

附件

# 2023 年度草品种名录

(中英文)

## 1. ‘京科 1 号’ 羊草

草种名称：羊草 学名：*Leymus chinensis* ‘Jingke 1’  
品种类别：育成品种 编号：国 S-BV-LC-001-2023  
申报单位：北京星道科技有限公司  
选 育 人：董晓兵、刘 辉、沈 涛

### 品种特性

多年生草本植物。具有发达的地下横走根茎，主要分布于地表 10 cm~20 cm；株型紧凑，株高 112 cm~118 cm；种子千粒重 2.4 g，种子产量平均为 422 kg/hm<sup>2</sup>，干草产量平均为 12230 kg/hm<sup>2</sup>，地下生物量平均为 9934 kg/hm<sup>2</sup>。北京市海淀区生育期 89 天，生长天数 219 天，越冬率为 96%。在内蒙古通辽市开鲁县的修复效率为 385 天，较对照‘中科 1 号’羊草平均提早 13 天。

### 主要用途

生态修复与饲用。

### 栽培技术要点

播前翻耕、旋耕、镇压，翻耕深度 25 cm，旋耕深度 15 cm，镇压两遍。条播，行距 15 cm，播种量为 30 kg/hm<sup>2</sup>，播种深度为 1 cm~2 cm，播后浇水。播种后至幼苗 3 叶期保证土壤湿度，避免幼苗干旱死亡。返青期施用氮磷钾复合肥 200 kg/hm<sup>2</sup>~300 kg/hm<sup>2</sup>、尿素 100 kg/hm<sup>2</sup>~120 kg/hm<sup>2</sup>，施肥后立刻灌返青水，年均灌水量 1500 m<sup>3</sup>/hm<sup>2</sup>~2250 m<sup>3</sup>/hm<sup>2</sup>。播种当年，杂草较多时可以刈割清除，留茬高度 5 cm，播种当年严禁放牧。

### 适宜种植范围

适宜京津冀地区、内蒙古、新疆、青海及相似生态区域种植。

## 2. ‘冀苏 3 号’ 苏丹草

草种名称：苏丹草 学名：*Sorghum sudanense* ‘Jisu 3’  
品种类别：育成品种 编号：国 S-BV-SS-002-2023  
申报单位：河北省农林科学院旱作农业研究所  
选 育 人：刘贵波、李 源、赵海明、游永亮、武瑞鑫

### 品种特性

一年生草本植物，褐色中脉苏丹草品种，须根，株高 306 cm，种子千粒重 11.6 g；在冀中南地区生育期 116 天，春播平均干草产量为 15276 kg/hm<sup>2</sup>，平均种子产量为 2250 kg/hm<sup>2</sup>；第一茬抽穗期木质素含量为 2.20%，比对照‘新苏 3 号’苏丹草、‘新草 1 号’苏丹草分别

降低 41.64%和 45.95%；粗蛋白含量 4.48%，对照‘新苏 3 号’、‘新草 1 号’分别为 4.51%、4.33%。北方地区全年刈割 2~3 次，南方地区可刈割 3~4 次。

### 主要用途

饲用，青饲、青贮均可。

### 栽培技术要点

一般地温稳定在 10℃以上即可播种。春、夏播均可，条播为主，行距 40 cm~50 cm。播种量 7.5 kg/hm<sup>2</sup>，播种深度 3 cm~5 cm，播后及时镇压。一般在播后苗前采用 38%莠去津悬浮剂均匀喷施地表防除杂草。中等肥力土壤底施氮磷钾肥的用量分别为纯氮 150 kg/hm<sup>2</sup>~225 kg/hm<sup>2</sup>，磷肥 (P<sub>2</sub>O<sub>5</sub>) 150 kg/hm<sup>2</sup>~225 kg/hm<sup>2</sup>，钾肥 (K<sub>2</sub>O) 75 kg/hm<sup>2</sup>~100 kg/hm<sup>2</sup>。拔节期或第 1 茬草刈割后追施氮肥 1 次，纯氮为 110 kg/hm<sup>2</sup>~150 kg/hm<sup>2</sup>。青贮利用一般在蜡熟期刈割，青饲利用一般在株高 150 cm 以上至抽穗期刈割。刈割时留茬高度 15 cm~20 cm。

### 适宜种植范围

适宜在东北、西北、华北等地区种植。

## 3. ‘闽紫 8 号’紫云英

草种名称：紫云英

学名 *Astragalus sinicus* ‘Minzi 8’

