



Without inventory categorization or pre-laydown separation

Intelligent bale management system!

Advantages



- No need to separate inventory into classes or pre-laydown area
- Efficient Barré Control
- Less interruption in production due to yarn lot changes
- More quality in yarn production
- More efficiency of the spinning machinery
- All HVI, Afis and other parameters controlled in the laydowns
- Uniformed laydowns throughout the time
- Smaller inventories needed
- Cost reduction
- Less operational workforce
- Optimized logistics for cotton management
- Wider range of choices when purchasing cotton

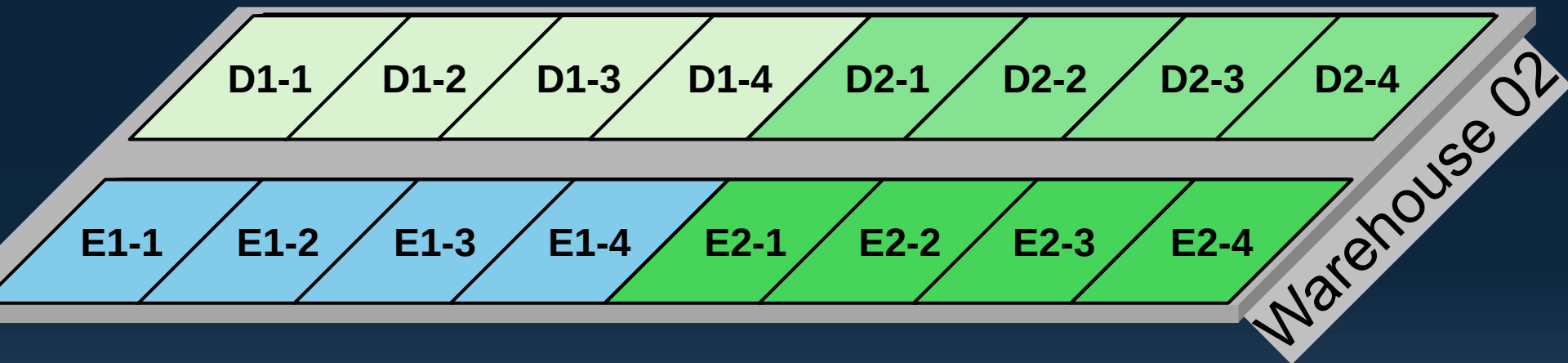
How does it work?

HOW DOES IT WORK?

Piles identification in the warehouse



- Each warehouse is divided in sectors (in this example D and E).
- Each sector is divided into areas (in this example D1, D2 , E1 and E2) .
- Each area is divided into piles where 3 or more bales are placed wide (in this example 16 piles).



So, each physical pile should be registered in OptCotton.

For each company, this configuration changes according to its reality.

Pile position label



A label is created with lot (container or truck) identification, physical pile identification and position of the bale in the lot.

Label when the bale has supplier HVI

OptCotton Bale Management System	
Lot 2517-9701	Physical pile B12-02
Cotton type BRAZILIAN - BOM FUTURO	Arrival date 28/09/2025
Physical bale position 097	
	

Label for 100% internal HVI classification

OptCotton Bale Management System	
Lot 10204080	Physical pile B12-02
Cotton type Turkish - 1234567982	Arrival date 28/09/2025
Physical bale position 052	
 00110204080052	

Bale label

Lot 10204080	00110204080052
Physical position 052	

Sample label

Cotton input

supplier HVI

Cotton input – supplier HVI – step 1



Before stacking bales, it must enter lot (truck or container) information into OptCotton. Each lot must be entered separately.

Lot	...	Arrival date	Issue date	Contract	Stage
2517-5841		31/08/2025	31/08/2025	90000001	28
Bales qty	Avg bale weight	Tare by bale	Net weight	Gross weight	
112	225		25200,00	25200,00	
Price	Cotton type	...	Origin	...	Producer
0,00	AUS 2517		AUSTRALIA		AUSTRALIA - SM
Main pile	Empty	Physical pile	Position	Nonstandard pile	Supplier's HVI lot
2517-5841		D1-01	1	-	GAOU7425841
☐ All lots					
SaveNewDeletePrint balesBalesPhysical pile Labels					

pre
rting

100



Cotton input – supplier HVI – step 3



The labels of the lot must be placed sequentially on the bales, starting with 001, and must be placed so that it is easy for the forklift to pick up the bales in ascending position order.



In this example, from 001 to 112.

Cotton input – supplier HVI – step 4



If WIFI **available** in the warehouse

Using the mobile scanner and OptCotton Mobile.

it is necessary to scan the supplier's barcode (2) of each bale in the lot in ascending order of position



Cotton input – supplier HVI – step 4



If WIFI **not available** in the warehouse

Using the mobile scanner, it is necessary to create a text file with the lot number and scan all bales.

For each bale, it must first scan the QR code with the pile position (1) and then the supplier's barcode (2).

After scanning all bales of the lot, should be read the file in OptCotton.

This an example of a text file after scanning

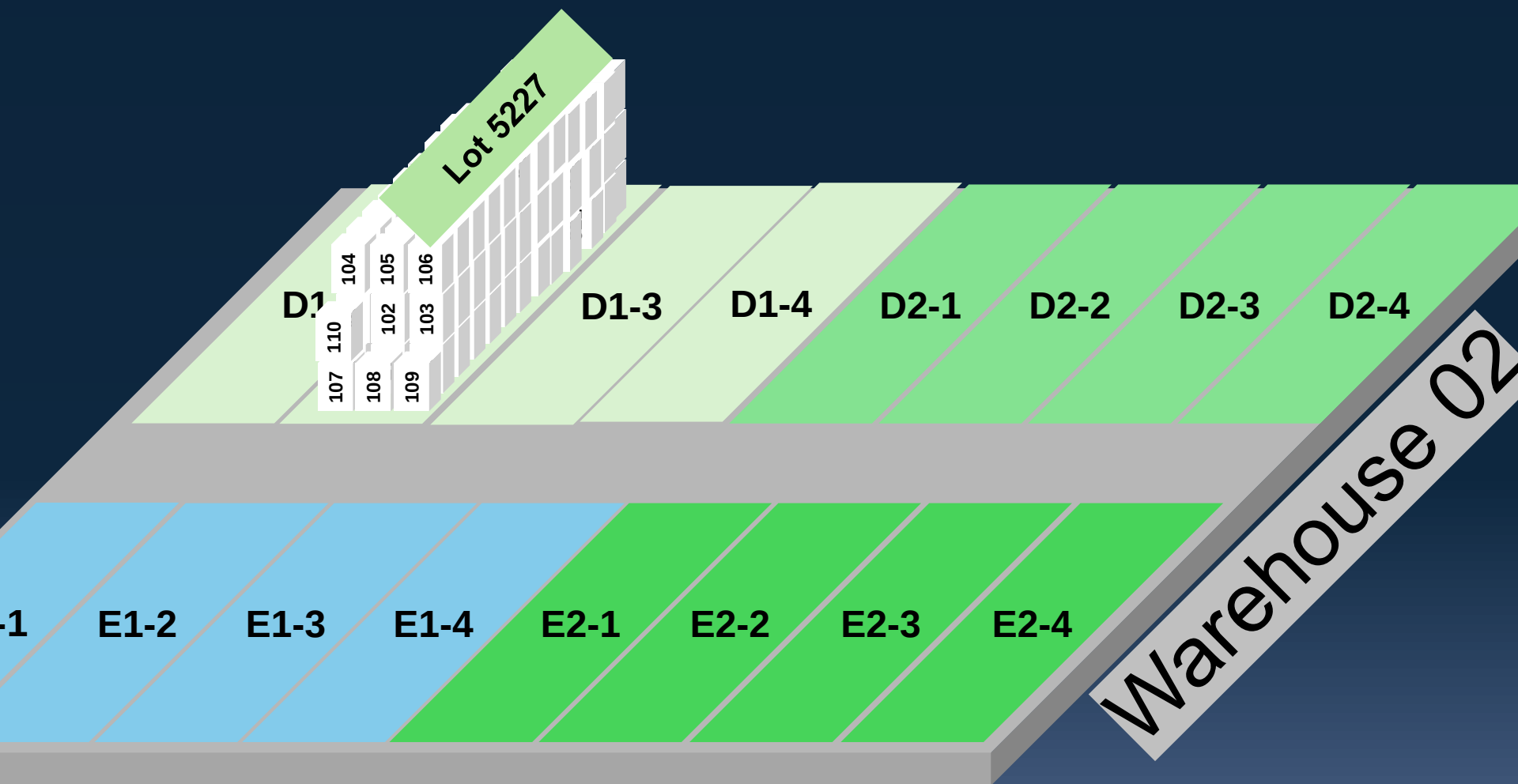


```
3 2517-5227 001
RC908086
3 2517-5227 002
RC908085
3 2517-5227 003
RC908084
3 2517-5227 004
RC908083
3 2517-5227 005
RC908073
3 2517-5227 006
```

Cotton input – supplier HVI – step 5



After the labels are placed and all bales are scanned, the bales of the lot must be stacked by the forklift in ascending position order.





Cotton input

100% internal HVI testing

Cotton input – 100% internal HVI testing – step 1



Before stacking bales, it must enter lot (truck or container) information into OptCotton. Each lot must be entered separately.

Lot	...	Arrival date	Issue date	Contract	Stage
25175841		de out. de 2025	de out. de 2025	0	0
Bales qty	Avg bale weight	Tare by bale	Net weight	Gross weight	Price
120	226,000	0,000	27120,000	27120,000	0,0000
Cotton type	...	Origin	...	Producer	...
TR - Ozatabaylar		Lazer		Akcan	
Main pile ☐ Empty	Selector name	Physical pile	Position	Supplier's HVI lot	☐ All lots
25175841	-	D-1 3	1	-	
Save New Delete Print bales Bales Physical pile Labels					

Cotton input – 100% internal HVI testing – step 2



After launching the lot into the system, it is necessary to print the bales labels, OptCotton will print one label for each bale and sample, starting from position 001 up to the total number of bales in the lot.

Cotton lot input - Bales

Supplier: akcon yag teks Lot: 25175841

Bale ID - Supplier: Include bale

Include by file Include by HVI lot Classify by avg

Bale ID - Internal sequence: **25175841121** Generate bales

Bales qty: Link supplier bale id

Bales assigned in the lot: ☒ Select all bales ☐ Print bale when including

Bale ID	Pile	Weight	RD	+D	MIC	STR	UHM	U3	MAT
25175841120		226,000							
25175841119		226,000							
25175841118		226,000							
25175841117		226,000							
25175841116		226,000							
25175841115		226,000							
25175841114		226,000							
25175841113		226,000							

Bales qty assigned for the lot = 120

Labels by bale: 1 ☐ Sample Label **Print label** Quality Details Quality Summary Delete bales Exit

OptCotton Bale Management System

Lot: **25175841** Physical pile: **D1-3**

Cotton type: **Turkish** Serial date: **12/10/2025**

Physical bale position: **001**

QR code: 0125175841001

Lot: **25175841** 0125175841001

Physical position: **001**

QR code: 0125175841001

OptCotton Bale Management System

Lot: **25175841** Physical pile: **D1-3**

Cotton type: **Turkish** Serial date: **12/10/2025**

Physical bale position: **002**

QR code: 0125175841002

Lot: **25175841** 0125175841002

Physical position: **002**

QR code: 0125175841002

Cotton input – 100% internal HVI testing – step 3



The labels of the lot must be placed sequentially on the bales, starting with 001, should be put one label on the bale and a smaller label with the same number on the sample.

