

NCD



NEW GENERATION MILLING SYSTEM



PREPARED BY : NEBAHAT CENİK DURUKAN

NCD

NEW GENERATION MILLING SYSTEM

Stages of milling wheat

- 1- Cleaning
- 2- ANNEALING**
- 3- Grinding/Milling
- 4- Sieving
- 5- Packaging

NCD

NEW GENERATION MILLING SYSTEM

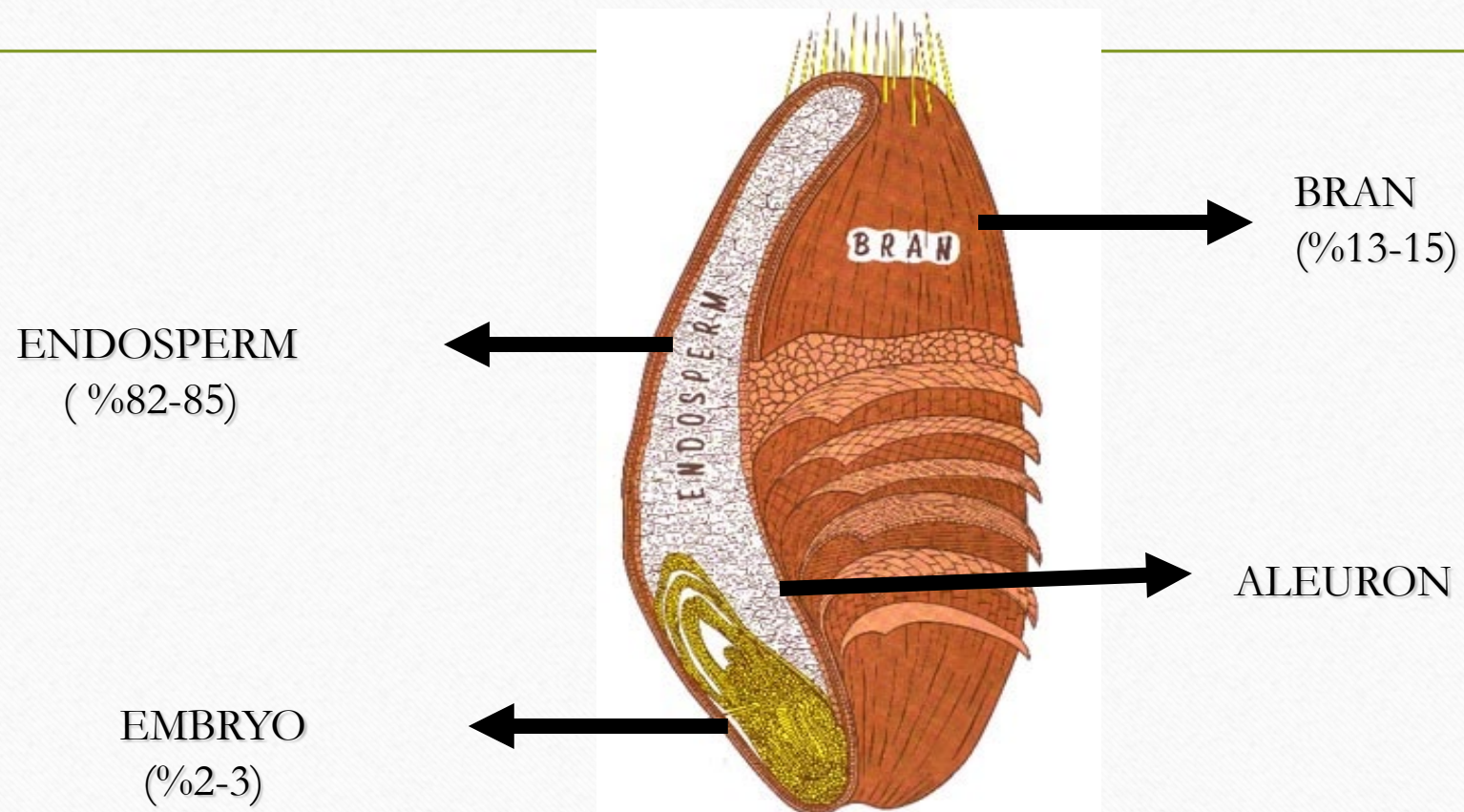
What is ANNEALING?

It is the stage of ensuring the optimum grain water level of the wheat, drying and removing the excess water from the grain and allowing it to swell by resting and getting ready for grinding.

