附件

2023年云南省草品种名录

**（中英文）**

1. ‘云饲2号’小黑麦

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| 草种名称： | 小黑麦 | 学名： | *× Triticosecale* ‘Yunsi No.2’ |
| 品种类别： | 育成品种 | 编号： | 云S-BV-TW-001-2023 |
| 申报单位： | 云南省草地动物科学研究院、云南农业职业技术学院 | | |
| 选 育 人： | 欧阳青、钟声、李世平、袁福锦、杨子姗、吴文荣、刘彦培、李乔仙、徐驰 | | |

品种特性

禾本科冬性一年生牧草。芒长而色淡，整齐度好，株型紧凑、分蘖多、茎叶生长旺盛，抗逆性强、产草量高、草质好，土壤及气候适应范围广。

主要用途

牧草。

栽培技术要点

9月下旬至10月上旬播种，播种量10-12 kg/亩。条播或撒播，条播时行距30 cm左右，播种深度3-5 cm，播后覆土并适度镇压；撒播时，前茬作物收获后，立即将种子连同基肥混匀后撒入地间，然后旋耕表土。基肥用复合肥（10-10-10）20 kg/亩，与种子混匀后连同种子一起条施或撒施；2-3月，按10 kg/亩的施肥量均匀撒施尿素作为追肥。根据后茬作物播种时间需要，3-4月均可收获。青刈利用时，首次刈割宜在拔节期进行，刈割时留茬高度3 cm左右，再生草宜在乳熟期齐地刈割。落粒性较差，可待种子成熟后齐地刈割，晾晒，收种后的秸秆可作牛粗饲料。

适宜推广区域

适宜海拔2000-2800 m，旱耕地秋播种植。

2. ‘溪农兰1号’莲瓣兰-豆瓣兰杂交种

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| 草种名称： | 莲瓣兰×豆瓣兰杂交种 | 学名： | *Cymbidium goeringii × C. goeringii* ‘Xinonglan No.1’ |
| 品种类别： | 育成品种 | 编号： | 云S-BV-CC-002-2023 |
| 申报单位： | 玉溪师范学院、云南农业大学、 玉溪农业职业技术学院 | | |
| 选 育 人： | 黄家林、唐敏、李红梅、周元清、周雯、陆欣、李佳、周潇、郑健、李叶芳 | | |

品种特性

兰科兰属多年生草本植物。株型为半垂形，高度50 cm左右；肉质根，直径0.4-0.8 cm；叶片4-8枚，叶色偏绿，叶片长度30-60 cm，宽度1.2-1.5 cm，无叶柄环；花色黄绿（YELLOW-GREEN GROUP 150A），总状花序，花序高度20-30 cm，直立，花朵数2朵，萼片及侧瓣椭圆形，长宽比为2:1，花期为1-3月，单朵花寿50-80天；果为蒴果，长卵圆形，具三棱；果内种子极轻，数量多达5万余粒。耐寒性及耐热性强，冬季-5℃条件下无冻害，能耐短时间-8℃低温，夏季32℃条件下栽培无受害症状，可忍耐短时间37℃高温栽培。

主要用途

观赏及环境美化。

栽培技术要点

选择健壮无病苗，春秋两季分株上盆，视花盆大小每盆种植连体2-3株为宜，基质宜疏松透气，有机质含量丰富。均衡供应水分，保持盆面湿润，勤施薄肥，冬季保持基质微干少肥，8-9月份勤施磷、钾肥有利于花芽分化及开花。做好病虫害防治，半阴高湿栽培，避冰冻和酷暑，避免温度、湿度和光照的剧烈变化，忌强光。推荐适宜生长温度15-32℃，相对湿度为50%-75%，遮阴50%-80%，土壤pH 5.5-6.5。

适宜推广区域

适宜于海拔500-2000 m，年降雨量800-2000 mm的温带至亚热带地区遮阴条件下盆栽。

1. ‘云农兰1号’莲瓣兰×豆瓣兰杂交种

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| 草种名称： | 莲瓣兰×豆瓣兰杂交种 | 学名： | *Cymbidium goeringii × C. goeringii* ‘Yunnonglan No.1’ |
| 品种类别： | 育成品种 | 编号： | 云S-BV-CC-003-2023 |
| 申报单位： | 云南农业大学、玉溪师范学院、玉溪农业职业技术学院 | | |
| 选 育 人： | 唐敏、黄家林、许彬、张自斌、杜娟、陆欣、李佳、张青华、李红梅、周元清 | | |

品种特性

兰科兰属多年生草本植物。株型为半垂形，高度65 cm左右；肉质根，直径0.4-0.8 cm；叶片基部假鳞茎不明显；叶片4-8枚，叶绿色，叶片长70-95 cm，宽度0.6-0.9 cm，无叶柄环；花色黄绿（YELLOW-GREEN GROUP 151A），总状花序，花序高度30-50 cm，直立，花朵数2朵，萼片及侧瓣长椭圆形，长宽比为大于2，花期为1-3月，单朵花寿50-80天；果为蒴果，长卵圆形，具三棱；果内种子极轻，数量多达5万余粒。耐寒性及耐热性强，冬季-5℃条件下无冻害，能耐短时间-8℃低温，夏季32℃条件下栽培无受害症状，可忍耐短时间37℃高温。

主要用途

观赏及环境美化。

栽培技术要点

选择健壮无病苗，春秋两季分株上盆，视花盆大小每盆种植连体2-3株为宜，基质宜疏松透气，有机质含量丰富。均衡供应水分，保持盆面湿润，勤施薄肥，冬季保持基质微干少肥，8-9月份勤施磷、钾肥有利于花芽分化及开花。做好病虫害防治，半阴高湿栽培，避冰冻和酷暑，避免温度、湿度和光照的剧烈变化，忌强光。推荐适宜生长温度15-32℃，相对湿度为50%-75%，遮阴50%-80%，土壤pH 5.5-6.5。

适宜推广区域

适宜于海拔500-2000 m，年降雨量800-2000 mm的温带至亚热带地区遮阴条件下盆栽栽培。

1. ‘泽生1号’灯盏花

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| 草种名称： | 灯盏花 | 学名： | *Erigeron breviscapus* ‘Zesheng No.1’ |
| 品种类别： | 育成品种 | 编号： | 云S-BV-EB-004-2023 |
| 申报单位： | 红河学院、云南省林业和草原科学院、云南泽生生物科技有限公司 | | |
| 选 育 人： | 张薇、李莹、高雪、李河、彭明俊、张传光、杨旭、关德军、周文忠、袁贵、袁朗瑜、保锦秋、龙庆梅 | | |

