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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

LY/T 3088-2019

Technical regulations on seed propagation of *Sapindus mukurossi* Gaertn

无患子播种育苗技术规程

(English Translation)

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Table of Contents

Foreword

1 Scope

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This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed and managed by the National Forest Seeds Standardization Technical Committee (SAC/TC 115).

This standard was drafted. Nanjing Forestry University, Agricultural Development Bureau of Xinhang Town, Guangde County, Anhui Province, Forest Products Quality Inspection and Inspection in Hunan Province Testing Center, Institute of Botany, Chinese Academy of Sciences, Jiangsu, Jiangsu Vocational College of Agriculture and Animal Husbandry, Changshu Forestry Station, Jiangsu Province, Jianning County, Fujian Province Forestry Bureau, Fujian Yuanhua Forestry Biotechnology Co., Ltd.

1 Scope

This standard specifies the selection and preparation of nursery land, seed harvesting and the selection of seedlings during the sowing of *Sapindus mukurossi* Gaertn.

Treatment, seeding, thin and fixed seedling management, water and fertilizer management, weeding and weeding, pest control, nursery stock removal, file management and other technologies.

This standard applies to the cultivation of seedless seedlings.

2 2 Normative references the following documents are essential for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB 6000 Quality Classification of Main Afforestation Tree Seedlings LY/T 2289 Forest tree seedling production and operation file LY/T 2290 Forest tree seedling label 3 3 Field selection and preparation 4 3.1 Field selection Select flat land, good drainage and irrigation, loose soil, and fertile sandy loam soil or loam plots as the nursery land. The soil pH value is preferably 6.0 to 7.5.

5 3.2 Land preparation Before planting, plough the field in the late autumn and early winter,

with a depth of more than 30 cm. 1000 kg/667 m² ~ 1500 kg/667 of rotten organic fertilizer combined with tillage m² or compound fertilizer 50 kg/667 m² ~ 70 kg/667 m². Rotary tillage, crushed soil before sowing in spring, pick up debris such as weeds and perennial roots.

6 3.3 Soil disinfection Ferrous sulfate or carbendazim should be used.

-When plowing and preparing the land, apply ferrous sulfate, 3.5 kg/667 m² ~ 5.0 kg/667 m²;

-Two weeks before sowing, apply 50% carbendazim wettable powder on the soil surface, 0.8 kg/667 m² to 1.0 kg/667 m².

7 3.4 Making a bed

The high bed area is suitable for high bed, the bed width is 100 cm ~ 120 cm, the bed height is 30 cm ~ 40 cm, and the trail width is 30 cm ~ 40 cm. Precipitation it is suitable to be used as a salamander in small areas. The salamander surface is 100 cm to 120 cm wide, the salamander surface is 15 cm to 20 cm below the salamander, and the salamander width is 30 cm.

8 4 Seed harvesting and processing 9 4.1 Planting mother trees Select good mother trees with strong growth, no harmful organisms, and tree age of 10 years or more to collect fruits.

10 4.2 Seeding time

From October to December, the fruit turns yellow or orange-yellow with a slight transparency, and is harvested when the surface of the peel is wrinkled.

11 4.3 Post-harvest treatment After the fruit is harvested, the seeds are peeled and cleaned, and the seeds for removing impurities should be stored in a cool and dry place with sand and wet and overwintering. The volume ratio of seeds to wet sand is 1. 3.

It is advisable that the water content of the sand be "hold in a clump and loosen immediately"; during wet storage, agitate and ventilate every 10 to 15 days and make up according to the moisture Stir gently in water and wet storage to prevent damage to exposed seeds.

12 5 Sowing

13 5.1 Time

From March to April, two thirds of the seeds in the wet reservoir can be sown when there are cracks or one third of the seeds are exposed.

14 5.2 Way

Trenching or on-demand should be ditched, with a ditch depth of about 5 cm, a row spacing of 25 cm-30 cm, a plant spacing of 4 cm-5 cm, and a seed volume of 35 kg/667 m² ~ 40

kg/667 m², the thickness of the soil is preferably covered with seeds, covered with a layer of straw, sawdust and other coverings. Plastic film should be installed in areas with low temperature with small membrane arch, when the temperature is maintained above 10 °C and the emergence rate reaches 50%, the arch can be removed and the cover can be gradually removed.

15 6 seedlings and fixed seedlings the emergence rate is $\geq 70\%$ or the first thinning of seedlings 10 to 15 days after the removal of the arch shed, and the thinning of seedlings 1 to 2 times later, the remaining seedling spacing is 8 cm to 10 cm.

Combined shoots can be transplanted and supplemented. The seedlings were determined at the end of May and early June, and the seedling volume in the field was 14,000 plants/667 m² to 17000 plants/667 m².

16 7 Water and Fertilizer Management 17 7.1 Water management After emergence, according to the weather conditions, seedling growth and soil conditions, irrigation is timely and appropriate, and it is advisable to control the surface of the bed without water accumulation each time.

The watering time should be sooner or later. During the growth of seedlings, water the bed in time to keep it moist, and it should be drained in the rainy season.

18 7.2 Topdressing

At the seedling stage, 0.1% to 0.3% urea is sprayed every 10 to 15 days; when the seedlings are growing quickly, urea is applied once every 20 to 30 days.

Dig trenches and fertilize at a rate of 3 kg/667 m² to 5 kg/667 m² each time, and water after fertilization; stop fertilizing after the end of August.

19 8 Field weeding

After raining, irrigation, and soil consolidation, weeding, and weeding in combination with weeding, to "remove early, remove small, except" 20 9 Pest Control 21 9.1 Disease control Root rot is prone to occur at seedling stage. You can spray 1. 1. 100 times Bordeaux solution at the beginning of the disease, or use 50% Carbendazil wettable powder 600 times Root irrigation, root irrigation once every 10-15 days.

22 9.2 Pest Control

Seed germination is susceptible to underground pests such as tigers and crickets. Combined with land preparation, the 5% phoxim granules are 4 kg/667 m² ~ 5 kg /667 m² was evenly mixed into the soil. Seedlings are susceptible to pests such as Monochamus alternatus, Mulberry brown moth, Wax cicada; when insect pests occur, spray 2.5% deltamethrin Emulsion oil is sprayed at 1400 to 1600 times every 5 to 7 days until the pest is eliminated.

23 10 nursery stock

24 10.1 Exit

The sowing seedlings will stop growing in that year, and the seedlings will emerge from the nursery after falling leaves. In the process of emergence, the root system of seedlings should be protected and mechanical damage and seedlings should be avoided.

Wood dehydration. Before going out of the nursery, the seedlings are tested, and the testing methods and rules are implemented in accordance with GB 6000. The nursery stock should be attached with a label, and the specific content of the label and so on in accordance with the requirements of LY/T 2290.

25 10.2 Seedling quality 1-0 nursery seedling standards. ground diameter ≥ 0.50 cm, seedling height ≥ 50 cm, root length ≥ 10 cm, and the number of side roots greater than 5 cm ≥ 4 .

26 11 Archive Management the establishment and management of archives shall be implemented in accordance with the requirements of LY/T 2289.