

国家林业和草原局 公告

2021 年第 19 号

根据《中华人民共和国种子法》第十九条、第九十三条的规定，现将由国家林业和草原局草品种审定委员会审定通过的‘兰箭 1 号’春箭筍豌豆等 14 个草品种（详见附件）予以公告。自公告发布之日起，这些品种可以在本公告规定的适宜种植范围内推广。

特此公告。

附件：2021 年度草品种名录（中英文）



品种特性

多年生暖季型草本，不结实。株高 15.4-20.3 cm，叶片深绿色，密布绒毛，近基株叶长 18.5±3.6cm，叶宽 2.2-2.6 mm。匍匐茎发达，节间长 7.3±1.4 cm，直径 0.12 cm。按株行距 30 cm ×30 cm 建植，60 天左右盖度可达到 85%。

主要用途

主要用于机场绿化或生态修复。

栽培技术要点

用于生态修复时，机械植苗，雨季前穴植，株行距 1 m×1 m，随种随压实，充分灌溉，建植成活后无需特殊管理。用于绿地建植时，机械清除杂草，按行距 30 cm 开沟，株距 30 cm 栽植，覆土镇压。一周内保证土壤湿润，之后正常管理。

适宜推广区域

适宜于我国北方地区机场绿地建植或困难立地生态修复。

5. ‘鲁滨 2 号’ 杂交狗牙根

草种名称：杂交狗牙根

学名：*Cynodon transvaalensis* × *C. dactylon* ‘Lubin 2’

品种类别：育成品种

编号：国 S-BV-CT-005-2021

申报单位：鲁东大学

选 育 人：傅金民、李晓宁、殷燕玲

品种特性

禾本科多年生三倍体草本，不能结实，通过草茎繁殖。具发达横走根茎，地上部匍匐地面，节上常生不定根，株高约 30 cm。叶宽 2.05 mm，密度为 219个/100 cm²。在滨海盐碱地建植后，0-10 cm 土层含盐量降低 35.0%，有机质含量增加 16.5%，全氮含量增加 45.5%。

主要用途

主要用于滨海盐碱地生态修复及绿化。

栽培技术要点

适于 5-10 月种植，6-9 月最优。一般采用草茎栽植，在滨海盐碱地采用铺草皮法进行建植，按 30 cm×30 cm 铲下草皮，土厚 2-3 cm。栽植完成后及时浇水，入冬前和返青期及时浇透水。建植前施复合肥 450 kg/hm²；晚秋施尿素 105-120 kg/hm²。

适宜推广区域

适宜我国黄河以南的华中、华东地区种植。

6. ‘鲁滨 3 号’ 海雀稗

草种名称：海雀稗

学名：*Paspalum vaginatum* ‘Lubin 3’

品种类别：育成品种

编号：国 S-BV-PV-006-2021

申报单位：鲁东大学

选 育 人：傅金民、范树高、王广阳

品种特性

禾本科多年生草本植物。具根状茎或匍匐茎，茎秆细而坚韧，节上常生不定根，株高约 30 cm。叶宽 2.9 mm，密度为 238 个/100 cm²。2.5% 海水处理 20 天，表型性状良好；在海滨盐渍土地建植后，0-10 cm 土层含盐量降低 32.4% -57.7%，有机质含量增加 11.4%-46.0%。

主要用途

主要用于海滨地区盐渍土地生态修复及绿化，也可用于公共绿地建设。

栽培技术要点

适于 5-10 月种植，6-9 月最优。一般采用草茎栽植，在滨海盐碱地采用铺草皮法进行建植，按 30 cm×30 cm 铲下草皮，土厚 2-3 cm。栽植完成后及时浇水，入冬前和返青期及时浇透水。建植前施复合肥 450 kg/hm²；晚秋施尿素 105-120 kg/hm²。

适宜推广区域

适宜北纬 36 度以南的华东、华中、华南地区种植。

7. ‘丽秋’狼尾草

草种名称：狼尾草

学名：*Pennisetum alopecuroides* ‘Liqiu’

品种类别：育成品种

编号：国 S-BV-PA-007-2021

申报单位：北京草业与环境研究发展中心

选 育 人：武菊英、滕文军、岳跃森、范希峰、张辉、滕珂、温海峰、韩朝

品种特性

禾本科多年生暖季型草本。植株丛生，株高 101-117 cm，冠幅 92-125 cm。叶丛浓密呈深绿色，叶长 80 cm 左右，叶宽 12 mm 左右。穗状圆锥花序呈白玉色，花序长 20 cm 左右，单株花序数 80-124 个。7 月下旬至 8 月初花，8 月中旬至 8 月下旬进入盛花，10 月下旬至 11 月初为枯黄期，绿色期 200 天左右。

主要用途

园林绿化，花坛、花镜材料，也可用于荒山、坡地的生态修复或景观营造。

栽培技术要点

一般采用穴栽，深度以 15-20 cm 为宜，移栽后充分灌溉。植株成活后，一般不需要进行灌溉，雨季注意排水；施足底肥后不需要额外施肥；生长季不修剪，来年返青前刈割，留茬高度 15 cm 左右。

