

Innovation mindset

Where's da Beef?

Note: Before completing this case, ensure that you have already completed the EYARC Innovation mindset case *Bryan's Amazing Animals*. You also need to load another CountThings counting template: Livestock (new) ID:089. You can also download Cattle ID:324.

Background

Where's da Beef (WDB) Cattle Feeders is a cattle feedlot in southern Kansas. Cattle from all around the country are transported to WDB when they are approximately six months old to receive the nutrition and food they need to gain weight efficiently to prepare for human consumption. Cattle remain at WDB for approximately 190 to 270 days, during which time they typically gain approximately 800 to 1,200 pounds.

WDB spans an area of 1.5 square miles and contains approximately 440 pens, each of which can contain anywhere between 0 to 200 head of cattle at any given time.

Cattle can arrive on-site on any day. The cattle are counted by cowboys as they are unloaded from the delivery truck and sent through a narrow shoot into a holding pen. The cattle are then tagged with an identification tag on their ear, logged into the system and administered the necessary vaccinations. They are counted again before they are sent to their home pen. Cattle generally remain in their home pen for the entirety of their stay at WDB.

Although cattle remain in one pen for most of their time at WDB, there are a variety of reasons that the number of cattle in the pen on any given day may differ from the number originally put into the pen upon their arrival. In particular, each day, cowboys ride through the pens to identify any sick or injured cattle that need to be taken to hospital pens. Hospital pens are locations that isolate one, or a few, cows from the rest of the herd while they recover from an illness or injury. Cowboys also identify any cattle that have passed away (which, while not typical, does happen from time to time). Additionally, cattle sometimes jump over or crawl under the fence to enter another pen or, in rare cases, may escape if a pen is not securely closed. Because cattle remain together in a single pen while they're at WDB, the expectation is that they will all be shipped out at the same time as well. Therefore, if the number of cattle in the pen is not accurate, it causes problems when the cattle are shipped out because any missing cattle will have to be located and returned.

The traditional audit process

Typically, the Internal Audit Department performs a physical inventory count once each year in early January. The physical counts are compared to the inventory records maintained by WDB as of December 31, WDB's fiscal year-end. A copy of the most recent internal audit report about the inventory is provided in Appendix A. Since the count and the inventory records are from slightly different days, the internal audit report has a reconciliation column that accounts for any changes (e.g., a pen of cattle was shipped to the market or new cattle arrived).

To perform the physical inventory, two internal auditors arrive on-site at WDB and randomly select pens to count. The goal is to count approximately 10% of the cattle currently at WDB. Once the pens have been selected, two cowboys enter each pen and herd the cattle through a narrow shoot and into a second

pen. The internal auditors observe the moving cattle and count each cow as it passes by. The cows move quickly and sometimes erratically because this process is somewhat disruptive and stressful; therefore, it can be difficult to get an accurate count the first time. The cowboys provide input and often ask the auditors to recount the cattle if they think the number is not accurate since the cowboys are expected to keep all cattle in the correct pens throughout the year.

The last time the inventory was counted was January of this year. The auditors counted 3,266 of the 32,598 head of cattle on-site, which represents approximately 10% of the total herd. The auditors' count was within five of the records maintained by WDB, which represents a .15% variance. The audit took two auditors 20 hours each, plus 30 hours of the cowboys' time (for a total of 70 hours), or approximately 1.3 minutes per cow.

Part I: Imagine better and learn more

WDB is interested in making the inventory count process less time-consuming and less stressful for the cattle. WDB also is interested in improving the accuracy of the inventory data, improving the timeliness of the reporting and having the process documented in a better manner. WDB has hired you, an outside consultant, to provide information about using drone technology and automated counting software for the physical inventory count instead of using the traditional process. WDB is especially interested in understanding if these technologies could be used by external auditors.

Required

- ▶ Click the image below to watch a video about how WDB currently performs its audit of inventory and to understand the potential use of drones and automated counting software technology.



- ▶ Based on what you learned about how drones and automated counting software could be applied to counting sheep, do you see any differences in how these emerging technologies might be applied to counting the cattle for WDB? Explain your answer.
- ▶ Can you think of any additional technology or process changes that might provide value to this inventory process? Explain your answer and any additional considerations.