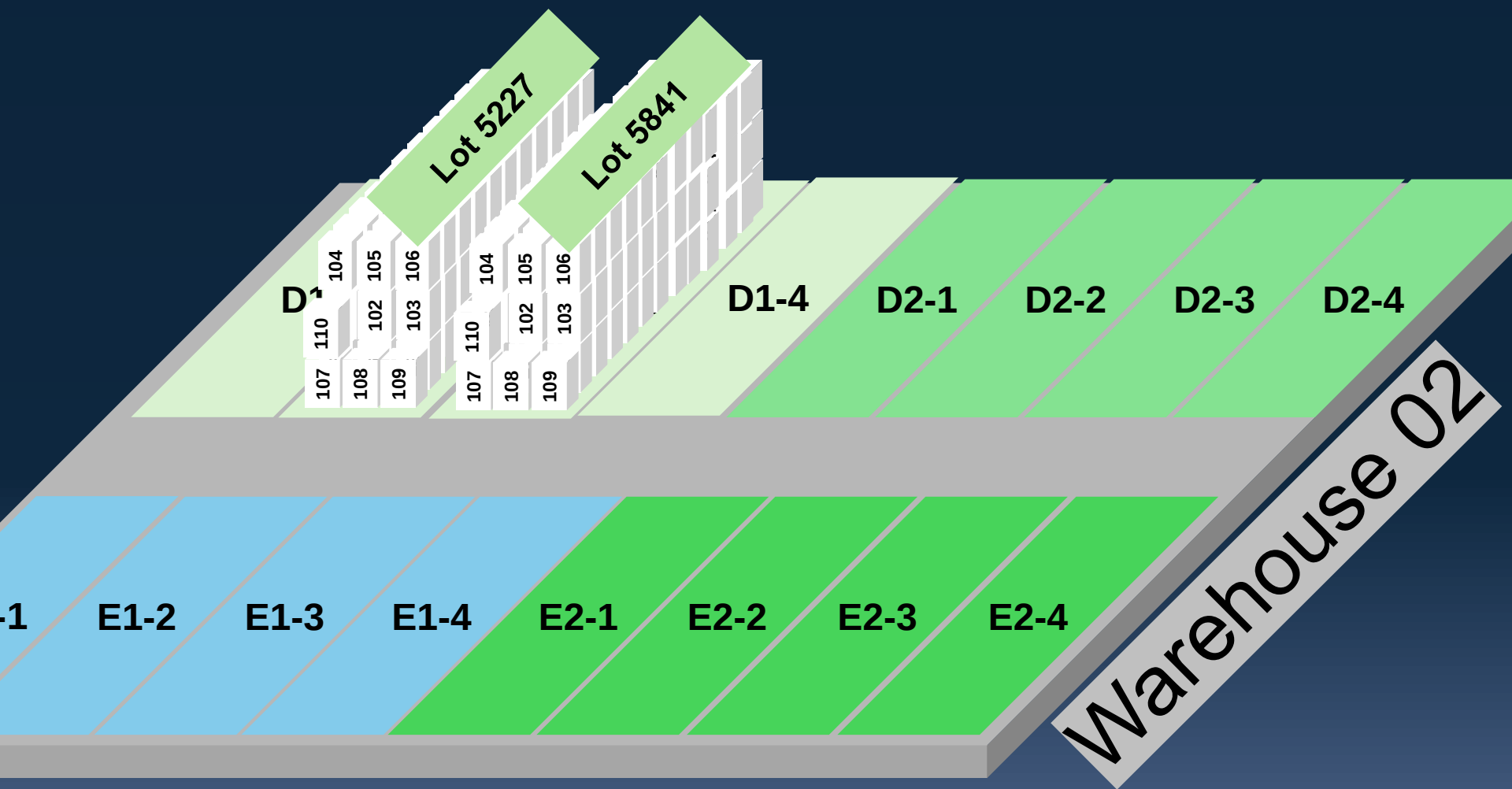


In this example, from 001 to 112.

Cotton input – 100% internal HVI testing – step 4



After the labels are placed and all samples collected, the bales of the lot must be stacked by the forklift in ascending position order.

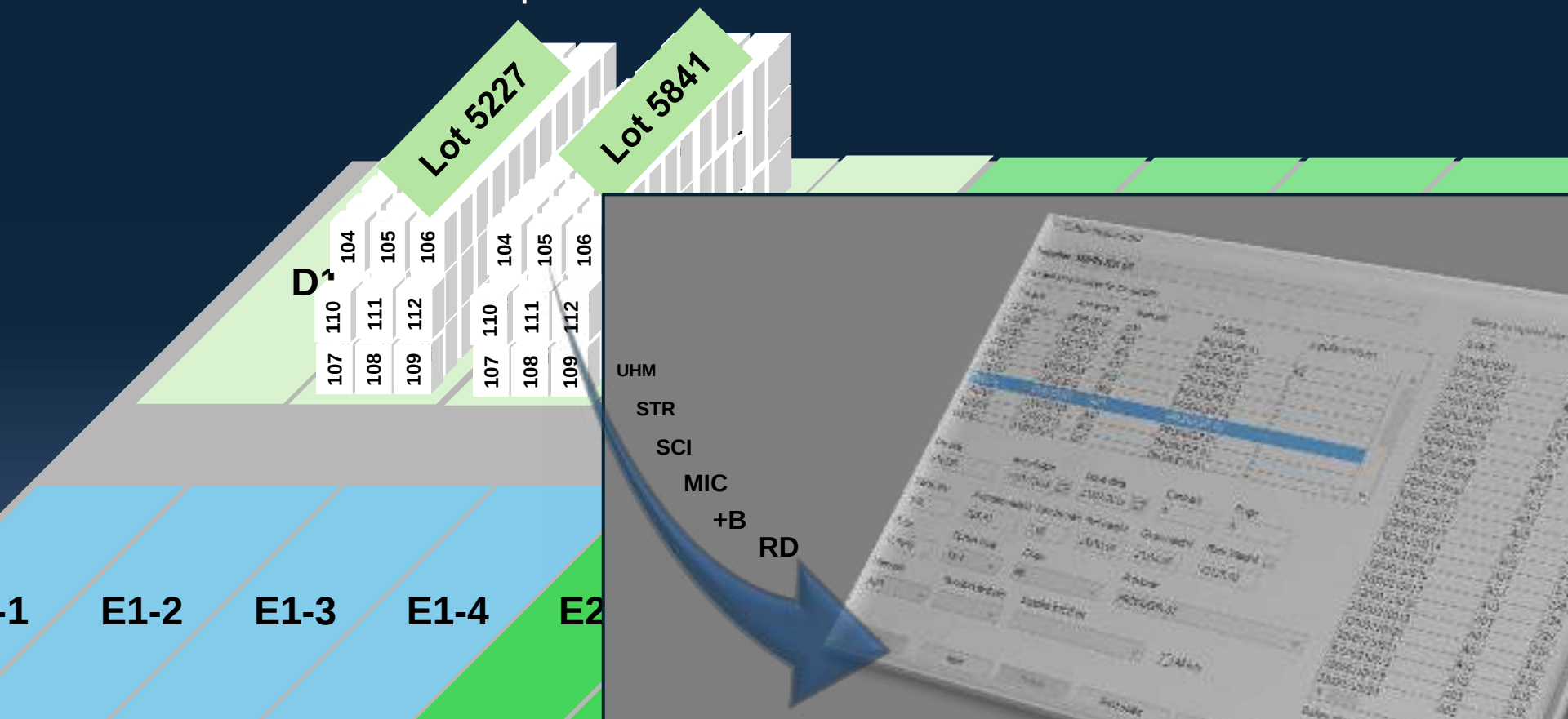


Cotton input – 100% internal HVI testing – step 5



After testing the samples in HVI it is necessary to enter the quality information in OptCotton.

Important: When less than 100% of the bales of a lot are classified, OptCotton attributes an average value for the bales of the lot from which were not taken a sample.

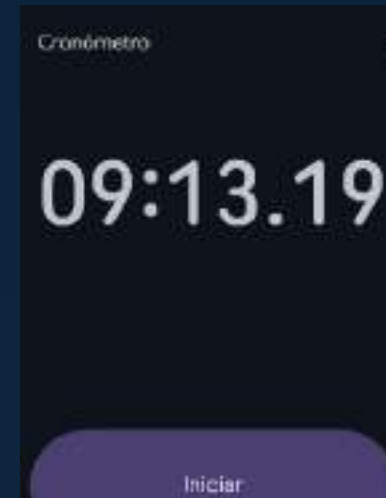


Cotton input – time to label and scan



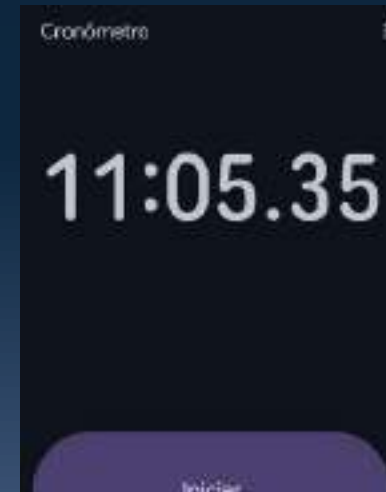
Labels

It was measured the time it took to place the stickers in one lot(container) with 112 bales. It took 9 minutes and 13 seconds to place the stickers on the bales.



Scanning

It was measured the time to scan both bale stickers for one container with 112 bales, it took 11 minutes and 05 seconds to scan both stickers for each bale in the container.



Inventory available for mixing process



Mixing process

configurations

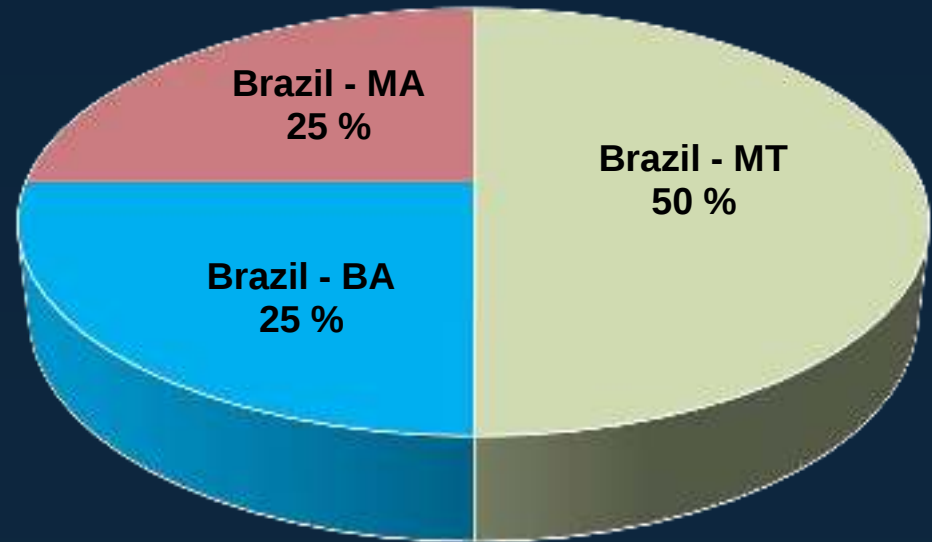
Mixing process - configurations



1 - Percentages of use of cotton types

It is necessary to inform which cotton types will be used in each production line with their respective percentages.

Cotton type can be origin, producer, supplier, cotton type or a particular lot.



Cotton type permits to limit the use of cotton with a given problem.