适宜推广区域

适宜我国华中、华北地区种植。

8. ‘武陵’假俭草

草种名称：假俭草
品种类别：野生驯化品种
申报单位：四川省草原科学研究院、四川农业大学、江苏农林职业技术学院、贵州大学
选 育 人：苟文龙、白史且、闫利军、马啸、刘南清、李平、童琪、张建波、李西、张丽霞
陈莉敏、孙飞达

学名：*Eremochloa ophiuroides* ‘Wuling’

编号：国 S-WDV-EO-008-2021

品种特性

禾本科多年生暖季性草本。植株低矮，高 10-20 cm，茎秆基部直立，叶片常基生，叶长 2-8 cm，叶宽 1.5-4 mm，密度 81.3 个/100 cm²。在成都地区生育期 210 天左右，绿期 290-300 天。匍匐茎发达，修复效率高，按 15-20 cm 株行距栽植，70 天左右盖度可达到 75% 以上。

主要用途

主要用于边坡生态修复、水土保持及低养护绿化。

栽培技术要点

用于生态修复时，清除坡面杂草、石块，结合整地施复合肥 500 kg/hm²；草茎直播，用量 150-200 g/m²，覆土 1-1.5 cm，适度镇压；分株移栽，条栽行距 20 cm；建植期及时浇水。用于绿地建植时，精细整地，结合整地施复合肥 500 kg/hm²。草茎切成含 2-3 节茎段，均匀撒在土表，用量 150-200 g/m²，覆土 1-1.5 cm，适度镇压，浇透水；建植成功后，常规草坪管理。

适宜推广区域

适宜我国西南地区及长江中下游海拔 1500 m 以下区域种植。

9. ‘小哨’马蹄金

草种名称：马蹄金
品种类别：野生驯化品种
申报单位：四川农业大学、云南农业大学、成都时代创绿园艺有限公司
选 育 人：彭燕、干友民、李州、马啸、任健、刘伟、周凯、赵俊茗、冯光燕、徐杰

学名：*Dichondra repens* ‘Xiaoshao’

编号：国 S-WDV-DR-009-2021

品种特性

旋花科马蹄金属多年生草本。草层低矮，平均高度 2.39 cm，以匍匐茎分枝繁殖，主匍匐茎长近 20 cm，节着地生根，节间短，长度约 1.1 cm。观赏部分由叶柄和叶片构成，叶片近似圆形，呈马蹄状，翠绿色。全年绿期，最佳观赏期 6-8 月。

主要用途

主要用于城市绿化、观赏草坪及水土保持等。

栽培技术要点

长江流域的最佳栽植期为 4-7 月。草皮块铺植，10 cm ×10 cm 的草皮块按行距 20-30 cm、窝距 20-25 cm 均匀铺植，每天灌溉，湿润土层 5-7 cm，直至草块定根。成坪后，夏季高温干旱季节每 2 天灌溉 1 次，生长季每月施氮肥 1 次，用量 20 kg/hm²。注意杂草防除和病虫害防治。

适宜推广区域

适宜我国西南地区及长江中下游海拔 2000 m 以下区域种植。

10. ‘川西’斑茅

草种名称：斑茅 学名：*Erianthus arundinaceus* ‘Chuanxi’
品种类别：野生驯化品种 编号：国 S-WDV-EA-010-2021
申报单位：四川省草原科学研究院、贵州省草业研究所
选 育 人：鄢家俊、白史且、张建波、李英主、常丹、张文、张劲、闫利军、李达旭
游明鸿、季晓菲、龙忠富

品种特性

禾本科多年生高大丛生草本。主根不明显，须根系发达，茎秆直立粗壮，高 4.3-5.8m，茎粗 14.8-32.3 mm，茎节数 13-21 个，单株分蘖数 180-256 个。适应性强，极粗生，各类土壤均能生长。纤维素含量 33.28%，乙醇转化率 170.9 g/kg，TS 甲烷转化率 80.63 ml/g。

主要用途

能源草和生态修复草兼用，可直接作为燃料，也可用于生物乙醇或生物甲烷转化，还可用于固土护坡、水土保持等。

栽培技术要点

种植前翻耕 20-30 cm，结合整地施有机肥 15000-20000 kg /hm² 作基肥。春季 3-4 月，秋季 9-10 月种植，育苗移栽或种茎无性繁殖，株行距 80 cm ×80 cm。移栽后或冬春季遇旱时及时灌溉；拔节期追施复合肥 500-600 kg/hm²，刈割后追施尿素 150 kg/hm²；苗期及时中耕除草。成熟期刈割利用，留茬 10-15 cm。

适宜推广区域

适宜我国西南、华南和华中热带和亚热带地区种植。

11. ‘科尔沁沙地’扁蓿豆

草种名称：扁蓿豆 学名：*Medicago ruthenica* ‘keerqinshadi’
品种类别：野生驯化品种 编号：国 S-WDV-MR-011-2021
申报单位：中国农业科学院草原研究所
选 育 人：李鸿雁、李志勇、武自念、郭茂伟、黄帆、闫晓红

品种特性

豆科多年生二倍体草本。根系发达，株高 115 cm 左右，株丛直径 205 cm 左右，生育期 120-140 天。平均干草产量 4456.8 kg/hm²，平均种子产量 172.9 kg/hm²，开花期粗蛋白质含量 14.03%。生长第二年根系入土深度可达 120 cm 左右，成株在 -45℃ 的低温条件下能安全越冬，年降水量 250 mm 以上的地区能良好生长。