品种特性

菊科飞蓬属多年生草本植物。茎直立，直播种植单株基部叶平均12片，成熟叶长17.45 cm左右，叶宽3.05 cm左右，全缘，倒披针形，叶尖渐尖，基部渐狭。耐密植，平均干品产量为480 kg/亩左右，野黄芩苷平均含量为3.87%。

主要用途

药用草。

栽培技术要点

一年可以播种两次，夏播适宜5-6月进行，冬播适宜10-11月进行。深翻地块，有机肥200-800 kg/亩或普钙100-200 kg/亩作基肥施入；平地整墒，墒面1.2-1.3 m，排水沟深0.3-0.4 m。播种量为0.6-0.8 kg/亩。播前墒面除草透水，播后覆盖遮阳网和无纺布遮阳保湿，4-10天出苗，待苗生长至5-6叶可移除覆盖物。苗期60-90天，期间及时除草追肥。播种后，植株生长90-180天第一次采收，可连续多次采收，采收间隔期30-90天。追肥选择复合肥、尿素、过磷酸钙、硫酸钾等配合使用，播种至第一次采收追肥4次，此后追肥次数为2-3次/茬。灯盏花采收最佳时期为抽薹期至初花期，晴天采收后及时除杂干燥。

适宜推广区域

适宜于海拔1400-2000 m，年降雨量800-1500 mm及相似地区种植。

5. ‘林萱1号’萱草

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| 草种名称： | 萱草 | 学名： | *Hemerocallis fulva* ‘Linxuan No.1’ |
| 品种类别： | 育成品种 | 编号： | 云S-BV-HF-005-2023 |
| 申报单位： | 西南林业大学、云南吉成园林科技股份有限公司、云南颉颃农业科技有限公司 | | |
| 选 育 人： | 辛培尧、李伟、孙正海、段仕学、陈伟、李启少、王飞、李建运、杨熠玺、徐翠 | | |

品种特性

阿福花科萱草属植物。叶片浅绿色，斜伸；花瓣蓝紫色，花萼浅紫色，单瓣型，喉部绿色，花呈圆形，花瓣椭圆形，质地肥厚，顶端圆钝，边缘具细密整齐褶皱，脉纹明显，颜色稍深，花径9-10 cm，花瓣宽3.5-4.2 cm，花萼宽2.4-2.8 cm，花莛高60-62 cm，单花莛平均分枝数4-5，单花莛花量32-35朵，花期为中花。具有矮生、蓝紫色、小花、丰花等特点。

主要用途

观赏及环境美化。

栽培技术要点

需要充足的水分供应，但忌长期积水，种苗生产或园林应用时应选择排水良好地块。盆栽时，160 mm口径花盆可以3株/丛进行栽种；露地栽植时，株行距保持在30 cm×40 cm。开花需要光照6小时以上的太阳直射。除种植时施足基肥（以腐熟的牛粪或猪粪为宜）外，花前施氮磷钾复合肥一次，也可喷施0.2%的磷酸二氢钾，促使花朵肥大并可达到延长花期的效果，花期过后萱草长势差，需及时清理干枯的花莛和叶片。种苗生产或园林应用时，每2-3年将大丛老株分成每丛1-2芽栽植。萱草一年四季均可移栽，秋季或早春种植最为适宜。

适宜推广区域

适宜于海拔2300 m以下，年降水量大于800 mm 的温带、亚热带地区种植。

6. ‘吉萱1号’萱草

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| 草种名称： | 萱草 | 学名： | *Hemerocallis fulva* ‘Jixuan No.1’ |
| 品种类别： | 育成品种 | 编号： | 云S-BV-HF-006-2023 |
| 申报单位： | 云南吉成园林科技股份有限公司、西南林业大学 | | |
| 选 育 人： | 李伟、段仕学、陈伟、李云伟、辛培尧、孙正海  金李、李建运、王飞、李子涵 | | |

品种特性

阿福花科萱草属植物。叶片中绿色，斜伸，长76-82 cm，宽1.8-2.5 cm。花橘黄色，带有红色花眼，喉部绿色，单瓣型，花呈圆形，花瓣椭圆形，边缘具金色镶边，脉纹明显，颜色稍深，花肋突出。花径11-13 cm，花瓣宽4.5-5.5 cm，花萼宽3.5-4.5 cm，花莛高85-88 cm，单花莛平均分枝数3，单花莛花量12-16朵，花期为中花。具有大花、花色鲜艳等特点。

主要用途

观赏及环境美化。

栽培技术要点

需要充足的水分供应，但忌长期积水，种苗生产或园林应用时应选择排水良好地块。地栽时株行距保持在30 cm×40 cm。开花需要光照6小时以上的太阳直射。萱草喜肥，除种植时施足基肥（以腐熟的牛粪或猪粪为宜）外，花前施氮磷钾复合肥一次，也可喷施0.2%的磷酸二氢钾，促使花朵肥大并可达到延长花期的效果，花期过后萱草长势差，需及时清理干枯的花莛和叶片。种苗生产或园林应用时，每2-3年将大丛老株分成每丛1-2芽栽植。萱草一年四季均可移栽，秋季或早春种植最为适宜。

适宜推广区域

适宜于海拔2300 m以下，年降水量大于800 mm的温带、亚热带地区种植。

7.‘会泽大海’鸭茅

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| 草种名称： | 鸭茅 | 学名： | *Dactylis glomerata* ‘Huizedahai’ |
| 品种类别： | 野生驯化品种 | 编号： | 云S-WDV-DG-007-2023 |
| 申报单位： | 云南省草地动物科学研究院、曲靖市林业和草原局、会泽县农业农村局、红河州石岩寨国有林场 | | |
| 选 育 人： | 钟声、刘彦培、张子奇、李世平、肖志佳、查广林、张文真、唐兴松 | | |

品种特性

禾本科鸭茅属多年生草本。叶色灰绿，分蘖期蘖宽大、粗壮，叶片宽大。开花期株丛疏松，抽穗整齐，植株较粗糙。喜温暖湿润气候，耐寒、耐热，耐旱、耐贫瘠能力较强。耐刈割，年刈割4-6次时，持久性较好。

主要用途

牧草与生态修复草兼用。

栽培技术要点

雨季后，即5月下旬至6月上旬，或9月中下旬秋播。播种前整地需精细，除尽杂草。行距30 cm左右条播，播种深度1 cm左右，播后覆土并适度镇压。播种量22.5 kg/hm2（发芽率70%，纯净度>95%），播种后施钙镁磷450-600 kg/hm2，硫酸钾100-150 kg/hm2，尿素150 kg/hm2。苗期应适时中耕除杂，每次刈割后可施尿素150 kg/hm2作追肥。 播种当年，生长季节结束时刈割测产一次；次年返青1个月后第一次刈割，留茬高度3 cm左右；刈后，植株长至40-60 cm刈割。种子生产：返青后不刈割，收种后留茬5 cm刈割，至生长季结束时，植株长至40-60 cm刈割。大海鸭茅抗病虫害能力较强，但在滇中地区，有时容易发生严重的蛴螬危害，可用百树生物农药防治。