品种类别：育成品种

编号：国 S-BV-AS-003-2023

申报单位：福建省农业科学院土壤肥料研究所

选育人：何春梅、刘彩玲、王飞、黄毅斌、林多胡、李清华、张辉、王珂

### 品种特性

一年生豆科草本植物，中花型品种，全生育期 210 天左右。须根系，主根明显，侧根发达，根瘤较多；株高 100 cm~140 cm，茎粗 4.5 mm~5.5 mm；种子千粒重 3.6 g~4.0 g。干草产量平均为 3106 kg/hm<sup>2</sup>，较对照‘升钟’紫云英、‘闽紫 7 号’紫云英分别提高 49.1%和 58.5%；第 1 茬花期粗蛋白含量为 11.78%。

### 主要用途

饲用，也可用作绿肥。

### 栽培技术要点

9 月下旬至 10 月中旬（在水稻收割前 20 天左右）套播或 10 月中、下旬水稻收割后立即整地开沟播种。一般采用撒播，播种量为 22.5 kg/hm<sup>2</sup>~30 kg/hm<sup>2</sup>，留种田播种量为 15 kg/hm<sup>2</sup>~18.75 kg/hm<sup>2</sup>。播种时，选 4~5 天内不会有大雨的天气，每千克种子可加钙镁磷肥 2.5 kg~5.0 kg 混合拌匀播种。在水稻收割后或紫云英 2 叶期可再撒施过磷酸钙约 200 kg/hm<sup>2</sup>、氯化钾 60 kg/hm<sup>2</sup>。留种田应在现蕾开花期喷硼、钼微肥 1 次，以提高结实率。开好排水沟，进行合理排灌，做好病虫害防治工作。草层高度达 40 cm~50 cm 时刈割利用，留茬高度 5 cm~8 cm，刈割后待侧芽萌发后再进行灌溉。调制干草可在盛花期进行刈割。

### 适宜种植范围

适宜在长江中下游及以南地区种植。

#### 4. ‘粤研 1 号’ 柱花草

草种名称：柱花草 学名：*Stylosanthes guianensis* ‘Yueyan 1’  
品种类别：育成品种 编号：国 S-BV-SG-004-2023  
申报单位：广东省农业科学院动物科学研究所  
选 育 人：丁迪云、吴林瑛、张志飞、莫文艳、张 厂

##### 品种特性

豆科多年生草本植物。茎直立或半直立，株高 1.8 m~2.0 m，茎粗 0.2 cm~0.25 cm；花期 9~10 月，花粉粒扁圆形，无活力。种子活力低，且分离严重，在广州以北地区只开花不结实（或结实极少）。鲜草产量 26200 kg/hm<sup>2</sup>~52000 kg/hm<sup>2</sup>；干草产量 6550 kg/hm<sup>2</sup>~13000 kg/hm<sup>2</sup>，较‘热研 2 号’柱花草和‘热研 10 号’柱花草分别提高 18.8%和 45.4%。营养生长期粗蛋白含量为 15%~16%。在广西壮族自治区扶绥县平均越冬率为 97.5%；在广州北部地区越冬率为 100%，较对照品种越冬率提高 20%。

##### 主要用途

饲用，也可用作果园绿肥以及生态修复。

##### 栽培技术要点

采用无性繁殖，选取长 30 cm 左右的枝条作种苗，3 月中旬开沟或挖穴定植；建植前，将草苗泡根 12 h~24 h，埋土深度 10 cm~15 cm，株行距为 40 cm×40 cm，每穴 2 苗，植后浇定根水；建植两星期后除杂 1 次，之后进行中耕、除草、施肥等日常管理；株高达 100 cm~120 cm 时刈割，留茬高度 20 cm。

##### 适宜种植范围

适宜在广东、广西、海南以及福建、云南省南部地区种植。

#### 5. ‘航育 1 号’ 芦竹

草种名称：芦竹 学名：*Arundo donax* ‘Hangyu 1’  
品种类别：育成品种 编号：国 S-BV-AD-005-2023  
申报单位：航天绿鹏生物科技（北京）有限公司  
选 育 人：李 静、李珊珊、李晶昭、刘红磊、赵 辉、刘宝平、刘纪原