主要用途

生态修复草、牧草兼用，主要用于水土保持、防风固沙、草地植被恢复及人工草地建设。

栽培技术要点

精细整地，结合整地施足基肥。春、夏、秋播种均可，适合雨季播种。播前应进行种子硬实处理，条播或穴播均可，条播行距 30-40 cm，播量为 7.5 kg/hm²，播深 2-3 cm；穴播，每穴 3-5 粒种子，株距 40 cm 左右，播后及时镇压。苗期及时除草，分枝期适当补充水肥。

适宜推广区域

适宜在内蒙古中西部、陕西、甘肃等年降水量 250 mm 以上地区种植。

12. ‘忻州’ 偏穗鹅观草

草种名称：偏穗鹅观草

学名：*Roegneria komarovii* ‘Xinzhou’

品种类别：野生驯化品种

编号：国 S-WDV-RK-012-2021

申报单位：中国农业科学院草原研究所

选 育 人：解继红、于林清、王运涛、李元恒、马玉宝

品种特性

禾本科多年生草本。株型直立，疏丛型，须根系，根系主要集中在 0-20cm 土层，株高 110-160 cm。干草产量 5158-5387 kg/hm²，种子产量 591-621 kg/hm²，抽穗期粗蛋白含量 13.8%。在我国北方高纬度地区-32.0℃ 可安全越冬，在含盐量 0.3-0.5%，pH=8.5 左右的土壤正常生长发育。

主要用途

生态修复草和牧草兼用，主要用于北方退化草地补播、盐碱地改良及人工草地建植。

栽培技术要点

深耕 20 cm，平整耙细，结合整地施足基肥。5 月初至 8 月底均可播种，以条播为主，播种深度 1-2 cm；收草田播种行距 30-40 cm，播量 22.5 kg/hm²；种子田行距 40-50 cm，播量 18 kg/hm²。退化草地补播采用免耕播种机播种，播种量为 27 kg/hm²。苗期生长缓慢，应及时除杂，注意灌水和施肥，以施氮肥为主。

适宜推广区域

适宜我国内蒙古、河北、甘肃、山西等半干旱及中度盐碱地区种植。

13. ‘梦龙’ 燕麦

草种名称：燕麦

学名：*Avena sativa* ‘Magnum’

品种类别：引进品种

编号：国 S-IV-AS-013-2021

申报单位：四川省草原科学研究院、北京百斯特草业有限公司

选 育 人：游明鸿、季晓菲、闫利军、白史且、杨江山、雷雄、张建波、李达旭、邵建辉

品种特性

禾本科一年生草本。根系发达，茎秆粗壮直立，株高 130-185 cm。分蘖能力强，分蘖数达 792.6 个/m²。对土壤要求不严，适于凉爽湿润气候区种植，在四川红原地区生育期 134 天。干草产量 9761.3-13299.37kg/hm²，种子产量 2220.6-3785.6 kg/hm²，粗蛋白含量 9.45%-12.6%。

主要用途

主要作饲草刈割利用。用于牧区高产人工草地建植、卧圈种草及南方农区冬闲田种草，也用作多年生草地建植的保护草种。

栽培技术要点

播种前精细整地，结合整地施足基肥。高寒牧区 4 月底至 5 月中旬播种，农区冬闲田秋播种植。条播或撒播，条播行距 20-40cm，播量 120-180 kg/hm²，播深 2-3cm。分蘖期至拔节期追施尿素 150-225 kg/hm²。乳熟期稍高于地面刈割，蜡熟期收获种子。

适宜推广区域

适宜川西、甘南等青藏高原东部、北方冷凉地区以及南方农区冬闲田种植。

14. ‘福瑞至’燕麦

草种名称：燕麦

学名：*Avena sativa* ‘ForagePlus’

品种类别：引进品种

编号：国 S-IV-AS-014-2021

申报单位：四川农业大学、四川省草原科学研究院、北京正道农业股份有限公司、山东省畜牧总站

选育人：马啸、雷雄、游明鸿、李达旭、闫利军、赵俊茗、翟桂玉、季晓菲、苟文龙、赵利

品种特性

禾本科一年生草本。根系发达，株型紧凑，茎秆粗壮直立光滑，株高 130-185 cm。叶片宽大，叶长 43.5-56.7 cm。晚熟品种，在成都平原秋季种植生育期 232 天。干草产量为 9784-15008 kg/hm²，种子产量为 2410-2583 kg/hm²，粗蛋白含量为 10%-15%。

主要用途

主要作饲草刈割利用。用于西南农区草田轮作、高原牧区一年生人工草地建植，也可作为多年生草地建植当年的先锋草种等。

栽培技术要点

播种前精细整地，结合整地施足基肥。在农区冬闲田秋播，牧区一般春播。条播或撒播，条播行距 20-30 cm，播量 90-120 kg/hm²，播深 2-3 cm。分蘖期至拔节期追施尿素 150-225 kg/hm²。乳熟期稍高于地面刈割。

适宜推广区域

适宜我国西南农区、青藏高原海拔 3500 m 以下地区及北方相似生态区种植。

National List of Grass Varieties in 2021

1. Lanjian 1

Species: *Vicia sativa*

Scientific name: *Vicia sativa* 'Lanjian 1'

Variety category: Bred variety

Registration No.: Guo S-BV-VS-001-2021

Applicant: Lanzhou University

Breeders: Nan Zhibiao, Wang Yanrong, Nie Bin, Zhang Weiguo, Ma Longxi

Characteristics:

'Lanjian 1' is an annual herb of legume with 90-120 cm plant height. The main root is well developed with a length of 40-60 cm. Otherwise, it has 20-35 lateral roots where distributed lots of rhizobium. 'Lanjian 1' can complete the reproductive cycle at the altitude of 3000 m with the reproductive period about 110 days. Typically, the hay yield, seed yield and the aboveground nitrogen yield is 4740 kg/hm², 2130 kg/hm² and 120 kg/hm², respectively.

