

**APPLICATION OF RING SPINNING PERFORMANCE VER
2.1 TO
SPINNING MILLS**

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1.1 Introduction

End break rate tests are carried out in almost every spinning mills. The evaluation of these tests are done according to 1000 spindle hours and 25,000 spindle hours. As end break rate Per 1000 spindle hours (EBTSPHR) increases efficiency decreases and the problem in subsequent stages of processes warping, sizing and weaving also increases. End break is closely related to fibre quality and its variation at the ring frame no matter is the raw material having high quality matters . End break rate also closely related to mechanical conditions of the machine. Nowadays, end break rate increases with high machine speeds and yarn quality deteriorates with increasing machine speed. Therefore to reduce end break rate should start from raw material selection and control of that material at all stages of processing. Higher end break rate also causes quality loss of grey state fabric and increases the cost of weaving have to be faced and this makes EBTSPHR more important than it is actually expected. Today many systems are available to determine the number of end breaks Per spindle .However, this systems costs much and only the defective spindles could be identified .It is not the number but the reasons of end break rate is important .These systems also incapable of giving sufficient information about the causes of end break rate such raw material , spinning process etc. Secondly these on-line systems could only be used effectively with Knowledge based problem analyses and problem solving systems and pc-programs .

This information or knowledge age that we are moving into have made an enormous effect upon the existing systems .It is not collecting and filing the data but to make us of it with knowledge based become more important .As a natural result of that CIM systems should be set up in mills but it must be evaluated by knowledge based pc-programs other wise it won't do any good to mill performance level . Therefore, one could easily say that important steps are

GET DATA

MAKE USE DATA SOLVE PROBLEMS

Getting data could be carried out off line or on-line but the main attention should be paid upon the make use of data. Secondly, even with the on-line systems off-line tests should be carried out to find the actual causes of end break rates.

1.2 Effects of EBTSPHR

An increase in end break rate causes great losses in mills such as

- Increase in waste
- "Decrease in number of spindles Per spinner hence increasing labour costs
- "Increase in costs in subsequent processes i.e. higher the end break rate in spinning higher the end break rate in weaving
- Not being able to increase machine speed due to work load, waste and yarn quality especially with yarn strength and variation .

Therefore ,by reducing number of end break rate eliminates many problems in spinning .The causes of end break differ from mill to mill and type of raw material used even fibre to fibre friction could be the main cause. These problems could only be analysed and solved through Knowledge Based Quality Management systems and pc-programs .

1.3 Pc-program application

ITC&M investigates the end break rate in 3 sections:

- 1) Normal test 2 hour
- "2) Total test from empty the full bobbin
- "3) Complete stroke diagram of single cop.

And these test results are resolved in problem analyses / problem solving techniques.

Stoppages and their causes analyses are examined via Knowledge Based Problem Analyses/Problem solving techniques and spc techniques are used as well. ITC&M have carried out many quality improvement tests to increase production gram Per spindle hour. There exists a close mathematical relation between fibre properties coming out front rollers and yarn quality and end break rate. In other words fibre properties at ring frame is the main quality index of the spinning mill and it is a

measure of machine maintenance ,quality ,process control and management conducted in the mill.

Raw material having so appropriate properties can turn into card waste in spinning hence fibre properties at different stages of processes are as important as fibre mix selection . Faulty mixing of blends will also deteriorate the fibre properties at different stage of processing . To overcome all these problems at actual mill running conditions we have developed fibre mix selection, bale management, process sum control pc-programs to solve this existing problems. Technical data/machine settings at blow room ,carding and combing preparation ,draft organisation have great influence on the amount of total waste and yarn quality .It is very clear that all our systems have been carefully designed to solve mill problems and resulted from the actual mill work carried out on many spinning mills. Presley at 1/8 in readings ,comb sorter and micronaire readings all the other fibre parameters could be derived with 95% confidence range .Therefore,by make use of simple and non expensive instruments more real results could be obtained. Presley or stelometre are the only instruments which measure the fibre strength directly and correctly since fibre is weighed .By measuring fibre strength at 1/8 in and mean fibre length by number and with hand staple length plus micronaire readings neps , colour, maturity, non-lint contents and all the other cotton fibre properties could be computed at 95 % correlation coefficient .

Mean fibre length and coefficient variation of fibre length distribution could also be computed from spectrograph . We have developed very extensive spectrograph curves such as power spectrums, frequency and time domain with different types of windowing functions which eliminates the problems that used in classical systems such as 54 channels such as not being able to detect the exact wave length and analyse harmonic faults .

The most important reason mmf spun yarn break less is low CV% of fibre length distribution and cohesive frictional forces fibre to fibre . Mean fibre length and CV% of fibre length together with CB(L) (variation of yarn in different cut lengths) determine the yarn strength and thin thick places . An increase in CBL results in with roughness in fabric appearance and this is generally caused by faulty setting of drafting systems such as roller setting ,pressures ,top roller shore hardness ,top roller elastic recovery % etc . Our pc-program draft zone setting is a very effective and scientific tool to determine all these above parameters as well as optimum ratch setting distances according to given fibre length values such as mean fibre length and staple length . Process sum pc-program together with CBL-strength analyses pc-program detects faulty running process in spinning line. It could be seen that simple stoppages and their causes tests could give very detailed information on the performance of complete mill.

Following points are determined from this pc-program:

- a) Stoppages and their causes and pareto analyses
- "b) End breaks Per 1000 spindle hour by each machine, fixer, spinner ,lot
- "c) Spinner cycle time
- "d) Gram spindle hour
- e) Actual efficiency
- f) Production efficiency
- "g) Spinner performance index
- "h) Pneumofil % waste
- "i) Doffing times and frequency
- "j) Expected Production Per shift and day

Therefore ,it becomes possible

- to reduce H.O.K (labour spent hour to produce 100 kg of yarn) by eliminating the related problems.

"establishing the working rate performance(PERF%) of the spinner and improving their performances of those working under standard rate-Identifying off standard running machines ,styles, spinners in terms of EBTSPHR and PNW%

RING PERFORMANCE TEST compares spinners' performances as well as providing information such as which machines have high end break rate and waste % and late interference of the spinners.

1.4 Summary and conclusions

ITRU GROUP LTD has explained that by this pc-program how important one simple test could become and how valuable

information could be gathered to solve many sided problems.

We have also established similar quality/process control tests that are carried out many spinning mills together with KNOWLEDGE BASED QUALITY MANAGEMENT SYSTEMS and pc-programs. It is interesting to note that continuous improvement in quality levels have been achieved in ring and rotor systems spinning.

We carry out this pc-program as a part of R&D project .If you are interested in this project please get in touch with us. for further details please contact with us

1.5 Pc-program Outputs

How to use the pc-program

a)Spinning Performance Test

b)Analyses

-Summary of End breaks by lot ,Ne,Tpi sorted

Find the highest end break rate and ring waste of given lot

Find the % of ring waste to optimise ring spindle speed

-Pareto Analyses of High End break Rates of specified lot and Ne and Tpi

Find the causes of end breaks of given lot

Solve the problem

-Summary of Spinners Cycle Time Pareto Chart

Find the potential for training spinners to increase their performance

c) Optimization of ring spindle speed

Carry out ITRU test plans of increasing ring spindle speed and optimise and lower end break rate and improve yarn quality as outlined in R&D project.

2.1 Machine Card Index

Ring Spinning Performance ver 2.1 has been developed through a research project carried in textile mills.It has been intended to increase efficiency and production volumes and also assist to reduce labor costs to minimum value.

Machine Card Input data consists of following items to be inserted to the data base.

Machine Number:Integer value

Lot Number:String

Shift Date:Date

Machinery Type:Type of machinery

Ne:Yarn count in Nec

Ring Diameter

Tpi:Turns per inch

Rpm:Spindle Speed rpm

Number of spindles per machine

Stoppages causes frequency

Test start and Test end time

Pwg: Ring waste collected in waste bin in grams

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Doffing Time in mins (standard doffing time in mins) used for calculation machine production per shift

Machine Stops time in mins including doffing time during testing

Cops weight used for calculating number of doffing frequency

Lays per meter is used for doffing frequency

Stroke is used for cops formation

Ring Frame waste in grams is used for calculation of spinner cycle time in mins and actual efficiency

It would take a lot of time for entering all the records so Filter Box is used for copying records for the same date. For this purpose see the copying records in Filter Box

Ring frame waste should be weighted for each test which is the main core of the program.

