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objectives and approach

Background

California Kiwi Commission (CKC) was concerned that existing retail pricing practices may have discouraged consumer purchases. Kiwis are one of the few fresh fruit items in the produce department that are currently sold in “eaches.” Almost all fruits are commonly sold by the pound. CKC has anecdotal evidence that a pricing approach that reflects a per-pound price will be more familiar to consumers and lead to increased kiwi sales.

Objectives

The Perishables Group (PG) conducted a test of kiwi pricing on behalf of CKC. The goal of this study was to quantify the impact of per-pound pricing on the overall kiwi category.

The test was conducted in Lunds stores during a nine-week period from the week of July 2, 2011, through the week of August 27, 2011. The test involved one test panel and one control panel; the test panel changed kiwi pricing to a per-pound price while the control panel did not.

The control stores were selected via panel matching methodology. The control and test panel stores had similar sales trends prior to the test, making them a good comparison for the test period.

Analysis

Store-level performance sales data was compiled by item for kiwi items for the nine-week test period. Results were determined by calculating the statistical differences between control and test stores during the test period, year-ago (YAGO) period and pre-test period.

The analysis examined the effect of the per-pound pricing on the performance of the kiwi category in both volume and dollar sales.

Categories and Item Groups Included in the Analysis

- Kiwi Category
  - Bulk Kiwi
  - Packaged Kiwi

Panels Included in the Analysis

- Test Stores: Lunds (per-pound pricing for kiwi)
- Control Stores: Lunds rest of market (ROM) (“each” pricing for kiwi)

POS data included in the analysis

- Test dates: July 2—August 27, 2011
- YAGO dates: July 3—August 28, 2010
- Pre-test dates: April 23—June 18, 2011
results summary

Summary

Per-pound pricing of kiwi shows indicators of strengthening kiwi volume sales. Per-pound pricing of kiwi does not appear to have a positive impact on kiwi dollar sales.

The performance of kiwi in test stores with the introduction of per-pound pricing indicates that test stores increased 23.7% while control stores decreased 7.4% in terms of covariate-adjusted volume compared to the pre-test period. Volume sales increased 19.5% in test stores and decreased 36.8% in control stores compared to the year-ago period.

Pricing Summary

During the test period, test stores had a much lower converted average retail price per “each” compared to both the pre-test and year-ago periods, which may have positively impacted kiwi volume sales as well.

While the lower average retail price of kiwi in test stores may have positively impacted volume sales, it most likely contributed to the decrease in dollar sales as well.

Additionally, the average retail price of kiwi was similar (when converted to “each” pricing) to the control stores during the test period, whereas kiwi was priced approximately $0.20 to $0.30 higher per each in test stores compared to control stores during the pre-test and year-ago periods. Therefore, the similar pricing during the test period potentially shifted sales from control stores to test stores, irrespective of kiwi per-pound pricing in test stores.

See sidebar for observed (non-adjusted) average retail prices.

Recommendations

Since the change to per-pound pricing on kiwi had a positive impact on kiwi volume sales in test stores, but the decrease in kiwi pricing (when converted to “each” pricing) in test stores may also have had a positive impact on kiwi volume sales, further testing is recommended.

PG recommends further testing to quantify the impact of per-pound pricing on kiwi sales when the average retail price of kiwi (when converted to “each” pricing) is held constant (or similar) compared to pre-test and year-ago periods.

Observed (Non-Adjusted) Average Retail Prices

Test Stores
Test Period: $0.48 ($2.42/lb)
Pre-Test Period: $0.68
YAGO Period: $0.64

Control Stores
Test Period: $0.51
Pre-Test Period: $0.47
YAGO Period: $0.32
Lunds performance analysis
Results indicate that the per-pound pricing had a positive impact on kiwi volume sales during the nine-week test period in Lunds stores.

Kiwi Test Period Difference

The performance of kiwi at Lunds stores with the introduction of per-pound pricing indicates that test stores outperformed control stores in terms of covariate-adjusted average kiwi volume growth.