Main use:

'Lanjian 1' mainly used for ecological restoration, forage grass, soil and fertile fields improvement in degraded grassland and traditional agricultural areas. It can also be mixed with oats to build annual artificial grassland.

Cultural techniques:

'Lanjian 1' should be sown in early May after deep plowing, fertilizing and dressing with rhizobia. Sowing depth is 3-4 cm. The row sowing is suitable for seed - harvesting with 30 cm between the rows and the sowing rate of 30-35 kg/hm²; for grass - harvesting, the sowing can be either drilled or broadcasted with the rate of 120-150 kg/hm² for monoculture, and 40%-50% of that for monoculture when mixed sowing with oats. 'Lanjian 1' can be weeded for the first time 30 days after emergence. It can be irrigated 1-2 times from the branching stage to the budding stage and mowed in the blooming stage. The height of the first stubble is 5-10 cm.

Suitable areas for planting:

It is suitable for planting in the temperate region, particularly in the area of Qinghai-Tibet Plateau, Loess Plateau, and Yunnan-Guizhou Plateau.

2. Ganlv 2

Species: *Astragalus cicer*

Scientific name: *Astragalus cicer* 'Ganlv 2'

Variety category: Bred variety

Registration No.: Guo S-BV-AC-002-2021

Applicant: Gansu Chuanglv Grass Industry Technology Co., Ltd., Gansu Agricultural University

Breeders: Cao Zhizhong, Ma Huiling, Zhao Bo, Niu Kuiju, Chen Shuihong, Dai Derong, Dong Wenke

Characteristics:

‘Ganlv 2’ is a perennial Leguminous forage whose rhizome possess character of reproductive. It has a strong root system and well-developed lateral roots where distributed lots of white or light-yellow rhizobium. The above-ground stems are creeping, and the plant height is 60-80 cm. The average hay yield and seed yield is 8910 kg/hm² and 428.9 kg/hm², respectively. Otherwise, the crude protein content of ‘Ganlv 2’ at the initial flowering stage was 17.81%. It has strong tolerance to mild and moderate drought stress. Furthermore, ‘Ganlv 2’ can tolerate 100-120 mmol/L mixed stress of saline-alkali, and can grow normally on coarse sandy soil and moderately saline-alkali soil where alfalfa can’t growth well.

Main use:

‘Ganlv 2’ is an ecological restoration and forage variety which mainly used for sand barren land, saline-alkali land improvement, water and soil conservation as well as wind and sand fixation. Furthermore, it can also be used for artificial grassland planting, grazing or mowing.

Cultural techniques:

The land should be plowed carefully and base fertilizer should be applied enough before sowing of ‘Ganlv 2’. The sowing would be easy to succeed when sowing in the rainy season at the late summer and early autumn in the Northern China. The sowing rate and depth is 30 kg/hm² and 1-2 cm, respectively, and it should be suppressed after sowing. The seedling stage of ‘Ganlv 2’ grows slowly and should pay attention to weed control. 150-300 kg/hm² of nitrogen fertilizer and compound fertilizer can be applied during the growth period. After 5-6 years of growth, the soil is compact and the grass layer is easy to decay. We should plow the grass again to restore the renewed grass layer and make it back to life. ‘Ganlv 2’ can be harvested in the first flowering period and can be harvested 2-3 times a year.

Suitable areas for planting:

It is suitable for planting in sandy wasteland, low-yield land and saline-alkali land along the windy sand in Northern China.

3. Zhonglinyu 2

Species: Buffalograss

Scientific name: *Buchloe dactyloides* ‘Zhonglinyu 2’

Variety category: Bred variety

Registration No.: Guo S-BV-BD-003-2021

Applicant: Research Institute of Forestry, Chinese Academy of Forestry

Breeders: Qian Yongqiang, Sun Zhenyuan, Liu Junxiang, Ju Guansheng, Liu Fenshan, Liu Wenguo

Characteristics:

It is a perennial low growing warm-season short herb. The plant height is 6.0-8.0 cm. The leaves are dark green and hairy, with the length of 5.0-7.0 cm and the width of 2.6-3.0 mm. It has the well-developed and branched stolon. The stolon diameter is 0.12 cm, and the internode length is 7.0-8.0 cm. The coverage of grassland can reach 85% within 60 days after establishment with

30cm×30cm, and the survival rate can reach more than 90% in North China.

Main use:

It is mainly used for ecological restoration of barren hills, slopes, degraded grassland, airports and other difficult site, and establishment of parks lawn.

