more or less flexuous. First glume slightly shorter than the spikelet; the second one about half as long. Fertile lemma lanceolate, 2.5—3 mm long, ciliate on the upper margins and with a 5—10 mm long awn. Rudiment 2.5 mm long, the lemma minute with an awn up to 5 mm long, arising from the lower half. Caryopsis linear, trigonous, brown.

West Indies and continental America from Mexico to Paraguay.

Weed at middle and lower elevations.

SABA: slope of The Mountain, 600 m (Boldingh 1777, fl. & fr. July); road to The Mountain (Arnoldo 951 fl. & fr. Aug.).

Bouteloua Lagasca, Var. Cien. 2: 134. 1805

Perennial or sometimes annual grasses. Inflorescence racemose, with few to many spikes in two rows along one side of the rachis. Spikelets two to several in each spike, the lower floret perfect and one or two reduced florets above. Glumes unequal, commonly 1-veined, acuminate. Lemma as long as the second glume or a little longer, 3-veined, the veins excurrent into awns or mucros,

the interveins usually extending into teeth. Palea 2-veined, sometimes 2-awned. Awns of the reduced floret surpassing the fertile floret.

Species about 40 in America.

Key to the species:

1. Annual; spikes resembling slender spikelets with awns excurrent from the top *B. aristoides*
Perennial; spikes with distinct spikelets, each with one fertile and one reduced floret with distinct awns *B. heterostega*

***Bouteloua aristoides* (H.B.K.) Griseb.**

GRISEBACH, Fl. Br. W. Ind. Isl. 805. 1864; BOLDINGH, Fl. Ned. W. Ind. Eil. 124. 1913; Fl. D. W. Ind. Isl. 2: 7. 1914; AMSHOFF, Grasses D. W. Ind. Isl. 22. 1942; — *Dinebra aristoides* HUMBOLDT, BONPLAND & KUNTH, Nov. Gen. et Spec. 1: 171. 1816.

Annual. Culms slender, branching, decumbent, 10—25 (—40) cm long, (scabrous to) scaberulous. Sheaths strongly veined, papillose-pilose, with hyaline, glabrous margins. Ligule a rim of hairs. Leaf-blades stiff, flat or involute, 1—6 cm long, 1—2 mm wide, scabrous above and papillose-pilose on both sides, lateron glabrescent. Raceme consisting of (2—) 6 to 15 spikes, these 1—1.5 cm long, with a 2—3 mm long, white-pubescent peduncle. Spikelets 2—4 in each spike, the lower one without a 3-awned rudiment, the second last rudimentary, reduced to its second glume, the other ones with a floret and a 3-awned rudiment above it. First glume setaceous, 1—3 mm long. Second glume narrowly lanceolate, 3-veined, 5—7 mm long. Fertile lemma more or less pilose, about 5 mm long. Awns of rudiment scabrous, 5—8 mm long on a slender pilose stipe.

Texas to northern Mexico, and from Peru and Brazil to Argentine.

ARUBA: Andicouri (Stoffers 1805, fl. & fr. Jan.; 1818 fl. & fr. Jan.); road near Ajó (Boldingh 6344, fl. & fr. Dec.); Companashi (Arnoldo 73, fl. & fr. Dec.); slope of Miralamar (Boldingh 6455, fl. & fr. Jan.); hills near Andicouri (Boldingh 6395, fl. & fr. Jan.); without loc. (Suringar s.n., fl. & fr. [L]).

***Bouteloua heterostega* (Trin.) Griff.**

GRIFFITHS, Contr. U.S. Nat. Herb. 14: 414. 1912; URBAN, Symb. Ant. 8: 45. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 70. 1923; HITCHCOCK, Manual Grasses West Indies 139, fig. 88. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 22. 1942; LEON, Fl. Cuba 1: 120. 1946; — *Bouteloua humboldtiana* GRISEBACH, Mem. Am. Acad. N.S. 8: 532. 1862; BOLDINGH, Fl. Ned. W. Ind. Eil. 124. 1913; Fl. D. W. Ind. Isl. 2: 7. 1914; — *Festuca myurus* auct. non Linnaeus: BOLDINGH, Fl. D. W. Ind. Isl. 1: 26. 1909.

Perennial. Culms branching, decumbent-spreading, up to 50 cm long. Sheaths glabrous, with hyaline margins. Ligule a rim of hairs. Leaf-blades flat or involute, up to 13 cm long and 2 mm wide, nearly glabrous, but with some long papillose-pilose hairs along the margins in the lower part. Raceme consisting of 3 to 15 spikes of 1.5—2.5 (—4) cm length. Spikelets 3—8 in each spike. Glumes slightly unequal, 4—5 mm long, scabrous on the keel. Fertile lemma about 6 mm long, shortly awned or awnless except for two lateral mucros. Palea 2-tipped. Rudimentary floret staminate, the lemma with two short acute lobes between the scabrous awns; the central awn 5—8 mm long.

Cuba, Hispaniola, Puerto Rico.

Common weed.

ARUBA: Hooiberg (Arnoldo 105, fl. & fr. Dec.); west of Kivarko (Stoffers 1991, fl. & fr. Jan.; 1997, fl. & fr. Jan.); hills north-east of Andicouri Plantation (Stoffers 1823, fl. & fr. Jan.); Seroe Largo (Stoffers 1874, fl. & fr. Jan.); Jamanota (Stoffers 1621, fl. & fr. Jan.); north-eastern slope of Matavidiri (Stoffers 2028, fl. & fr. Feb.); near Annaboei (Stoffers 1346, fl. & fr. Feb.); Alta Vista (Boldingh 6340, fl. & fr. Dec.); calcareous seashore near Manchebo (Boldingh 6297, fl. & fr. Dec.); Warawara (Suringar s.n., fl. & fr. Feb.).

CURAÇAO: hills near Klein Piscadera (Boldingh 5327, fl. & fr. Oct.); Seroe Domi (Arnoldo s.n., fl. & fr. Jan.); calcareous hills near Siberië (Boldingh 5262C, fl. & fr. Nov.); hills near Blein (Boldingh 5067, fl. & fr. Nov.); Pareira (Arnoldo 1765, fl. & fr. Dec.).

ST. EUSTATIUS: Little Mountains (Stoffers 3731, fl. & fr. July; 3737, fl. & fr. July); near Boven (Boldingh 1237a, fl. & fr. June); near Little Mountains (Stoffers 3539, fl. & fr. July); hill north of Concordia Bay (Stoffers 3830, fl. & fr. July; 3829, fl. & fr. July); without loc. (Boldingh 982, fl. & fr.; 1040, fl. & fr.; 129a, fl. & fr.).

Pharus Linnaeus, Syst. Nat. ed. 10. 2: 1269. 1759

Large perennial, monoecious grasses with broad, flat, lanceolate leaves; blades petiolate, transversely veined, the longitudinal veins diverging and ending at the margin in the upper half, in part prominulous, the midvein very distinct, prominent above. Inflorescence paniculate. Spikelets 1-flowered, in pairs along the ultimate branches. The lower spikelet of each pair short-pedicellate, pistillate, rhachilla breaking off above the glumes; the other spikelet much smaller, long-pedicellate, staminate, persistent. Pistillate spikelet terete, its glumes subequal, membranaceous, many-veined; lemma longer than the glumes, becoming indurate and strongly involute at maturity, with a small bent acumen, pubescent with uncinat hairs, except on the enrolled margins; palea narrow, as long as and enclosed by the lemma, 2-veined, membranaceous; style very long with 3 long, hairy stigmas; caryopsis relatively very small, linear. Staminate spikelet with thin glumes, the first short, the second slightly shorter than the lemma and the palea, all very thin, inconspicuously veined. Stamens 6.

Six species in tropical America.

Pharus glaber H.B.K.

HUMBOLDT, BONPLAND & KUNTH, *Nov. Gen. et Spec.* 1: 196. 1816; GRISEBACH, *Fl. Br. W. Ind. Isl.* 536. 1864; DUSS, *Fl. phan. Ant. franç.* 505. 1897; URBAN, *Symb. Ant.* 4: 99. 1903; BOLDINGH, *Fl. D. W. Ind. Isl.* 1: 21. 1909; *Fl. Ned. W. Ind. Eil.* 124. 1913; URBAN, *Symb. Ant.* 8: 38. 1920; BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 60. 1923; HITCHCOCK, *Manual Grasses West Indies* 152. 1936; AMSHOFF, *Grasses D. W. Ind. Isl.* 27. 1942; LEON, *Fl. Cuba* 1: 123. 1946; HODGE, *Lloydia* 17: 121. 1954.

Erect perennial. Culms 40—80 cm tall. Leaves glabrous. Sheaths wide, more or less compressed, up to 15 cm long, narrowed to the 1—1.5 cm long petiole. Ligule about 1 mm long, triangular. Leaf-blades acuminate, 10—25 cm long and 2.5—5 cm wide. Panicles pubescent, large, open, the few branches at first ascending, later on spreading. Pistillate spikelets about 1 cm long; glumes 3—4 mm long, brown, minutely puberulous; mature lemma about 1.5 mm thick, with soft pubescence. Caryopsis 1.5 mm long. Staminate spikelet 2—4 mm long; glumes, lemma and palea all brown, glossy, and minutely puberulous.

West Indies and continental America from Mexico to Brazil.

In forests at middle elevation.

SABA: Booby Hill, 350 m (Boldingh 1613, st. July); *ibid.* 300 m (Boldingh 1573, st. July); road to Windwardside (Arnoldo 686, fl. & fr. Aug.); Well Gut (Suringar s.n., st. Ap. [L]).

ST. EUSTATIUS: top of The Quill 400 m (Boldingh 330, st. June; Stoffers 3907, fl. & fr. July); Bottom of The Quill (Boldingh 908, fl. & fr. June); without loc. (v. Groll-Meyer 225, fl. & fr.); The Quill (Suringar s.n., fl. May [L]).

ST. MARTIN: mountain between Mont des Accords and Sentry Hill, 200—300 m (Boldingh 2858, fl. & fr. Aug.).

Digitaria Heister ex Adanson, *Fam.* 2: 38, 550. 1763

Annual or perennial grasses with flat leaves. Inflorescence consisting of slender spike-like racemes, digitate or approximate on short axis. Spikelets 2 to 3 together, appressed to two sides of a triquetrous rhachis. First glume minute or rarely wanting, abaxial. Second glume as long as or shorter than the spikelet, 1—5-veined. Sterile lemma 5—7-veined, empty. Fertile lemma chartaceous, enclosing with broad, flat, hyaline margins a palea of the same texture.

About 300 species all over the world.

Key to the species:

- 1. Spikelets conspicuously long-pilose; the hairs much surpassing the spikelet; inflorescence racemose-flabellate 2

- Spikelets pilose or pubescent; the hairs not hiding the tip of the spikelets; racemes ascending, on a very short axis 3
2. Spikelets tawny-pilose; sterile lemma 7-veined; second glume 4 mm long; ligule 2—3 mm long *D. insularis*
Spikelets white-pilose; sterile lemma 5-veined; second glume 3 mm long; ligule hardly 1 mm long *D. californica*
3. Racemes 2 or 3; spikelets in excavations of the rhachis; sterile lemma indurate, with impressed midvein, pilose on the lateral veins *D. eppersii*
Racemes 3 to 15, with narrowly winged rhachis; sterile lemma membranaceous, with more or less prominent veins, pubescent 4
4. Spikelets about 3 mm long; second glume about 2 mm; most leaves sparsely pilose; ligule 1.5—3 mm long *D. adscendens*
Spikelets 2—2.5 mm long; second glume up to half as long as the spikelet; sterile lemma with prominent veins; most leaves pubescent; ligule 1—1.5 mm long *D. horizontalis*

Digitaria insularis (L.) Mez ex Ekman

EKMAN, Ark. Bot. 13: 22. 1913; AMSHOFF, Grasses D. W. Ind. Isl. 29. 1942; — *Andropogon insularis* LINNAEUS, Syst. Nat. ed. 10. 2: 1304. 1759; — *Panicum insulare* (Linnaeus) G. F. W. MEYER, Fl. Esseq. 60. 1818; BOLDINGH, Fl. D. W. Ind. Isl. 1: 17. 1909; Fl. Ned. W. Ind. Eil. 121. 1913; Fl. D. W. Ind. Isl. 2: 5. 1914; — *Trichachne insularis* (Linnaeus) NEES, Agrost. Bras. 89. 1829; HITCHCOCK, Manual Grasses West Indies 165, fig. 105. 1936; HODGE, Lloydia 17: 121, fig. 61. 1954; — *Tricholaena insularis* (Linnaeus) GRISEBACH, Fl. Br. W. Ind. Isl. 557. 1864; — *Valota insularis* (Linnaeus) CHASE, Proc. Biol. Soc. Wash. 19: 188. 1906; URBAN, Symb. Ant. 8: 24. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 32. 1923.

A rather coarse, tufted, perennial, weedy grass. Culms erect, up to 1 m tall. Sheaths overlapping, glabrous or sparsely pilose; blades flat, glabrous, up to 25 cm long and 0.5—1.5 cm wide, with scabrous margins, distinct midvein and pubescent ears. Ligule 2—3 mm long. Inflorescence paniculate, contracted; racemes up to 15 cm long, 1 to 3 together in two rows on one side of the common axis. Spikelets usually two together, on long, slender, unequal pedicels, 6—7 mm long, tawny long-pilose, on two sides of the triquetrous, scabrous rhachis, the hairs appressed, but lateron spreading. First glume distinct, glabrous, hyaline, about 0.5 mm long. Second glume 4 mm long, as long and as broad as the fertile floret, 3-veined, long-pilose. Sterile lemma 5-veined, pilose. Fertile lemma long-acuminate, glossy-brown. Palea with 2 strong veins.

Tropical and subtropical America.

Roadsides and waste places at lower elevations.

Vernacular name: long grass (Windward Group).

SABA: The Bottom (Arnoldo 575, fl. & fr. Aug.); Ladder Gut, 200 m (Boldingh 2003, fl. July); *ibid.*, 100—200 m (Stoffers 2786, fl. & fr. Ap.); along the road from The Bottom to Crispine (Stoffers 2954, fl. & fr. Ap.); Castle Hill, seaside, 300—350 m (Stoffers 4200, fl. & fr. Aug.); Booby Hill, 300 m (Boldingh 1579, fl. & fr. July).

ST. EUSTATIUS: near Boven 200 m (Boldingh 1251, fl. June); slope of The Quill (Boldingh 890, fl. & fr. June); slope of The Quill near Bengalen (Boldingh 723, fl. & fr. June); *ibid.*, 300 m (Boldingh 881, fl. & fr. June); along roads in Oranjestad (Boldingh 1070, fl. June; 575, fr. June; 1096 fl. & fr. June); along roads in Cultuurvlakte (Stoffers 3807, fl. July); between Oranjestad and Fort de Windt (Stoffers 3491, fl. & fr. July; 3524, fr. July); along roads near English Quarter (Boldingh 1000, fl. & fr. June; Suringar s.n., fl. & fr. May [L]); in garden in Oranjestad (Boldingh 67, fl. & fr. May; 1063A, fl. & fr. June).

ST. MARTIN: from Philipsburg to Guana Bay (Boldingh 2397, fl. & fr. Aug.); Mount Paradise, 300—400 m (Boldingh 3331, fl. & fr. Sept.); between Philipsburg and Oyster Pond (Stoffers 2297, fl. & fr. March); lower part of Experiment (Arnoldo 1265, fl. & fr. March); lower part of Milldrum Hill (Boldingh 3175, fl. & fr. Sept.); Experimental Garden, Cul de Sac (Burgers 469, fl. & fr. March).

***Digitaria californica* (Benth.) Henrard**

HENRARD, *Blumea* 1: 966. 1934; AMSHOFF, *Grasses D. W. Ind. Isl.* 30. 1942; — *Panicum californicum* BENTHAM, *Bot. Voy. Sulph.* 55. 1840; — *Trichachne californica* (Bentham) CHASE, *Journ. Wash. Acad. Sci.* 3: 455. 1933; — *Panicum lachnanthum* TORREY, *U.S. Rept. Expl. Miss. Pacif.* 21. 1856; BOLDINGH, *Fl. Ned. W. Ind. Eil.* 121. 1913; *Fl. D. W. Ind. Isl.* 2: 5. 1914.

Perennial grass with short, scaly, thick rhizomes. Culms erect, 10—100 cm tall. Sheaths long, pilose and pubescent; blades flat, lax, pubescent, 7—12 cm long and 3—5 mm wide, with prominent midvein and scabrous margins. Ligule hardly 1 mm long, more or less fimbriate. Inflorescence a contracted panicle, 5—13 cm long; racemes solitary along two sides of the triquetrous axis, the latter white-pilose on the lower nodes; rhachis triquetrous, scabrous, with 2 rows of paired spikelets on long, slender, unequal pedicels. Spikelets 6—7 mm long, white long-pilose, the hairs appressed and lateron spreading. First glume distinct, glabrous, about 0.5 mm long, hyaline. Second glume 3 mm long, as long and as broad as the fertile floret, long-pilose, 3-veined. Sterile lemma 3.5—4 mm long, 5-veined, long-pilose between the lateral veins. Fertile lemma long-acuminate, brown at maturity. Palea with two veins.

Southern United States to Paraguay.

On dry grounds.

Vernacular name: yerba ginete (Leeward Group).

ARUBA: Jamanota (Arnoldo 302, fl. & fr. Dec.); without loc. (Beaujon s.n., st.; Boldingh 6483, fl. & fr.).

BONAIRE: Joewa Hills (Boldingh 7299, fl. & fr. Feb.); Angola (Stoffers 828, fl. & fr. Nov.); calcareous plateau of Bolivia (Boldingh 7362, st. Feb.).

CURAÇAO: Knip Hills (Stoffers 1141, fl. & fr. Dec.); Hofje Abau (Curran & Haman 93, st. Feb.).

Digitaria eggersii (Hackel) Henrard

HENRARD, *Blumea* 1: 97. 1934; — *Panicum eggersii* HACKEL, Oesterr. Bot. Ztschr. 51: 292. 1901; — *Valota eggersii* (Hackel) HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 18: 292. 1917; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 32. 1923; — *Trichachne eggersii* (Hackel) HENRARD, Med. Rijksherb. Leiden 61: 10. 1930; HITCHCOCK, Manual Grasses West Indies 165. 1936.

Perennial grass with short stolons. Culms slender, 20—40 cm tall. Sheaths more or less pilose; blades boat-shaped, 1—5 cm long and 2—4 mm wide, more or less pilose, with scabrous margins. Ligule about 1 mm long. Racemes 2 or 3 at the apex of the culm, erect, 2—7 cm long. Rhachis triquetrous, scabrous, with excavations for the pairs of dorsally flattened spikelets. Each pair consisting of one subsessile, up to 4 mm long spikelet and one 3 mm long spikelet on an as long triquetrous, scabrous pedicel. First glumes thickish, triangular, 0.25 mm long. Second glume narrow-lanceolate, 3-veined, pilose. Sterile lemma indurate, 5-veined, the midvein impressed with a narrow groove on each side, in the subsessile spikelets pilose only in the upper part of the outer veins, in the pedicellate spikelets densely pilose on the lateral veins. Fertile lemma acuminate, yellowish. Palea with two veins.

St. Thomas and Virgin Gorda.

CURAÇAO: Scherpenheuvel (Arnoldo 1594, fl. & fr. March).

Digitaria adscendens (H.B.K.) Henrard

HENRARD, *Blumea* 1: 92. 1934; AMSHOFF, Grasses D. W. Ind. Isl. 29. 1942; — *Panicum adscendens* HUMBOLDT, BONPLAND & KUNTH, Nov. Gen. et Spec. 1: 97. 1815; — *Digitaria marginata* LINK, Enum. Hort. Berol. 102. 1821; GRISEBACH, Fl. Br. W. Ind. Isl. 544. 1864; — *Panicum sanguinale* auct. non Linnaeus: BOLDINGH, Fl. D. W. Ind. Isl. 2: 6. 1914 p.p.; — *Digitaria sanguinalis* auct. non Scopoli: HITCHCOCK, Manual Grasses West Indies 169. 1936.

