

## Part 2: PT Matrices available



### EAC PROFICIENCY TESTING SCHEME ROUND 14, 2019

#### Part 2: PT Matrices available and their test parameters, and brief Notes on test methods

##### 1. FLOUR (MAIZE FLOUR & WHEAT FLOUR)

S/N	Test property	Brief notes on parameter of test
1	Moisture	The loss of weight resulting from oven drying of flour sample at 105°C /130°C to constant weight
2	Crude protein	Total amount of protein in flour sample as determined using Kjeldahl method of nitrogen analysis
3	Crude fat	Total amount of fat in flour sample as determined using solvent extraction method after hydrolyzing the sample.
4	Crude fibre	The loss in weight upon incineration at 550°C of the oven dried residue remaining after sequential digestion of flour sample with H <sub>2</sub> SO <sub>4</sub> and NaOH
5	Total ash	Inorganic residue remaining upon incineration of flour sample at 550°C - 600°C
6	Acidity of extracted fat	Quantity of acids, essentially non-esterified fatty acids, expressed in mg of KOH per 100g of dry matter
7	Gluten	Total content of gluten in flour sample
8	Vitamin A	Total content of vitamin A in flour sample
9	Copper	Total content of copper in flour sample
10	Iron	Total content of iron in flour sample
11	Zinc	Total content of zinc in flour sample
12	Aflatoxin (maize flour)	Amount of aflatoxin B1, B2, G1, G2 and Total aflatoxin in maize flour sample

#### Contact details of flour PT Providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA Tel: +254 20 6948446/459/000 Fax: +254 20 604031/609660 Web: <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Anthony Irungu/ Ashiambi Seruya  Organisational unit: Food and Agriculture Laboratory Tel.: +254 20 6948000/446/459 Fax: +254 20 604031/609660 Email: <a href="mailto:irungu@kebs.org">irungu@kebs.org</a> / <a href="mailto:ashiambis@kebs.org">ashiambis@kebs.org</a>

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### 2. ANIMAL FEED

S/N	Test property	Brief notes on parameter of test
1	Moisture	The loss of weight resulting from oven drying of feed sample at 105°C /130°C to constant weight
2	Crude Protein	Total amount of protein in feed sample as determined using Kjeldahl method of nitrogen analysis
3	Crude Fat	Total amount of fat in feed sample as determined using solvent extraction method after hydrolyzing the sample.
4	Crude Fibre	The loss in weight upon incineration at 550°C of the oven dried residue remaining after sequential digestion of feed sample with H <sub>2</sub> SO <sub>4</sub> and NaOH
5	Total Ash	Inorganic residue remaining upon incineration of feed sample at 550°C - 600°C
6	Acid Insoluble Ash	Measure of sandy matter in a feed
7	Calcium	Total content of calcium in feed
8	Phosphorous	Total content of phosphorous in feed
9	Zinc	Total content of zinc in feed

#### Contact details of PT Animal feed providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA Tel: +254 20 6948446/459/000 Fax: +254 20 604031/609660 Web: <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Anthony Irungu/ Ashiembis Seruya  Organisational unit: Food and Agriculture Laboratory Tel.: +254 20 6948000/446/459 Fax: +254 20 604031/609660 Email: <a href="mailto:irungu@kebs.org">irungu@kebs.org</a> / <a href="mailto:ashiembis@kebs.org">ashiembis@kebs.org</a>

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### 3. UHT MILK – physical-chemical analysis

S/N	Test property	Brief notes on parameter of test
1	Milk fat	Proportion of milk by weight made of butterfat
2	Density at 20°C	Ratio of density to the density of standard substance (water) at 4°C
3	Protein	Total amount of protein in milk sample as determined using Kjeldahl method of nitrogen analysis
4	Total solids	Non-water components of the milk
5	Titrateable acidity	Total acidity of the milk
6	Freezing point depression	The value of freezing point depression of milk
7	pH variation on 5 days incubation	The difference in pH value before and after incubation of milk for 5 days at 55°C
8	Calcium	Total content of calcium in milk sample
9	Lactose	Total content of lactose in milk sample
10	pH	The pH value of the value of milk as determined by use of a pH meter