Innovation mindset

Where's da Beef?

Part IIa: Take action and look to the future

For this part of the case, you will be evaluating how drones and automated software can be used to perform an inventory count of cattle. You have received eight images of eleven cattle pens taken by certified drone pilots earlier today (some images include multiple pens). This includes pens 81, 93, 94, 95, 97, 159, 206, 231, 263, 391 and 416. Each drone image was taken from approximately 200 to 250 feet up in the air. You have also received various inventory records from WDB management to help you reconcile information. These include the following: pen sheets, special pen register, move log, maps and internal audit report.

Required

- ▶ Upload each image individually from the below named zip file into the CountThings app. The images have already been cropped so that they can be loaded directly into the app for the counting process. Each image in the zip file has the pen number identified in the file name.
 - **Innovation_mindset_case_studies_Wheres_da_Beef_Part_Ila.zip**
- ▶ Using the CountThings app, count the number of cattle in each pen. Review the initial count produced by the CountThings app and adjust the tagging appropriately until you believe you have an accurate count.
 - Save your output files from CountThings showing the tagged cattle from each pen (displaying a number on each counted cow). Be sure to add your name at the end of the file name for each JPEG file (e.g., **Pen_81_yourname.jpg**).
 - Note that while CountThings is an effective tool, variation in the colors of the cattle, shadows, other objects in the pen and water spots on the ground can cause incorrect tagging.
- ▶ Record your count for each pen in the Part IIa tab in the Excel file labeled **Innovation_mindset_case_studies_Wheres_da_Beef.xlsx**. Save the file and change the name of this file to **Innovation_mindset_case_studies_Wheres_da_Beef_yourname.xlsx**. Reconcile your counts with the inventory records provided by the WDB general manager using the case study appendix.
 - In the column labeled Section, enter the section number of the pen.
 - In the column labeled Count, enter the number of cattle you counted using the CountThings app.
 - In the column labeled Head count per pen sheet, enter the number of cattle listed on the pen sheet.
 - In the column labeled Reconciling items, enter any numerical updates to your cattle count or the pen sheet based on the other supporting documents (e.g., special pen sheet or move log). Be careful to make sure you appropriately assign a positive or a negative value to any changes to indicate if the change clears a discrepancy or adds to it.

- In the column labeled Explanation and supporting document, provide an explanation for any change that you made as a result of your reconciliation and include any supporting documents.
- In the column labeled Questions for the general manager, document any open items or questions you might have for follow-up with the WDB general manager.

Innovation mindset

Where's da Beef?

Part IIb: Take action and look to the future

For this part of the case, you will be evaluating how drones and automated software can be used to perform an inventory count of cattle. You have received 36 images of the cattle pens taken by certified drone pilots earlier today. These include pens 17, 18, 23, 44, 58, 59, 92, 101, 179 (combined with 180 due to an open gate between the pens), 181 (combined with 182 due to an open gate between the pens), 186 (combined with 187 due to an open gate between the pens), 209, 210, 262, 264, 266, 294, 311, 319 (combined with 320), 327, 338, 339, 340, 341, 343, 345, 348, 350, 376, 377, 379, 381, 389, 390, 405 and 410. Similar to the prior images taken, each drone image was taken from approximately 200 to 250 feet up in the air.

Required

- ▶ Upload each image individually from the below named zip file into the CountThings app. The images have already been cropped so that they can be loaded directly into the app for the counting process. Each image in the zip file has the pen number identified in the file name.
 - **Innovation_mindset_case_studies_Wheres_da_Beef_Part_IIb.zip**
- ▶ Using the CountThings app, count the number of cattle in each pen. Review the initial count produced by the CountThings app and adjust the tagging appropriately until you believe you have an accurate count.
 - Save your output files from CountThings showing the tagged cattle from each pen (displaying a number on each counted cow). Be sure to add your name at the end of the file name for each JPEG file (e.g., **Pen_81_yourname.jpg**).
 - Note that while CountThings is an effective tool, variation in the colors of the cattle, shadows, other objects in the pen and water spots on the ground can cause incorrect tagging.
- ▶ Record your count for each pen in the Part IIb tab in the Excel file labeled **Innovation_mindset_case_studies_Wheres_da_Beef.xlsx**. Save the file and change the name of this file to **Innovation_mindset_case_studies_Wheres_da_Beef_yourname.xlsx**. Reconcile your counts with the inventory records provided by the WDB general manager using the case study appendix.
 - In the column labeled Section, enter the section number of the pen.
 - In the column labeled Count, enter the number of cattle you counted using the CountThings app.
 - In the column labeled Head count per pen sheet, enter the number of cattle listed on the pen sheet.
 - In the column labeled Reconciling items, enter any numerical updates to your cattle count or the pen sheet based on the other supporting documents (e.g., special pen sheet or move log). Be