##### 品种特性

多年生草本植物，通过神舟十号载人飞船搭载诱变育成。株型高大，第 1 年株高可达 200 cm~400 cm，第 2 年及以后植株高度可达 550 cm~600 cm。分蘖数最高达到 148 个，是原始材料的 1.8 倍；年均干草产量 120 t/hm<sup>2</sup>，燃烧值为 15.39 MJ/kg~22.76 MJ/kg，褐煤燃烧值 20MJ/kg，碳排放量为褐煤燃烧的 13%、二氧化硫排放量为褐煤燃烧的 6%。在河北沧州市盐度 0.5%的地域生长良好，耐多次刈割，丰产期 10 年以上。

##### 主要用途

可作为固体燃料。

##### 栽培技术要点

春季穴栽，适时灌溉，600 mm 以下降雨地区需要有灌溉设施。秧苗移栽后第 1 年的管理很重要，主要工作是除草，可使用不伤及芦竹的特用除草剂。遇旱情时适当浇灌，以保证根部正常生长。夏末秋初结穗后，可适时收割，收割时应留 15 cm 左右的茬口。在冬季低于 -18℃ 的栽培区域，为安全越冬，可将地面部分全部刈割掉，并用土覆盖，再覆膜保温。

### 适宜种植范围

华北平原区、山东沿海地区种植。

## 6. ‘瑞文德’白三叶

草种名称：白三叶 学名：*Trifolium repens* ‘Rivendel’  
品种类别：引进品种 编号：国 S-IV-TR-006-2023  
申报单位：四川农业大学、四川省草原科学研究院、四川省草原工作站、贵州省草业研究所、甘孜藏族自治州草原工作站  
选育人：聂刚、闫利军、张健、龙忠富、杨廷勇、韩重阳、马啸、姚明久、李鸿祥、谢欢

### 品种特性

多年生四倍体豆科植物。株丛低矮，株高 20 cm~30 cm，分枝数约 15 个，掌状三出复叶带 V 型白斑，叶面积在 1000 mm<sup>2</sup> 以下；头型总状花序，含白色小花 40~60 朵，种子千粒重 0.5 g~0.6 g。刈割后再生修复效率为 22 天，种植第 1 年度盖度可达 90% 以上。

### 主要用途

生态修复植被，主要用于高速公路边坡、矿区隔离等边际土壤修复、固土护坡以及果园林下种植。

### 栽培技术要点

播前精细整地耙平。春播或秋播皆可，秋播 9 月中下旬播种，条播或撒播，条播行距 15 cm~30 cm，播种量 12 kg/hm<sup>2</sup>~15 kg/hm<sup>2</sup>，播种深度 1 cm。苗期保持地表湿润，注意杂草防除，土壤干旱时结合施肥进行灌溉，可通过施磷钾肥控制白三叶生长，越冬前灌足冬水。

### 适宜种植范围

适宜在南方海拔 600 m 以上，年降雨量 800 mm 以上地区及相似生态区域种植。

## 7. ‘迈克斯’多花黑麦草

草种名称：多花黑麦草 学名：*Lolium multiflorum* ‘Maximus’  
品种类别：引进品种 编号：国 S-IV-LM-007-2023  
申报单位：四川农业大学、四川省草原科学研究院、四川省草业技术研究和推广中心、百绿（天津）国际草业有限公司  
选育人：马啸、赵俊茗、董志晓、闫利军、张建波、周冀琼、程明军、伍文丹、沙丽娜、雷雄、余青青

### 品种特性

一年生草本植物。须根发达，茎秆成疏状，直立粗壮，直径 0.46 cm~0.53 cm，平均株高为 54.48 cm；穗状花序长 33 cm~45 cm，小穗含 25~33 小花，外稃芒长 5 mm~10 mm，种子千粒重 4 g~6 g，平均干草产量可达 14234 kg/hm<sup>2</sup>，较对照‘安格斯 1 号’多花黑麦草和‘邦德’多花黑麦草分别提高 13.02%和 11.12%；平均鲜草产量为 120420 kg/hm<sup>2</sup>，均比对照增产 10%以上；第 1 次刈割草粗蛋白含量为 18.65%。