#### Contact details of UHT MILK PT Providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA Tel: +254 20 6948446/459/000 Fax: +254 20 604031/609660 Web: <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Anthony Irungu/ Ashiambi Seruya  Organisational unit: Food and Agriculture Laboratory Tel.: +254 20 6948000/446/459 Fax: +254 20 604031/609660 Email: <a href="mailto:irungu@kebs.org">irungu@kebs.org</a> / <a href="mailto:ashiambis@kebs.org">ashiambis@kebs.org</a>

### 4. EDIBLE OIL

S/N	Test property	Brief notes on parameter of test
1	Nickel content	Total content of nickel in the oil sample
2	Copper content	Total content of copper in the oil sample
3	Moisture & volatiles content	The lost matter in the sample by weight after drying sample to constant weight.
4	Refractive index	A number that describes how light propagates itself through the edible oil sample medium, measured with a refractometer. This value depends on temperature.
5	Iodine value	Mass of halogen, expressed as iodine, absorbed by the test portion of edible vegetable oil. Iodine value is expressed as grams per 100 g of oil.
6	Peroxide value	Total quantity of those substances in the edible vegetable oil sample, expressed in terms of active oxygen, that oxidize potassium iodide.
7	Density, relative	Density of the oil sample expressed in multiples of the density of pure water at the same temperature as that of the test sample.
8	Acid value	Number of milligrams of potassium hydroxide required to neutralize the free fatty acids present in 1 g of fat, Acid value is expressed in milligrams per gram of edible oil sample.

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### Contact details of edible oil PT Providing institution

Organisation	Contact Person
Uganda National Bureau of Standards Plot 2 – 12 Bypass Link, Bweyogerere Industrial & Business Park P.O Box 6329, Kampala, Uganda. Tel: +256 417 333 250/+256 417 333 251/+256 417 333 252 Web: <a href="http://www.unbs.go.ug">http://www.unbs.go.ug</a>	Mr. Phenny H. / Dentons Kaviiri Organisational unit: Chemistry Laboratory Tel.: +256 414333250/333251/333252 Email: <a href="mailto:kphennyd@gmail.com">kphennyd@gmail.com</a> , <a href="mailto:dentons.kaviiri@unbs.go.ug">dentons.kaviiri@unbs.go.ug</a>

## 5. ALCOHOLIC BEVERAGE (GIN)

S/N	Tested property	Brief notes on parameter of test
1	Alcohol content	Result expressed as %v/v of sample
2	Total solids content	Result expressed as mg/L of sample
3	Total acids as tartaric acid	Result expressed as mg/Litre of absolute alcohol
4	Volatile acids as acetic acid	Result expressed as mg/Litre of absolute alcohol
5	Esters as ethyl acetate	Result expressed as mg/Litre of absolute alcohol
6	Aldehydes as acetaldehyde	Result expressed as mg/Litre of absolute alcohol
7	Methanol	Result expressed as mg/Litre of sample

### Contact details of Alcoholic beverage (Gin) PT Providing institution

Organisation	Contact Person
Uganda National Bureau of Standards Plot 2 – 12 Bypass Link, Bweyogerere Industrial & Business Park P.O Box 6329, Kampala, Uganda. Tel: +256 417 333 250/+256 417 333 251/+256 417 333 252 Web: <a href="http://www.unbs.go.ug">http://www.unbs.go.ug</a>	Mr. Phenny H./ Dentons Kaviiri Organisational unit: Chemistry Laboratory Tel.: +256 414333250/333251/333252 Email: <a href="mailto:kphennyd@gmail.com">kphennyd@gmail.com</a> , <a href="mailto:dentons.kaviiri@unbs.go.ug">dentons.kaviiri@unbs.go.ug</a>