适宜推广区域

适宜于海拔1500 m以上，年均温小于16℃，年降雨量800-2200 mm的中亚热带、北亚热带、中温带和寒温带地区种植。

8. ‘临安’水蔗草

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| 草种名称： | 水蔗草 | 学名： | *Apluda mutica* ‘Linan’ |
| 品种类别： | 野生驯化品种 | 编号： | 云S-WDV-AM-008-2023 |
| 申报单位： | 云南省林业和草原科学院、建水县林业和草原科技推广站 | | |
| 选 育 人： | 庞静、常恩福、周云、张梅、尹俊、李品荣、杨倩、丁玉雄、罗衍江、王藜颖 | | |

品种特性

禾本科水蔗草属多年生草本植物。秆具分枝，丛生，分蘖能力强，可快速覆盖裸露地表，覆盖度达到75%用时55天，比对照缩短18天。耐旱品种，花期株高可达120-210 cm，秆质硬，直径可达3 mm，基部常斜卧并生不定根，花果期8-10月。对土壤要求不严，干旱、瘠薄的粘土、沙土、壤土均可生长。

主要用途

生态修复草与牧草兼用。

栽培技术要点

播种前，根据播种地土壤养分情况，按1000-1500 kg/亩的量施入有机肥，深翻土壤，翻土深度以20-25 cm为宜。细碎耙平土壤，去除杂草，起垄，垄宽1.2-1.3 m，依地势和水湿情况作宽30 cm、深15 cm排水沟，以利排水。春季3-4月播种最佳，撒播或条播，撒播种子要均匀，防止种子扎堆现象，条播行距20-30 cm。播量10-15 kg/hm2，播种深度1-2 cm。播种后，进行覆土，以不露种为宜，约2-3 cm，然后浇水（应浇湿浇透），以利于种子出苗。出苗前后应根据土壤墒情适时浇水，出苗初期，植株生长缓慢，需注意防控其它草类，并迅速覆盖地表。

适宜推广区域

适宜于海拔1500 m以下，年降雨量400 mm以上的亚热带和温带种植。

9. ‘尖山’茅叶荩草

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| 草种名称： | 茅叶荩草 | 学名： | *Arthraxon prionodes* ‘Jianshan’ |
| 品种类别： | 野生驯化品种 | 编号： | 云S-WDV-AP-009-2023 |
| 申报单位： | 云南省林业和草原科学院、建水县林业和草原科技推广站 | | |
| 选 育 人： | 周云、庞静、李品荣、张梅、常恩福、马赛宇、王藜颖、罗衍江、丁玉雄、 普文富 | | |

品种特性

禾本科荩草属多年生草本。株高50-110 cm，秆稍坚硬，多分枝，具多节，基部卧地生根。总状花序，3-9个簇生茎顶，长5-10 cm，呈指状排列；叶鞘具毛或有疣毛；叶舌薄膜质，长0.5-1 mm，具纤毛；叶片披针形至卵状披针形，先端渐尖，基部心形，抱茎，无毛或两边生短柔毛或疣基柔毛，边缘常具疣基纤毛，叶片长2-7 cm，宽5-15 mm。该品种为耐旱草种，丛生，分蘖能力强，根系匍匐生长，在夏、秋生长茂盛时期，能分蘖繁茂的营养枝和大量的叶片，快速覆盖裸露地表。

主要用途

生态修复草。

栽培技术要点

播种前，根据播种地土壤养分情况，按1000-1500 kg/亩的量施入有机肥，深翻土壤，翻土深度以20-25 cm为宜。细碎耙平土壤，去除杂草，起垄，垄宽1.2-1.3 m，依地势和水湿情况作宽30 cm、深15 cm排水沟，以利排水。春季3-4月播种最佳，撒播或条播。撒播种子要均匀，防止种子扎堆现象，条播行距30-40 cm。播量18-20 kg/hm2，播种深度1-2 cm。播种后，进行覆土，以不露种为宜，约2-3 cm，然后浇水（应浇湿浇透），以利于种子出苗。出苗前后应根据土壤墒情适时浇水，出苗初期，植株生长缓慢，需注意防控杂草，30天后可按10 g/m2施肥量撒施尿素，40天后按15 g/m2施肥量施用，可保证稳产、高产，并迅速覆盖地表。

适宜推广区域

适宜于海拔400-2500 m，年降雨量400-1800 mm的多湿或干热的江边、坡地、沟边及河谷地区种植。

10. ‘玉龙’球花报春

|  |  |  |  |
| --- | --- | --- | --- |
| 草种名称： | 球花报春 | 学名： | *Primula denticulata* ‘Yulong’ |
| 品种类别： | 野生驯化品种 | 编号： | 云S-WDV-PD-010-2023 |
| 申报单位： | 丽江市草原工作站、中国科学院昆明植物研究所 | | |
| 选 育 人： | 刘丽春、黄华、周天强、华秀春、黄丽春、年晓强、王黎萍、李金、刘维暐、李娟 | | |

品种特性

报春花科报春花属多年生草本植物。植株高30 cm，叶片最大长度可达15 cm以上，绿色至深绿色，头状花序具30-50朵，花冠紫色或紫红色。其种子萌发率高，幼苗耐移栽，花葶粗壮，花近球形，花色紫色艳丽，花期35天，植株绿色期150天，观赏期90天。

主要用途

观赏及环境美化。

栽培技术要点

栽培环境要提供适当遮荫条件，种植栽培基质应选择透水性及透气性较好的种植基质，防止根部因基质湿度过大而腐烂。在获取种子的过程中，特别针对室内栽培的植株，可通过人工授粉提高种子萌发率。果实成熟后极易开裂导致种子散失，应在果实成熟前进行套袋，保障种子采收。

适宜推广区域

适宜在亚热带地区部分地区及温带地区，高温不超过26℃，最低温不低于-10℃。

11. ‘潞江坝’穗序木蓝

|  |  |  |  |
| --- | --- | --- | --- |
| 草种名称： | 穗序木蓝 | 学名： | *Indigofera hendecaphylla* ‘Lujiangba’ |
| 品种类别： | 野生驯化品种 | 编号： | 云S-WDV-IH-011-2023 |
| 申报单位： | 云南省农业科学院热带亚热带经济作物研究所、云南省林业和草原科学院 | | |
| 选 育 人： | 严炜、刘倩、刘振稳、肖明昆、罗鑫、段春芳、白丽娜、耿沙 | | |