**MILLING STARTS WITH ANNEALING
AND ENDS IN ANNEALING!!!!**

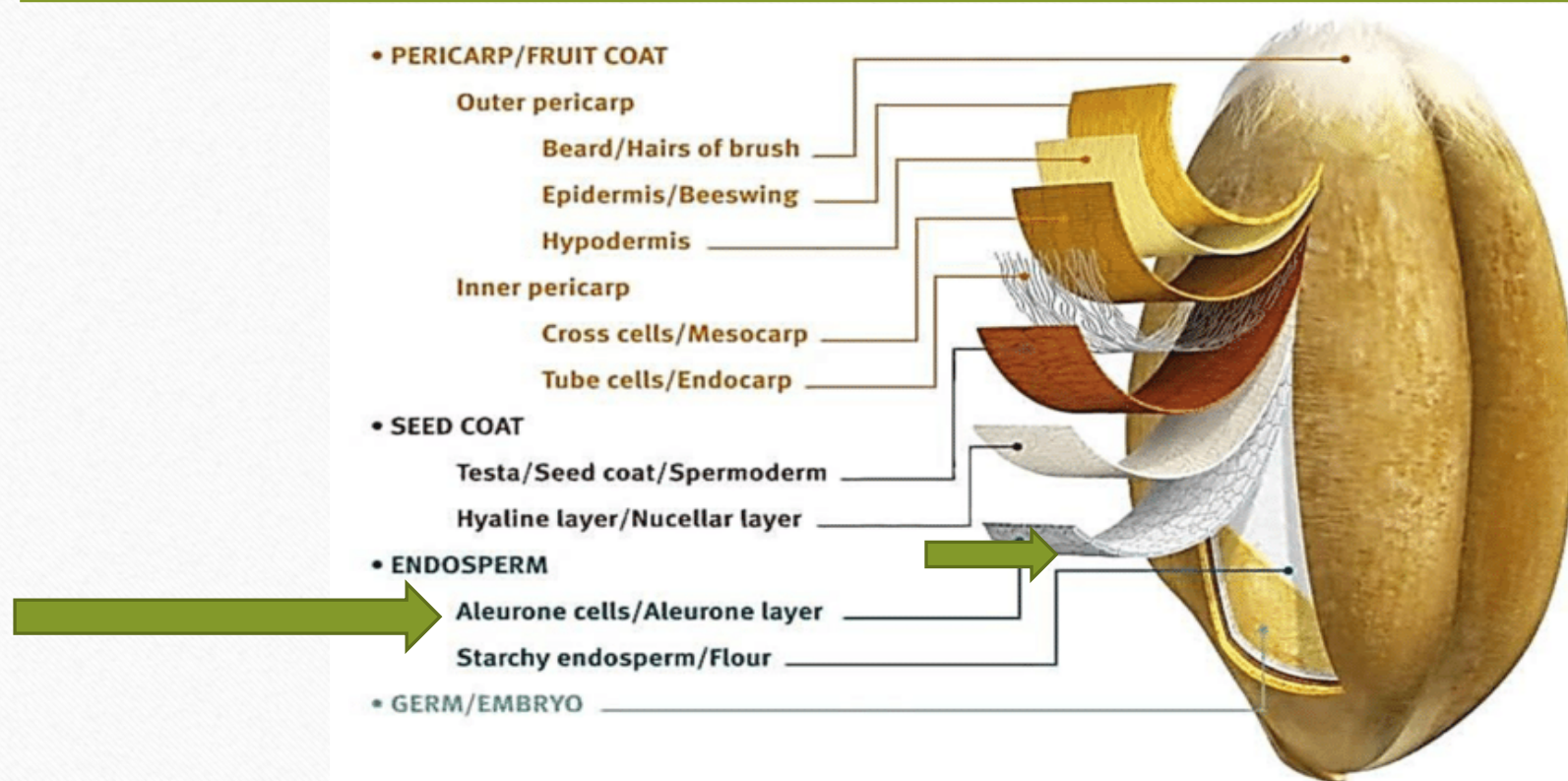
NCD

NEW GENERATION MILLING SYSTEM



NCD

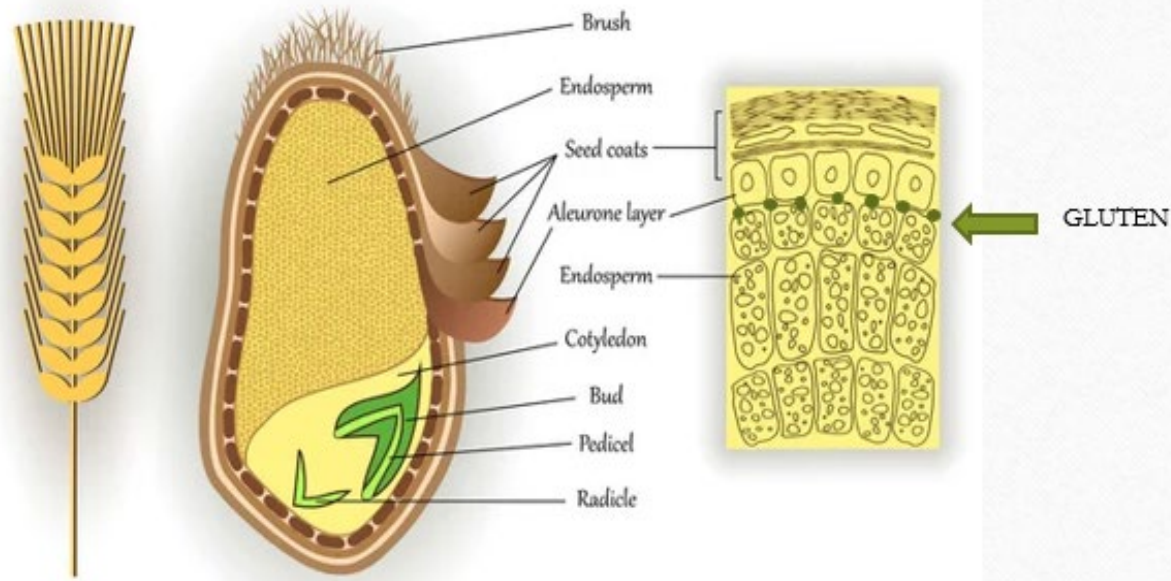
NEW GENERATION MILLING SYSTEM



NCD

NEW GENERATION MILLING SYSTEM

STRUCTURE OF WHEAT GRAIN



NCD

What is NEW GENERATION MILLING SYSTEM?

