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#### **Working Party on Agricultural Quality Standards**

**Specialized Section on Standardization  
of Fresh Fruit and Vegetables**

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Item 3 (c) of the provisional agenda

**Revision of standards**

#### **Revision of standards - Ware potatoes**

The following document contains a comparative table with the texts of the UNECE Standard for Early and Ware Potatoes (FFV-52) and the draft Codex Standard for Ware Potatoes (step 5 as of October 2017, and recommended for adoption to the Codex Alimentarius Commission in June 2018). The Specialized Section is invited to review and, possibly, harmonize the texts of the two standards.

UNECE STANDARD FFV-52 (2011 edition)	PROPOSED DRAFT CODEX STANDARD FOR WARE POTATOES (at step 5/8)
	<p><b>1. Scope</b></p> <p>The purpose of the standard is to define the quality requirements for ware potatoes after preparation (e.g. brushing and/or washing) and packaging. When applied at stages following packaging, products may show in relation to the requirements of the standard:</p> <ul style="list-style-type: none"> <li>• a slight lack of freshness and turgidity;</li> <li>• a slight deterioration due to their development and their tendency to perish.</li> </ul> <p>The holder/seller of products may not display such products or offer them for sale, or deliver or market them in any manner other than in conformity with this standard. The holder/seller shall be responsible for observing such conformity.</p> <p>Due to varietal characteristics, ware potato tubers vary in:</p> <ul style="list-style-type: none"> <li>• Shape: from spherical to ovoid</li> <li>• External/skin color: from white through yellow to tan and from reddish through blue</li> <li>• Flesh color: from white to yellow to blue.</li> <li>• Depth and colour of the eye cavities</li> </ul>
<p><b>I. Definition of produce</b></p> <p>This standard applies to early and ware potatoes of varieties (cultivars) grown from <i>Solanum tuberosum</i> L. and its hybrids, to be supplied fresh to the consumer, early and ware potatoes for industrial processing being excluded.</p> <p>Early potatoes are obtained from early varieties and/or are harvested at the beginning of the season in the country of origin. Early potatoes means potatoes harvested before they are completely mature, marketed immediately after their harvesting, and whose skin can be easily removed without peeling.</p>	<p><b>2. Definition of produce</b></p> <p>This Standard applies to commercial varieties of ware potato grown from <i>Solanum tuberosum</i> L., of the <i>Solanaceae</i> family, to be supplied fresh to the consumer, after preparation and packaging. Ware potatoes for industrial processing and early potatoes are excluded.</p>
<p><b>II. Provisions concerning quality</b></p> <p>The purpose of the standard is to define the quality requirements for early and ware potatoes at the export-control stage after preparation and packaging.</p> <p>However, if applied at stages following export, products may show in relation to the requirements of the standard:</p> <ul style="list-style-type: none"> <li>• a slight lack of freshness and turgidity</li> <li>• a slight deterioration due to their development and their tendency to perish.</li> </ul> <p>The holder/seller of products may not display such</p>	<p><b>3. Provisions concerning quality</b></p>