Optcotton can be configured to automatically adjust the percentages based on available inventory quantities, or it can be configured to make adjustments manually by the user. The desired option can be configured for each production line.

Mixing process - configurations

2 - Lots qty running simultaneously



It is necessary to inform the number of lots to be used simultaneously for the production line.

In this presentation we set 8 lots, but we recommend 10 to 15 lots (containers) to ensure accurate laydowns quality for all parameters.

Mix type registration

Code: 1 Description: LINE 01 Monthly consumption: 500000.0

Piles in use: 8 First warehouse: 0 Last warehouse: 0 Minimum inventory for mix (days): 1.0 Priority classification: 1

Cotton type Producers

Code	Description	Monthly cons...	Piles in use	Minimum inv...	Priori
1	LINE 01	500000.0	8	1.0	1

Save New Delete Exit

Mixing process

add new lots for use

Mixing process - add new lots for use



Once the number of lots in simultaneous use is defined, OptCotton manages it and adds new lots automatically.

WH	Lot	Bales qty	Producer	Cotton type	Origin	RD	+B	MIC	UHM	STR	UI	SFI	SCI	MAT	ELONG	T
2	0574	110	BR MA 0789853690 ...	BRA MA	BRAZIL - MA	79,41	8,40	4,39	29,73	29,27	81,37	10,09	128,94	86,05	6,75	2,1
2	1173	110	BR MA 0789853690 ...	BRA MA	BRAZIL - MA	77,61	8,75	4,38	30,22	30,66	82,14	9,00	136,82	86,01	6,85	3,1
2	5227	110	BR MT 0789853464 ...	BRA MT	BRAZIL - MT	78,74	8,50	4,40	28,94	30,11	82,83	8,81	136,31	88,31	6,66	2,1
2	5630	110	BR BA 0789853437 S...	BRA BA	BRAZIL - BA	75,77	8,03	4,25	29,89	29,85	81,97	9,58	132,60	86,29	5,81	4,1
2	5655	110	BR BA 0789857635 ...	BRA BA	BRAZIL - BA	80,19	8,25	3,44	29,39	27,98	79,90	11,79	126,94	84,44	5,63	3,1
2	5745	110	BR MT 0789855466 ...	BRA MT	BRAZIL - MT	79,51	9,60	3,81	27,74	28,31	79,56	10,95	119,67	84,87	6,39	2,1
2	5761	110	BR MT 0789853855 ...	BRA MT	BRAZIL - MT	73,00	8,84	4,14	28,85	28,52	81,97	9,24	126,31	85,95	6,66	1,1
2	5841	110	BR MT 0789853361 ...	BRA MT	BRAZIL - MT	80,58	7,79	4,24	28,10	26,07	77,92	11,48	102,12	85,32	6,54	2,1
2	7049	110	BR BA 0789853437 S...	BRA BA	BRAZIL - BA	78,78	7,65	3,85	30,30	30,83	82,26	9,06	143,15	85,77	5,44	3,1
2	7139	110	BR BA 0789853935 ...	BRA BA	BRAZIL - BA	78,71	8,49	4,34	27,14	31,03	78,47	13,47	115,40	86,21	6,34	2,1
2	7201	110	BR BA 0789857635 ...	BRA BA	BRAZIL - BA	80,58	8,17	3,41	28,87	27,60	79,40	12,70	123,05	84,07	5,81	3,1
2	7633	110	BR BA 0789853935 ...	BRA BA	BRAZIL - BA	78,10	8,07	4,53	27,43	27,87	80,00	11,65	111,68	87,11	5,66	3,1
2	8996	110	BR MA 0789853690 ...	BRA MA	BRAZIL - MA	79,10	9,00	4,09	29,48	30,19	82,16	9,76	137,73	85,36	6,73	2,1

The lots in blue are at the front of the pile and are available for selection, while containers in orange are behind other lots and cannot be used.

Mixing process - add new lots for use



OptCotton will select the best combination of lots to always maintain the same quality in the process for all parameters, according to the quality of the available inventory.

Inventory	Weight	RD	+B	MIC	UHM	STR	UI	SFI	SCI	MAT	ELONG	TRASH	TRCNT	TRAREA
Total	314600,000	78,53	8,42	4,09	28,97	29,17	80,78	10,62	126,63	85,80	6,24	2,99	33,94	0,37
Total mix	3,000	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Available	314600,000	78,53	8,42	4,09	28,97	29,17	80,78	10,62	126,63	85,80	6,24	2,99	33,94	0,37

In this example, there are a total of 13 lots, 314 tons, with the following average quality:

RD = 78.53

STR = 29.17

MAT = 85.80

TRASH

+B = 8.42

UI = 80.78

ELONG = 6.24

COUNT = 33.94

MIC = 4.09

SFI = 10.62

TRASH = 2.99

TRASH

UHM = 28.97

SCI = 126.63

AREA = 0.37

Mixing process - add new lots for use

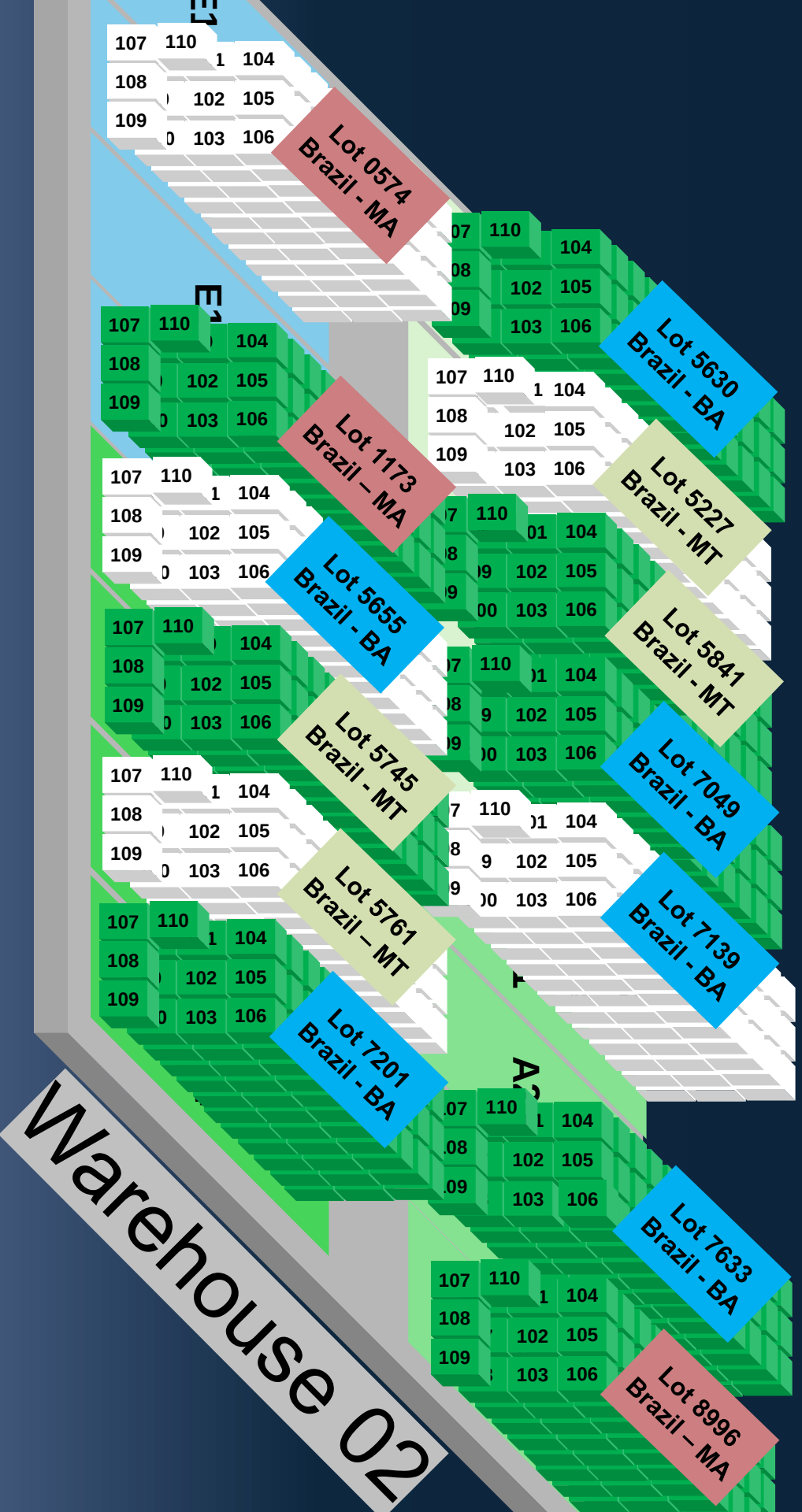


OptCotton automatically selected 8 lots (in green), 193 tons to start the laydowns of the production line, the averages are very close to the total available inventory.

WH	Lot	Bales qty	Producer	Cotton type	Origin	RD	+B	MIC	UHM	STR	UT	SFI	SCI	NAT	ELONG	TI
2	5630	110	BR BA 2789853437 S...	BRA BA	BRAZIL - BA	75,77	8,03	4,25	29,89	29,05	81,97	9,58	132,60	86,29	5,81	4,7
2	7049	110	BR BA 2789853437 S...	BRA BA	BRAZIL - BA	78,76	7,65	3,85	30,30	30,83	82,26	8,06	143,15	85,77	5,44	3,3
2	7201	110	BR BA 0789857635 ...	BRA BA	BRAZIL - BA	80,58	8,37	3,41	28,87	27,60	79,40	12,70	123,05	84,07	5,81	3,1
2	7633	110	BR BA 0789853835 ...	BRA BA	BRAZIL - BA	78,10	8,07	4,53	27,43	27,87	80,00	11,69	111,68	87,11	5,86	3,3
2	1173	110	BR MA 0789853690 ...	BRA MA	BRAZIL - MA	77,81	8,75	4,36	30,22	30,66	82,14	9,00	136,82	86,01	6,85	3,3
2	8996	110	BR MA 0789853690 ...	BRA MA	BRAZIL - MA	79,10	9,00	4,09	28,48	30,19	82,16	9,76	137,73	85,36	6,73	2,1
2	5745	110	BR MT 0789855466 ...	BRA MT	BRAZIL - MT	79,51	8,60	3,81	27,74	28,31	79,56	10,95	119,67	84,87	6,39	2,2
2	5841	110	BR MT 0789853361 ...	BRA MT	BRAZIL - MT	80,58	7,79	4,24	28,10	26,07	77,92	11,48	102,12	85,32	6,54	2,1
2	0574	110	BR MA 0789853690 ...	BRA MA	BRAZIL - MA	79,41	8,40	4,39	29,73	29,27	81,37	10,09	128,94	86,05	6,75	2,4
2	5227	110	BR MT 0789853464 ...	BRA MT	BRAZIL - MT	78,74	8,50	4,40	28,94	30,11	82,83	8,81	136,31	88,31	6,66	2,4
2	5655	110	BR BA 0789857635 ...	BRA BA	BRAZIL - BA	80,19	8,25	3,44	29,39	27,99	79,90	11,79	126,94	84,44	5,63	3,4
2	5761	110	BR MT 0789853855 ...	BRA MT	BRAZIL - MT	73,00	8,94	4,14	28,85	28,52	81,97	9,24	126,31	85,95	6,66	1,4
2	7139	110	BR BA 0789853835 ...	BRA BA	BRAZIL - BA	78,71	8,49	4,34	27,14	31,03	78,47	13,47	115,40	86,21	6,34	2,4

Mixing process - add new lots for use

The 8 lots automatically selected by OpCotton for mixing process in Line 1.