It is a new technology that improves the quality of flour by performing a good annealing in wheat, separating the existing protein (gluten), which is dense in the aleuron layer, from the bran, and adding it healthier to the endosperm part with a low ash amount.

NCD NEW GENERATION MILLING SYSTEM

STAGES

A – 1-Annealing : by Ozonated Water

B – 2-Annealing : by Water solution(enzymatic)

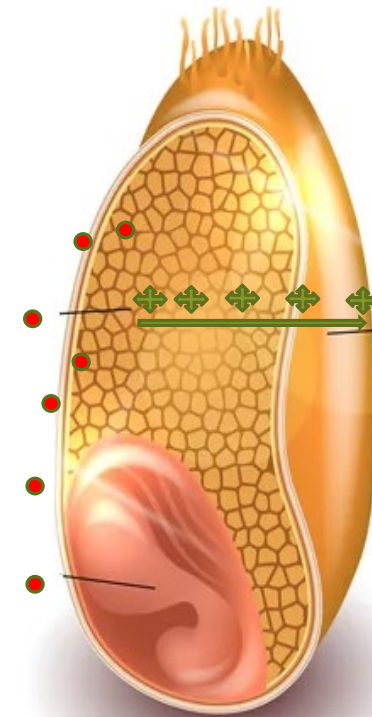
C - Factory settings

NCD

NEW GENERATION MILLING SYSTEM

A-Negative effects of **CHLORINE**

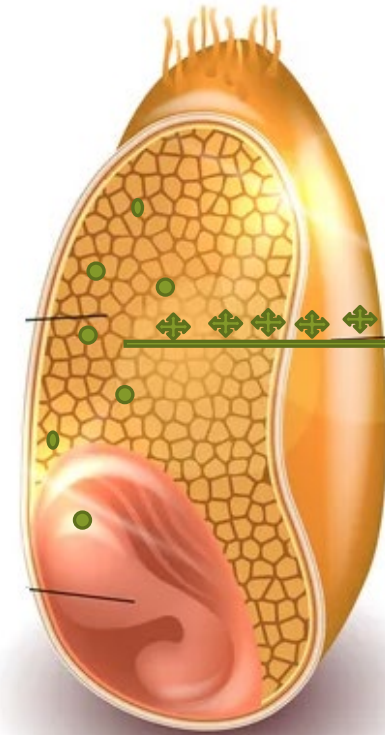
- * Hardens water
- * Clogs pores
- * Reduces the conductivity of water
- * Reduces the elasticity of the dough



NCD NEW GENERATION MILLING SYSTEM

A-Benefits of **OZONE WATER**

- * Increases the conductivity speed of water
- * Lowers the microbial load
- * Gives elasticity to dough
- * Accelerates oxidation

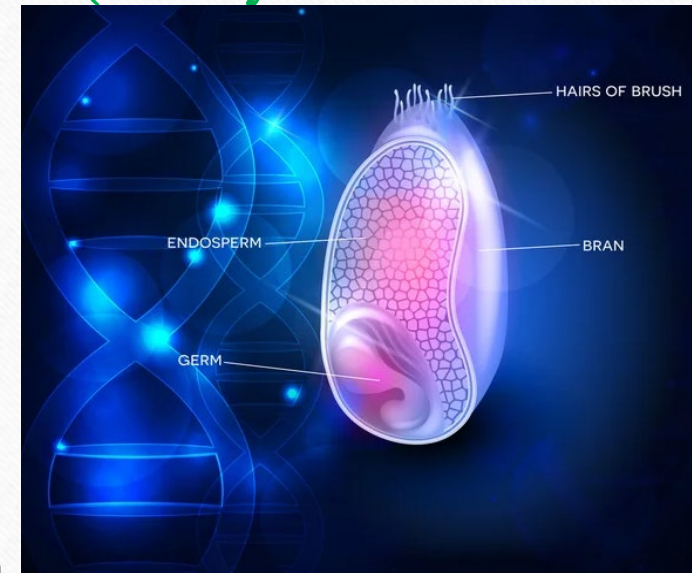


NEW GENERATION MILLING SYSTEM

Stages

B- 2 Annealing(transfer) : Solution(enzyme mixture)

- a- Makes the wheat grain swell better
- b- Allows the supplied water to be evenly distributed at all points of the wheat and annealed without losing moisture
- c- Softens the Aleuron layer
- d- It provides easy decomposition of bran during grinding as it gives elasticity to the shell of wheat
- e- In 'B1s', it allows the semolina to be obtained more homogeneously.





NCD

NEW GENERATION MILLING SYSTEM

Stages

B- Solution : NCD^(R) max

- 1- Enzymes are composed of food additives.
- 2- Halal certificate is available.
- 3- Kosher certificate is also available.
- 4- It does not contain any chemicals that are not suitable for human health.



NCD^(R) max



NCD NEW GENERATION MILLING SYSTEM

Stages

C- Factory Settings:

- a- Angle changes in B1,B2,B3 crushing rolls
- b- Change in sieve diagrams
- c- Changes in inlet and outlet of flour flows