However, during the test period, test stores had a much lower converted average retail price per “each” compared to both the pre-test and year-ago periods, which may have positively impacted kiwi volume sales as well.

Source: Perishables Group FreshFacts® Powered by Nielsen
Results indicate that the per-pound pricing had a positive impact on bulk kiwi volume sales during the nine-week test period in Lunds stores.

Bulk Kiwi Test Period Difference

Similar to total kiwi, the performance of bulk kiwi at Lunds stores with the introduction of per-pound pricing indicates that test stores outperformed control stores in terms of covariate-adjusted average bulk kiwi volume growth. However, during the test period, test stores had a much lower converted average retail price per “each” compared to both the pre-test and year-ago periods, which may have positively impacted bulk kiwi volume sales as well.

Source: Perishables Group FreshFacts® Powered by Nielsen
Packaged kiwi was not carried during the per-pound kiwi pricing test at Lunds.

**Observed (Non-Adjusted) Average Retail Prices**

**Test Stores**
- Pre-Test Period: $0.47
- Test Period: $1.03

**Control Stores**
- Pre-Test Period: $0.45
- YAGO Period: $0.22

**Packaged Kiwi Test Performance (covariate adjusted)**

**Test Period vs. Pre-Test Period**
- Average Per Week/Store
  - Packaged Kiwi Dollars
  - Packaged Kiwi Volume
  - Test: $66,187
  - Control: $74,272
  - -100.0%
  - -100.0%
  - -25.8%
  - -67.8%

**Test Period vs. YAGO Period**
- Average Per Week/Store
  - Packaged Kiwi Dollars
  - Packaged Kiwi Volume
  - Test: $66,187
  - Control: $74,272
  - -100.0%
  - -35.8%
  - -86.3%

**Source:** Perishables Group FreshFacts® Powered by Nielsen
Results indicate that the per-pound pricing had no impact on kiwi dollar sales and little impact on kiwi volume sales during the nine-week test period in Lunds stores.

**Kiwi Weekly Dollar Sales**
Control stores appeared to outperform test stores in kiwi average dollar sales in nine weeks during the test period, compared to seven weeks during the year-ago period and eight weeks during pre-test period.

**Kiwi Weekly Volume Sales**
Control stores appeared to outperform test stores in kiwi average volume sales in eight weeks during the test period, compared to eight weeks during the year-ago period and all nine weeks during pre-test period.

**Model Methodology**
The Perishables Group utilized an ANCOVA (Analysis of Covariance) framework to test the impact of the per-pound pricing on kiwi volume and dollar sales in Lunds stores. Covariate-adjusted means were calculated taking account of variables including kiwi dollar and volume sales and produce department sales.

**Source:** Perishables Group FreshFacts® Powered by Nielsen
Results indicate that the per-pound pricing had a small positive impact on kiwi volume sales during the nine-week test period in Lunds stores.

**Kiwi Test Period Difference**

The performance of kiwi at Lunds stores with the introduction of per-pound pricing indicates that control stores outperformed test stores in terms of covariate-adjusted average kiwi volume and dollar sales for all time periods.

However, during the test period, the control stores did not outperform the test stores by as large of a percentage compared to the pre-test and the year-ago period.

This may have been due to the per-pound pricing, but also may have been impacted by the decrease in kiwi average retail price in test stores during the test compared to the pre-test and year-ago periods.

**Source:** Perishables Group FreshFacts® Powered by Nielsen
Results indicate that the per-pound pricing had no impact on bulk kiwi dollar sales and little impact on bulk kiwi volume sales during the nine-week test period in Lunds stores.

**Bulk Kiwi Weekly Dollar Sales**

Control stores appeared to outperform test stores in bulk kiwi average dollar sales in eight weeks during the test period, compared to three weeks during the YAGO period and seven weeks during pre-test period.

