SLOVENSKI STANDARD
SIST ISO 9833:1996

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Melone - Hlajeno skladiščenje in hlajen transport

Melons -- Cold storage and refrigerated transport

Melons -- Entreposage et transport réfrigérés

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Melons — Cold storage and refrigerated transport

Melons — Entreposage et transport réfrigérés

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9833 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 14, *Fresh fruits and vegetables*.

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Introduction

This International Standard gives general recommendations for the cold storage and refrigerated transport of melons. These recommendations may need to be modified to suit particular cultivars of melons, local climatic conditions, cultivation practices, market requirements and distances of transportation, etc. Experts will be able to establish those recommendations most appropriate for particular market requirements and ecological and agrotechnical factors. In addition, the quality of the harvest and the storage conditions attainable in particular transport vehicles and cold stores may necessitate modifications to these recommendations.

Subject to local conditions and the fact that melons are living matter, the application of the recommendations made in this International Standard should enable much wastage during refrigerated transport and cold storage to be avoided.

Melons — Cold storage and refrigerated transport

1 Scope

This International Standard gives guidance on the operations to be carried out before and the conditions to be met during the cold storage and refrigerated transport of melons (*Cucumis melo* L.).

It is applicable to early, mid- and late-ripening cultivars of melons.

2 Preparation of melons intended for refrigerated transport and cold storage

2.1 Harvesting

Melons should be harvested manually in dry weather in the morning or evening hours not earlier than 3 days after watering or rain. The stage of development and degree of maturity of the fruits should be in accordance with the particular melon cultivar and its destination, since melons should endure transport and loading operations for storage in a satisfactory condition.

Melon maturity is determined by the length of the vegetative period for the specified cultivar, the presence of a strong odour and netting; the skin turns yellow and brightens at the same time, and the stem separates from the fruit.

Early-ripening melons intended for short periods of storage and rapid distribution can be harvested when mature enough for consumption, either with a fruit peduncle or without it.

Mid- and late-ripening melon cultivars intended for transport and subsequent prolonged storage are subject to ripening during storage. They should be harvested in the picking maturity stage, 2 or 3 weeks earlier than their commercial maturity. Melons should be cut off using a sharp knife. The retention of a fruit peduncle 2 cm to 3 cm long is obligatory.

Mid- and late-ripening melons after harvesting should be kept in the sun, in the field, in one layer for 4 days to 5 days, being periodically turned.

2.2 Quality

Quality characteristics of fruits should satisfy the demands of national or international standards.

Melons should be whole, fresh, healthy and clean. They should be without any foreign odour, free from diseases, with a skin colour and fruit shape typical of the cultivar. The skin and flesh of early- and mid-ripening melons may be of different thickness, density, juiciness and delicacy, being characteristics of the cultivars; seeds should be mature and easily separable.

The skin and flesh of late-ripening melons should be dense and the medulla should contain unripe seeds firmly fixed in the flesh.

2.3 Packing

The packages should be new or previously disinfected and should be clean, dry and without any foreign odour.

Melons are packed into cartons with nests, wooden boxes and box pallets. Any packaging material may be used that protects the fruit from mechanical damage, provided that it is not toxic and does not cause any external or internal changes to the produce.

During packaging, the fruit should be placed in one layer; they should not touch each other or bulge the package surface. There should be no stuffing materials inside the package except for plastic nests shaped according to the cultivar and readily permeable to air.

The means of transport or store before loading should be dry, clean and cooled to the recommended tem-

perature. The store should be disinfected prior to loading.

2.4 Pre-cooling

The time between harvesting of the fruits and their pre-cooling should not exceed 8 h to 10 h for early-ripening melons, and 4 days to 5 days for mid- and late-ripening melons.

Pre-cooling is obtained by supplying cold air at a temperature which should not be lower than the recommended minimum for transport and storage. The time for pre-cooling of early ripening melons is 12 h to 15 h.

Stacks of packages containing melons should be provided with an air circulation per tonne of fruit of 80 m³/h to 100 m³/h.

The possibility of a rise in temperature should be eliminated during the loading of cooled fruits into the means of transport or the transport to storage.

3 Optimum conditions during refrigerated transport and cold storage[1]

Melons should not be placed in the same store with strongly smelling vegetables or fruits producing ethylene.

The temperature of early-ripening cultivars in storage and transport should be maintained between 0 °C and + 6 °C, and the temperature of mid-ripening and late-ripening fruits between + 8 °C and + 10 °C. The variation of temperature should not exceed ± 0,5 °C.

The relative humidity of the air should be maintained between 85 % and 90 %. The humidity should not vary by more than ± 3 %.

Air circulation per tonne of fruit should be between 40 m³/h and 50 m³/h.

4 Operations to be carried out during storage

The fruits should frequently be inspected and selected for sale according to their stage of ripening. Fruits with disease symptoms should be immediately removed from the store.

5 Duration of storage

The duration of storage for melons depends on the cultivar and the degree of maturity. It varies between

— 10 days to 30 days for early-ripening cultivars,

— 2 months to 4 months for mid-ripening cultivars, and

— up to 7 months for late-ripening cultivars.

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1) See also ISO 2169:1981, *Fruits and vegetables — Physical conditions in cold stores — Definitions and measurement*.