品种特性

豆科木蓝属多年生藤状草本植物。高32-58 cm，野生资源分布于云南西部及西南部。它贴地匍匐生长不攀爬，茎蔓细韧，基部灰褐色上部绿色或红色，叶为羽状复叶，小叶互生，花序为总状花序，腋生、花冠红色，总花梗长约1 cm；花萼钟状，长3-3.5 mm，萼齿线状披针形，花冠青紫色，旗瓣宽卵形；荚果线状圆柱形，有种子8-10粒；花果期4-11月。其繁殖容易、生长迅速，扦插5-8天发新芽，1周可生长4-5 cm，4-5个月后，新茎芽长1.0-2.0 m，形成匍匐茎蔓，有效覆盖地表。覆盖率4-5个月可达75%，1年后可达90%以上，在沟谷、旷地、阴湿地、撂荒地、建筑废弃物、矿场等地形均能正常生长发育和开花结实。

主要用途

生态修复草。

栽培技术要点

清除地表杂草、石块等杂物，深翻表土20 cm，晾晒数日，平整土地。雨季进行扦插有利于提高成活率，即5-6月中下旬扦插。立地条件差的地块按1000-1500 kg/亩的量施入有机肥，深翻土壤，株行距20 cm×20 cm，茎蔓长度20 cm，扦插前对茎蔓浸生根粉，扦插量为每穴4-5根，埋入地下深度10 cm。扦插后，进行覆土，然后浇水（第一次应浇湿浇透），以利于茎蔓发芽。在茎蔓不足的情况下也可使用种子进行播种，种子一般采用穴播，每穴播种4-5颗，播种量3.0-3.5 kg/hm2。也可进行撒播，播种量为6-8 kg/hm2。 枝条萌发新芽前应根据土壤墒情适时浇水，新茎芽长成匍匐茎蔓前期植株生长缓慢，需注意防控杂草。该种适应性强、生长分枝快，作为生态修复草种，不建议再进行施肥。该品种果荚较硬，脱粒较困难，收获时先用枝剪剪下成熟果穗，然后进行暴晒，水分干燥后破碎果荚收集种子，再晾晒一天，进行扬灰，过筛清选，装袋入库。该品种极少有严重病虫害发生，通常情况无需专门防治。

适宜推广区域

适宜于海拔600-1500 m，年降雨量≥800 mm的热带、亚热带地区种植。

12. ‘牧达瑞’长叶车前

|  |  |  |  |
| --- | --- | --- | --- |
| 草种名称： | 长叶车前 | 学名： | *Plantago lanceolata* ‘GPl 279’ |
| 品种类别： | 引进品种 | 编号： | 云S-IV-PL-012-2023 |
| 申报单位： | 云南农业大学、北京正道农业股份有限公司、 云南省农业科学院热带亚热带经济作物研究所、 云南省草原监督管理站 | | |
| 选 育 人： | 姜华、周凯、袁中华、刘倩、李鸿强、刘洋、段新慧、何承刚、罗中阳、段玉雪 | | |

品种特性

车前科车前属多年生草本植物。植株直立生长、生长迅速、叶片宽大、叶量丰富、细嫩多汁、耐刈割、再生力强，产草量高；该品种耐热能力较强，夏季生长快速，在气候和管理适宜条件下，每年可刈割5-6次，干草产量可达18 t/hm2左右。对气候和土壤条件的适应性广，尤其在肥力差和干旱区也能生长。

主要用途

牧草与生态修复草兼用。

栽培技术要点

播前应精耕细耙，破碎土块，使土壤上虚下实，清除杂草，并注意地块排水。南方秋播最佳；撒播或条播，条播行距25-30 cm，播量18-22 kg/hm2，播种深度1-2 cm。长叶车前种子小，播前应精细整地，清除杂草，施足底肥，播种并镇压。苗期植株矮小，地上部分生长缓慢，出苗后易受杂草侵害，须及时人工锄杂草。刈割后进行灌溉和施肥，可保证稳产、高产。在盛花期割草利用，夏季雨水较多时高度40-45 cm可刈割，冬季较干旱时高度30 cm左右可刈割，割草留茬5 cm。

适宜推广区域

适宜于海拔800-2500 m，年降雨量400-1000 mm的温暖湿润气候区种植。

**List of Grass Varieties of Yunnan Province in 2023**

1. **Yunsi No.2**

**Species:** *Triticale Wittmack*

**Scientific name:** ×*Triticosecale* ‘Yunsi No.2’

**Variety category:** Bred variety

**Registration No.:** Yun S-BV-TW-001-2023

**Applicant:** Yunnan Academy of Grassland and Animal Science, Yunnan Vocational and Technical College of Agriculture

**Breeders:** Ouyang Qing, Zhong Sheng, Li Shiping, Yuan Fujin, Yang Zishan, Wu Wenrong, Liu Yanpei, Li Qiaoxian, Xu Chi

**Characteristics:**

**‘Yunsi No.2’** is an annual forage grass with long awns and light color. It has good uniformity, compact form, and many tillers. Its stems and leaves grow vigorously. It is with strong resistance, high grass yield, and good grass quality. It has a strong adaptation to soil and climate.

**Main use:**

As forage grass.

**Breeding techniques:**

Sowing is carried out from late September to early October with a sowing rate of 10-12kg/mu. When drill-seeded, the row spacing is about 30cm, the sowing depth 3-5cm, and then the soil must be compacted; when scattering, after the previous crop is harvested, the seeds are immediately mixed with the bottom fertilizer and scattered into the ground, and then the topsoil is rotated. The bottom fertilizer is applied with the compound fertilizer （10-10-10） 20kg/mu, and then mixed with seeds, which will be drilled or scattered. 10kg/mu of urea is applied in February to March. According to the sowing time, the next crop can be harvested in March to April. When using green mowing, the first mowing should be carried out at the elongating stage with the stubble height of 3cm. The regenerated grass should be mowed at the milk ripe period. Its shattering is not ideal, and therefore the mowing can be carried out after the seeds ripe. After the harvesting of the seeds followed by the drying, straws can be used as cattle forage.

**Suitable areas for planting:**

It is suitable for planting in drought farmland with an altitude of 2000-2800m in autumn.