Annual, with short stolons. Culms ascending, slender. Sheaths keeled in the upper part; sheaths and blades sparsely pilose with hairs on a thickened base, or the lower ones pubescent; blades linear-lanceolate, 3—10 mm wide, with prominent midvein. Ligule triangular, 1.5—3 mm long. Racemes 3 to 10, in fascicles on a short axis; the rhachis scabrous, triquetrous, and narrowly winged. Spikelets usually two together on a branchlet, one on a very short pedicel, the other one on a stiff and long pedicel. Spikelets about 3 mm long. First glume distinct, $\frac{1}{3}$ mm long. Second glume about 2 mm long, 3-veined,

woolly-pubescent between the veins. Sterile lemma 7-veined, woolly-pubescent on the approximate lateral veins, the back glabrous. Fertile lemma acute, yellowish. Palea 2-veined.

Temperate and tropical regions.

Common weed.

ARUBA: Hofje of Fontein (Arnoldo 340, fl. & fr. Dec.; Stoffers 1706, fl. & fr. Jan.; Boldingh 6475A, fl. & fr. Jan.).

CURAÇAO: Noordkant Plantation (Stoffers 165, fl. & fr. Oct.); Patattentuin (Burgers 60, fl. & fr. Jan.); Cas Corá (Burgers 86, fl. & fr. Jan.); Cas Chiquito (Versluys 1413, fl. & fr. Dec.).

SABA: The Bottom (Stoffers 2903, st. Ap.); Ladder Gut, 0—200 m (Boldingh 2013, fl. & fr. July).

***Digitaria horizontalis* Willd.**

WILDENOW, Enum. Hort. Berol. 92. 1809; HITCHCOCK, Manual Grasses West Indies 169, fig. 107. 1936; QUESTEL, Fl. Isl. St. Bartholomew 78. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 28. 1942; LEON, Fl. Cuba 1: 127. 1946; HODGE, Lloydia 17: 122. 1954; — *Milium digitatum* SWARTZ, Prodr. Veg. Ind. Occ. 24. 1788; — *Syntherisma digitata* (Swartz) HITCHCOCK, Contr. U.S. Nat. Herb. 12: 142. 1908; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 33. 1923; — *Digitaria digitata* (Swartz) URBAN, Symb. Ant. 8: 24. 1920, non BUESE in MIQUEL, Pl. Jungh. 381. 1854; — *Panicum sanguinale* auct. non Linnaeus: BOLDINGH, Fl. D. W. Ind. Isl. 1: 18. 1909; Fl. Ned. W. Ind. Eil. 121. 1913 p.p.

Stoloniferous, weedy annual. Culms erect, slender. Sheaths and blades usually pubescent, a few sparsely pilose. Sheaths keeled in the upper part; blades linear-lanceolate, up to 8 mm wide. Ligule triangular, 1—1.5 mm long. Racemes 5 to 15, very slender, lax, up to 8 cm long, subdigitate or in fascicles along the axis. Rhachis scabrous, triquetrous and narrowly winged. Spikelets 2—2.5 mm long, usually in two rows, paired, one on a very short pedicel, the other one with a rather long, triquetrous, scabrous pedicel. The first glume minute. Second glume up to half as long as the spikelet, 3-veined, pubescent between the veins. Sterile lemma with 7 prominent veins, pubescent between the lateral ones, glabrous along the midvein. Fertile lemma acute, yellowish. Palea 2-veined.

Tropics.

Common weed in lower elevations.

Vernacular name: hay grass (Windward Group).

SABA: road to The Mountain (Arnoldo 773, fl. & fr. Aug.; 804, fl. & fr. Aug.); near The Saddle, 400 m (Stoffers 3393, fl. & fr. May); Booby Hill, 400 m (Stoffers 4286B, fl. Aug.; Boldingh 1604, fl. & fr. July); from Crispine to Small Rendez-Vous (Stoffers 3051, fl. & fr. Ap.); lower part of the Bottom Mountain, 250 m (Boldingh 1403, fl. & fr. July); Windwardside (Arnoldo 646, fl. & fr.

Aug.); from The Bottom to Windwardside (Boldingh 1326, fl. & fr. July); between Hellsgate and Mastic Gut, 300—400 m (Boldingh 2068, fl. & fr. July); between The Bottom and Mary's Point, 100—200 m (Boldingh 1560, fl. & fr. July); without loc. (Boldingh 2685, fl. & fr.).

ST. EUSTATIUS: Oranjestad (Boldingh 1097, fl. & fr. June); Bengalen (Boldingh 614, fl. & fr. June; 748, fl. & fr. July); slope of The Quill near Glass Bottle, 275—340 m (Stoffers 3850, fl. & fr. July); slope of The Quill near Bengalen, 50 m (Boldingh 662, fl. & fr. June); without loc. (v. Groll-Meyer 279, fl. & fr.).

ST. MARTIN: along saltpond near Philipsburg (Boldingh 2450, fl. & fr. Aug.); Low Lands (Boldingh 3289, fl. & fr. Sept.); in pasture land near Bellevue (Boldingh 3051, fl. & fr. Aug.; 2829, fl. & fr. Aug.); between Philipsburg and Guana Bay (Boldingh 2363, fl. & fr. Aug.); top of hills along the northern side of Cul de Sac, 200—300 m (Boldingh 2987, fl. & fr. Aug.); between Philipsburg and Belvedere (Boldingh 2599, fl. & fr. Aug.); without loc. (Boldingh 3114, fl. & fr.).

***Eriochloa* H.B.K., Nov. Gen. et Spec. 1: 94. 1815**

Annual or perennial grasses with flat leaves. Inflorescence consisting of several one-sided, spike-like racemes. Spikelets abaxial, dorsally compressed, more or less pubescent, short-pedicellate or sessile, in two rows on one side of an usually hairy and narrow, flattened rhachis, the pedicels often hispid; lower rhachilla-internode thickened, forming a more or less ring-like, usually dark-coloured callus below the second glume. First glume a minute, membranaceous rim or wanting. Sterile lemma similar to but slightly shorter than the second glume, empty or with palea and sometimes also stamens, enclosing the indurate, mucronate or shortly awned, fertile lemma with slightly enrolled margins and palea of the same texture.

About 20 species in tropical and subtropical regions.

***Eriochloa punctata* (L.) Desv. ex Ham.**

HAMILTON, Prodr. Pl. Ind. Occ. 5. 1825; GRISEBACH, Fl. Br. W. Ind. Isl. 544. 1864; DUSS, Fl. phan. Ant. franç. 513. 1897; URBAN, Symb. Ant. 4: 84. 1903; Symb. Ant. 8: 23. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 34. 1923; HITCHCOCK, Manual Grasses West Indies 184, fig. 117. 1936; HODGE, Lloydia 17: 122. 1954; — *Milium punctatum* LINNAEUS, Syst. Nat. ed. 10. 2: 872. 1759.

Glabrous, branching perennial. Culms ascending from a decumbent base, up to 1 m tall. Sheaths slightly keeled above; blades flat, glabrous or puberulent, up to 30 cm long and 3—10 mm wide, yellow-auriculate at the base. Ligule a rim of short hairs, 0.5 mm long. Inflorescence consisting of several to many, erect or ascending, 1.5—4 cm long racemes; common axis and rhachis of the racemes pubescent. Spikelets lanceolate, long-acuminate, 4—5 mm long. First glume wanting. Second glume and first lemma appressed-pilose in the lower and puberulent in the upper half. Sterile palea wanting. Fertile lemma punctulate with a 1 mm long, hispidulous awn.

West Indies and southern United States to Argentine.

In wet places at lower altitude.

CURAÇAO: Ronde Klip (Arnoldo s.n., fl. & fr. March); Noordkant Plantation (Stoffers 169, fl. & fr. Oct.).

Brachiaria Grisebach, in Ledeb., Fl. Ross. 4: 469. 1853

Annual or perennial grasses. Leaves linear (or lanceolate) to ovate-lanceolate. Inflorescence consisting of spike-like, commonly solitary and sessile, racemes. Spikelets one to two or rarely more together, ovate to oblong, appressed to the flat or triquetrous rachis. First glume adaxial, usually much shorter than the spikelet. Second glume and sterile lemma subequal, 5—7-veined. Sterile palea usually well-developed, with stamens or empty. Fertile lemma indurate, mostly transversely rugose, with enrolled margins.

About 80 species, in tropical and subtropical regions.

Key to the species:

1. Spikelets 3—3.5 mm long; first glume about 1 mm long; blades at base with pubescent ears *B. purpurascens*
Spikelets 2 mm long; first glume up to 0.5 mm long; blades at base subcordate, ciliate *B. reptans*

Brachiaria purpurascens (Raddi) Henrard

HENRARD, Blumea 3: 434. 1940; AMSHOFF, Grasses D. W. Ind. Isl. 30. 1942; — *Panicum purpurascens* RADDI, Agrost. Bras. 47. 1823; HITCHCOCK, Manual Grasses West Indies 247, fig. 198. 1936; HODGE, Lloydia, 17: 127. 1954; — *Panicum barbinode* TRINIUS, Mem. Acad. St. Petersburg 6: 256. 1834; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 43. 1923; — *Panicum molle* auct. non Swartz: BOLDINGH, Fl. D. W. Ind. Isl. 1: 18. 1909; Fl. Ned. W. Ind. Eil. 121. 1913; Fl. D. W. Ind. Isl. 2: 5. 1914.

Perennial, stoloniferous grass. Culms ascending, up to 2 m tall; nodes densely white-villous. Sheaths papillose-pilose or papillose between the veins only; blades 10—30 cm long and 1—1.5 cm wide, rounded at the base with pubescent ears, glabrous, with very scabrous margins and prominent midvein. Ligule a ciliate rim. Racemes several, on two sides of a 10—20 cm long, triquetrous common axis, ascending when young and spreading afterwards, bearded at the base. Spikelets mostly in pairs, on very short pedicels in two rows along the flattened, more or less zig-zag rachis, 3—3.5 mm long, glabrous, pale-green, often tinged with purple. First glume about 1 mm long, ovate, acute, 1-veined. Second glume and sterile lemma subequal, 5-veined, slightly surpassed by the apex of the broad sterile palea. Fertile lemma obtuse, mucronulate, with narrow enrolled margins, indistinctly 5-veined, finely transversely rugose. Palea of the same texture, tip not enclosed, and with shiny, smooth, strongly enrolled margins.

Probably a native of tropical South America and tropical West Africa; cultivated and naturalized in the tropics and subtropics.

Vernacular names: para gras (Leeward Group).
para grass (Windward Group).

ARUBA: Hofje of Fontein (Arnoldo 341, fl. & fr. Dec.).

BONAIRE: Fontein (Stoffers 556, fl. & fr. Nov.); Dos Pos (Arnoldo 457, fl. & fr. Feb.).

CURAÇAO: Jan Thiel (Burgers 105, fl. & fr. Jan.); Hofje of Siberië (Boldingh 4962, fl. & fr. Nov.); without loc. (Boldingh 5294, fl. & fr.).

SABA: without loc. (Boldingh 2331, st.; Lionarons 84, st.).

ST. EUSTATIUS: slope of The Quill near Glass Bottle (Boldingh 1201, st. June).

ST. MARTIN: Cul de Sac (Arnoldo 1324, fl. & fr. March).

Brachiaria reptans (L.) Gardn. & Hubb.

GARDNER & HUBBARD in HOOKER, Icon. Pl. 34: t. 3363, p. 3. 1938; HENRARD, Blumea 3: 431. 1940; AMSHOFF, Grasses D. W. Ind. Isl. 31. 1942; — *Panicum reptans* LINNAEUS, Syst. Nat. ed. 10. 2: 879. 1759; BOLDINGH, Fl. Ned. W. Ind. Eil. 121. 1913; Fl. D. W. Ind. Isl. 2: 5. 1914; HITCHCOCK, Manual Grasses West Indies 247, fig. 199. 1936; — *Panicum prostratum* LAMARCK, Tabl. Encycl. 1: 171. 1791; Duss, Fl. phan. Ant. franç. 515. 1897; BOLDINGH, Fl. D. W. Ind. Isl. 1: 18. 1909 p.p.

Annual with rather short stolons. Culms 10—30 cm tall with pubescent to glabrescent nodes. Sheaths striate, ciliate; blades ovate-lanceolate to lanceolate, almost cordate at the base, 1.5—6 cm long and 5—13 mm wide, long-ciliate at the base and very scabrous towards the apex. Ligule a ciliate rim, about 0.5 mm long. Racemes few to several, ascending when young, spreading lateron, 1—4 cm long, bearded at the base. Rhachis triquetrous, scabrous. Spikelets in pairs, one shortly pedicelled, the other one distinctly pedicelled, ovate, acute, 2 mm long, glabrous. First glume up to 0.5 mm long, sub-acuminate at the apex, (nearly cup-shaped with) margins nearly touching at base. Second glume and sterile lemma subequal, second glume 7-veined; sterile lemma 5-veined. Sterile palea enclosed. Fertile lemma apiculate, finely transversely rugose, 5-veined, with narrow enrolled margins. Palea of the same texture, tip not enclosed, and with shiny, smooth, strongly enrolled margins.

Tropics of both hemispheres.

Rather common weed.

Vernacular name: running grass (Windward Group).

CURAÇAO: Experimental Garden, Cas Corá (Stoffers 256, fl. & fr. Oct.); Noordkant Plantation (Stoffers 166, fl. & fr. Oct.); Choloma (Stoffers 18, fl. & fr. Sept.); Klein St. Michiel (Stoffers 267, fl. & fr. Oct.); Santa Catharina (Britton & Shafer 3145, fl. & fr. March); Santa Cruz (Britton & Shafer 2987, fl. & fr. March; 3002, fl. & fr. March); Cas Chiquito (Versluys 1414, fl. & fr. Dec.); Hofje of Siberië (Boldingh 5054S, fl. & fr. Nov.); Willemstad (Arnoldo s.n.,

fl. & fr. March); Vaersenbaai (Burgers 57, fl. & fr. Jan.); Groot Piscadera (Burgers 117, fl. & fr. Jan.); Hofje of Groot St. Joris (Boldingh 5423B, fl. & fr. Nov.); without loc. (Aschenberg s.n., fl. & fr.).

ST. MARTIN: Mount Paradise, 200—300 m (Boldingh 3315, fl. & fr. Sept.); Naked Boy Hill (Boldingh 2698, fl. & fr. Aug.); lower part of Milldrum Hill (Boldingh 3165, fl. & fr. Sept.); between Belvedere and Oyster Pond (Boldingh 3071, fl. & fr. Aug.); Tintamarre (Boldingh 3377, fl. & fr. Sept.; 3383, fl. & fr. Sept.).

Axonopus P. de Beauvois, Ess. Agrost. 12. 1812

Stoloniferous or tufted perennials or rarely annuals, with compressed sheaths and flat or folded blades. Inflorescence consisting of few or numerous, slender, spike-like racemes, digitate or racemose along the main axis. Spikelets abaxial, depressed biconvex, solitary and alternate on a triquetrous rhachis, falling entire. First glume wanting. Second glume and sterile lemma equal, 2—5-veined. Sterile palea wanting. Fertile lemma and palea indurate, the margins of the lemma slightly enrolled.

About 35 species in the western hemisphere, chiefly in tropical South America.

Axonopus compressus (Swartz) P. de Beauv.

P. DE BEAUVOIS, Ess. Agrost. 12. 1812; URBAN, Symb. Ant. 8: 22. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 35. 1923; HITCHCOCK, Manual Grasses West Indies 188. 1936 p.p.; CHASE, Journ. Wash. Acad. Sci. 28: 178, fig. 1. 1938; AMSHOFF, Grasses D. W. Ind. Isl. 32. 1942; HODGE, Lloydia 17: 122, fig. 63. 1954; — *Milium compressum* SWARTZ, Prodr. Veg. Ind. Occ. 24. 1788. — *Paspalum conjugatum* auct. non Bergius: BOLDINGH, Fl. D. W. Ind. Isl. 1: 14. 1909; — *Panicum prostratum* auct. non Lamarck: BOLDINGH, Fl. D. W. Ind. Isl. 1: 18. 1909 p.p.

Stoloniferous perennial. Culms erect, slightly compressed, 20—40 cm tall, the nodes commonly pilose. Sheaths strongly compressed without distinct keel, glabrous. Ligule minute. Leaf-blades linear-lanceolate, rounded at the base, obtuse at the apex, (2—) 6—10 mm wide, ciliate from thickened bases, glabrous or sparsely pubescent below; blades thin but straight, making a distinct angle with the sheath, the connection distinctly pubescent when young. Racemes 2 to 3, two apical, the third one slightly below the apex; often 2 or 3 axillary peduncles from the upper node. Rhachis triquetrous, slender. Spikelets lanceolate-oblong, 2—2.5 mm long, acute, depressed at the apex. Second glume and sterile lemma equal, pointed beyond the fertile floret, 5-veined, pubescent on the lateral veins; the midvein inconspicuous. Fertile floret obtuse, stramineous, the lemma with a few hairs at the apex.

Tropical and subtropical America; introduced in the Old World.

In clearings at lower and middle elevations.

SABA: road to The Mountain (Arnoldo 771, fl. & fr. Aug.).

ST. MARTIN: mountain between Mont des Accords and Sentry Hill, 200—300 m (Boldingh 2907, fl. Aug.); Mount Paradise, 150—400 m (Boldingh 3190, fl. Sept.).

Paspalum Linnaeus, Syst. Nat. ed. 10. 2: 855. 1759

Annual or perennial grasses. Inflorescence consisting of one to many spike-like racemes, these single or paired at the top of the culms or racemosely arranged along the main axis. Spikelets in pairs or solitary, plano-convex or rarely concavo-convex, usually obtuse, sessile or shortly pedicellate, in two rows on one side of the slender or dilated rhachis, adaxial, falling entire. First glume mostly wanting. Second glume and sterile lemma mostly similar, the former rarely wanting; sterile lemma empty. Fertile lemma usually obtuse, chartaceous-indurate, with enrolled margins enclosing a palea of the same texture.

About 300 species in the tropics and subtropics.

Key to the species:

1. Plants annual; spikelets with a broad, firm notched wing
P. fimbriatum (p. 166)
 Plants perennial; spikelets not winged 2
2. Racemes 2, conjugated at the top of the culms 3
 Racemes racemose, 2 to several, rarely solitary; spikelets plano-convex 4
3. Spikelets concavo-convex, 1.5 mm long, ciliate along the margin
P. conjugatum (p. 166)
 Spikelets plano-convex, 2.2—2.4 mm long, glabrous
P. curassavicum (p. 167)
4. Culms robust, 0.4—2 m tall; spikelets 2.2—2.5 mm long 5
 Culms slender, rarely over 75 cm tall; spikelets 2 mm long or less 6
5. Spikelets glabrous *P. secans* (p. 168)
 Spikelets puberulous *P. pleostachyum* (p. 168)
6. Fertile floret brown at maturity, surpassed by the pointed glume and sterile lemma *P. bonairense* (p. 168)
 Fertile floret stramineous at maturity, as long as the not pointed glume and sterile lemma 7
7. Nodes or at least a part of them appressed pubescent; spikelets elliptic, 1.5—1.8 mm long *P. caespitosum* (p. 169)
 Nodes glabrous; spikelets obovate-elliptic or obovate 8
8. Spikelets 1.6—1.8 mm long, more or less pubescent *P. laxum* (p. 169)
 Spikelets 2.1 mm long, glabrous, pale-stramineous . *P. bakeri* (p. 171)

***Paspalum fimbriatum* H.B.K.**

HUMBOLDT, BONPLAND & KUNTH, Nov. Gen. et Spec. 1: 93, pl. 28. 1815; GRISEBACH, Fl. Br. W. Ind. Isl. 542, 1864; DUSS, Fl. phan. Ant. franç. 511. 1897; URBAN, Symb. Ant. 4: 82. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 14. 1909; Fl. Ned. W. Ind. Eil. 118. 1913; URBAN, Symb. Ant. 8: 21. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 41. 1923; HITCHCOCK, Manual Grasses West Indies 241, fig. 195. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 33. 1942; LEON, Fl. Cuba 1: 135, fig. 52. 1946; HODGE, Lloydia 17: 128. 1954.