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### 6. EDIBLE SALT

S/N	Test property	Brief notes on parameter of test
1	Calcium	Total calcium content in sample as determined using EDTA titrimetric method or by AAS
2	Magnesium	Total magnesium content in sample as determined using EDTA titrimetric method or by AAS
3	Moisture at 105°C	The lost volatile matter in the sample by weight after drying in an Oven at 105°C to constant weight
4	Sulphate	Total sulphate content as determined gravimetrically
5	Matter –Insoluble- in water	All matter insoluble in water that is retained during filtration of salt sample solution on porosity 4 glass sintered crucible.
6	Chloride (expresses as NaCl)	Total chloride expressed as NaCl determined by Argentometric titration
7	Iodate content ( expressed as Iodine)	Determination of Total Iodate content expressed as Iodine. Determined using Thiosulphate titration

#### Contact details of edible salt PT Providing institution

Provider	Contact Person / PT Coordinator
TBS, Tanzania Bureau of Standards P.O. Box 9524 Morogoro/Sam Nujoma Roads, Ubungo Dar es Salaam, Tanzania Tel.: +255(22)2450298/2450206/2450949 Fax: +255 22 245 0959 Web: <a href="http://www.tbs.go.tz">www.tbs.go.tz</a>	Ms Catherine Bulemo/ Mr. Harith Harith  Organisational unit: Chemistry Laboratory Tel.: +255(22)2450298/2450206/2450949 Fax: +255 22 245 0959 Email: <a href="mailto:catherine.bulemo@tbs.go.tz">catherine.bulemo@tbs.go.tz</a> <a href="mailto:harith.harith@tbs.go.tz">harith.harith@tbs.go.tz</a>

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### 7. FERTILIZERS

S/N	Test property	Brief notes on parameter of test
1	Moisture content	Loss of weight by Vacuum desiccator Method using conc.H <sub>2</sub> SO <sub>4</sub> as desiccant.
2	Total Nitrogen	Back titration of excess-acid after displacement of ammonia by means of an excess Sodium hydroxide
	Ammoniacal Nitrogen	Back titration of excess-acid after displacement of ammonia by means of an excess Sodium hydroxide after distillation of ammonia from alkaline solution.
3	Total Phosphorus	Total phosphorous by gravimetric method using Quinolinephosphomolybdate solution @ 250 °C
4	Potassium as K <sub>2</sub> O	Determination of potassium by precipitation of potassium ions by excess Sodium Tetraphylborate (NaTPB) in a weakly alkaline medium.

#### Contact details of Fertilizer PT Providing institution

Provider	Contact Person / PT Coordinator
TBS, Tanzania Bureau of Standards P.O. Box 9524 Morogoro/Sam Nujoma Roads, Ubungo Dar es Salaam, Tanzania Tel.: +255(22)2450298/2450206/2450949 Fax: +255 22 245 0959 Web: <a href="http://www.tbs.go.tz">www.tbs.go.tz</a>	Ms Catherine Bulemo/ Mr. Harith Harith  Organisational unit: Chemistry Laboratory Tel.: +255(22)2450298/2450206/2450949 Fax: +255 22 245 0959 Email: <a href="mailto:catherine.bulemo@tbs.go.tz">catherine.bulemo@tbs.go.tz</a> <a href="mailto:harith.harith@tbs.go.tz">harith.harith@tbs.go.tz</a>