UNECE STANDARD FFV-52 (2011 edition)	PROPOSED DRAFT CODEX STANDARD FOR WARE POTATOES (at step 5/8)
products or offer them for sale, or deliver or market them in any manner other than in conformity with this standard. The holder/seller shall be responsible for observing such conformity.	
<p><b>A. Minimum requirements</b></p> <p>(a) Subject to the tolerances allowed, the tubers must be:</p> <ul style="list-style-type: none"> <li>• of normal appearance for the variety, according to the producing area</li> <li>• intact, i.e. they should not have had any part removed nor have suffered any damage making them incomplete</li> <li>• sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded</li> <li>• practically clean</li> <li>• firm</li> <li>• free of external or internal defects detrimental to the general appearance of the produce, the quality, the keeping quality and presentation in the package, such as: <ul style="list-style-type: none"> <li>○ brown stains due to heat</li> <li>○ cracks (including growth cracks), cuts, bites, bruises or roughness (only for varieties of which the skin is not normally rough) exceeding 4 mm in depth</li> <li>○ green colouration; pale green flush not exceeding one eighth of the surface area and which can be removed by normal peeling does not constitute a defect</li> <li>○ serious deformities</li> <li>○ grey, blue or black sub-epidermal stains; exceeding 5 mm in depth in the case of ware potatoes</li> <li>○ rust stains, hollow or black hearts and other internal defects</li> <li>○ deep common potato scab and powdery potato scab, of a depth of 2 mm or more in the case of ware potatoes</li> <li>○ superficial common potato scab, i.e. scab spots in all must not extend over more than a quarter of the surface of the tuber</li> <li>○ frost damage and freezing injuries</li> </ul> </li> <li>• free of abnormal external moisture, i.e. adequately “dried” if they have been washed</li> </ul>	<p><b>3.1 Minimum Requirements</b></p> <p>In all classes, subject to the special provisions for each class and the tolerances allowed, the ware potatoes must be:</p> <ul style="list-style-type: none"> <li>• intact;</li> <li>• sound; produce affected by rotting or deterioration, such as to make it unfit for consumption is excluded</li> <li>• fresh in appearance;</li> <li>• firm;</li> <li>• Practically clean and practically free of any visible foreign matter<sup>1</sup>;</li> <li>• practically free from pests;</li> <li>• practically free from damage caused by pests<sup>2</sup>;</li> <li>• free of abnormal external moisture, excluding condensation following removal from cold storage;</li> <li>• free of any foreign smell;</li> <li>• free of damage caused by low or high temperature;</li> <li>• [practically unsprouted i.e. sprout may not be longer than 1 mm;]</li> <li>• [free of external and internal defects affecting the appearance, keeping quality and presentation in the package, such as: <ul style="list-style-type: none"> <li>○ Green colouration; pale green flush not exceeding one eighth of the surface area and which can be removed by normal peeling does not constitute a defect;</li> <li>○ brown stains due to heat;</li> <li>○ cracks (including growth cracks), cuts, bites, bruises or roughness (only for varieties of which the skin is not normally rough) exceeding 4 mm in depth;</li> <li>○ deformities;</li> <li>○ grey, blue or black sub-epidermal stains; exceeding 5 mm in depth;</li> <li>○ rust stains, hollow or black hearts and other internal defects;</li> <li>○ deep common potato scab and powdery potato scab, of a depth of 2 mm or more.]</li> </ul> </li> <li>• [superficial common potato scab, i.e. scab spot in all must not extend over more than a quarter of the surface of the tuber.]</li> </ul>

<sup>1</sup> Visible foreign matter excludes visual indicators of treatment with sprout inhibitors.

<sup>2</sup> Provisions for pests apply without prejudice to the applicable plant protection rules applied by governments in line with the International Plant Protection Convention (IPPC).

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<ul style="list-style-type: none"> <li>• free of any foreign smell and/or taste.</li> </ul> <p>In the case of early potatoes, a partial absence of the skin shall not be considered as a defect. Ware potatoes must be covered with well-formed skin, i.e. the skin has to be fully developed and mature and cover the whole surface of the tuber.</p> <p>In early potatoes, no sprouting is allowed. Ware potatoes must be practically unsprouted, i.e. sprouts may be no longer than 3 mm.</p> <p>The development and condition of the early and ware potatoes must be such as to enable them:</p> <ul style="list-style-type: none"> <li>• to withstand transportation and handling</li> <li>• to arrive in satisfactory condition at the place of destination.</li> </ul> <p>(b) Each package or lot must be free from waste, i.e. attached or loose earth, detached growth shoots, extraneous matter.</p>	<p>The development and condition of the ware potatoes must be such as to enable them to:</p> <ul style="list-style-type: none"> <li>• withstand transportation and handling; and</li> <li>• arrive in satisfactory condition at the place of destination.</li> </ul>										
	<p><b>3.1.1 Minimum Maturity Requirements</b></p> <p>Ware potatoes must be sufficiently developed with cured skin, with account being taken of the characteristics of the variety and/or commercial type and the area in which they are grown.</p>										
	<p><b>3.2 Classification</b></p> <p>In accordance with Section 5 – Provisions concerning Tolerances, ware potatoes are classified into the following classes.</p> <p>“Extra” Class, Class I and Class II.</p>										
<p><b>III. Provisions concerning sizing</b></p> <p>Size of the tuber is determined by square mesh.</p> <p>Tubers must be of:</p> <ul style="list-style-type: none"> <li>• a minimum size such that they do not pass through a square mesh of: <ul style="list-style-type: none"> <li>○ 28 mm x 28 mm for early potatoes</li> <li>○ 35 mm x 35 mm for ware potatoes</li> <li>○ 30 mm x 30 mm for long varieties of ware potatoes defined hereafter</li> </ul> </li> <li>• a maximum size such that they pass through a square mesh of 80 mm x 80 mm, or for long varieties, 75 mm x 75 mm.</li> </ul> <p>Early and ware potatoes exceeding the maximum size shall be allowed, provided the maximum difference in size between the smallest and the largest tuber is not more than 30 mm and they are marketed under a specific denomination.</p>	<p><b>4. Provisions concerning sizing</b></p> <p>Ware potatoes are sized by diameter, or in accordance with trading practices. When sized in accordance with trading practices, the package must be labelled with the size and method used as mentioned below.</p> <p>When size is determined by the equatorial diameter (means the maximum distance taken from the right angle on the largest axis of the tuber) of the ware potato (in mm) in accordance with the following table that can be used as a guide in an optional way:</p> <table data-bbox="792 1577 1304 1724"> <thead> <tr> <th>Size Code</th> <th>Equatorial Diameter in mm</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>more than 80</td> </tr> <tr> <td>2</td> <td>35-80</td> </tr> <tr> <td>3</td> <td>25-75</td> </tr> <tr> <td>4</td> <td>18-24</td> </tr> </tbody> </table>	Size Code	Equatorial Diameter in mm	1	more than 80	2	35-80	3	25-75	4	18-24
Size Code	Equatorial Diameter in mm										
1	more than 80										
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3	25-75										
4	18-24										