Tufted annual. Culms erect, 15—80 cm tall or more. Sheaths keeled, pilose along the margin; blades flat, linear-lanceolate with prominent midvein, ciliate, scabrous towards the tip, 5—20 cm long and 5—12 mm wide. Ligule about 1 mm long. Racemes 2 to 8, ascending and spreading lateron; rachis flattened, 1.5 mm wide. Spikelets in pairs, short-pedicellate, suborbicular, concave-convex, with the wing included about 3 mm long; pedicels puberulous. First glume wanting. Second glume and sterile lemma minutely papillose, apiculate, 3-veined; the marginal veins bearing a firm, notched, up to 1 mm wide and stiffly ciliate wing, the wing of the sterile lemma usually partially developed or wanting. Fertile floret stramineous, ovate, about 2 mm long; the lemma 5-veined.

West Indies, Panama to Colombia and Brazil.

Waste grounds and along roadsides.

SABA: from The Bottom to Crispine, 220—350 m (Stoffers 2961, fl. & fr. Ap.; 2976, fl. & fr. Ap.); Ladder Cut (Boldingh 2017, fl. & fr. July; Stoffers 2828, fl. & fr. Ap.); along roads, 200—300 m (Boldingh 1711, fl. & fr. Aug.); between The Bottom and Mary's Point, 100—200 m (Boldingh 1509, fl. & fr. July); between The Bottom and Windwardside, 200 m (Boldingh 1290, fl. & fr. July; Arnoldo 602, fl. & fr. Aug.); Booby Hill, 400 m (Stoffers 4272, fl. & fr. Aug.).

ST. EUSTATIUS: along roads near Glass Bottle (Boldingh 1213, fl. & fr. June); Oranjestad (Boldingh 1109, fl. & fr. June).

ST. MARTIN: Airfield (Stoffers 2367, fl. & fr. March; 2375, fl. & fr. March; 2382, fl. & fr. March; 2384, fl. & fr. March); Experimental Garden, Cul de Sac (Stoffers 2350, fl. & fr. March); without loc. (Burgers 492, fl. & fr. Feb.).

***Paspalum conjugatum* Bergius**

BERGIUS, Act. Helv. Phys. Math. 7: 129, pl. 8. 1762; GRISEBACH, Fl. Br. W. Ind. Isl. 541. 1864; DUSS, Fl. phan. Ant. franç. 509. 1897; URBAN, Symb. Ant. 4: 81. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 14. 1909; Fl. Ned. W. Ind. Eil. 117. 1913; URBAN, Symb. Ant. 8: 21. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 41. 1923; CHASE, Contr. U.S. Nat. Herb. 28: 162, fig. 105. 1929; HITCHCOCK, Manual Grasses West Indies 226, fig. 177. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 34. 1942; LEON, Fl. Cuba 1: 134. 1946; HODGE, Lloydia 17: 125, fig. 64. 1954.

An extensively creeping, stoloniferous perennial. Culms erect, 20—50 cm tall or more. Sheaths keeled, glabrous or sometimes ciliate; blades flat, linear-

lanceolate, 5—15 cm long and 5—15 mm wide, with several strong veins and prominent midvein beneath, rounded at the base, ciliate and upward scabrous, sparsely pubescent above or glabrous. Racemes 2, rarely a third one at some distance below, 8—15 cm long, widely divaricate. Rhachis slender, pubescent at the base, 0.75 mm wide. Spikelets solitary, slightly imbricate, in two strongly appressed rows, short-pedicellate, suborbicular, subacute, about 1.5 mm long, depressed concavo-convex, yellow. First glume wanting. Second glume and sterile lemma equal, with two marginal veins; the glume long-ciliate. Fertile floret pale, smooth.

Tropics of both hemispheres.

Lower and middle elevations.

Vernacular name: crab grass (Windward Group).

SABA: between The Bottom and Mary's Point, 100—200 m (Boldingh 1470, fl. & fr. July); slope of The Mountain, 600 m (Boldingh 1776, fl. & fr. July); id. at "Under the Cliff", 660 m (Stoffers 4244, fl. & fr. Aug.); Windwardside (Arnoldo 644, fl. & fr. Aug.); Castle Hill, seaside, 300—350 m (Stoffers 4153, fl. & fr. Aug.).

ST. MARTIN: Mount Paradise, 300—400 m (Boldingh 3242, fl. & fr. Sept.).

***Paspalum curassavicum* Chase**

CHASE, Journ. Wash. Acad. Sci. 33: 316. 1943.

An erect, densely caespitose, glabrous perennial, with a hard knotted base and brittle arching stolons 50 cm or more long, with erect, leafy branches from the knotted base; the stolons compressed or sulcate; culms rather rigid, leafy, 30—40 cm tall, only one flowering to 8 to 15 sterile culms, all branching at the middle nodes, the branches erect or nearly so, sometimes in small fascicles; sheaths closed, overlapping, the lower two or three with reduced blades, from rudimentary to 5 mm long; ligule a ring of hairs 0.5 mm long; blades rather firm, flat, 4 to 12 cm long, 2.5 to 4 mm wide, rather sharp-pointed, sometimes with a few hairs at base. Racemes 2, included at base, erect, 3—3.5 cm long; rhachis 0.7 mm wide. Spikelets not imbricate, 2.2—2.4 mm long, 1.1 mm wide, ovate-elliptic, pale; second glume and sterile lemma equal, minutely pointed beyond the fruit, 3-veined (the midvein occasionally suppressed). Fruit 2 mm long, the tip of the palea enclosed.

Known only from the type collection.

No specimen seen; description taken from Chase, Journ. Wash. Acad. Sci. 33: 316—317. 1943.

CURAÇAO: west of Hato (Chase 12282, fl. & fr. Feb. [US], Type!; iso-type in [VEN]).

Paspalum secans Hitchc. & Chase

HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 18: 319. 1917; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 38. 1923; CHASE, Contr. U.S. Nat. Herb. 28: 205, fig. 124. 1929; HITCHCOCK, Manual Grasses West Indies 232, fig. 182. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 36. 1942; LEON, Fl. Cuba 1: 137. 1946.

An erect perennial, in large clumps. Culms firm, 0.5—2 m tall, glabrous. Sheaths strongly striate, long-ciliate and with long hairs in the throat, slightly keeled towards the apex; blades complicate at base, flat or involute towards the apex, long-ciliate towards the base, pubescent above, 5—10 mm wide, with scabrous margins. Ligule 0.5—1 mm long. Racemes 3 to 19, slender, spreading or arcuate, up to 15 cm long. Rhachis zig-zag, slender, scabrous. Spikelets in pairs, both subsessile or one pedicellate, obovate-elliptic, often minutely apiculate, glabrous, about 2.5 mm long; pedicels puberulous. First glume wanting. Second glume and sterile lemma equal, 3-veined, pale. Fertile floret stramineous, finely punctulate, shining.

West Indies.

Weed at lower elevations.

CURAÇAO: seashore near San Pedro (Boldingh 5292, fl. & fr. Nov.); Pareira (Arnoldo 1764, fl. & fr. Dec.); without loc. (Boldingh 4824, fl. & fr.; 4836, fl. & fr.; 5069, fl. & fr.).

Paspalum bonaireense Henrard

HENRARD, Blumea 5: 324. 1943; AMSHOFF, Grasses D. W. Ind. Isl. 36. 1942.

A caespitose perennial. Culms erect, the nodes glabrous. Sheaths strongly striate, pilose at the mouth; blades narrowly linear, convolute with long setaceous point, 30 cm or more long, about 2 mm wide. Ligule about 2 mm long. Racemes about 4, solitary on a short axis; rhachis flattened, pubescent, scabrous. Spikelets in pairs, about 2.2 mm long, one long-pedicellate, the other short-pedicellate, elliptic, shortly acuminate; the pedicels puberulous. First glume wanting. Second glume 3-veined, obscurely pubescent. Sterile lemma slightly shorter than the second glume, glabrous. Fertile floret obtuse, 2 mm long, brown, finely punctulate, shining.

Bonaire and Curaçao.

On calcareous soil.

BONAIRE: calcareous plateau of Bolivia (Boldingh 7370, fl. & fr. Feb., Typel).

CURAÇAO: Ronde Klip (Stoffers 1244, fl. & fr. Dec.).

Paspalum pleostachyum Doell in Martius

DOELL in MARTIUS, Fl. Bras. 2(2): 58. 1877; HITCHCOCK, Manual Grasses West Indies 217. 1936; LEON, Fl. Cuba 1: 142. 1946.

An erect, tufted perennial. Culms ascending to spreading, 40—100 cm tall. Sheaths strongly striate, ciliate upwards, hairy on the collar and in the throat; blades flat from an involute base, in drying often subinvolute, 15—30 cm long and 4—8 mm wide, long-ciliate near the base. Ligule about 1 mm long. Racemes 3 to 15, commonly 4 to 8, at last stiffly spreading, 7—14 cm long. Rhachis zig-zag, slender, scabrous. Spikelets in pairs, both pedicellate or one subsessile, obovate-elliptic, sometimes apiculate, 2.2—2.5 mm long, puberulous. First glume wanting. Second glume and sterile lemma equal, 3-veined, pale. Fertile floret finely punctulate.

Antilles and tropical continental South America.

ARUBA: top of Jamanota (Arnoldo 296, fl. & fr. Dec.); San José (Arnoldo 311, fl. & fr. Dec.).

BONAIRE: Soebi Blanco (Arnoldo 373, fl. & fr. Jan.).

CURAÇAO: hills near Santa Catharina (Arnoldo s.n., fl. & fr. Feb.).

***Paspalum caespitosum* Flüggé**

FLÜGGÉ, Monogr. Pasp. 161. 1816; GRISEBACH, Fl. Br. W. Ind. Isl. 542. 1864; URBAN, Symb. Ant. 4: 81. 1903; Symb. Ant. 8: 19. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 39. 1923; HITCHCOCK, Manual Grasses West Indies 213, fig. 152. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 34. 1942; LEON, Fl. Cuba 1: 138. 1946; — *Paspalum glabrum* auct. non Poirét: BOLDINGH, Fl. D. W. Ind. Isl. 2: 4. 1914 p.p.

A caespitose perennial grass. Culms erect, slender, 20—60 cm tall with appressed-pubescent or glabrescent nodes, the base hard and slightly enlarged. Sheaths pubescent on the collar or quite glabrous. Ligule minute or obsolete. Blades flat or involute, 3—10 mm wide, usually with a few long hairs at the base and more or less ciliate near the base. Racemes (2—) 3 to 6, distant, ascending or somewhat spreading, 1.5—4 cm long. Spikelets in pairs, both pedicellate, elliptic, about 1.5 mm long. Glume and sterile lemma subequal, speckled with purple, 3—5-veined, sparsely appressed-pubescent or the lemma nearly glabrous. Fertile floret stramineous, smooth, shining.

Southern Florida, Central America, and West Indies.

CURAÇAO: hills near Brakkeput Ariba (Boldingh 5555, fl. & fr. Nov.).

ST. EUSTATIUS: between Schotse Hoek and Little Mountains (Stoffers 3548, fl. & fr. July).

***Paspalum laxum* Lam.**

LAMARCK, Tabl. Encycl. 1: 176. 1791; CHASE, Contr. U.S. Nat. Herb. 28: 134, fig. 79. 1929; HITCHCOCK, Manual Grasses West Indies 215, fig. 156. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 35. 1942; LEON, Fl. Cuba 1: 138. 1946; HODGE, Lloydia 17: 125. 1954;

— *Paspalum glabrum* POIRET in LAMARCK, Tabl. Encycl. 5: 30. 1804; GRISEBACH, Fl. Br. W. Ind. Isl. 542. 1864; URBAN, Symb. Ant. 4: 83. 1903; BOLDINGH, Fl. Ned. W. Ind. Eil. 118. 1913; Fl. D. W. Ind. Isl. 2: 4. 1914; URBAN, Symb. Ant. 8: 20. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 39. 1923. — *Paspalum hemisphaericum* auct. non Poiret: BOLDINGH, Fl. D. W. Ind. Isl. 1: 14. 1909.

A caespitose perennial. Culms slender, erect or ascending, 15—75 cm tall, the nodes dark and glabrous. Sheaths strongly striate, with more or less pilose margins and long hairs in the throat; blades flat or involute, 5—30 cm long and 3—8 mm wide, glabrous or pubescent. Ligule 0.5—1 mm long. Racemes 2 to 6 or sometimes more, slender, arcuate-spreading, 2—10 cm long. Spikelets in pairs on distinctly puberulous pedicels, obovate-elliptic to obovate, obtuse, 1.6—1.8 mm long. First glume wanting. Second glume and sterile lemma subequal, 3 (—5)-veined, the glume pubescent and speckled with brown or glabrous and stramineous; the lemma glabrous. Fertile lemma stramineous, finely punctulate.

West Indies.

On cultivated and semi-cultivated lands at lower elevations.

ARUBA: calcareous rocks, Fontein (Arnoldo 265, fl. & fr. Dec.); calcareous top and slope of Canashito (Boldingh 6372, fl. & fr. Dec.); San Nicolas (Arnoldo 278, fl. & fr. Dec.); calcareous soil near San Nicolas (Boldingh 6495A, fl. & fr. Jan.); Sabana Serveta (Stoffers 1400, fl. & fr. Jan.); west of Spaans Lagoen (Stoffers 1463, fl. & fr. Jan.); Paloe Marca (Stoffers 1961, fl. & fr. Jan.).

BONAIRE: calcareous hills near Rincón (Boldingh 7046, fl. & fr. Feb.); Karpata (Stoffers 1070, fl. & fr. Dec.); calcareous plateau near the seashore in the neighbourhood of Tolo (Boldingh 7279, fl. & fr. Feb.); Lima (Arnoldo 33, fl. & fr.); road to saltpans (Stoffers 716, fl. & fr. Nov.); Airfield (Stoffers 775, fl. & fr. Nov.).

CURAÇAO: from Antonieberg to northern seashore (Boldingh 5134, fl. & fr. Nov.; 3110B, fl. & fr. Nov.); calcareous soil near San Pedro (Boldingh 5282, fl. & fr. Nov.); Ronde Klip (Boldingh 5404, fl. & fr. Nov.); calcareous hills near Malpais (Boldingh 4889, fl. & fr. Jan.); seashore near St. Michiels Baai (Boldingh 4896, fl. & fr. Jan.); Santa Cruz (Britton & Shafer 3027, fl. & fr. March); hills near Klein Piscadera (Boldingh 5326, fl. & fr. Oct.); Knip Hills (Stoffers 1152, fl. & fr. Dec.); near saltponds of St. Willebrordus (Stoffers 368, fl. & fr. Oct.).

SABA: Ladder Gut, 0—40 m (Stoffers 4354, fl. & fr. Aug.; Boldingh 2009, fl. & fr. July); between The Bottom and Mary's Point, 100—200 m (Boldingh 1525, fl. & fr. July); Windwardside (Arnoldo 638, fl. & fr. Aug.); Booby Hill, 400 m (Stoffers 4295, fl. & fr. Aug.; 4286A, fl. & fr. Aug.).

ST. EUSTATIUS: Oranjestad (Boldingh 553, fl. & fr. June); slope of The Quill, 200 m (Boldingh 879, fl. & fr. June); id., at the side of White Wall, 200 m (Boldingh 1167, fl. & fr. June); along roads from Oranjestad to Fort de Windt (Stoffers 3509, fl. & fr. July).

ST. MARTIN: near Mullet Pond (Boldingh 2782, fl. & fr. Aug.; 2763, fl. & fr. Aug.); Low Lands (Boldingh 3281, fl. & fr. Sept.); in pasture grounds near Bellevue (Boldingh 2827, fl. & fr. Aug.); between Bellevue and Oyster Pond (Boldingh 3068, fl. & fr. Aug.).

Paspalum bakeri Hackel

HACKEL, Inf. Est. Centr. Agron. Cuba 1: 410. 1906; CHASE, Contr. U.S. Nat. Herb. 28: 133, fig. 78. 1929; HITCHCOCK, Manual Grasses West Indies 214, fig. 155. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 35. 1942; LEON, Fl. Cuba 1: 138. 1946; — *Paspalum glabrum* auct. non Poiret: BOLDINGH, Fl. Ned. W. Ind. Eil. 118. 1913 p.p.; Fl. D. W. Ind. Isl. 2: 4. 1914 p.p.

A glabrous perennial, forming small tough clumps, leafy at the base. Culms spreading, 20—50 cm tall. Sheaths strongly striate, pubescent at the collar, slightly keeled; blades enrolled, firm, 2—20 cm long and 2—4 mm wide, ciliate towards the base, pubescent or glabrous. Ligule up to 2.5 mm long, obtuse, pubescent outside. Racemes 1 to 4, ascending, 2—7 cm long; rhachis zig-zag, with strongly appressed spikelets in pairs. Spikelets obovate-elliptic, pale-stramineous, glabrous, 2.1 mm long and 1.1—1.3 mm wide; pedicels distinctly hirsutulous. First glume wanting. Second glume and sterile lemma equal, 3-veined. Fertile floret stramineous, finely punctulate and shining.

Bahamas, Cuba, Barbuda.

Lower elevations.

ARUBA: sandy seashore near Manchebo (Boldingh 6292, fl. & fr. Dec.).

BONAIRE: between Lima and Airfield (Stoffers 762, fl. & fr. Nov.).

CURAÇAO: Cashero (Boldingh 4785, fl. & fr. Oct.); Hofje of Valentijn (Boldingh 5367, fl. & fr. Oct.); calcareous hills near Mahoema (Boldingh 4821, fl. & fr. Oct.); hills near Blein (Boldingh 4765, fl. & fr. Oct.).

Panicum Linnaeus, Spec. Plant. 55. 1753

Annual or perennial grasses. Inflorescence commonly a lax panicle. Spikelets more or less dorsally compressed, without definite orientation towards the rhachis; falling entire. First glume herbaceous, usually much shorter than the spikelet. Second glume and sterile lemma herbaceous, similar. Sterile palea developed, rarely wanting, often with stamens. Fertile floret indurate, smooth or transversely rugose; the lemma with narrow, enrolled margins, quite enclosing the palea.

Species about 500, in warm and temperate regions.