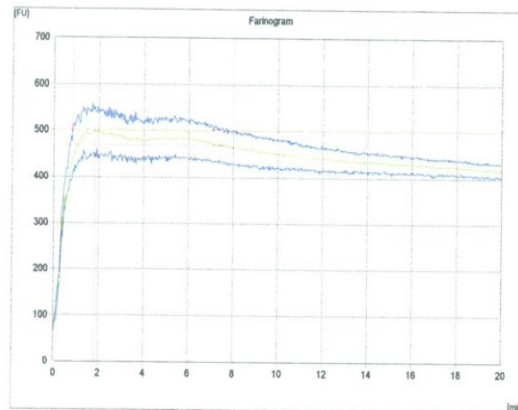
NCD NEW GENERATION MILLING SYSTEM

LABORATORY STUDY RESULTS

WHEAT SAMPLE – CD 1 25 % EXTRACTION FL.(SPECIAL) 75 % EXTRACTION FLOUR

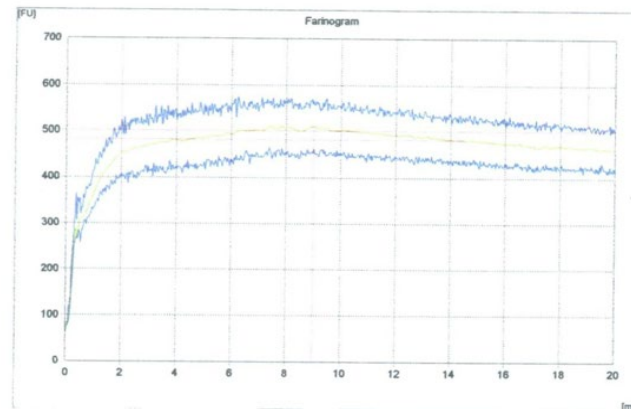
Brabender® Farinograph

Sample: ELIT FOOD
Method: BRABENDER / ICC / BIPEA
Date: 17.01.2020 09:22:41
Mixer: 300 g Speed: 63 1/min
Consistency 498 FU with waterabsorption 55,7 %
Operator:
Moisture content: 14,0 %
Waterabsorption (corrected for 500 FU): 55,7 %
Waterabsorption (corrected to 14,0 %): 55,7 %
Development time: 1,9 min
Stability: 7,2 min
Degree of softening (10 min after begin): 48 FU
Degree of softening (ICC / 12 min after max.): 84 FU
Farinograph quality number: 76
Remarks: BUGDAY NUMUNES/ CD-1



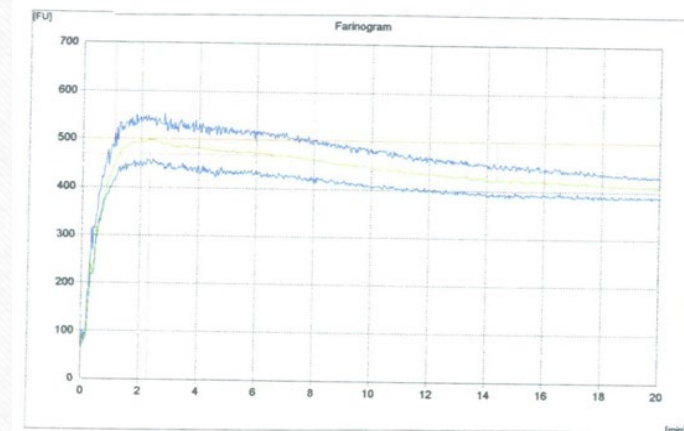
Brabender® Farinograph

Sample: ELIT FOOD
Method: BRABENDER / ICC / BIPEA
Date: 17.01.2020 14:34:55
Mixer: 300 g Speed: 63 1/min
Consistency 510 FU with waterabsorption 56,5 %
Operator:
Moisture content: 14,0 %
Waterabsorption (corrected for 500 FU): 56,8 %
Waterabsorption (corrected to 14,0 %): 56,8 %
Development time: 9,0 min
Stability: 17,0 min
Degree of softening (10 min after begin): 8 FU
Degree of softening (ICC / 12 min after max.): 0 FU
Farinograph quality number: 145
Remarks: %25



Brabender® Farinograph

Sample: ELIT FOOD
Method: BRABENDER / ICC / BIPEA
Date: 16.01.2020 14:14:58
Mixer: 300 g Speed: 63 1/min
Consistency 498 FU with waterabsorption 57,7 %
Operator:
Moisture content: 14,0 %
Waterabsorption (corrected for 500 FU): 57,7 %
Waterabsorption (corrected to 14,0 %): 57,7 %
Development time: 2,3 min
Stability: 6,9 min
Degree of softening (10 min after begin): 56 FU
Degree of softening (ICC / 12 min after max.): 78 FU
Farinograph quality number: 66
Remarks: %75



NCD NEW GENERATION MILLING SYSTEM

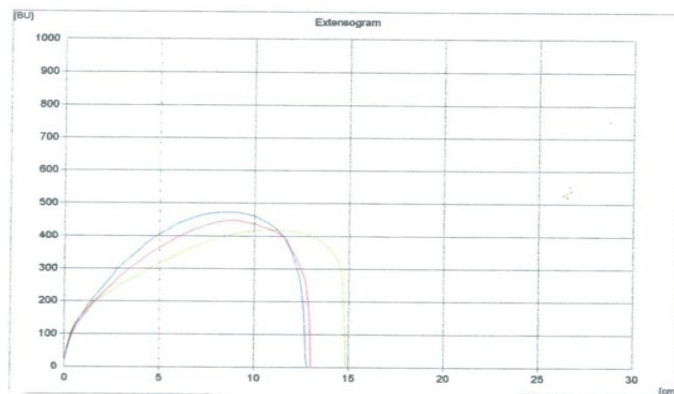
LABORATORY STUDY RESULTS

WHEAT SAMPLE – CD 1 25 % EXTRACTION FL.(SPECIAL) 75 % EXTRACTION FLOUR

Brabender® Extensograph

Brabender

Evaluation of sample: ELIT FOOD
Date: 17.01.2020
Operator:
Test after 45/90/135 Minutes
Waterabsorption: 53,7 %
Proving Time [min]: 45 90 135
Energy [cm²]: 86 78 82
Resistance to Extension [BU]: 317 365 407
Extensibility [mm]: 149 130 128
Maximum [BU]: 418 447 472
Ratio Number: 2,1 2,8 3,2
Ratio Number (Max.): 2,8 3,4 3,7
Remarks: BUGDAY NUMUNESI
CD-1

