

附件

林木良种名录

(中英文)

审定通过品种

1. 湘杉 43

树种：杉木

学名：*Cunninghamia lanceolata* 'Xiangsha 43'

类别：无性系

通过类别：审定

编号：国 S-SC-CL-001-2020

申请人：中国林业科学研究院林业研究所

选育人：段爱国、黄开勇、孙建军、张建国、邓宗富、聂林芽、钟建德、罗启亮、唐红亮、何振革、张雄清、许忠坤

品种特性

湖南会同杉木第 1 代种子园半同胞子代选优后扦插繁殖获得的无性系。常绿针叶乔木，树冠尖塔形，主干通直圆满；木材基本密度平均值为 0.2903 g/cm^3 ，对照一般杉木生产用种木材基本密度平均值为 0.2838 g/cm^3 。在 16 指数级立地 28 年生时，胸径年均生长量近 1 cm，树高年均生长量达 0.68 m 以上，单株材积年均生长量可达 0.017 m^3 。

主要用途

可作为用材林树种。

栽培技术要点

一年生苗造林，选择 12 地位指数以上立地，局部整地。在 12 月到次年 3 月的阴天或雨后晴天栽植，造林密度 $2.0 \text{ m} \times 2.0 \text{ m}$ 或 $2.0 \text{ m} \times 1.5 \text{ m}$ 。前 3 年每年抚育 2 次，第 4 年抚育 1-2 次；下层间伐法，间伐 2 次，第 1 次在林龄 8-10 年时，第 2 次在林龄 13-15 年时。不耐水湿。

适宜种植范围

江西、广西杉木适宜栽培区。

2. 欧美杨 2012 杨

树种：杨树

学名：*Populus × euramericana* 'Portugal'

类别：引种驯化品种

通过类别：审定

编号：国 S-ETS-PE-002-2020

申请人：中国林业科学研究院林业研究所

选育人：李金花、胡建军、卢孟柱、路露、王雷、孟宪伟、安金明、贾素苹、李振江

郭东环、唐国梁、李刚、王岭、刘振廷、吴丽娟、刘喜荣、张绮纹

品种特性

1994 年中国林业科学研究院林业研究所从意大利杨树研究所引进，雌株。主干通直圆满，树冠窄，卵形。无性繁殖插条造林成活率达 90% 以上。6 年生木材纤维长度 1080 μm ，长宽比 24.4，综纤维素含量 83.97%，1% NaOH 抽提物 21.66%；基本密度 0.328 g/cm^3 ，气干密度 0.393 g/cm^3 ，顺纹抗压强度 35.4 MPa，端面强度 3517.4 N，弦面强度 1983.34 N，径面强度 2118.76 N，抗弯强度 66.45 MPa。

主要用途

可作为用材林树种。

栽培技术要点

选择地势平坦、土壤肥力中等以上、土壤有效层厚度 ≥ 80 cm 地段造林。春季用 1-2 年生扦插苗造林，栽植密度 500-1100 株/ hm^2 。栽植后及时灌水，每年至少灌水 3 次。造林后第 2 年开始施追肥，氮肥用量一般为每株 50-200 g。造林 3 年后适当修枝。采伐后种农作物 1-3 年。对水肥条件有一定要求，不耐盐碱地；不宜于山地造林，适宜于地势平坦地区造林。

适宜种植范围

河北、山东杨树适宜栽培区。

3. ‘娇红 1 号’ 红花玉兰

树种：红花玉兰

学名：*Magnolia wufengensis* ‘Jiaohong 1’

类别：品种

通过类别：审定

编号：国 S-SV-MW-003-2020

申请人：北京林业大学

选育人：马履一、桑子阳、朱仲龙、陈发菊、贾忠奎、段劼、刘鑫、王罗荣、赵航文
马知一、丁向阳

品种特性

落叶乔木，树高可达 15-20 m。花芳香，单生枝顶，直立，先叶开放；花被片大部分为 9 个，偶有 10 或 11 个，均为花瓣状，内外侧均为鲜红色，通过英国皇家园林协会 RHS 植物比色卡 2015 版比色，外侧颜色为 Red Group 系列的 53B 或 54A，内侧颜色为 Red Group 系列的 52A 或 54B。湖北宜昌、北京、云南大理、河南南阳花期分别为 3 月 6-27 日、3 月 9-27 日、12 月 21 日-2 月 23 日、3 月 6-29 日。

主要用途

可用作园林绿化树种。

栽培技术要点

最佳栽植时间为春初和晚秋，适宜栽种于深厚肥沃的砂质壤土或有机质丰富的酸性或弱碱性土壤，定植株行距 2.0 m \times 3.0 m 或 3.0 m \times 3.0 m。根系严禁水涝，地势平坦区域最好起

垄种植。移栽后需缓苗 1-2 年。可培育控根容器苗克服移植缓苗，同时也可以打破栽植季节的约束。

适宜种植范围

北京、湖北、云南、河南玉兰适宜栽培区。

4. ‘娇红 2 号’ 红花玉兰

树种：红花玉兰

学名：*Magnolia wufengensis* ‘Jiaohong 2’

类别：品种

通过类别：审定

编号：国 S-SV-MW-004-2020

申请人：北京林业大学

选育人：马履一、贾忠奎、朱仲龙、陈发菊、桑子阳、段劫、王罗荣、赵航文、马知一、丁向阳

品种特性

红花玉兰变种多瓣红花玉兰。落叶乔木，树高可达 15-20 m。花芳香，单生枝顶，直立，先叶开放；花被片大部分为 12 个，偶有 13 或 14 个，均为花瓣状，外侧鲜红色内侧粉红色，通过英国皇家园林协会 RHS 植物比色卡 2015 版比色，花瓣外侧颜色为 Red Group 54A，内侧颜色为 Red Group 54C。湖北宜昌、北京、云南大理、河南南阳花期分别为 3 月 8-29 日、3 月 11-25 日、12 月 23 日-2 月 23 日、3 月 10-29 日。

主要用途

可用作园林绿化树种。

栽培技术要点

最佳栽植时间为春初和晚秋，适宜栽种于深厚肥沃的砂质壤土或有机质丰富的酸性或弱碱性土壤，定植株行距 2.0 m×3.0 m 或 3.0 m×3.0 m。根系严禁水涝，必须做好排涝工作，地势平坦区域最好起垄种植。移栽后需缓苗 1-2 年。可培育控根容器苗克服移植缓苗，同时也可以打破栽植季节的约束。

适宜种植范围

北京、湖北、云南、河南玉兰适宜栽培区。

5. SC1 苹果矮化砧木

树种：苹果

学名：*Malus honanensis* ‘SC1’

类别：品种

通过类别：审定

编号：国 S-SV-MH-005-2020

申请人：山西农业大学（山西省农业科学院现代农业研究中心）

选育人：牛自勉、蔚露、赵桂兰、林碌、王红宁、李全、廉国武、杨勇、李志强、张素霞、李鸿雁、王建新

品种特性

SH3 的自然授粉杂交后代，父本不详。成熟龄树高 3.0-3.5 m。与富士系、嘎拉系等主栽品种嫁接，接口平滑，无大小脚现象；在山西省嫁接长富 2 号，5-8 年生盛果期平均亩产 3178-3504 kg，比使用 SH 系砧木果园平均增产 12.6%-15.4%；果实平均可溶性固形物含量 16.2%-16.8%，果肉硬度 9.13-9.30 kg/cm²。嫁接红富士苹果在冬季绝对低温-25℃环境下能够正常生长发育，无明显冻害，在年降雨 500 mm 左右的半干旱地区果园能正常结果。

主要用途

砧木品种。

栽培技术要点

丘陵半干旱果园栽植密度 2.0 m×4.0 m，自由纺锤树形，成熟龄树每株选留 15-20 个骨干枝，更新周期 8-10 年，采用自然生草或人工生草的方法培肥土壤，调节土壤 pH 值，并减少水土流失；高肥水平地果园栽植密度 1.5 m×4.0 m，细长纺锤树形，成熟龄树每株选留 25-30 个大型结果枝，更新周期 5-8 年。平均每亩留果量 1.05-1.20 万个，并在 5 月中旬之前进行疏果定果。

适宜种植范围

山西、河北、河南年平均温度 8.5℃-13℃、冬季绝对低温高于-25℃，土壤 pH 值 6.5-8.0，无霜期大于 160 天的苹果适宜栽培区。

6. ‘皮瓜尔’油橄榄

树种：油橄榄

学名：*Olea europaea* ‘Picual’

类别：引种驯化品种

通过类别：审定

编号：国 S-ETS-OE-006-2020

申请人：云南省林业和草原科学院

选育人：宁德鲁、姜成英、张艳丽、李勇杰、邓先珍、吴文俊、马婷、赵海云、耿树香
陈海云、赵梦炯

品种特性

1979 年我国林业部从西班牙引进。树冠紧凑，总状花序。果实长椭圆形，果顶具嘴，不对称。定植 3 年开始挂果，8 年进入盛果期，盛果期平均亩产鲜果可达 596.5 kg；鲜果含油率 23.06%。脂肪酸组成为棕榈油酸含量 1.5%，棕榈酸含量 13.8%，硬脂酸含量 2.2%，油酸含量 75.5%，亚油酸含量 5.6%，亚麻酸含量 0.6%。

主要用途

可作为油料植物，鲜果用于榨取橄榄油。

栽培技术要点

选择光照充足的地块，土层厚度≥80 cm、质地疏松、排水良好通透性好，pH 值 6.5-8.5 的壤土。在秋季、春季初用扦插苗造林，栽植密度 4.0 m×5.0 m，种植时挖大穴（不小于 80 cm），每穴施有机肥 50-80 kg。定植后每年秋冬季采果后，进行一次扩穴，扩穴深度 30-40

cm，穴沟宽 30-40 cm。树形以三大主枝开心形为最佳，注意防治病虫害。

适宜种植范围

云南、甘肃、湖北土壤 pH 值 6.5-8.5 的油橄榄适宜栽培区。

7. ‘科拉蒂’油橄榄

树种：油橄榄

学名：*Olea europaea* ‘Coratina’

类别：引种驯化品种

通过类别：审定

编号：国 S-ETS-OE-007-2020

申请人：甘肃省林业科学研究院

选育人：姜成英、吴文俊、宁德鲁、赵海云、姜德志、李勇杰、陈海云、赵梦炯、闫仲平、马婷、张艳丽、陈炜青、戚建莉、李娜

品种特性

1979 年我国林业部从意大利引进。树势中等，树冠圆头形；果卵圆形或椭圆形，不对称。定植 3 年开始挂果，8 年进入盛果期，盛果期平均亩产鲜果 669.7 kg，鲜果含油率 23.11%。脂肪酸主要组成为：油酸含量 75.5 %-77.8%，亚油酸含量 4.9%-6.4%，亚麻酸含量 0.7%-0.9%，棕榈酸含量 12.7%-13.1%，棕榈一烯酸含量 1.6%-1.8%，硬脂酸含量 1.5%-1.9%，花生酸含量 0.3%。

主要用途

可作为油料植物，鲜果用于榨取橄榄油。

栽培技术要点

选择光照充足的地块，土层厚度 ≥ 80 cm、质地疏松、排水良好通透性好，pH 值 6.5-8.5 的壤土。在秋季、春季初用扦插苗造林，栽植密度 4.0 m \times 5.0 m，种植时挖大穴（不小于 80 cm），每穴施有机肥 20-50 kg，降雨较多或土壤较粘重的或地下水位较高地区可采用起垄方式。定植后每年秋冬季采果后，进行一次扩穴，扩穴深度 30-40 cm，沟宽 30-40 cm。结果前施肥。树形以三大主枝开心形为最佳，注意防治病虫害。

适宜种植范围

云南、甘肃、湖北土壤 pH 值 6.5-8.5 的油橄榄适宜栽培区。

8. ‘京沧 8 号’枣

树种：枣

学名：*Ziziphus jujuba* ‘Jingcang 8’

类别：品种

通过类别：审定

编号：国 S-SV-ZJ-008-2020

申请人：北京林业大学

选育人：庞晓明、曹明、张琼、樊丁宇、王中堂、王祺龙、李国松、王继贵、薄文浩、闫继峰、郝庆、周广芳、李颖岳、张巨兵、孔德仓、黄涛、王刚、刘顺义

品种特性

从河北省沧县冬枣园选育出的芽变单株。果实圆形，果肩平，果顶凹，果实颜色红，果面光滑亮泽。平均单果重 29.8 g，可溶性固形物含量 30.8%，Vc 含量 266 mg/100 g；9 月下旬进入脆熟期；成熟期较普通冬枣早 7 天左右。河北省沧县 2012 嫁接植株在 2016-2019 年连续四年的平均亩产分别为：415.8 kg、590.7 kg、680.5 kg 和 700.3 kg。