Key to the species:

1. Fertile floret transversely rugose 5
Fertile floret smooth and shining, or minutely punctulate 2
2. Spikelets 1—1.3 mm long, with very long pedicels *P. trichoides* (p. 172)
Spikelets 2—3.5 mm long 3

3. Inflorescence contracted, branches few-flowered; leaves linear, 1—3 mm wide; sheaths glabrous or the lower ones sparsely pubescent
P. diffusum (p. 173)
 Inflorescence a panicle with ascending branches, several-flowered; leaves linear-lanceolate, rounded at the base, 3—12 mm wide; sheaths papillose-hirsute 4
4. Spikelets ovate-lanceolate, 2.5—3 mm long; first glume at least half as long as the spikelet, acuminate; annual *P. hirticaule* (p. 173)
 Spikelets ovate-oblong, \pm 3 mm long; first glume half as long as the spikelet, acute; perennial *P. ghiesbreghtii* (p. 174)
5. Robust perennial; spikelets oblong, glabrous; lower panicle-branches verticillate *P. maximum* (p. 174)
 Annual; spikelets obovate or fusiform; panicles subracemose 6
6. Spikelets 2—2.5 mm long, glabrous *P. fasciculatum* (p. 175)
 Spikelets 3—3.5 mm long, pubescent 7
7. Spikelets obovate, turgid; first glume about half as long as the spikelet
P. molle (p. 176)
 Spikelets fusiform; first glume about one third of the length of the spikelet
P. adpersum (p. 177)

***Panicum trichoides* Swartz**

SWARTZ, Prodr. Veg. Ind. Occ. 24. 1788; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 129. 1910; URBAN, Symb. Ant. 8: 30. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 45. 1923; HITCHCOCK, Manual Grasses West Indies 272, fig. 238. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 41. 1942; LEON, Fl. Cuba 1: 146. 1946; HODGE, Lloydia 17: 126. 1954; — *Panicum brevifolium* auct. non Linnaeus; BOLDINGH, Fl. D. W. Ind. Isl. 1: 15. 1909; Fl. Ned. W. Ind. Eil. 120. 1913.

A spreading annual. Culms ascending from a decumbent base, 20—50 cm tall, pubescent in the lower part. Sheaths striate papillose-hirsute, ciliate; blades lanceolate-ovate, flat, more or less cordate at the base, 3—7 cm long and 1—2 cm wide, midvein prominent beneath, several lateral veins prominulous, sparsely hirsute and ciliate. Ligule a ciliate rim. Panicles open and spreading, 10—20 cm long, branches and very long pedicels capillary. Spikelets elliptic, acute, 1—1.3 mm long, sparsely hirsute. First glume about half as long as the spikelet, acute, 3-veined with a prominent midvein. Second glume slightly shorter than the sterile lemma, 3—5-veined. Fertile floret subacute, minutely punctulate; lemma with distinct midvein.

Tropical America.

Along roadsides at middle and lower elevations.

ARUBA: Oranjestad (Arnoldo 204, fl. & fr. Dec.).

SABA: Road to The Mountain (Arnoldo 807, fl. & fr. Aug.); Spring Bay Gut (Boldingh 2122, fl. & fr. July); gut between Hellsgate and Mastic Gut, 300—400 m (Boldingh 2031, fl. & fr. July); lower part of Bottom Mountain, 300 m (Boldingh 1933, fl. & fr. July); without loc. (Lionarons 147, fl. & fr.).

***Panicum diffusum* Swartz**

SWARTZ, Prodr. Veg. Ind. Occ. 23. 1788; GRISEBACH, Fl. Br. W. Ind. Isl. 548. 1964; DUSS, Fl. phan. Ant. franç. 518. 1897; URBAN, Symb. Ant. 4: 89. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 15. 1909 p.p.; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 72, fig. 59. 1910; URBAN, Symb. Ant. 8: 28. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 46. 1923; HITCHCOCK, Manual Grasses West Indies 257, fig. 211. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 40. 1942; LEON, Fl. Cuba 1: 149. 1946.

Perennial in small dense tufts. Culms slender, 10—30 cm tall, the nodes appressed-pubescent. Sheaths striate, glabrous or the lower ones sometimes sparsely pubescent; blades 5—20 cm long and 1—3 mm wide, flat or sub-involute, sparsely pilose to nearly glabrous. Ligule a ciliate rim. Panicles 5—10 cm long; the branches capillary, contracted when young, stiffly spreading at maturity, bearing a few short-pedicellate spikelets towards the ends. Spikelets ovate-lanceolate, acuminate, 2.1—2.5 mm long, glabrous. First glume half to two thirds as long as the spikelet, acute, 5-veined. Second glume and sterile lemma subequal, 7—9-veined. Fertile floret \pm 1.6 mm long, subacute, smooth and shining.

West Indies.

Common weed at lower elevation.

ST. MARTIN: along road from Cole Bay Hill to Simson Bay (Boldingh 3015, fl. & fr. Aug.); between Belvedere and Oyster Pond (Boldingh 3077, fl. & fr. Aug.); Tintamarre (Boldingh 3394, fl. & fr. Sept.).

***Panicum hirticaule* Presl**

PRESL, Rel. Haenk. 1: 308. 1830; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 64, fig. 46. 1910; BOLDINGH, Fl. Ned. W. Ind. Eil. 121. 1913; Fl. D. W. Ind. Isl. 2: 5. 1914; URBAN, Symb. Ant. 8: 28. 1920; HITCHCOCK, Manual Grasses West Indies 255, fig. 209. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 39. 1942; LEON, Fl. Cuba 1: 152. 1946.

Annual. Culms erect, 10—70 cm tall, glabrous; the nodes appressed-hirsute. Sheaths striate, papillose-hirsute; blades linear-lanceolate, flat, rounded at base, papillose-hirsute, 3—12 mm wide. Ligule a ciliate rim. Panicles 5—15 cm long, with ascending branches. Spikelets ovate-lanceolate, acuminate, glabrous, 2.5—3.0 mm long. First glume at least half as long as the spikelet, acuminate, 5-veined. Second glume and sterile lemma subequal, strongly 7—9-veined, acuminate. Fertile floret about 1.5—2 mm long, acute, smooth and shining.

Southern United States to Bolivia, Cuba and Hispaniola.

Rather common weed.

CURAÇAO: Hofje of Zuurzak (Boldingh 5379, fl. & fr. Nov.); hofje of Groot St. Joris (Boldingh 5423, fl. & fr. Nov.); calcareous hills near Hato (Boldingh 5322, fl. & fr. Nov.); Hofje of Valentijn (Boldingh 5094, fl. & fr. Oct.).

***Panicum ghiesbreghtii* Fourn.**

FOURNIER, Mex. Pl. 2: 29. 1886; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 79, fig. 65. 1910; URBAN, Symb. Ant. 8: 28. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 46. 1923; HITCHCOCK, Manual Grasses West Indies 258, fig. 212. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 40. 1942 (as *P. ghiesbreghtii*); LEON, Fl. Cuba 1: 150. 1946.

Perennial, in small tufts. Culms erect, up to 80 cm long, glabrous; the nodes hirsute. Sheaths striate, hirsute to papillose-hirsute; blades linear-lanceolate, flat, rounded at base, midvein prominent beneath, more or less hirsute or glabrescent, 5—12 mm wide. Ligule a ciliate rim. Panicle open, with ascending branches, 10—30 cm long. Spikelets ovate-oblong, acuminate, about 3 mm long, glabrous. First glume half as long as the spikelet, acute, 5-veined. Second glume and sterile lemma subequal, 7—9-veined. Fertile floret 2 mm long, subacute, smooth and shining.

Mexico to Brazil, West Indies.

Roadsides at lower elevations.

ST. MARTIN: Road to Marigot (Boldingh 2808, fl. & fr. Aug.); Philipsburg to Guana Bay (Boldingh 2379, fl. & fr. Aug.); mountain between Mont des Accords and Sentry Hill, 0—200 m (Boldingh 2864, fl. & fr. Aug.).

***Panicum maximum* Jacq.**

JACQUIN, Coll. Bot. 1: 76. 1786; GRISEBACH, Fl. Br. W. Ind. Isl. 549. 1864; Duss, Fl. phan. Ant. franç. 519. 1897; URBAN, Symb. Ant. 4: 89. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 17. 1909; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 78, fig. 67. 1910; BOLDINGH, Fl. Ned. W. Ind. Eil. 121. 1913; Fl. D. W. Ind. Isl. 2: 5. 1914; URBAN, Symb. Ant. 8: 29. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 43. 1923; HITCHCOCK, Manual Grasses West Indies 259, fig. 214. 1936; QUESTEL, Fl. Isl. St. Bartholomew: 79. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 40. 1942; LEON, Fl. Cuba 1: 147, fig. 53. 1946; HODGE, Lloydia 17: 127. 1954.

A stoloniferous, caespitose perennial. Culms robust, 1—2.5 m tall, with hirsute nodes. Sheaths very long, keeled towards the top, hirsute on the collar; blades keeled near the base, linear, flat, somewhat rounded at base, 1—3.5 cm wide, glabrous or above hirsute near the base; midvein prominent. Ligule a long-ciliate rim. Panicle open, 20—50 cm long, the lower branches verticillate.

Spikelets oblong, acute, 3—3.5 mm long, glabrous. First glume one third as long as the spikelet. Second glume and sterile lemma subequal, 5-veined. Fertile floret apiculate, about 2.5 mm long, transversely rugose.

Native of tropical West Africa; cultivated and naturalized in the tropics of both hemispheres.

Lower and middle elevations.

Vernacular names: gieni gras (Leeward Group).
guinea grass (Windward Group).

CURAÇAO: Hofje of Barber (Boldingh 5231, fl. & fr. Nov.; Burgers 477, fl. & fr.); Hofje of Valentijn (Boldingh 5086, fl. & fr. Oct.); without loc. (Aschenberg s.n., fl. & fr.).

SABA: Booby Hill, 300 m (Boldingh 1580, fl. & fr. July); road to The Mountain (Arnoldo 780, fl. & fr. Aug.); without loc. (Lionarons 240, fl. & fr.).

ST. EUSTATIUS: in garden in Oranjestad (Boldingh 1063, fl. & fr. June).

ST. MARTIN: top of the hill on northern side of Cul de Sac (Boldingh 2988, fl. & fr. Aug.); Experimental Garden, Cul de Sac (Arnoldo 1313, fl. & fr. March; Burgers 477, fl. & fr. March).

***Panicum fasciculatum* Swartz**

SWARTZ, Prodr. Veg. Ind. Occ. 22. 1788; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 38, fig. 19. 1910; URBAN, Symb. Ant. 8: 27. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 44. 1923; HITCHCOCK, Manual Grasses West Indies 250, fig. 200. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 37. 1942; LEON, Fl. Cuba 1: 145. 1946.

A stoloniferous annual. Culms 30—100 cm tall, the nodes pubescent. Sheaths strongly striate with a hyaline, upward pilose margin; blades linear-lanceolate, flat, rounded or subcordate at the base, glabrous or sparsely hirsute, 0.5—2 cm wide. Ligule a ciliate rim. Panicle 5—15 cm long, consisting of several spike-like racemes, 5—10 cm long. Spikelets with two or three together, short-pedicellate, obovate, turgid, short-pointed, 2—2.5 mm long, bronze to yellow or brown, glabrous, reticulate-veined. First glume about one third of the length of the spikelet, acute, with prominent midvein. Second glume and sterile lemma equal, with 7—9 prominent veins. Fertile floret transversely rugose; lemma with an incurved apiculus.

Southern United States to Brazil and Ecuador; West Indies.

Common weed at lower elevations.

BONAIRE: Sabana (Arnoldo 403, fl. & fr. Jan.); Fontein (Stoffers 549, fl. & fr. Nov.); Rincón (Boldingh 7384, fl. & fr. Jan.; 7095B, fl. & fr. Jan.).

CURAÇAO: Hato (Arnoldo s.n., fl. & fr. Feb.); Jan Zoutvat (Arnoldo s.n., fl. & fr. Feb.); Patattentuin (Burgers 59, fl. & fr. Jan.); Klein Santa Marta (Stoffers

95, fl. & fr. Sept.); Choloma (Stoffers 15, fl. & fr. Sept.); Savonet (Arnoldo s.n., fl. & fr. March; Stoffers 1233, fl. & fr. Dec.; 1235, fl. & fr. Dec.); Seroe Christoffel (Stoffers 1198, fl. & fr. Dec.); Noordkant Plantation (Stoffers 130, fl. & fr. Oct.); Ronde Klip (Stoffers 1271A, fl. & fr. Dec.); Cas Chiquito (Versluys 1401, fl. & fr. Dec.; 1405, fl. & fr. Dec.); Hofje of Barber (Boldingh 5232B, fl. & fr. Oct.); Hofje of Siberië (Boldingh 5054E, fl. & fr. Nov.); Groot St. Joris (Burgers 106, fl. & fr. Jan.); without loc. (Aschenberg s.n., fl. & fr.).

***Panicum molle* Swartz**

SWARTZ, Prodr. Veg. Ind. Occ. 22. 1788; DUSS, Fl. phan. Ant. franç. 518. 1897; URBAN, Symb. Ant. 4: 88. 1903; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 42, fig. 23. 1910; HITCHCOCK, Manual Grasses West Indies 251, fig. 201. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 38. 1942; LEON, Fl. Cuba 1: 152. 1946; — *Panicum velutinatum* NEES apud TRINIUS, Gram. Pan. 144. 1826; BOLDINGH, Fl. Ned. W. Ind. Eil. 122. 1913; Fl. D. W. Ind. Isl. 2: 6. 1914.

A more or less stoloniferous annual. Culms erect, up to 1 m tall, with pubescent nodes. Sheaths pubescent to glabrate, pilose at collar and mouth; blades linear, flat, rounded at the base, 5—15 mm wide, pubescent on both sides, midvein prominent. Ligule a ciliate rim. Panicle 6—15 cm long, the branches subracemose, ascending, their axis as well as the common axis and the pedicels densely pubescent and also with stiff, spreading hairs, up to 1 mm long, especially near the top of the pedicels. Spikelets obovate, turgid, abruptly pointed, 3—3.5 mm long, pubescent. First glume about half as long as the spikelet, 5-veined, acute. Second glume and sterile lemma equal, reticulate-veined in the upper half; the glume 7-veined; the lemma 5-veined. Fertile floret apiculate, 2—2.5 mm long, transversely rugose.

Mexico to Argentine, Greater Antilles.

Lower elevations.

Vernacular name: maishi totalika (Leeward Group).

ARUBA: near Oranjestad (Stoffers 2083, fl. & fr. Feb.); near Noord (Stoffers 1545, fl. & fr. Jan.; 1785A, fl. & fr. Jan.); Matoguera (Stoffers 1424, fl. & fr. Jan.); road from Santa Cruz to Hooiberg (Boldingh 6362, fl. & fr. Dec.).

BONAIRE: Sabana (Arnoldo 402, fl. & fr. Jan.); Companashi (Arnoldo 66, fl. & fr. Dec.).

CURAÇAO: hills near Barber (Boldingh 5169, fl. & fr. Nov.); vicinity of Westpunt (Boldingh 4927, fl. & fr. Nov.); hills from Groot St. Joris to Koraal Tabak (Boldingh 5428, fl. & fr. Nov.); Santa Cruz (Britton & Shafer 2986, fl. & fr. March; 3004, fl. & fr. March); calcareous hills near Mahoema (Boldingh 4819, fl. & fr. Oct.); road near Antonieberg (Boldingh 5163, fl. & fr. Nov.); Ronde Klip (Stoffers 1271, fl. & fr. Dec.); Seroe Christoffel, 200 m (Burgers 31, fl. & fr. Dec.); Pareira (Arnoldo 1889, fl. & fr. Jan.; Burgers 10, fl. & fr. Dec.); Rooi Behoenda (Boldingh 5398, fl. & fr. Nov.); hills near Santa Cruz (Boldingh 5597, fl. & fr. Dec.); St. Jan (Burgers 13, fl. & fr. Dec.).

***Panicum adpersum* Trin.**

TRINIUS, Gram. Pan. 146. 1826; URBAN, Symb. Ant. 4: 89. 1903; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 43, fig. 24. 1910; URBAN, Symb. Ant. 8: 28. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 44. 1923; HITCHCOCK, Manual Grasses West Indies 251, fig. 202. 1936; QUESTEL, Fl. Isl. St. Bartholomew 80. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 39. 1942; — *Panicum grossarium* auct. non Linnaeus: BOLDINGH, Fl. Ned. W. Ind. Eil. 120. 1913.

A stoloniferous annual. Culms ascending, 30—100 cm tall, with pubescent nodes. Sheaths upwards keeled, striate, pubescent and ciliate; blades ovate-lanceolate, flat, rounded at the base, the tip contracted, the margins undulate and scabrous, 5—10 cm long and about 1 cm wide, the midvein prominent beneath, several lateral veins prominulous. Ligule a ciliate rim. Panicle 6—15 cm long; the racemes spike-like, few to many, 3—10 cm long, ascending; rhachis triquetrous, more or less scabrous. Spikelets in pairs, one short-pedicellate, the second long-pedicellate, fusiform, acuminate, 3—3.5 (—4) mm long, pubescent. First glume glabrous, about one third the length of the spikelet, acute, the margins touching at base, 3-veined. Second glume and sterile lemma equal, 5 to 7-veined. Sterile palea about 2.5 mm long; the fertile floret finely transversely rugose; the lemma with incurved apiculus.

Florida, West Indies.

Rather common weed at lower elevations.

SABA: Booby Hill, 300 m (Boldingh 1583, fl. & fr. July); between The Bottom and Mary's Point (Boldingh 1543, fl. & fr. July; 1562, fl. & fr. July; Arnoldo 850, fl. & fr. Aug.); without loc. (Lionarons 147, fl. & fr.).

ST. EUSTATIUS: plantation near Bengalen (Boldingh 598, fr. June); plantation near Oranjestad (Boldingh 1095, fl. & fr. June); slope of The Quill near Bengalen (Boldingh 724, fl. & fr. June); from Little Mountains to Venus Bay (Boldingh 989, fl. & fr. June).

ST. MARTIN: along roads near Bethlehem (Boldingh 2935, fl. & fr. Aug.); Naked Boy Hill (Boldingh 2699, fl. & fr. Aug.).

***Paspalidium* Stapf, Fl. trop. Afr. 9: 582. 1920**

Perennial grasses with flat or involute leaf-blades. Inflorescence consisting of spike-like racemes, sessile or subsessile along two sides of a triquetrous common axis; rhachis triquetrous. Spikelets in two rows, plano-convex, adaxial, obovate-ovate or ovate-lanceolate, falling entire. First glume up to half as long as the spikelet. Second glume and sterile lemma subequal, 5-7-veined, the sterile lemma mostly well-developed, empty. Fertile lemma indurate, transversely rugose or punctate, with enrolled margins. Palea of the same texture, with folded wings on two lateral veins.

Twelve species in tropical and subtropical regions; mainly in the Old World.

Paspalidium geminatum (Forskål) Stapf

STAPP, Flora Trop. Africa 9: 583. 1920; AMSHOFF, Grasses D. W. Ind. Isl. 43. 1942; — *Panicum geminatum* FORSKÅL, Fl. Aegypt. Arab. 18. 1775; BOLDINGH, Fl. D. W. Ind. Isl. 1: 16. 1909; Fl. Ned. W. Ind. Eil. 120. 1913; Fl. D. W. Ind. Isl. 2: 5. 1914; HITCHCOCK, Manual Grasses West Indies 247, fig. 197. 1936.

Glabrous, more or less caespitose perennial. Culms spreading from a decumbent base, sometimes erect, 25—80 cm tall, somewhat succulent. Sheaths keeled upwards; blades linear, flat, 10—20 cm long and 3—10 mm wide, densely papillose above. Ligule a densely ciliate rim. Panicle 5—30 cm long, consisting of 6 to 20, up to 3 cm long, appressed racemes. Spikelets short-pedicellate, broadly-ovate, pointed, 2—2.5 mm long. First glume about one third the length of the spikelet, truncate. Second glume and sterile lemma 5—7-veined; the glume shorter than the fertile floret. Sterile palea as long as the lemma, bi-keeled. Fertile floret apiculate; palea rugose only between the veins.

Tropics and subtropics of both hemispheres.

ARUBA: Savaneta (Arnoldo 289, fl. & fr. Dec.); Tibushi (Hummelinck s.n., fl. & fr. Dec.); calcareous hill Baicuri (Boldingh 6342A, fl. & fr. Jan.).

BONAIRE: behind dam near Jatoe Bacoë (Stoffers 648, fl. & fr. Nov.).