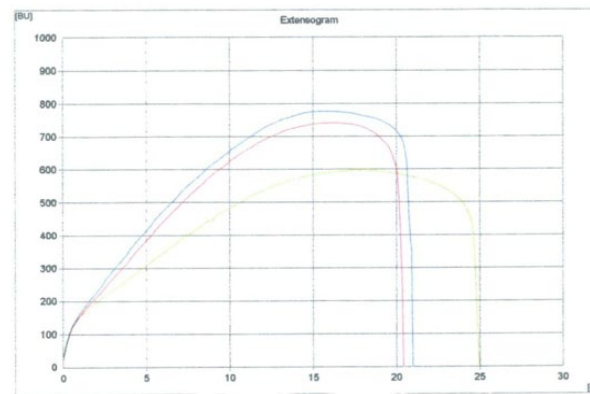


Test: C:\Documents and Settings\Pc-Elit\Desktop\elit\extensograph\T.SELIT FOOD.EXD

Brabender® Extensograph

Brabender

Evaluation of sample: ELIT FOOD
Date: 16.01.2020
Operator:
Test after 45/90/135 Minutes
Waterabsorption: 52,5 %
Proving Time [min]: 45 90 135
Energy [cm²]: 200 195 214
Resistance to Extension [BU]: 308 386 417
Extensibility [mm]: 250 205 211
Maximum [BU]: 595 740 776
Ratio Number: 1,2 1,9 2,0
Ratio Number (Max.): 2,4 3,6 3,7
Remarks: %25

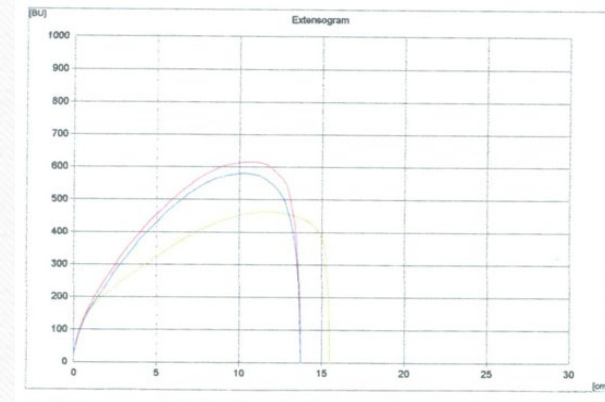


Test: C:\Documents and Settings\Pc-Elit\Desktop\elit\extensograph\T.SELIT FOOD.EXD

Brabender® Extensograph

Brabender

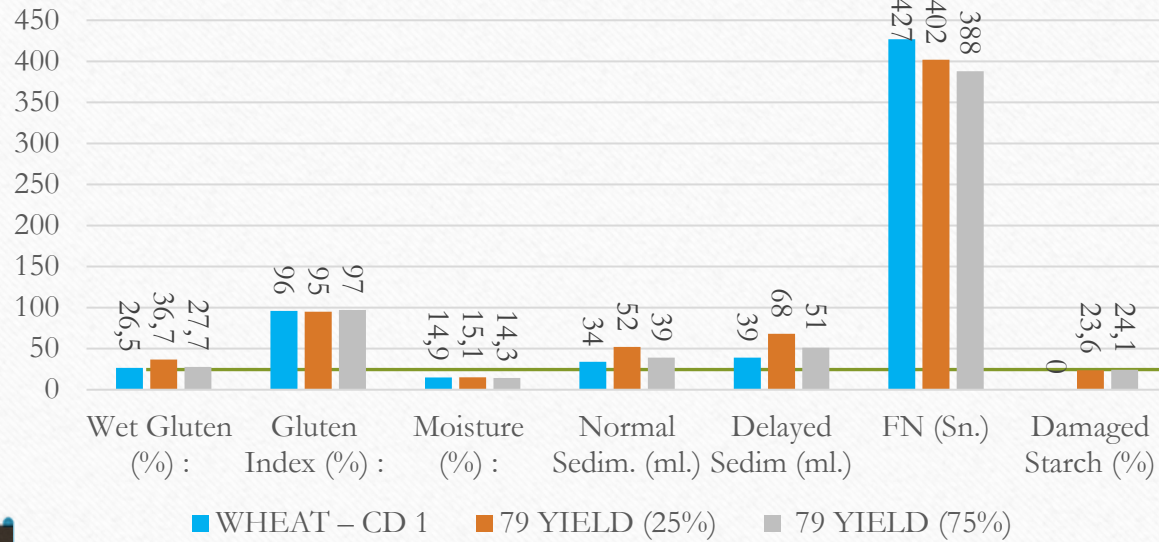
Evaluation of sample: ELIT FOOD
Date: 16.01.2020
Operator:
Test after 45/90/135 Minutes
Waterabsorption: 55,7 %
Proving Time [min]: 45 90 135
Energy [cm²]: 97 111 104
Resistance to Extension [BU]: 324 456 433
Extensibility [mm]: 155 138 137
Maximum [BU]: 462 615 580
Ratio Number: 2,1 3,3 3,2
Ratio Number (Max.): 3,0 4,5 4,2
Remarks: %75