1. **Xinonglan NO.1**

**Species:** Hybrid of *Cymbidium goeringii × C. goeringii*

**Scientific name:** *Cymbidium goeringii × C. goeringii* ‘Xinonglan NO.1’

**Variety category:** Bred variety

**Registration No.:** Yun S-BV-CC-002-2023

**Applicant:** Yuxi Normal University, Yunnan Agricultural University, Yuxi Agriculture Vocational and Technical College

**Breeders:** Huang Jialin, Tang Min, Li Hongmei, Zhou Yuanqing, Zhou Wen, Lu Xin, Li Jia, Zhou Xiao, Zheng Jian, Li Yefang

**Characteristics:**

**‘Xinonglan NO.1’** is an orchid perennial plant with a semi-pendulous shape and a height of about 50cm; with a fleshy root of a diameter of 0.4-0.8cm; with 4-8 slightly green leaves with a length of 30-60cm and a width of 1.2-1.5cm; without a petiole ring. The color of flowers is YELLOW-GREEN GROUP 150A, with racemes of flowers, and inflorescences of 20-30cm in height. There are two erect flowers, with their sepals and lateral petals being elliptic and with a ratio of length to width 2:1. The flowering period can last from January to March, with an individual flower longevity of 50-80 days. Its long ovoid trigonous fruits are capsular. Fruit seeds are very light, with the number of more than 50,000. It has such a strong cold and heat tolerance that there is no freeze injury in winter under -5 ℃ and for a short period under -8 ℃. In summer, under 32 ℃, it can be cultivated and for a short period, under 37 ℃, it can also be cultivated.

**Main use:**

Mainly used for viewing and landscaping

**Breeding techniques:**

Healthy and disease-free seedlings are selected to plant in pots in spring and autumn. Based on the size of the pot, it is important to plant 2-3 plants per pot, where the substrate should be loose and breathable, and be rich in organic matters. Balanced supply of water is important, and it is important to keep the soil moist. Frequent application of fertilizer is recommended. In winter, it is important to keep the substrate moderately dry and be with less fertilizer and in August and September. Frequent application of phosphorus and potassium fertilizer is conducive to the flower bud differentiation and flowering. It is a must to carry out pest control. Half-shade and high-humidity cultivation is recommended to avoid freezing and heat. Drastic changes in temperature, humidity, and light, especially strong light should be avoided. It is suitable to grow under 15-32℃, with a relative humidity of 50% -75% , a shade of 50% -80%, and a soil PH of 5.5-6.5.

**Suitable areas for planting:**

Suitable for shaded pots planting in temperate to subtropical areas with an altitude of 500-2000m and annual rainfall of 800-2000mm.

1. **Yunnonglan No.1**

**Species：**Hybrid of *Cymbidium goeringii × C. goeringii*

**Scientific name:** *Cymbidium goeringii × C. goeringii* ‘Yunnonglan No.1’

**Variety category:** Bred variety

**Registration No.:** Yun S-BV-CC-003-2023

**Applicant:** Yunnan Agricultural University, Yuxi Normal University, Yuxi Agriculture Vocational and Technical College

**Breeders:** Tang Min, Huang Jialin, Xu Bin, Zhang Zibin, Du Juan, Lu Xin, Li Jia, Zhang Qinghua, Li Hongmei, Zhou Yuanqing

**Characteristics:**

**‘Yunnonglan No.1’** is an orchid perennial plant with a semi-pendulous shape and a height of about 65cm; with a fleshy root of a diameter of 0.4-0.8cm; with inconspicuous pseudobulb in the leaf blade base; with 4-8 green leaves with a length of 70-95cm and a width of 0.6-0.9cm; without a petiole ring. The color of flowers is YELLOW-GREEN GROUP 151A, with racemes of flowers, and inflorescences of 30-50cm in height. There are two erect flowers, with their sepals and lateral petals being elliptic and with an ratio of length to width over 2. The flowering period can last from January to March, with an individual flower longevity of 50-80 days. Its long ovoid trigonous fruits are capsular. Fruit seeds are very light, with the number of more than 50,000. It has such a strong cold and heat tolerance that there is no freeze injury in winter under -5 ℃ and for a short period under -8 ℃. In summer, under 32 ℃, it can be cultivated and for a short period, under 37 ℃, it can also be cultivated.

**Main use:**

Mainly used for viewing and landscaping.

**Breeding techniques:**

Healthy and disease-free seedlings are selected to plant in pots in spring and autumn. Based on the size of the pot, it is suggested to plant 2-3 plants per pot, where the substrate should be loose and breathable, and be rich in organic matters. Balanced supply of water is important, and it is important to keep the soil moist. Frequent application of fertilizer is recommended. In winter, it is important to keep the substrate moderately dry and be with less fertilizer and in August and September. Frequent application of phosphorus and potassium fertilizer is conducive to the flower bud differentiation and flowering. It is a must to carry out pest control. Half-shade and high-humidity cultivation is recommended to avoid freezing and heat. Drastic changes in temperature, humidity, and light, especially strong light should be avoided. It is suitable to grow under 15-32℃, with a relative humidity of 50% -75%, a shade of 50% -80% , and a soilpH of 5.5-6.5.

**Suitable areas for planting:**

Suitable for shaded pots planting in temperate to subtropical areas with an altitude of 500-2000m and an annual rainfall of 800-2000mm.

1. **Zesheng No.1**

**Species：***Erigeron breviscapus*

**Scientific name:** *Erigeron breviscapus* ‘Zesheng No.1’

**Variety category:** Bred variety

**Registration No.:** Yun S-BV-EB-004-2023

**Applicant:** Honghe University, Yunnan Academy of Forestry and Grassland, Yunnan Zesheng Biotechnology Co., Ltd

**Breeders:** Zhang Wei, Li Ying, Gao Xue, Li He, Peng Mingjun, Zhang Chuanguang, Yang Xu, Guan Dejun, Zhou Wenzhong, Yuan Gui, Yuan Langyu, Bao Jinqiu, Long Qingmei

**Characteristics:**

**‘Zesheng No.1’** is an annual herb of *Compositae*. The stem is erect. On average, there can be 11.74 leaves in the base of the stem, with a length of about 17.45cm and the width of about 3.05cm. The leaves are with margins, and spiculiform in shape. The tip of the leave is sharp but the base is narrow. It is suitable for close planting. The average dry product yield is about 480kg/mu and the average content of scutellarin is 3.87%.

**Main use:**

Medicinal grass.

**Breeding techniques:**

Sowing can be done twice a year, suitable from May to June in summer, from October to November in winter. Land is plough with organic fertilizer of 200-800kg/mu or calcium of 100-200kg/mu. The fine plowing is recommended with a width of 1.2-1.3m, and the ditch is 0.3-0.4m in depth. The sowing rate is 0.6-0.8kg/mu. Pre-sowing, the soil should go through weed removal and be deep watered. Shading net and non-woven cloth after sowing can provide shade and keep moisture. Emergence will happen after 4 -10 days, and when the seedlings grow with 5- 6 leaves, these covers can be removed. The seedling stage can last for 60-90 days, during which timely weeding and fertilizer are required. After sowing, the plant can be harvested after 90-180 days’ growth, and then multi-timed harvests can be carried out, with a harvest interval of 30-90 days. Compound fertilizer, urea, calcium superphosphate, and potassium sulfate are used as fertilizers. After sowing to the first harvest, fertilization should be carried out 4 times and then 2-3 times per harvest. The best harvest time of *Erigeron breviscapus* is from the bolting stage to the early flowering stage. After harvest, it is important to sun the seeds.