New-Adds a new record to the data base

Add-Adds a selected record to the data base.

Edit-Edits selected record in the data base.

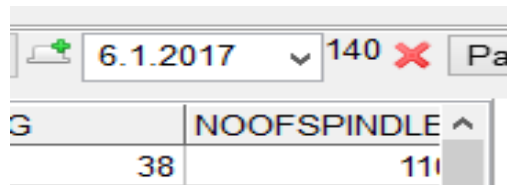
Delete-Deletes selected record from the data base.

it would take a lot of time for entering all the records so Filter Box is used for copying records for the same date. For this purpose the copying records in Filter Box is used. With the help of Filter Box and Copying Record button the last day of Machine Card Index Data is completely copied to the new Data .So the operator only enters the end of Counter Readings of each shifts.

Press Apply Button which loads dates worked

Select the Last Date from Combobox

Press Filter Selected Date Tool bar button which is on the left of date string Button loads the selected date which is the last day of ring frame performance test.



Load DBF loads data base table Default table rspf.dbf

Save DBF saves data base table

Pack Table Purge Deleted : Removes the Deleted the deleted records from the database

Delete :Deletes the records on the grid. Therefore be careful

Empty : Clears the table

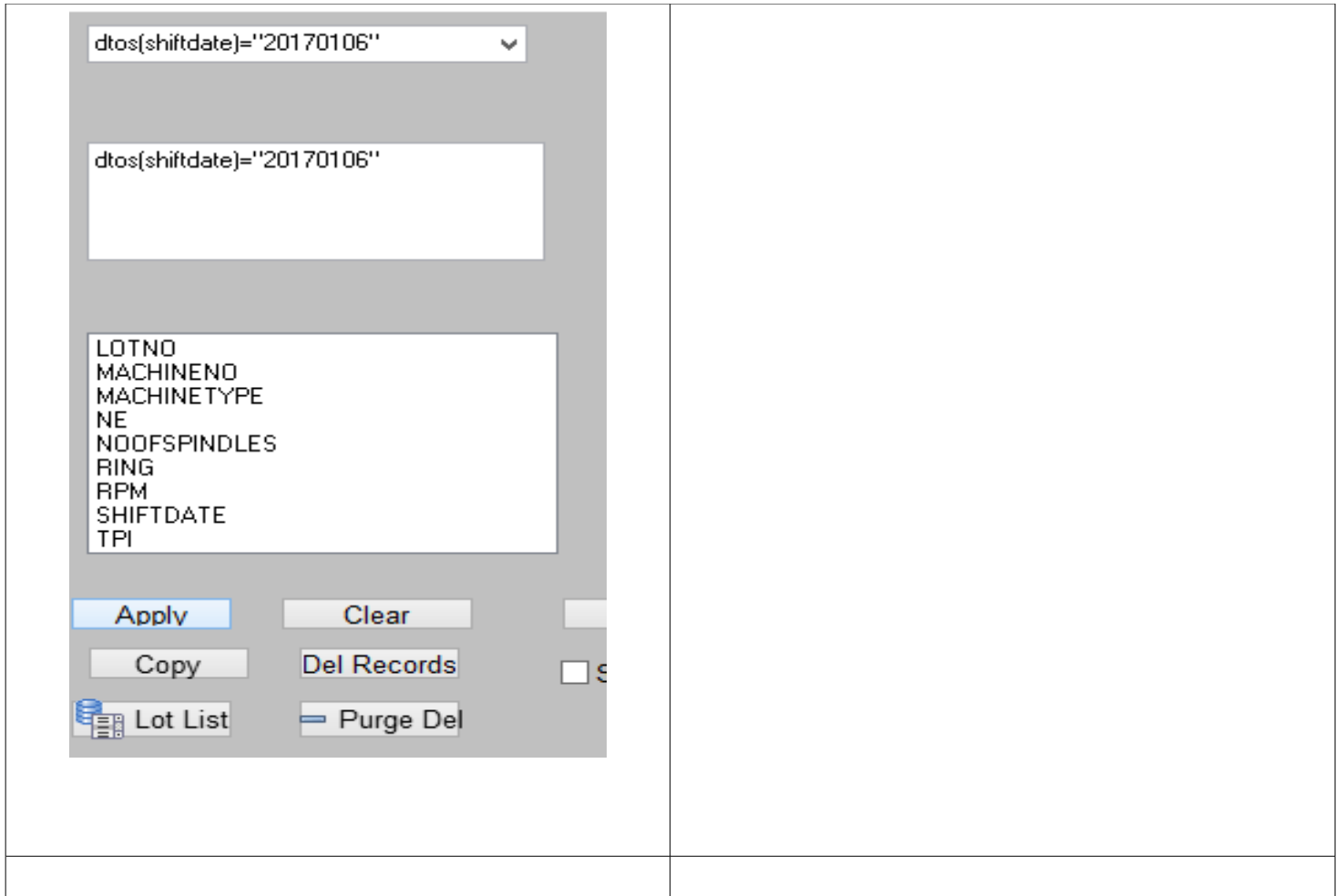
Create Table: Create new empty table

Undelete : Undelete deleted record

Apply : Filter the records according to database parameters.

Lotlist : Make lists for date,lot,machine type and date.

And all the records for that day are listed and when Copy Record button is pressed all the record is copied and operator only enters the end of counter readings of SA2, SB2 and SC2 . For 125 machine this takes about maximum 15 mins.



With filter box you can filter records Apply button applies filtering command such Machine No=1 and Lotno='A-25' filters the records with Machine no=1 and Lotno=A-25

Copy command copies the selected records. Use the same date of record when copying otherwise you will damage the date base. . If there is a holiday change the date time from computer so that correct date is entered. There are also many filtering logic are available i.e and ,or , >>, <= ,(,) <> etc. . One can use any combinations of these

2.0 File Manager and Reports

- a) Select Filtering box then press Apply button
- b) Press File Manager button after these one can get the functions of items shown below:

All	▼	100	▼ File Manager
	TESTSTART	TESTEND	WORKS
	11:35:00 AM	01:35:00 PM	C
	11:35:00 AM	01:35:00 PM	C
	11:35:00 AM	01:35:00 PM	C
	09:45:00 AM	11:45:00 AM	A

Reports are given

- 1) All Machine Based
- 2) Ne
- 3) Lot
- 4) Lot & Ne
- 5) NeSum
- 6) LotSum
- 7) Lot&Nesum
- 8) Production per day
- 9) Sum Daily
- 10) Lot & Ne Per day
- 11) Ne/Lot/Tpi
- 12) Ne/lot/Tpi-Sum
- 13) Ne/lot/tpi/spinner-summary
- 14) Spinner Summary
- 15) Test Spinners

Mach:-	Lot No	:Mach	: Date	: Ne	: Tpi	:RPM	: ActEFF%	:PrdnEFF%	:EBTsphr	:SCTime	:PW%	:Kg/mhou	:kg/sh	:Trav m/s
4:	3290:	SW:	23.11.2017:	30,00:	18,10:	12000:	97,62:	100,00:	25,86:	55,06:	2,38:	8,65:	68,54:	30,16
15:	3281:	ST2:	22.11.2017:	40,00:	23,50:	17500:	32,70:	33,33:	13,59:	83,80:	1,90:	5,74:	43,04:	34,82
5:	3290:	SW:	23.11.2017:	30,00:	18,10:	12000:	97,79:	100,00:	32,33:	41,03:	2,21:	8,66:	68,64:	30,16
16:	3281:	ST2:	22.11.2017:	40,00:	23,50:	17500:	98,53:	100,00:	12,68:	69,32:	1,47:	17,30:	135,40:	34,82
17:	3281:	ST2:	22.11.2017:	40,00:	23,50:	17500:	85,42:	86,67:	11,50:	74,88:	1,44:	15,00:	117,02:	34,82
6:	3290:	SW:	23.11.2017:	40,00:	21,40:	12000:	95,71:	100,00:	45,26:	56,84:	4,29:	5,37:	42,66:	30,16
7:	3290:	SW:	23.11.2017:	40,00:	21,40:	12000:	96,77:	100,00:	38,79:	49,93:	3,23:	5,43:	43,13:	30,16
55:	3285:	Se:	21.3.2017:	30,00:	18,10:	11000:	99,61:	100,00:	3,47:	68,01:	0,39:	7,53:	59,15:	25,92
56:	3285:	Se:	21.3.2017:	30,00:	18,10:	11000:	98,37:	99,07:	5,84:	73,06:	0,71:	7,44:	58,47:	25,92