主要用途

鲜食。

栽培技术要点

栽植密度以 2.0 m×3.0 m 或 3.0 m×4.0 m 为宜。采用开心型和纺锤型等树型，采用摘心、抹芽等方式进行夏剪。盛花初期可以喷施 10 mg/L 赤霉素加 0.03% 硼砂，也可以适当环剥，促进生长和提高坐果率。早春施用基肥（以有机肥为主），春夏秋适时追肥；结合施肥适时浇水。及时防治绿盲蝽、桃小食心虫、枣瘿蚊、红蜘蛛、枣锈病等危害，冬季和早春注意冻害预防。

适宜种植范围

河北、山东、新疆枣适宜栽培区。

9. ‘红艳无核’葡萄

树种：葡萄

学名： *Vitis vinifera* ‘Hongyanwuhe’

类别：品种

通过类别：审定

编号：国 S-SV-VV-009-2020

申请人：中国农业科学院郑州果树研究所

选育人：刘崇怀、樊秀彩、张颖、姜建福、李民、张瑛、龚林忠、杨顺林、孙磊、孙海生、顾红、韩佳宇、刘斌、曹雄军、魏志峰、李道春、孙现怀、田野、郑先波、叶霞、乔宝营

品种特性

从‘红地球’×‘森田尼无核’杂交后代中选出，中早熟品种。果穗圆锥形，带副穗，平均穗长 29.8 cm，穗宽 17.8 cm，平均穗重 1200 g。果粒椭圆形，紫红色，平均单粒重 4.0 g，果粒成熟一致，着生中等紧密。果肉脆，汁少，有清香味，无种子。可溶性固形物含量 17.3%-26.0%。在河南郑州地区，7 月中旬浆果始熟，8 月上旬果实充分成熟，定植第 2 年开始结果，第 3 年进入盛果期，平均亩产可达 1500 kg。

主要用途

鲜食。

栽培技术要点

双十字架，单干水平树形栽培，株行距 1.5 m×2.5-3.0 m；棚架，龙干树形栽培株行距 1.0 m×3.5-4.0 m。元月到伤流前 20 天左右进行冬季修剪，宜中短梢修剪。夏季修剪将过多

不必要的新梢尽早抹除。基肥宜在 9 月底 10 月初进行，4 次追肥，分别在萌芽期和幼果膨大期追施氮磷钾等量三元复合肥。入冬后应至少进行 3 次灌水，分别在落叶后，土壤上冻前，土壤解冻后。

适宜种植范围

河南、云南、广西葡萄适宜栽培区。

10. ‘京香玉’葡萄

树种：葡萄

学名： *Vitis vinifera* ‘Jingxiangyu’

类别：品种

通过类别：审定

编号：国 S-SV-VV-010-2020

申请人：中国科学院植物研究所

选育人：李绍华、范培格、梁振昌、王利军、段伟、杨美容、吴本宏、张玉玉、任冲、王毅

品种特性

以‘京秀’为母本，‘香妃’为父本杂交选育而成。果穗整齐度良好，紧密度中等，平均穗重 463.2 g。平均果粒重 8.2 g。果实具玫瑰香味，可溶性固形物含量 15.6%-16.8%，可滴定酸含量 0.54%。北京地区 4 月上旬萌芽，5 月下旬开花，8 月上旬浆果成熟，从萌芽到浆果成熟需 120 天，成熟后可在树上挂 20 天以上。副梢结实性能强。栽后第 2 年即可结果，亩产可达 300 kg。第 3 年丰产，控制亩产量约 1500 kg。

主要用途

鲜食。

栽培技术要点

喜肥水，底肥与基肥宜多施有机肥，肥料有机质含量在 45% 以上；应严格控制产量，亩产控制在 1000-1500 kg 以内。坐果后去掉发育不良及朝向不好的果粒，对果穗进行稍微的修整；疏果后套袋，果面卫生、整洁；采收前 10 天摘袋或架面透光有利于提高果实香气物质含量；注意防治病虫害。

适宜种植范围

适宜北京、河北、河南进行露地、温室及避雨栽培。

11. ‘京艳’葡萄

树种：葡萄

学名： *Vitis vinifera* ‘Jingyan’

类别：品种

通过类别：审定

编号：国 S-SV-VV-011-2020

申请人：中国科学院植物研究所

选育人：李绍华、范培格、梁振昌、王利军、段伟、杨美容、吴本宏、张玉玉、任冲、王毅

品种特性

以‘京秀’为母本，‘香妃’为父本杂交选育而成。果穗整齐度良好，紧密度中等，平均穗重 391.2 g，平均果粒重 7.0 g，果实成熟时果实玫瑰红或紫红色，味酸甜，有玫瑰香味，种子多为 3 粒。果实可溶性固形物含量 16.9%，总酸含量 0.49%。北京地区露地 4 月上旬萌芽，5 月下旬开花，7 月底 8 月初浆果成熟，从萌芽到浆果成熟需 110 天。副梢结实性能强。栽后第 2 年即可结果，亩产可达 200 kg，第 3 年丰产，控制亩产量约 1500 kg。

主要用途

鲜食。

栽培技术要点

喜肥水，底肥与基肥宜多施有机肥，肥料有机质含量在 45% 以上；应严格控制产量，亩产控制在 1500 kg 以内。坐果后去掉发育不良及朝向不好的果粒，对果穗进行稍微的修整；疏果后套袋，果面卫生、整洁；注意防治病虫害。

适宜种植范围

适宜北京、河北、河南进行露地、温室及避雨栽培。

12. ‘华仲 20 号’ 杜仲

树种：杜仲

学名：*Eucommia ulmoides* ‘Huazhong 20’

类别：品种

通过类别：审定

编号：国 S-SV-EU-012-2020

申请人：中国林业科学研究院经济林研究开发中心

选育人：杜庆鑫、刘攀峰、杜兰英、王璐、杜红岩、孙志强、岳慧、王运钢、张海让
朱景乐、刘梦培、朱利利、庆军、何凤

品种特性

果实弯刀形，果实长 3.47-4.01 cm，宽 1.01-1.20 cm。在河南省，平均果实千粒质量 79.8 g，种仁粗脂肪含量 36%-42%，亚麻酸含量 59%-64%；比普通杜仲开花期晚 7-10 天，果实 9 月中旬至 10 月上旬成熟。嫁接苗 2-3 年开花，第 4-6 年进入盛果期，每年产果量达 170-230 kg/亩。

主要用途

可作为油料植物，鲜果用于榨取亚麻酸油。

栽培技术要点

需配置授粉品种，‘华仲 5 号’、‘华仲 11 号’、‘华仲 22 号’为宜，配置比例 3%-5%。一般栽植密度为 4.0 m×5.0 m-2.0 m×3.0 m。规模化机械化示范基地可宽窄行种植，宽行 5.0-6.0 m，窄行 2.0-3.0 m，株距 3 m。适宜树形为自然开心形、两层疏散开心形、自然纺锤形。5 月下旬-8 月上旬环剥或环割。加强土壤管理，果园专用 N、P、K 复合肥中 N:P₂O₅:K₂O=1.00:1.20:0.55。

适宜种植范围

河南、山东杜仲适宜栽培区。

13. ‘华仲 21 号’ 杜仲

树种：杜仲

学名：*Eucommia ulmoides* ‘Huazhong 21’

类别：品种

通过类别：审定

编号：国 S-SV-EU-013-2020

申请人：中国林业科学研究院经济林研究开发中心

选育人：刘攀峰、杜庆鑫、杜红岩、杜兰英、王璐、孙志强、岳慧、张海让、王运钢
张吉、陈博、刘梦培、朱利利、庆军、何凤

品种特性

萌芽力强，成枝力强，雄花紧凑，先花后叶。嫁接苗 2-3 年开花，4-5 年进入盛花期，雄花花径 2.11-2.62 cm，花高 1.98-2.25 cm，雄蕊长 0.95-1.18 cm，每芽雄蕊 109-125 个，盛花期每年可产鲜雄花 220-350 kg/亩。建园第 8 年单株雄花产量可达 3.55 kg，雄花氨基酸含量平均为 18.50%。

主要用途

可用于营建杜仲雄花茶园。

栽培技术要点

杜仲雄花茶园栽植密度 2.0 m×3.0 m-2.0 m×4.0 m；春季结合采摘雄花修剪花枝，保留 3-8 个芽；夏季 5-6 月份，在当年生枝条基部进行环剥或环割，宽度 0.3-1.0 cm，留 0.2-0.5 cm 的营养带。每 3-5 年将开花枝组逐步回缩短截一轮。

适宜种植范围

河南、山东杜仲适宜栽培区。

14. ‘中宁强’ 核桃

树种：核桃

学名：*Juglans major*×*J. regia* ‘Zhongningqiang’

类别：品种

通过类别：审定

编号：国 S-SV-JM-014-2020

申请人：中国林业科学研究院林业研究所

选育人：裴东、张俊佩、宋晓波、徐虎智、徐永杰、韩传明、封斌奎、朱升祥、奚声珂
王占霞、张建武

品种特性

从‘魁核桃’×‘核桃’远缘杂交后代中选出。树干通直、生长势旺盛，6 年生树平均树高 10.6 m，平均胸径 11.65 cm，较对照实生核桃提高 33.60%；扦插生根率达 95% 以上。与核桃属中核桃、泡核桃和东部黑核桃等 7 个种的枝接成活率达到 90% 以上，芽接成活率达到 95%；嫁接‘辽宁 1 号’，新梢生长量较核桃本砧提高 24%。盛果期平均亩产较核桃本砧提高 21.4%。气干密度 0.687 g/m³、全干密度 0.646 g/m³、抗弯强度 105.5 MPa，硬度（径面）5690 N。

主要用途

可用作砧木品种、用材林品种。

栽培技术要点

果园型栽培密度 4.0 m×6.0 m 为宜，树形疏散分层形，定干高度 80-100 cm，果材兼用型栽培，定干在 2.0 m-4.0 m，可收获用材；春栽为宜，幼树期加强骨干枝培养，定干后注意其余枝条的拉枝缓放；盛果期树注意回缩强度和控制在背后枝，保持中庸树势。加强田间土壤肥水管理。冬季结合树干涂白和土壤深翻防控病虫害。作为材用树种时，早期需要注意干形的培养。

适宜种植范围

河南、山东、湖北、陕西核桃适宜栽培区。

15. ‘中石 4 号’ 文冠果

树种：文冠果

学名： *Xanthoceras sorbifolium* ‘Zhongshi 4’

类别：品种

通过类别：审定

编号：国 S-SV-XS-015-2020

申请人：中国林业科学研究院林业研究所

选育人：王利兵、崔德石、毕泉鑫、于海燕、崔天鹏、**王涛**、石长春、尚忠海、张玉君、李迎超、刘肖娟、吴健、张明俊、冯长虹、李芳霞、范春晖、史有庄、蒋浩、王海涛

品种特性

树势强，枝密，雌花占比 60% 以上。种子黑褐色，平均单粒重 1.5 g，种仁含油率 65.65%；不饱和脂肪酸含量 91.67%，神经酸含量为 3.51%。辽宁省 2013 年嫁接植株，2015-2019 年五年平均亩产量为 74.5 kg，是对照的 1.48 倍。

主要用途

可用作油料树种。

栽培技术要点

果园选址为黄土母质的山地、丘陵，沙地，不适宜排水不良的低湿地、重盐碱地、多石的山地；株行距 2.0 m×4.0 m 或 3.0 m×4.0 m，需选择实生文冠果配置授粉树或采集花粉进行人工授粉。采果后基肥以有机肥为主，追肥 7 月前以氮肥为主，磷、钾肥配合，7 月后，以钾肥为主。雨季注意排水，防止渍水导致根部腐烂。修剪时可采用轮流坐果法修剪。注意控制蚜虫、粉虱、煤污病等。

适宜种植范围

辽宁、内蒙古、河南、陕西黄土母质的山地、丘陵及沙地种植。

16. ‘中石9号’文冠果

树种：文冠果

学名：*Xanthoceras sorbifolium* ‘Zhongshi 9’