## 主要用途

饲用。

## 栽培技术要点

秋播以 9 月中旬至 10 月下旬为宜。条播播种量 22.5 kg/hm<sup>2</sup>~30 kg/hm<sup>2</sup>，行距 25 cm~30 cm；撒播播种量 35 kg/hm<sup>2</sup>~40 kg/hm<sup>2</sup>，播后覆土 2 cm。收种田播种量 15 kg/hm<sup>2</sup>~22.5 kg/hm<sup>2</sup>。苗期注意除杂；及时排水灌水，防干旱或水浸；每次割草 2~3 天后，施尿素 75 kg/hm<sup>2</sup>~95 kg/hm<sup>2</sup>可有效促进再生；每次追肥后需灌溉。株高 40 cm~50 cm 左右时进行刈割，留茬高度 5 cm~6 cm。

## 适宜种植范围

适宜亚热带及南暖温带地区种植。

# National List of Grass Varieties in 2023

## 1. Jingke 1

**Species:** *Leymus chinensis*

**Scientific name:** *Leymus chinensis* 'Jingke 1'

**Variety category:** Bred variety

**Registration No.:** Guo S-BV-LC-001-2023

**Applicant:** Beijing Xingdao Technology Co., Ltd

**Breeders:** Dong Xiaobing, Liu Hui, Shen Tao

### Characteristics:

'Jingke 1' is a perennial herb with well-developed underground rhizomes and is mainly distributed on the surface of soil at a depth of 10-20 cm. It has a compact growth habit with a height of 112-118 cm. The weight of one thousand seeds is 2.4 g, with an average seed yield of 422 kg/hm<sup>2</sup>, an average dry hay yield of 12230 kg/hm<sup>2</sup>, and an average underground biomass of 9934 kg/hm<sup>2</sup>. In Haidian District, Beijing, the growth period, total growth days, and winter survival rate of 'Jingke 1' are 89 days, 219 days, and 96%, respectively. In Kailu County, Tongliao City, Inner Mongolia, the restoration efficiency of 'Jingke 1' is 385 days, which is 13 days earlier compared to the control variety *Leymus chinensis* 'Zhongke 1' on average.

### Main use:

It can be used for ecological restoration as well as forage grass.

### Cultural techniques:

Before sowing, plowing-rotary tilling-compacting should be carried out. The plowing depth is 25 cm, the rotary tillage depth is 15 cm, and compacting should be done twice. The row spacing of the drill is 15 cm, sowing amount is 30 kg/hm<sup>2</sup>, and sowing depth is 1-2 cm. Watering should be done after sowing to ensure soil moisture and prevent the seedlings from drying out and dying. After sowing, it is important to maintain adequate soil moisture until the seedlings reach the three-leaf stage to avoid drought and death of seedlings. During the green returned stage, 200-300 kg/hm<sup>2</sup> of compound fertilizer and 100-120 kg/hm<sup>2</sup> of urea should be applied, and the green water should be immediately poured back after fertilization, and the average annual irrigation water is 1500-2250 m<sup>3</sup>/hm<sup>2</sup>. In the year of sowing, when there are more weeds, it can be cut and removed. The height of the stubble is 5 cm, and grazing is strictly prohibited in the year of sowing.

### Suitable areas for planting:

It is suitable for planting in Beijing-Tianjin-Hebei region, Inner Mongolia, Xinjiang, Qinghai and similar ecological regions.

## 2. Jisu 3

**Species:** *Sorghum sudanense*

**Scientific name:** *Sorghum sudanense* 'Jisu 3'

**Variety category:** Bred variety

**Registration No.:** Guo S-BV-SS-002-2023

**Applicant:** Dry-Land Farming Institute of Hebei Academy of Agricultural and Forestry Sciences

**Breeders:** Liu Guibo, Li Yuan, Zhao Haiming, You Yongliang, Wu Ruixin

**Characteristics:**

‘Jisu 3’ is an annual herb with a brown midrib and fibrous roots. The height is 306 cm, and the 1,000 grains weight is 11.6 g. The growth period of ‘Jisu 3’ is 116 days in central and southern Hebei, the average hay yield is 15276.1 kg/hm<sup>2</sup>, and the average seed yield is 2250 kg/hm<sup>2</sup> when sown in spring. The lignin content in the first stubble stage is 2.20%, which is 41.64% and 45.95% lower than that of the control varieties ‘Xinsu 3’ and ‘Xincao 1’, respectively. The crude protein content of ‘Jisu 3’, ‘Xinsu 3’, and ‘Xincao 1’ are 4.48%, 4.51%, and 4.33%, respectively. It can be cut 2-3 times every year in the northern China and 3-4 times every year in the southern China.