Cultural techniques:

Ecological restoration of degraded grassland: For seedling planting, hole and compaction planting before rainy season, row spacing of 1m×1m, with adequate irrigation, routine management after establishment. Lawn planting: Remove the weeds firstly, hole and compaction planting with plant-row spacing of 30 cm×30 cm. Keep the soil moist within the first week after planting, and then management normally.

Suitable areas for planting:

It is suitable for planting in low-maintenance and difficult sites in North China.

4. Zhonglinyu 3

Species: Buffalograss

Scientific name: *Buchloe dactyloides* ‘Zhonglinyu 3’

Variety category: Bred variety

Registration No.: Guo S-BV-BD-004-2021

Applicant: Research Institute of Forestry, Chinese Academy of Forestry

Breeders: Qian Yongqiang, Sun Zhenyuan, Liu Junxiang, Ju Guansheng

Characteristics:

It is a perennial low growing warm-season short herb without fertile. The plant height is 15.4-20.3 cm. The leaves are dark green and hairy, with the average length of 15.0-19.6 cm and the width of 2.2-2.6 mm. It has the well-developed and branched stolon. The stolon diameter is 0.12 cm, and the internode length is 7.0-8.5 cm. The coverage of grassland can reach 85% within 60 days after establishment with 30cm×30cm.

Main use:

Mainly used for establishment of airports lawn and ecological restoration of difficult area.

Cultural techniques:

Ecological restoration of degraded grassland: For seedling planting, hole and compaction planting before rainy season, row spacing of 1m×1m, with adequate irrigation, routine management after establishment. Lawn planting: Remove the weeds firstly, hole and compaction planting with plant-row spacing of 30 cm×30 cm. Keep the soil moist within the first week after planting, and then management normally.

Suitable areas for planting:

It is suitable for planting in airports and other difficult area in North China.

5. Lubin 2

Species: *Cynodon transvaalensis* × *C. dactylon*

Scientific name: *Cynodon transvaalensis* × *C. dactylon* ‘Lubin 2’

Variety category: Bred variety

Registration No.: Guo S-BV-CT-005-2021

Applicant: Ludong University

Breeders: Fu Jinmin, Li Xiaoning, Yin Yanling

Characteristics:

‘Lubin 2’ is a perennial triploid herb consisting of the stolon, short internodes and adventitious roots at nodes. For reproduction, the ‘Lubin 1’ variety is an outcrossing species that propagates vegetatively. Typically, the variety is dark-green with a plant height of 30 cm, leaf girth of 2.77 mm, and 219/100 cm² dense. After their cultivation in the coastal saline-alkali soil, the salt content of a 0-10 cm soil layer declined by 35.0%, while the organic matter and total nitrogen content increased by 18%-47% and 45.5%, respectively.

Main use:

Mainly used for ecological restoration of seashore saline-alkali soil and lawns.

Cultural techniques:

The variety ‘Lubin 2’ is a warm-season grass that is suitably cultivated from May to October, preferably in June to September. In the coastal saline-alkali land, the variety is vegetatively propagated and established via laying sods. The sod sections can be moved by 30 cm×30 cm rectangle of manageable size with a thickness of approximately 2-3 cm. Irrigation of ‘Lubin 1’ should proceed immediately after establishment. Deep watering is strongly recommended during spring-greenness and before soil freezing. A compound fertilizer (10-20-20) of 450 kg/hm² and urea of 105-120 kg/hm² are required before and after its establishment, respectively. For fertilization, late autumn is preferred for ‘Lubin 2’ grass.

Suitable areas for planting:

‘Lubin 2’ is recommended to be used for east and central China south of Huang River.

6. Lubin 3

Species: *Paspalum vaginatum*

Scientific name: *Paspalum vaginatum* ‘Lubin 3’

Variety category: Bred variety

Registration No.: Guo S-BV-PV-006-2021

Applicant: Ludong University

Breeders: Fu Jinmin, Fan Shugao, Wang Guangyang

Characteristics:

‘Lubin 3’ is a perennial herb consisting of the stolon, and adventitious roots at nodes. The stem is slender and tough. Typically, plant height is about 30 cm, and leaf width 2.9 mm with a dense of 238/100 cm². Plant grows with excellent phenotypic traits after salinity treatment of 2.0% for 20

days. Soil salinity content of surface soil 0-10cm decrease 32.4% -57.7% and soil organic matter increased 11.4%-46.0% after plant establishment in coastal salinity land.

Main use:

Mainly used for ecological restoration of seashore saline-alkali soil, lawns, and also urban public area greening.

Cultural techniques:

Suitably cultivated from May to October, preferably in June to September. In the coastal saline-alkali land, the variety is vegetatively propagated and established via laying sods. The sod sections can be moved by 30 cm×30 cm rectangle of manageable size with a thickness of approximately 2-3 cm. Irrigation of ‘Lubin 3’ should be proceed immediately after establishment. Deep watering is strongly recommended during spring-greenness and before soil freezing. A compound fertilizer of 450 kg/hm² before establishment and urea of 105-120 kg/hm² in late autumn after establishment are required for ‘Lubin 3’ grass.

Suitable areas for planting:

‘Lubin 3’ is recommended to be used for east , central and south China of latitude 36°.