**Suitable areas for planting:**

It is suitable for planting at regions with an altitude of 1400-2000m and an annual rainfall of 800-1500mm.

1. **Linxuan No.1**

Species: *Hemerocallis fulva*

**Scientific name:** *Hemerocallis fulva* ‘Linxuan No.1’

**Variety category:** Bred variety

**Registration No.:** Yun S-BV-HF-005-2023

**Applicant:** Southwest Forestry University, Yunnan Jicheng Landscape Technology Co., Ltd, Yunnan Jiehang Agricultural Technology Co., Ltd

**Breeders:** Xin Peiyao, Li Wei, Sun Zhenghai, Duan Shixue, Chen Wei, Li Qishao, Wang Fei, Li Jianyun, Yang Yixi, Xu Cui

**Characteristics:**

**‘Linxuan No.1’** belongs to genus *Hemerocallis*, family Asphodelaceae. The leaves are light green and obliquely spreading. The petals are blue-purple, the calyx is light purple with a single petal, and the throat is green. The flower is round, and the petals are oval with thick texture and the round top. Its edge has the fine and neat fold with an obvious vein and a slightly deep color. The flower diameter is 9-10cm, the petal width is 3.5-4.2cm, the calyx width is 2.4-2.8cm, and the stamina height is 60-62cm. The average branch number of an individual flower is 4-5 with flowers of 32-35 in the medium size. ‘Linxuan No.1’ has characters like being blue-purple and low height, with small and abundant flowers, etc.

**Main use:**

Viewing and landscaping.

**Breeding techniques:**

Adequate water supply is recommended, but over-watering should be avoided. Therefore, well-drained lands should be chosen if to build seedling production centers or gardens. When potted, ‘Linxuan No.1’ can be planted in a pot with a diameter of 160mm with 3 plants/cluster, and when planted in the open field, the spacing of 30cm × 40cm is applied. Blooming requires more than 6 hours of direct sunlight. In addition to applying sufficient fertilizers （preferably decomposed cow or pig manure） at the planting time, before flowering, compound fertilizers of nitrogen, phosphorus, and potassium, as well as a 0.2% monopotassium phosphate spray, can be applied to promote flowering and prolong the flowering time. After flowering, it will grow badly, so it is necessary to clean up the dried flowers and leaves in time. In seedling production or landscape creation, the big tufts of old plants are divided into 1-2 buds per tuft every 2-3 years. It can be transplanted all year round, but autumn or early spring is the best time.

**Suitable areas for planting:**

It is suitable for planting in temperate and subtropical regions with an altitude below 2300m and an annual rainfall of above 800mm.

1. **Jixuan NO.1**

**Species：***Hemerocallis fulva*

**Scientific name:** *Hemerocallis fulva* ‘Jixuan NO.1’

**Variety category:** Bred variety

**Registration No.:** Yun S-BV-HF-006-2023

**Applicant:** Yunnan Jicheng Landscape Technology Co., Ltd, Southwest Forestry University

**Breeders:** Li Wei, Duan Shixue, Chen Wei, Li Yunwei, Xin Peiyao, Sun Zhenghai, Jin Li, Li Jianyun, Wang Fei, Li Zihan

**Characteristics:**

**‘Jixuan NO.1’** belongs to genus *Hemerocallis*, family Asphodelaceae. The leaves are light green and obliquely spreading with a length of 76-82cm and a width of 1.8-2.5cm. The petals are orange, the calyx is light purple with a single petal, and the throat is green. The flower is round, and the petals are oval with a thick texture and golden silver. It has an obvious vein and a slightly deep color. The flower diameter is 11-13cm, the petal width is 4.5-5.5cm, and the stamina height is 85-88cm. The average branch number of an individual flower is 3 with flowers of 12-16 in the medium size. ‘Jixuan NO.1’ has characters like big flowers, bright colors, etc.

**Main use:**

Viewing and landscaping.

**Breeding techniques:**

Adequate water supply is recommended, but over-watering should be avoided. Therefore, well-drained lands should be chosen to build seedling production centers or gardens. When planted, a spacing of 30cm × 40cm is applied. Blooming requires more than 6 hours of direct sunlight. Its growth requires fertilizers. In addition to applying sufficient fertilizers （preferably decomposed cow or pig manure） at the planting time, before flowering, compound fertilizers of nitrogen, phosphorus, and potassium, as well as a 0.2% monopotassium phosphate spray, can be applied to promote flowering and prolong the flowering time. After flowering, it will grow badly, so it is necessary to clean up the dried flowers and leaves in time. In seedling production or landscape creation, the big tufts of old plants are divided into 1-2 buds per tuft every 2-3 years. It can be transplanted all year round., but autumn or early spring is the best time.

**Suitable areas for planting:**

It is suitable for planting in temperate and subtropical regions with an altitude below 2300m and an annual rainfall of above 800mm.

1. **Huizedahai**

**Species：***Dactylis glomerata*

**Scientific name:** *Dactylis glomerata* ‘Huizedahai’

**Variety category:** Wild domesticated variety

**Registration No.:** Yun S-WDV-DG-007-2023

**Applicant:** Yunnan Academy of Grassland and Animal Science, Qujing Administration of Forestry and Grassland, Agriculture and Rural Bureau of Huize County, State-owned Forest Farm of Shiyanzhai, Honghe Prefecture

**Breeders:** Zhong Sheng, Liu Yanpei, Zhang Ziqi, Li Shiping, Xiao Zhijia, Zha Guanglin, Zhang Wenzhen, Tang Xingsong

**Characteristics:**

**‘Huizedahai’** is a perennial herb of Gramineae, with wide grey-green leaves. In the tillering stage, the tillers are wide and big. In the flowering stage, the plant cluster is loose and it is heading neatly. Its texture is tough. It thrives in warm and humid climates, and has a strong resistance to coldness and heat, drought, and infertile soil. It can be mowed, and the persistence is better when mowing 4-6 times a year.