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### 8. HONEY

S/N	Test property	Brief notes on parameter of test
1	Moisture	This is a criterion that determines stability of honey to spoilage and yeast formation. Measured by refractometer or oven
2	Hydroxymethylfurfural (HMF)	It is an indicator of freshness of honey. Expressed in mg/kg
3	Ash content	Inorganic residue remaining upon incineration of honey sample at 550°C - 600°C
4	Acidity	Free acids expressed in milliequivalents/kg of honey
5	Water insoluble matter	Measures cleanness of honey as All matter insoluble in water that is retained during filtration of honey solution on porosity 3 glass sintered crucible
6	Relative density	Examines added materials other than honey, measured by pycnometer (density bottle)
7	Lead	Total content of lead in honey expressed in mg/kg
8	Zinc	Total content of zinc in honey expressed in mg/kg

#### Contact details of Honey PT Providing institution

Provider	Contact Person/PT Coordinator
TBS, Tanzania Bureau of Standards P.O. Box 9524 Morogoro/Sam Nujoma Roads, Ubungo Dar es Salaam, Tanzania Tel.: +255(22)2450298/2450206/2450949 Fax: +255 22 245 0959 Web: <a href="http://www.tbs.go.tz">www.tbs.go.tz</a>	Mr. Emanuel Bakashaya/ Mr. Fredrick Ayo Organisational unit: Food Laboratory Tel.: +255(22)2450298/2450206/2450949 Fax: +255 22 245 0959 Email: <a href="mailto:emanuel.bakashaya@tbs.go.tz">emanuel.bakashaya@tbs.go.tz</a> / <a href="mailto:fredrik.obedi@tbs.go.tz">fredrik.obedi@tbs.go.tz</a>

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### 9. FRUIT JUICE

S/N	Test property	Brief notes on parameter of test
1	pH	It is approximately the negative of the base 10 logarithm of the molar concentration, measured in units of moles per liter, of hydrogen ions
2	Brix	Degrees Brix (symbol °Bx) is the sugar content of an aqueous solution
3	Alcohol content	Total amount of alcohol available in fruit juice to indicate the degree of fermentation of the juice.
4	Acidity	Acid value obtained by titration
5	Ascorbic acid (Vitamin C)	Vitamin C, also known as ascorbic acid and L-ascorbic acid, is a vitamin found in food and used as a dietary supplement
6	Copper (as Cu)	Total content of copper in fruit juice expressed in mg/l
7	Arsenic (as As)	Total content of Arsenic in fruit juice expressed in mg/l
8	Lead (as Pb)	Total content of Lead in fruit juice expressed in mg/l

#### Contact details of fruit juice PT providing institution

Provider	Contact Person/PT Coordinator
TBS, Tanzania Bureau of Standards P.O. Box 9524 Morogoro/Sam Nujoma Roads, Ubungo Dar es Salaam, Tanzania Tel.: +255(22)2450298/2450206/2450949 Fax: +255 22 245 0959 Web: <a href="http://www.tbs.go.tz">www.tbs.go.tz</a>	Mr. Emanuel Bakashaya/ Mr. Fredrick Ayo Organisational unit: Food Laboratory Tel.: +255(22)2450298/2450206/2450949 Fax: +255 22 245 0959 Email: <a href="mailto:emanuel.bakashaya@tbs.go.tz">emanuel.bakashaya@tbs.go.tz</a> / <a href="mailto:fredrik.obedi@tbs.go.tz">fredrik.obedi@tbs.go.tz</a>

### 10. SUGAR

S/N	Test property	Brief notes on parameter of test
1	Polarization	An aqueous solution of the sugar is polarized by means of a saccharimeter which is calibrated to read 100°S on the International Scale under specified condition
2	Conductivity ash	An aqueous sugar solution of 28g/100g is prepared and its conductivity is determined at 20°C
3	Moisture content	The loss of weight resulting from air drying of sample of sugar at 105°C for a period of three hours to constant weight
4	Colour	The colour of filtered aqueous sugar solution is measured using wavelength of 420 nm
5	Sulphur dioxide	The total residual Sulphur dioxide content as determined by a titration method
6	Water insoluble matter	An aqueous sugar to be tested is filtered through a pre-weighed membrane filter of pore size 8µm. The membrane and the insoluble matter retained on it are thoroughly washed, dried in an oven to constant weight and weighed.