类别：品种

通过类别：审定

编号：国 S-SV-XS-016-2020

申请人：中国林业科学研究院林业研究所

选育人：王利兵、崔德石、毕泉鑫、于海燕、崔天鹏、**王涛**、石长春、尚忠海、张玉君、李迎超、刘肖娟、吴健、张明俊、冯长虹、李芳霞、范春晖、史有庄、蒋浩、王海涛

品种特性

树势强，枝密，雌花占比 60% 以上。种子黑褐色，平均单粒重 1.8 g，种仁含油率 66.06%，比普通文冠果高 1.68%，不饱和脂肪酸含量 90.90%。辽宁省 2013 年嫁接植株，2015-2019 年干种子平均亩产量为 78.3 kg，是对照的 1.6 倍。

主要用途

可用作油料树种。

栽培技术要点

果园选址为黄土母质的山地、丘陵，沙地，不适宜排水不良的低湿地、重盐碱地、多石的山地；株行距 2.0 m×4.0 m 或 3.0 m×4.0 m；需选择实生文冠果配置授粉树或采集花粉进行人工授粉。采果后基肥以有机肥为主，追肥 7 月前以氮肥为主，磷、钾肥配合，7 月后，以钾肥为主。雨季注意排水，防止渍水导致根部腐烂。修剪时可采用轮流坐果法修剪。注意控制蚜虫、粉虱、煤污病等。

适宜种植范围

辽宁、内蒙古、河南、陕西黄土母质的山地、丘陵及沙地种植。

17. ‘桑梓1号’桑树

树种：桑树

学名：*Morus abla* ‘Sangzi 1’

类别：品种

通过类别：审定

编号：国 S-SV-MA-017-2020

申请人：安徽省农业科学院蚕桑研究所

选育人：邓永进、任杰、刘健、李冰、张富友、杨璐、刘和洋、王朝晖、韩智宏、王晶晶、霍开军、陈艳英、章守富、潘昕党、马世鲜、刘斌、王锐

品种特性

2009 年开展离子束辐射诱变育种，2012 年始选出变异优株。安徽省 8 年生嫁接树体，树高 1.5 m。桑果均匀，呈紫褐色，果长 2-4 cm，单果重 3-5 g，果柄极短，无籽，味偏酸，出汁率 74.8%，花青素含量 0.80 g/100 g，春季、夏季分别结果一次，以春季产量最大，夏季产量约为春季的 15%，全年产果量 3000 kg/亩。桑果始熟期 5 月上旬，盛熟期在 5 月中下旬，6 月上旬果期结束，采果期一个月，果实易落地。

主要用途

可用于鲜食或加工果汁。

栽培技术要点

选择质地疏松、土层深厚、排管良好的土壤定植，定植时施足熟腐的厩肥作底肥。株行距按 2.0 m×3.0 m。每年 3 月上中旬发芽后喷施甲基托布津、啮酰菌胺等药剂防治病害。6 月上旬果期结束后加强修剪，树形以主干、主枝、结果枝三级结构的中空外心型为宜。通风透光，及时去除病果；可采用地面覆盖等方式，以减少土传菌核病的发生。

适宜种植范围

安徽、新疆、河南桑树适宜栽培区。

18. ‘翠玉’梨

树种：梨

学名：*Pyrus pyrifolia* ‘Cuiyu’

类别：品种

通过类别：审定

编号：国 S-SV-PP-018-2020

申请人：浙江省农业科学院

选育人：施泽彬、戴美松、孙田林、王月志、胡征令、王津娥、吴顺法

品种特性

以‘西子绿’为母本，‘翠冠’为父本杂交选育而成。果实圆型或近圆形，果皮浅绿色，基本无果锈，果点极小，平均单果重 257 g，可溶性固形物含量 10.5%-12%，Vc 含量 4.3 mg/100 g、可溶性总糖含量 6.6%、总酸含量 0.8 g/kg。浙江杭州地区 7 月中旬成熟，果实成熟期早于‘翠冠’10 天左右。常温下果实贮藏期比‘翠冠’长 5 天以上。

主要用途

鲜食。

栽培技术要点

初始种植密度 2.0 m×4.0 m，2.0 m×3.0 m，根据封行情况，进行疏移，使种植密度逐渐变成 4.0 m×4.0 m，4.0 m×3.0 m。需配置授粉品种‘翠冠’、‘玉冠’等，配置密度 25%-30%。果实早期膨大迅速，疏果宜适当提早并及时套袋。整形修剪方法以目前主流的开心形、棚架整形为主。

适宜种植范围

浙江、福建砂梨适宜栽培区。

认定通过品种

1. 彰武松

树种：赤松

学名：*Pinus densiflora* 'zhangwu'

类别：无性系

通过类别：认定5年（2021年3月31日—2026年3月30日）

编号：国 R-SC-PD-001-2020

申请人：辽宁省沙地治理与利用研究所

选育人：张学利、张树杰、雷泽勇、尤国春、白雪峰、袁春良、刘淑玲、刘亚萍、王曼周凤艳、张柏习、乌志颜、包哈森高娃、范东东、王浩、程瑞春、吴志萍、陆昕姜鹏、张晓伟、黄平、王斯彤

品种特性

赤松的天然杂交种。树皮呈灰黑色，鳞片状开裂。25年生时平均树高7.96 m，平均胸径16.76 cm，平均材积0.094 m³，分别超过对照樟子松11.80%，43.86%和100.0%。木材含水率110.5%，抗弯强度42.2 MPa，抗弯弹性模量7210 MPa，冲击韧性52 KJ/m²，端面、弦面和径面硬度分别为1580 N、1430 N和1400 N。

主要用途

可用作防护林、用材林树种。

栽培技术要点

作为防护林、用材林树种造林时，宜营建混交林。春季、夏季用容器苗造林。宜采取穴状整地，坑穴规格为50 cm×50 cm×40 cm，株行距为4.0 m×4.0 m或3.0 m×4.0 m。根据造林季节不同，一般采用1/4、1.5/4.5、1/5、1.5/5.5苗龄的1-2级嫁接苗造林。

适宜种植范围

辽宁、内蒙古、黑龙江、陕西、河北省年降水量≥330 mm，活动积温(≥10.0℃)≥2600 ℃ d，极端气温-40.0 ℃-42.8 ℃，土壤pH值6.0-8.5的区域。

2. ‘泓森’槐

树种：刺槐

学名：*Robinia pseudoacacia* 'Hongsen'

类别：无性系

通过类别：认定3年（2021年3月31日—2024年3月30日）

编号：国 R-SC-RP-002-2020

申请人：安徽省林业科学研究院、中南林业科技大学、安徽泓森高科林业股份有限公司

选育人：侯金波、夏尚光、张明龙、王廷敞、彭晶晶、杨倩倩、谭晓风、夏尚斌、袁德义苏守香、杨浩、陈培培、石冠旗、李鹏翔、刘振华、董绍贵

品种特性

树干通直，分枝角度在30°-40°之间。1-2年生树体的刺短、软，3年生之后树体基本无刺。在河南驻马店，5年生树高12.56 m，胸径13.8 cm，单株材积0.064 m³，比普通刺槐分别提高了27.90%，31.43%，42.22%。全干密度为0.636 g/cm³，含水率12.7%时抗弯强度为104.9 MP。

主要用途

可作为用材林、防护林树种。

栽培技术要点

容器扦插苗造林，选苗高 ≥ 30 cm 苗木，栽植后不截干；大田扦插苗造林在春季或秋季进行，选地径 ≥ 1.5 cm 苗木，栽植后离地面 5.0 cm 处截干。平原和川地可选全面整地、带状整地或穴状整地；低山及丘陵坡地可选反坡梯田、水平阶、水平条或鱼鳞坑等措施。造林株行距 3.0 m \times 4.0 m。

适宜种植范围

湖南、河南、山东刺槐适宜栽培区。

3. ‘洛红美’杏

树种：杏

学名：*Prunus armeniaca* ‘Luohongmei’

类别：品种

通过类别：认定 3 年（2021 年 3 月 31 日—2024 年 3 月 30 日）

编号：国 R-SV-PA-003-2020

申请人：洛阳农林科学院

选育人：梁臣、刘丹、王治军、赵罕、丁成会、陈哲、解孝满、张军、畅凌冰、尹华
马晓洁、魏素玲、徐慧敏

品种特性

树势中庸，树冠呈自然圆头形。果肉橙黄色，平均单果重 60g，可食率 $>95\%$ 。可溶性固形物含量 14.5%，蛋白质含量 0.64%，脂肪含量 0.1%、氨基酸含量 0.42%，Vc 含量 8.96 mg/100 g。河南省洛阳地区 3 月底至 4 月初开花，嫁接苗栽后 3-4 年结果，6-7 年进入盛产期，亩产可达 1700 kg。常温下可贮藏 15 天以上。

主要用途

鲜食。

栽培技术要点

对土壤要求不严，喜土层深厚、富钾的土壤。选择背风向阳、地势平缓的地块，秋末或春季均可栽植。株行距 3.0 m \times 4.0 m-4.0 m \times 5.0 m，选择花期一致的‘美国杏李’作授粉树，比例 9:1。栽植时挖大穴，每穴施入有机肥 30-50 kg，与表土混合填入穴内，踏实浇透水。80 cm 左右定干，50 cm 以下抹芽，开心形整形。

适宜种植范围

河南、山东杏适宜栽培区。

4. ‘无核翠宝’葡萄

树种：葡萄
类别：品种
编号：国 R-SV-VV-004-2020
申请人：山西农业大学（山西省农业科学院）果树研究所
选育人：陈俊、唐晓萍、马小河、赵旗峰、董志刚、王世平、潘明启、王振平、杨顺林、雷龔、李晓梅、谭敏、杨镕兆、刘政海、李国庆、郭淑萍、冯骠、朱彬彬、王磊、牛锦凤、王建平

学名： *Vitis vinifera* ‘Wuhecui bao’

通过类别：认定3年（2021年3月31日—2024年3月30日）

品种特性

以‘瑰宝’为母本，‘无核白鸡心’为父本杂交选育而成。果穗圆锥形，平均穗重 345 g，果粒为倒卵圆形，最大粒重 5.7 g；果皮黄绿色，果肉脆，具玫瑰香味，可溶性固形物含量 18.2%，总糖含量为 15.7%，总酸含量为 0.39%，糖酸比为 46 : 1；无种子或有 1-2 粒残核，果实成熟期在 8 月上旬，盛果期亩产可达 1200 kg。生长日数为 105 天，较父本‘无核白鸡心’提早 20 天，较母本‘瑰宝’提早 40 天。

主要用途

鲜食。

栽培技术要点

长势较强，适宜篱架、棚架、V 形架栽培。篱架栽植行距为 2.5 m，株距为 1.0 m；棚架及 V 形架栽培行距为 2.8-3.0 m，株距为 1.0 m。定植时一次施入腐熟的有机肥 5-8 m³。露地栽培产量控制在 1000-1500 kg/亩之内为宜，设施栽培控制在 1500-2000 kg/亩为宜。结果母枝粗度控制在 1 cm 以内为宜。

适宜种植范围

宁夏、山西可设施、避雨栽培或露地栽培，云南、上海需设施或避雨栽培。

5. ‘盐源早’核桃

树种：核桃
类别：品种
编号：国 R-SV-JR-005-2020
申请人：凉山州现代农林开发有限公司、四川省林业科学研究院、盐源县林业和草原局
选育人：陈明松、李丕军、胡定林、邢文曦、陈先富、胡聪林、毛国慧、罗成荣、王泽亮、吴泞孜、郑崇文、陈良富、陆斌、李秀珍、冯大兰、吴万波、金迎春、唐佳佳、马明、吴正涛、刘忠杰

学名： *Juglans regia* ‘Yanyuanzao’

通过类别：认定5年（2021年3月31日—2026年3月30日）

品种特性

树势中庸，树冠开张，中短果枝为主，具有侧花结果习性。雌雄同期，花期 3 月上旬，果实成熟期 8 月上旬，四川盐源县嫁接 10 年后亩产可达 220 kg。坚果中等偏大，腹径 3.71 cm，果高 4.27 cm。平均单果重 17.31 g，壳厚 1.2 mm，可取整仁，出仁率 55.64 %；核仁充实饱满，粗脂肪含量 64.62%，粗蛋白含量 15.44%。