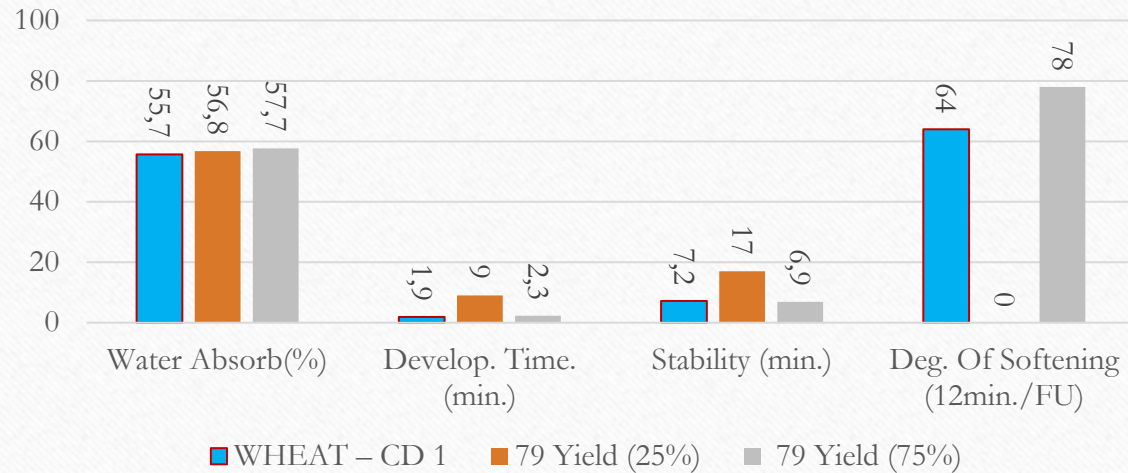
Test: C:\Documents and Settings\Pc-Elit\Desktop\elit\extensograph\T.SELIT FOOD.EXD

QUALITY PARAMETERS	Wheat – CD 1			25% out of 79% Yield(~20%/NCD Max.)			75% out of 79% Yield (~59%/NCD Max.)		
Wet Gluten (%) :	26,5			36,7			27,7		
Gluten Index (%) :	96			95			97		
Moisture (%) :	14,9			15,1			14,3		
Normal Sedim. (ml.)	34			520			39		
Delayed Sedim. (ml.)	39			68			51		
FN (Sn.)	427			402			388		
UCDc (%)				23,6			24,1		
Extensograph	45 min.	90 min.	135 min.	45 min.	90 min.	135 min.	45 min.	90 min.	135 min.
Energy (cm2)	86	78	82	200	195	214	97	111	104
Extensibility (mm)	149	130	128	250	205	211	155	138	137
Max. Resistance (BU)	418	447	472	595	740	776	462	615	580
Farinograph									
Water absorption (%)	55,7			56,8			57,7		
Development Time (min.)	1,9			9,0			2,3		
Stability (min.)	7,2			17,0			6,9		
Deg. Of Softening (at 12 min.)	64			0,0			78		

LABORATORY STUDY RESULTS



Farinograph



Extensograph



NCD NEW GENERATION MILLING SYSTEM

CUSTOMER FACTORY OPERATING RESULTS

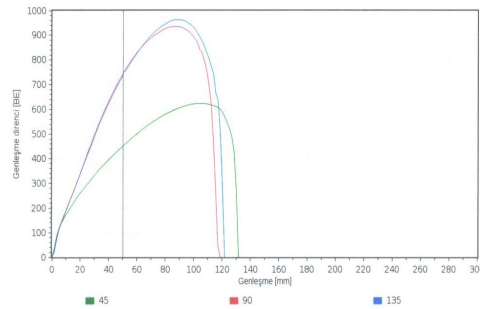
WHEAT

Without NCD SOLN.; With NCD MAX(SPECIAL FL.) With NCD MAX(1. QUA. FL.)

Brabender

Extensograph®-E
Version 2.1.5 CV 1

Numune 12.5 PRT SCOUT ID B7ohpmrjmwg
Sipariş RUS BUĞDAYI Tarih 12.10.2022 09:43
Kullanıcı GEMİ TAHLİYE
ORTALAMA
OSMANLI UN
SELAMI
YILDIRIM
Yöntem 45;90;135 Ölçümleri türet X
WA (belirtilen) 53,50
Talmatlar
Etiketler
Notlar Gluten:27.9.Sedim:40-51.Index:93.Protein:12.5
Nem:11.6.Hektolitre:80.0.FN:420.Sertlik:78.8,
Amylograf:1680

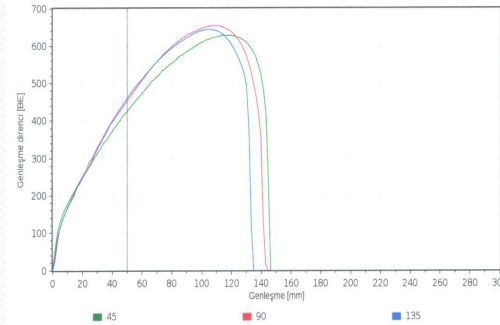


Nokta	45	90	135	Birim	Açıklama
A	106	136	144	cm²	Enerji
R ₅₀	454	750	751	BE	Genleşme direnci
E	132	119	122	mm	Genleşme
R _m	624	936	963	BE	Maksimum
R ₅₀ /E	3.45	6.32	6.16		Oran sayısı
R _m /E	4.74	7.89	7.91		Oran sayısı (maks.)