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57:	3285:	Se:	21.3.2017:	30,00:	18,10:	11000:	99,28:	100,00:	11,57:	37,52:	0,72:	7,51:	59,01:	25,92
3:	3290:	SW:	11.12.2017:	30,00:	18,10:	12000:	97,24:	99,57:	22,73:	61,77:	2,34:	8,62:	68,24:	30,16
4:	3290:	SW:	11.12.2017:	30,00:	18,10:	12000:	69,57:	70,68:	10,67:	88,35:	1,57:	6,16:	48,64:	30,16
5:	3290:	SW:	11.12.2017:	30,00:	18,10:	12000:	98,15:	99,78:	18,36:	53,59:	1,64:	8,70:	68,84:	30,16
11:	3281:	Se:	7.12.2017:	30,00:	20,40:	12000:	98,77:	100,00:	21,99:	33,46:	1,23:	7,15:	56,08:	28,27
12:	3281:	Se:	7.12.2017:	30,00:	20,40:	12000:	98,63:	100,00:	21,99:	37,22:	1,37:	7,14:	55,92:	28,27
13:	3281:	Se:	7.12.2017:	30,00:	20,40:	12000:	98,60:	100,00:	24,31:	34,49:	1,40:	7,13:	55,96:	28,27
62:	3281:	M:	30.11.2017:	20,00:	17,20:	9200:	82,99:	83,33:	5,00:	49,86:	0,42:	9,07:	70,67:	23,12
63:	3281:	M:	30.11.2017:	20,00:	17,20:	9200:	91,11:	91,67:	11,36:	31,91:	0,60:	9,96:	77,75:	23,12
64:	3281:	M:	30.11.2017:	20,00:	17,20:	9200:	99,47:	100,00:	8,33:	38,02:	0,53:	10,87:	85,24:	23,12
22:	4565:	Se:	27.11.2017:	30,00:	18,80:	11750:	98,75:	100,00:	35,88:	20,96:	1,25:	7,65:	60,03:	27,69
23:	4565:	Se:	27.11.2017:	30,00:	18,80:	11750:	98,74:	100,00:	33,56:	22,51:	1,26:	7,65:	59,96:	27,69
8:	3295:	Se:	6.4.2017:	30,00:	18,10:	11000:	99,27:	100,00:	2,31:	189,23:	0,73:	7,51:	59,01:	25,92
9:	3295:	Se:	6.4.2017:	30,00:	18,10:	11000:	99,30:	100,00:	4,63:	90,50:	0,70:	7,51:	59,06:	25,92
10:	3295:	Se:	6.4.2017:	30,00:	18,10:	11000:	99,26:	100,00:	6,94:	64,17:	0,74:	7,51:	59,00:	25,92
35:	3520:	Se:	9.5.2017:	30,00:	18,80:	11750:	98,11:	99,54:	25,58:	33,60:	1,43:	7,60:	59,70:	27,69
36:	3520:	Se:	9.5.2017:	30,00:	18,80:	11750:	98,03:	99,77:	27,84:	37,47:	1,74:	7,60:	59,67:	27,69
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46:	3490:	Se:	7.5.2017:	30,00:	20,40:	11750:	97,89:	99,07:	17,52:	40,97:	1,20:	6,93:	54,53:	27,69
47:	3490:	Se:	7.5.2017:	30,00:	20,40:	12000:	99,12:	100,00:	20,83:	25,31:	0,88:	7,17:	56,41:	28,27
48:	3490:	Se:	7.5.2017:	30,00:	20,40:	11750:	97,87:	98,84:	11,71:	50,35:	0,98:	6,93:	54,53:	27,69
4:	3295:	Zin:	16.4.2017:	20,00:	15,90:	10700:	99,57:	100,00:	8,93:	29,17:	0,43:	28,98:	231,82:	23,53
5:	3295:	Zin:	16.4.2017:	24,00:	18,10:	11400:	99,47:	100,00:	10,91:	29,21:	0,53:	22,49:	179,93:	25,07
6:	3295:	Zin:	16.4.2017:	20,00:	15,90:	11500:	99,64:	100,00:	4,96:	43,69:	0,36:	31,17:	249,34:	25,29
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1:	4200:	SW:	5.6.2017:	30,00:	18,90:	12000:	98,84:	100,00:	15,09:	46,13:	1,16:	8,35:	66,22:	30,16
2:	4200:	SW:	5.6.2017:	30,00:	18,90:	12000:	99,03:	100,00:	11,85:	48,97:	0,97:	8,37:	66,38:	30,16
10:	4001:	SW:	5.6.2017:	30,00:	18,90:	12000:	98,71:	99,57:	21,65:	23,94:	0,86:	8,34:	66,12:	30,16
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31:	4565:	Se:	4.6.2017:	30,00:	18,80:	12000:	98,14:	99,77:	9,28:	105,36:	1,63:	7,77:	60,62:	28,27
32:	4565:	Se:	4.6.2017:	30,00:	18,80:	12000:	94,03:	95,83:	13,29:	84,89:	1,88:	7,44:	57,91:	28,27
9:	3296:	ST1:	11.5.2017:	30,00:	20,30:	16500:	99,01:	100,00:	9,06:	65,82:	0,99:	25,31:	194,63:	32,83
10:	3296:	ST1:	11.5.2017:	30,00:	20,30:	16500:	98,62:	100,00:	14,49:	57,21:	1,38:	25,21:	194,12:	32,83
11:	3296:	ST1:	11.5.2017:	30,00:	20,30:	16500:	98,76:	100,00:	11,78:	62,94:	1,24:	25,24:	194,30:	32,83
57:	3285:	Se:	5.7.2017:	30,00:	18,10:	11000:	99,28:	100,00:	11,57:	37,52:	0,72:	7,51:	59,01:	25,92
64:	3281:	M:	17.7.2017:	20,00:	17,20:	9200:	99,47:	100,00:	8,33:	38,02:	0,53:	10,87:	85,24:	23,12
4:	3290:	SW:	9.1.2017:	30,00:	18,10:	12000:	97,62:	100,00:	25,86:	55,06:	2,38:	8,65:	68,54:	30,16
3:	3290:	SW:	9.1.2017:	30,00:	18,10:	12000:	97,24:	99,57:	22,73:	61,77:	2,34:	8,62:	68,24:	30,16
4:	3290:	SW:	9.1.2017:	30,00:	18,10:	12000:	69,57:	70,68:	10,67:	88,35:	1,57:	6,16:	48,64:	30,16
5:	3290:	SW:	9.1.2017:	30,00:	18,10:	12000:	98,15:	99,78:	18,36:	53,59:	1,64:	8,70:	68,84:	30,16