Mixing process - add new lots for use



The average quality of the 8 selected lots is very similar to the total inventory available for the production line

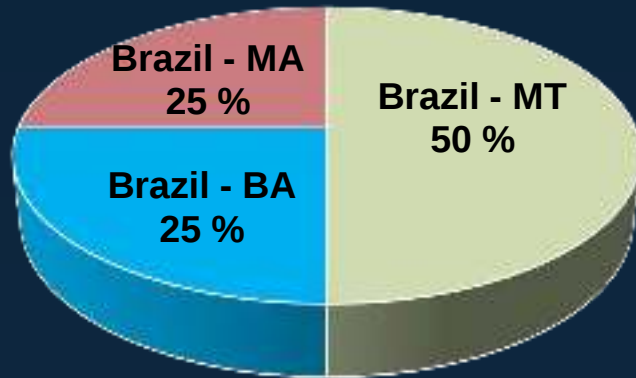
Inventory	Weight	RD	+B	NIC	UHM	STR	UI	SFI	SCI	MAT	ELONG	TRASH	TRCNT	TRAREA
Total	314600,000	78,53	8,42	4,09	28,97	29,17	80,78	10,62	126,63	85,80	6,24	2,99	33,94	0,37
Total mix	0,000	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Available	314600,000	78,53	8,42	4,09	28,97	29,17	80,78	10,62	126,63	85,80	6,24	2,99	33,94	0,37
Selected pile	193600,000	78,78	8,41	4,07	29,01	28,92	80,68	10,52	125,85	85,60	6,18	3,17	36,90	0,40
Total mix + Selected pile	193600,000	78,78	8,41	4,07	29,01	28,92	80,68	10,52	125,85	85,60	6,18	3,17	36,90	0,40

So, these will be the averages of the first laydowns.

Inventory available for mixing process



OptCotton determines the available inventory for mixing process in each production line through quality, percentage used of each cotton type.



Quality of the mixing inventory

WW SYSTEMS LTDA
Inventory quality report
PLANT 1

Machine	Roll	Model	RC	Ad	SMC	UPL	STY	VI	EF	SCI	MAT	ELON	FRAB	TRUN	TRAR
1001	1450	314-000	16.46	8.44	4.10	20.84	20.10	20.77	13.50	126.2	65.82	8.27	2.03	32.04	0.36
1002	1520	313-000	18.72	8.41	4.07	22.01	20.67	20.60	10.52	125.8	65.60	6.18	0.17	30.00	0.40

Mixing process

Example of a laydown with 52 bales in the blowing room line

Mixing process - planning



First step to elaborate a laydown: definition of quality. Based on the available quality in inventory as well as the quality of the previous laydowns, OptCotton defines the following quality for the laydown.

Available Inventory Quality

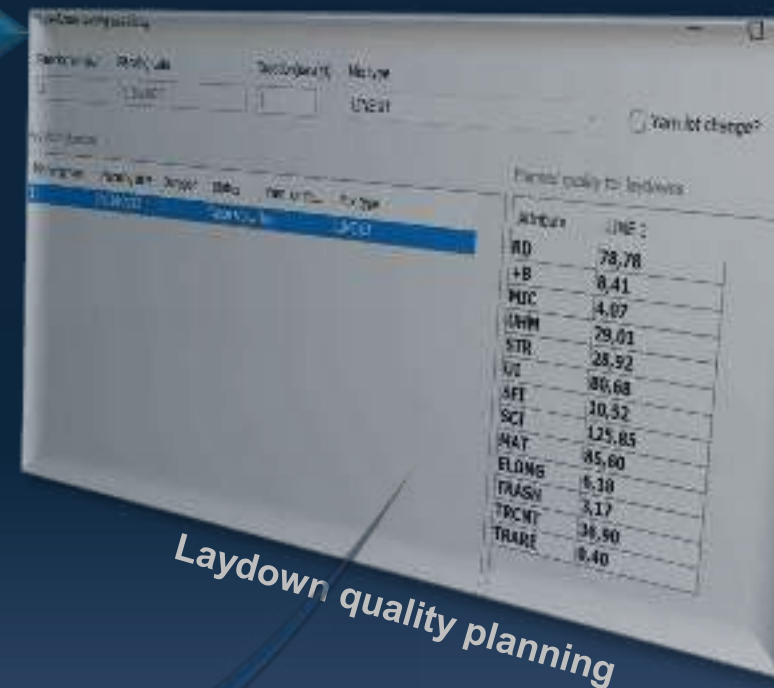


Previous Laydowns Quality



Quality planned for the next laydown

RD	78.78	SCI	125.85
+B	8.41	MAT	85.60
MIC	4.07	ELONG	6.18
UHM	29,01	TRASH	3.17
STR	28.92	TRASH CNT	36.90
UI	80.68	TRASH AREA	0.40
SFI	10.52		



Laydown quality planning

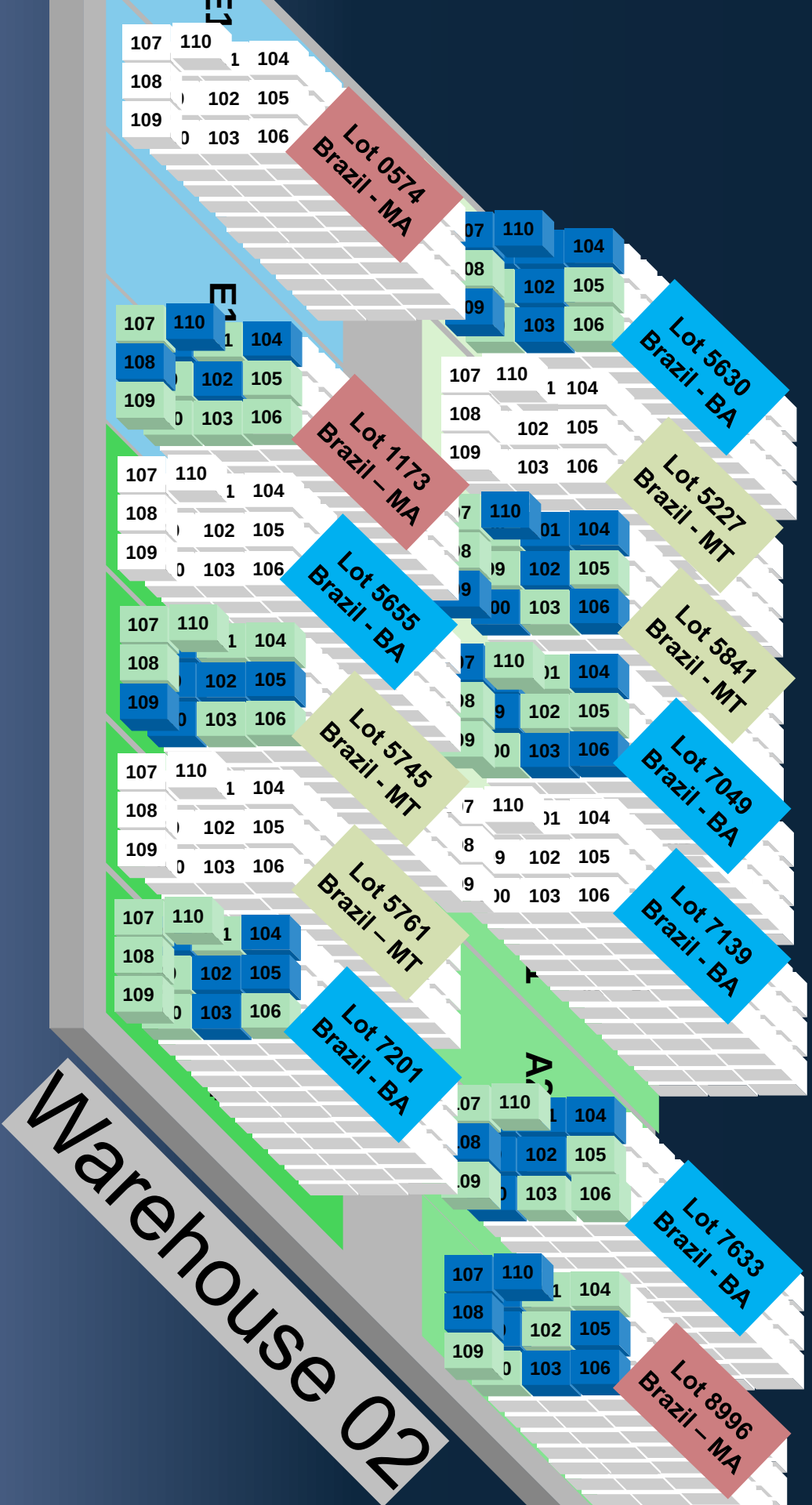
Mixing process – bale selection

OptCotton knows position in the pile of each bale, then, the system will automatically use the 104 bales (in green) at the front of each pile of production line and will select 52 bales for the laydown in order to achieves similar averages according to the planned quality.



Mixing process – bale selection

From 104 bales available in the front of the piles, OptCotton selected 52 bales for the laydown (in blue).



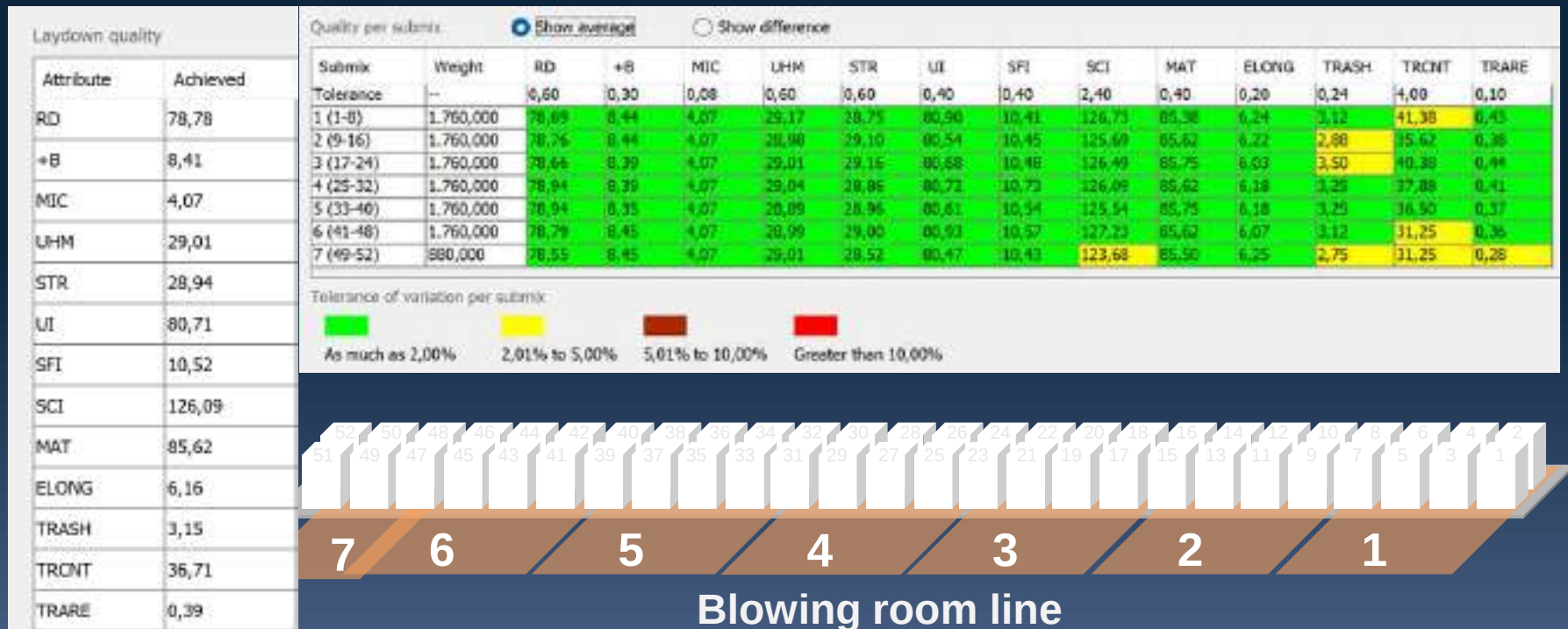
Mixing process – layout position



The laydown is fractioned in sub-laydown (submix), each sub-laydown of 8 bales shows the similar average quality value according the total laydown average for all controled parameters.