Brabender

Extensograph®-E
Version 2.1.5 CV 1

Sample 12.5 PROTEIN ID B5qgdij8gwy
RUS BUĞDAY
İMALATI
SOLÜSYONSUZ
OSMANLI UN
SELAMI
YILDIRIM
Order 45;90;135 Date 04/10/2022 14:43
User
Method
Measuring time Duplicate measurements X
WA (given) 53.40
Instructions
Tags
Remarks Gluten:28.0.Sedim:39-53.Index:89.Kül:0.66.FN:445
Nem:14.0.Protein:11.7.Zedelenme:23.7

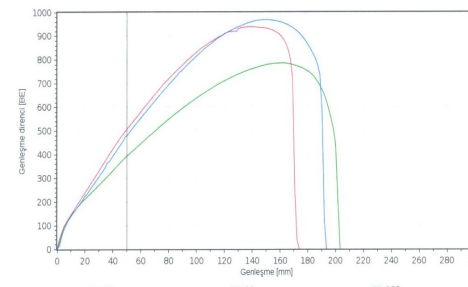


Point	45	90	135	Unit	Description
A	119	119	110	cm²	Energy
R ₅₀	428	455	463	BE	Resistance
E	146	145	135	mm	Extensibility
R _m	628	654	643	BE	Maximum
R ₅₀ /E	2.93	3.15	3.43		Ratio
R _m /E	4.29	4.52	4.77		Ratio (max)

Brabender

Extensograph®-E
Version 2.1.5 CV 1

Sample 12.5 PRT RUS ID B5qgdij8gwy
BUĞDAYI
İMALAT
ENZİM
SOLÜSYON
İLAVELİ(ÖZEL
UN
GÖZLERİNDEN
ALINAN)
OSMANLI UN
SELAMI
YILDIRIM
Order 45;90;135 Date 04/10/2022 14:42
User
Method
Measuring time Duplicate measurements X
WA (given) 53.30
Instructions
Tags
Remarks Gluten:33.2.Sedim:58-68.Index:94.Kül:0.55.FN:455
Nem:14.1.Protein:13.5.Zedelenme:22.5

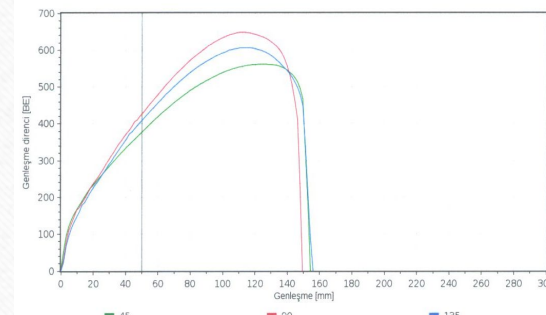


Point	45	90	135	Unit	Description
A	197	198	229	cm²	Energy
R ₅₀	396	510	482	BE	Resistance
E	203	174	193	mm	Extensibility
R _m	786	939	968	BE	Maximum
R ₅₀ /E	1.95	2.93	2.49		Ratio
R _m /E	3.87	5.40	5.01		Ratio (max)

Brabender

Extensograph®-E
Version 2.1.5 CV 1

Sample 12.5 PROTEIN ID B80u90cj82vv
RUS BUĞDAYI
ENZİM
SOLÜSYON
İLAVELİ
OSMANLI UN
SELAMI
YILDIRIM
Order 45;90;135 Date 04/10/2022 09:40
User
Method
Measuring time Duplicate measurements X
WA (given) 55.00
Instructions
Tags
Remarks Gluten:28.5.Sedim:40-55.Index:92.Kül:0.63.FN:420
Nem:14.2.Protein:11.9.Zedelenme:24.6

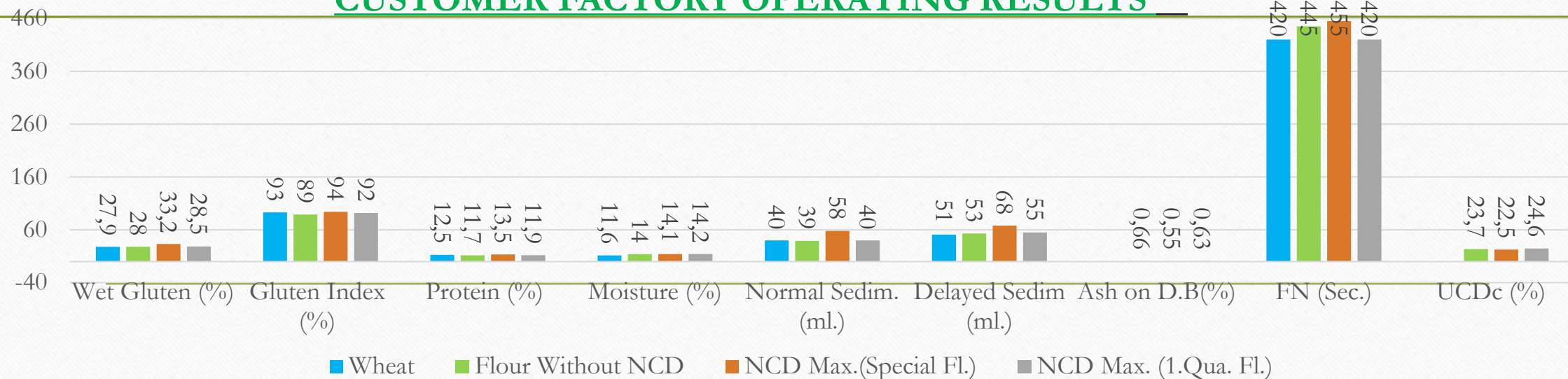


Point	45	90	135	Unit	Description
A	114	123	121	cm²	Energy
R ₅₀	379	428	411	BE	Resistance
E	154	149	156	mm	Extensibility
R _m	560	647	606	BE	Maximum
R ₅₀ /E	2.46	2.87	2.64		Ratio
R _m /E	3.63	4.33	3.88		Ratio (max)