careful to make sure that you appropriately assign a positive or negative value to any changes to indicate if a change clears a discrepancy or adds to it.

- In the column labeled Explanation and supporting document, provide an explanation for any change that you made as a result of your reconciliation and include any supporting documents.
- In the column labeled Questions for the general manager, document any open items or questions you might have for follow-up with the WDB general manager.

Innovation mindset

Where's da Beef?

Part IIc: Take action and look to the future

Required

- ▶ Prepare a memo of up to two pages for the Audit Committee of WDB describing the pros and cons of using drone technology and automated counting software for performing the inventory count. The goal of this memo is to persuade the Audit Committee to either adopt the drone technology and use of automated counting software or to continue using traditional audit methods. You should use your results and experience with this case as evidence for your arguments. Include within this memo any suggestions for improving the process that you might have identified while performing the case study.
- ▶ Prepare a memo of up to two pages describing other applications for drone technology and automated counting software for use in accounting and business. Research this topic online and document your sources appropriately.

Innovation mindset

Where's da Beef?

Appendix

Table of contents

► Appendix A: Pen sheet

- This document was generated by the WDB general manager and shows the number of cattle in each pen as of the report date. This document is not based on manual counts of the cattle, but is updated based on documented moves between pens. The sheet should be updated each day by the cowboys and staff, but sometimes the update is delayed for various reasons (e.g., holidays, lack of time because of work on the feedlot).

► Appendix B: Special pen register

- This document is generated by the WDB general manager and shows any cattle that have been moved to a special pen (including hospitals). This register will also record any cattle deaths.

► Appendix C: Move log

- This document is generated by the WDB general manager and shows the movement of entire cattle pens. The primary moves represented on this document include new incoming shipments of cattle (new) and outgoing shipments of sold cattle (shipped).

► Appendix D: Map

- This document shows the location of all cattle pens at WDB.

► Appendix E: Internal audit report

- This document is generated by the Internal Audit Department and shows the traditional audit test counts of inventory performed at the beginning of this year (1/3/XX–1/5/XX).



Appendix A

Pen sheet

Run date: 4/28/XX

As of: 4/15/20XX

Run time: 8:05:33

Pen	Lot	Customer	Sex	Pen head
1	–	–	–	0
2	–	–	–	0
3	–	–	–	0
4	–	–	–	0
5	–	–	–	0
6	–	–	–	0
7	–	–	–	0
8	–	–	–	0
9	–	–	–	0
10	–	–	–	0
11	–	–	–	0
12	–	–	–	0
13	–	–	–	0
14	–	–	–	0
15	–	–	–	0
16	–	–	–	0
17	190327	TRI	M	135
18	184065	USB	M	133
19	185981	ARG	M	129
20	186982	TRI	M	110
21	199311	TRI	M	119
22	187764	TLC	F	115
23	181636	TLC	M	118
24	184674	RST	M	130
25	185821	TLC	M	136
26	176719	TRI	M	129

Pen	Lot	Customer	Sex	Pen head
27	182562	USB	M	136
28	184593	PNC	M	122
29	184304	ARG	M	88
30	192326	RST	M	128
31	–	–	–	0
32	–	–	–	0
33	–	–	–	0
34	–	–	–	0
35	–	–	–	0
36	–	–	–	0
37	–	–	–	0
38	–	–	–	0
39	–	–	–	0
40	–	–	–	0
41	196658	TLC	M	103
42	182721	PNC	M	94
43	170346	TRI	M	130
44	187845	ARG	M	59
45	172422	ARG	F	64
46	181917	USB	F	120
47	175437	PNC	M	126
48	198211	ARG	M	119
49	185338	TLC	M	128
50	195054	TLC	M	110
51	187378	PNC	M	120
52	182229	TLC	M	136
53	187106	TRI	M	118
54	–	–	–	0
55	–	–	–	0