A uniform distribution by cotton type is also made.

It assures total uniformed distribution of the piles in the blowing room line.



Mixing process – laydown



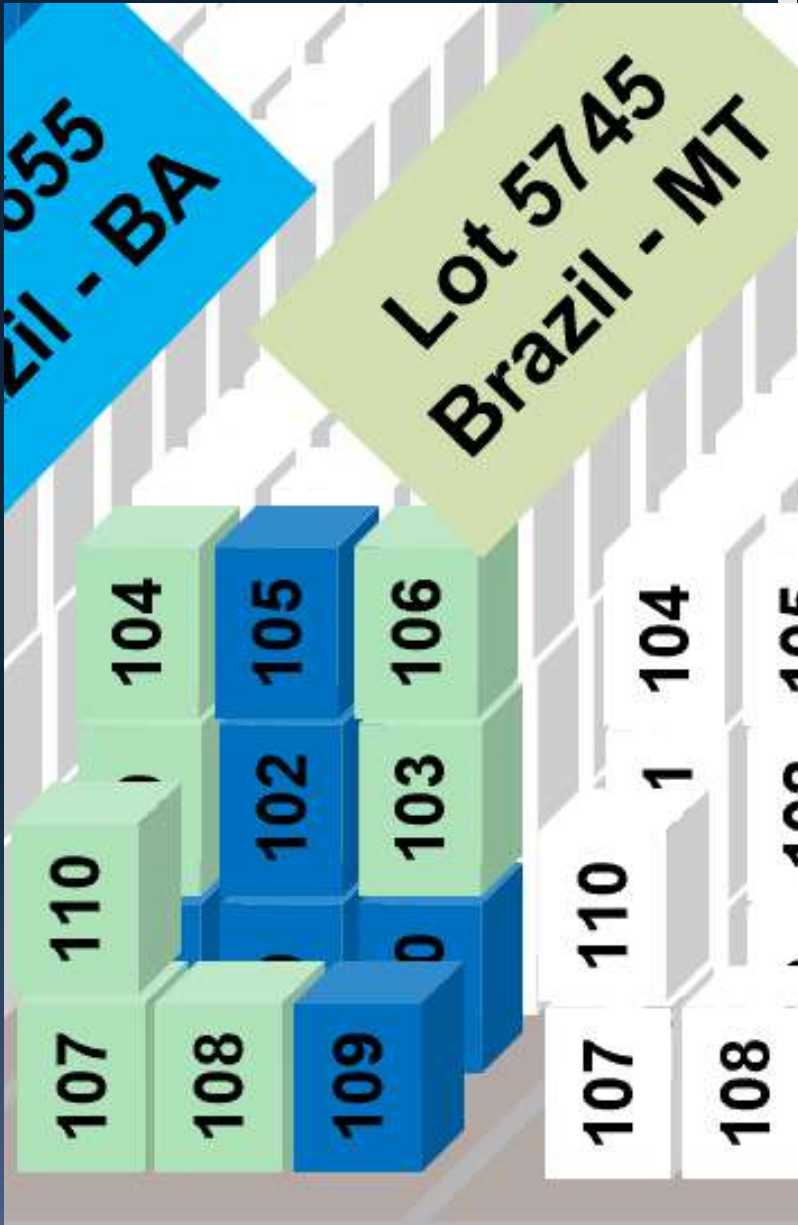
Using the 8 lots selected for the production line, controlling 13 quality parameters, the average quality of prepared laydown by OptCotton is very close to the average of the 8 lots and also it is very close to the planned quality.

Laydown quality	Parameter Importance	8 Lots Average	Planned Quality	1st Laydown Average
Attribute	Priority	Inventory	Planned	Achieved
RD	300	78,78	78,78	78,78
+B	500	8,41	8,41	8,41
MIC	700	4,07	4,07	4,07
UHM	200	29,01	29,01	29,01
STR	200	28,92	28,92	28,94
UI	100	80,68	80,68	80,71
SFI	150	10,52	10,52	10,52
SCI	50	125,85	125,85	126,09
MAT	50	85,60	85,60	85,62
ELONG	50	6,18	6,18	6,16
TRASH	50	3,17	3,17	3,15
TRCNT	50	36,90	36,90	36,71
TRARE	50	0,40	0,40	0,39

les

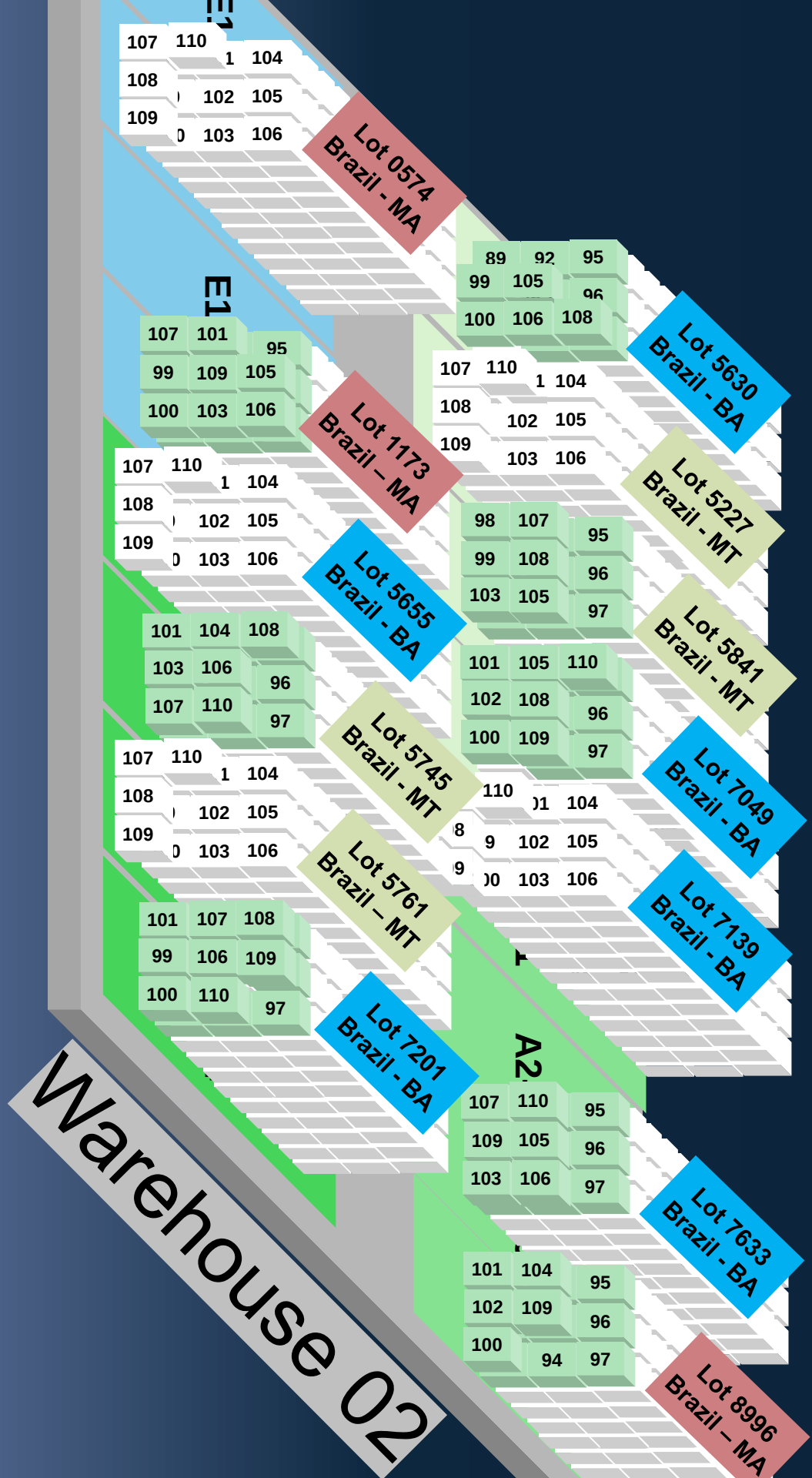
Bales qty 8

These bales must be transferred from the warehouse to the blow room preparation area. Following the bale positions shown in this report for each lot, the forklift operator must pick the bales according to the bale position label placed in each bale.



Inventory available for mixing process

After transferring the bales of 1st laydown to the blow room preparation área, this is the inventory available for the second laydown preparation.