7. Liqiu

Species: *Pennisetum alopecuroides*

Scientific name: *Pennisetum alopecuroides* ‘Liqiu’

Variety category: Bred variety

Registration No.: Guo S-BV-PA-007-2021

Applicant: Beijing Research & Development Center for Grass and Environment

Breeders: Wu Juying, Teng Wenjun, Yue Yuesen, Fan Xifeng, Zhang Hui, Teng Ke, Wen Haifeng, Han Chao

Characteristics:

‘Liqiu’ belongs to the gramineae perennial warm-season herbs. It is cespitose with the height of 101-117 cm and the canopy of 92-125 cm, and has abundant leaf biomass that the colour of leaves are dark green, the long of leaves are about 80 cm and the width about 12 mm. ‘Liqiu’ has spike-shaped panicles with white jade colour, the number of inflorescences per plant is 80-124, and the length of inflorescence is about 20. The early flowering stage of this variety is from late July to August, the full flowering stage is from mid-August to late August, and the withered and yellow period is from late October to early November, which has a green period of about 200 days.

Main use:

It can be used as decorative material for flowerbed , flower mirror in landscaping as well as ecological restoration or landscape construction in barren hills and slopes.

Cultural techniques:

This variety usually are planted using the way of hole planting, which the optimum depth is 15-20

cm. And the water should be fully irrigated after transplanting. After the plant stand, no irrigation is needed, and the attention should be paid to drain during the rainy season. No additional fertilizer is required after applying sufficient ground fertilizer. 'Liqui' could not be cut during the growing season and in next year should be mowed before regreening. When 'Liqui' was mowed, the stubble height should be controlled to about 15 cm.

Suitable areas for planting:

It is suitable for planting in Central and Northern China.

8. Wuling

Species: *Eremochloa ophiuroides*

Scientific name: *Eremochloa ophiuroides* 'Wuling'

Variety category: Wild domesticated variety

Registration No.: Guo S-WDV-EO-008-2021

Applicant: Sichuan Academy of Grassland Sciences, Sichuan Agricultural University, Jiangsu Vocational College Agriculture and Forestry, Guizhou University

Breeders: Gou Wenlong, Bai Shiqie, Yan Lijun, Ma Xiao, Liu Nanqing, Li Ping, Tong Qi, Zhang Jianbo, Li Xi, Zhang Lixia, Chen Limin and Sun Feida

Characteristics:

'Wuling' is a perennial warm-season herbs of Gramineae. The plant height is very lowly, only 10-20 cm, the base of the stem erect, leaves often grow in the base of the stem, the length of leaves is 2-8 cm, the width is 1.5-4 mm, the density of leaves is 81.3/100 cm². The growth period of this variety is about 210 days in Chengdu, and green period is 290-300 days. The creeping stems are developed and the remediation efficiency is high. According to 15-20 cm plant row spacing planting, the coverage of this variety could achieve more than 75% about 70 days.

Main use:

It can be used for ecological restoration in side slopes, water and soil conservation and low maintenance greening.

Cultural techniques:

Planting for ecological restoration, first, it should clear weeds and stones on slope, and than prepare land combined with applying compound fertilizer 500 kg/hm². When using stem direct seeding, the suitable seeding amount of 'Wuling' is 150-200 g/m² and cover soil 1-1.5 cm with appropriate suppression. When transplanting by plant division, the suitable row spacing is 20 cm. In planting stage, the 'Wuling' should be irrigated in time. When this variety is planted for green space construction, it should prepare land finely, combined with applying compound fertilizer 500 kg/hm². The grass stems cut into fragments contained 2-3 stem segments are scattered on the soil surface. The suitable seeding amount of 'Wuling' is 150-200 g/m², cover soil 1-1.5 cm with appropriate suppression and fully watered. After successful construction, this variety needs routine lawn management.

Suitable areas for planting:

It is suitable for planting in Southwest China and the middle and lower reaches of the Yangtze River that the altitude is lower than 1500 m.

9. Xiaoshao

Species: *Dichondra repens*

Scientific name: *Dichondra repens* ‘Xiaoshao’

Variety category: Wild domesticated variety

Registration No.: Guo S-WDV-DR-009-2021

Applicant: Sichuan Agricultural University, Yunnan Agricultural University, Chengdu Times Planting Green Horticulture Co., Ltd

Breeders: Peng Yan, Gan Youmin, Li Zhou, Ma Xiao, Ren Jian, Liu Wei, Zhou Kai, Zhao Junming, Feng Guangyan, Xu Jie

Characteristics:

‘Xiaoshao’ is a kind of renascent herb that belongs to the genus *Convolvulaceae* in the family *dichondra*. It has the low grass layer, which only has 2.93 cm on average height. This variety could be reproductive by using creeping stem to branch. The length of primary stolons could be nearly 20 cm with rooting in knots, and the internode is short, which only has about 1.1 cm. The ornamental part consists of petioles and leaves. The leaves are approximately circular, like horseshoe - shaped, with emerald green. The green period of this variety could hold all the year around and the best viewing period is from June to August.

Main use:

It can be used for urban landscaping, Ornamental Lawn, water and soil maintenance and so on.

Cultural techniques:

The best planting period of ‘Xiaoshao’ in the Yangtze River basin is from April to July. And it can be planted by paving turf blocks, the 10 cm × 10 cm of turf blocks should be evenly spread planted according to 20-30 cm row-spacing and 20-25 cm hill-distance. Irrigation was applied daily to moisten the soil layer for 5-7 cm until the grass clumps were established. After the formation of lawn, irrigate once every 2 days during the summer hot and dry season, and apply nitrogen fertilizer once a month during the growing season with a dosage of 20 kg/hm². In addition, pay attention to weed control and pest control.