Pen	Lot	Customer	Sex	Pen head
56	–	–	–	0
57	–	–	–	0
58	173374	USB	M	118
59	190373	USB	M	122
60	182057	ARG	M	105
61	192796	USB	M	112
62	186075	RST	F	123
63	179875	TLC	M	93
64	192145	USB	M	91
65	171906	TRI	M	135
66	188127	PNC	M	134
67	197284	RST	M	136
68	170735	RST	M	138
69	195410	PNC	M	128
70	182225	ARG	M	107
71	179511	PNC	M	110
72	193080	ARG	F	109
73	183914	ARG	M	108
74	190236	PPD	M	184
75	–	–	–	0
76	179247	TLC	M	120
77	172444	PNC	M	90
78	194468	RST	M	119
79	189155	ARG	M	88
80	185222	PNC	M	134
81	173391	PNC	M	125
82	178958	TRI	M	120
83	198684	USB	M	127
84	171518	PNC	M	129

Pen	Lot	Customer	Sex	Pen head
85	179079	ARG	F	72
86	188125	ARG	F	124
87	189862	RST	M	130
88	175041	ARG	M	133
89	189735	TLC	M	133
90	189678	PPD	M	124
91	171800	TLC	M	138
92	179452	TRI	M	151
93	–	–	–	0
94	–	–	–	0
95	–	–	–	0
96	–	–	–	0
97	–	–	–	0
98	187966	USB	M	109
99	172913	ARG	M	107
100	193069	PPD	M	109
101	185197	ARG	M	107
102	198954	TLC	F	103
103	186688	TRI	M	107
104	172550	USB	M	106
105	186446	RST	M	94
106	189257	PPD	M	94
107	188154	PPD	M	93
108	181014	TRI	M	92
109	186461	TRI	M	87
110	181939	PNC	M	88
111	183382	ARG	M	89
112	175259	PNC	F	70
113	183390	TLC	M	87

Pen	Lot	Customer	Sex	Pen head
114	175732	PNC	M	193
115	–	–	–	0
116	188005	USB	M	96
117	182263	TLC	M	100
118	191157	PNC	M	95
119	192494	USB	M	92
120	176680	PPD	M	95
121	191693	USB	M	89
122	198574	ARG	M	88
123	183618	USB	M	89
124	198452	USB	M	90
125	175814	RST	F	93
126	198748	TRI	F	89
127	180495	TLC	M	40
128	195126	RST	M	41
129	–	–	–	0
130	–	–	–	0
131	194917	PPD	M	111
132	183430	TLC	M	116
133	194520	USB	M	115
134	172648	PPD	M	243
135	171928	TRI	M	113
136	199616	RST	M	110
137	–	–	–	0
138	172367	TRI	M	121
139	190692	RST	M	133
140	184295	ARG	M	132
141	178968	RST	M	117
142	181343	TRI	F	105

Pen	Lot	Customer	Sex	Pen head
143	181721	TRI	M	70
144	172994	ARG	M	53
145	–	–	–	0
146	–	–	–	0
147	–	–	–	0
148	–	–	–	0
149	187116	TLC	M	115
150	192785	USB	M	198
151	179445	TRI	M	129
152	195247	TRI	F	98
153	–	–	–	0
154	199848	PNC	M	98
155	173429	ARG	M	101
156	181590	ARG	M	98
157	171490	RST	M	134
158	173383	TLC	M	127
159	178326	USB	M	143
160	181538	TRI	M	119
161	195791	PNC	M	107
162	–	–	–	0
163	–	–	–	0
164	–	–	–	0
165	189989	TLC	F	78
166	195732	RST	F	131
167	170409	USB	M	123
168	179785	PPD	M	125
169	–	–	–	0
170	–	–	–	0
171	179954	RST	M	95