**Main use:**

It can be used for feeding. Both greed feeding and silage are viable options.

**Cultural techniques:**

‘Jisu 3’ is generally sown when the soil temperature is consistently above 10°C. It can be sown in both spring and summer with a row spacing of 40-50 cm, and row planting is preferred. The seeding rate is 7.5 kg/hm<sup>2</sup>, and the seeds should be sown at a depth of 3-5 cm and promptly compressed after sowing. Generally, before the seedlings emerge, 38% Atrazine suspension concentrates should be evenly sprayed on the ground surface to control weeds. For soils with moderate fertility, the recommended application rates of N, P, and K fertilizers are as follows: pure N at a rate of 150-225 kg/hm<sup>2</sup>, P<sub>2</sub>O<sub>5</sub> at a rate of 150-225 kg/hm<sup>2</sup>, and K<sub>2</sub>O at a rate of 75-100 kg/hm<sup>2</sup>. During the elongation stage or after the first cut, it is recommended to apply nitrogen fertilizer once, with a dosage of 110-150 kg/hm<sup>2</sup> pure N. For silage utilization, it is generally harvested at the wax maturity stage. For grazing utilization, it is typically harvested from a plant height of over 150 cm to the heading stage, with a stubble height of 15-20 cm left after harvesting.

**Suitable areas for planting:**

It is suitable for cultivation in northeast China, northwest China, north China, and other regions.

### 3. Minzi 8

**Species:** *Astragalus sinicus*

**Scientific name:** *Astragalus sinicus* ‘Minzi 8’

**Variety category:** Bred variety

**Registration No.:** Guo S-BV-AS-003-2023

**Applicant:** Fujian Academy of Agricultural Sciences, Institute of Soil and Fertilizer Research

**Breeders:** He Chunmei, Liu Cailing, Wang Fei, Huang Yibin, Lin Duohu, Li Qinghua, Zhang Hui, Wang Ke

**Characteristics:**

‘Minzi 8’ is an annual Leguminous herbaceous plant and is a medium-flowering variety, with a

total growth period of approximately 210 days. It has a fibrous-root system with a prominent main root and well-developed lateral roots, along with numerous nodules. Plant height of 'Minzi 8' ranges from 100 cm to 140 cm, stem thickness is 4.5- 5.5 mm, and the 1000 grain weight of seeds is 3.6- 4.0 g. The average hay yield is 3105.8 kg/ha, which is 49.1% and 58.5% higher than that of the control varieties 'Shengzhong' and 'Minzi 7'. The crude protein content during the first cut at the flowering stage is 11.78%.

**Main use:**

It can be used for feeding and as green manure.

**Cultural techniques:**

In late September to mid-October (around 20 days before rice harvest), intercropping or immediate land preparation and sowing after harvesting rice in mid- to late-October. Generally, broadcasting is used, with a seeding rate of 22.5-30 kg/hm<sup>2</sup>, and for seedbed planting, the seeding rate is 15-18.75 kg/hm<sup>2</sup>. During seeding, choose a day with no heavy rain expected within 4-5 days. Seeds are mixed with 2.5-5.0 kg of calcium-magnesium-phosphate fertilizer per kilogram and sow evenly. After rice harvest or at the two-leaf stage of 'Minzi 8', additional applications of about 200 kg/hm<sup>2</sup> of calcium superphosphate and 60 kg/hm<sup>2</sup> of potassium chloride can be spread. For seedbed planting, a boron and molybdenum micro-fertilizer should be sprayed once during the budding and flowering period to improve seed setting rates. Proper drainage ditches should be established, and rational irrigation and drainage should be carried out, along with effective measures for disease and pest control. When the grass height reaches 40-50 cm, it can be harvested for utilization, leaving a stubble height of 5-8 cm. After harvesting, irrigation can be carried out once the side buds start to sprout. Harvesting for making hay can be done during the full blooming period.

**Suitable areas for planting:**

It is suitable for cultivation in the middle to lower reaches of the Yangtze River and areas south of it.