主要用途

可用于鲜食或加工干果。

栽培技术要点

密植园栽培适宜株行距 5.0 m×6.0 m，大穴(80 cm×80 cm×60 cm)整地，重施基肥 20-30 kg/穴(必须厩肥加复合肥)。栽植时“三填两踩一提苗”，足量定根水。树高 1.2 m 以上可开展定干整形和树体修剪。树形采用 2-3 层分层形或自然开心形。嫁接成活后注意除萌、剪叶、解膜等工序，水肥管理同其他品种。海拔 2200 m 以上的阴坡，果实不饱满。

适宜种植范围

四川、云南、重庆海拔在 400 m-2200 m 的区域以及 2200 m-2500 m 的阳坡土层深厚区域栽培。

6. ‘丰园 77’ 杏

树种：杏

学名：*Armeniaca vulgaris* ‘Fengyuan 77’

类别：品种

通过类别：认定 3 年（2021 年 3 月 31 日—2024 年 3 月 30 日）

编号：国 R-SV-AV-006-2020

申请人：榆林市丰园果业科技有限公司

选育人：杜锡莹、李迁恩、杜燕萍、杜燕群、李建宏、张益宁、杜少悬、陈堪鹏、郭晓成、张创新、李江涛、李颖飞

品种特性

从金太阳杏的自然杂交后代中选育。株型紧凑，冠幅是金太阳的 70%。平均单果重 70 g，果实可溶性固形物含量 9.7%，总糖含量 3.55%，苹果酸含量 1.38%。在西安市鄠邑区试验点连续五年观测，比金太阳杏早熟 2 天，盛果期平均亩产 2900 kg，亩产量高出约 240 kg；比大银杏早熟 14 天，亩产量高出约 1120 kg。

主要用途

鲜食。

栽培技术要点

需配置 15% 以上的授粉品种；避开重茬地、地势低洼和容易积水地块；规模种植株距规划一般 4.0 m×2.0 m，小面积种植可按 4.0 m×3.0 m；树形宜采用有主干半圆形或自然开心形；重视疏果，控制产量；注意病虫害防治。

适宜种植范围

陕西、辽宁、河北、甘肃、安徽杏适宜栽培区。

7. ‘郑艳无核’ 葡萄

树种：葡萄

学名：*Vitis vinifera*×*V. labrusca* ‘Zhengyanwuhe’

类别：品种
通过类别：认定3年（2021年3月31日—2024年3月30日）
编号：国 R-SV-VV-007-2020
申请人：中国农业科学院郑州果树研究所
选育人：刘崇怀、樊秀彩、张颖、姜建福、李民、龚林忠、张瑛、杨顺林、孙磊、郭景南、孙海生、顾红、刘三军、魏志峰、刘斌、韩佳宇、郭蓉蓉、孙现怀、李道春、田冲、刘启山

品种特性

以‘京秀’为母本，‘布朗无核’为父本杂交选育而成，早熟品种。果穗圆锥形，平均穗重 618.3 g；果粒成熟一致，平均粒重 3.1 g；果肉有草莓香味；自然无核，可溶性固形物含量约为 19.9%。一般定植第 2 年开始结果，盛果期亩产可达 2400 kg。在河南郑州地区，7 月中下旬充分成熟，从萌芽到果实成熟为 120 d 左右。

主要用途

鲜食。

栽培技术要点

篱架“高宽垂”树形栽培适宜密度 1.5 m×2.5-3.0 m；棚架龙干架式栽培密度 1.0 m×3.5-4.0 m；棚架 T 型架式栽培密度 2.0 m×6.0 m；棚架 H 型架式栽培密度 4.0 m×6.0 m。冬季修剪一般在秋季落叶后一月左右到翌年萌发前 20 天左右进行，强蔓长留，弱蔓短留；棚架前段长留，下部短留。夏季修剪将不必要的新梢尽早抹除。1 个结果枝上以留 1 个发育良好的花序为宜，花后适当疏粒。基肥宜在 9 月底 10 月初进行。追肥一般在花前 10 天左右追施速效性氮肥。

适宜种植范围

河南、广西、云南葡萄适宜栽培区。

8. ‘华仲 19 号’杜仲

树种：杜仲
学名：*Eucommia ulmoides* ‘Huazhong 19’
类别：品种
通过类别：认定3年（2021年3月31日—2024年3月30日）
编号：国 R-SV-EU-008-2020
申请人：中国林业科学研究院经济林研究开发中心
选育人：王璐、杜兰英、刘攀峰、杜红岩、杜庆鑫、孙志强、岳慧、张海让、王运钢、张吉陈博、刘梦培、朱利利、庆军、何凤

品种特性

萌芽力强，成枝力中等。在河南省，成熟果实千粒质量 80.4 g。种仁粗脂肪含量 35%-40%，其中 α-亚麻酸含量 60%-65%；果实 9 月中旬至 10 月上旬成熟。嫁接苗 2-3 年开花，第 4-6 年进入盛果期，每年产果量达 160-210 kg/亩。

主要用途

可作为油料植物，鲜果用于榨取亚麻酸油。

栽培技术要点

配置授粉品种，‘华仲 5 号’、‘华仲 11 号’、‘华仲 22 号’等，配置比例 3%-5%。一般栽植密度为 4.0 m×5.0 m-2.0 m×3.0 m, 33-110 株/亩。规模化机械化示范基地可宽窄行种植，宽行 5.0-6.0 m，窄行 2.0-3.0 m，株距 3 m，50-64 株/亩。适宜树形为自然开心形、两层疏散开心形、自然纺锤形。5 月下旬-8 月上旬环剥或环割。加强土壤管理，果园专用 N、P、K 复合肥中 N:P₂O₅:K₂O =1.00:1.20:0.55。

适宜种植范围

河南、山东杜仲适宜栽培区。

9. ‘华仲 26 号’ 杜仲

树种：杜仲

学名：*Eucommia ulmoides* ‘Huazhong 26’

类别：品种

通过类别：认定 5 年（2021 年 3 月 31 日—2026 年 3 月 30 日）

编号：国 R-SV-EU-009-2020

申请人：中国林业科学研究院经济林研究开发中心

选育人：杜红岩、王璐、杜兰英、杜庆鑫、刘攀峰、孙志强、岳慧、王运钢、张海让
朱景乐、刘梦培、朱利利、庆军、何凤

品种特性

萌芽力强，成枝力中等。在河南省，成熟果实千粒质量 90.5 g，果皮杜仲橡胶含量 15%-18%，种仁粗脂肪含量 28%-32%，其中亚麻酸含量 59%-63%。果实 9 月中旬至 10 月上旬成熟。嫁接苗或高接换雌后 2-3 年开花，第 4-6 年进入盛果期，年产果量达 170-220 kg/亩。

主要用途

可作为油料植物，鲜果用于榨取亚麻酸油。

栽培技术要点

配置授粉品种，‘华仲 5 号’、‘华仲 11 号’、‘华仲 22 号’等，配置比例 3%-5%。一般栽植密度为 4.0 m×5.0 m-2.0 m×3.0 m, 33-110 株/亩。规模化机械化示范基地可宽窄行种植，宽行 5.0-6.0 m，窄行 2.0-3.0 m，株距 3 m，50-64 株/亩。适宜树形为自然开心形、两层疏散开心形、自然纺锤形。5 月下旬-8 月上旬环剥或环割。加强土壤管理，果园专用 N、P、K 复合肥中 N:P₂O₅:K₂O =1.00:1.20:0.55。

适宜种植范围

河南、山东杜仲适宜栽培区。

注：通过认定的林木良种，认定期满后不得作为良种继续使用，应重新进行林木品种审定。

National list of genetically improved tree varieties

Certified Varieties

1. Xiangshan 43

Species: Chinese fir

Scientific name: *Cunninghamia lanceolata* ‘Xiangshan 43’

Type of material: Clone

Category of certification: Certified

Registration No.: Guo S-SC-CL-001-2020

Applicants: Research Institute of Forestry, Chinese Academy of Forestry

Breeders: Duan Aiguo, Huang Kaiyong, Sun Jianjun, Zhang Jianguo, Deng Zongfu, Nie Linya, Zhong Jiande, Luo Qiliang, Tang Hongliang, He Zhenge, Zhang Xiongqing, Xu Zhongkun

Characteristics:

The clone was obtained from cutting propagation of the selected half-sib progeny of the first generation seed orchard of Chinese fir in Huitong in Hunan Province. The clone is evergreen coniferous tree with straight stem and tower-formed crown. The average wood basic density is 0.2903 g/cm³, and that of normal Chinese fir as the control was 0.2838 g/cm³. At the site with a site index of 16 m, 28-year-old trees have an average annual growth of DBH of nearly 1 cm, height of more than 0.68 m, and volume of up to 0.017 m³.

Main use:

It can be used as timber tree.

Silvicultural techniques:

One-year-old plant stocks are used for planting. Sites with a site index above 12 are selected for planting and partial site preparation is used. Tree planting is done on cloudy days or sunny days after rain from December to next March, at a spacing of 2.0 m×2.0 m or 2.0 m×1.5 m. Tending is conducted twice a year in the first 3 years after planting, and once to twice in the 4th year. Thinning from below is conducted twice, with the first time at the age of 8-10 years, and the second at the age of 13-15 years. The variety is not resistant to moisture.

Suitable areas for planting:

Areas suitable for growing Chinese fir in Jiangxi and Guangxi provinces.

2. Euramerican poplar 2012

Species: Poplar

Scientific name: *Populus ×euramericana* ‘Portugal’

Type of material: Domesticated exotic variety

Category of certification: Certified

Registration No.: Guo S-ETS-PE-002-2020

Applicants: Research Institute of Forestry, Chinese Academy of Forestry

Breeders: Li Jinhua, Hu Jianjun, Lu Mengzhu, Lu Lu, Wang Lei, Meng Xianwei, An Jinming, Jia Suping, Li Zhenjiang, Guo Donghuan, Tang Guoliang, Li Gang, Wang Ling, Liu Zhenting, Wu Lijuan, Liu Xirong, Zhang Qiwen

Characteristics:

The variety was introduced from Italian Poplar Institute in 1994. Trees are female, with straight and round trunk and narrow ovate crown. The survival rate of cutting propagated plants is over 90%. The wood of its 6-year-old trees has the fiber length 1080 μm , the length/width ratio 24.4, the content of holocellulose 83.97%, and the 1% NaOH extract 21.66%, the basic density 0.328 g/cm^3 , air-dry density 0.393 g/cm^3 , compression strength parallel to grain 35.4 MPa, end face strength 3517.4 N, chord surface strength 1983.34 N, diameter surface strength 2118.76 N, and bending strength 66.45 MPa.

Main use:

It can be used for timber production.

Silvicultural techniques:

Tree planting is mainly done in plain areas with medium soil fertility and depth of effective soil layer ≥ 80 cm. The 1-2 years old cutting propagated stocks are used for planting in spring with a space density of 500-1100 trees per hm^2 . Timely irrigation after afforestation, at least 3 times a year. Fertilization starts from the second year after planting and the application of nitrogen fertilizer generally 50-200 g per tree. Pruning starts from the third year after planting as appropriate. The 1-3 years of growing agriculture crops at harvested sites. It requires certain conditions for irrigation and fertilization, not tolerant to saline-alkali land; Not suitable for afforestation in mountain areas but suitable for that in flat areas.

Suitable areas for planting:

Areas suitable for growing poplar in Hebei and Shandong provinces.

3. Jiaohong 1

Species: *Magnolia wufengensis*

Scientific name: *Magnolia wufengensis* 'Jiaohong 1'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-MW-003-2020

Applicants: Beijing Forestry University

Breeders: Ma Lvyi, Sang Ziyang, Zhu Zhonglong, Chen Faju, Jia Zhongkui, Duan Jie, Liu Xin, Wang Luorong, Zhao Hangwen, Ma Zhiyi, Ding Xiangyang

Characteristics:

Deciduous tree, with a height up to 15-20 m, hysteranthous. Flowers are fragrant, solitary and erect at branch tips. Most flowers have 9, occasionally 10 or 11 tepals. All tepals are petal-like, both inside and outside are red. The outer side color is 53B or 54A and the inner side is 52A or 54B of the Red Group of RHS Color Chart 2015 edition. The flowering period in Yichang of Hubei Province, Beijing, Dali of Yunnan Province, and Nanyang of Henan Province is March 6-27, March 9-27, December 21-February 23 of the next year, and March 6-29, respectively.

Main use:

It is used for gardening and landscaping.