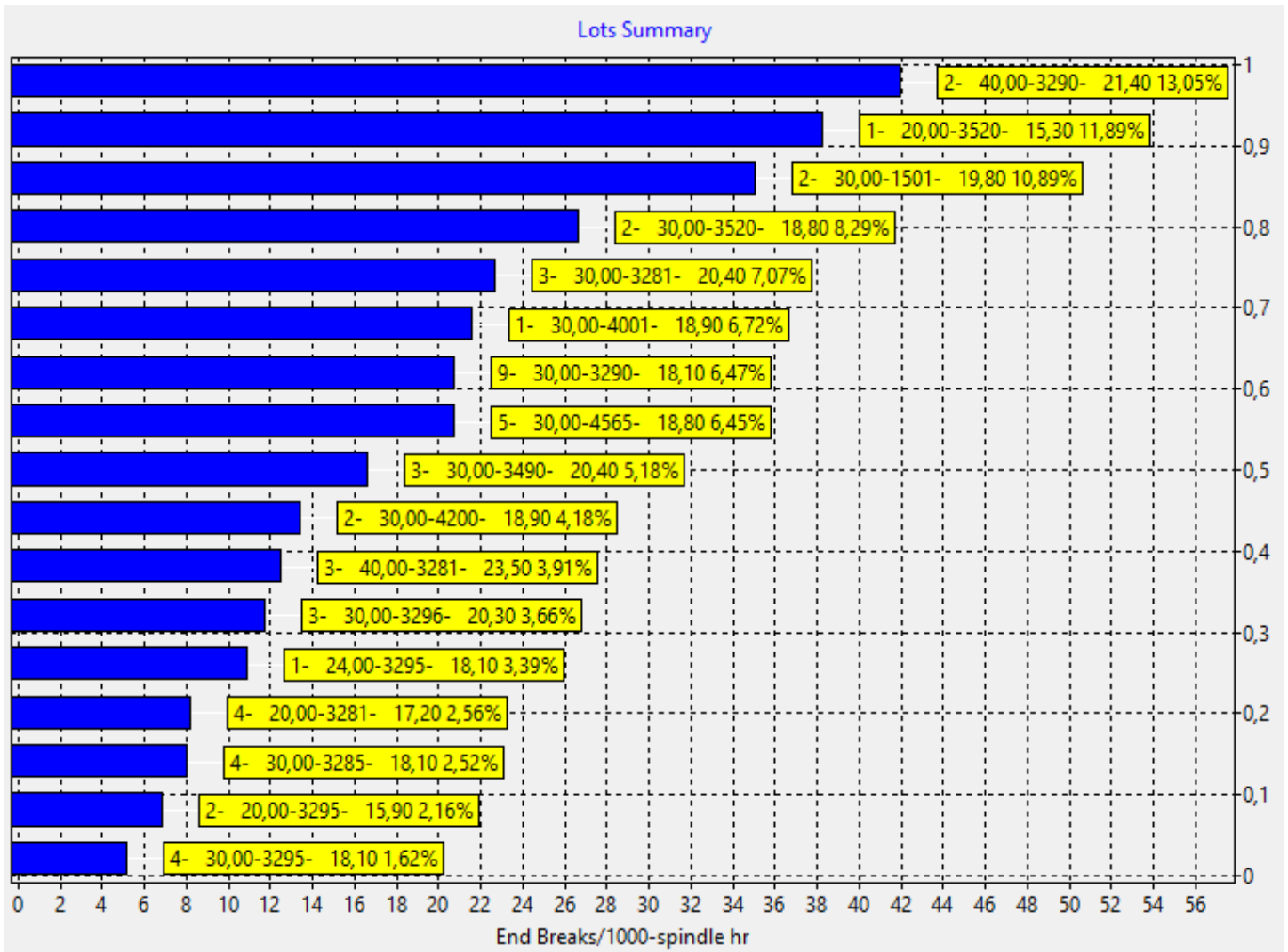
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Mach	Lot No	Mach	Date	Ne	Tpi	RPM	ActEFF%	PrdnEFF%	EBTsphr	SCTime	PW%	Kg/mhou	kg/sh	Trav m/s
10:	3295:	Se:	12.1.2017:	30,00:	18,10:	11000:	99,26:	100,00:	6,94:	64,17:	0,74:	7,51:	59,00:	25,92
51:	-----:	-----:	-----:	29,49:	18,95:	12189:	94,49:	95,77:	17,42:	54,36:	1,35:	551:	4321:	28,32
3:	Ali:	-----:	-----:	30,00:	20,30:	16500:	98,80:	100,00:	11,78:	61,99:	1,20:	75,76:	583,04:	32,83
2:	Ayse:	-----:	-----:	40,00:	21,40:	12000:	96,24:	100,00:	42,03:	53,39:	3,76:	10,79:	85,79:	30,16
3:	Ertugrul:	-----:	-----:	26,67:	17,63:	11750:	98,25:	99,69:	30,57:	29,74:	1,44:	29,29:	228,62:	27,69
4:	Esin:	-----:	-----:	20,00:	17,20:	9200:	93,26:	93,75:	8,26:	39,45:	0,52:	40,76:	318,90:	23,12
3:	Eyup:	-----:	-----:	40,00:	23,50:	17500:	72,22:	73,33:	12,59:	76,00:	1,60:	38,04:	295,46:	34,82
4:	Fahri:	-----:	-----:	23,50:	17,00:	11400:	99,11:	100,00:	14,28:	35,78:	0,89:	91,30:	729,73:	26,01
4:	Fatma:	-----:	-----:	30,00:	18,10:	11000:	99,13:	99,77:	8,12:	54,03:	0,64:	29,98:	235,64:	25,92
4:	Hasan:	-----:	-----:	30,00:	18,10:	11000:	99,27:	100,00:	5,21:	102,02:	0,73:	30,03:	236,06:	25,92
3:	Hatice:	-----:	-----:	30,00:	20,40:	11833:	98,29:	99,31:	16,69:	38,88:	1,02:	21,04:	165,47:	27,88
2:	Ismail:	-----:	-----:	30,00:	18,80:	11750:	98,74:	100,00:	34,72:	21,73:	1,26:	15,30:	119,98:	27,69
2:	Mustafa:	-----:	-----:	30,00:	18,90:	12000:	98,87:	99,78:	16,75:	36,45:	0,92:	16,71:	132,50:	30,16
3:	Osman:	-----:	-----:	30,00:	18,80:	12000:	92,75:	94,37:	11,49:	90,80:	1,71:	22,02:	171,48:	28,27
2:	Ramazan:	-----:	-----:	30,00:	19,80:	13500:	83,61:	85,18:	35,09:	31,56:	1,85:	35,94:	275,72:	26,86
3:	Sadi:	-----:	-----:	30,00:	20,40:	12000:	98,67:	100,00:	22,76:	35,06:	1,33:	21,42:	167,97:	28,27
9:	Zeki:	-----:	-----:	30,00:	18,19:	12000:	91,55:	93,34:	18,93:	62,63:	1,89:	72,60:	574,71:	30,16
51:	-----:	-----:	-----:	29,49:	18,95:	12189:	94,49:	95,77:	17,42:	54,36:	1,35:	551:	4321:	28,32