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<p>Tubers of a size range between 18 mm and 35 mm can be marketed under the denomination of "mids" or an equivalent denomination.</p> <p>Uniformity in size is not compulsory. However, in sales packages up to 5 kg net weight, the maximum difference allowed between the smallest and the largest tuber must not exceed 30 mm.</p> <p>A variety is considered as long if it is listed as long or long oval in the national list of varieties of the country where it has been bred.</p> <p>The sizing requirements do not apply to long varieties of irregular shape (e.g. Stella, Ratte or Pink Fir Apple)</p>	<p>However, uniformity in size in sales packages up to 5 kg net weight may be restricted to a maximum of 30 mm between the smallest and the largest tuber.</p>

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<p><b>IV. Provisions concerning tolerances</b></p> <p>At all marketing stages, tolerances in respect of quality and size shall be allowed in each lot for produce not satisfying the minimum requirements.</p> <p><b>A. Quality tolerances</b></p> <p>(a) Tubers not satisfying the minimum requirements shall be allowed:</p> <ul style="list-style-type: none"> <li>• 4 per cent by weight of tubers of early potatoes</li> <li>• 6 per cent by weight of tubers of ware potatoes.</li> </ul> <p>However, within this tolerance, a maximum of 1 per cent by weight of tubers affected by dry or wet rot shall be allowed.</p> <p>(b) In addition the following shall be allowed:</p> <ul style="list-style-type: none"> <li>• 1 per cent by weight of waste for early potatoes</li> <li>• 2 per cent by weight of waste, of which a maximum of 1 per cent of attached earth, for ware potatoes.</li> </ul> <p><b>B. Size tolerances</b></p> <p>A total tolerance of 10 per cent, by weight of tubers, not satisfying the requirements as regards sizing is allowed.</p> <p><b>C. Tolerances of other varieties</b></p> <p>2 per cent by weight of other varieties is allowed.</p>	<p><b>5. Provisions concerning tolerances</b></p> <p>Tolerances in respect of quality and size shall be allowed in each lot for produce not satisfying the requirements of the class indicated. Produce that fail conformity assessment, may be allowed to be resorted and brought into conformity in accordance with the relevant provisions in the <i>Guidelines for Food Import Control Systems (CXG 47-2003)</i>.</p>			
	<b>5.1 [Quality Tolerances]</b>			
	<b>Quality Tolerances</b>	<b>Tolerances allowed, percentage of defective produce, by number or weight</b>		
		Extra Class	Class I	Class II
	1. Total quality Tolerances for ware potatoes not satisfying the minimum requirements of which no more than	5	10	10
	<p>1.1 Skin Defects:</p> <ul style="list-style-type: none"> <li>• Brown stains, cuts, bites</li> <li>• Bruises or roughness</li> <li>• Late blight, bacterial wilt and ring rot</li> <li>• Grey, blue or black sub-epidermal stains; &gt; 5mm deep</li> </ul>			