CURAÇAO: between Grote Berg and Kleine Berg in puddle (Arnoldo 1597, fl. & fr. March); Hofje of Siberië (Boldingh 5054M, fl. & fr. Nov.; 4963, fl. & fr. Nov.); Hofje of Malpais (Boldingh 4868, fl. & fr. Jan.); Groot St. Michiel (Arnoldo s.n., fl. & fr. Feb.); Tanki Martha-Koosje (Burgers 132, fl. & fr. Feb.); Hofje of Klein Santa Marta (Boldingh s.n., fl. & fr. Dec.).

ST. MARTIN: between Belvedere and Oyster Pond (Boldingh 3069, fl. & fr. Aug.).

Ichnanthus P. de Beauvois, Ess. Agrost. 56. 1812

Perennial, rarely annual grasses, often decumbent or straggling. Leaf-blades broad and flat, with inequilateral base. Inflorescence an open or contracted panicle, terminal or axillary. Spikelets slightly laterally compressed, usually in pairs, falling entire. Glumes commonly attenuate-acuminate, the first clasping, about half as long as the spikelets. Second glume and sterile lemma subequal, mostly 5-veined. Sterile palea well-developed, empty or with stamens. Fertile floret indurate; lemma usually shortly stipitate, bearing lateral membranaceous appendages; the latter often reduced to basal scars.

About 40 species, chiefly in tropical America.

Key to the species:

1. Leaves pubescent or glabrous; first glume half to three fourths the length of the spikelet *I. pallens*
Leaves sparsely pilose; first glume about as long as the sterile lemma
I. nemorosus

***Ichnanthus pallens* (Swartz) Munro ex Benth**

BENTHAM, Fl. Hongk. 414. 1861; BOLDINGH, Fl. D. W. Ind. Isl. 1: 19. 1909; Fl. Ned. W. Ind. Eil. 122. 1913; URBAN, Symb. Ant. 8: 33. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 50. 1923; HITCHCOCK, Manual Grasses West Indies 299, fig. 288. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 42. 1942; LEON, Fl. Cuba 1: 154. 1946; HODGE, Lloydia 17: 128, fig. 66. 1954; — *Panicum pallens* SWARTZ, Prodr. Veg. Ind. Occ. 23. 1788; GRISEBACH, Fl. Br. W. Ind. Isl. 550. 1864; Duss, Fl. phan. Ant. franç. 520. 1897.

Perennial. Culms much branched, widely creeping; fertile culms 30—80 cm long, puberulent. Sheaths striate, short, puberulent to pubescent, ciliate, constricted at the apex; blades ovate-lanceolate, acuminate, half-cordate and clasping at the base, glabrous or pubescent, the veins more or less scaberulous above, principal veins prominulous, the midvein yellow, 5—10 cm long and 1—2 (—3) cm wide. Ligule a fimbriate rim. Panicles terminal and axillary, 5—10 cm long. Spikelets lanceolate, acuminate, 3—3.5 mm long, glabrous. First glume half to three fourths the length of the spikelet, the prominent midvein scabridulous, excurrent as a mucro. Second glume attenuate-pointed, scaberulous, keeled and 5-veined, the top surpassing the acute sterile lemma. Sterile palea about as long as the fertile floret, both obtuse and about 2 mm long; the latter stramineous, smooth and shining. Appendages of fertile lemma reduced to 0.5 mm long decurrent scars.

West Indies; Mexico to Paraguay and Argentine; introduced in the tropics of the Old World.

Forest-borders at middle and higher elevations.

Vernacular name: water grass (Windward Group).

SABA: The Mountain, 800—835 m (Boldingh 2213, st. July; 1794, st. July; Stoffers 4224, st. Aug.; 4231, st. Aug.); without loc. (Lionarons 206, fl. & fr.).

***Ichnanthus nemorosus* (Swartz) Doell in Martius**

DOELL in MARTIUS, Fl. Bras. 2(2): 289. 1877; URBAN, Symb. Ant. 8: 33. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 49. 1923; LEON, Fl. Cuba 1: 154. 1946; — *Panicum nemorosum* SWARTZ, Prodr. Veg. Ind. Occ. 22. 1788; Duss, Fl. phan. Ant. franç. 520. 1897.

Perennial. Culms prostrate, often rooting at the nodes, branched, sparsely pilose. Leaves usually thinner, smaller, sparsely pubescent, for the rest as in *I. pallens*. Spikelets about 3 mm long. First glume about as long as the sterile lemma. Second glume a little longer, both keeled and acuminate. Fertile floret about 2 mm long, obtuse. Sterile palea as in *I. pallens*. Scars less decurrent.

West Indies; Mexico and Central America.

Forest-borders at middle and higher elevations.

SABA: road to The Mountain (Arnoldo 959, fl. & fr. Aug.); Castle Hill, sea-side (Stoffers 4148, st. Aug.).

Lasiacis Hitchcock, Contr. U.S. Nat. Herb. 15: 16. 1910

Large, branching, perennial grasses, with usually woody, branching, often clambering, culms. Leaf-blades flat, broad and firm. Inflorescence an open or somewhat contracted panicle. Spikelets subglobose or ovoid, falling entire. Glumes and sterile lemma broad, many-veined. First glume about one third the length of the spikelet. Second glume and sterile lemma subequal. Sterile palea sometimes with stamens. Fertile floret yellow-white, bony-indurate, obovoid, obtuse, with a tuft of wooly hairs in a small excavation at the apex. Lemma with enrolled margins. Palea enclosed, concave below, gibbous above.

Seventeen species in tropical and subtropical America.

Key to the species:

1. Panicles rather lax and open, 5—15 cm long; spikelets subglobose, 3—4 mm long *L. divaricata*
Panicles narrow, mostly less than 5 cm long; spikelets ovate-elliptic, 3.5—4.5 mm long *L. harrisii*

Lasiacis divaricata (L.) Hitchc.

HITCHCOCK, Contr. U.S. Nat. Herb. 15: 16. 1910; URBAN, Symb. Ant. 8: 31. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 50. 1923; HITCHCOCK, Manual Grasses West Indies 305. 1936; QUESTEL, Fl. Isl. St. Bartholomew 80. 1941; LEON, Fl. Cuba 1: 156. 1946; HODGE, Lloydia 17: 128, fig. 67. 1954; — *Panicum divaricatum* LINNAEUS, Syst. Nat. ed. 10. 2: 871. 1759; non BOLDINGH, Fl. D. W. Ind. Isl. 1: 16. 1909; Fl. Ned. W. Ind. Eil. 120. 1913.

Bamboo-like. Main culms woody, clambering over shrubs with straight or arcuate branches. Sheaths pubescent, sometimes only along the margin and the collar; blades ovate-lanceolate, 5—12 cm long and 5—15 mm wide, or on the vigorous sterile shoots much larger, rounded at the asymmetric base, scabrous on the margins, midvein prominent beneath; the basal portion of the fertile shoots bearing old sheaths but otherwise naked. Ligule very short and inconspicuous. Panicle terminal, 5—15 cm long, rather lax, the branches spreading or reflexed, the axes angled, scabrous, flexuous, the lower ones 2—4 cm long (rarely up to 10 cm long). Spikelets subglobose, turgid, 3—4 mm long, glabrous. First glume 1.5 mm long, broadly ovate, many-veined. Second glume and sterile lemma subequal, lateron sometimes splitting down the middle, many-veined. All scales with minute white-wooly hairs at the apex. Fertile floret smooth and shining.

West Indies and tropical continental America.

In seasonal forests, at lower elevations.

CURAÇAO: Seroe Christoffel, 250—300 m (Arnoldo 1927, fl. & fr. Feb.; id. s.n., fl. & fr. Dec.; Stoffers 1184, fl. & fr. Dec.).

Lasiacis harrisii Nash

NASH, *Torreyia* 13: 274. 1913; HITCHCOCK, *Contr. U.S. Nat. Herb.* 22: 20, pl. 17. 1920; BRITTON & WILSON, *Sci. Surv. Porto Rico & Virgin Isl.* 5: 50. 1923; HITCHCOCK, *Manual Grasses West Indies* 305. 1936; AMSHOFF, *Grasses D. W. Ind. Isl.* 42. 1942; — *Panicum divaricatum* auct. non Linnaeus: BOLDINGH, *Fl. D. W. Ind. Isl.* 1: 16. 1909; *Fl. Ned. W. Ind. Eil.* 120. 1913.

Bamboo-like, clambering among bushes; the main culms slender but strong, the very slender branches pendent, the young twigs commonly rose-purple. Sheaths slender, striate, glabrous except the margin and throat, or rarely the young ones sparsely hirsute; blades linear-lanceolate, 5–10 cm long and 2–7 (–8) mm wide, rounded at the asymmetric base, gradually narrowed to an acuminate apex, thin and lax, glabrous or the young ones finely pubescent, margins scabrous, midvein prominent beneath. Ligule a ciliate rim. Panicles narrow, mostly less than 5 cm long, often partially included in the uppermost sheaths, branches few. Spikelets 3.5–4.5 mm long, ovate-elliptic, somewhat turgid. For the rest similar to those of *L. divaricata*.

West Indies and Colombia.

In secondary woodlands at middle and lower elevations.

Vernacular names: cane grass, wild cane (Windward Group).

SABA: road to The Mountain (Arnoldo 869, fl. & fr. Aug.); gut between Hellsgate and Mastic Cut, 300–400 m (Boldingh 2070, st. July); road to Windwardside (Arnoldo 594, fl. & fr. Aug.); between The Bottom and Saddle (Stoffers 3405, st. May); between The Bottom and Mary's Point, 400 m (Boldingh 1484, st. July); without loc. (Boldingh 831, st.); Peperpot (Suringar s.n., fr. Ap. [L]); Rendez Vous (Suringar s.n., fl. & fr. Ap. [L]).

ST. EUSTATIUS: between Glass Bottle and White Wall, 100–200 m (Stoffers 4086, st. Aug.; 4062, st. Aug.); inner slope of The Quill (Boldingh 417, st. June); between Little Mountains and Venus Bay (Boldingh 990, st. June); slope of The Quill near Bengalen (Boldingh 750, st. July; 676, st. June; Suringar s.n., defl. Ap. [L]); top of The Quill, 400 m (Boldingh 238, st. June); western slope of The Quill, 250 m (Stoffers 4717, st. Aug.); top of The Quill above Glass Bottle, 380–400 m (Stoffers 3579, st. July); Solitude (Stoffers 3701, st. July); without loc. (v. Groll-Meyer 234, fl. & fr.; 194, st.); Sugar Loaf (Suringar s.n., st. May [L]).

ST. MARTIN: Milldrum Hill, 300–400 m (Boldingh 3150, st. Sept.); Marigot Hill to Marigot, 0–200 m (Boldingh 2645, st. Aug.); mountain between Mont des Accords and Sentry Hill, 200–300 m (Boldingh 2896, st. Aug.); in orchard near Bellevue (Boldingh 2845, st. Aug.); French Frontier (Suringar s.n., defl. May [L]); Sentry Hill (Suringar s.n., st. May [L]).

Isachne R. Brown, *Prodr.* 196. 1810

Mostly branching, perennial grasses. Leaves flat, firm, strongly veined. Inflorescence consisting of an open or contracted panicle. Spikelets obovoid to subglobose, falling entire. Glumes membranaceous, about equaling the lemmas.

Lower floret perfect or staminate, the upper one perfect, both indurate, plano-convex, obtuse, equal in size or the upper shorter.

Species about 60 in tropical and subtropical regions.

Key to the species:

- 1. Blades thick, rigid, pungent, with thickened midrib and margins, 2—4 cm long *I. rigidifolia*
Blades firm, but not pungent nor with thickened midrib or margins, 5—20 cm long *I. disperma*

***Isachne disperma* (Lam.) Doell in Martius**

DOELL in MARTIUS, Fl. Bras. 2(2): 274. 1877; HITCHCOCK, Contr. U.S. Nat. Herb. 22: 120, pl. 32. 1920; Manual Grasses West Indies 320. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 53. 1942; — *Panicum dispernum* LAMARCK, Tabl. Encycl. 173. 1791; — *Isachne arundinacea* auct. non Grisebach: BOLDINGH, Fl. D. W. Ind. Isl. 1: 15. 1909; Fl. Ned. W. Ind. Eil. 118. 1913.

Tall, perennial grass. Culms climbing among shrubs to a height of as much as 5 m, branching; the branches with two bladeless sheaths at the base, the axillary one is a bi-keeled, canaliculate prophyll. Sheaths striate, ligule a rim of hairs, about 2 mm long; blades lanceolate, glabrous, scabrous towards the apex, 5—20 cm long and 1—2.5 cm wide. Panicle large and open, lax, up to 20 cm long, with pseudo-verticillate spreading branches. Spikelets solitary or in pairs along the branchlets, 1.1—1.3 mm long; pedicels 0.5—3 mm long. Glumes glabrous. Lemmas equal, smooth.

Lesser Antilles.

Montane woods.

SABA: top of The Mountain (Boldingh 2196, fl. & fr. July).

***Isachne rigidifolia* (Poiret) Urban**

URBAN, Symb. Ant. 4: 85. 1903; Symb. Ant. 8: 23. 1920; HITCHCOCK, Manual Grasses West Indies 318. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 52. 1942; LEON, Fl. Cuba 1: 159. 1946; — *Agrostis rigidifolia* POIRET in LAMARCK, Encycl. Sup. 1: 257. 1810; — *Isachne rigens* auct. non Trinius: BOLDINGH, Fl. D. W. Ind. Isl. 1: 15. 1909.

Perennial grass. Culms spreading and branching, rooting at the lower nodes, up to 40 cm long. Sheaths glabrous, stiffly ciliate on the margin, overlapping on the flowering shoots. Ligule a minute ciliate rim. Leaves distichous; leaf-blades lanceolate to linear-lanceolate, 2—4 cm long and 2—4 mm wide, rigid with thickened midrib and thickened cartilaginous margin, pungent, spreading, glabrous. Panicles long-exserted, ovate to oblong, open, 2—5 cm long, the branches ascending when young or spreading, the branchlets mostly turned

downwards. Spikelets obliquely pedicellate, about 1.5—2 mm long. Glumes rounded at the apex, glabrous or pubescent especially towards the apex. Lemmas equal, smooth.

West Indies.

At middle and higher elevations; in elfin woodland and montane bogs.

SABA: top of The Mountain, 800 m (Suringar s.n., fl. & fr. Ap. [L]).

Oplismenus P. de Beauvois, Fl. Owar. 2: 14. 1809

Freely branching, creeping, shade-loving annuals or perennials, with erect flowering shoots and flat, thin, ovate or lanceolate, acuminate blades. Racemes rather distant on two sides of the trigonous main axis. Spikelets terete or somewhat laterally compressed, subsessile, in pairs or solitary, in two rows along one side of the rhachis, falling entire. Glumes about equal, 5—7-veined, awned. Awn of the first glume by far the longest. Sterile lemma exceeding the glumes and fruit, mucronate or short-awned from below the apex, enclosing the fertile floret in the upper part. Sterile palea hyaline, narrow. Fertile lemma chartaceous, elliptic, acute, convex or boat-shaped, awnless, the margins enrolled, enclosing a palea of the same texture.

Ten species in the tropics and subtropics.

Oplismenus setarius (Lam.) Roem. et Schult.

ROEMER & SCHULTES, Syst. Veg. 2: 481. 1817; Duss, Fl. phan. Ant. franç. 514. 1897; BOLDINGH, Fl. D. W. Ind. Isl. 1: 19. 1909; Fl. Ned. W. Ind. Eil. 122. 1913; URBAN, Symb. Ant. 8: 33. 1920; HITCHCOCK, Contr. U.S. Nat. Herb. 22: 127, fig. 22. 1920; Manual Grasses West Indies 322, fig. 295. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 45. 1942; LEON, Fl. Cuba 1: 160. 1946; HODGE, Lloydia 17: 130, fig. 69. 1954; — *Panicum setarium* LAMARCK, Tabl. Encycl. 1: 170. 1791; — *Orthopogon setarius* SPRENGEL, Syst. 1: 307. 1825; GRISEBACH, Fl. Br. W. Ind. Isl. 545. 1864.

Slender, creeping, branching perennial. Culms ascending, 20—30 cm tall, pubescent. Sheaths striate, densely pubescent along the margins and sparsely pubescent towards the apex; blades undulate, ovate to lanceolate, 1—4 cm long and 4—10 mm wide with cartilaginous, scabrous margins, pilose when young, glabrescent; midvein and six lateral veins distinct. Ligule minute, ciliate. Racemes 4 to 8, distant, subglobose; rhachis 2—5 mm long or rarely longer, hispid below, with up to 8 spikelets. Spikelets about 3 mm long, hispidulous. Awn of the first glume stout, smooth, 5—10 mm long, that of the second glume 2—3 mm long.

West Indies, southern United States, and Mexico to Paraguay.

Forest-borders at lower and middle elevations.

Vernacular name: running mountain grass (Windward Group).

SABA: slope of The Mountain near Windwardside, 600 m (Boldingh 2182, fl. & fr. July); Windwardside (Arnoldo 665, st. Aug.); lower part of Bottom Hill, 250 m (Boldingh 1408, fl. & fr. July); Spring Bay Gut (Boldingh 2100, st. July); The Bottom (Boldingh 1453, fl. & fr. July); Booby Hill (Boldingh 1600, st. July).

ST. EUSTATIUS: inner slope of The Quill, 350 m (Boldingh 414, st. June); without loc. (v. Groll-Meyer 260H, st.).

ST. MARTIN: Marigot Hill - Marigot, 200—0 m (Boldingh 2643, st. Aug.).

Echinochloa P. de Beauvois, Ess. Agrost. 53. 1812

Coarse, often succulent annuals or perennials with compressed sheaths; blades linear, flat. Panicles rather compact, composed of short, densely-flowered, one-sided racemes along a main axis. Spikelets subsessile, plano-convex, often hispid, solitary or in irregular clusters, falling entire. First glume pointed, about half as long as the spikelet, 3—5-veined. Second glume pointed or shortly awned, 5—7-veined. Sterile lemma pointed or long-awned. Sterile palea well-developed, sometimes with stamens. Fertile floret plano-convex, smooth and shining, acuminate, the margins enrolled, the apex of the palea not enclosed.

About 20 species in tropical and subtropical regions.

Echinochloa colonum (L.) Link

LINK, Hort. Berol. 2: 209. 1833; URBAN, Symb. Ant. 8: 25. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 53. 1923; HITCHCOCK, Manual Grasses West Indies 327, fig. 299. 1936; QUESTEL, Fl. Isl. St. Bartholomew 80. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 44. 1942; LEON, Fl. Cuba 1: 160. 1946; HODGE, Lloydia 17: 131. 1954; — *Panicum colonum* LINNAEUS, Syst. Nat. ed. 10. 2: 870. 1759; GRISEBACH, Fl. Br. W. Ind. Isl. 545. 1864; BOLDINGH, Fl. D. W. Ind. Isl. 1: 15. 1909; Fl. Ned. W. Ind. Eil. 120. 1913; Fl. D. W. Ind. Isl. 2: 4. 1914.

Annual. Culms prostrate-spreading, ascending or erect, 20—60 cm tall, glabrous. Sheaths compressed, glabrous; blades rather lax, 5—10 (—20) cm long and 6 mm wide, rounded at the base, keeled in the lower part, scabrous on the margins, glabrous. Ligule wanting. Inflorescence 5—15 cm long, consisting of spike-like racemes, alternating along two sides of the triquetrous main axis; racemes appressed or ascending, 1—2.5 cm long. Spikelets 2.5—3 mm long, in alternating groups of 3 (1 or 2 often reduced), subsessile to short-pedicellate, along two sides of the triquetrous rhachis. First glume hardly half as long as the spikelet, acuminate, margins touching at base. Second glume and sterile lemma subequal, short-pointed, 5-veined, shortly hispid on the veins, hispidulous between the veins. Sterile palea well-developed, mostly empty, hyaline. Glumes and fertile lemma often tinged with purple.