3 Pc-program Outputs and How to use the pc-program

a) Spinning Performance Test must be carried out at least 2 hours

-Summary of End breaks by lot ,Ne,Tpi sorted



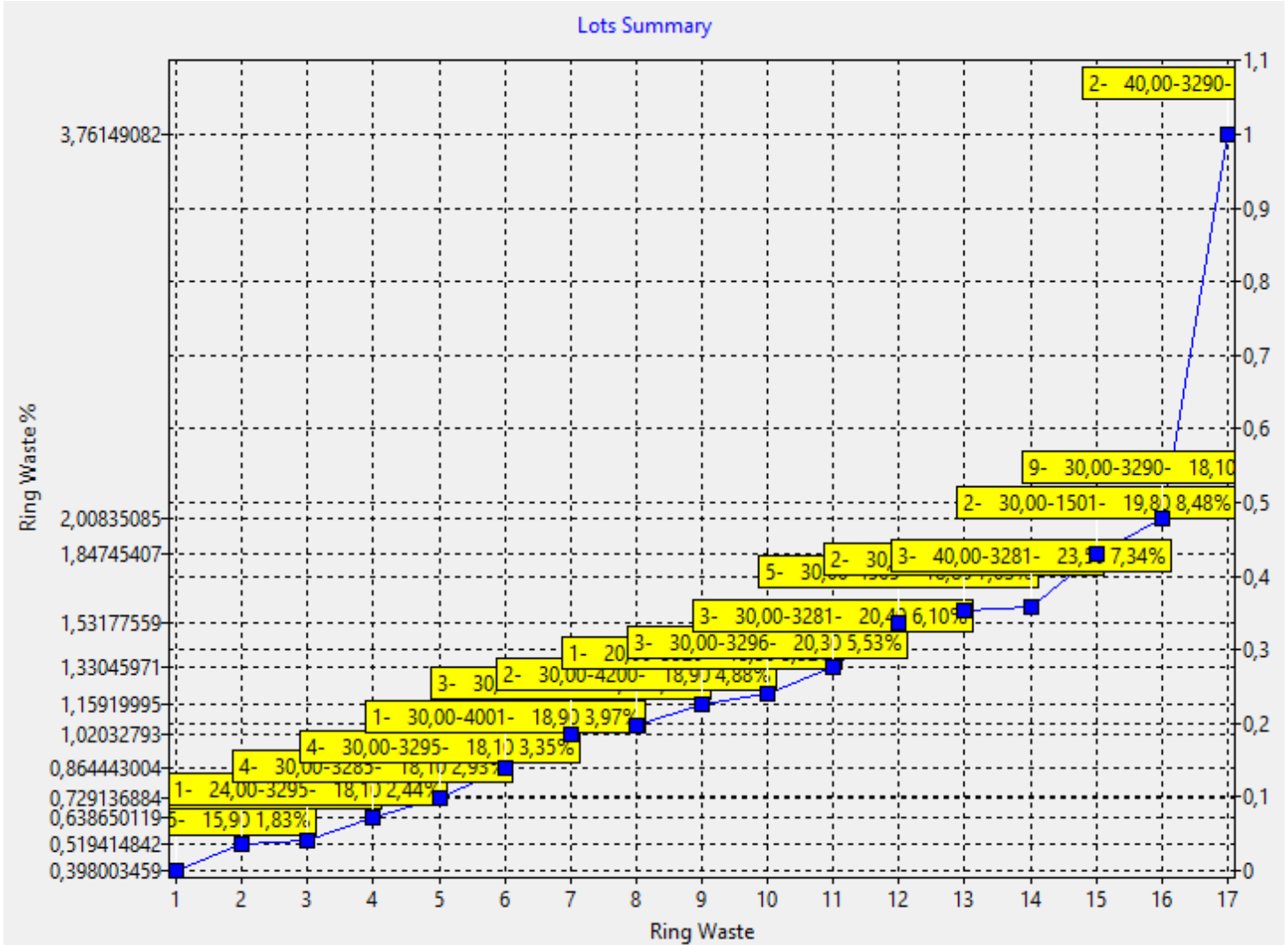
Find the highest end break rate and ring waste of given lot

Mach	Lot No	Mach	Date	Ne	Tpi	RPM	ActEFF%	PrdnEFF%	EBTsphr	SCTime	PW%	Kg/mhou	kg/sh	Trav m/s
6:	3290:	SW:	23.11.2017:	40,00:	21,40:	12000:	95,71:	100,00:	45,26:	56,84:	4,29:	5,37:	42,66:	30,16
7:	3290:	SW:	23.11.2017:	40,00:	21,40:	12000:	96,77:	100,00:	38,79:	49,93:	3,23:	5,43:	43,13:	30,16
Mach	Lot No	Mach	Date	Ne	Tpi	RPM	ActEFF%	PrdnEFF%	EBTsphr	SCTime	PW%	Kg/mhou	kg/sh	Trav m/s
2:				40,00:	21,40:	12000:	96,24:	100,00:	42,03:	53,39:	3,76:	11:	86:	30,16

APPLICATION OF RING SPINNING PERFORMANCE VER 2.1 TO SPINNING MILLS -12

-Summary of End breaks by lot ,Ne,Tpi sorted

Find the % of ring waste to optimize ring spindle speed



Find the highest end break rate and ring waste of given lot

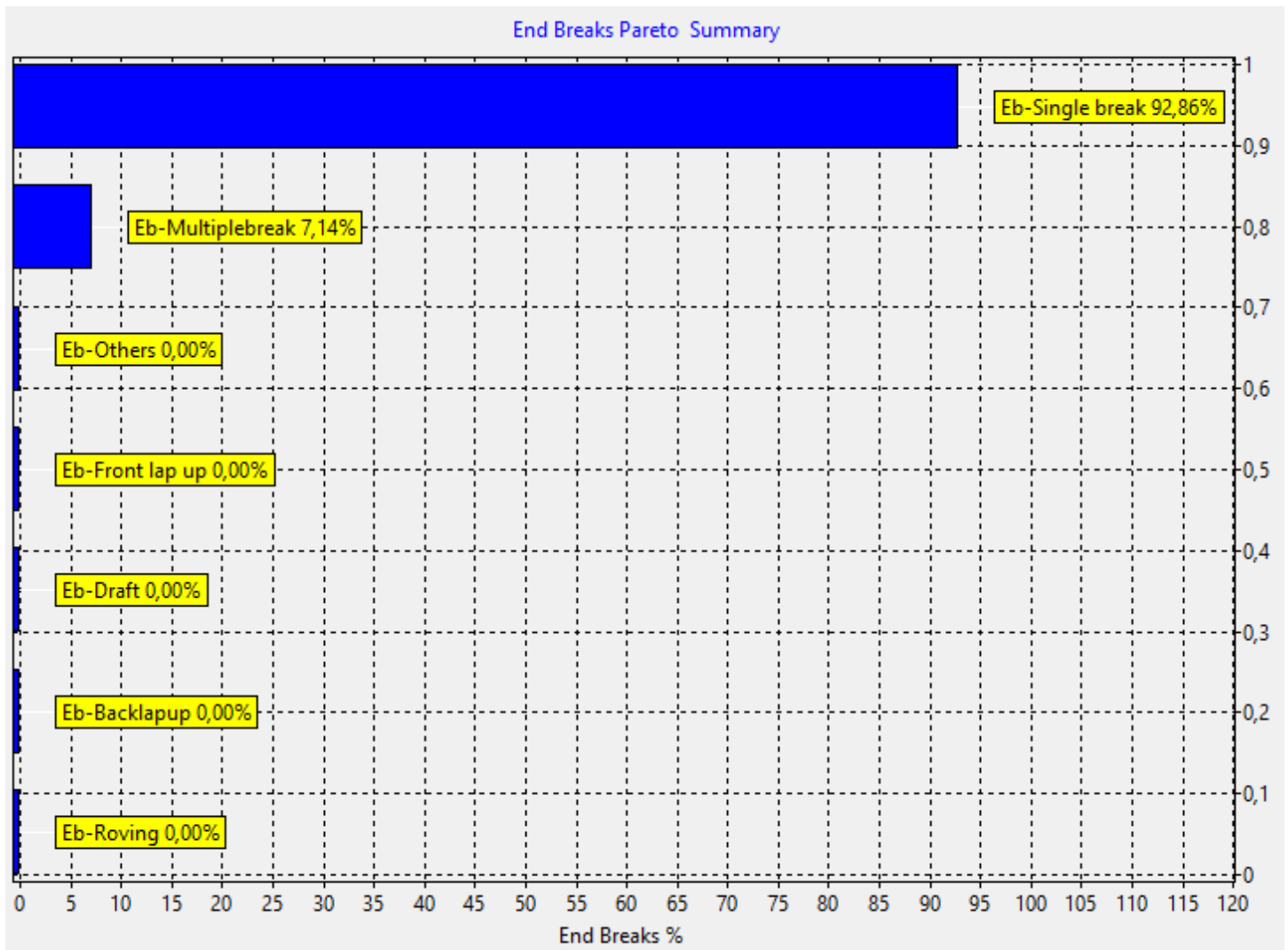
Find the causes of end breaks of given lot