Results

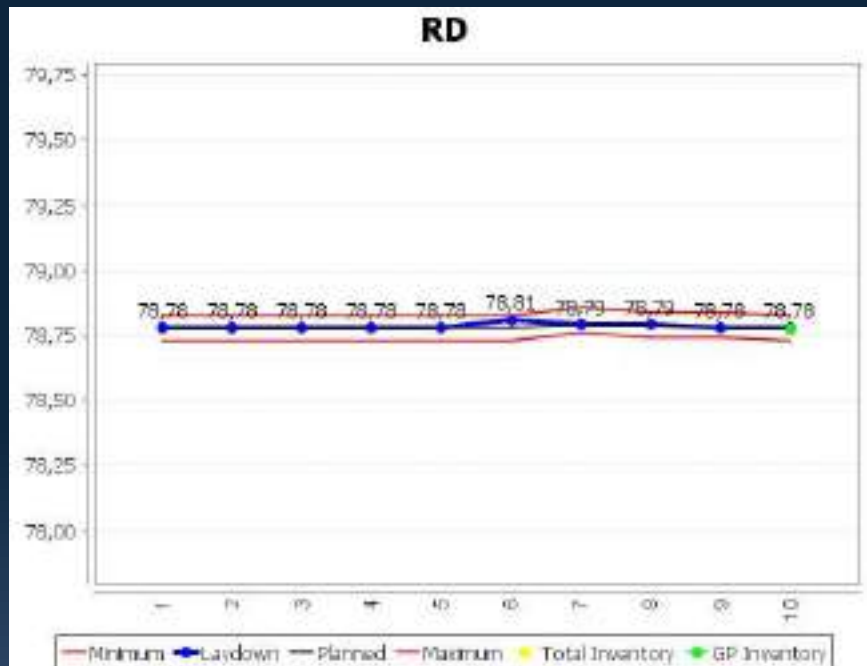
17620112

Results

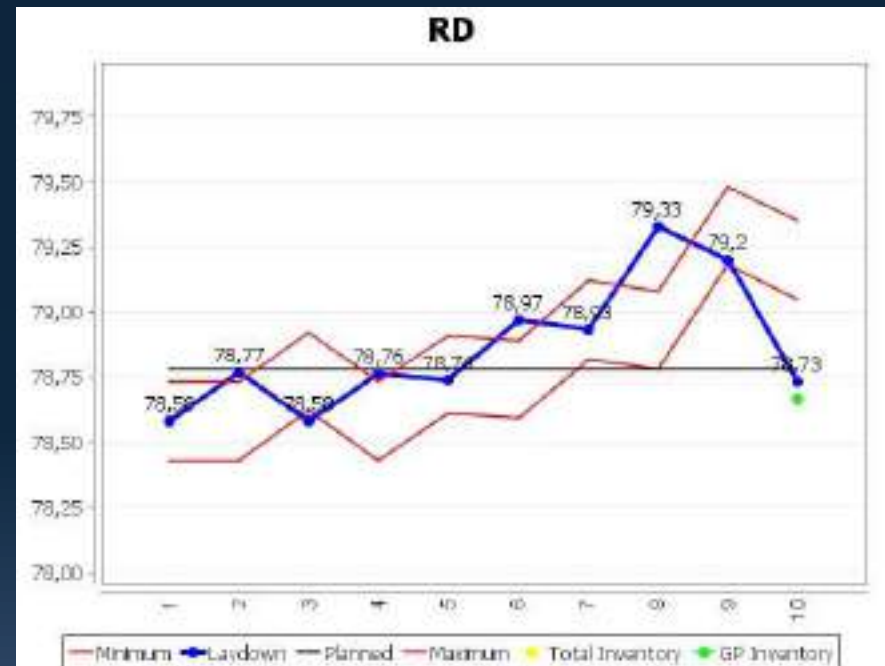
Average Quality Graphics

1 = RD

With OptCotton



Without OptCotton

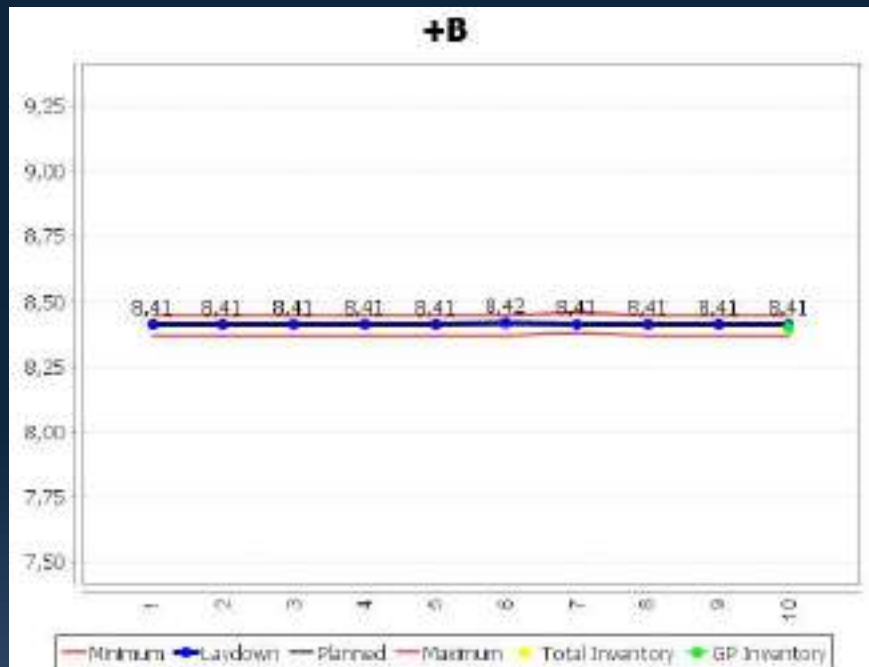


Results

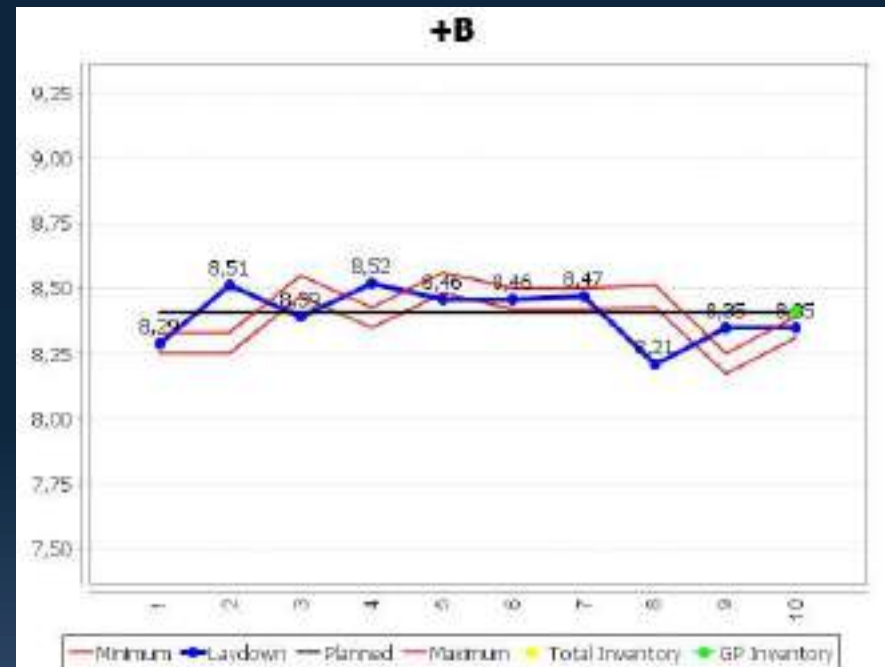
Average Quality Graphics

2 = +B

With OptCotton



Without OptCotton

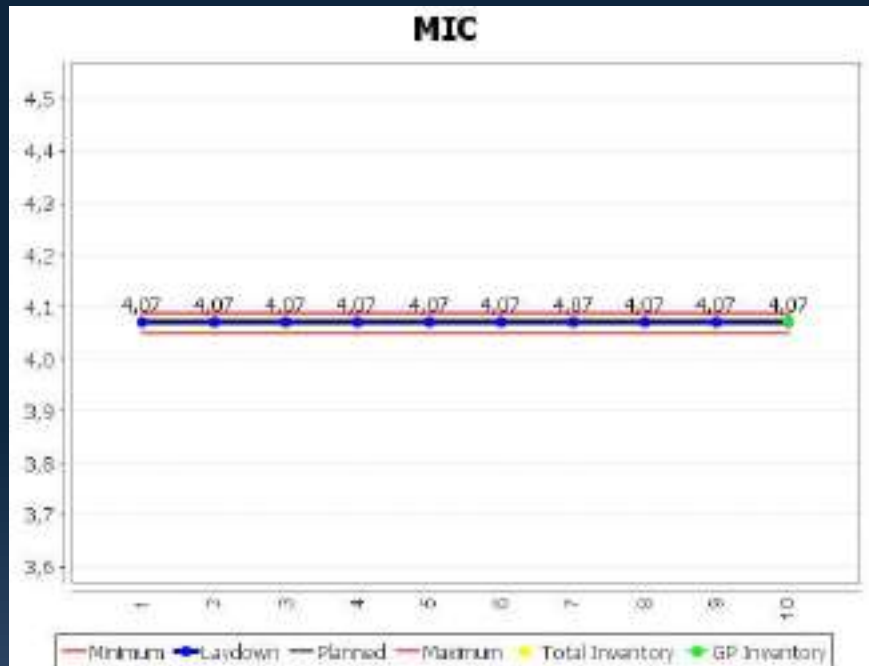


Results

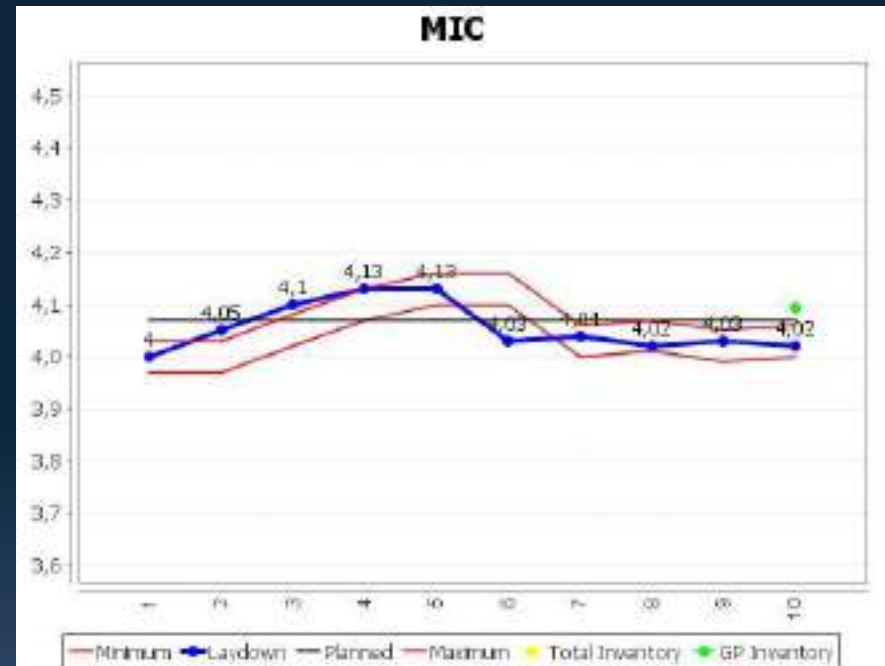
Average Quality Graphics

3 = MIC

With OptCotton



Without OptCotton

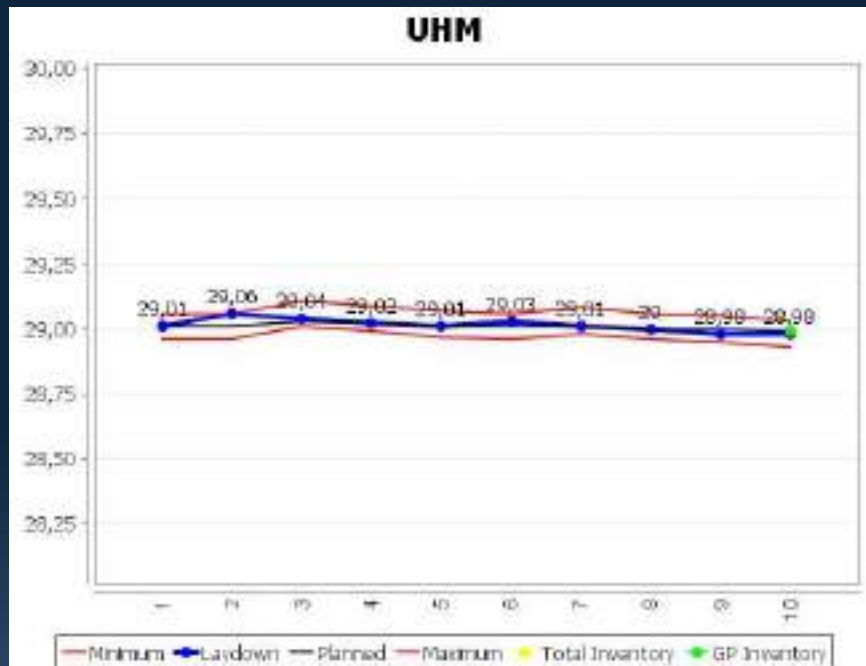


Results

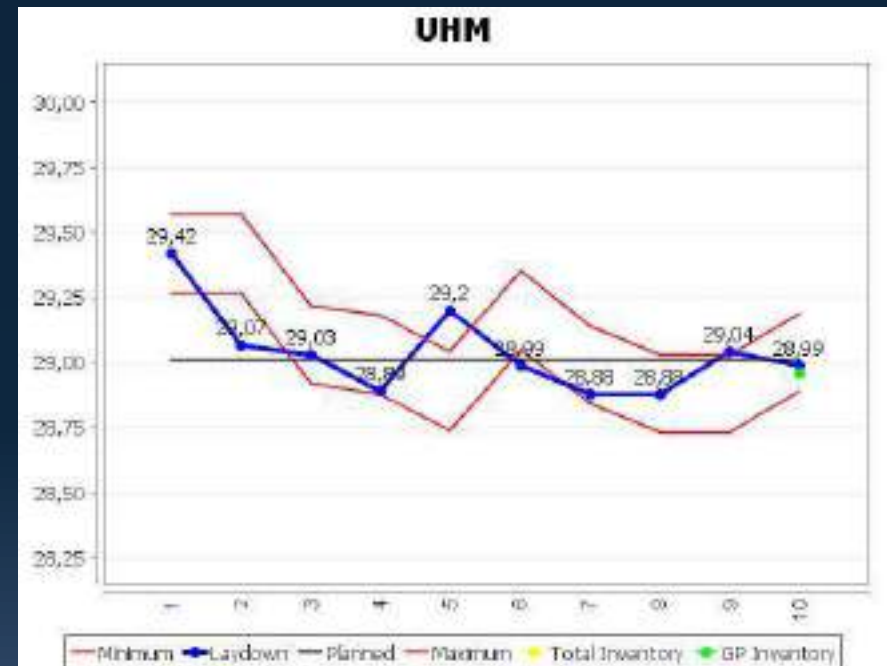
Average Quality Graphics

4 = UHM (Length)