A common weed in tropical and subtropical regions; introduced in America.

ARUBA: Vicinity of Noord (Stoffers 1585, fl. & fr. Jan.); plantation near Washington (Stoffers 1505, fl. & fr. Jan.).

BONAIRE: Sabana (Arnoldo 472, fl. & fr. March).

CURAÇAO: Hofje Van Engelen (Boldingh 5434, fl. & fr. Nov.); Hofje of Ronde Klip (Arnoldo s.n., fl. & fr. March); Hofje of Valentijn (Boldingh 5349, fl. & fr. Nov.); Hofje of Groot St. Joris (Boldingh 5423A, fl. & fr. Nov.); Hofje of Zuurzak (Boldingh 5380, fl. & fr. Nov.); Cas Chiquito (Went 1407, fl. & fr. Dec.).

ST. MARTIN: Experimental Garden, Cul de Sac (Hummelinck s.n., fl. & fr. May); Rolands Canal (Hummelinck s.n., fl. & fr. May); in pasture ground near Bellevue (Boldingh 2841, fl. & fr. Aug.); Cul de Sac (Boldingh 2614, fl. & fr. Aug.).

Tricholaena Schrader in Schultes, Mant. 2: 163. 1824

Tufted perennial or annual grasses. Inflorescence an at maturity rather open panicle. Spikelets on capillary pedicels, falling entire. First glume small. Second glume and first lemma equal, raised on a stipe above the first glume, emarginate or lobed, awned, covered, except towards the apex, with long silky hairs. First lemma with well-developed palea and stamens. Fertile lemma shorter than the spikelet, cartilaginous, smooth, boat-shaped, obtuse, the margins thin, not enrolled. Palea with free tip.

About 10 species in Africa, the Canary Islands, Sicily, and south-west Asia.

Tricholaena repens (Willd.) Hitchc.

HITCHCOCK, Manual Grasses West Indies 331. 1936; LEON, Fl. Cuba 1: 162. 1946; — *Saccharum repens* WILLDENOW, Spec. Plant. 1: 322. 1797.

Annual or short-living perennial. Culms decumbent at the base, up to 1 m long, pubescent on the nodes. Sheaths strongly veined, sparsely papillose-pilose. Ligule a rim of short hairs. Leaf-blades flat, 5—15 cm long, 2—7 mm wide, glabrous. Spikelets 5 mm long (hairs and awns excluded), ovate. Glumes and sterile lemma covered with violet to whitish, up to 8 mm long silky hairs. First glume oblong, 1.5—2 mm long. Second glume boat-shaped, 4—5 mm long with a 3—8 mm long scabrous awn. Sterile palea about 3 mm long, more or less silky. Fertile floret 2.5 mm long, smooth and shining.

South Africa; introduced in North America.

Waste ground.

CURAÇAO: Pareira (Stoffers 33, fl. & fr. Sept.; 34, fl. & fr. Sept.); Willemstad (Arnoldo s.n., fl. & fr. Feb.; v. d. Klip 2, fl. & fr. March); Piscadera Baai (de Wilde 33A, fl. & fr. Nov.).

SABA: Hill N.W. of The Bottom (Stoffers 2914, fl. & fr. Ap.); road to Mary's Point (Arnoldo 841, fl. & fr. Aug.; 838, fl. & fr. Aug.).

ST. MARTIN: Airfield (Stoffers 2380, fl. & fr. March); near the Airfield (Arnoldo 1237, fl. & fr. March); Philipsburg (Stoffers 2301, fl. & fr. March).

Setaria P. de Beauvois, Ess. Agrost. 51, 178. 1812, nom. cons. 171.

Perennial or annual grasses. Leaf-blades commonly flat. Inflorescence consisting of narrow, often spike-like panicles. Spikelets ovoid or elliptic, more or less plano-convex, shortly pedicellate, subtended by one to several, scabrous, persistent bristles (sterile branchlets), inserted at the base of the pedicels. First glume not more than half the length of the spikelet, 3—5-veined. Second glume mostly shorter than the spikelet, 5—7-veined. Sterile lemma 5—7-veined. Palea wanting or developed, sometimes with stamens. Fertile lemma indurate, strongly convex, transversely rugose (or smooth, but not in our species), convex, the margin involute, quite enclosing a palea of the same texture.

About 100 species in both hemispheres.

Key to the species:

1. Panicle cylindric, dense, spike-like, with very conspicuous patent bristles 2
Panicle narrow, loose-flowered, not spike-like, with capillary axis, with inconspicuous bristles 4
2. Spikelets on main axis, each subtended by a group of more than five antrorsely scabrous bristles *S. geniculata* (p. 186)
Spikelets on lateral branchlets, each subtended by one bristle . . . 3
3. Bristles retrorsely scabrous; spikelets in dense clusters; panicles cylindric, obtuse *S. verticillata* (p. 187)
Bristles antrorsely scabrous; spikelets not clustered on the very narrow, attenuate panicle *S. setosa* (p. 188)
4. First glume about one third the length of the spikelet, truncate or rounded
S. chapmani (p. 188)
First glume about half the length of the spikelet, acute 5
5. Spikelets 1.5 mm long, strongly veined *S. distantiflorum* (p. 189)
Spikelets 2 mm long, veins not prominent; often with distant axillary panicles *S. utowanaeum* (p. 189)

Setaria geniculata (Lam.) P. de Beauv.

P. DE BEAUVOIS, Ess. Agrost. 51. 1812; URBAN, Symb. Ant. 8: 35. 1920; HITCHCOCK, Manual Grasses West Indies 339, fig. 310. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 48. 1942; LEON, Fl. Cuba 1: 163. 1946; HODGE, Lloydia 17: 132. 1954; — *Panicum geniculatum* LAMARCK, Tabl. Encycl. 4: 727. 1798; — *Chaetochloa geniculata* (Lamarck) MILLSAUGH & CHASE, Field Mus. Bot. 3: 96. 1913; HITCHCOCK, Contr. U.S. Nat. Herb. 22: 168, fig. 41. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 55. 1923; — *Setaria glauca* auct. non (L.) P. de Beauvois: BOLDINGH, Fl. D. W. Isl. 1: 19. 1909.

Perennial, creeping with branchy, knotty, up to 4 cm long rhizomes. Culms erect to spreading, up to 100 cm tall, the base usually hard and wiry, often

more slender than the upper part. Sheaths keeled, glabrous; blades flat, scabrous, more or less pubescent towards the base on the upper surface, 10—25 cm long and 4—8 mm wide, with prominent midvein. Ligule 0.5 mm long, fimbriate. Panicle cylindric, densely-flowered, erect, 2—12 cm long and 1—1.5 cm wide. Bristles mostly 8—12 below each spikelet, antrorsely scabrous, yellow to purplish, 5—10 mm long. Spikelets 2—2.5 mm long, ovoid, concave-convex, pale green to yellow. First glume about one third the length of the spikelet, acute, 3-veined. Second glume about half as long as the spikelet, 5-veined. Sterile lemma as long as the fertile floret, apiculate, indistinctly 5—7-veined, with developed, as long palea. Fertile lemma apiculate, transversely rugose, indistinctly 3-veined. Palea rugulose.

West Indies; southern United States to Argentine and Chile.

Weed, at lower and middle elevations.

SABA: slope of The Mountain, 600 m (Boldingh 1772, fl. & fr. July); Windward-side (Arnoldo 660, fl. & fr. Aug.); between The Bottom and Windwardside, 200 m (Boldingh 1289, fl. & fr. July); Castle Hill, seaside, 300—350 m (Stoffers 4141, fl. & fr. Aug.); The Saddle, 350—400 m (Stoffers 4117, fl. & fr. Aug.); without loc. (Lionarons 133, fl. & fr.).

ST. EUSTATIUS: along roads in Oranjestad (Boldingh 1108, fl. & fr. June); without loc. (v. Groll-Meyer s.n., fl. & fr.).

***Setaria verticillata* (L.) P. de Beauv.**

P. DE BEAUVOIS, Ess. Agrost. 1: 51. 1812; Duss, Fl. phan. Ant. franç. 525. 1897; HITCHCOCK, Manual Grasses West Indies 342, fig. 312. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 49. 1942; LEON, Fl. Cuba 1: 164. 1946; — *Panicum verticillatum* LINNAEUS, Spec. Plant. ed. 2. 1: 82. 1762; — *Chaetochloa verticillata* (Linnaeus) SCRIBNER, U.S. Dept. Agric. Bull. 4: 39. 1897; HITCHCOCK, Contr. U.S. Nat. Herb. 22: 178, fig. 43. 1920.

Annual, often much branched at the base and geniculate-spreading. Culms up to 1 m high, mostly shorter. Sheaths compressed, striate, glabrous, with a hyaline margin; blades flat, linear, somewhat rounded at the base with brownish ears, rather thin, scabrous on the margins and the principal veins on both sides, sparsely pilose on both sides, 10—20 cm long and 5—10 mm wide. Ligule 0.5 mm long, fimbriate. Panicles cylindric, with clustered spikelets, 5—15 cm long and 7—15 mm wide. One bristle below each spikelet, retrorsely scabrous, somewhat flexuous, 2—3 times as long as the spikelet. Spikelets elliptic, obtuse, 1.8 mm long. First glume about one third the length of the spikelet, 3-veined. Second glume somewhat shorter than the sterile lemma, 5-veined. Fertile lemma finely transversely rugulose.

Temperate and warm regions of both hemispheres; introduced in America.

CURACAO: Cas Corá (Arnoldo 1137, fl. & fr. Nov.); Choloma (Stoffers 9, fl. & fr. Sept.).

ST. MARTIN: between Philipsburg and Guana Bay (Boldingh 2404, fl. & fr. Aug.).

Setaria setosa (Swartz) P. de Beauv.

P. DE BEAUVOIS, Ess. Agrost. 51. 1812; GRISEBACH, Fl. Br. W. Ind. Isl. 555. 1864; URBAN, Symb. Ant. 4: 96. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 20. 1909 p.p.; Fl. Ned. W. Ind. Eil. 123. 1913; URBAN, Symb. Ant. 8: 34. 1920; HITCHCOCK, Manual Grasses West Indies 347, fig. 318, 319. 1936; QUESTEL, Fl. Isl. St. Bartholomew 81. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 48. 1942; LEON, Fl. Cuba 1: 165. 1946; HODGE, Lloydia 17: 132. 1954; — *Panicum setosum* SWARTZ, Prodr. Veg. Ind. Occ. 22. 1788; — *Chaetochloa setosa* (Swartz) SCRIBNER, U.S. Dept. Agr. Bull. 4: 39. 1897; HITCHCOCK, Contr. U.S. Nat. Herb. 22: 198, fig. 56, 57. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 56. 1923.

Perennial. Culms erect, finely branching, sometimes becoming decumbent or even prostrate and woody at base, up to 1 m tall. Sheaths striate, pubescent especially along the margin; blades flat or complicate, more or less rounded at base, 15—25 cm long and 6—10 mm wide, commonly pubescent on both surfaces, the margins scabrous. Ligule a ciliate rim. Panicle usually narrow, loosely spike-like, attenuate at the apex, rarely open, 10—30 cm long, the axis pilose or sometimes pubescent only; branches short, 1—2 cm long, the lower up to 4 cm long, antrorsely scabrous. First glume two fifths to one half the length of the spikelet, 3-veined, apiculate. Second glume two thirds of the fertile lemma, 5-veined, shortly acuminate. Sterile lemma slightly longer than the fertile floret, 5-veined, shortly acuminate, with well-developed palea. Fertile floret transversely rugose, acuminate.

West Indies; Colombia to Brazil.

In woodlands from lower to higher elevations.

CURAÇAO: Seroe Christoffel (Boldingh 4995, fl. & fr. Nov.; Stoffers 1129, fl. & fr. Dec.).

SABA: gut between Hellsgate and Mastic Cut, 300—400 m (Boldingh 2064, fl. & fr. July); The Mountain, 800 m (Boldingh 4812, fl. & fr. July); The Bottom (Boldingh 1857, fl. & fr. July); Booby Hill, seaside (Boldingh 1608, fl. & fr. July); between The Bottom and Windwardside, 200 m (Boldingh 1328, fl. & fr. July); without loc. (Boldingh 1130, fl. & fr.; Arnoldo 596, fl. & fr. Aug.).

ST. EUSTATIUS: seashore near White Wall (Boldingh 850, fl. & fr. June); slope of Signal Hill (Boldingh 1054, st. June); without loc. (v. Groll-Meyer 278, fl. & fr.).

ST. MARTIN: between Belvedere and Oyster Pond (Boldingh 3070, fl. & fr. Aug.); Naked Boy Hill, 50—200 m (Boldingh 2688, fl. & fr. Aug.; 2694, fl. & fr. Aug.); Rolands Canal (Stoffers 2254, fl. & fr. March).

Setaria chapmani (Vasey) Pilger

PILGER in ENGLER-PRANTL, Nat. Pfl. fam. ed. 2. 14E: 72. 1940; AMSHOFF, Grasses D. W. Ind. Isl. 46. 1942; LEON, Fl. Cuba 1: 163. 1946; — *Panicum chapmani* VASEY, Bull. Torrey Bot. Cl. 11: 61. 1884; HITCHCOCK, Manual Grasses West Indies 293, fig. 281. 1936; — *Panicum stenodes* auct. non Grisebach: BOLDINGH, Fl. Ned. W. Ind. Eil. 122. 1913 p.p.; Fl. D. W. Ind. Isl. 2: 6. 1914 p.p.

A caespitose perennial. Culms ascending or spreading, 20—100 cm tall. Sheaths keeled, constricted and ciliate at the apex; blades erect, linear, 15—40 cm long and 2—5 mm wide, glabrous. Ligule a fimbriate rim. Panicles narrow, the branches distant, raceme-like, about 1 cm long, bearing few to several spikelets. Bristles formed by produced branchlets, 2—6 mm long. Spikelets obovate, 2 mm long, glabrous. First glume about one third the length of the spikelet, rounded or truncate, with distinct midvein. Second glume nearly as long as the fertile lemma, 5—7-veined, obscurely reticulate-veined. Sterile lemma acuminate, slightly longer than the fertile floret, 3—5-veined. Fertile floret apiculate, finely rugose.

Southern Florida, Bahamas, and Cuba.

BONAIRE: Soebi Rincón (Boldingh 7261A, fl. & fr. Feb.).

***Setaria distantiflorum* (A. Richard) Pilger**

PILGER in ENGLER-PRANTL, Nat. Pfl. fam. ed. 2. 14E: 72. 1940; AMSHOFF, Grasses D. W. Ind. Isl. 47. 1942; LEON, Fl. Cuba 1: 163. 1946; — *Panicum distantiflorum* A. RICHARD in SAGRA, Hist. Cuba 11: 304. 1850; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 23, fig. 1. 1910; BOLDINGH, Fl. D. W. Ind. Isl. 2: 5. 1914; HITCHCOCK, Manual Grasses West Indies 293, fig. 283. 1936; — *Panicum stenodes* auct. non Grisebach: BOLDINGH, Fl. D. W. Ind. Isl. 2: 6. 1914 p.p.

A caespitose, glabrous perennial. Culms 30—50 cm tall, slender, wiry, sometimes geniculate at the lower nodes, producing slender, sometimes fascicled branches from all the nodes. Sheaths keeled, slightly compressed, constricted and somewhat ciliate at the apex; blades flat to strongly involute, 3—12 cm long and 1—3 mm wide, glabrous. Ligule a ciliate rim. Panicle very narrow, 2—7 cm long, branches raceme-like, the lower about 1 cm long. Most spikelets with a bristle, usually shorter than it. Spikelets ovate-elliptic, about 1.5 mm long, strongly veined, glabrous. First glume about half as long as the spikelet, subacute, 3—5-veined. Second glume about two thirds the length of the fertile lemma, 5—7-veined. Sterile lemma as long as the fertile floret, 5-veined. Fertile floret minutely rugose, slightly beaked.

Bahamas, Cuba.

Lower elevations, especially on calcareous soil.

BONAIRE: calcareous plateau of Klein Bonaire (Boldingh 7485, fl. & fr. Feb.).

CURAÇAO: Rif (Britton & Shafer 3088, fl. March); seashore near Hato (Boldingh 5119, fl. & fr. Nov.); Rif Hill (Boldingh 4654, fl. & fr. Oct.); Veeris Berg (Boldingh 4737, fl. & fr. Oct.); seashore near St. Michiels Baai (Boldingh 4897, fl. & fr. Nov.).

***Setaria utowanaeum* (Scribner) Pilger**

PILGER in ENGLER-PRANTL, Nat. Pfl. fam. ed. 2. 14E: 72. 1940; AMSHOFF, Grasses D. W. Ind. Isl. 47. 1942; LEON, Fl. Cuba 1: 163. 1946; — *Panicum utowanaeum*

SCRIBNER, Field Mus. Bot. 2: 25. 1900; HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 15: 24, fig. 2. 1910; HITCHCOCK, Manual Grasses West Indies 295, fig. 285. 1936; — *Panicum diffusum* auct. non Swartz: BOLDINGH, Fl. D. W. Ind. Isl. 1: 15. 1909; — *Panicum stenodes* auct. non Grisebach: BOLDINGH, Fl. D. W. Ind. 2: 6. 1914 p.p.

A caespitose perennial. Culms slender, 20—60 cm tall, ascending or spreading. Sheaths flattened, constricted and ciliate at the apex; blades linear, flat from a folded base, 8—20 cm long and 1—3 mm wide, pubescent at the base. Ligule a ciliate rim. Panicles very narrow, 3—10 cm long, the branches distant, raceme-like, the lower ones up to 3 cm long. Distant axillary panicles often present. Bristle once to twice as long as the spikelet. Spikelets narrowly elliptic, about 2 mm long, glabrous. First glume acute, about half as long as the spikelet, 3—5-veined. Second glume apiculate, about two thirds the length of the fertile lemma, 3—5-veined. Sterile lemma apiculate, slightly shorter than the fertile floret, 3—5-veined. Fertile floret minutely rugose, slightly beaked.

Cuba and Puerto Rico to Guadeloupe, Venezuela.

Open grounds at lower elevations.

BONAIRE: Seroe Largoe, Montagne (Arnoldo 355, fl. & fr. Jan.); Soebi Rincón (Boldingh 7272, fl. & fr. Jan.); calcareous hills near Rincón (Boldingh 7070, fl. & fr. Jan.).

CURAÇAO: Seroe Christoffel (Stoffers 231, fl. & fr. Oct.).

ST. EUSTATIUS: gut near Fort de Windt (Boldingh 839, fl. & fr. June); between Oranjestad and Fort de Windt (Stoffers 3522, fl. & fr. July); between Schotse Hoek and Little Mountains (Stoffers 3543, fl. & fr. July); between Venus and Little Mountains (Stoffers 4016, fl. & fr. July).

Pennisetum L. C. Richard in Persoon, Syn. Plant. 1: 72. 1805

Annual or perennial grasses with usually flat leaf-blades. Inflorescence a dense, spike-like panicle, with deciduous short branches with an involucre of often plumose bristles near the base, these united at the very base only and surrounding 1 to 3 sessile or short-pedicellate spikelets. First glume shorter than the spikelets, sometimes reduced or wanting. Second glume shorter than or equaling the sterile lemma. Fertile lemma chartaceous, smooth, with thin margin, enclosing the palea.

Species about 130, in tropical and warm regions.

Key to the species:

1. Robust, 2—4 m tall; bristles of the involucre sparsely plumose; spikelets 4—5 mm long, pedicellate, 2 or 3 in one involucre *P. purpureum*
Robust, up to 2 m tall; the inner bristles of the involucre long silky-plumose; spikelets 3—4 mm long, solitary in the involucre, sessile *P. setosum*

Pennisetum purpureum Schumacher

SCHUMACHER, Beskr. Guin. Plant. 64. 1827; LEON, Fl. Cuba 1: 166. 1946.