Silvicultural techniques:

Early spring and late autumn are the best times for planting. Suitable for planting in deep and fertile sandy loam, or acid or weakly alkaline soils rich in organic matter, with a spacing of 2.0 m×3.0 m or 3.0 m×3.0 m. Water logging of root system must be strictly avoided. Therefore, a good drainage system is necessary, and ridge planting is the best in flat areas. 1-2 years of rejuvenation period is required after transplanting. However, breeding roots-control containerized seedlings can overcome the limitation, and the planting season can be adjusted in the meantime.

Suitable areas for planting:

Areas suitable for growing magnolias in Beijing, Hubei, Yunnan and Henan provinces.

4. Jiaohong 2

Species: *Magnolia wufengensis*

Scientific name: *Magnolia wufengensis* 'Jiaohong 2'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-MW-004-2020

Applicants: Beijing Forestry University

Breeders: Ma Lvyi, Jia Zhongkui, Zhu Zhonglong, Chen Faju, Sang Ziyang, Duan Jie, Wang Luorong, Zhao Hangwen, Ma Zhiyi, Ding Xiangyang

Characteristics:

Deciduous tree, with a height up to 15-20 m, hysteranthous. Flowers are fragrant, solitary and erect at branch tips. Most flowers have 12, occasionally 13 or 14 tepals. All tepals are petal-like, with red color on the outside and pink on the inside. The outer side color is 54A and the inner side is 54C of the Red Group of RHS Color Chart 2015 edition. The flowering period in Yichang of Hubei Province, Beijing, Dali of Yunnan Province, and Nanyang of Henan Province is March 8-29, March 11-25, December 23-February 23 of the next year, and March 10-29, respectively.

Main use:

It is used for gardening and landscaping.

Silvicultural techniques:

Early spring and late autumn are the best times for planting. Suitable for planting in deep and fertile sandy loam, or acid or weakly alkaline soils rich in organic matter, with a spacing of 2.0 m×3.0 m or 3.0 m×3.0 m. Water logging of root system must be strictly avoided. Therefore, a good drainage system is necessary, and ridge planting is the best in flat areas. 1-2 years of rejuvenation period is required after transplanting. However, breeding roots-control containerized seedlings can overcome the limitation, and the planting season can be adjusted in the meantime.

Suitable areas for planting:

Areas suitable for growing magnolias in Beijing, Hubei, Yunnan and Henan provinces.

5. SC1 dwarfed apple root-stock

Species: Apple

Scientific name: *Malus honanensis* 'SC1'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-MH-005-2020

Applicants: Shanxi Agricultural University (Modern Agriculture Research Center, Shanxi Academy of Agricultural Sciences)

Breeders: Niu Zimian, Yu Lu, Zhao Guilan, Lin Lu, Wang Hongning, Li Quan, Lian Guowu, Yang Yong, Li Zhiqiang, Zhang Suxia, Li Hongyan, Wang Jianxin

Characteristics:

SC1 is naturally pollinated hybrid offspring of SH3 with unknown male parent. Mature trees are 3.0-3.5 m in height. It is grafted with the main variety series of Fuji and Gala, and the graft interface is smooth, without mismatch of growth between stock and scion. In Shanxi Province, the grafted Changfu 2 has an average yield of 3178-3504 kg per mu during the peak production period at 5-8 years of age, 12.6%-15.4% higher than that of the SH root-stocks. The averaged soluble solids content in fruit is 16.2 %-16.8 %, and the flesh hardness is 9.13-9.30 kg/cm². Grafted Fuji variety can grow normally under the lowest temperature of -25 °C in winter without obvious freezing damage. Meanwhile, it can bear fruits normally in the semi-arid areas with an annual rainfall of about 500 mm.

Main use:

It is used as a root-stock variety.

Silvicultural techniques:

For orchards in semi-arid hilly areas, the planting spacing is 2.0 m×4.0 m and tree form was kept in spindle shape, 15-20 boughs are retained for each mature tree with a regeneration cycle of 8-10 years. Natural grass or artificial grass is used to fertilize the soil, adjust the soil pH value, and reduce soil erosion. For orchards in sufficiently irrigation and fertilization flat areas, the planting spacing is 1.5 m×4.0 m and tree form was kept in slender spindle shape, 25-30 large fruiting branches are retained for each mature tree with a regeneration cycle of 5-8 years. The average

number of retained fruits per per 666.7 m² is 10500-12000 and fruit thinning is done before mid-May.

Suitable areas for planting:

Suitable areas for apple cultivation in Shanxi, Hebei and Henan provinces, with an annual average temperature of 8.5 °C-13 °C, the lowest temperature in winter of above -25 °C, a soil pH value of 6.5-8.0, and a frost-free period of more than 160 days.

6. Picual

Species: Olive

Scientific name: *Olea europaea* 'Picual'

Type of material: Domesticated exotic variety

Category of certification: Certified

Registration No.: Guo S-ETS-OE-006-2020

Applicants: Yunnan Academy of Forestry and Grassland

Breeders: Ning Delu, Jiang Chengying, Zhang Yanli, Li Yongjie, Deng Xianzhen, Wu Wenjun, Ma Ting, Zhao Haiyun, Geng Shuxiang, Chen Haiyun, Zhao Mengjiong

Characteristics:

It was introduced from Spain in 1979 by the Ministry of Forestry of China. The tree has a compact canopy and racemose inflorescences. The fruit is oblong and asymmetrical, with a beak at the top of the fruit. It begins to bear fruit 3 years after field planting, and enter full productive period 8 years after planting. During full productive age, the average yield is up to 596.5 kg fresh fruit per 666.7 m². The oil content of the fresh fruit is 23.06%. The fatty acids were composed of 1.5% palmitoleic acid, 13.8% palmitic acid, 2.2% stearic acid, 75.5% oleic acid, 5.6% linoleic acid and 0.6% linolenic acid.

Main use:

It is used as oil varietise, its fresh fruit is used to extract olive oil.

Silvicultural techniques:

Suitable sites to grow the trees are land with sufficient sun light, soil depth of more than 80 cm, loose soil texture, good drainage and permeability, loam with pH 6.5-8.5. Tree planting is done in autumn or early spring using cutting propagated stocks with the planting space of 4.0 m×5.0 m. Big planting holes (no less than 80 cm) should be prepared and each plant is applied with 50-80 kg organic fertilizer. The planting holes are enlarged once a year after fruit harvesting in autumn and winter, with the depth of 30-40 cm and the width of 30-40 cm. The best tree shape is the open heart shape with three main branches. Pest and disease management should be paid sufficient attention on.

Suitable areas for planting:

Suitable cultivation areas of olive are Yunnan, Gansu and Hubei with soil pH value of 6.5-8.5.

7. Coratina

Species: Olive

Scientific name: *Olea europaea* 'Coratina'

Type of material: Domesticated exotic variety

Category of certification: Certified

Registration No.: Guo S-ETS-OE-007-2020

Applicants: Gansu Provincial Academy of Forestry

Breeders: Jiang Chengying, Wu Wenjun, Ning Delu, Zhao Haiyun, Jiang Dezhi, Li Yongjie, Chen Haiyun, Zhao Mengjiong, Yan Zhongping, Ma Ting, Zhang Yanli, Chen Weiqing, Qi Jianli, Li Na

Characteristics:

It was introduced from Italy in 1979 by the Ministry of Forestry of China. The tree is of moderate growth vigor with a rounded crown. The fruit is ovoid or elliptic, asymmetrical. It begins to bear fruit and enter peak period respectively 3 and 8 years after planting. During the peak period, the average yield of fresh fruits is up to 669.7 kg per 666.7 m². The oil content of the fresh fruit is 23.11%. The fatty acids are mainly composed of 75.5%-77.8% oleic acid, 4.9%-6.4% linoleic acid, 0.7%-0.9% linolenic acid, 12.7%-13.1% palmitic acid, 1.6%-1.8% palmitoenoic acid, 1.5%-1.9% stearic acid, 0.3% arachidic acid.

Main use:

It is used as oil plant varietise, its fresh fruit is used to extract olive oil.

Silvicultural techniques:

Suitable sites to plant the trees are land with sufficient sun light, soil depth of more than 80 cm, loose soil texture, good drainage and permeability, and the pH of loam is 6.5-8.5. Tree planting is done in autumn or early spring with cutting propagated stocks with a spacing of 4.0 m×5.0 m. Large planting holes (no less than 80 cm) are prepared and each is applied with 20-50 kg organic fertilizer. Ridging can be used in areas with heavy rainfall, or clay soil or high groundwater level. The planting holes are enlarged once a year, the depth of which was 30-40 cm, and the width of furrow was 30-40 cm. after fruit harvesting in autumn and winter. Fertilizers applied before fruiting. The best tree shape is the open heart shape with three main branches. And we should pay attention to the prevention and control of diseases and insect pests.

Suitable areas for planting:

Suitable cultivation areas of olive are Yunnan, Gansu and Hubei with soil pH value of 6.5-8.5.

8. Jingcang 8

Species: Jujube

Scientific name: *Ziziphus jujuba* 'Jingcang 8'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-ZJ-008-2020

Applicants: Beijing Forestry University

Breeders: Pang Xiaoming, Cao Ming, Zhang Qiong, Fan Dingyu, Wang Zhongtang, Wang Qilong, Li Guosong, Wang Jigui, Bo Wenhao, Yan Jifeng, Hao Qing, Zhou Guangfang, Li Yingyue, Zhang Jubing, Kong Decang, Huang Tao, Wang Gang, Liu Shunyi

Characteristics:

It was developed from a bud mutation found in an orchard in Cangxian County, Hebei Province. Fruit is red and round with a flat shoulder, concave top and the fruit surface is shiny and smooth. The average weight of single fruit is 29.8 g and the soluble solid content was 30.8% and VC content 266 mg/100 g. The fruit crisply matures in late September. The maturity period of 'Jingcang 8' is about 7 days earlier than that of Dongzao. From 2016 to 2019, the average yield of trees grafted in 2012 in Cangxian County were 415.8 kg, 590.7 kg, 680.5 kg and 700.3 kg per 666.7 m², respectively.

Main use:

Fresh fruit.

Silvicultural techniques:

The suitable planting spacing is 2.0 m×3.0 m or 3.0 m×4.0 m. Trees are pruned to open-center shape or spindle shape. Pinching shoot apex and debudding are carried out in summer pruning. 10 mg/L gibberellin plus 0.03% borax could be sprayed and appropriate girdling can be applied at the beginning of full blooming to promote growth and fruit set. Base fertilizer comprised mainly of organic fertilizer is applied in the early spring, while additional fertilizer could be timely applied in spring, summer and autumn. Watering could be applied when spreading fertilization. Careful and timely management is adopted to control green mired bug, peach fruit moth, *Dasineura datifolia*, red spider, jujube rust and other pest and diseases. Pay attention to the prevention of possible freezing injury in winter and early spring.

Suitable areas for planting:

The cultivation areas suitable for *Ziziphus jujuba* in Hebei, Shandong, Xinjiang.

9. Hongyanwuhe

Species: Grape

Scientific name: *Vitis vinifera* 'Hongyanwuhe'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-VV-009-2020

Applicants: Zhengzhou Fruit Research Institute, Chinese Academy of Agricultural Sciences

Breeders: Liu Chonghuai, Fan Xiucui, Zhang Ying, Jiang Jianfu, Li Min, Zhang Ying, Gong Linzhong, Yang Shunlin, Sun Lei, Sun Haisheng, Gu Hong, Han Jiayu, Liu Bin, Cao Xiongjun, Wei Zhifeng, Li Daochun, Sun Xianhuai, Tian Ye, Zheng Xianbo, Ye Xia, Qiao Baoying

Characteristics:

Medium and early ripening variety selected from the progeny of 'Red Globe' × 'Centennial seedless'. The bunch shape is conical, with auxiliary panicles, the average length of the bunch is 29.8 cm, the width of the bunch is 17.8 cm, the average weight of the bunch is 1200 g. Berry elliptic, purplish red, average weight of single berry 4.0 g, the fruits ripen uniformly, with medium density. The pulp is crisp and seedless, with little juice and fresh scent. The soluble solid content is 17.3%-26.0%. In Zhengzhou, Henan Province, the fruit starts to ripen in the mid July, and fully ripen in the early August. The plant begins to bear fruits from the second year after planting and peaks in the third year. The average yield can reach 1500 kg per 666.7 m².

Main use:

It can be used for fresh fruit production..