With OptCotton



Without OptCotton



Results

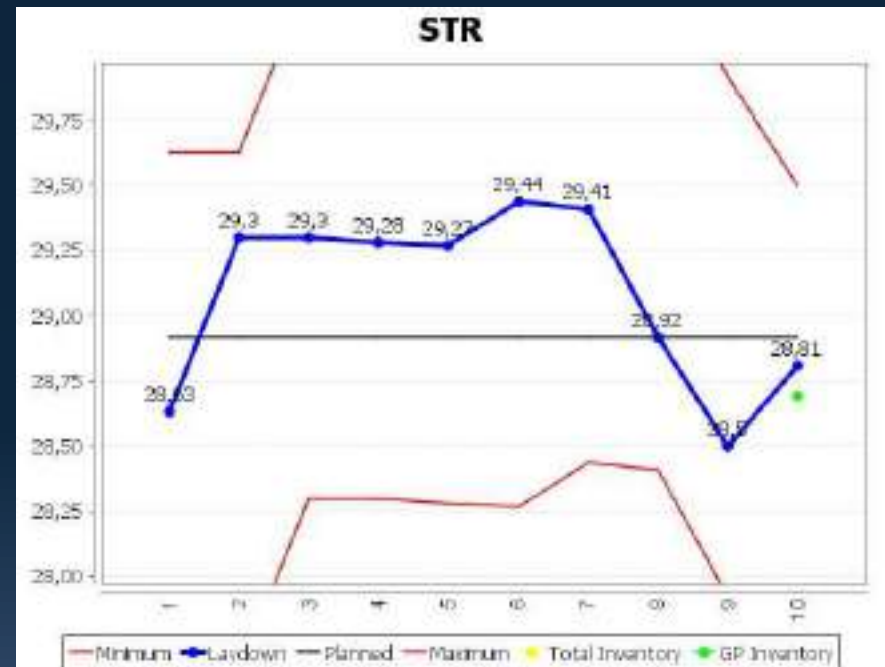
Average Quality Graphics

5 = Strength

With OptCotton



Without OptCotton

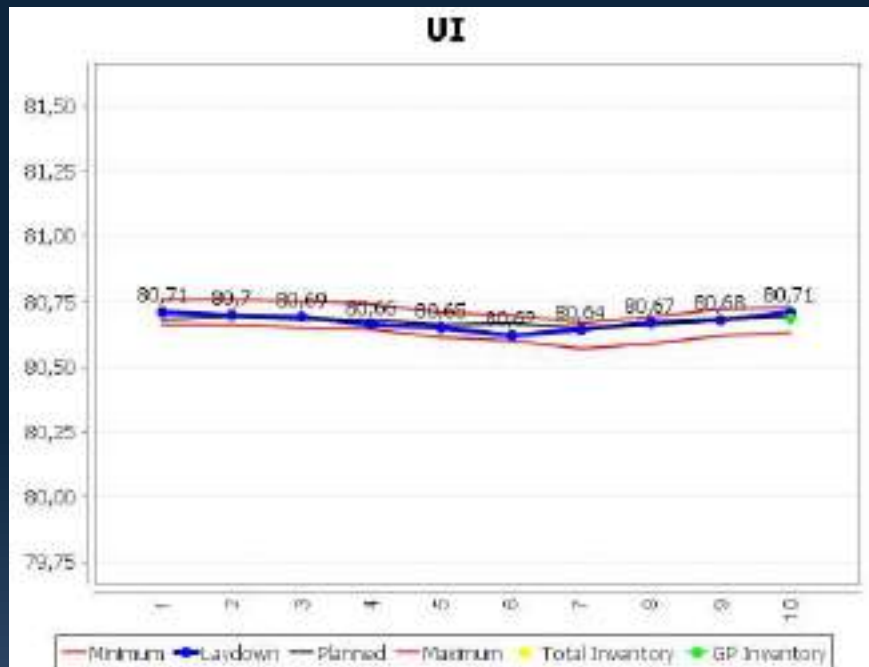


Results

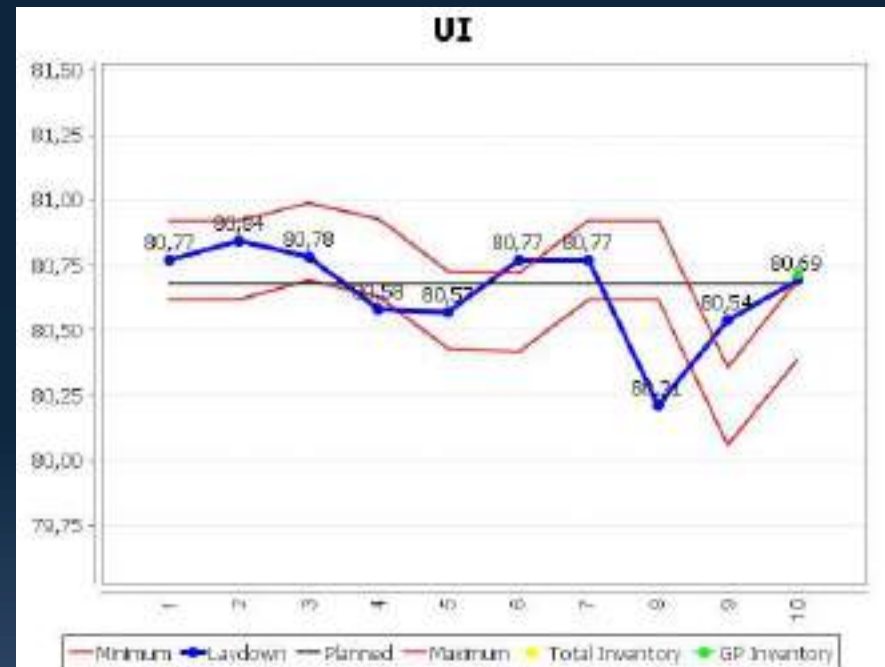
Average Quality Graphics

6 = Uniformity

With OptCotton



Without OptCotton



Results

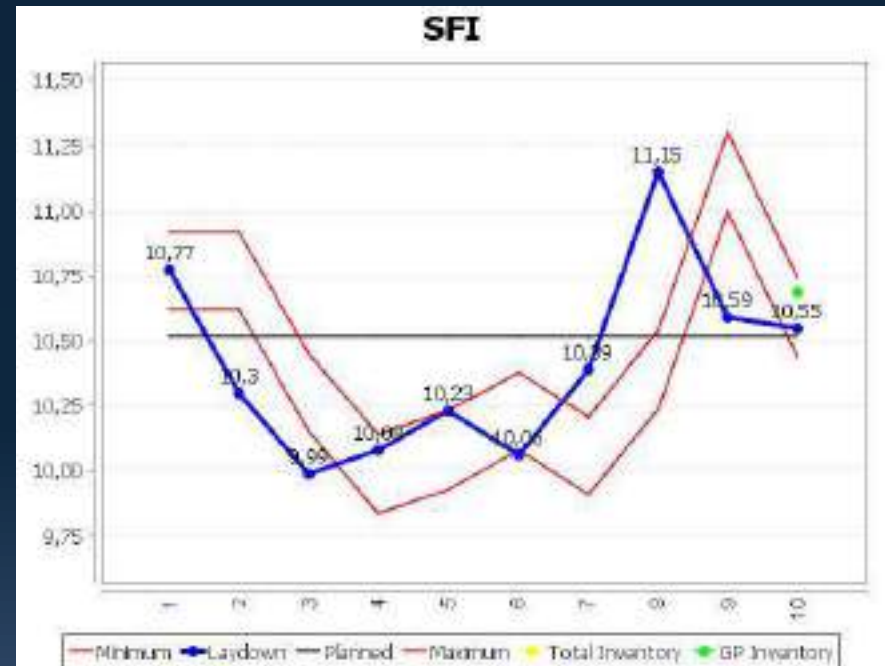
Average Quality Graphics

7 = SFI (Short fiber)