Robust, tufted, branching perennial, 2—4 m tall. Sheaths glabrous. Ligule a rim of 2—4 mm long hairs. Leaf-blades flat, elongate, the lower 2—3 cm wide, the upper ones gradually narrower, the midvein conspicuous, margins and surfaces scabrous. Panicle dense and stiff, tawny or purplish; fascicles sessile with (1—) 2 or 3 unequally pedicelled spikelets exceeded by the sparsely plumose bristles. Spikelets 4—5 mm long; bristles unequal, up to 30 mm long, and one central, stouter and longer bristle. First glume 1.5 mm long.

Originally from Africa; cultivated in the islands.

Vernacular names: olifantsgras (Leeward Group).
elephantsgrass (Windward Group).

BONAIRE: Fontein (Arnoldo 1318, fl. & fr. March).

ST. MARTIN: Experimental Garden, Cul de Sac (Stoffers 3552, fl. & fr. Nov.).

Pennisetum setosum (Swartz) L. C. Richard

L. C. RICHARD in PERSOON, Syn. Plant. 1: 72. 1805; GRISEBACH, Fl. Br. W. Ind. Isl. 555. 1864; DUSS, Fl. phan. Ant. franç. 525. 1897; HITCHCOCK, Manual Grasses West Indies 357, fig. 329. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 50. 1942; LEON, Fl. Cuba 1: 166. 1946; — *Cenchrus setosus* SWARTZ, Prodr. Veg. Ind. Occ. 26. 1788.

A caespitose perennial. Culms robust, glabrous, 1—2 m tall, ascending or sub-erect, branching, the lower nodes often geniculate and rooting. Sheaths striate, tuberculate-pilose in the upper part, glabrous in the lower part. Ligule about 0.5 mm long provided with up to 2 mm long hairs on the back. Leaf-blades rather firm, 10—40 cm long and 4—20 mm wide, papillose-pilose on both surfaces, especially at the base above. Inflorescence a solitary, terminal, dense, cylindrical spike, 10—25 cm long and about 1 cm in diam., pale yellow to dusky purple or brown. Involucre sessile, the bristles unequal, the outer delicate, scabrous, mostly not longer than the spikelet, the inner densely silky-plumose below, one much longer than the others. Spikelets 3—4 mm long, solitary. First glume minute or obsolete, second glume and sterile lemma unequal, 5-veined. Fertile floret indurate, smooth and shining, much shorter than the spikelet, stiffly ciliate at the apex.

Florida and Mexico to Bolivia and Brazil; West Indies.

ST. EUSTATIUS: slope of The Quill (Suringar s.n., fl. & fr. Ap. [L]).

Cenchrus Linnaeus, Spec. Plant. 1049. 1753

Annual or perennial grasses with flat leaf-blades. Inflorescence a spike-like panicle, the rachis compressed or angular and flexuous. Branchlets transformed

into deciduous, sessile burs, enclosing 1 to several sessile spikelets. Burs irregularly lobed, covered with scabrous bristles; the lobes rigid. Spikelets lanceolate to ovate, acute or acuminate. First glume up to half as long as the spikelet, 1-veined or obsolete. Second glume and first lemma 3—5 (—7)-veined. Sterile palea well-developed to obsolete. Fertile lemma indurate, more or less turgid, with thin and flat margins and prominent ridge on the back just above the base.

Species about 25 in the tropics and subtropics.

Key to the species:

- 1. Body of the bur subglobose, the base surrounded by slender, soft, not recurved bristles; bristles about twice surpassing the body of the bur, antrorsely scabrous *C. pilosus*
 Body of the bur truncate at the base, with a ring of slender, recurved bristles; bristles about as long as the lobes of the bur *C. echinatus*

***Cenchrus pilosus* H.B.K.**

HUMBOLDT, BONPLAND & KUNTH, *Nov. Gen. et Spec.* 1: 116, pl. 36. 1816; AMSHOFF, *Grasses D. W. Ind. Isl.* 51. 1942; — *Cenchrus echinatus* auct. non Linnaeus: BOLDINGH, *Fl. Ned. W. Ind. Eil.* 123. 1913; *Fl. D. W. Ind. Isl.* 2: 6. 1914.

Annual. Culms ascending from a decumbent base, up to 90 cm long, often rooting at the lower nodes. Sheaths flattened, glabrous or nearly so. Leaf-blades flat, up to 30 cm long, 5—12 mm wide, auriculate at the base, long-pilose in the lower part above, glabrous beneath. Spike 3—8 cm long. Burs subglobose; the body about 4 mm long and wide, densely pubescent to villous, on a short long-pilose stipe. Bristles numerous, slender, antrorsely scabrous, the longest about twice surpassing the body of the bur, and numerous, unequal, very slender bristles at the base of the bur. Lobes of the bur about 8, inflexed and interlocking at maturity. Spikelets usually 3 in each bur.

Southern Mexico to Colombia.

Open ground and waste places; rather common weed at low and middle elevation.

Vernacular name: pega saja mohee (Leeward Group).

ARUBA: Sivi-Sivi (Boldingh 6324, fl. Dec.); calcareous seashore near Manchebo (Boldingh 6278A, fl. & fr. Dec.); Companashi (Arnoldo 68, fl. & fr. Dec.); along road from Noord to Westpunt (Stoffers 1786, fl. & fr. Jan.); hills N.E. of Andicouri Plantation (Stoffers 1826, fl. & fr. Jan.; 1830, fl. & fr. Jan.); Seroe Largo (Stoffers 1883, fl. & fr. Jan.); Paloe Marca (Stoffers 1950, fl. & fr. Jan.); Andicouri (Stoffers 1811, fl. & fr. Jan.); coast near Fontein (Stoffers 1377, fl. & fr. Jan.); N.E. of Jamanota (Stoffers 1650, fl. & fr. Jan.); near Boca Grandi (Stoffers 1381, fl. & fr. Jan.); east of Sabana Serveta (Stoffers 1407, fl. & fr. Jan.); Matoguerai (Stoffers 1447, fl. & fr. Jan.); vicinity of Noord (Stoffers 1534, fl. & fr. Jan.; 1564, fl. & fr. Jan.); top of Matavidiri (Stoffers

2027, fl. & fr. Feb.); Fontein (Stoffers 1704, fl. & fr. Jan.); Boca Mahos (Stoffers 1475, fl. & fr. Jan.); Seroe Pretoe (Stoffers 1661, fl. & fr. Jan.).

BOINAIRE: calcareous plateau of Bolivia (Boldingh 7374, fl. & fr. Feb.).

CURAÇAO: Wishi (Arnoldo s.n., fl. & fr. March); Casparito (Lens 834, fl. & fr. Jan.); Cas Chiquito (Versluys 1408, fl. & fr. Dec.); Hofje of Valentijn (Boldingh 5091, fl. & fr. Nov.; 5374, fl. & fr. Nov.); Ronde Klip (Stoffers 1253, fl. & fr. Dec.).

Cenchrus echinatus L.

LINNAEUS, Spec. Plant. 1050. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 556. 1864, excl. var.; DUSS, Fl. phan. Ant. franç. 526. 1897; URBAN, Symb. Ant. 4: 97. 1903; Symb. Ant. 8: 36. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 58. 1923; HITCHCOCK, Manual Grasses West Indies 363, fig. 334. 1936; QUESTEL, Fl. Isl. St. Bartholomew 81. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 51. 1942; LEON, Fl. Cuba 1: 167. 1946; HODGE, Lloydia 17: 134. 1954; — *Cenchrus carolinianus* auct. non Walter: BOLDINGH, Fl. D. W. Ind. Isl. 2: 6. 1914; Fl. Ned. W. Ind. Eil. 123. 1913; — *Cenchrus tribuloides* auct. non Linnaeus: BOLDINGH, Fl. D. W. Ind. Isl. 1: 20. 1909.

Annual. Culms ascending from a decumbent base, often rooting at the lower nodes, branching from the base and often also from the lower nodes, (10—) 25—60 cm tall. Sheaths flattened, glabrous or nearly so. Ligule a rim of short hairs. Leaf-blades flat, 4—20 cm long and 3—8 mm wide, sparsely pilose in the lower part above, glabrous beneath. Inflorescence 3—8 (—10) cm long, not very dense; rachis flexuous. Burs truncate at base, on a short flattened stipe, the body 3—8 mm wide, pubescent, a ring of slender bristles at the base. Inner bristles stout, broadened at base, the longest of them usually about equaling the lobes of the body, ascending or spreading. Outer bristles slender. Lobes of the bur commonly 10, more or less connivent, tips spine-like. Tips and bristles retrorsely scabrous. Spikelets 3—6 in each bur, lanceolate, acuminate, the largest about 5 mm long.

Southern United States to Uruguay; West Indies.

Open ground and waste places; common weed at low and middle elevations.

Vernacular names: burrgrass (Windward Group).

pega saja boobo (Leeward Group).

ARUBA: Hooiberg (Arnoldo 167, fl. & fr. Dec.); Sivi-Sivi (Boldingh 6325, fl. & fr. Dec.); calcareous soil near Piedra Cruz (Boldingh 6523, fl. & fr. Dec.); Washington (Stoffers 1515, fl. & fr. Jan.); Boca Grandi (Stoffers 1379, fl. & fr. Jan.); along roads near Oranjestad (Stoffers 2035, fl. & fr. Feb.); Seroe Pretoe (Stoffers 1659, fl. & fr. Jan.); near Savaneta (Stoffers 1756, fl. & fr. Jan.); Fontein (Stoffers 1719, fl. & fr. Jan.).

BOINAIRE: gardens in Rincón (Boldingh 7155, fl. & fr. Feb.); Slagbaai Plantation (Stoffers 604, fl. & fr. Nov.); Airfield (Stoffers 785, fl. & fr. Nov.).

CURAÇAO: Hofje of Zuurzak (Boldingh 5380, fl. & fr. Nov.; 5382, fl. & fr. Nov.); Wishi (Arnoldo s.n., fl. & fr. March); Hofje Van Engelen (Boldingh 5433A, fl. & fr. Nov.); neighbourhood of Westpunt (Boldingh 4927C, fl. & fr.

Nov.); Hofje of Siberië (Boldingh 5054F, fl. & fr. Nov.); Hofje of Valentijn (Boldingh 5375, fl. & fr. Nov.); hills from Groot St. Joris to Koraal Tabak (Boldingh 5428A, fl. & fr. Nov.); Cas Chiquito (Versluys s.n., fl. & fr. Dec.); Cas Corá (Burgers 80, fl. & fr. Jan.); Noordkant Plantation (Stoffers 149, fl. & fr. Oct.); Choloma (Stoffers 16, fl. & fr. Sept.); Pareira (Burgers 8, fl. & fr. Dec.); Piscadera Baai (de Wilde 145A, fl. & fr. Jan.); without loc. (Aschenberg s.n., fl. & fr.).

SABA: between The Bottom and Mary's Point, 100—200 m (Boldingh 1539, fl. & fr. July; 1563, st. July); road to The Mountain (Arnoldo 769, fl. & fr. Aug.); along roads, 200—300 m (Boldingh 1710, st. July); Compagnie's Gut, 150—300 m (Stoffers 3001, fl. & fr. Ap.); along roads between The Bottom and Windwardside, 200 m (Boldingh 83, fl. & fr. July); without loc. (Burgers 491, fl. & fr. Feb.; 495, fl. & fr. Feb.).

ST. EUSTATIUS: slope of lower part of Signal Hill (Boldingh 1009, st. May); slope of The Quill near Bengalen, 100 m (Boldingh 673, fl. & fr. June); Fort de Windt (Boldingh 802, fl. & fr. June); along roads near Glass Bottle (Boldingh 863, fl. & fr. June); lower parts of the hills near Concordia (Boldingh 984, st. June); along roads near Bengalen (Boldingh 1191, fl. & fr. June); along roads in Cultuurvlakte (Stoffers 3802, fl. & fr. July); along the road from Oranjestad to Fort de Windt (Stoffers 3507, fl. & fr. July); without loc. (v. Groll-Meyer 265, fl. & fr.; 249, fl. & fr.).

ST. MARTIN: from Philipsburg to Guana Bay (Boldingh 2402, fl. & fr. Aug.); Cole Bay (George s.n. sub Boldingh 2518, fl. & fr. Aug.); near Mullet Pond (Boldingh 2775, fl. & fr. Aug.); Tintamarre (Boldingh 3385, fl. & fr. Sept.).

Imperata Cyrillus, Pl. Rar. Neap. 2: 26. 1792

Perennial grasses with scaly rhizomes. Inflorescence a contracted, white-villous, terminal panicle. Spikelets all alike, 2-flowered with one perfect, awnless flower, with bearded, short callus, in pairs along a flexuous, slender rhachis with long, white hairs; pedicels unequal in each pair, trumpet-like widened towards the tip. First glume membranaceous, 3—4-veined; second glume 3—5-veined. First lemma hyaline, empty; second lemma hyaline or sometimes wanting, palea however always present, broad, enclosing the perfect flower. Stamens 2 or 1.

Species 9, in tropical and subtropical regions.

Imperata contracta (H.B.K.) Hitchc.

HITCHCOCK, Rep. Missouri Bot. Garden 4: 146. 1893; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 22. 1923; HITCHCOCK, Manual Grasses West Indies 379. 1936; LEON, Fl. Cuba 1: 170. 1946; — *Saccharum contractum* HUMBOLDT, BONPLAND & KUNTH, Nov. Gen. et Spec. 1: 182. 1816; — *Imperata caudata* TRINIUS, Mem. Acad. St. Petersburg. 6(2): 331. 1832; Duss, Fl. phan. Ant. franç. 533. 1897.

Glabrous perennial, with hollow, leafy culms, up to 1 m tall. Sheaths glabrous or the lower pubescent, the lower ones bladeless. Ligule short, V-shaped. Leaf-

blades flat with conspicuous midvein, linear-lanceolate, narrowed at the base, hairy above near the base. Panicle narrow, attenuate, 20—40 cm long; lower branches ascending, up to 8 cm long. Spikelets linear, 3 mm long; the callus hairs about three times as long. First glume acute, faintly 3-veined, long-pilose on the back, a little shorter than the similar, 3 mm long, second glume. First and second lemma about oblong, eroso-dentate, hyaline, fragile. Palea as the lemma, enclosing the 1 mm long, oblong fruit.

Central and South America from Mexico to Brazil; West Indies.

Banks and hillsides, ascending to 1000 m.

SABA: Road to The Mountain (Arnoldo 809, fl. & fr. Aug.).

Saccharum Linnaeus, Spec. Plant. 54. 1753

Large perennial grasses. Leaf-blades flat. Inflorescence a large terminal, white-villous panicle with whorled disjointing racemes. Spikelets in pairs, homogamous, 1-flowered with one perfect floret, awnless, with short bearded basal callus. Glumes thin, enclosing the hyaline, empty first lemma which partly covers the fertile floret; second lemma hyaline, obtuse or wanting. Palea small.

Species 4 in tropical Asia and Africa.

Saccharum officinarum L.

LINNAEUS, Spec. Plant. 54. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 561. 1864; DUSS, Fl. phan. Ant. franç. 533. 1897; URBAN, Symb. Ant. 4: 77. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 12. 1909; Fl. Ned. W. Ind. Eil. 114. 1913; Fl. D. W. Ind. Isl. 2: 3. 1914; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 22. 1923; HITCHCOCK, Manual Grasses West Indies 380, fig. 345. 1936; QUESTEL, Fl. Isl. St. Bartholomew 81. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 54. 1942; LEON, Fl. Cuba 1: 171. 1946; HODGE, Lloydia 17: 134. 1954.

Culms 4—6 m tall, many-jointed. Sheaths overlapping, the older ones deciduous. Ligule very short. Leaf-blades glabrous, linear-lanceolate, about 6 cm wide, with thick midrib. Panicles up to 80 cm long. Spikelets linear-oblong, 3 mm long, at least twice surpassed by the white callus-hairs. First glume 2-keeled, the second one-keeled. Fertile lemma usually wanting.

Cultivated in the tropics and subtropics of both hemispheres.

Vernacular names: kanja (Leeward Group).

sugar cane (Windward Group).

Not yet collected in the islands.

Andropogon Linnaeus, Spec. Plant. 1045. 1753

Mostly perennial grasses with narrow leaf-blades. Inflorescence of terminal and axillary, fasciculate racemes, as the panicle-branches subtended by a sheath. Internodes of rhachis and pedicels slender. Spikelets in pairs, one sessile and perfect, the other pedicellate and staminate or more or less reduced. First glume 2-keeled with inflexed margins, flat or concave on the back. Second glume 1-keeled. Fertile lemma hyaline, 2-dentate at apex, awned from the sinus or entire and awnless. Palea small.

Species about 60 in tropics and subtropics.

Key to the species:

- 1. Sessile spikelets awned *A. glomeratus*
- Sessile spikelets awnless *A. bicornis*

Andropogon bicornis L.

LINNAEUS, Spec. Plant. 1046. 1753; URBAN, Symb. Ant. 4: 78. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 13. 1909; Fl. Ned. W. Ind. Eil. 115. 1913; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 26. 1923; HITCHCOCK, Manual Grasses West Indies 394. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 58. 1942; LEON, Fl. Cuba 1: 174. 1946; HODGE, Lloydia 17: 135. 1954; — *Anatherum bicorne* P. DE BEAUVOIS, Ess. Agrost. 128. 1812; GRISEBACH, Fl. Br. W. Ind. Isl. 559. 1864; — *Saccharum bicorne* GRISEBACH, Abh. Ges. Wiss. Göttingen 7: 266. 1857.

Robust, caespitose perennial. Culms 1—2 m tall, glabrous. Sheaths glabrous. Ligule a 1 mm high rim. Leaf-blades flat, 2—5 (—7) mm wide, glabrous. Inflorescence corymbose, large. Racemes slender, 2—3 cm long, whitish or tawny. Internodes of the rhachis and pedicels slender, 2—4 mm long, pilose with 5—8 mm long, white hairs. Sessile spikelets awnless, linear-lanceolate, 2.5—3.5 mm long. Stamens 3. One, sometimes two of the uppermost pedicellate spikelets larger than the fertile ones, the other pedicellate spikelets rudimentary.

Mexico to Brazil; West Indies.

Roadsides at lower and middle elevations.

SABA: between The Bottom and Mary's Point (Boldingh 1480A, fl. & fr. July); road to The Mountain (Arnoldo 808, fl. & fr. Aug.).

ST. MARTIN: without loc. (Sieber 40, fl. & fr. [L]).

Andropogon glomeratus (Walter) Britton, Sterns & Poggenb.

BRITTON, STERNS & POGGENBURG, Prel. Cat. 67. 1888; URBAN, Symb. Ant. 4: 78. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 13. 1909; Fl. Ned. W. Ind. Eil. 116. 1913; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 25. 1923; HITCHCOCK, Manual Grasses West Indies 396, fig. 354. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 57. 1942; — *Cinna*

glomerata WALTER, Fl. Carol. 59. 1788; — *Anatherum macrourum* GRISEBACH, Mem. Amer. Acad. 8: 534. 1863.

A densely caespitose perennial grass. Culms compressed, 1—1.5 m tall, glabrous. Lower sheaths crowded and keeled, glabrous, the apex with small, pubescent to villous auricles. Ligule a 1 mm high rim. Leaf-blades flat or folded, elongate, glabrous. Inflorescence dense, flabellate. Racemes in pairs, flexuous, 1.5—3 cm long. Internodes and pedicels slender, 2.5—3.5 mm long, pilose to villous with about 6 mm long white or tawny hairs. Sessile spikelets linear-lanceolate, 3—4 mm long, the awn 1—1.5 cm long. Stamen one. Pedicellate spikelets all rudimentary; pedicels longer than the sessile spikelets.

