

NATIONAL CRANBERRY COOPERATIVE

WHAT'S THE PROBLEM?

THERE'S NOT ENOUGH CAPACITY TO PROCESS WET BERRIES WITHIN 11 HOURS.

- 1 *truck backup*
- 2 *significant overtime expenses*
- 3 *high inventory levels*

ROOT CAUSE

DRYERS ARE THE BOTTLENECK OF THE SYSTEM.

600
BBLS/HR
dryer capacity

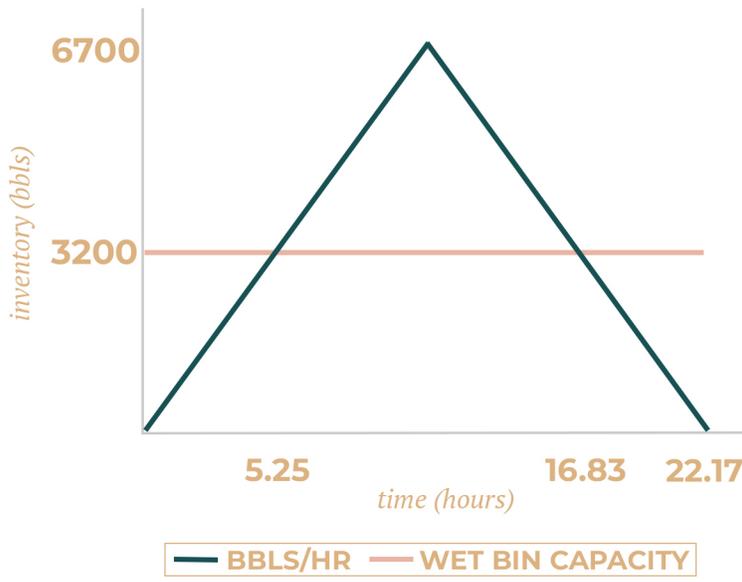
1209
BBLS/HR
demand



POTENTIAL
BOTTLENECKS:
separators

kiwanee dumpers

INVENTORY BUILDUP



ASSUMING DEMAND OF 19,000 TOTAL BERRIES WITH 70% BEING WET BERRIES

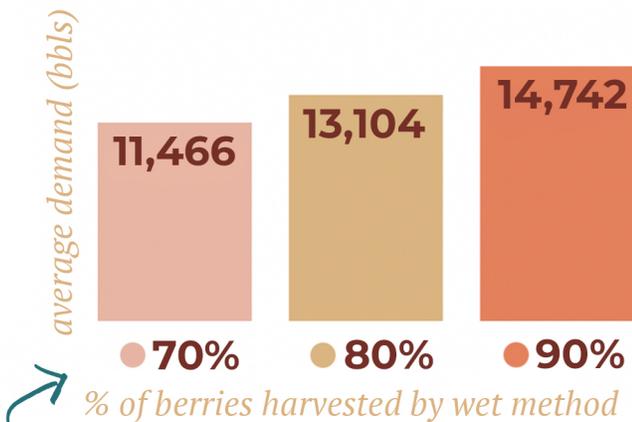
- ▶ **22.17 HOURS**
to unload & process all berries
- ▶ **12:15 PM**
wet berry bins fill up
- ▶ **46.67 TRUCKS**
in the queue at the end of shift
- ▶ **12:50 AM**
last truck unloaded

THE ENTIRE SYSTEM IS CAPACITY CONSTRAINED.

demand of wet berries exceeds dryer capacity

ALTERNATIVES

1 DON'T CHANGE ANYTHING



BASED ON PAST AVERAGE DAILY DEMAND DATA DURING PEAK DAYS

223%
LOAD FACTOR

if on an average peak day, wet berries grew to 90% of total demand and the operation didn't change

HARVESTING CRANBERRIES USING THE WET METHOD IS GROWING IN POPULARITY. KEEPING THE SYSTEM THE SAME IS NOT A SMART LONG-TERM SOLUTION.

2 ADD A BIN

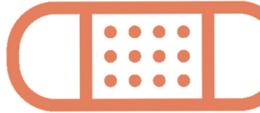
based on data from a previous season's peak days, adding bins would decrease trucks in the queue at the end of the shift

DATE	capacity 3200 # OF TRUCKS AT 7PM	capacity 3600 # OF TRUCKS AT 7PM
SEPT. 23	41	35
SEPT. 24	46	40
SEPT. 25	40	34
SEPT. 29	44	39
SEPT. 30	38	33

\$10,000
INVESTMENT
3,200 BBLS
STORAGE

↳ **3,600 BBLS**
STORAGE

DRYERS ARE THE BOTTLENECK WITH A CYCLE TIME OF 600 BBLS/HR.



ADDING BINS DOES NOT INCREASE THE SYSTEM CAPACITY, SO IT WOULD ONLY PUT A BANDAID ON THE ROOT ISSUE.

3 ADD ONE DRYER

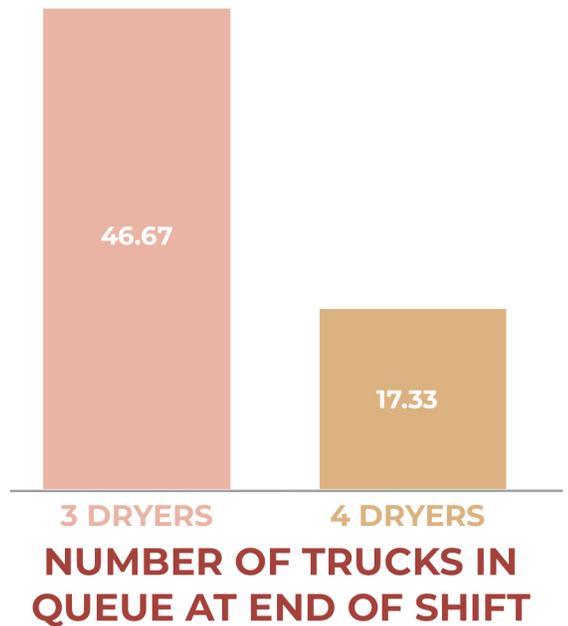
based on data from a previous season's peak days, adding a dryer would decrease the time it takes to process wet berries



\$60,000
PER DRYER

600 BBLS/HR
CAPACITY

↳ **800 BBLS/HR**
CAPACITY



ADDING A DRYER INCREASES THE SYSTEM'S CAPACITY, WHICH ADDRESSES THE CURRENT BOTTLENECK.

RECOMMENDATIONS



PURCHASE A DRYER

Our goal is to reach an effective capacity that can be sustainable over the long term as demand rises.



ADDING A DRYER ADDRESSES THE CURRENT BOTTLENECK.

time to process berries with 4 dryers given an increase in wet berries



3

time needed to make a return on investment

YEARS



ADDING A DRYER WOULD HELP WITH CURRENT DEMAND. TO DEAL WITH THE RAPID INCREASE IN WET BERRY HARVESTING, WE NEED TO IMPLEMENT OTHER STRATEGIES TO CONTROL THE DEMAND ON THE SYSTEM.



OFFER INCENTIVES FOR EARLY OR LATE HARVESTING



FLATTEN THE DEMAND CURVE BY HAVING LESS CONCENTRATED PEAK DAYS.



STRONGER DATA & SCHEDULE SHARING

INTEGRATING DATA & SCHEDULES BETWEEN THE PLANT AND FARMS WOULD ALLOW FOR BETTER FORECASTS AND PREPARATION.