Pen	Lot	Customer	Sex	Pen head
172	–	–	–	0
173	–	–	–	0
174	–	–	–	0
175	–	–	–	0
176	192892	PNC	M	1
177	190335	USB	M	71
178	174169	PPD	M	91
179	–	–	–	0
180	185634	PPD	M	97
181	–	–	–	0
182	187594	PPD	F	111
183	–	–	–	0
184	180486	ARG	M	113
185	–	–	–	0
186	186408	TLC	M	125
187	–	–	–	0
188	–	–	–	0
189	–	–	–	0
190	177709	PNC	M	3
191	174845	PPD	M	1
192	–	–	–	0
193	–	–	–	0
194	–	–	–	0
195	–	–	–	0
196	–	–	–	0
197	177221	TLC	M	132
198	183526	TLC	M	114
199	194397	RST	M	168
200	182867	PPD	M	198

Pen	Lot	Customer	Sex	Pen head
201	186543	PPD	M	199
202	–	–	–	0
203	194932	RST	M	84
204	189582	ARG	M	84
205	–	–	–	0
206	–	–	–	–
207	194974	TRI	M	61
208	178611	PNC	M	158
209	–	–	–	0
210	187810	TRI	M	139
211	–	–	–	0
212	–	–	–	0
213	–	–	–	0
214	–	–	–	0
215	–	–	–	0
216	–	–	–	0
217	196081	PPD	M	98
218	182039	TRI	M	94
219	183858	PPD	M	111
220	176109	USB	M	115
221	199698	RST	M	44
222	177309	TLC	F	116
223	178229	RST	M	65
224	174012	RST	M	83
225	187731	TLC	M	107
226	172674	RST	M	121
227	175630	PNC	M	121
228	187732	ARG	M	118
229	172765	RST	M	131

Pen	Lot	Customer	Sex	Pen head
230	188063	USB	M	127
231	18774	JBN	M	116
232	173427	TLC	F	113
233	194417	PPD	M	108
234	174479	PPD	M	116
235	185547	RST	M	86
236	–	–	–	0
237	–	–	–	0
238	192171	ARG	M	102
239	171746	TLC	M	93
240	191009	USB	M	123
241	–	–	–	0
242	–	–	–	0
243	175568	TLC	M	118
244	181135	RST	M	114
245	–	–	–	0
246	–	–	–	0
247	–	–	–	0
248	–	–	–	0
249	176184	PPD	M	233
250	–	–	–	0
251	183090	ARG	M	116
252	–	–	–	0
253	177864	USB	M	123
254	193741	RST	M	130
255	182851	ARG	M	123
256	191681	TRI	M	85
257	196489	ARG	M	84
258	–	–	–	0

Pen	Lot	Customer	Sex	Pen head
259	171731	USB	M	117
260	183863	TLC	M	226
261	196520	PNC	M	109
262	182909	TRI	F	80
263	18459	PNC	M	102
264	183701	TRI	M	99
265	190076	PNC	M	103
266	188848	RST	M	110
267	173263	USB	M	111
268	173673	USB	M	112
269	172530	PNC	M	114
270	183603	USB	M	116
271	181388	PPD	M	113
272	190726	PNC	F	91
273	170194	PPD	M	127
274	177271	PPD	M	167
275	170409	TRI	M	125
276	171211	ARG	M	163
277	174147	PNC	M	84
278	170416	TRI	M	86
279	193399	PNC	M	90
280	184753	USB	M	127
281	194159	RST	M	126
282	–	–	–	0
283	181474	PNC	M	119
284	171392	PPD	M	153
285	–	–	–	0
286	–	–	–	0
287	–	–	–	0

Pen	Lot	Customer	Sex	Pen head
288	–	–	–	0
289	178394	TLC	M	1
290	–	–	–	0
291	–	–	–	0
292	199347	USB	M	104
293	–	–	–	0
294	175499	TLC	M	116
295	170537	PPD	M	144
296	–	–	–	0
297	173099	USB	M	67
298	–	–	–	0
299	–	–	–	0
300	–	–	–	0
301	184320	USB	M	159
302	195371	PNC	F	98
303	171702	PNC	M	92
304	186358	USB	M	99
305	188462	USB	M	100
306	196688	PPD	M	92
307	178928	USB	M	91
308	–	–	–	0
309	178755	PNC	M	60
310	186154	TLC	M	60
311	174327	ARG	M	60
312	197323	PNC	F	63
313	196027	RST	M	85
314	195675	ARG	M	79
315	185586	TLC	M	60
316	195174	PPD	M	191