	<ul style="list-style-type: none"> <li>• Deep common potato scab and powdery potato scab, &gt; 2 mm deep.</li> <li>• Superficial common potato scab &gt; 25% of surface</li> <li>• Sprouts &gt; 1 mm</li> <li>• Green coloration &gt; 1/8 of the surface area; skinning- skin missing or "feathered"; internal defects including blackheart</li> </ul>			
	[1.2 Frozen, decay, soft rot and or internal breakdown	1	1	2
	1.3 Soil and Extraneous matter	0.25	0.5	0.5]
	Additional Tolerances			
	a) Produce belonging to other varieties than Marked	2	2	2
(b) Size tolerances—off size from what is indicated/marketed	10	10	10]	

UNECE STANDARD FFV-52 (2011 edition)	PROPOSED DRAFT CODEX STANDARD FOR WARE POTATOES (at step 5/8)
<p><b>V. Provisions concerning presentation</b></p> <p><b>A. Uniformity</b></p> <p>The contents of each package (or lot for produce presented in bulk in the transport vehicle) must be uniform and contain only early or ware potatoes of the same origin, variety, quality, colour of the skin, colour of the flesh and size (if sized).</p> <p>The visible part of the contents of the package (or lot for produce presented in bulk in the transport vehicle) must be representative of the entire contents.</p>	<p><b>6. Provisions concerning presentation</b></p> <p><b>6.1 Uniformity</b></p> <p>The contents of each package (or lot for produce presented in the bulk transport vehicle) must be uniform and contain only ware potatoes of the same origin, variety or commercial type, quality and size (if indicated) and optionally, cooking type (if indicated).</p> <p>The visible part of the contents of the package (or lot for produce presented in the bulk transport vehicle) must be representative of the entire contents.</p> <p>However, a mixture of distinctly different ware potatoes of different colours (except green) may be packed together in a sales package, provided they are uniform in quality and, for each variety concerned, in origin.</p>

UNECE STANDARD FFV-52 (2011 edition)	PROPOSED DRAFT CODEX STANDARD FOR WARE POTATOES (at step 5/8)
<p><b>B. Packaging</b></p> <p>Early and ware potatoes must be packed in such a way as to protect the produce properly and to ensure adequate ventilation.</p> <p>The materials used inside the package must be clean and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided the printing or labelling has been done with non-toxic ink or glue.</p> <p>In the case of early potatoes, special packaging materials (e.g. peat) may be used in order to better protect the produce during long-distance transport.<sup>3</sup></p> <p>Packages must be free of all foreign matter.</p>	<p><b>6.2 Packaging</b></p> <p>Ware potatoes must be packed in such a way as to protect the produce properly. The materials used inside the package must be of food grade quality, clean and of a quality such as to avoid causing any external or internal damage as well cross-contamination to the produce. The use of materials, particularly of paper or stamps bearing trade specifications is allowed, provided the printing or labelling has been done with non-toxic ink or glue.</p> <p>Ware potatoes shall be packed in each package in compliance with the appropriate sections of the <i>Code of Practice for Packaging and Transport of Fresh Fruits and Vegetables</i> (CAC/RCP 44-1995).</p>
	<p><b>6.2.1 Description of Containers</b></p> <p>The packages shall meet the quality, hygiene, ventilation and resistance characteristics to ensure suitable handling, shipping and preserving of the ware potatoes. Packages must be free of all foreign matter and smell.</p>
<p><b>VI. Provisions concerning marking</b></p> <p>Each package<sup>4</sup> must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside either printed on the package itself or on a label secured to the fastening. If the labels are placed inside the packages (string bags), this should be done in such a way that the indications concerning marking are readable from the outside.</p> <p>For early and ware potatoes transported in bulk (direct loading into a transport vehicle) these particulars must appear on a document accompanying goods, and attached in a visible position inside the transport vehicle.</p>	<p><b>7. Provisions concerning marking or labelling</b></p>
	<p><b>7.1 Consumer packages</b></p> <p>addition to the requirements of the <i>General Standard for the Labelling of Prepackaged Foods</i> (CXS 1-1985), the following specific provisions apply:</p>

<sup>3</sup> The use of some packaging materials (e.g. peat) is not permitted in some countries.

<sup>4</sup> These marking provisions do not apply to sales packages presented in packages.