Suitable areas for planting:

It is suitable for planting in Southwest China and the middle and lower reaches of the Yangtze River that the altitude is lower than 2000 m.

10. Chuanxi

Species: *Erianthus arundinaceus*

Scientific name: *Erianthus arundinaceus* ‘Chuanxi’

Variety category: Wild domesticated variety

Registration No.: Guo S-WDV-EA-010-2021

Applicant: Sichuan Academy of Grassland Sciences, Guizhou Prataculture Institute

Breeders: Yan Jiajun, Bai Shiqie, Zhang Jianbo, Li Yingzhu, Chang Dan, Zhang Wen, Zhang Jin, Yan Lijun, Li Daxu, You Minghong, Ji Xiaofei, Long Zhongfu

Characteristics:

This variety is a kind of renascent herb that belongs to the family *Gramineae*. And the main root of this variety is inconspicuous, the fibrous root system is well-developed, the stalk is erect and stout, which has the height of 4.3-5.8 m, stem thick of 14.8-32.3 mm, 13-21 nodes and 180-256 tillers per plant. This variety is highly adaptable, tolerant of infertile, and can grow in all types of soil. The cellulose content of this variety is 33.28%, the ratio of ethanol conversion and TS methane conversion are 170.9 g/kg and 80.63 ml/g, respectively.

Main use:

It can be used as Energy grass and ecological restoration grass, which can direct be as fuel or use for bioethanol and biomethane conversion, and also can use for soil reinforcement for slope protection, water and soil maintenance and so on.

Cultural techniques:

Plough 20-30 cm before planting and apply 15000-20000 kg/hm² of organic fertilizer as base fertilizer in combination with land preparation. This variety could be planted in March-April in spring and September-October in autumn. This variety could be planted by transplantation of seedlings or asexual propagation, planting stems, according to planting spacing 80 cm × 80 cm. Irrigate in time after transplanting or in winter and spring in case of drought, apply 500-600 kg/hm² of compound fertilizer during the jointing stage and 150 kg/hm² of urea after mowing, weed in time during the seedling stage and mow for utilization at maturity, leaving the stubble of 10-15 cm.

Suitable areas for planting:

It is suitable for planting in tropical and subtropical areas such as Southwest, South and Central China.

11. Keerqinshadi

Species: *Medicago ruthenica*

Scientific name: *Medicago ruthenica* ‘Keerqinshadi’

Variety category: Wild domesticated variety

Registration No.: Guo S-WDV-MR-011-2021

Applicant: Institute of Grassland Research, Chinese Academy of Agricultural Sciences

Breeders: Li Hongyan, Li Zhiyong, Wu Zinian, Guo Maowei, Huang Fan, Yan Xiaohong

Characteristics:

Leguminous perennial diploid herb. The root system is developed, the plant height is about 115 cm, the plant cluster diameter is about 205 cm, and the growth period is 120-140 days. The average hay yield was 4456.8 kg/hm², the average seed yield was 172.9 kg/hm², and the crude protein content at flowering stage was 14.03%. In the second year of growth, the root penetration depth can reach about 120 cm, the adult can survive the winter safely under the low temperature of

-45°C, and the area with annual precipitation of more than 250 mm can grow well.

Main application:

Mainly used for soil and water conservation, wind prevention and sand fixation, grassland vegetation restoration and artificial grassland construction.

Cultivation Techniques:

Fine land preparation, combined with land preparation, apply enough base fertilizer. It can be sown in spring, summer and autumn. It is suitable for sowing in rainy season. Seeds shall be hardened before sowing, either drill or hole sowing, with row spacing of 30-40 cm, sowing amount of 7.5 kg/hm² and sowing depth of 2-3 cm; hole sowing, 3-5 seeds per hole, plant spacing of about 40 cm, and timely suppress after sowing. Weed in time at seedling stage and supplement water and fertilizer appropriately at branching stage.

Suitable area for planting:

It is suitable for planting in annual precipitation area of more than 250 mm, such as Central and Western Inner Mongolia, Shaanxi and Gansu.

12. Xinzhou

Species: *Roegneria komarovii*

Scientific name: *Roegneria komarovii* 'Xinzhou'

Variety category: Wild domesticated variety

Registration No.: Guo S-WDV-RK-012-2021

Applicant: Institute of Grassland Research, Chinese Academy of Agricultural Sciences

Breeders: Xie Jihong, Yu Linqing, Wang Yuntao, Li Yuanheng, Ma Yubao

Characteristics:

As a perennial herb of *Roegneria komarovii* species of Gramineae, 'Xinzhou' possesses the erect plant type, fibrous root system and sparse stem. The root system is mainly concentrated in 0-20cm soil layer, and the plant height is from 110 to 160 cm. The hay yield is 5158 kg/hm² to 5387 kg/hm², and the seed yield is 591 kg/hm² to 621 kg/hm², the crude protein content is 13.8% at heading stage. It can safely over-winter in-below the condition of -32.0°C in the high latitude area of north China, and grow normally in the soil with salt content of 0.3-0.5% and pH = 8.5.