Parameters : Ave: Total: %

APPLICATION OF RING SPINNING PERFORMANCE VER 2.1 TO SPINNING MILLS -13

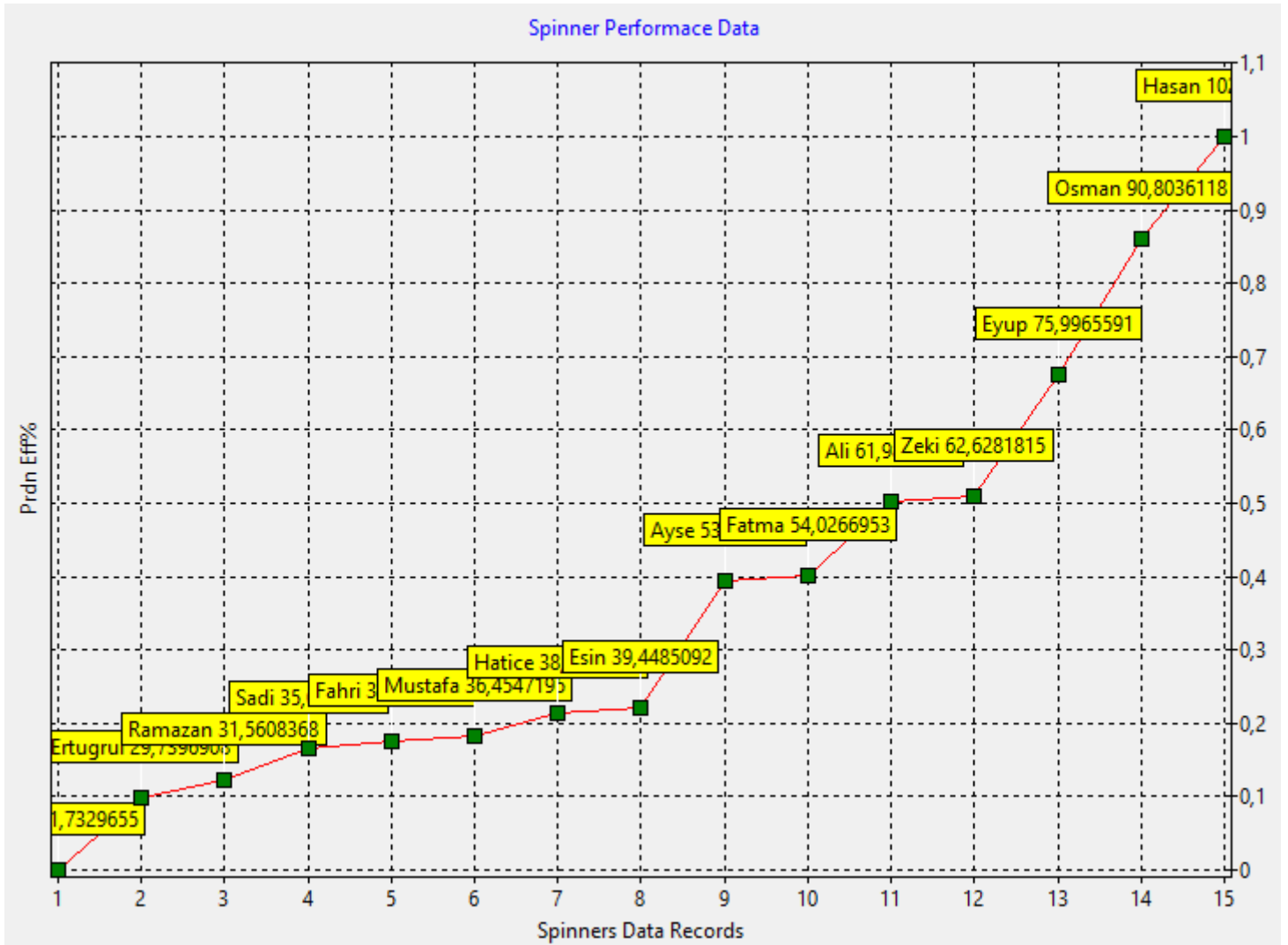
Eb-Roving:	0,00:	0,00:	0,00
Eb-Backlapup:	0,00:	0,00:	0,00
Eb-Draft:	0,00:	0,00:	0,00
Eb-Front lap up:	0,00:	0,00:	0,00
Eb-Single break:	19,50:	39,00:	92,86
Eb-Multiplebreak:	1,50:	3,00:	7,14
Eb-Others:	0,00:	0,00:	0,00
Total start breaks:	1,50:	3,00:	
Total breaks:	21,00:	42,00:	
Total test breaks:	19,50:	39,00:	
Eb-Tsphr:	42,03:	84,05:	
Act Eff%:	96,24:	192,48:	
Prdn Eff%:	100,00:	200,00:	
SCT:	53,39:	106,78:	

Carry out ITRU test plans of increasing ring spindle speed and optimize and lower end break rate and improve yarn quality as outlined in R&D project.



