Carton packs for granny smith apples

J S. Bloomfield

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4

Part of the Fruit Science Commons, Marketing Commons, and the Operations and Supply Chain Management Commons

Recommended Citation
Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4/vol5/iss1/8

This article is brought to you for free and open access by Research Library. It has been accepted for inclusion in Journal of the Department of Agriculture, Western Australia, Series 4 by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au.
IMPORTANT DISCLAIMER

This document has been obtained from DAFWA’s research library website (researchlibrary.agric.wa.gov.au) which hosts DAFWA’s archival research publications. Although reasonable care was taken to make the information in the document accurate at the time it was first published, DAFWA does not make any representations or warranties about its accuracy, reliability, currency, completeness or suitability for any particular purpose. It may be out of date, inaccurate or misleading or conflict with current laws, polices or practices. DAFWA has not reviewed or revised the information before making the document available from its research library website. Before using the information, you should carefully evaluate its accuracy, currency, completeness and relevance for your purposes. We recommend you also search for more recent information on DAFWA’s research library website, DAFWA’s main website (https://www.agric.wa.gov.au) and other appropriate websites and sources.

Information in, or referred to in, documents on DAFWA’s research library website is not tailored to the circumstances of individual farms, people or businesses, and does not constitute legal, business, scientific, agricultural or farm management advice. We recommend before making any significant decisions, you obtain advice from appropriate professionals who have taken into account your individual circumstances and objectives.

The Chief Executive Officer of the Department of Agriculture and Food and the State of Western Australia and their employees and agents (collectively and individually referred to below as DAFWA) accept no liability whatsoever, by reason of negligence or otherwise, arising from any use or release of information in, or referred to in, this document, or any error, inaccuracy or omission in the information.
CARTON PACKS FOR GRANNY SMITH APPLES

By J. S. BLOOMFIELD

THE demand for bruise-free apples by overseas buyers has been mainly responsible for the development of fibre board cartons as export apple containers.

Cartons were first used on a commercial basis in 1960. In that year 6,000 un­wrapped Granny Smith tray pack cartons were shipped. The first cell pack cartons were tried in 1961. Since then, there has been a considerable expansion in carton packaging and in 1963 almost 30 per cent. of apples exported were in cartons, mainly cell packs. Most apples and pears are still shipped in wooden boxes but cell packs are now generally favoured by the trade and are being used more extensively than tray packs.

TRAY PACK CARTONS

The 1960 trial consignment of tray pack cartons was unwrapped but following a request by importers wrapping has since been extensively used. Oil wraps allow Granny Smith apples to be harvested earlier than unwrapped fruit. They give added protection, prevent movement of the...
Fig. 2.—Non-reversible trays. "A" tray left, and "B" tray right for 3-2, 5 x 4—113 count. "A" tray begins and ends with three pockets. "B" tray begins and ends with two pockets. Counts 113, 138 and 163 use non-reversible trays.

TRAY PACKS

<table>
<thead>
<tr>
<th>Approx. Size</th>
<th>Count</th>
<th>Type of Tray Pack</th>
<th>Row Count</th>
<th>No. of trays (incl. capper trays)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2(\frac{1}{2}) N</td>
<td>219</td>
<td>A + B</td>
<td>3-3</td>
<td>6 x 6</td>
<td>7</td>
</tr>
<tr>
<td>2(\frac{1}{2}) F</td>
<td>198</td>
<td>Reversible</td>
<td>3-3</td>
<td>6 x 5</td>
<td>7</td>
</tr>
<tr>
<td>2(\frac{1}{2})</td>
<td>175</td>
<td>Reversible</td>
<td>3-2</td>
<td>7 x 7</td>
<td>6</td>
</tr>
<tr>
<td>2(\frac{1}{2}) N</td>
<td>163</td>
<td>A + B</td>
<td>3-2</td>
<td>7 x 6</td>
<td>6</td>
</tr>
<tr>
<td>2(\frac{1}{2}) F</td>
<td>150</td>
<td>Reversible</td>
<td>3-2</td>
<td>6 x 6</td>
<td>6</td>
</tr>
<tr>
<td>2(\frac{1}{2}) N</td>
<td>138</td>
<td>A + B</td>
<td>3-2</td>
<td>6 x 5</td>
<td>6</td>
</tr>
<tr>
<td>2(\frac{1}{2}) F</td>
<td>125</td>
<td>Reversible</td>
<td>3-2</td>
<td>5 x 5</td>
<td>6</td>
</tr>
<tr>
<td>2(\frac{1}{2})</td>
<td>113</td>
<td>A + B</td>
<td>3-2</td>
<td>5 x 4</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>Reversible</td>
<td>3-2</td>
<td>4 x 4</td>
<td>6</td>
</tr>
</tbody>
</table>