**Bulk Kiwi Weekly Volume Sales**

Control stores appeared to outperform test stores in bulk kiwi average volume sales in seven weeks during the test period, compared to eight weeks during the YAGO period and eight weeks during pre-test period.

**Model Methodology**

The Perishables Group utilized an ANCOVA (Analysis of Covariance) framework to test the impact of the per-pound pricing on kiwi volume and dollar sales in Lunds stores. Covariate-adjusted means were calculated taking account of variables including kiwi dollar and volume sales and produce department sales.

**Source:** Perishables Group FreshFacts® Powered by Nielsen
Results indicate that the per-pound pricing had a small positive impact on bulk kiwi volume sales during the nine-week test period in Lunds stores.

Bulk Kiwi Test Period Difference

The performance of bulk kiwi at Lunds stores with the introduction of per-pound pricing indicates that control stores outperformed test stores in terms of covariate-adjusted average bulk kiwi volume and dollar sales during both the test period and the pre-test period.

However, during the test period, the control stores did not outperform the test stores by as large of a percentage compared to the pre-test and the year-ago period.

This may have been due to the per-pound pricing, but also may have been impacted by the decrease in bulk kiwi average retail price in test stores during the test compared to the pre-test and year-ago periods.

Source: Perishables Group FreshFacts® Powered by Nielsen
packaged kiwi test results: Lunds vs. ROM control stores

Packaged kiwi was not carried during the per-pound kiwi pricing test at Lunds.

Source: Perishables Group FreshFacts® Powered by Nielsen
Packaged kiwi was not carried during the per-pound kiwi pricing test at Lunds.

Packaged Kiwi Test Performance (covariate adjusted)  
Test Period (July 2—August 27, 2011) 
Average Per Week Store

Test Period - Packaged Kiwi Volume  Test Period - Packaged Kiwi Dollars

-100.0%
-100.0%

Packaged Kiwi Test Performance (covariate adjusted)  
Pre-test Period (April 23—June 18, 2011) 
Average Per Week Store

Pre-test - Packaged Kiwi Volume  Pre-test - Packaged Kiwi Dollars

-28.7%
-21.0%

Packaged Kiwi Test Performance (covariate adjusted)  
YAGO Period (July 3—August 28, 2010) 
Average Per Week Store

YAGO - Packaged Kiwi Volume  YAGO - Packaged Kiwi Dollars

-100.0%
-100.0%

Source: Perishables Group FreshFacts® Powered by Nielsen
Kiwi Period Differences

Control stores outperformed test stores during test, pre-test and year-ago periods in terms of covariate-adjusted average kiwi volume and dollar sales.

However, during the test period, the control stores did not outperform the test stores by as large of a volume gap compared to the pre-test and the year-ago periods.

**Observed (Non-Adjusted) Average Retail Prices**

- **Test Period**
  - Test Stores: $0.48 ($2.42/lb)
  - Control Stores: $0.51

- **Pre-test Period**
  - Test Stores: $0.68
  - Control Stores: $0.47

- **YAGO Period**
  - Test Stores: $0.64
  - Control Stores: $0.32

**Kiwi Average Per Week Store Sales (covariate adjusted)**

- **Test Period (July 2—August 27, 2011)**
  - Test: $108
  - Control: $160
  - Avg. Produce $71,965

- **Pre-test Period (April 23—June 18, 2011)**
  - Test: $121
  - Control: $153
  - Avg. Produce $68,714

- **YAGO Period (July 3—August 28, 2010)**
  - Test: $119
  - Control: $151
  - Avg. Produce $66,187

**Source:** Perishables Group FreshFacts® Powered by Nielsen
Kiwi Period Differences

Control stores outperformed test stores during test, pre-test and year-ago periods in terms of covariate-adjusted average bulk kiwi volume and dollar sales.

However, during the test period, the control stores did not outperform the test stores by as large of a volume gap compared to the pre-test and the year-ago periods.