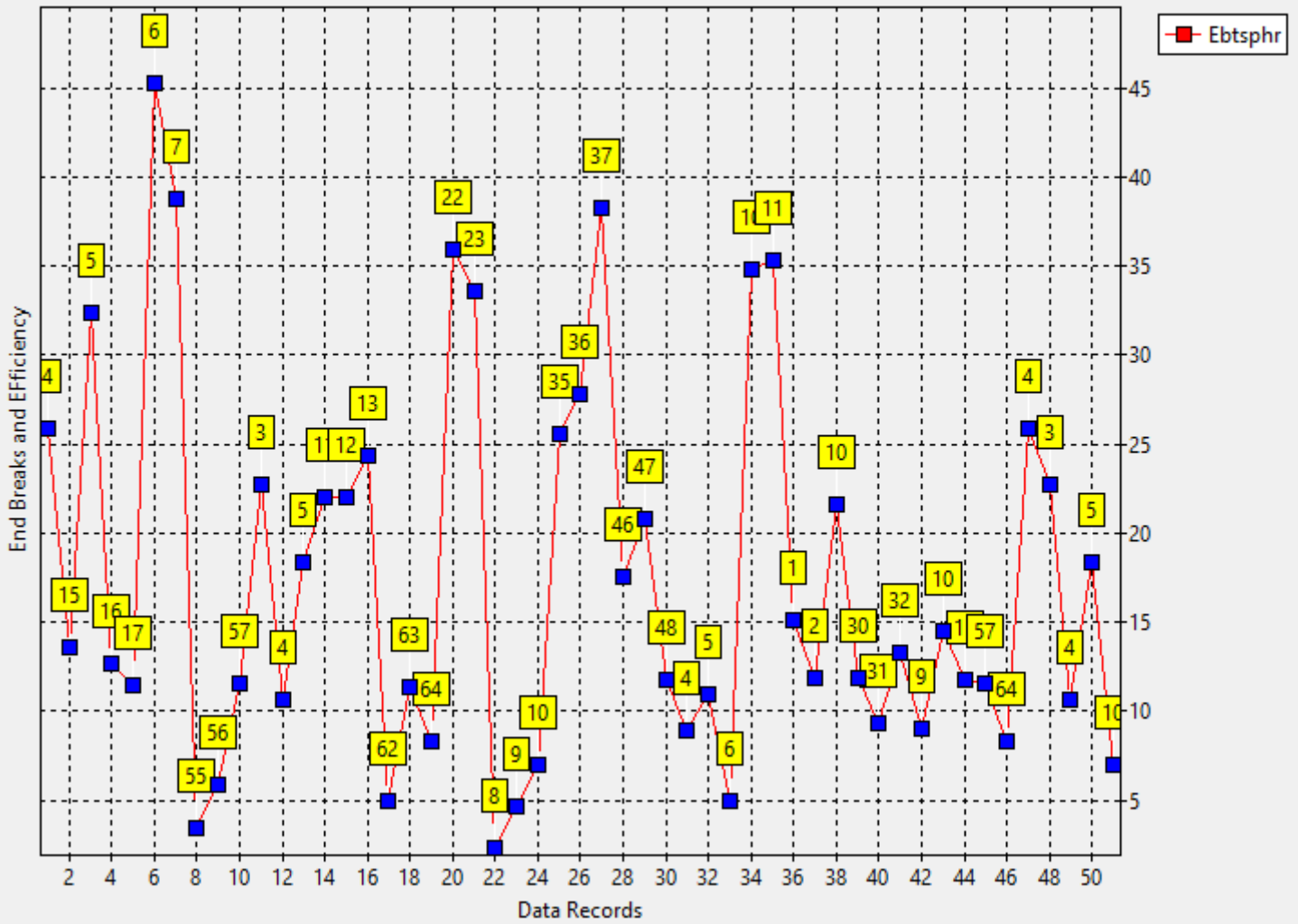
Solve the problem

Find the potential for training spinners to increase their performance



Find the High End Breaks on Machine Base

Machine Performance Data



Find the lower ACT EFF machines

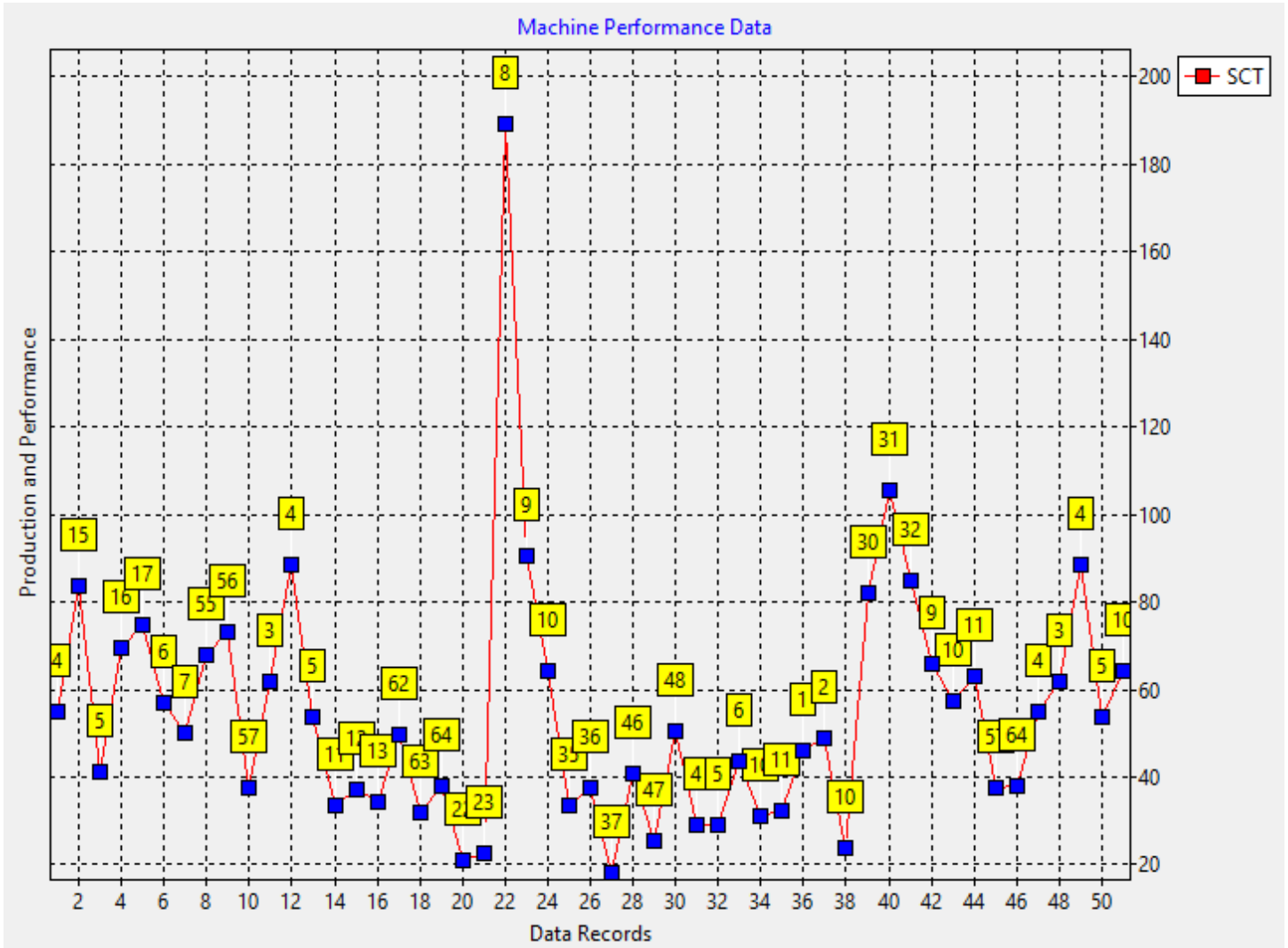
Mach	Lot No	Mach	Date	Ne	Tpi	RPM	ActEFF%	PrdnEFF%	EBTspshr	SCTime	PW%	Kg/mhou	kg/sh	Trav m/s
15:	3281:	ST2:	22.11.2017:	40,00:	23,50:	17500:	32,70:	33,33:	13,59:	83,80:	1,90:	5,74:	43,04:	34,82
17:	3281:	ST2:	22.11.2017:	40,00:	23,50:	17500:	85,42:	86,67:	11,50:	74,88:	1,44:	15,00:	117,02:	34,82
4:	3290:	SW:	11.12.2017:	30,00:	18,10:	12000:	69,57:	70,68:	10,67:	88,35:	1,57:	6,16:	48,64:	30,16
62:	3281:	M:	30.11.2017:	20,00:	17,20:	9200:	82,99:	83,33:	5,00:	49,86:	0,42:	9,07:	70,67:	23,12
10:	1501:	ST2:	7.6.2017:	30,00:	19,80:	13500:	81,68:	83,18:	34,85:	30,98:	1,80:	17,56:	134,65:	26,86
11:	1501:	ST2:	7.6.2017:	30,00:	19,80:	13500:	85,53:	87,18:	35,32:	32,14:	1,89:	18,39:	141,06:	26,86
30:	4565:	Se:	4.6.2017:	30,00:	18,80:	12000:	86,07:	87,50:	11,90:	82,16:	1,63:	6,81:	52,95:	28,27
4:	3290:	SW:	9.1.2017:	30,00:	18,10:	12000:	69,57:	70,68:	10,67:	88,35:	1,57:	6,16:	48,64:	30,16
Mach	Lot No	Mach	Date	Ne	Tpi	RPM	ActEFF%	PrdnEFF%	EBTspshr	SCTime	PW%	Kg/mhou	kg/sh	Trav m/s
51:	-----	-----	-----	29,49:	18,95:	12189:	94,49:	95,77:	17,42:	54,36:	1,35:	551:	4321:	28,32

Find the high spinner cycle time for each machine for training spinners

Spinner Cycle Time

a) Spinning Performance Test must be carried out at least 2 hours

b) Analyses



Mach	Lot No	Mach	Date	Ne	Tpi	RPM	ActEFF%	PrdnEFF%	EBTsphr	SCTime	PW%	Kg/mhou	kg/sh	Trav m/s
8	3295	Se	6.4.2017	30,00	18,10	11000	99,27	100,00	2,31	189,23	0,73	7,51	59,01	25,92
1				30,00	18,10	11000	99,27	100,00	2,31	189,23	0,73	8	59	25,92

check Spinner

Mach	Lot No	Mach	Date	Ne	Tpi	RPM	ActEFF%	PrdnEFF%	EBTsphr	SCTime	PW%	Kg/mhou	kg/sh	Trav m/s
1	Hasan			30,00	18,10	11000	99,27	100,00	2,31	189,23	0,73	7,51	59,01	25,92
1				30,00	18,10	11000	99,27	100,00	2,31	189,23	0,73	8	59	25,92

Comprehensive Charts

- 1) Efficiency
- 2) Production Shift
- 3) Production Parameters
- 4) Spinner Summary 1
- 5) Spinner Summary 2
- 6) Lot Act eff
- 7) Lot prnd eff
- 8) Lot end breaks
- 9) Lot spinner cycle time
- 10) Lot ring waste
- 11) Lot kg machine shift
- 12) Lot Traveler speed
- 13) Pareto End Breaks