Silvicultural techniques:

A spacing of 1.5 m×2.5-3.0 m is used for cultivation in forms of double cross, single stem horizontal tree, and a spacing of 1.0 m×3.5-4.0 m for cultivation in trellises, dragon trunk form. Winter pruning is done in January to about 20 days before exudation to remove medium to short shoots. Summer pruning is done to remove unnecessary extra shoots as early as possible. Basal fertilizers is done from the later September to the early October. Four times of topdressing, applying compound fertilizer of N, P and K at germination stage and young fruit expansion stage respectively. At least 3 times of irrigation should be carried out in winter, respectively after defoliation, before soil freezing and after soil defreezing.

Suitable areas for planting:

Areas suitable for growing grape in Henan, Yunnan and Guangxi provinces.

10. Jingxiangyu

Species: Grape

Scientific name: *Vitis vinifera* 'Jingxiangyu'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-VV-010-2020

Applicants: Institute of Botany, Chinese Academy of Sciences

Breeders: Li Shaohua, Fan Peige, Liang Zhenchang, Wang Lijun, Duan Wei, Yang Meirong, Wu Benhong, Zhang Yuyu, Ren Chong, Wang Yi.

Characteristics:

'Jingxiangyu' is an early- ripening table cultivar derived from 'Jingxiu' × 'Xiangfei'. It is easily to produce uniform clusters with moderate compactness with an average cluster weight of 463.2 g, single berry weight of 8.2 g. It has large yellow-green berries with crisp flesh and distinct muscat flavor with 15.6%- 16.8% soluble solid content, 0.54% titratable acid content. In Beijing area, it has less than 120 days between budburst and harvest, and ripen in early August. The variety has high-yield ability with high lateral fruitfulness. Plants start to bear fruits in the second year after planting. Plants yield is best controlled about at 1500 kg per 666.7 m² from the third year after

planting.

Main use:

For table grape production.

Silvicultural techniques:

The variety requires large inputs of fertilizer (organic matter >45%) to ensure a desirable yield, while the crop load must be controlled about 1000-1500 kg per 666.7 m². Bunch thinning is required followed fruit setting, and fruit bagging is recommended right after. Sufficient light exposure of bunch zone before harvest (>10 days) can enhance its overall aroma profile. Disease and pest control is essential throughout the growing season.

Suitable areas for planting:

Suitable for open field, greenhouse and rain shelter cultivation in Beijing, Hebei, Henan.

11. Jingyan

Species: Grape

Scientific name: *Vitis vinifera* 'Jingyan'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-VV-011-2020

Applicants: Institute of Botany, Chinese Academy of Sciences

Breeders: Li Shaohua, Fan Peige, Liang Zhenchang, Wang Lijun, Duan Wei, Yang Meirong, Wu Benhong, Zhang Yuyu, Ren Chong, Wang Yi.

Characteristics:

'Jingyan' is an early- ripening table cultivar derived from 'Jingxiu' × 'Xiangfei'. The clusters have good uniformity and moderate compactness with an average weight of 391.2 g and an average single berry weight of 7.0 g. Berries are rosy or purplish red when ripen with crisp flesh and muscat flavor. Most berries have 3 seeds, with 16.9% soluble solid and 0.49% total acid content. It takes less than 110 days between budburst and harvest, and ripen in late July to early August in Beijing. It has ability to produce fruit by 200 kg per 666.7 m² in the second year after planting. The yield is best controlled about at 1500 kg per 666.7 m² from the third year of planting.

Main use:

For table grape production.

Silvicultural techniques:

The variety requires large inputs of fertilizer (organic matter >45%) to ensure a desirable yield, while the crop load must be controlled about 1500 kg per 666.7 m². Bunch thinning is required followed fruit setting, and fruit bagging is recommended right after. Disease and pest control is essential throughout the growing season.

Suitable areas for planting:

Suitable for open field, greenhouse and rain shelter cultivation in Beijing, Hebei, Henan.

12. Huazhong 20

Species: *Eucommia ulmoides*

Scientific name: *Eucommia ulmoides* ‘Huazhong 20’

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-EU-012-2020

Applicants: Non-timber Forestry Research and Development Center, Chinese Academy of Forestry

Breeders: Du Qingxin, Liu Panfeng, Du Lanying, Wang Lu, Du Hongyan, Sun Zhiqiang, Yue Hui, Wang Yungang, Zhang Hairang, Zhu Jingle, Liu Mengpei, Zhu Lili, Qing Jun, He Feng

Characteristics:

The fruit is scimitar shaped, 3.47-4.01 cm in length, 1.01-1.20 cm in width. In Henan province, the average 1000-fruit weight is 79.8 g. The crude fat content of seed kernel is 36%-42%, of which the content of linolenic acid is 59%-64%. The florescence is 7-10 days later than common *Eucommia ulmoides*, and the fruit ripens from mid-September to early October. Grafted seedlings start flowering 2-3 years after planting, and enter full bearing period in 4-6 years, with an annual production of 170-230 kg per 666.7 m².

Main use:

It is used as oil plant varietise, its fresh fruit is used to extract linolenic acid oil.

Silvicultural techniques:

The suitable pollination varieties are ‘Huazhong 5’, ‘Huazhong 11’ and ‘Huazhong 22’ with a proportion of 3%-5%. The normal planting density is 4.0 m×5.0 m to 2.0 m×3.0 m. For large-scale mechanized cultivation, combined wide (5.0-6.0m) and narrow (2.0-3.0m) rows can be used with a tree-tree distance of 3 m. Suitable tree forms are natural open-heart, two layers of sparse open-heart and natural fusiform. Girdling or ring debarking is conducted from late May to early August. Intensive soil management is needed, N : P₂O₅ : K₂O =1.00 : 1.20 : 0.55 is kept in the special NPK compound fertilizer for orchards.

Suitable areas for planting:

Areas suitable for growing *Eucommia ulmoides* are in Henan and Shandong provinces.

13. Huazhong 21

Species: *Eucommia ulmoides*

Scientific name: *Eucommia ulmoides* ‘Huazhong 21’

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-EU-013-2020

Applicants: Non-timber Forestry Research and Development Center, Chinese Academy of Forestry

Breeders: Liu Panfeng, Du Qingxin, Du Hongyan, Du Lanying, Wang Lu, Sun Zhiqiang, Yue Hui, Zhang Hairang, Wang Yungang, Zhang Ji, Chen Bo, Liu Mengpei, Zhu Lili, Qing Jun, He Feng

Characteristics:

Strong sprouting and heavy branching. Hysteranthous, dense male flowers. Grafted seedlings start flowering 2-3 years after planting and enter flowering period in 4-5 years. Male flowers are 2.11-2.62 cm in diameter, 1.98-2.25 cm in height, and stamen 0.95-1.18 cm in length, 109-125 stamens in single bud. During peak flowering, the production of fresh male flower is 220-350 kg per 666.7 m². Male flower yield up to 3.55 kg per tree in the 8th year after establishment, and the amino acid content of male flower is 18.5%.

Main use:

It can be used to establish male flower tea garden.

Silvicultural techniques:

For establishment of male flower tea garden, the planting density is 2.0 m×3.0 m to 2.0 m×4.0 m. Flower branches are pruned in combination with flower harvesting in spring, retaining 3-8 buds on the flowering branches. From May to June, girdling or ring debarking is conducted with 0.3-1.0 cm wide at the base of 1-year-old branches, retaining a 0.2-0.5 cm wide nutrient zone. Gradually cut short the flowering branches for each 3-5 years.

Suitable areas for planting:

Areas suitable for growing *Eucommia ulmoides* are in Henan and Shandong provinces.

14. Zhongningqiang

Species: Walnut

Scientific name: *Juglans major*×*J. regia* ‘Zhongningqiang’

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-JM-014-2020

Applicants: Research Institute of Forestry, Chinese Academy of Forestry

Breeders: Pei Dong, Zhang Junpei, Song Xiaobo, Xu Huzhi, Xu Yongjie, Han Chuanming, Feng Binkui, Zhu Shengxiang, Xi Shengke, Wang Zhanxia, Zhang Jianwu

Characteristics:

Selected from the offsprings of the distant hybridization of *Juglans major* × *Juglans regia*. The trunk is straight and the growth is vigorous. The average height of the 6-year-old tree is 10.6 m, and the average DBH is 11.65 cm, which is 33.60% higher than that of the control seedling walnut. The cutting rooting rate is more than 95%. The survival rate of branch grafting on 7 species including *Juglans major*, *Juglans sigillata*, and *Juglans nigra* reached more than 90%, while the

survival rate of bud grafting reached 95%. The growth of new shoots of 'Liaoning No. 1' increased by 24% when grafted on 'Zhongningqiang'. Compared with the *Juglans regia* root, the average yield per 666.7 m² in the full-bearing period increased by 21.4%. Air-dry density 0.687 g/m³; Total dry density 0.646 g/m³; Bending strength 105.5 MPa; Hardness (diameter surface) 5690 N.

Main use:

It can be used as rootstock variety or timber trees.

Silvicultural techniques:

The suitable density for orchard-type cultivation is 4.0 m×6.0 m. The tree shape is scattered and layered, and the height of stem is 80-100 cm. For cultivation aimed at both fruit and wood, the height of stem is 2.0-4.0 m, thus the timber can be used. Trees should be planted in spring, and the cultivation of backbone branches in the young trees should be strengthened, with attention paid to making the remaining branches spread and stretched after trunk heading; and to the retraction strength and the control of back branches in the full-bearing period in order to maintain a moderate vigor. Strengthen the management of soil, fertilizer and water in the field. Trunk whitening and deep soil plowing are conducted in winter for pest and disease control. When used for timber production, cares are taken for stem form in the early stage.

uitable areas for planting:

Henan, Shandong, Hubei and Shaanxi province.

15. Zhongshi 4

Species: *Xanthoceras sorbifolium*

Scientific name: *Xanthoceras sorbifolium* 'Zhongshi 4'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-XS-015-2020

Applicants: Institute of Forestry, Chinese Academy of Forestry

Breeders: Wang Libing, Cui Deshi, Bi Quanxin, Yu Haiyan, Cui Tianpeng, Wang Tao, Shi Changchun, Shang Zhonghai, Zhang Yujun, Li Yingchao, Liu Xiaojuan, Wu Jian, Zhang Mingjun, Feng Changhong, Li Fangxia, Fan Chunhui, Shi Youzhuang, Jiang Hao, Wang Haitao

Characteristics:

Strong growth vigor, dense branches, female flowers account for more than 60% of the total. Black brown seed with an average weight of 1.5 g/seed, 65.65% oil content of seed kernel, 91.67% unsaturated fatty acid, and 3.5 % nervonic acid. In Liaoning Province, grafted trees planted in 2013 produced an average yield of 74.5kg/mu during the 5 successive years from 2015 to 2019, which was 1.48 times higher than that of the control.

Main use:

It is used as oil species.

Silvicultural techniques:

Orchard should be located in the mountains, hills and sandy land with loess as the parent materials. Low and wetland with poor drainage, heavy saline soil and stony mountains are not suitable. Trees are planted at a spacing of 2.0 m×4.0 m or 3.0 m×4.0 m. Pollen trees from seedlings deployed or artificial pollination conducted with collected pollen. Base fertilizers applied after fruit collection mainly organic fertilizers. Topdressing of nitrogen fertilizer conducted with supplements of phosphorus and potassium fertilizers before July and of potassium fertilizer after July. Pay attention to drainage in the rainy season to prevent root rot caused by water-logging. Pruning is done for fruit setting in a rotational way. Pay attention to pest control of aphid, whitefly and disease control of coal stain.

Suitable areas for planting:

Suitable for mountains, hills and sandy lands with loess as parent materials in provinces of Liaoning, Inner Mongolia, Henan, Shaanxi.

16. Zhongshi 9

Species: *Xanthoceras sorbifolium*

Scientific name: *Xanthoceras sorbifolium* ‘Zhongshi 9’

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-XS-016-2020

Applicants: Institute of Forestry, Chinese Academy of Forestry

Breeders: Wang Libing, Cui Deshi, Bi Quanxin, Yu Haiyan, Cui Tianpeng, Wang Tao, Shi Changchun, Shang Zhonghai, Zhang Yujun, Li Yingchao, Liu Xiaojuan, Wu Jian, Zhang Mingjun, Feng Changhong, Li Fangxia, Fan Chunhui, Shi Youzhuang, Jiang Hao, Wang Haitao

Characteristics:

Strong growth vigor, dense branches, female flowers account for more than 60% of the total. Black brown seed with an average weight of 1.8 g/seed, 66.06% oil content of seed kernel (1.68% higher than that of the normal trees), 90.9% unsaturated fatty acid. In Liaoning Province, grafted trees planted in 2013 produced an average yield of 78.3 kg/mu during the 5 successive years from 2015 to 2019, which was 1.6 times higher than that of the control.