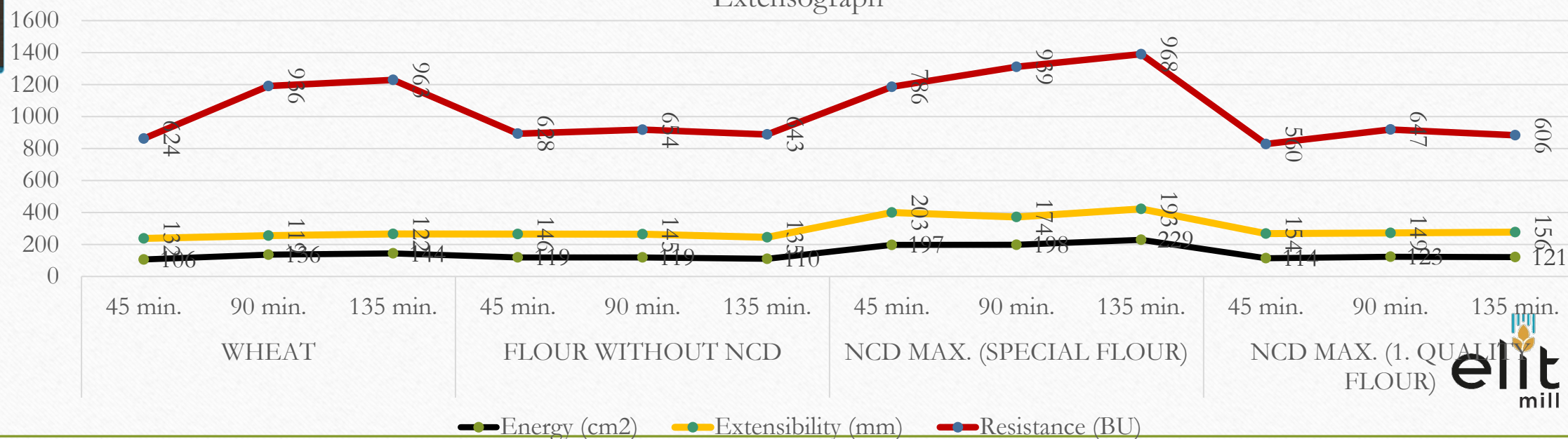
LABORATORY STUDY RESULTS

QUALITY PARAMETERS	Wheat			Flour without NCD			NCD MAX. (Special)			NCD MAX. (1.Quality)		
Wet Gluten (%) :	27,9			28			33,2			28,5		
Gluten Index (%) :	93			89			94			92		
Protein (%) :							13,5			11,9		
Moisture (%) :	11,6			14,0			14,1			14,2		
Sedim. (ml.)	40-51			39-53			58-68			40-55		
Ash (%) :				0,66			0,55			0,63		
FN (Sn.)				445			455			420		
Damaged Starch (%)				23,7			22,5			24,6		
Extensograph	45 min.	90 min.	135 min.	45 min.	90 min.	135 min.	45 min.	90 min.	135 dk.	45 min.	90 dk.	135 min.
Energy	106	136	144	119	119	110	197	198	229	114	123	121
Extensibility (cm2)	132	119	122	146	145	135	203	174	193	154	149	156
Resistance (BU)	624	936	963	628	654	643	786	939	968	560	647	606

CUSTOMER FACTORY OPERATING RESULTS



Extensograph



NCD NEW GENERATION MILLING SYSTEM

It provides the opportunity to produce
high-protein flour from a low-protein
wheat.!!!!!!!!!!!!

NCD

NEW GENERATION MILLING SYSTEM



SPECIAL FLOUR



1. QUALITY FLOUR



ROUGH BRAN

NCD

NEW GENERATION MILLING SYSTEM



1.MICRON SEMOLINA



2.MICRON SEMOLINA



3.MICRON SEMOLINA

NCD

NEW GENERATION MILLING SYSTEM

Quality and Economic Benefits

- 1- Increase in yield,
- 2- Gives low ash,
- 3- Increase in the amount of gluten,
- 4- To be able to produce 5% and 30% of Luxirious (Baklavalık/Yufkalık) flour,
- 5- Decrease in electrical consumption (amperes fall by 15%),
- 6- The sound of the factory is getting less,
- 7- Increase in total flour quality,
- 8- Starch in bran decreases to 9%-10%,





NCD NEW GENERATION MILLING SYSTEM RESULT

- 1- Provides the possibility to produce high-protein flour from a low-protein wheat .
- 2- Even if it is the same yield compared to old systems, it provides the opportunity to produce flour with low ash value. (For Example; In a system where flour is produced with a value of 75 ash with 79 Ext. yiled, 55 ash special purpose flour and 65 ash 1st quality flour are produced with the same yield as the NCD grinding system.)

NCD NEW GENERATION MILLING SYSTEM DOSING SYSTEM







NCD NEW GENERATION MILLING SYSTEM



THANK YOU FOR YOUR ATTENTION.
ELİT MİLL GIDA SAN VE DİŞ TİC. A.Ş.