Commence reversible trays with the 2 pockets of a 3-2 tray towards the packer. With A + B trays it is necessary to commence with the A tray. The correct height with wrapped apples should allow the carton to be easily pressed to approximately three-quarters of an inch when sealing. The net weight should be approximately 42 lb.

N—Denotes neat size.  F—Denotes full size.
Fig 3.—Non-reversible trays. "A" left and "B" right for 3-3, 6 x 6—216 count.

apples and greatly enhance the overall presentation. It is not practical to pack dump boxes and tray pack cartons with the same sizing machine settings.

The packing chart for tray pack cartons is shown on page 30.

These packs have been developed to give uniformity of fruit size and net weight which should be about 42 lb. for wrapped Granny Smiths. The chart shows tray type and placement and size-count relationships.

It will be noted that counts 198, 175, 150, 125 and 100 have reversible trays while counts 216, 163, 138 and 113 require A and B trays. With reversible trays uniform trays are used and these are reversed for each layer. For other counts, separate A and B trays are used for alternate layers.

For reversible 3-2 packs, it is preferable to start packing with the two pockets of the tray towards the packer. The finished carton will then have a tray with the three pockets away from the packer. With 3-2 packs when A and B trays are required, it is essential to start with the A tray which has three pockets at either end to give the correct count.

Tray pack cartons should be started with the stapled join towards the packer. This means that the finished pack viewed from the label end will have three apples facing the viewer. This method will not only give uniform and better presentation but also is a useful check against trays being incorrectly placed in the carton.

The height of a tray pack carton is determined by the size of the apples in the trays. This makes it necessary to pack apples of an even size in each tray, otherwise some bruising must occur to the larger apples. It is desirable that care be taken with the shorter counts, as large apples bruise readily.
Mr. George Williams—drover, down the Murrumbidgee—photographed during a documentary cover of

Please mention the "Journal of Agriculture of W.A." when writing to advertisers
THE GREAT THIRST ... the hand of time moves across the thirsty land.

"THE
OLDTIMERS
WILL TELL YOU"

They've seen the devastation of water on a rampage. They've seen the wide, brown land lying waste, eroded by hot, thirsty winds.

They've also seen the miracle that water brings ... water, coaxed, controlled and put to work.

Scan the map—pinpoint the towns that centre the nation's irrigation districts and you have the story told ... modern commercial buildings, hospitals, schools, tourist motels, amenities ... communities alive and with a purpose. Irrigation and water development are the master keys which are unlocking the vast store of riches dormant in the dust of countless acres.

Today, about one third of all Australian agriculture is based on irrigation, and as a result of the combined efforts of scientists, engineers and men on the land, once-wasted acres ripen in fruit and crops ... the 'badlands' are being slowly pushed back.

Time and achievement march hand in hand ... but time's passing heightens the urgency of the task still before us. In ten years, as population increases, 50% more water will be required if our expansion is to be maintained. The urgent call is for increasing effort to conserve, eliminate waste, expand techniques of water management ... to be aware of the grim, dusty threat of insufficiency ... the great thirst.

The man on the land, eyeing his children and wondering on their future, might well look at water to gauge the prospects.

Geared to match the development requirements of either irrigation or town water supply, Hardie's maintain an on-demand availability of 'Fibrolite' pipes from a chain of factories across the nation. 'Fibrolite' pipes are backed by Australia's most experienced manufacturer of asbestos cement pipes ... they're the most economical pipe for any project, large or small.

Your local Hardie's Irrigation Distributor has been selected because of his wide knowledge and experience. He is waiting to help you.
All 3-2 packs require six trays including the capper tray. With A and B trays four A trays and two B trays are required. With 3-3 packs for the smaller sizes, seven trays are needed for each carton.