Main use:

It can be used as oil species.

Silvicultural techniques:

Orchard should be located in the mountains, hills and sandy land with loess as the parent materials. Low and wet land with poor drainage, heavy saline soil and stony mountains are not suitable. Trees are planted at a spacing of 2.0 m×4.0 m or 3.0 m×4.0 m. Pollen trees from seedlings deployed or artificial pollination conducted with collected pollen. Base fertilizers applied after fruit collection mainly organic fertilizers. Topdressing of nitrogen fertilizer conducted with supplements of phosphorus and potassium fertilizers before July and of potassium fertilizer after

July. Pay attention to drainage in rainy season to prevent root rot caused by water-logging. Pruning is done for fruit setting in a rotational way. Pay attention to pest control of aphid, whitefly and disease control of coal stain.

Suitable areas for planting:

Suitable for mountains, hills and sandy lands with loess as parent materials in provinces of Liaoning, Inner Mongolia, Henan, Shaanxi.

17. Sangzi 1

Species: Mulberry

Scientific name: *Morus abla* ‘Sangzi 1’

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-MA-017-2020

Applicants: Sericulture Research Institute, Anhui Academy of Agricultural Sciences

Breeders: Deng Yongjin, Ren Jie, Liu Jian, Li Bing, Zhang Fuyou, Yang Lu, Liu Heyang, Wang Zhaohui, Han Zhihong, Wang Jingjing, Huo Kaijun, Chen Yanying, Zhang Shoufu, Pan Tingdang, Ma Shixian, Liu Bin, Wang Rui

Characteristics:

Radiation with ion beam was conducted for mutation induction since 2009, and a mutant tree was selected in 2012. 8-year-old grafted trees in Anhui Province are 1.5 m high. The mulberry fruit is uniform, purple-brown, with a length of 2-4 cm, single fruit weight of 3-5 g, extremely short stalk, seedless, sour taste, juice yield 74.8%, anthocyanin content 0.80 g/100 g. Trees bear fruits in spring and summer respectively, with the largest yield in spring, and a summer yield of about 15% of the spring yield. The annual fruit yield is 3000 kg/mu. The mulberry fruit begins to ripen in early May, peaks in mid-to-late May, and ends in early June. The time for fruit collection is one month, and the fruits are easy to fall to the ground.

Main use:

It can be used as freshly served fruit or processed for juice.

Silvicultural techniques:

Sites with loose textured, deep soil and good drainage selected for growing the trees, with application of sufficient fully decomposed manure as base fertilizer and a spacing of 2.0 m×3.0 m. After germination in early and mid March every year, thiophanate-methyl, boscalid and other agents are sprayed for disease control. Pruning intensified after the fruiting period ends in early June, and the tree form maintained in a shape of hollow and outer-side heart with a three-level structure of main trunk, main branch and fruiting branch. It needs ventilation, light transmission and timely removal of diseased fruits. Ground cover can be used to reduce the occurrence of soil-borne sclerotinia disease.

Suitable areas for planting:

Areas suitable for growing mulberry in Anhui, Xinjiang and Henan provinces.

18. Cuiyu

Species: Pear

Scientific name: *Pyrus pyrifolia* 'Cuiyu'

Type of material: Variety

Category of certification: Certified

Registration No.: Guo S-SV-PP-018-2020

Applicants: Zhejiang Academy of Agricultural Sciences

Breeders: Shi Zebin, Dai Meisong, Sun Tianlin, Wang Yuezhi, Hu Zhengling, Wang Jine, Wu Shunfa

Characteristics:

'Cuiyu' is an early maturing cultivar originated from the cross between 'Xizilv' and 'Cuiguan'. Fruit is oblate or globose in shape, with light green skin color and minimum-size fruit spots, and basically no russeting. The average fruit weight is 257 g, with the soluble solid content of 10.5%-12.0%, the Vc content of 4.3 mg/100 g, the total soluble sugar content of 6.6 %, and the total acid content of 0.8 g/kg. Fruit ripens in mid-July at Hangzhou area, Zhejiang Province, which is about 10 days earlier than 'Cuiguan'. The fruit storage period is more than 5 days longer than that of 'Cuiguan' at room temperature.

Main use:

It can be used as freshly served fruit.

Silvicultural techniques:

Trees are planted with an initial spacing of 2.0 m×4.0 m or 2.0 m×3.0 m, and gradually thinned as necessary to a spacing of 4.0 m×4.0 m or 4.0 m×3.0 m according to the canopy size, respectively. A proportion of 25%-30% cultivars with different self-incompatible genes are used as pollen trees, such as 'Cuiguan', 'Yuguan'. Due to fruit expands rapidly in the early stage, earlier fruit-thinning and timely fruit-bagging are needed. The main pruning methods are open-center and horizontal-trellis training system.

Suitable areas for planting:

Areas suitable for growing pear trees in Zhejiang and Fujian provinces.

Pre-certified varieties

1. Zhangwu

Species: Japanese red pine

Scientific name: *Pinus densiflora* 'zhangwu'

Type of material: Clone

Category of certification: Pre-certified for 5 years (2021.3.31-2026.3.30)

Registration No.: Guo R-SC-PD-001-2020

Applicants: Liaoning Research Institute of Sandy land control and Utilization

Breeders: Zhang Xueli, Zhang Shujie, Lei Zeyong, You Guochun, Bai Xuefeng, Yuan Chunliang, Liu Shuling, Liu Yaping, Wang Man, Zhou Fengyan, Zhang Baixi, Wu Zhiyan, Bao Hasengaowa, Fan Dongdong, Wang Hao, Cheng Ruichun, Wu Zhiping, Lu Xin, Jiang Peng, Zhang Xiaowei, Huang Ping, Wang Sitong

Characteristics:

Natural hybrid of Japanese red pine, with grayish black bark cracked in scales. 25-year-old trees have an average height of 7.96 m, an average DBH of 16.76 cm, and an average volume of 0.094 m³, increasing respectively by 11.8%, 43.86% and 100.0% compared with *Pinus sylvestris* var. *Mongolica* as the control. The moisture content of the wood is 110.5 %, with a bending strength of 42.2 MPa, a bending elastic modulus of 7210 MPa, the impact toughness of 52 KJ/m², and a hardness of end plane, chord plane and diametral plane of 1580 N, 1430 N and 1400 N, respectively.

Main use:

It can be used as shelter trees and timber trees.

Silvicultural techniques:

It is advisable to grow the trees in mixed forest when used as shelter trees or timber trees. Container seedlings used for spring and summer plantings. Site prepared in planting hole in size of 50 cm×50 cm×40 cm, with a spacing of 4.0 m×4.0 m or 3.0 m×4.0 m. According to different afforestation seasons, 1-2 grade grafted seedlings of 1/4, 1.5/4.5, 1/5, 1.5/5.5 seedling age are usually used for afforestation.

Suitable areas for planting:

Areas in Liaoning, Inner Mongolia, Heilongjiang, Shaanxi and Hebei provinces, with annual precipitation ≥ 330 mm, active accumulated temperature (≥ 10.0 °C) ≥ 2600 °C d, extreme temperature -40.0 °C-42.8 °C, and soil pH value of 6.0-8.5.

2. Hongsen

Species: *Robinia pseudoacacia*

Scientific name: *Robinia pseudoacacia* 'Hongsen'

Type of material: Clone

Category of certification: Pre-certified for 3 years (2021.3.31-2024.3.30)

Registration No.: Guo R-SC-RP-002-2020

Applicants: Anhui Provincial Academy of Forestry, Central South University of Forestry and Technology, Anhui Hongsen Hi-Tech Forestry Co., Ltd.

Breeders: Hou Jinbo, Xia Shangguang, Zhang Minglong, Wang Tingchang, Peng Jingjing, Yang Qianqian, Tan Xiaofeng, Xia Shangbin, Yuan Deyi, Su Shouxiang, Yang Hao, Chen Peipei, Shi Guanqi, Li Pengxiang, Liu Zhenhua, Dong Shaogui

Characteristics:

Straight trunk with branching angles of 30 °-40 ° 1-2 year-old trees have short and soft thorns, and 3-year-old and older trees are thornless basically. In Zhumadian, Henan, 5-year-old tree has a height of 12.56 m, a DBH of 13.8 cm, and a volume of 0.064 m³/tree, respectively 27.90%, 31.43%, and 42.22% higher than that of the common *Robinia pseudoacacia* trees. The complete dry wood density is 0.636 g/cm³, and the bending strength is 104.9 MP when the moisture content is 12.7%.

Main use:

It can be used as timber-providing, land-greening.

Silvicultural techniques:

Cutting propagated containerized stocks with a height of above 30 cm are used for planting, no topdressing after planting. Field planting is carried out in spring or autumn using cutting propagated plants with a ground diameter greater than 1.5 cm, topdressing applied at 5.0 cm above the ground after planting. Site preparation in complete, strips or holes for plain and flat areas, Measures such as reverse slope terraces, horizontal steps, horizontal strips or fishscale-like pits taken for low mountains and hilly slopes. Trees planted at a spacing of 3.0 m×4.0 m.

Suitable areas for planting:

Areas suitable for growing *Robinia pseudoacacia* in Hunan, Henan and Shandong provinces.

3. Luohongmei

Species: Apricot

Scientific name: *Prunus armeniaca* ‘Luohongmei’

Type of material: Variety

Category of certification: Pre-certified for 3 years (2021.3.31-2024.3.30)

Registration No.: Guo R-SV-PA-003-2020

Applicants: Luoyang Academy of Agriculture and Forestry Sciences

Breeders: Liang Chen, Liu Dan, Wang Zhijun, Zhao Han, Ding Chenhui, Chen Zhe, Xie Xiaoman, Zhang Jun, Chang Lingbing, Yin Hua, Ma Xiaojie, Wei Suling, Xu Huimin

Characteristics:

The vigor of growth of Luohongmei was middle. The crown is a natural round head shape. The pulp is orange yellow. The average weight of single fruit is 60 g, and the edible rate is higher than 95 %. The soluble solid content, protein content, fat content, amino acid content and VC content was 14.5%, 0.64%, 0.1%, 0.42%, and 8.96 mg/100 g, respectively. The variety blooms from late March to early April in Luoyang, Henan province. The grafted seedlings will bear fruit in 3-4 years after planting, and enter the full production period 6-7 years later, with a yield of up to 1700 kg per 666.7 m². It can be stored for more than 15 days at normal temperature.

Main use:

It can be used for fresh fruit production.

Silvicultural techniques:

No strict requirements on soil, prefer deep soil rich potassium. Sunny and leeward sites with gentle terrain selected for tree planting in late autumn or spring, at a spacing of 3.0 m×4.0 m to 4.0 m×5.0 m. Variety 'Meiguoxingli' with consistent flowering period used as pollen trees with a ratio of 9:1. Large holes prepared at planting, each applied with 30-50 kg of organic fertilizers by mixing with the topsoil and refilling into the holes, followed by stepping on to compact the soil and watering thoroughly. Trunks truncated at about 80 cm above ground, buds removed below 50 cm in height, pruned to open-heart shape.

Suitable areas for planting:

Areas suitable for growing apricot in Henan and Shandong provinces.

4. Wuhecuibao

Species: Grape

Scientific name: *Vitis vinifera* 'Wuhecuibao'

Type of material: Variety

Category of certification: Pre-certified for 3 years (2021.3.31-2024.3.30)

Registration No.: Guo R-SV-VV-004-2020

Applicants: Pomology Institute, Shanxi Agricultural University (Shanxi Academy of Agricultural Sciences)

Breeders: Chen Jun, Tang Xiaoping, Ma Xiaohe, Zhao Qifeng, Dong Zhigang, Wang Shiping, Pan Mingqi, Wang Zhenping, Yang Shunlin, Lei Yan, Li Xiaomei, Tan Min, Yang Rongzhao, Liu Zhenghai, Li Guoqing, Guo Shuping, Feng Shuang, Zhu Binbin, Wang Lei, Niu Jinfeng, Wang Jianping

Characteristics:

Hybrid of 'Guibao' as female parent and 'Centennial seedless' as male parent. Clusters conical, with an average cluster weight of 345 g, Berry fruits obovate, with a maximum berry weight of 5.7 g; the content of soluble solids of 18.2%, the total sugar content of 15.7%, the total acid content of 0.39%, and the sugar to acid ratio of 46:1. Without seed or 1-2 residual seeds, fruits ripen in early August with a peak yield up to 1200 kg/mu, and 105 growing days, 20 days earlier than the male parent 'Centennial seedless' and 40 days earlier than the female parent 'Guibao'.