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### Contact details of sugar PT Providing institution

Provider	Contact Person / PT Coordinator
Rwanda Standards Board P.O. Box: 7099 Kigali-Kicukiro, RWANDA  Tel: +250 252-582945 Fax: +250 252-583305 Web:: <a href="http://www.rsb.gov.rw">www.rsb.gov.rw</a>	Mr. Mbabazi Alphonse/ Ms Egidia Nkezabera Organisational unit: National Quality Testing laboratories Tel.: +250 788589318/+250 788443238 Fax: +250 252-583305 Email: <a href="mailto:alphonse.mbabazi@rsb.gov.rw">alphonse.mbabazi@rsb.gov.rw</a> / <a href="mailto:egidia.nkezabera@rsb.gov.rw">egidia.nkezabera@rsb.gov.rw</a>

### 11. LAUNDRY SOAP

S/N	Test property	Brief notes on parameter of test
1	Free caustic alkali, as NaOH,	Result expressed as % m/m
2	Total free alkali, as NaOH,	Result expressed as % m/m
3	Moisture and volatile content, 105 °C	Result expressed as % m/m
4	Ethanol insoluble matter	Result expressed as % m/m
5	Matter insoluble in water	Result expressed as % m/m
6	Chloride content as NaCl	Result expressed as % m/m

### Contact details of laundry soap PT providing institution

Provider	Contact Person / PT Coordinator
Rwanda Standards Board P.O. Box: 7099 Kigali-Kicukiro, RWANDA  Tel: +250 252-582945 Fax: +250 252-583305 Web:: <a href="http://www.rsb.gov.rw">www.rsb.gov.rw</a>	Mr. Mbabazi Alphonse/ Ms Egidia Nkezabera Organisational unit: National Quality Testing laboratories Tel.: +250 788589318/+250 788443238 Fax: +250 252-583305 Email: <a href="mailto:alphonse.mbabazi@rsb.gov.rw">alphonse.mbabazi@rsb.gov.rw</a> / <a href="mailto:egidia.nkezabera@rsb.gov.rw">egidia.nkezabera@rsb.gov.rw</a>

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### 12. Skin Cosmetic Lotion(Free trial)

S/N	Test property	Brief notes on parameter of test
1	Hydroquinone	Both qualitative and quantitative test can be applied. Result expressed as % m/m or presence or absence
2	Thermal stability	Thermostatically controlled oven, capable of maintaining 37°C.
3	pH	It is approximately the negative of the base 10 logarithm of the molar concentration, measured in units of moles per liter, of hydrogen ions
4	Total fatty substance content	Result expressed as % m/m
5	Lead (as Pb)	Total content of Lead expressed in mg/l
6	Arsenic (as As)	Total content of Arsenic expressed in mg/l
7	Mercury (as Hg)	Total content of Mercury expressed in mg/l

#### Contact details of Skin Cosmetic Lotion PT providing institution

Provider	Contact Person / PT Coordinator
Rwanda Standards Board P.O. Box: 7099 Kigali-Kicukiro, RWANDA  Tel: +250 252-582945 Fax: +250 252-583305 Web:: <a href="http://www.rsb.gov.rw">www.rsb.gov.rw</a>	Mr. Mbabazi Alphonse/ Ms Egidia Nkezabera Organisational unit: National Quality Testing laboratories Tel.: +250 788589318/+250 788443238 Fax: +250 252-583305 Email: <a href="mailto:alphonse.mbabazi@rsb.gov.rw">alphonse.mbabazi@rsb.gov.rw</a> / <a href="mailto:egidia.nkezabera@rsb.gov.rw">egidia.nkezabera@rsb.gov.rw</a>