### Observed (Non-Adjusted) Average Retail Prices

**Test Period**
- Test Stores: $0.48 ($2.42/lb)  
- Control Stores: $0.48

**Pre-test Period**
- Test Stores: $0.69  
- Control Stores: $0.47

**YAGO Period**
- Test Stores: $0.64  
- Control Stores: $0.38

**Source:** Perishables Group FreshFacts® Powered by Nielsen
Packaged kiwi was not carried during the per-pound kiwi pricing test at Lunds.

Packaged Kiwi Average Per Week Store Sales (covariate adjusted)
Test Period July 2—August 27, 2011

<table>
<thead>
<tr>
<th></th>
<th>Test</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Produce $</td>
<td>$71,965</td>
<td>$76,490</td>
</tr>
<tr>
<td>$32</td>
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<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td></td>
</tr>
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Packaged Kiwi Average Per Week Store Sales (covariate adjusted)
Pre-test Period (April 23—June 18, 2011)

<table>
<thead>
<tr>
<th></th>
<th>Test</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Produce $</td>
<td>$68,714</td>
<td>$73,054</td>
</tr>
<tr>
<td>$34</td>
<td>$68</td>
<td>$43</td>
</tr>
<tr>
<td>96</td>
<td></td>
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</table>

Packaged Kiwi Average Per Week Store Sales (covariate adjusted)
YAGO Period (July 3—August 28, 2010)

<table>
<thead>
<tr>
<th></th>
<th>Test</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Produce $</td>
<td>$66,187</td>
<td>$74,272</td>
</tr>
<tr>
<td>$34</td>
<td>$68</td>
<td>$43</td>
</tr>
<tr>
<td>226</td>
<td></td>
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</tr>
</tbody>
</table>

**Source:** Perishables Group FreshFacts® Powered by Nielsen

**Observed (Non-Adjusted) Average Retail Prices**

**Test Period**
Control Stores: $1.03

**Pre-test Period**
Test Stores: $0.47
Control Stores: $0.45

**YAGO Period**
Control Stores: $0.22
appendix A: store panel matching
Control Panel

All 21 Lunds stores participated in the kiwi test from July 2, 2011, through August 27, 2011. A control panel consisting of 21 ROM stores were matched using the statistical methodology Analysis of Covariance (ANCOVA). This method ensured both panels had similar kiwi sales trends for the 26 weeks prior to the test, and the effect of the kiwi pricing test could be best measured.

<table>
<thead>
<tr>
<th>Panel</th>
<th>Store Number</th>
<th>Retailer</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lunds ROM Control</td>
<td>1604</td>
<td>Cub Foods</td>
<td>15350 Cedar Ave, Saint Paul, MN 551247021</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>1629</td>
<td>Cub Foods</td>
<td>3930 Silver Lake Rd Ne, Minneapolis, MN 554214351</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>1636</td>
<td>Cub Foods</td>
<td>23800 Highway 7, Excelsior, MN 553313152</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>1640</td>
<td>Cub Foods</td>
<td>14075 Highway 13, Savage, MN 553783100</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>1641</td>
<td>Cub Foods</td>
<td>3717 Lexington Ave N, Saint Paul, MN 551263081</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>1645</td>
<td>Cub Foods</td>
<td>100 Opportunity Blvd N, Cambridge, MN 550085822</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>6343</td>
<td>Pick 'n Save</td>
<td>2643 Eastern Ave, Plymouth, WI 530734270</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>6364</td>
<td>Pick 'n Save</td>
<td>10202 W Silver Spring Dr, Milwaukee, WI 532253265</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>6370</td>
<td>Pick 'n Save</td>
<td>4145 N Oakland Ave, Milwaukee, WI 532112027</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>6384</td>
<td>Pick 'n Save</td>
<td>1010 N Rochester St, Mukwonago, WI 531498738</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>6388</td>
<td>Pick 'n Save</td>
<td>1300 Pabst Farms Cir, Oconomowoc, WI 530664854</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>6880</td>
<td>Pick 'n Save</td>
<td>1735 W Silver Spring Dr, Milwaukee, WI 532094400</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>8802</td>
<td>Rainbow Grocery</td>
<td>1201 Larpenteur Ave W, Saint Paul, MN 551136318</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>8812</td>
<td>Rainbow Grocery</td>
<td>1566 University Ave W, Saint Paul, MN 551043908</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>8815</td>
<td>Rainbow Grocery</td>
<td>1276 Town Centre Dr, Saint Paul, MN 551231064</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>8828</td>
<td>Rainbow Grocery</td>
<td>15125 Cedar Ave, Saint Paul, MN 551247111</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>8862</td>
<td>Rainbow Grocery</td>
<td>289 12th St Sw, Forest Lake, MN 550251483</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>8870</td>
<td>Rainbow Grocery</td>
<td>200 Pioneer Trl, Chaska, MN 553181169</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>8874</td>
<td>Rainbow Grocery</td>
<td>2600 American Blvd W, Minneapolis, MN 554311201</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>6301</td>
<td>Roundys-Metro Market</td>
<td>17630 W Bluemound Rd, Brookfield, WI 530452908</td>
</tr>
<tr>
<td>Lunds ROM Control</td>
<td>6371</td>
<td>Roundys-Metro Market</td>
<td>1123 N Van Buren St, Milwaukee, WI 532023269</td>
</tr>
</tbody>
</table>
Store Panel Matching Methodology