Pen	Lot	Customer	Sex	Pen head
317	–	–	–	0
318	186380	PPD	M	131
319	182144	PNC	M	72
320	186261	PPD	M	82
321	193792	RST	M	92
322	188099	ARG	M	99
323	–	–	–	0
324	–	–	–	0
325	–	–	–	0
326	–	–	–	0
327	–	–	–	0
328	–	–	–	0
329	–	–	–	0
330	–	–	–	0
331	–	–	–	0
332	–	–	–	0
333	184451	PPD	M	117
334	195770	PPD	M	93
335	171581	PPD	M	140
336	178877	PPD	M	150
337	180721	USB	M	100
338	180563	TRI	M	65
339	192350	PNC	M	65
340	195866	ARG	M	65
341	178037	RST	M	63
342	185796	ARG	F	65
343	194929	TRI	M	65
344	185774	TRI	M	58
345	188958	PNC	M	59

Pen	Lot	Customer	Sex	Pen head
346	198462	ARG	M	91
347	174897	PNC	M	62
348	176361	ARG	M	70
349	170493	RST	M	81
350	178194	PPD	M	85
351	178441	TRI	M	84
352	184156	ARG	F	80
353	192999	ARG	M	1
354	174801	TRI	M	79
355	185316	PPD	M	134
356	173860	RST	M	133
357	183281	PPD	M	135
358	–	–	–	0
359	182663	ARG	M	90
360	176148	PPD	M	90
361	189668	TLC	M	96
362	170798	ARG	M	80
363	196745	PPD	M	79
364	170327	PPD	M	203
365	198166	TRI	F	134
366	174723	PNC	F	133
367	186557	PPD	M	125
368	186499	TLC	M	127
369	185838	TRI	M	108
370	190580	PPD	M	115
371	189944	TRI	M	60
372	187353	PPD	M	60
373	172984	PNC	M	61
374	180726	ARG	M	61

Pen	Lot	Customer	Sex	Pen head
375	183088	USB	M	61
376	190927	PNC	M	65
377	187616	PPD	M	65
378	178213	RST	M	65
379	199833	PPD	M	65
380	172957	PNC	M	65
381	178121	PNC	M	65
382	177026	PNC	F	65
383	181153	PNC	M	64
384	186197	PNC	M	65
385	174803	USB	M	64
386	175120	PNC	M	65
387	179870	ARG	M	65
388	170104	TLC	M	61
389	184163	ARG	M	246
390	193937	USB	M	109
391	18555	ARG	M	106
392	–	–	–	0
393	182834	RST	M	101
394	182586	TLC	M	170
395	–	–	–	0
396	–	–	–	0
397	–	–	–	0
398	–	–	–	0
399	–	–	–	0
400	–	–	–	0
401	170248	PNC	M	96
402	194938	USB	M	92
403	181195	USB	M	76

Pen	Lot	Customer	Sex	Pen head
404	–	–	–	0
405	174531	USB	F	71
406	173277	RST	F	97
407	–	–	–	0
408	192044	USB	M	56
409	187055	RST	M	66
410	199499	PNC	M	95
411	190770	TLC	M	60
412	190461	TLC	M	84
413	183903	TLC	M	57
414	173348	TLC	M	63
415	180207	PNC	M	79
416	17225	ARG	F	57
417	191452	RST	M	80
418	183082	ARG	M	80
419	197242	RST	M	75
420	178511	ARG	M	75
421	171869	TLC	M	76
422	192616	TLC	F	75
423	188976	ARG	M	77
424	199911	USB	M	75
425	181026	ARG	M	75
426	196991	TRI	M	80
427	171223	TLC	M	80
428	185912	RST	M	80
429	176122	USB	M	80
430	189544	TLC	M	75
431	177149	TRI	M	71
432	174829	USB	F	80

Pen	Lot	Customer	Sex	Pen head
433	197589	ARG	M	80
434	177758	PNC	M	82
435	188278	TRI	M	82
436	179326	PPD	M	82