South-eastern United States to northern South America; West Indies.

Moist or open ground at lower and middle elevations.

SABA: Mountain near Windwardside, 600 m (Boldingh 2169, fl. & fr. July); road to The Mountain (Arnoldo 878, fl. & fr. Aug.).

***Bothriochloa* O. Kuntze, Rev. Gen. 2: 762. 1891**

Perennial grasses. Racemes several to numerous in an exserted panicle. Internodes of the rachis and pedicels flattened with hyaline middle part and thickened margins. Spikelets in pairs, one sessile and perfect, the other pedicellate and staminate or neuter. Sessile spikelet: first glume 2-keeled with inflexed margins; second glume keeled, 3-veined; fertile lemma with terminal awn. Pedicellate spikelets awnless, more or less reduced.

Species about 70 in the warmer regions.

***Bothriochloa ischaemum* (L.) Keng**

KENG, Contr. Biol. Sc. Soc. China Bot. Ser. 2: 201. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 59. 1942; — *Andropogon ischaemum* LINNAEUS, Spec. Plant. 1047. 1753; BOLDINGH, Fl. Ned. W. Ind. Eil. 116. 1913; Fl. D. W. Ind. Isl. 2: 3. 1914; HITCHCOCK, Manual Grasses West Indies 402. 1936; — *Amphilophis ischaemum* (Linnaeus) NASH, N. Am. Fl. 17: 124. 1912; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 27. 1923.

A caespitose perennial. Culms erect, simple or branched above, up to 80 cm long. Sheaths keeled, glabrous. Ligule a 1 mm high rim. Leaf-blades elongate, 2—4 mm wide, pilose towards the base above, with a few long, deciduous hairs. Racemes several, subflabellate, 3—8 cm long. Internodes and pedicels long-ciliate on the margins. Sessile spikelets about 3 mm long, the callus short-bearded; first glume pilose below, ciliate at the top; fertile lemma small, ligulate, bearing a twisted, scabrous, 1—2 cm long awn. Pedicellate spikelet neuter, about the size of the sessile spikelets, consisting of 2 glumes.

Originally from the Old World; naturalized.

Fields and waste grounds.

BONAIRE: Soebi Blanco (Arnoldo 372, fl. & fr. Jan.).

CURAÇAO: Mahaai (Arnoldo 1763, fl. & fr. Dec.); Brakkeput (Arnoldo s.n., fl. & fr. Feb.); hills near Blein (Boldingh 4762, fl. & fr. Oct.); Veeris Berg (Boldingh 4742, fl. & fr. Oct.).

Schizachyrium Nees, *Agrost. Bras.* 331. 1829

Annual or perennial grasses, with flat or involute leaf-blades. Inflorescence consisting of spike-like racemes, singly disposed, terminating the stem or its branches, subtended by a sheath. Internodes of the rhachis thickened upwards and cup-shaped or toothed to bifid at apex. Spikelets in pairs, one sessile and perfect, the other pedicellate and staminate or neuter. Sessile spikelets: first glume 2-keeled with inflexed margins; second glume 1-keeled, usually 1-veined or veinless, awnless or rarely with a short bristle; fertile lemma usually 2-cleft at the apex, usually with a geniculate awn from the sinus; palea with infolded margins. Pedicellate spikelet of 1 or 2 glumes, flowerless, rarely with a staminate flower.

Species about 50 in the warmer regions of both hemispheres.

Schizachyrium malacostachyum (Presl) Nash

NASH, N. Am. Fl. 17: 102. 1912; AMSHOFF, *Grasses D. W. Ind. Isl.* 57. 1942; — *Andropogon malacostachyus* PRESL, *Rel. Haenk.* 337. 1830; HITCHCOCK, *Manual Grasses West Indies* 388. 1936; — *Schizachyrium curassavicum* NASH, *Torreyia* 13: 273. 1913; BOLDINGH, *Fl. D. W. Ind. Isl.* 2: XII. 1914; — *Schizachyrium brevifolius* auct. non Swartz: BOLDINGH, *Fl. D. W. Ind. Isl.* 2: 3. 1914.

Pale or reddish-brown annual grass. Culms erect or spreading, glabrous, branching, 20—50 cm tall. Sheaths glabrous. Ligule 0.25 mm long. Leaf-blades flat to conduplicate (involute), up to 10 cm long and 2—4 mm wide, glabrous or sparsely pilose in the lower half with long, deciduous hairs, scaberulous. Racemes 2—3 cm long, more or less enclosed by the brown subtending sheath; internodes and pedicels white-villous on beak and margins; internodes 4 mm long. Sessile spikelets 5—6 mm long, linear-oblong; pedicels 3—3.5 mm long; first glume white villous on back; awn geniculate, about 1 cm long. Pedicellate spikelet reduced to one awned scale, lanceolate-subulate, 1—1.5 (—2) mm long; the awn 3—5 mm long.

Southern Mexico to Colombia, Cuba, and Curaçao.

CURAÇAO: St. Joris Berg (Britton & Shafer 3101, fl. & fr. March; type duplicate of *S. curassavicum* Nash); Pareira (Burgers 159, fl. & fr. Feb.).

Cymbopogon Sprengel, *Plant. Pugill.* 2: 14. 1815

Large perennial, tufted, usually aromatic grasses. Inflorescence a decompound panicle, with paired racemes on a common peduncle and subtended by a sheath.

Spikelets in pairs, one sessile and perfect, the other pedicellate and staminate or neuter. Sessile spikelet: first glume chartaceous, bi-keeled with inflexed margins; second glume keeled above; fertile lemma hyaline, bi-fid or bi-lobed, awned from the sinus or awnless. Pedicellate spikelets more or less reduced.

About 30 species in the tropics of the Old World.

Cymbopogon citratus (D.C.) Stapf

STAPP, Kew Bull. 322, 357. 1906; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 28. 1923; HITCHCOCK, Manual Grasses West Indies 403, fig. 358. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 59. 1942; LEON, Fl. Cuba 1: 178. 1943; HODGE, Lloydia 17: 136. 1954; — *Andropogon citratus* DE CANDOLLE, Cat. Hort. Monsp. 78. 1813; — *Andropogon schoenanthus* LINNAEUS, Syst. ed. 10. 2: 1304. 1759; BOLDINGH, Fl. D. W. Ind. Isl. 1: 13. 1909; Fl. Ned. W. Ind. Eil. 116. 1913.

A stout perennial with leafy sterile shoots from a short rhizome and erect culms, 2 m or more tall. Sheaths glabrous. Ligule 1.5 mm long. Leaf-blades elongate, linear, 0.5—1.5 cm wide, long-attenuate towards the base, scabrous on the margins; the midvein prominent beneath. Panicle lax, nodding, up to 60 cm long. Internodes and wide-spreading pedicels long-pilose. Sessile spikelets about 5 mm long with shortly barbate basal callus; first glume flat on back between the keels.

Cultivated throughout the tropics; its origin unknown.

Vernacular names: lemongrass (Windward Group).

yerba di lamoen, lemoengras, malohie (Leeward Group).

CURAÇAO: Museum Garden, Mundo Nobo (Arnoldo 1739, fl. & fr. Feb.).

SABA: The Bottom (Boldingh 2249, st. July).

ST. EUSTATIUS: without loc. (v. Groll-Meyer 289, fl. & fr.).

Vetiveria Bory in Lemée, Bull. Soc. Philom. 1822: 43. 1822

Tall perennial grasses. Inflorescence a terminal, sheathless panicle, with whorled, disarticulating racemes. Spikelets in pairs, 1-flowered, one sessile and perfect, the other pedicellate and staminate. Sessile spikelets laterally compressed; glumes coriaceous, slightly keeled, with inflexed or enrolled margins; sterile lemma hyaline, empty, 2-veined; fertile lemma hyaline, acuminate and awnless, or bidentate and awned from the sinus. Pedicellate spikelet similar to the sessile spikelet, usually awnless.

Species 7, in the tropics of the Old World.

Vetiveria zizanioides (L.) Nash

NASH in SMALL, Fl. S.E. United States 67. 1903; HITCHCOCK, Manual Grasses West Indies 406, fig. 360. 1936; QUESTEL, Fl. Isl. St. Bartholomew 82. 1941; AMSHOFF, Grasses D. W.

Ind. Isl. 55. 1942; LEON, Fl. Cuba 1: 179. 1946; HODGE, Lloydia 17: 136, fig. 74. 1954; — *Phalaris zizanioides* LINNAEUS, Mant. 183. 1771; — *Andropogon zizanioides* (Linnaeus) URBAN, Symb. Ant. 4: 79. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 13. 1909; Fl. Ned. W. Ind. Eil. 117. 1913; — *Anatherum zizanioides* (Linnaeus) HITCHCOCK & CHASE, Contr. U.S. Nat. Herb. 18: 285. 1923.

A caespitose perennial, up to 2 m tall. Sheaths glabrous, trabeculate. Ligule a rim of minute hairs. Leaf-blades elongated, up to 1 cm wide, in the lower part pilose above. Panicle pyramidal or oblong, 20—30 cm long. Racemes in 6 to 10 whorls of as many as 20 rays, the lower naked part 1—5 cm long. Sessile spikelet linear-lanceolate, about 5 mm long; first glume acute, muricate; second glume acute, muricate on the keel, with hyaline, ciliate margins; fertile lemma acute, lanceolate. Pedicellate spikelet less muricate to nearly smooth.

A native of Asia; cultivated in the tropics of both hemispheres.

ST. EUSTATIUS: without loc. (v. Groll-Meyer 287, fl. & fr.).

Sorghum Moench, Method. Plant. 207. 1794

Perennial or annual grasses, tall or moderately tall. Leaf-blades flat. Inflorescence a terminal panicle with whorled primary branches, carrying 1—5 jointed, tardily disarticulating racemes. Spikelets in pairs, one sessile and fertile, the other pedicellate and staminate or neuter; the terminal sessile spikelet with two pedicellate spikelets. Sessile spikelets: glumes coriaceous, enrolled in the lower part, shining, loosely silky; fertile lemma hyaline, awned from the sinus or sometimes awnless. Pedicellate spikelets more or less reduced, not coriaceous, awnless.

Species about 50 in the warmer regions, chiefly in the Old World.

Key to the species:

1. Perennial with creeping rhizomes; leaves narrow, usually less than 1.5 cm wide *S. halepense*
- Annual; leaves broad, usually more than 2.5 cm wide *S. vulgare*

Sorghum halepense (L.) Pers.

PERSOON, Syn. Plant. 1: 101. 1805; GRISEBACH, Fl. Br. W. Ind. Isl. 560. 1864; URBAN, Symb. Ant. 8: 16. 1920; HITCHCOCK, Manual Grasses West Indies 407, fig. 361. 1936; AMSHOFF, Grasses D. W. Ind. Isl. 56. 1942; — *Holcus halepensis* LINNAEUS, Spec. Plant. 1047. 1753; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 29. 1923; LEON, Fl. Cuba 1: 179. 1946; — *Andropogon sorghum* (Linnaeus) BROTERO var. *halepense* (Linnaeus) HACKEL in DE CANDOLLE, Monogr. Phan. 7: 502. 1889; BOLDINGH, Fl. Ned. W. Ind. Eil. 116. 1913; Fl. D. W. Ind. Isl. 2: 3. 1914.

Robust perennial with numerous stout rhizomes. Culms erect, 1—1.5 m tall, glabrous. Sheaths keeled in the upper part, striate, glabrous except around the mouth. Ligule a 3 mm high membranaceous band, covered with silky hairs on the back. Leaf-blades flat, with conspicuous midvein, 1—2 cm wide, glabrous, somewhat scabrous on the margin. Panicle lax, 15—40 cm long with ascending branches. Fertile spikelets sessile, 5 mm long and 1.5—2 mm wide, ovate, shining, hirsute; the awn when present up to 1.5 cm long. Staminate spikelets about 4 mm long, the pedicels densely silky.

Native of the Mediterranean and adjacent regions; introduced and naturalized in all warm countries.

Vernacular name: johnson grass (Leeward Group).

CURAÇAO: Brakkeput (Arnoldo s.n., fl. & fr.); Cas Corá (Stoffers 255, fl. & fr. Oct.).

SABA: Road to The Mountain (Arnoldo 947, fl. & fr. Aug.).

ST. MARTIN: Cul de Sac (Arnoldo 1314, fl. & fr. March).

Island?: (Boldingh 5054L, fl. & fr.; 5050, fl. & fr.; 5095, fl. & fr.).

Sorghum vulgare Pers.

PERSOON, Syn. Plant. 1: 101. 1805; HITCHCOCK, Manual Grasses West Indies 409. 1936; QUESTEL, Fl. Isl. St. Bartholomew 82. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 56. 1942; — *Holcus sorghum* LINNAEUS, Spec. Plant. 1047. 1753; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 29. 1923; LEON, Fl. Cuba 1: 179. 1946; — *Andropogon sorghum* (Linnaeus) BROTERO, Fl. Lusit. 1: 88. 1804; URBAN, Symb. Ant. 4: 79. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 13. 1909; Fl. Ned. W. Ind. Eil. 116. 1913; Fl. D. W. Ind. Isl. 2: 3. 1914.

Annual. Culms stout, up to 4 m tall, glabrous. Leaf-blades elongated, flat, glabrous, 2—4 cm wide. Panicle typically compact with turgid spikelets. It is supposed to have been derived from *Sorghum halepense* (L.) Pers.

Cultivated in several varieties in the warmer regions of both hemispheres.

Vernacular names: creole corn, guinea corn (Windward Group).

maishi rabu, maishi shikitu (Leeward Group).

var. vulgare

CURAÇAO: without loc. (Aschenberg s.n., fl. & fr.).

SABA: Windwardside (Boldingh 2329, st. July).

Island?: (Boldingh 5087, fl. & fr.).

var. sudanense (Piper) Hitchc.

HITCHCOCK, J. Wash. Acad. Sci. 17: 147. 1927; — *Andropogon sorghum* (L.) Brotero var. *sudanensis* PIPER, Proc. Biol. Soc. Wash. 28: 33. 1915; — *Sorghum sudanense* (Piper) STAFF in PRAIN, Fl. Trop. Afr. 9: 113. 1917; — *Holcus sorghum* L. var. *sudanensis* (Piper) HITCHCOCK, Proc. Biol. Soc. Wash. 29: 128. 1916.

This is a comparatively slender form, up to 2 m tall, with a large, open panicle with not-turgid spikelets.

CURAÇAO: Pareira (Arnoldo 1751, fl. & fr. Dec.).

ST. MARTIN: Cul de Sac (Arnoldo 1317, fl. & fr. March; 1325, fl. & fr. March).

Island?: (Boldingh 5421, fl. & fr.).

Heteropogon Persoon, Syn. Plant. 2: 533. 1807

Annual or perennial grasses with flat or involute blades. Inflorescence consisting of solitary, terminal racemes. Rhachis disarticulating in the upper, heterogamous part of the raceme, tardily or not disarticulating in the lower, heterogamous part. Internodes slender, those of the fertile spikelets forming a sharp, barbed callus, the articulations obliquous. Spikelets in pairs, one sessile, the other pedicellate and readily falling. The lower few to several pairs homogamous, staminate or neuter, the upper pairs heterogamous; the sessile spikelets perfect, terete and long-awned; the pedicellate ones like the lower staminate, flat, conspicuous and awnless. Glumes of the fertile spikelet equal, coriaceous; the first brown-hirsute, enfolding the second. Lemma thin and hyaline; the fertile one narrow, extending into a strong, bent and twisted, brown awn. First glume of the staminate spikelet green and chartaceous, faintly many-veined, asymmetric, one of the keels broadly winged and hyaline, the margins inflexed. Second glume symmetric and narrower.

Only few species in tropical and subtropical regions.

Heteropogon contortus (L.) Beauv. ex Roem. et Schult.

ROEMER & SCHULTES, Syst. Veg. 2: 836. 1817; URBAN, Symb. Ant. 8: 15. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 30. 1923; HITCHCOCK, Manual Grasses West Indies 413, fig. 364. 1936; QUESTEL, Fl. Isl. St. Bartholomew 82. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 60. 1942; LEON, Fl. Cuba 1: 180. 1946; — *Andropogon contortus* LINNAEUS, Spec. Plant. 1045. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 558. 1864; DUSS, Fl. phan. Ant. franç. 528. 1897; BOLDINGH, Fl. D. W. Ind. Isl. 1: 13. 1909; Fl. Ned. W. Ind. Eil. 115. 1913; Fl. D. W. Ind. Isl. 2: 3. 1914.

A branching, perennial grass. Culms compressed, 20—60 (—80) cm tall. Sheaths keeled, glabrous. Ligule a 0.5 mm long rim with white hairs on the back. Blades linear, flat to involute, 2—4 mm wide, scaberulous on both sides; the margins around the fold between sheath and blade sometimes ciliate with long, tuberculate hairs. Racemes 3—8 cm long. The lower 2 to 6 pairs of spikelets homogamous, staminate. Pistillate spikelets brown-hirsute, 7—9 mm long, the brown-pilose callus included. Awn brown, geniculate, flexuous in the upper part, 4—10 cm long, with silky hairs. Staminate spikelets green, 7—10 mm long. First glume papillose-hispid with long hairs in the upper part and near the hyaline margins. Second glume slightly papillose-hispid near the apex.

Warmer regions of both hemispheres.

Rocky slopes and cliffs.

CURAÇAO: seashore near Caracas Baai (Boldingh 4784, fl. & fr. Jan.); Hofje of Zuurzak (Boldingh 5382, fl. & fr. Nov.).

ST. EUSTATIUS: near Boven, 200 m (Boldingh 1238, fl. & fr. June; 1239, fl. & fr. June).

Zea Linnaeus, Spec. Plant. 971. 1753

Characters of the species.

One species originating from America.

Zea mays L.

LINNAEUS, Spec. Plant. 971. 1753; GRISEBACH, Fl. Br. W. Ind. Isl. 561. 1864; DUSS, Fl. phan. Ant. franç. 534. 1897; URBAN, Symb. Ant. 4: 76. 1903; BOLDINGH, Fl. D. W. Ind. Isl. 1: 12. 1909; Fl. Ned. W. Ind. Eil. 114. 1913; Fl. D. W. Ind. Isl. 2: 3: 1914; URBAN, Symb. Ant. 8: 10. 1920; BRITTON & WILSON, Sci. Surv. Porto Rico & Virgin Isl. 5: 21. 1923; QUESTEL, Fl. Isl. St. Bartholomew 82. 1941; AMSHOFF, Grasses D. W. Ind. Isl. 61. 1942, LEON, Fl. Cuba 1: 183. 1946.

Annual, monoecious, 1—3 m tall grass. Sheaths overlapping, terete, pubescent along the margins. Ligule a hyaline band covered with silky hairs. Leaf-blades linear-lanceolate, 30—100 cm long and 2—15 cm wide, with broad auricles. Female inflorescence an axillary sheathed cob, tightly enclosed by large leaf-like bracts; spikelets paired in 4—11 longitudinal rows, immersed in the thick, spongy axis of the cob; the lower ones sterile, the upper fertile; glumes equal, very broad, fleshy below, hyaline above, veinless; lemmas and palea hyaline; styles very long, 2-fid at the apex, exerted from the enveloping bracts; staminodes 3; grain large, subglobose, mutually flattening, various in colour. Male inflorescence a large terminal panicle, about 30 cm long; spikelets in pairs, one subsessile, the other pedicellate; both 2-flowered, lanceolate-oblong, acute, 6—8 mm long; glumes subequal, membranaceous, 9—11-veined; lemmas and paleas hyaline.

Cultivated all over the world.

Vernacular names: mais (Windward Group).

maishi grandi (Leeward Group).

CURAÇAO: without loc. (Aschenberg s.n., male fl.).

SABA: Windwardside (Boldingh 2330, male fl. July).