Main use:

It can be used as freshly served fruit.

Silvicultural techniques:

Relatively strong growth, suitable for cultivation with hedgerow, trellis, and V-shaped frame. The spacing is 2.5 m×1.0 m for the hedgerow cultivation, spacing of trellis and V-frame cultivation is 2.8-3.0 m×1.0 m. Apply 5-8 m³ of decomposed organic fertilizers at transplanting. It is advisable to control the yield within 1000-1500 kg per 666.7 m² for open cultivation and 1500-2000 kg per 666.7 m² for facility cultivation. The optimal thickness of the fruit-bearing branches kept at less than 1 cm.

Suitable areas for planting:

Either Facility cultivation or rain-shelter cultivation or open cultivation is feasible in Ningxia and Shanxi, but facility cultivation and rain-shelter cultivation are required in Yunnan and Shanghai.

5. Yanyuanzao

Species: Walnut

Scientific name: *Juglans regia* ‘Yanyuanzao’

Type of material: Variety

Category of certification: Pre-certified for 5 years (2021.3.31-2026.3.30)

Registration No.: Guo R-SV-JR-005-2020

Applicants: Liangshan Modern Agriculture and Forestry Development Co., Ltd., Sichuan Academy of Forestry, Yanyuan County Forestry and Grassland Bureau

Breeders: Chen Mingsong, Li Pijun, Hu Dinglin, Xing Wenxi, Chen Xianfu, Hu Conglin, Mao Guohui, Luo Chengrong, Wang Zeliang, Wu Ningzi, Zheng Chongwen, Chen Liangfu, Lu Bin, Li Xiuzhen, Feng Dalan, Wu Wanbo, Jin Yingchun, Tang Jiajia, Ma Ming, Wu Zhengtao, Liu Zhongjie

Characteristics:

Moderate growth vigor and open crown. Main fruit branches are short and medium in length, with lateral flowers and fruits. Female and male flower at the same time, flowering in early March, fruits ripen in early August. The yield can reach 220 kg per 666.7 m² after 10 years of grafting in Yanyuan County, Sichuan. The nuts medium to large, with an abdominal diameter of 3.71 cm and a fruit height of 4.27 cm. The average single fruit weight is 17.31g, with a shell thickness of 1.2 mm. The kernel can be taken as a whole, with a kernel rate of 55.64 %. The kernel is full and substantial, with crude fat content of 64.62 %, and the crude protein content of 15.44%.

Main use:

It can be used for fresh fruit or processed for dried fruits.

Silvicultural techniques:

For dense planting suitable spacing is 5.0 m×6.0 m, site preparation done with large planting holes (80 cm×80 cm×60 cm), and base fertilizer applied at 20-30 kg/hole (must be animal manure plus compound fertilizer). “3 refills of soil, 2 times of stepping on, and 1 lifting of plant stocks” are applied at planting, with sufficient watering to fix roots. Trees shaping and pruning conducted when they grow up to 1.2 m high or above to make the trees in 2-3 layers or in natural open-heart form. Following the grafting, attention paid to the processes of sprouts elimination, leaf cutting and protective-film removal. Water and fertilizer management are the same as for other varieties. At altitudes of above 2200 m on shady slope, the fruit is unable to become full.

Suitable areas for planting:

Areas in Sichuan, Yunnan, and Chongqing, with an altitude of 400 m-2200 m, and a sunny slope with deep soils with an altitude of 2200 m-2500 m.

6. Fengyuan 77

Species: Apricot

Scientific name: *Armeniaca vulgaris* 'Fengyuan 77'

Type of material: Variety

Category of certification: Pre-certified for 3 years (2021.3.31-2024.3.30)

Registration No.: Guo R-SV-AV-006-2020

Applicants: Yulin Fengyuan Fruit Industry Technology Co., Ltd.

Breeders: Du Xiyang, Li Qianen, Du Yanping, Du Yanqun, Li Jianhong, Zhang Yining, Du Shaoken, Chen Kanpeng, Guo Xiaocheng, Zhang Chuangxin, Li Jiangtao, Li Yingfei

Characteristics:

Natural hybrid of 'Jintaiyangxing'. Compact tree form with a crown width 70% of that of 'Jintaiyangxing'. The average fruit weight is 70 g, with the soluble solid content of 9.7 %, the total sugar content of 3.55%, and the malic acid content of 1.38%. An experiment of five consecutive years at the experimental site in Huyi District, Xi'an showed that fruits ripen 2 days earlier than 'Jintaiyangxing'. The average fruit yield is 2900 kg per 666.7 m², about 240 kg higher than that of 'Jintaiyangxing'. Fruits ripen 14 days earlier than 'Dayinxing', with a yield of about 1120 kg per 666.7 m² higher.

Main use:

It can be used as freshly served fruit.

Silvicultural techniques:

Pollen trees need to be deployed in a proportion of above 15%. Sites with continuous cropping, low-lying terrain and waterlogging prone are avoided. A spacing of 4.0 m×2.0 m usually for large-scale plantings, and 4.0 m×3.0 m for small area plantings. Tree form is kept semi-circular with a main trunk or a natural open-hearted form. Attention paid to fruit thinning for yield control, disease and pest control.

Suitable areas for planting:

Areas suitable for growing apricot in Shaanxi, Liaoning, Hebei, Gansu and Anhui provinces.

7. Zhengyanwuhe

Species: Grape

Scientific name: *Vitis vinifera*×*V. labrusca* 'Zhengyanwuhe'

Type of material: Variety

Category of certification: Pre-certified for 3 years (2021.3.31-2024.3.30)

Registration No.: Guo R- SV-VV-007-2020

Applicants: Zhengzhou Fruit Research Institute, Chinese Academy of Agricultural Sciences

Breeders: Liu Chonghuai, Fan Xiucui, Zhang Ying, Jiang Jianfu, Li Min, Gong Linzhong, Zhang Ying, Yang Shunlin, Sun Lei, Guo Jingnan, Sun Haisheng, Gu Hong, Liu Sanjun, Wei Zhifeng,

Liu Bin, Han Jiayu, Guo Rongrong, Sun Xianhuai, Li Daochun, Tian Chong, Liu Qishan

Characteristics:

Hybrid of 'Jingxiu' as female parent and 'Bronx seedless' as male parent, with early ripen fruits. Bunch conical, with an average weight of 618.3 g, berry fruits ripen uniformly, with an average weight of 3.1 g; The flesh has a strawberry flavor. Naturally seedless, with the content of soluble solids of 19.9%. Usually starts to bear fruits from second year after planting, with a yield up to 2400 kg per 666.7 m² during the peak period. In Zhengzhou, fruits fully ripen in later July, it takes about 120 days from budding to ripening.

Main use:

It can be used for fresh fruit production.

Silvicultural techniques:

Cultivation with espaliers in a "high, wide and vertical" tree form at suitable spacing of 1.5 m×2.5-3.0 m. Cultivation with trellis in a dragon trunk style at a spacing of 1.0 m×3.5-4.0 m; Cultivation with trellis in T-form at a spacing of 2.0 m×6.0 m. Cultivation with trellis in H-form at a spacing of 4.0 m×6.0 m. Winter pruning usually carried out from about a month after defoliation to about 20 days before budding next year. Strong tendrines retained long and weak tendrines retained short. Front part of the trellis kept long and lower part kept short. Summer trimming conducted to remove unnecessary new shoots as early as possible. Each fruiting branch retains one well-developed inflorescence, Appropriate berry thinning conducted after the anthesis. Base fertilizers applied from late September to early October. Topdressing of quickly-available nitrogen fertilizer usual applied, about 10 days before the anthesis.

Suitable areas for planting:

Areas suitable for growing grape vines in Henan, Yunnan and Guangxi provinces.

8. Huazhong 19

Species: *Eucommia ulmoides*

Scientific name: *Eucommia ulmoides* 'Huazhong 19'

Type of material: Variety

Category of certification: Pre-certified for 3 years (2021.3.31-2024.3.30)

Registration No.: Guo R-SV-EU-008-2020

Applicants: Non-timber Forestry Research and Development Center, Chinese Academy of Forestry

Breeders: Wang Lu, Du Lanying, Liu Panfeng, Du Hongyan, Du Qingxin, Sun Zhiqiang, Yue Hui, Zhang Hairang, Wang Yungang, Zhang Ji, Chen Bo, Liu Mengpei, Zhu Lili, Qing Jun, He Feng

Characteristics:

Strong sprouting and moderate branching. In Henan Province, the 1000-seed weight of ripen fruits is 80.4 g. The content of crude fat in seed kernel is 35%-40%, of which the content of α-linolenic acid is 60%-65%; Fruits ripen from mid-September to early October. Grafted seedlings start

flowering 2-3 years after planting and enter full bearing period in 4-6 years, with an annual yield of 160-210 kg per 666.7 m².

Main use:

It is used as oil plant varietise, its fresh fruit is used to extract linolenic acid oil.

Silvicultural techniques:

The suitable pollination varieties are 'Huazhong 5', 'Huazhong 11' and 'Huazhong 22' with a proportion of 3%-5%. Planting density is usually 4.0 m×5.0 m to 2.0 m×3.0 m, with 33-110 trees per 666.7 m². Large-scale mechanized orchards can be established in wide and narrow rows with 5.0-6.0 m for the wide and 2.0-3.0 m for the narrow, and a tree to tree distance of 3 m, i.e. 50-64 trees per 666.7 m². Suitable tree forms are natural open-hearted form, two layers of sparse open-hearted form and natural fusiform. Girdling or ring debarking conducted from late May to early August. Soil management intensified by applying compound NPK fertilizers special for orchard, with N : P₂O₅ : K₂O = 1.00 : 1.20 : 0.55.

Suitable areas for planting:

Areas suitable for growing *Eucommia ulmoides* are in Henan and Shandong provinces.

9、Huazhong 26

Species: *Eucommia ulmoides*

Scientific name: *Eucommia ulmoides* 'Huazhong 26'

Type of material: Variety

Category of certification: Pre-certified for 5 years (2021.3.31-2026.3.30)

Registration No.: Guo R-SV-EU-009-2020

Applicants: Non-timber Forestry Research and Development Center, Chinese Academy of Forestry

Breeders: Du Hongyan, Wang Lu, Du Lanying, Du Qingxin, Liu Panfeng, Sun Zhiqiang, Yue Hui, Wang Yungang, Zhang Hairang, Zhu Jingle, Liu Mengpei, Zhu Lili, Qing Jun, He Feng

Characteristics:

Strong sprouting and moderate branching. In Henan Province, the 1000-seed weight of ripen fruits is 90.5 g. The content of gutta-percha in the pericarp is 15%-18%, the content of crude fat in seed kernel is 28%-32%, of which the content of α-linolenic acid is 59%-63%. Fruits ripen from mid-September to early October. Grafted seedlings start flowering 2-3 years after planting, and enter full bearing period in 4-6 years, with an annual yield of 170-220 kg per 666.7 m².

Main use:

It is used as oil plant varietise, its fresh fruit is used to extract linolenic acid oil.

Silvicultural techniques:

The suitable pollination varieties are 'Huazhong 5', 'Huazhong 11' and 'Huazhong 22' with a proportion of 3%-5%. Planting density is usually 4.0 m×5.0 m to 2.0m ×3.0 m, with 33-110 trees

per 666.7 m². Large-scale mechanized orchards can be established in wide and narrow rows with 5.0-6.0 m for the wide and 2.0-3.0 m for the narrow, and a tree to tree distance of 3 m, i.e. 50-64 trees per 666.7 m². Suitable tree forms are natural open-hearted form, two layers of sparse open-hearted form and natural fusiform. Girdling or ring debarking conducted from late May to early August. Soil management intensified by applying compound NPK fertilizers special for orchard, with N : P₂O₅ : K₂O = 1.00 : 1.20 : 0.55.

Suitable areas for planting:

Areas suitable for growing *Eucommia ulmoides* are in Henan and Shandong provinces.

Notes:

The pre-certified varieties may not be used as improved varieties after expiration and need to be certified again.