Special pen register

As of: 5/1/XX

Lot	Pen	Special pen	Tag #	Sex	In weight	Current weight	Date on lot	Date in special pen
172344	72	55	GY70658	M	704	1049	1/02	4/15
172352	24	55	WH67354	F	433	920	11/6	4/20
172512	114	94	WH68805	F	672	996	12/27	4/12
173501	98	94	OR73664	M	537	1054	12/11	5/1
173503	100	94	RD80791	M	568	1061	12/11	5/1
172137	112	95	BL47799	F	462	789	12/27	4/24
172137	112	95	BL47726	F	462	792	12/27	4/25
172513	113	95	PI5793	F	533	884	12/19	4/18
172513	116	95	RD81015	F	419	524	1/3	2/19
172516	119	95	YE73589	F	511	809	1/3	4/18
172516	119	95	YE73535	F	511	778	1/3	4/9
172520	123	95	PU47779	F	391	660	1/3	4/10
173049	90	95	TN47841	M	731	1155	11/27	2/12
173370	59	95	PU46546	M	542	1087	11/14	4/14
173371	58	95	OR72617	M	632	1103	11/14	3/17
173382	68	95	WH67889	M	620	1087	11/15	3/14
172324	New	190	GY70182	F	594	1155	10/5	4/12
172324	New	190	GY70188	F	594	1103	10/5	3/24
172339	New	190	GR78393	F	664	1132	10/5	2/21
172339	220	190	TN46806	M	480	1052	10/19	5/2
173053	New	190	RD78212	M	439	1161	8/1	3/9
173081	259	190	OR71104	M	528	1349	8/29	5/1
173109	179	190	TN46510	M	585	1235	10/5	5/1

173336	New	190	YE72115	M	634	1259	10/18	4/12
173337	186	190	PI74374	M	604	1270	10/19	5/1
173337	186	190	WH67173	M	572	1182	10/19	4/19
162326	New	191	YE71969	F	691	1398	10/6	3/20
172340	157	191	PU45996	M	441	946	10/20	3/25
173373	389	191	RD80365	M	539	1077	11/15	4/16
173502	99	191	WH68416	M	569	942	12/11	12/29
173603	345	191	RD82079	M	801	805	4/5	4/17
173337	186	Hospital	BL46299	M	503	1106	10/19	4/18
173337	186	Hospital	BL56477	M	522	1009	10/19	4/18
173337	186	Hospital	BL58429	M	580	1125	10/19	4/19



Appendix C

Move log

4/1/XX–4/30/XX

Date	Customer	Lot	Old pen	Number	Sex	New pen
4/2/XX	USB	198616	New	135	M	17
4/2/XX	PNC	191911	14	133	M	18
4/3/XX	USB	193539	New	134	M	66
4/3/XX	USB	198226	1	136	M	67
4/3/XX	USB	199686	208	122	M	Shipped
4/3/XX	ARG	192389	New	70	F	112
4/3/XX	USB	199675	New	87	F	113
4/5/XX	USB	199030	243	133	M	Shipped
4/6/XX	USB	193075	440	114	M	198
4/9/XX	PNC	193653	441	168	M	199
4/9/XX	USB	194014	295	201	M	Shipped
4/10/XX	USB	195843	New	114	M	198
4/11/XX	USB	195806	New	113	M	271
4/12/XX	USB	196885	New	70	M	348
4/12/XX	USB	191911	251	85	M	Shipped
4/16/XX	USB	193539	New	80	M	352
4/17/XX	USB	198226	New	134	M	365
4/18/XX	ARG	199686	New	120	M	46
4/18/XX	USB	172256	210	139	M	Shipped
4/19/XX	TLC	189284	New	135	M	65
4/19/XX	USB	185497	New	127	M	83
4/19/XX	PNC	198616	New	116	M	294
4/20/XX	PNC	192614	319	72	M	Shipped
4/20/XX	TLC	168542	180	97	M	Shipped

4/20/XX	PNC	189779	New	89	M	121
4/21/XX	ARG	185874	New	82	M	434
4/21/XX	PNC	174425	182	111	M	Shipped
4/21/XX	USB	178326	159	143	M	Shipped
4/22/XX	PNC	198523	New	234	F	212
4/22/XX	PNC	198776	New	116	F	180
4/23/XX	USB	175235	390	109	M	Shipped
4/24/XX	TRI	186114	New	119	F	78
4/25/XX	USB	187032	320	82	F	Shipped
4/28/XX	TRI	199231	New	85	M	206
4/28/XX	PNC	186708	218	94	M	Shipped
4/28/XX	USB	187443	New	246	M	327
4/29/XX	TLC	189400	275	125	M	182
4/30/XX	TRI	182421	294	112	F	Shipped