## **4. Yueyan 1**

**Species:** *Stylosanthes guianensis*

**Scientific name:** *Stylosanthes guianensis* 'Yueyan 1'

**Variety category:** Bred variety

**Registration No.:** Guo S-BV-SG-004-2023

**Applicant:** Institute of Animal Science, Guangdong Academy of Agricultural Sciences

**Breeders:** Ding Diyun, Wu Linying, Zhang Zhifei, Mo Wenyan, Zhang Chang

**Characteristics:**

'Yueyan 1' is a perennial herbaceous plant in the Legume family. Its stems are upright or semi-upright, with a plant height of 1.8-2.0 m and stem thickness of 0.2-0.25 cm. It blooms in September to October, and its pollen grains are oval-shaped and non-viable. The seeds have low viability and severe segregation issues. In areas north of Guangzhou, it only flowers but rarely bears seeds (or bears very few seeds). The fresh grass yields of 'Yueyan 1' range from 26,200



kg/hm<sup>2</sup> to 52,000 kg/hm<sup>2</sup>, while hay yields range from 6,550 kg/hm<sup>2</sup> to 13,000 kg/hm<sup>2</sup>. Compared to ‘Reyan 2’ and ‘Reyan 10’, the hay yield of ‘Yueyan 1’ is 18.8% and 45.4% higher than them respectively. During the nutritional growth stage, the crude protein content of ‘Yueyan 1’ is 15%-16%. In Fusui County, Guangxi Zhuang Autonomous Region, the average overwintering rate is 97.5%, while in northern Guangzhou, the overwintering rate is 100%, which is a 20% increase compared to the control variety.

**Main use:**

It can be used for feeding, as well as for orchard green manure and ecological restoration.

**Cultural techniques:**

Using asexual propagation, select branches that are approximately 30 cm long as seedlings, and in mid-March, dig trenches or pits for planting. Prior to planting, soak the grass seedlings in water for 12 -24 h, with 2 seedlings in each hole buried 10-15 cm in depth and 40 cm×40 cm in row spacing. Water the newly planted seedlings thoroughly. After two weeks of establishment, remove weeds once and perform regular management such as cultivation, weed control, and fertilization. When the plant height reaches 100-120 cm, it can be harvested, leaving a stubble height of 20 cm.

**Suitable areas for planting:**

It suitable for cultivation in Guangdong, Guangxi, Hainan, Fujian, as well as southern regions of Yunnan provinces.

## 5. Hangyu 1

**Species:** *Arundo donax*

**Scientific name:** *Arundo donax* ‘Hangyu 1’

**Variety category:** Bred variety

**Registration No.:** Guo S-BV-AD-005-2023

**Applicant:** Space Lvpeng Biological Technology (Beijing) Co., Ltd

**Breeders:** Li Jing, Li Shanshan, Li Jingzhao, Liu Honglei, Zhao Hui, Liu Baoping, Liu Jiyuan

**Characteristics:**

‘Hangyu 1’ is a perennial herbaceous plant developed through mutagenesis carried out on the Shenzhou-10 manned spacecraft. It has a tall and robust plant structure, with a height reaching 200 -400 cm in the first year and 550-600 cm in the second year and subsequent years. The maximum tiller number can reach 148, which is 1.8 times higher than the original variety. It can yield up to 120 t/hm<sup>2</sup> of dry hay per year, with a combustion value of 15.39-22.76 MJ/kg. The combustion value of lignite is 20 MJ/kg. The carbon emissions of ‘Hangyu 1’ combustion are only 13% of lignite combustion, and the SO<sub>2</sub> emissions are only 6% of lignite combustion. It can grow well in areas with 0.5% salinity, such as in Cangzhou city, Hebei. It is highly tolerant to multiple cuttings and can maintain high yields for over 10 years.

**Main Use:**

It can be used as solid fuel.

**Cultural techniques:**

'Hangyu 1' can be planted in spring, and proper irrigation is necessary, especially in areas with less than 600 mm of rainfall, where irrigation facilities are required. The management in the first year after transplanting is crucial, with the main task being weed control. Special herbicides that do not harm the 'Hangyu 1' can be used. When there are drought conditions at the planting site, appropriate irrigation should be carried out to ensure normal root growth. During late summer and early autumn, when the spikes are formed, timely harvesting is possible, leaving a stubble height of about 15 cm. In the cultivation area below -18 °C in winter, in order to safely overwinter, the above-ground parts can be completely cut off, and the plants can be covered with soil and films to keep warm.

**Suitable areas for planting:**

It is suitable for cultivation in the North China plain region and along the coast of Shandong province.

