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

GB/T 29376-2026

Replacing GB/T 29376-2012

**Technical code of practice for the propagation of virus-free
potato pre-basic seed**

马铃薯脱毒原原种繁育技术规程

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes GB/T 29376-2012 "Technical Specifications for Virus-Free Potato Seed Propagation" and is consistent with GB/T 29376-2012. Compared to previous versions, aside from structural adjustments and editorial changes, the main technical changes are as follows:

- a) The phrase "test-tube potatoes produced in containers" has been removed (see 3.1 in the 2012 edition);
- b) The word "germination" has been removed, and "sugar end" has been added (see

3.3 in the.2012 edition);

c) "0.1% potassium permanganate" has been deleted, and "0.05% sodium hypochlorite" has been added (see

4.3.1 in the.2012 edition);

d) The phrase "soaking in 0.1% potassium permanganate solution" was deleted, and "75% ethanol or 0.05%~0.1% sodium hypochlorite" was added (see 4.3.2). (2012 version 4.3.2);

e) The section on "

5. In vitro potato propagation" has been removed (see Chapter 5 of the.2012 edition);

f) The phrase "lay a layer of horticultural ground cover or suspend it at the bottom of the seedbed" has been deleted (see

6.1.2 in the.2012 edition);

g) The phrase "or first lay a 5cm thick layer of disease-free and pest-free nutrient-sterilized substrate on the seedbed, then lay a 5cm thick layer of vermiculite or perlite" was deleted. The text mentions "disinfecting substrate" and adds "or coconut coir" as a disinfecting substrate, along with "40g~50g of NPK compound fertilizer (15-15-15) per square meter". (See 5.2,

2 Schematic diagram of atomized cultivation facility

7.1.2 The cultivation trough material should have good heat insulation and corrosion resistance. A cover made of light-blocking material should be selected, and a planting hole with a diameter of about 1.5cm should be made. A bidirectional refractive atomizing nozzle is installed at the bottom of the tank. The infusion pipeline is made of acid and alkali resistant materials. The storage tank should preferably be semi-underground or underground.

7.2 Nutrient solution See Appendix A for the aeroponic nutrient solution formula.

4.1 Environmental Requirements

4.1.1 The location should be in a cool climate, free from pollution sources, and with good natural isolation.

4.1.2 It should be located away from potato fields and there should be no other solanaceous plants or plants that easily attract aphids nearby.

4.1.3 The water source shall meet the requirements for production irrigation and the water quality shall meet the requirements of GB 5084.

4.2 Infrastructure Requirements

4.2.1 It should have functions of temperature control, humidity control, ventilation, rain protection, and insect prevention, with good lighting conditions. The mesh size of the insect-proof mesh should preferably be 0.247mm. (60 mesh).

4.2.2 A buffer zone should be built at the entrance and disinfection facilities should be set up to facilitate disinfection.

4.3 Disinfection Requirements

4.3.1 Internal facilities should be disinfected regularly. Greenhouses can be disinfected by sulfur fumigation, spraying with an 800-fold dilution of 50% carbendazim wettable powder, or 0.05% [unspecified agent]. Sodium hypochlorite can be used for disinfection. For wire mesh greenhouses, a 50% carbendazim wettable powder solution diluted 800 times can be sprayed.

4.3.2 Tools should be disinfected with 75% ethanol or 0.05%~0.1% sodium hypochlorite solution, and rinsed with clean water 2 to 3 times after disinfection.

4.3.3 Staff should wear clean work clothes, wash their hands with soap before work, and should not smoke during work.

5. Propagation Procedure for Virus-Free Potato Seed Culture The potato virus-free primary seed breeding program is divided into a substrate primary seed breeding program and an aeroponic primary seed breeding program. The sequence includes 8 stages, while the aeroponic original seed breeding program includes 7 stages. Among these, the entire substrate original seed breeding program details the prevention of diseases, pests, and weeds. The pest and disease control steps (see 6.7) are detailed in the entire aeroponic original seed breeding process, further outlining the pest and disease control steps (see 7.6). The flowchart is shown in Figure 1. As shown. Figure

6.1 Preparation of the seedbed

6.1.1 The size and form of the seedbed can be determined according to the size of the greenhouse or net house.

6.1.2 Seedbeds should be isolated from the ground.

6.1.3 Treat the seedbed with fungicides and insecticides, and record the name of the agent, the application time, and the dosage.

6.2 Preparation of the substrate Spread a layer of sterilized substrate such as vermiculite, perlite, or coconut coir on the seedbed, about 10cm thick; mix in NPK compound fertilizer per square meter. (15-15-15) 40g~50g; water thoroughly, and when the moisture content reaches 70%~90%, prepare to plant the seedlings.

6.3 Seedling hardening The containers containing the virus-free seedlings were moved from the culture room to a greenhouse or netted room, and hardened off for 5 to 10 days under natural light and a temperature of 18°C to 25°C. Use shade netting to provide shade under strong sunlight.

6.4 Transplanting

6.4.1 Remove the virus-free seedlings, wash off the culture medium, trim some of the old roots, and insert them into the seedbed substrate, ensuring full contact between the roots and the substrate, leaving two leaves exposed. Three top leaves, spray water promptly.

6.4.2 Plant 200 to 300 cuttings per square meter.

6.5 Seedling Management

6.5.1 After transplanting virus-free seedlings, they should be covered with plastic film and shade netting.

6.5.2 Before the seedlings take root, under natural light conditions, the temperature should be controlled at 12°C~25°C and the relative humidity should be maintained at 95%~100%.

6.5.3 After the seedlings have developed new roots, gradually remove the shade netting, maintaining a substrate moisture content of 60%-70%. Depending on the plant growth, spray with water or nutrients. Liquid, proper ventilation.

6.5.4 Thirty days after transplanting, 0.2% potassium dihydrogen phosphate solution and 0.2% urea solution can be sprayed alternately, and the fertilization time and fertilizer type should be recorded. And the amount of fertilizer applied.

6.6 Management during the tuber formation stage When the stolons begin to swell, the temperature should be maintained at 16°C~25°C, and the substrate moisture content should be maintained at 65%~75%.

6.7 Pest and Weed Control

6.7.1 Pest and disease control should be carried out throughout the production process, and the time, name of the pesticide, and dosage of each application should be recorded.

6.7.2 Conduct regular inspections throughout the entire growth period and promptly remove diseased and miscellaneous plants.

6.7.3 Remove weeds from inside and outside the greenhouse or net house in a timely manner.

6.7.4 After the seedlings have recovered from transplant shock, implement pest and disease control measures based on the occurrence of pests and diseases. Apply fungicide and insecticide once a week.