Appendix D

Map: Section A

1	2	3	4	5	6	7	8	9	10	12	13	14	15	16	17			
Feed Alley																		
34	33	32	31a	31	30	29	28	27	26	25	24	23	22	21	20	19	18	
Processing																	Hospital	
																	54	57
35	36	37	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	55
Feed Alley																		
74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58		
																Hospital		
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	94	97
																	93	95



Innovation mindset case studies – Where's da Beef
© 2018 Ernst & Young Foundation (US). All Rights Reserved.
SCORE No. 03789-181US



Map: Section C

213	212	211	210	209	208	207	206	205						
216	217	218	219	220	221	222	223	224						
Feed Alley														
246	245	244	243	242	241	240	239	238	237	236	235			
249	250	251	252	253	254	255	256	257	258	259	260			
Feed Alley														
285		284	283	282	281	280	279	278	277	276	275	274	273	
286	290	291		292	293	294	295	296	297	298	299	300	301	
288														
Feed Alley														
326		325		324	323	322	321	320	319	318	317	316		
327		328			330	331	332	333	334	335	336	337		
Feed Alley														



Map: Section D

234	233	232	231	230	229										
261	262	263	264	265	266										
Feed Alley															
272	271	270	269	268	267										
302	303	305	306	307	308										
Feed Alley															
315	314	313	312	311	310	309									
Feed Alley															
352	351	350	349	348	347	346									
338	339	340	341	342	343	344	345								
Feed Alley															
357	356	355	354	353	352	351	350	349	348	347	346				
358	359	360	361	362	363	364	365	366	367	368	369				
Feed Alley															
370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	
399	398	397	396	395	394	393	392	391	390	389	388	387	386	385	



Map: Section E

439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457
Feed Alley																		
438	437	436	435	434	433	432	431	430	429	428	427	426	425	424	423	422	421	420
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419
Feed Alley																		



Appendix E

Internal audit report

Count Date	Lot Number	Pen No.	Audit Count	WDB Inventory	Reconciling Items	Count Variance	Not Selected	12/31/XX Tab 2
1-3-XX	164510	17	113	113		-		
1-3-XX	161514	18	112	112		-		
1-3-XX	163021	23	87	87		-		
1-3-XX	162374	180	84	84		-		
1-3-XX	162815	182	86	86		-		
1-3-XX	162164	186	62	62		-		
1-3-XX	Mixed	101	107	107		-		
1-3-XX	3418	266	112	115		(3)		
1-3-XX	3242	264	98	100		(2)		
1-3-XX	3288	311	101	102		(1)		
1-3-XX	4806	343	93	93		-		
1-3-XX	2338	339	55	57		(2)		
1-3-XX	1445	338	55	53		2		
1-3-XX	2139	377	54	52		2		
1-3-XX	0	379	0	0		-		
1-3-XX	3002	381	52	52		-		
1-3-XX	2993	406	89	92		(3)		
1-3-XX	0	405	0	86	86	-		
1-3-XX	2674	410	95	92		3		
1-3-XX	1771	44	62	59		3		
1-4-XX	162920	209	129	129		-		
1-4-XX	162287	210	138	140		(2)		
1-4-XX	163027	212	154	154		-		
1-4-XX	163442	345	61	59		2		
1-4-XX	162709	350	85	85		-		
1-4-XX	162188	348	70	70		-		
1-4-XX	161580	340	65	65		-		
1-4-XX	161815	376	64	65		(1)		
1-4-XX	162003	341	64	63		1		
1-4-XX	163211	320	82	0	82	-		
1-5-XX	3738	262	81	80		1		
1-5-XX	3518	390	111	114		(3)		
1-5-XX	3799	389	247	247		-		
1-5-XX	3886	92	148	152		(4)		
1-5-XX	2907	59	125	127		(2)		
1-5-XX	4289	58	128	124		4		
TOTAL			3,269	3,278		(5)	29,329	32,598
Percent of Total 12/31/20XX			10.02%	10.28%		-0.15%	90.0%	100%