**6. Rivendel**

**Species:** *Trifolium repens*

**Scientific name:** *Trifolium repens* 'Rivendel'

**Variety category:** Introduced variety

**Registration No.:** Guo S-IV-TR-006-2023

**Applicant:** Sichuan Agricultural University, Sichuan Academy of Grassland sciences, Sichuan Grassland Work Station, Guizhou Grassland Research Institute, Ganzi Tibetan Autonomous Prefecture Grassland Workstation

**Breeders:** Nie Gang, Yan Lijun, Zhang Jian, Long Zhongfu, Yang Tingyong, Han Chongyang, Ma Xiao, Yao Mingjiu, Li Hongxiang, Xie Huan

**Characteristics:**

'Rivendel' is a perennial, tetraploid Leguminous plant. It is characterized by low and compact plant clusters, with a height of 20-30 cm and approximately 15 branches. The leaves are palmately trifoliate with V-shaped white spots, and the leaf area is below 1000 mm<sup>2</sup>. The inflorescence is in a head-like panicle shape, with 40-60 small white flowers. The 1000 grain weight of the seeds is 0.5-0.6 g. The regrowth and restoration efficiency after cutting is 22 days, and the coverage rate in the first year of planting can reach over 90%.

**Main Use:**

It can be used for landscape vegetation and is primarily used for soil restoration in marginal areas such as in orchard, highway slopes, mine isolation, and slope stabilization.

**Cultural techniques:**

Before sowing, the land needs to be fine prepared and leveled. It can be sown in spring or autumn, with autumn sowing taking place in late September. It can be sown in rows or broadcasted, with a row spacing of 15-30 cm. The seeding rate is 12-15 kg/hm<sup>2</sup>, and the sowing depth is 1 cm. During the seedling stage, keep the soil surface moist and pay attention to weed control. When the soil is dry, irrigate it in combination with fertilization. The growth of 'Rivendel' can be controlled by

applying phosphorus and potassium fertilizers. Ensure sufficient winter water irrigation before the onset of winter.

**Suitable areas for planting:**

It is suitable for cultivation in areas with an elevation above 600 m and an annual rainfall of over 800 mm in the southern regions and similar ecological zones.

**7. Maximus**

**Species:** *Lolium multiflorum*

**Scientific name:** *Lolium multiflorum* ‘Maximus’

**Variety category:** Introduced variety

**Registration No.:** Guo S-IV-LM-007-2023

**Applicant:** Sichuan Agricultural University, Sichuan Academy of Grassland Sciences, Sichuan Provincial Grassland Technology Research and Promotion Center, Barenbrug (Tianjin) International Pratacultural Industry Co., Ltd

**Breeders:** Ma Xiao, Zhao Junming, Dong Zhixiao, Yan Lijun, Zhang Jianbo, Zhou Jiqiong, Cheng Mingjun, Wu Wendan, Sha Lina, Lei Xiong, Yu Qingqing

**Characteristics:**

‘Maximus’ is an annual herbaceous plant. It has a well-developed fibrous root, sparse erect stems, with an average diameter of 0.46-0.53 cm and an average plant height of 54.48 cm. The spike is 33-45 cm long, with 25-33 spikelets, and the awn of the lemma is 5-10 mm long. The 1000 grain weight of the seeds is 4-6 g. It has an average dry hay yield of 14,234.1 kg/hm<sup>2</sup>, which is 13.02% and 11.12% higher than that of the control varieties ‘Angus 1’ and ‘Abundant’, respectively. The fresh grass yield is 120,420.3 kg/hm<sup>2</sup>, which is an increase of over 10% compared to the control. The crude protein content during the first cutting is 18.65%.

**Main use:**

It can be used for feeding.

**Cultural techniques:**

Autumn sowing is suitable from mid-September to late October. For row planting, the seeding rate is 22.5-30 kg/hm<sup>2</sup>, with a row spacing of 25-30 cm. For broadcasting, the seeding rate is 35-40 kg/hm<sup>2</sup>, with a soil covering of 2 cm after sowing. For seedbed planting, the seeding rate is 15-22.5 kg/hm<sup>2</sup>. During the seedling stage, it is important to remove weeds and provide timely drainage and irrigation to prevent drought or waterlogging. Applying 75-95 kg/hm<sup>2</sup> of urea 2-3 days after each cutting can effectively promote regrowth, and irrigation is required after each fertilization. When the plant height reaches around 40-50 cm, it is ready for harvesting, leaving a stubble height of 5-6 cm.

**Suitable areas for planting:**

It is suitable for cultivation in subtropical and southern warm temperate regions.