### 13. DAIRY MICROBIOLOGICAL – SKIM MILK POWDER SCHEME

S/N	Test property	Brief notes on parameter of test
1	Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
2	Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
3	Escherichia coli	Result expressed as Colony forming units per gram, (cfu/g)
4	Escherichia coli	Result expressed as Presence/Absence per gram
5	Coagulase positive Staphylococci	Result expressed as Colony forming units per gram, (cfu/g)
6	Listeria species	Result expressed as Presence/Absence per 10g grams
7	Listeria monocytogenes	Result expressed as Colony forming units per gram, (cfu/g)
8	Salmonella species	Result expressed as Presence/Absence per 10g grams

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### Contact details of Dairy Microbiology Skim Milk Powder PT Providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA Tel: +254 20 6948446/459/000 Fax: +254 20 604031/609660 Web: <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Clarkson Agembo/ Daniel Omulogoli Organisational unit: Microbiology Laboratory Tel.: +254 20 6948000/460/344 Fax: +254 20 604031/609660 Email: <a href="mailto:agemboc@kebs.org">agemboc@kebs.org</a> <a href="mailto:omulogolid@kebs.org">omulogolid@kebs.org</a>

### 14. MEAT AND FISH MICROBIOLOGY SCHEME

S/N	Test property	Brief notes on parameter of test
1	Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
2	Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
3	Escherichia coli	Result expressed as Colony forming units per gram, (cfu/g)
4	Escherichia coli	Result expressed as Presence/Absence per gram
5	Coagulase positive Staphylococci	Result expressed as Colony forming units per gram, (cfu/g)
6	Listeria species,	Result expressed as Presence/Absence per 10g grams
7	Listeria monocytogenes	Result expressed as Colony forming units per gram, (cfu/g)
8	Salmonella species	Result expressed as Presence/Absence per 10g grams
9	Vibrio species,	Result expressed as Presence/Absence per 10g grams

### Contact details of MEAT AND FISH MICROBIOLOGY PT Providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA Tel: +254 20 6948446/459/000 Fax: +254 20 604031/609660 Web: <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Clarkson Agembo/ Daniel Omulogoli Organisational unit: Microbiology Laboratory Tel.: +254 20 6948000/460/344 Fax: +254 20 604031/609660 Email: <a href="mailto:agemboc@kebs.org">agemboc@kebs.org</a> <a href="mailto:omulogolid@kebs.org">omulogolid@kebs.org</a>

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### 15. BLACK TEA MICROBIOLOGY SCHEME

S/N	Test property	Brief notes on parameter of test
1	Total Viable Count	Result expressed as Colony forming units per gram, (cfu/g)
2	Coliforms	Result expressed as Colony forming units per gram, (cfu/g)
3	Escherichia coli	Result expressed as Colony forming units per gram, (cfu/g)
4	Escherichia coli	Result expressed as Presence/Absence per gram
5	Coagulase positive Staphylococci	Result expressed as Colony forming units per gram, (cfu/g)
6	Yeast	Result expressed as Colony forming units per gram, (cfu/g)
7	Molds	Result expressed as Colony forming units per gram, (cfu/g)
8	Yeasts and Molds	Result expressed as Colony forming units per gram, (cfu/g)
9	Salmonella	Result expressed as Presence/Absence per 25g grams

#### Contact details of BLACK TEA MICROBIOLOGY PT Providing institution

Provider	Contact Person / PT Coordinator
Kenya Bureau of Standards P. O. Box 54974 – 00200 Popo Road off Mombasa Road Nairobi, KENYA Tel: +254 20 6948446/459/000 Fax: +254 20 604031/609660 Web: <a href="http://www.kebs.org">www.kebs.org</a>	Mr. Clarkson Agembo/ Daniel Omulogoli Organisational unit: Microbiology Laboratory Tel.: +254 20 6948000/460/344 Fax: +254 20 604031/609660 Email: <a href="mailto:agemboc@kebs.org">agemboc@kebs.org</a> <a href="mailto:omulogolid@kebs.org">omulogolid@kebs.org</a>