The finished pack of wrapped fruit should be three parts of a layer above the top of the carton for larger sizes and a full layer above for smaller sizes. This will allow the lid to be readily compressed.
Fig. 6.—A lidding press suitably modified as shown is satisfactory for compressing cartons before sealing.

Fig. 7.—Tray pack cartons on pallets in a cold store.

to within ¼ in. of the bottom before taping. With unwrapped fruit the finished pack should be a little more than an inch above the top of the box.

When using a nailing down press converted for taping cartons the same care should be taken as with boxes to see that no damage is done when pressure has to be applied to high packs. Any high packs should be checked as it could be possible the tray placement has not been correctly done.

Sample carton packs should be check weighed in each line and an approximate net weight of 42 lb. should be aimed for. As tray pack cartons are all of one size, the method of stacking, shown in Fig. 7 is suitable especially where pallets are used.

Wrapped tray packs have proved satisfactory for the longer apples such as Golden Delicious and Cleopatra but not very satisfactory for flat apples such as Yates. The net weight for Cleopatras and Golden Delicious would be about 40 to 41 lb.

Do not use 10 x 10 wrapping paper on the small sizes. The regulations require all apples 2½ and smaller to be wrapped in 9 x 9 paper.
Fig. 8.—The picture shows one carton which is designed to pack three different size apples—the 225 count (straight pack), 128 count (straight pack) and 112 count (crosswise pack). The 225 count has five layers and the 128 and 112 count four layers.

**CELL PACK CARTONS**

For the 1963 season, the number of different sized cell pack cartons was reduced to four by redesigning the cartons to permit the grouping of counts in individual cartons. These four cartons will now pack the whole range of export sizes. This greatly helps stacking and loading.

The packing chart for cell pack cartons on this page shows the size count relationship method of packing and grouping of counts in the various sized cartons.

It will be noted that some counts are packed straight and others crosswise. By packing the 160 count a straight pack and the 140 count a crosswise pack the same sized carton can be used for both with different cell components. Some cartons take three counts others two and the 180 is the only single count. The predominant sizes of Granny Smiths can be packed in two cartons viz. the 160-140 and 128-112.

### CELL PACKS

<table>
<thead>
<tr>
<th>Size</th>
<th>Count</th>
<th>Pack</th>
<th>Cell Arrangement</th>
<th>Carton Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2½</td>
<td>225</td>
<td>Straight</td>
<td>9 x 5 x 5</td>
<td>112-128-225</td>
</tr>
<tr>
<td>2½ N</td>
<td>200</td>
<td>Straight</td>
<td>8 x 5 x 5</td>
<td>96-200</td>
</tr>
<tr>
<td>2½ F</td>
<td>180</td>
<td>Straight</td>
<td>9 x 5 x 4</td>
<td>180</td>
</tr>
<tr>
<td>2½</td>
<td>160</td>
<td>Straight</td>
<td>8 x 5 x 4</td>
<td>140-160</td>
</tr>
<tr>
<td>2½</td>
<td>140</td>
<td>Crosswise</td>
<td>7 x 5 x 4</td>
<td>140-160</td>
</tr>
<tr>
<td>2½</td>
<td>128</td>
<td>Straight</td>
<td>8 x 4 x 4</td>
<td>112-128-225</td>
</tr>
<tr>
<td>2½</td>
<td>112</td>
<td>Crosswise</td>
<td>7 x 4 x 4</td>
<td>112-128-225</td>
</tr>
<tr>
<td>3 F</td>
<td>96</td>
<td>Crosswise</td>
<td>6 x 4 x 4</td>
<td>96-200</td>
</tr>
</tbody>
</table>

The net weight in all sizes with G.S apples should be 40 lb.

For cell pack cartons fruit should be sized to exact ½ in. sizes. Each size will pack the one count. For example the 140 count consists of all 2½ apples. Cell packs should have a constant net weight close to 40 lb. for all counts.
**Plants — Seeds — Flowers...**

Railed, Airfreighted or Shipped anywhere

MEMBERS OF INTERFLORA — World Wide Flower Service

COUNTRY CLIENTS travelling to Perth, via Albany Highway. Call at our Nursery, Cannington. Leave your order which will be assembled ready for you to collect on your return journey.