With OptCotton



Without OptCotton

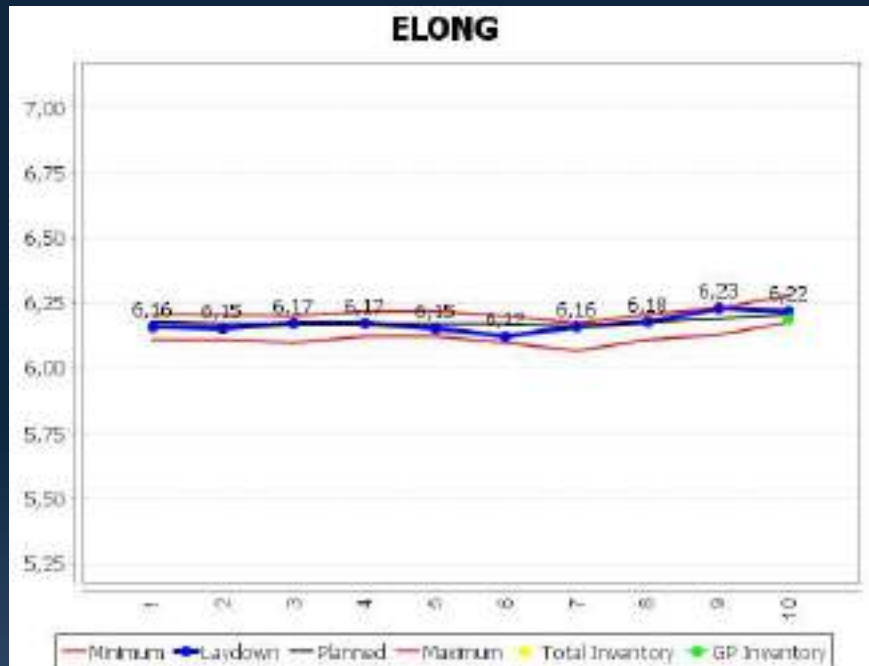


Results

Average Quality Graphics

8 = Elongation

With OptCotton



Without OptCotton

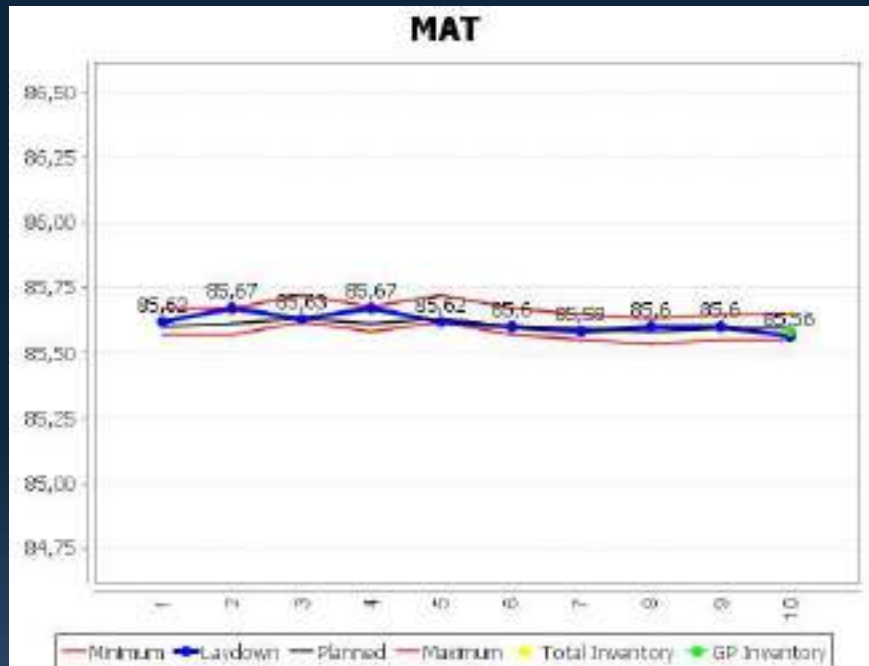


Results

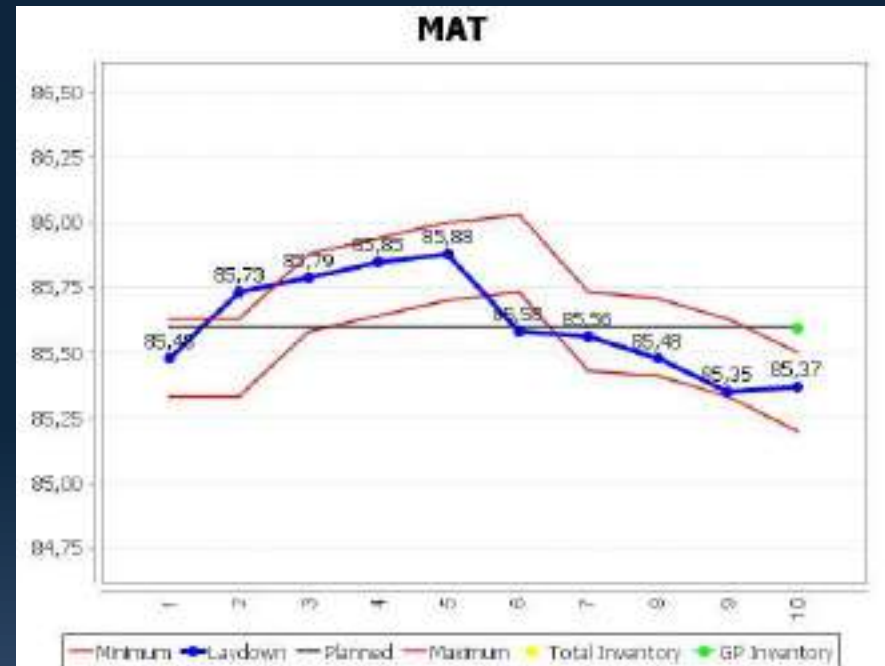
Average Quality Graphics

9 = Maturity

With OptCotton



Without OptCotton

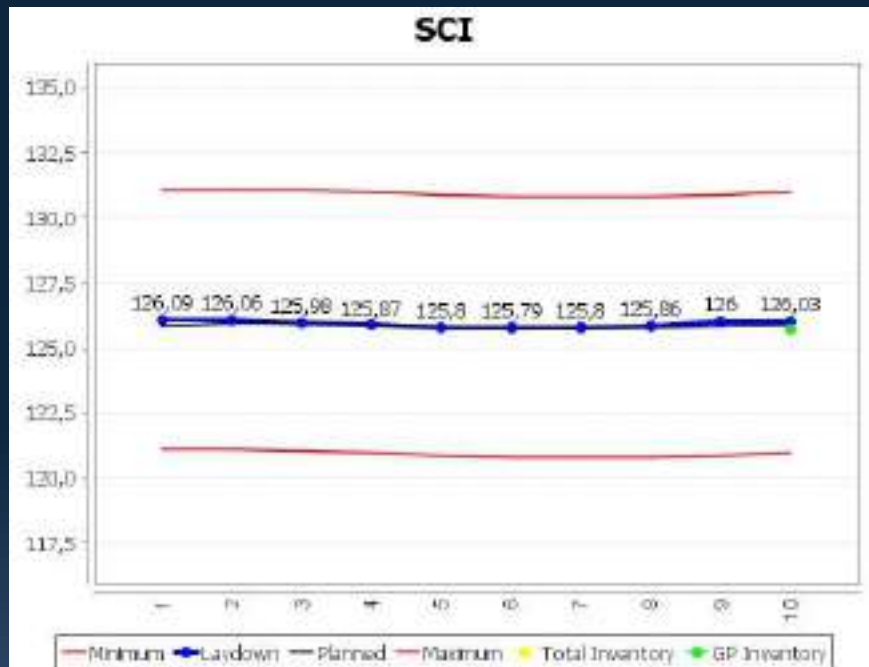


Results

Average Quality Graphics

10 = SCI (Spinning Consistency Index)

With OptCotton



Without OptCotton



Results

Average Quality Graphics

11 = Trash

With OptCotton



Without OptCotton

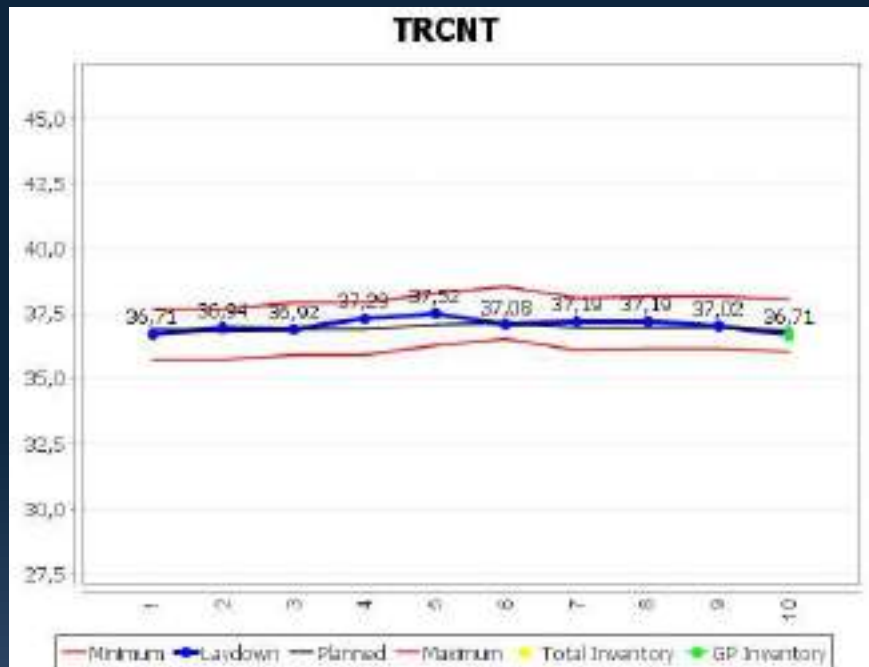


Results

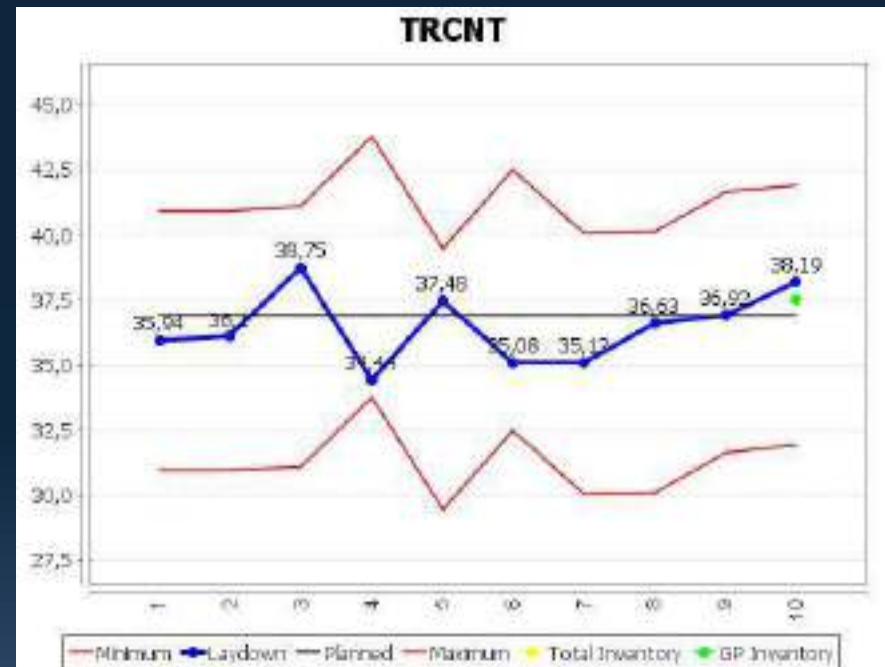
Average Quality Graphics

12 = Trash Count

With OptCotton



Without OptCotton



Results

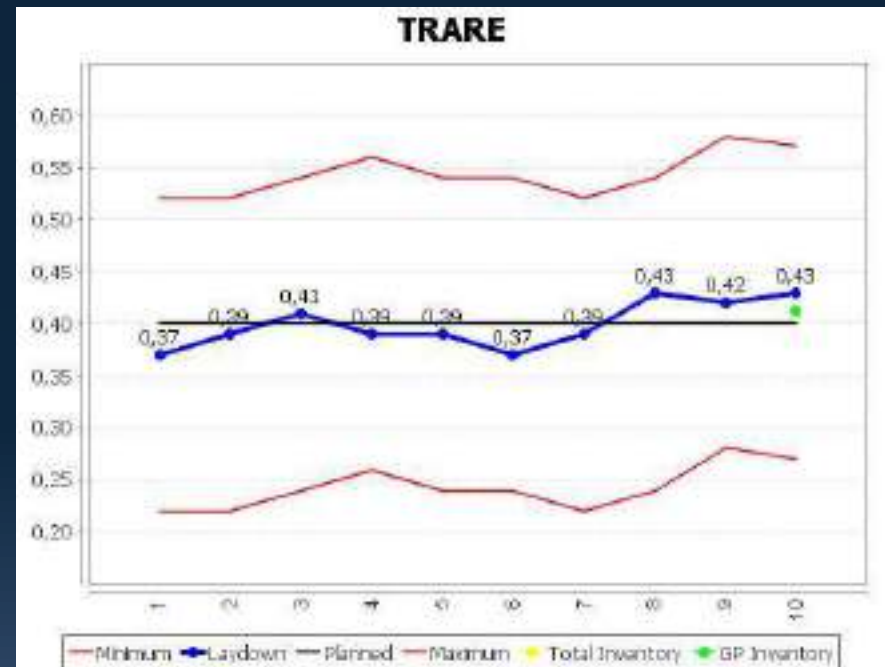
Average Quality Graphics

13 = Trash Area

With OptCotton



Without OptCotton





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