**Main use:**

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

**Breeding techniques:**

After the rainy season （late May to early June or late September）, sowing will take place in autumn. Before sowing, the land should be plowed carefully to eliminate weeds. The row spacing is about 30cm and the sowing depth is about 1cm. After sowing, the soil must be compacted. The sowing rate is 22.5kg/hm2 （germination rate 70%, purity > 95%）. After sowing, calcium,magnesium, and phosphorus of 450-600kg/hm2 are applied, and so are potassium sulfate of 100-150kg/hm2 and urea of 150kg/hm2. In the seedling stage, timely weed removal is recommended, and urea of 150kg/hm2 should be applied after every cutting. In the year of sowing, it should be cut to record the yield in the test field once at the end of the growing season. Then in the next year, it should be cut before regreening, with the stubble height controlled to about 3cm. After cutting, when the plant grows to 40-60cm, cut again. Seeds production: do not cut after regreening, and after harvest, cut again with the stubble height of 5cm. Until the end of the growing season, cut when the plant grows to 40-60cm. ‘Huizedahai’ has a strong disease resistance. In central Yunnan which is stricken with Scarabaeidae’s larvae, biological pesticide control can be applied.

**Suitable areas for planting:**

It is suitable for planting in the mid-subtropical, north-subtropical, mid-temperate, and cold temperate regions with an altitude of more than 1500m, an annual temperature of less than 16℃, and an annual rainfall of 800-2200mm.

1. **Linan**

**Species：***Apluda mutica*

**Scientific name:** *Apluda mutica* ‘Linan’

**Variety category:** Wild domesticated variety

**Registration No.:** Yun S-WDV-AM-008-2023

**Applicant:** Yunnan Academy of Forestry and Grassland, Forestry and Grassland Science and Technology Extension Station of Jianshui County

**Breeders:** Pang Jing, Chang Enfu, Zhou Yun, Zhang Mei, Yin Jun, Li Pinrong, Yang Qian, Ding Yuxiong, Luo Yanjiang, Wang Liying

**Characteristics:**

**‘Linan’** is a perennial herb of *Apluda.* The stems have branches and are clustered. It has a strong tillering ability and can quickly cover the soil surface, with a coverage rate of 75% in 55 days, which is 18 days shorter than the control group. It is drought tolerant. In the flowering period, it can grow to 120-210cm in height. Its stems are hard with a diameter width of up to 3mm. The base is often creeping with adventitious roots. The flowering and fruiting period is from April to October. ‘Linan’ can grow in arid land, barren clay, sandy soil, and loam.

**Main use:**

It can be used for ecological restoration grass and forage grass.

**Breeding techniques:**

Before sowing, according to the soil nutrient condition, it is important to apply organic fertilizer in the amount of 1000-1500kg/mu, and then plow the soil deeply with a depth of 20-25cm. The soil should be raked, weeds should be removed, and ridges should be built with a width of 1.2-1.3m. Based on the topography and water and moisture conditions, ditches should be built with the width of 30cm and a depth of 15cm deep drainage to facilitate drainage. In spring, March and April are the best time for sowing with drilling or scattering. For scattering, seeds should be scattered evenly to prevent the piling up of seeds. For drilling, the spacing is 20-30cm with the sowing rate of 10-15kg/hm2 and the depth of 1-2cm. After sowing, the soil should be compacted with a depth of about 2-3cm to avoid seed exposure. Deep watering is strongly recommended to facilitate the emergence of seeds. Before and after the emergence of seedlings, timely watering is important according to the soil moisture. In the early emergence, the plant grows so slowly that weeds should be removed.

**Suitable** **areas for planting:**

It is suitable for planting in subtropical and temperate zones with an altitude of less than 1500m and an annual rainfall of more than 400mm.

1. **Jianshan**

**Species：***Arthraxon prionodes*

**Scientific name:** *Arthraxon prionodes* ‘Jianshan’

**Variety category:** Wild domesticated variety

**Registration No.:** YunS-WDV-AP-009-2023

**Applicant:** Yunnan Academy of Forestry and Grassland, Forestry and Grassland Science and Technology Extension Station of Jianshui County

**Breeders:** Zhou Yun, Pang Jing, Li Pinrong, Zhang Mei, Chang Enfu, Ma Saiyu, Wang Liying, Luo Yanjiang, Ding Yuxiong, Pu Wenfu

**Characteristics:**

**‘Jianshan’** is a perennial herb with a height of 50-110cm. Its stems are slightly tough, with many branches and nodes. The base has recumbent rooting. It has racemose inflorescences, and 3 to 9 fascicles at the stem apex with a height of 5-10cm and being arranged in a finger-like pattern. Leaf sheaths are hairy. The ligule is membranous and hairy, with a length of 0.5-1mm. Leaf blade is lanceolate to ovate-lanceolate in shape. Its tip is sharp, but the base is heart-shaped. Its stems are hairless or with short hairs, and its margin is often with verrucous puberulent. The length and width of its blade are 2-7cm and 5-15mm, respectively. It is drought-resistant and has strong tillering ability. Its stems are creeping. In the growing period in summer and autumn, it starts tillering into lush branches and abundant leaf biomass, which can quickly cover the bare surface.

**Main use:**

Ecological restoration grass.

**Breeding techniques:**

Before sowing, according to the soil nutrient condition, organic fertilizer of 1000-1500kg/mu is applied, and the soil should be plowed deeply at a depth of 20-25cm. It is important to rake the soil and remove weeds. Ridge planting is recommended with a width of 1.2-1.3m. Based on the topography and water and moisture conditions, ditches of 30cm in width and 15cm in depth are built to facilitate drainage. In spring, March to April are the best sowing time for drilling or scattering. For scattering, seeds should be scattered evenly to prevent the piling up of seeds. For drilling, the spacing is 30-40cm with the sowing rate of 18-20kg/hm2 and a depth of 1-2cm. After sowing, the soil should be compacted with a depth of about 2-3cm to avoid seed exposure. Deep watering is strongly recommended to facilitate the emergence of seeds. Before and after the emergence of seedlings, timely watering is important according to the soil moisture. In the early emergence, the plant grows so slowly that weeds should be removed. 30 days later, urea of 10g/㎡ should be applied, and 40 days later, urea of 15g/㎡, which can ensure a stable and high yield.

**Suitable areas for planting:**

It is suitable for planting on wet or dry-hot riverbanks, slopes, gullies, and river valleys with an altitude of 400-2500m and with an annual rainfall of 400-1800mm.

1. **Yulong**

**Species：***Primula denticulata*

**Scientific name:** *Primula denticulata* ‘Yulong’

**Variety category:** Wild domesticated variety

**Registration No.:** Yun S-WDV-PD-010-2023

**Applicant:** Lijiang Grassland Workstation, Kunming Institute of Botany, Chinese Academy of Sciences

**Breeders:** Liu Lichun, Huang Hua, Zhou Tianqiang, Hua Xiuchun, Huang Lichun, Nian Xiaoqiang, Wang Liping, Li Jin, Liu Weiwei, Li Juan

**Characteristics:**

**‘Yulong’** is a perennial herb of genus *Primula* of family Primulaceae, with a height of 30cm. The green leaves can grow up to 15cm or more in length. The number of inflorescences per plant is 30-50 flowers with purple or purplish-red corollas. The seeds have a high germination rate, and the seedlings are resistant to transplantation. The flower stalks are stout, and the flowers are nearly spherical in shape and brightly purple in color. The flowering period lasts for 35 days, while the plants remain green for 150 days. The viewing period is 90 days.