---

**Wilson & Johns**

IN THE BEST GARDENS

SINCE 1950

Nurserymen,

Seedsmen and Florists

HEAD OFFICE AND SALES: 74 Barrack St., Perth

TELEPHONE: 23 3048 (3 lines)

TELEGRAPHIC ADDRESS: "WILSONJOHN," Perth

NURSERIES: Albany Highway, Cannington

Wilkinson St., East Fremantle

Phoenix Road, Spearwood

FREMANTLE STORE: 102 High Street, Fremantle

TELEPHONE: 52447

ALL CORRESPONDENCE TO:

74 BARRACK STREET, PERTH

---

**BETTER — CHEAPER — EASIER FARMING**

**WITH**

**DEUTSCHER**

A Post Hole Borer, £48 10s.

B Power Hacksaw, £32 5s.

C Saw Gulleter—

48 in. Saw, £24 15s.

72 in. Saw, £49 10s.

D Rotary Scythe—


29 in. Self Propelled, £152.

**FARM MASTER**

A Post Hole Borer, £42 10s.

B Post Hole Digger, £128.

C Mower Blade Grinder, £15.

D Slashers—

3 Point Linkage, £92 10s.

Trailing, £129 10s.

**ALCON PUMPS**

Close Coupled to Petrol Engine—

1 in. with 2.5 H.P., £62.

1½ in. with 2.5 H.P., £65.

1¼ in. with 3 H.P., £67.

2 in. with 3 H.P., £76.

Also

Full Range of Long Coupled and Belt Driven Pumps up to 6 in. with Petrol or Diesel Engines.

Cut out this advertisement, mark the unit in which you are interested and post for full particulars and service to

**Maynard Wright PTY LTD**

609 WELLINGTON STREET, PERTH. 21 8103.

Please mention the "Journal of Agriculture of W.A." when writing to advertisers.
For outstanding service...

In lubrication one name guarantees outstanding service and faultless efficiency. That name is Castrol. It ensures protection and long engine life.

There's a Castrol Supergrade Motor Oil ... (Castrolite—XL —XXL) for every car and truck. Finest base oils scientifically blended with superior additives give maximum engine protection with minimum oil consumption. Castrol is patented—there's no oil like it.

Heavy-duty, fully-detergent Deusol CR reduces wear in all diesel engines—tractor or stationary. Bearing corrosion is eliminated and sludge and varnish is prevented. Keep your diesel 'on the job' with Deusol CR.

Both Castrol and Deusol are obtainable throughout Western Australia.

Castrol Limited—W.A. Branch: 170 Wellington St., Perth
Fig. 9.—The 160 (straight) and 140 (crosswise) counts are packed in the same size carton.

Fig. 10.—The 200 (straight) and 96 (crosswise) counts are packed in the same size carton. The 200 count has five layers and the 96 count four layers.
The flexibility of the dividing cells will allow for a long-shaped apple to be followed by a flatter one without unnecessary expanding of the cells. When packing large sizes, some hand sorting may be needed to remove uneven shaped apples which bruise readily.

The apples should fit firmly in the cells. A simple test is to remove a layer from a carton. None of the centre apples should fall out. Care must be taken in packing to see that the outside rows of apples are the smaller and rounder fruit to avoid bulging the sides of the carton. Always place the calyx of the apples in the crosswise packs to the outside of the carton and start straight packs with the calyx to the end of the carton. Some packers claim it is an advantage to pack crosswise packs with the carton across their packing trolleys.

Cell pack cartons can be fastened either by stapling or taping and the bottom of the carton should be glued. The stapling machine shown in Fig. 12 has proved very satisfactory when used correctly. The gauge fitted allows a staple to be fixed where it cannot puncture an apple. The machine should also be adjusted so that...
the staple does not go deep enough to damage the fruit in the cells. A second staple should be fixed about $\frac{1}{4}$ in. from the end of the carton so that it cannot injure the apples. When taping, a $1\frac{3}{4}$ in. tape should be applied neatly along the long edges of the flaps and cut off evenly about 3 in. down either end of the carton.

Care must be taken when stapling or taping to have the flaps neatly together for additional strength.

**LOCAL MARKET**

The main use of cartons in this State has been for export, but considerable quantities of cell and tray packs are now being sold on the local market, especially for country and North-West trade. Good results have been obtained with Granny Smiths and Yates in cartons and this trade will increase.

The standard bushel carton has also been used to a limited extent.

---

Fig. 13.—A rotary wheel makes it easier to glue the bottom of the cartons.