Step 1

Assembled the latest 52 weeks of kiwi performance data for Lunds and competitive stores (ROM).
- Lunds had 21 stores that participated in the test.

Step 2

Selected 21 control stores to match 21 Lunds stores, by minimizing covariate-adjusted dollar differences between the first cluster (control) and the test cluster using an evolutionary optimization model for a 26-week period versus the 26-week year-ago period.
- Constraint was set at covariate-adjusted dollar difference of less than 5% between control and test panel for kiwi sales; however, the best match found was 8%.

Step 3

Reported ANCOVA analysis on selected panels, and ensured model fit and statistical significance (f-stat greater than 1, p-stat less than 0.05).
appendix B: Lunds unadjusted results
Kiwi Sales

Kiwi dollar sales (unadjusted) in Lunds stores did not appear to increase when kiwis were priced per pound.

However, kiwi volume sales (unadjusted) in Lunds stores did appear to increase when kiwis were priced per pound.

Source: Perishables Group FreshFacts® Powered by Nielsen
appendix C: kiwi audit summary
Overview
The California Kiwifruit Commission (CKC) recently implemented in-store testing to study the impact of per pound pricing on kiwi performance. To measure store compliance, the Perishables Group (PG) conducted two audits in each of 21 Lunds / Byerly’s stores during the test period.

Store Visits
Stores were divided into two groups, and visits were staggered:
- Auditors visited stores 1001, 1002, 1003, 1004, 1010, 1011, 1013, 51001, 51007 and 51010 the weeks of July 4 and August 8.
- Auditors visited stores 1007, 1008, 1012, 15014, 51002, 51003, 51004, 51006, 51008, 51009, 51011 the weeks of July 18 and August 15

Pricing
Everyday pricing for green kiwi was $2.49 per pound at all stores during all visits. During the week of July 4, green kiwi was on promotion at all stores visited for $1.99 per pound. Also, during the July 18 visits, store 51008 promoted green kiwi for $1.99 per pound.

Additionally, several stores, 1004, 1011, 51007, 51002, 51003 and 51006, sold gold kiwi during the July store visits for a price of $3.49 per pound.

Signage
Pricing signage was with the kiwi display in all stores during all visits. The variety name was also on the signage during the July store visits.
kiwi audit summary

Week of July 18: Store 51002

Week of July 18: Store 1004

Week of August 8: Store 1011

Week of August 8: Store 1010

Week of August 15: Store 51006

Week of August 15: Store 1007
The Perishables Group is an independent consulting firm focused on creating innovation and value for clients in the fresh food industry. Expertise includes category development, supply chain management, activity-based costing, research and marketing services.

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