Main use:

It can be used for ecological restoration grass and forage grass, mainly used for supplementary sowing of degraded grassland, improvement of saline-alkali land and planting of artificial grassland in North China.

Cultural techniques:

The land is plowed deeply for 20 cm, leveled and raked fine. It can be sown from early May to the end of August, mainly in drill, with a sowing depth of 1-2 cm. When the field is used for harvesting grasses, the row-spacing is in the range of 30-40 cm, accompanied with the seeding rate of 22.5kg/hm². When the field is used for harvesting seeds, the row-spacing is in the range of

40-50 cm, accompanied with the seeding rate of 18kg/hm². When the degraded grassland is re sown, the no tillage planter is used for sowing, and the seeding rate is 27 kg/hm². Seedling growth is slow, timely weed removal, irrigation and fertilization, mainly with nitrogen fertilizer.

Suitable areas for planting:

It is suitable for planting in semi-arid and moderately saline-alkali areas such as Inner Mongolia, Hebei, Gansu and Shanxi

13. Magnum

Species: *Avena sativa*

Scientific name: *Avena sativa* ‘Magnum’

Variety category: Introduced variety

Registration No.: Guo S-IV-AS-013-2021

Applicant: Sichuan Academy of Grassland Sciences, Beijing Best Grass Industry Co., Ltd.

Breeders: You Minghong, Ji Xiaofei, Yan Lijun, Bai Shiqi, Yang Jiangshan, Lei Xiong, Zhang Jianbo, Li Daxu, Tai Jianhui

Characteristics:

‘Magnum’ is an annual herb of the Gramineae with the characteristics of a developed root system and a thick and straight stem. The plant height is 130-185 cm, and it has a strong tillering ability with the number of tillers 792.6/m². Magnum does not require strict soil environment and is suitable for planting in cool and humid areas. Its growth period is 134 days in the Hongyuan country, Sichuan Province. The hay grass yield is 9761.3-12590 kg/hm², seed yield is 2220.6-3785.6 kg/hm², and the crude protein content is 9.45%-12.6%.

Main use:

‘Magnum’ mainly is used as forage grass for mowing. It is used for the establishment of high-yield artificial grassland, planting grass in the cowshed of pastoral areas or in the winter fallow fields of southern agricultural areas. It is also used as a protective grass species for the establishment of perennial grassland.

Cultural techniques:

Before planting of ‘Magnum’, we should finely prepare the ground, and apply sufficient base fertilizer combined with soil preparation. Sowing is carried out in the alpine pastoral area from the end of April to mid-May. When applied in the winter fallow fields of agricultural area, seeds should be sowed in the autumn. ‘Magnum’ could be sowed with drill or broadcast, and the row spacing of the drill is 20-40 cm. the sowing rate is 120-180 kg/hm², and the sowing depth is 2-3cm. 150-225 kg/hm² of urea should be applied from the tillering stage to the shooting stage of ‘Magnum’ Grass should be cut slightly above the ground in the milk ripe period, and seeds are harvested during the wax ripe period.

Suitable areas for planting:

‘Magnum’ is suitable for planting in the eastern of Qinghai-Tibet Plateau such as western Sichuan and southern Gannan, in the agricultural areas of the south, and the cold area of the north.

14. ForagePlus

Species: *Avena sativa*

Scientific name: *Avena sativa* 'ForagePlus'

Variety category: Introduced variety

Registration No.: Guo S-IV-AS-014-2021

Applicant: Sichuan Agricultural University, Sichuan Academy of Grassland Sciences, Beijing Zhengdao Agriculture Co., Ltd., Shandong Provincial Animal Husbandry General Station

Breeders: Ma Xiao, Lei Xiong, You Minghong, Li Daxu, Yan Lijun, Zhao Junming, Zhai Guiyu, Ji Xiaofei, Gou Wenlong, Zhao Li

Characteristics:

As an annual herb of the Gramineae, 'ForagePlus' has the characteristics of well-developed root system, compact plant shape, wide leaves, thick, upright and smooth stalks. The plant height is 130-185 cm, and its leaf length is 43.5-56.7 cm. As a late-maturing variety, 'ForagePlus' has a growth period of 232 days when planted in autumn on the Chengdu Plain. The hay yield is 9784-15008 kg/hm², seed yield is 2410-2583 kg/hm², and its crude protein content is 10%-15%.

Main use:

As forage grass for mowing, 'ForagePlus' mainly used for grassland rotation in southwest agricultural areas and also be used for annual artificial grassland establishment in plateau pastoral areas or used as a pioneer grass species in the year of perennial grassland establishment.

Cultural techniques:

Before planting of 'ForagePlus', we should finely prepare the ground, and apply sufficient base fertilizer combined with soil preparation. 'ForagePlus' is planted in autumn in agricultural areas, and planted in spring in pastoral areas. Drilling or broadcasting are both suitable for sowing of 'ForagePlus', the row spacing of the drill is 20-30 cm, the sowing rate is 90-120 kg/hm², and the sowing depth is 2-3 cm. 150-225 kg/hm² of urea should be applied from the tillering stage to the shooting stage of 'ForagePlus'. The mowing is carried out during the milk ripe period, and the mowing height is slightly higher than the ground.

Suitable areas for planting:

It is suitable for planting in southwest agricultural areas of China, areas below 3500 m of the Qinghai-Tibet Plateau, and similar ecological areas in northern China.