Summary Report and Spread Sheet File

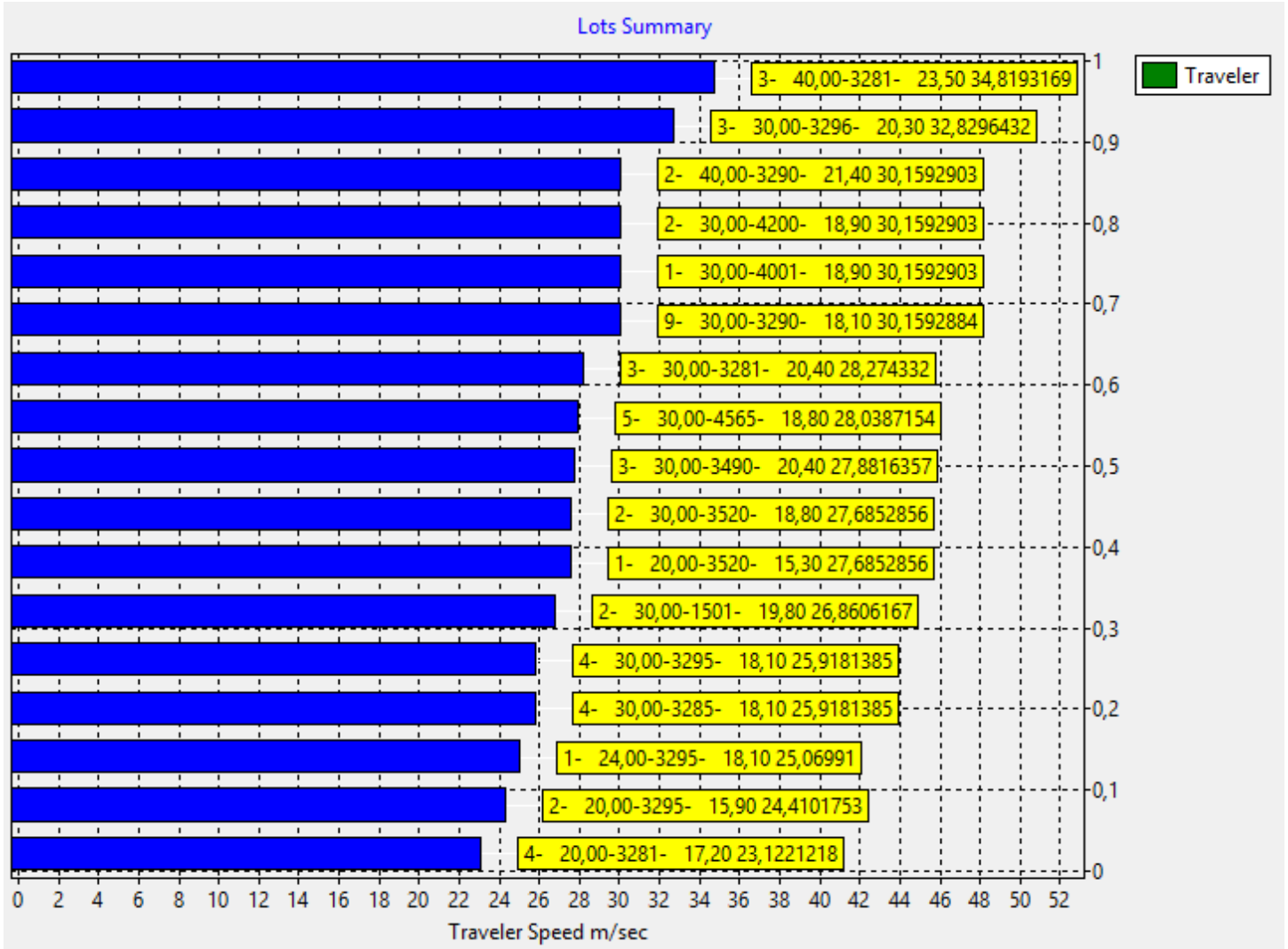
All the database and calculated parameters and summary report are exported to spread sheet in the program.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	MACHINENO	LOTNO	MACHINETYF	TESTDATE	SPINNER	TESTSTART	TESTEND	WORKSHIFT	NEFED	NE	TPI	RPM	EBSTARTRO	EBSTARTBA	EBS
1	4	3290	SW	23.11.2017	Zeki	01:35:00 PM	02:35:00 PM	C	1,03	30	18,1	12000	0	0	
2	15	3281	ST2	22.11.2017	Eyup	03:15:00 PM	04:15:00 PM	A	0,92	40	23,5	17500	0	0	
3	5	3290	SW	23.11.2017	Fahri	01:35:00 PM	02:35:00 PM	C	1,03	30	18,1	12000	0	0	
4	16	3281	ST2	22.11.2017	Eyup	03:15:00 PM	04:15:00 PM	A	0,92	40	23,5	17500	0	0	
5	17	3281	ST2	22.11.2017	Eyup	03:15:00 PM	04:15:00 PM	A	0,92	40	23,5	17500	0	0	
6	6	3290	SW	23.11.2017	Ayse	01:35:00 PM	02:35:00 PM	C	1,03	40	21,4	12000	0	0	
7	7	3290	SW	23.11.2017	Ayse	01:35:00 PM	02:35:00 PM	C	1,03	40	21,4	12000	0	0	
8	55	3285	Se	21.3.2017	Fatma	01:30:00 PM	03:30:00 PM	B	0,92	30	18,1	11000	0	0	
9	56	3285	Se	21.3.2017	Fatma	01:30:00 PM	03:30:00 PM	B	0,92	30	18,1	11000	0	0	
10	57	3285	Se	21.3.2017	Fatma	01:30:00 PM	03:30:00 PM	B	0,92	30	18,1	11000	0	0	
11	3	3290	SW	11.12.2017	Zeki	11:35:00 AM	01:35:00 PM	C	1,03	30	18,1	12000	0	0	
12	4	3290	SW	11.12.2017	Zeki	11:35:00 AM	01:35:00 PM	C	1,03	30	18,1	12000	0	0	
13	5	3290	SW	11.12.2017	Zeki	11:35:00 AM	01:35:00 PM	C	1,03	30	18,1	12000	0	0	
14	11	3281	Se	7.12.2017	Sadi	08:50:00 AM	10:50:00 AM	B	0,9	30	20,4	12000	0	0	
15	12	3281	Se	7.12.2017	Sadi	08:50:00 AM	10:50:00 AM	B	0,9	30	20,4	12000	0	0	
16	13	3281	Se	7.12.2017	Sadi	08:50:00 AM	10:50:00 AM	B	0,9	30	20,4	12000	0	0	

	A	B	C	D	E
1		Ave	Total	%	
2					
3	Eb-Roving	1,37	70	6,896551609	
4	Eb-Backlapup	0	0	0	
5	Eb-Draft	0	0	0	
6	Eb-Front lap up	0,55	28	2,758620739	
7	Eb-Single break	16,33	833	82,06896210	
8	Eb-Multiplebreak	1,65	84	8,275861740	
9	Eb-Others	0	0	0	
10	Total start breaks	3,57	182		
11	Total breaks	19,9	1015		
12	Total test breaks	16,33	833		
13	Eb-Tsphr	17,42	888,5671387		
14	Act Eff%	94,49	4818,950684		
15	Prdn Eff%	95,77	4884,168945		
16	SCT	54,36	2772,404785		
17					

Optimization of ring spindle speed

Ring speed should be adapted according to traveler speed and end break rate and ring frame based with regard to N_e and T_{pi} on article (lotno) base.



4- Practical Procedures for Applications of Ring Spinning Performance Ver 2.1 Pc-Program

In order to have full functional benefits of the Pc-Programs

- a) All the machine counters should be checked
- b) All the spinning cops weight should be measured
- c) All the doffing time for each machine should be measured
- d) Cops formation should be observed during spinning
- e) All the machine spindle speed and delivery of front rollers should be measured and corrective measures should be taken to check the machine main motors or frequency converters that adjust the variable speed.
- f) The program should be applied for a week period and efficiencies of each machine should be traced which will give information about main out of production hours and doffing time.

2- Apply Ring Spinning Geometry Pc-Program to minimize Doffing Time for each machine

3- Apply Ring Spinning Performance Test Pc-Program to increase the production volumes of each machine and each spinners and improve quality related to end break rate and use Spin Plan Pc- Program to correct the main process defects

4- Apply Card Fibre Transfer Test and Comber Data Pc-Program along with QC-Ring Pc-Program to increase production , reduce waste and improve all over yarn quality

5- Carry out Spinning Performance Test by Itru Fibre /Fabric Tester to improve your quality, reduce your material costs from bale to ring frame delivery.