**Main use:**

Viewing and landscaping

**Breeding techniques:**

Shade conditions are conducive to the cultivation of ‘Yulong’, and the planting substrate with good water and air permeability should be selected to prevent roots from rotting caused by excessive substrate humidity. To collect seeds, especially for indoor cultivation plants, the seed germination rate can be improved through artificial pollination. The fruits are prone to seed loss caused by cracking. Therefore, when they mature, bagging should be done prior to the fruit maturity to ensure seed harvest.

**Suitable areas for planting:**

It is suitable for planting in some subtropical and temperate regions, with highest temperature not over 26℃ and lowest temperature not below -10℃.

1. **Lujiangba**

**Species：***Indigofera hendecaphylla*

**Scientific name:** *Indigofera hendecaphylla* ‘Lujiangba’

**Variety category:** Wild domesticated variety

**Registration No.:** Yun S-WDV-IH-011-2023

**Applicant:** Institute of Tropical and Subtropical Economic Crops, Yunnan Academy of Agricultural Sciences, Yunnan Academy of Forestry and Grassland

**Breeders:** Yan Wei, Liu Qian, Liu Zhenwen, Xiao Mingkun, Luo Xin, Duan Chunfang, Bai Lina, Geng Sha

**Characteristics:**

**‘Lujiangba’** is a perennial herb of genus *Leguminosae* with vines. It can grow to a height of 32-58cm and is distributed in the wild in western and southwestern Yunnan. The above-ground stems are creeping, with slender and tough stems. The base of the stem is gray-brown, while the upper part is green or red. The leaves are pinnately compound. It has an inflorescence and red corolla, with a total peduncle length of about 1cm. The calyx is bell-shaped and 3-3.5mm in length, with lanceolate calyx teeth. The corolla is bluish-purple, and the vexilla is broadly ovate in shape. The fruit is linear-cylindrical, containing 8-10 seeds. The flowering and fruiting period is from April to November. It reproduces easily and grows rapidly. New shoots can emerge within 5-8 days of cutting, and they can grow 4-5cm in a week. After 4-5 months, the new stem shoots can grow 1.0-2.0m, forming creeping stems that effectively cover the topsoil. The coverage rate can reach 75% within 4-5 months and over 90% after one year. It can grow, flower, and fruit in various terrains such as valleys, wastelands, damp areas, abandoned buildings, and mine sites.

**Main use:**

Ecological restoration grass.

**Breeding techniques:**

It is important to remove weeds, rocks, etc., and deep plowing is recommended with 20cm in depth. The soil needs to be dried for several days and finely leveled. Cutting in the rainy season is beneficial to improve the survival rate, which can be carried out in the middle and late May to June. In the infertile soil, organic fertilizer is applied at the rate of 1000-1500kg/mu, the soil is plowed deeply, with the spacing of 20cm × 20cm. The stem, with a length of 20cm, should be soaked in the rooting powder. Then when cutting is carried out, the rate is 4-5 stems/hole with a depth of 10cm underground. After cutting, the soil must be compacted and then watered （for the first time, deep watering is recommended） to facilitate the germination of stems. In the case of insufficient stems, seeds can also be used for sowing. The hole sowing is generally used, with 4-5 seeds in a hole, and the sowing rate is 3.0-3.5kg/hm2. For scattering, the seeding rate is 6-8kg/hm2. Before sprouting new shoots, it is necessary to water in time according to soil moisture. Before sprouting new stems grow into stolons, the plants grow slowly, and weeds should be removed. ‘Lujiangba’, as a kind of ecological restoration grass, does not need to be applied fertilizer again. Its fruit pod is hard, so threshing is difficult. When harvesting, it is important to prune first to cut off the fruit spikes, which then should be sunned. After drying, pods are crushed to collect seeds, and then the procedure is followed as sunning seeds for a day, dusting, sifting, and storing in bags. ‘Lujiangba’ is not prone to serious pests and diseases, and therefore no special pest control is required.

**Suitable areas for planting:**

It is suitable for planting in tropical and subtropical areas with an altitude of 600-1500m and annual rainfall of ≥800mm.

1. **Mudarui**

**Species：***Plantago lanceolata*

**Scientific name:** *Plantago lanceolata* ‘GPl 279’

**Variety category:** Introduced variety

**Registration No.:** Yun S-IV-PL-012-2023

**Applicant:** Yunnan Agricultural University, Beijing Zhengdao Agriculture Co., Ltd, Institute of Tropical and Subtropical Economic Crops, Yunnan Academy of Agricultural Sciences, Yunnan Grassland Supervision and Management Station

**Breeders:** Jiang Hua, Zhou Kai, Yuan Zhonghua, Liu Qian, Li Hongqiang, Liu Yang, Duan Xinhui, He Chenggang, Luo Zhongyang, Duan Yuxue

**Characteristics:**

**‘Mudarui’** is a perennial herb of genus *Plantago* of family Plantaginaceae. The plant grows upright and quickly, and the leaf is broad, tender and juicy, with abundant leaf biomass. It is resistant to cutting, and the regeneration is strong. The grass yield is high. As ‘Mudarui’ is heat-resistant, in the summer, it can grow fast. Under suitable climate and management conditions, 5-6 times cutting can be done every year, and the hay yield can reach about 18 tons per hectare. It has a strong adaptability to climate and soil conditions, especially in infertile and arid areas.

**Main use:**

Ecological restoration grass and forage grass.

**Breeding techniques:**

Before sowing, fine plowing is recommended to break clods, so that the topsoil is permeable and the soil under is compacted. It is important to remove weeds and drain the soil. Autumn sowing is the best in southern China. The sowing depth is 25-30cm and the rate is 18-22kg/hm2. As its seeds are small, before sowing, fine land preparation, weed removal, and bottom fertilizer are needed. After sowing, the soil should be compacted. In the seedling stage, the plant is short, and the above-ground part grows slowly. After emergence, as the seedling is prone to the weed’s harm, artificial weeding in time is necessary. Irrigation and fertilization after cutting can ensure a stable and high yield. When ‘Mudarui’ grows to a height of 40-45cm, it can be cut in summer when it is rainy. When it grows to a height of about 30cm in winter when there is drought, it can be cut leaving a stubble of 5cm.

**Suitable areas for planting:**

It is suitable for planting in areas with warm and humid climates at an altitude of 800-2500m and annual rainfall of 400-1000mm.