UNECE STANDARD FFV-52 (2011 edition)	PROPOSED DRAFT CODEX STANDARD FOR WARE POTATOES (at step 5/8)
	<p><b>7.1.1 Name of produce</b></p> <p>If the produce is <b>not</b> visible from the outside, each package shall be labelled as to the name of the produce “Ware Potato” and should be labelled as to name of the variety and/or commercial type.</p>
	<p><b>7.1.2 Origin of Produce</b></p> <p>Country of origin<sup>5</sup> and, optionally, district where grown, or national, regional or local place name.</p> <p>In case of a mixture of distinctly different varieties of ware potatoes of different origins, the indication of each country of origin shall appear next to the name of the variety concerned.</p>
	<p><b>7.2 Non-Retail Containers</b></p> <p>Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside, either printed on the package itself or on a label secured to the fastening (if the labels are placed inside the packages (string bag), this should be done in such a way that the indications concerning marking are readable from the outside); or in the documents accompanying the shipment and attached in a visible position inside the transport vehicle unless the document is replaced by an electronic solution. In that case the identification must be machine readable and easily accessible.</p>
<p><b>A. Identification</b></p> <p>Packer and/or dispatcher/shipper:</p> <p>Name and physical address (e.g. street/city/region/postal code and, if different from the country of origin, the country) or a code mark officially recognized by the national authority.<sup>6</sup></p>	<p><b>7.2.1 Identification</b></p> <p>Name and address of exporter, packer and/or dispatcher. Identification code (optional).<sup>7</sup></p>

<sup>5</sup> The full or a commonly used name should be indicated.

<sup>6</sup> The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference “packer and/or dispatcher (or equivalent abbreviations)” has to be indicated in close connection with the code mark, and the code mark should be preceded by the ISO 3166 (alpha) country/area code of the recognizing country, if not the country of origin.

<sup>7</sup> The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference “packer and/or dispatcher (or equivalent abbreviations)” has to be indicated in close connection with the code mark.



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<p><b>B. Nature of produce</b></p> <ul style="list-style-type: none"> <li>• “Early Potatoes”, “New Potatoes” or equivalent denomination, or “Ware Potatoes” if the contents are not visible from the outside</li> <li>• Name of the variety</li> <li>• Specific denomination for early and ware potatoes exceeding the maximum size, where appropriate</li> <li>• “Mids” or an equivalent denomination, where appropriate.</li> </ul>	<p><b>7.2.2 Name of Produce</b></p> <p>Each shall be <b>labelled</b> as to the name of the produce and may be labelled as to name of the variety &lt;and/or commercial type&gt;. The shape of the tuber may be marked (optional) on the label such as oval, round and long.</p>
<p><b>C. Origin of produce</b></p> <ul style="list-style-type: none"> <li>• Country of origin<sup>8</sup> and, optionally, district where grown, or national, regional or local place name.</li> </ul>	<p><b>7.2.3 Origin of Produce</b></p> <p>Country of origin and, optionally, district where grown or national, regional or local place name.</p> <p>In the case of a mixture of distinctly different varieties of ware potatoes of different origins, the indication of each country of origin shall appear next to the name of the variety concerned.</p>
<p><b>D. Commercial specifications</b></p> <ul style="list-style-type: none"> <li>• Size (if sized) expressed as minimum size followed by the words “and over” or as minimum and maximum size</li> <li>• Optional indications: colour of flesh (e.g., yellow or white), colour of skin, shape of tuber (round or long) and cooking type (e.g., floury or firm).</li> </ul>	<p><b>7.2.4 Commercial specifications</b></p> <ul style="list-style-type: none"> <li>• class</li> <li>• size (if sized)</li> <li>• Optional indications: colour of flesh, colour of skin, shape of tuber</li> </ul>
<p><b>E. Official control mark (optional)</b></p>	<p><b>7.2.5 Official Inspection Mark (optional)</b></p>
	<p><b>8. Contaminants</b></p> <p><b>8.1</b> The produce covered by this Standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission and where there is no relevant Codex MRLs recognition of destination country MRLs is an alternative.</p> <p><b>8.2</b> The produce covered by this Standard shall comply with the maximum levels of the <i>General Standard for Contaminants and Toxins in Food and Feed</i> (CXS 193-1995).</p>

<sup>8</sup> The full or a commonly used name should be indicated.

UNECE STANDARD FFV-52 (2011 edition)	PROPOSED DRAFT CODEX STANDARD FOR WARE POTATOES (at step 5/8)
	<p><b>9. Hygiene</b></p> <p><b>9.1</b> It is recommended that the produce covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the <i>General Principles of Food Hygiene</i> (CXC 1-1969), <i>Code of Hygienic Practice for Fresh Fruits and Vegetables</i> (CXC 53-2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.</p> <p><b>9.2</b> The produce should comply with any microbiological criteria established in accordance with the <i>Principles for the Establishment and Application of Microbiological Criteria for Foods</i> (CXG 21-1997).</p>