BEER SENSORY FROM A TO QC

RESOURCES FOR BUILDING AND GROWING YOUR PROGRAM

Liz Pratt, Karl Arnberg, and Luci Benedict

Craft Brewers Conference 2019
Denver, CO



Overview and Goals

- Sensory program philosophy
- Immediate steps to take right now
- Next steps in developing a program
- Seeking support from outside labs
- Questions
- Additional resources (check out the Brewer's Association Craft Brewers Guide to Building a Sensory Panel)

Don't worry: slides will be available online after the conference!

Liz Pratt

Sensory Specialist Amsterdam, NL

2018 "DIY Sensory" presentation available on the Brewers Association website





Tangren, M. C. Beev Isugar Baw can malt extrast (2/206

What is SENSORY ANALYSIS?

Using human senses (sight, smell, taste, touch, and sound) to evaluate consumer products like perfume, moisturizer, food, juice, or...BEER!

What is a SENSORY PROGRAM?

For our purposes, this term refers to a system of evaluating the characteristics of beer (or ingredients) by appearance, aroma, flavor, and mouthfeel.

Why Start Now?

"I don't have time, money, or staff."

Every department needs these skills

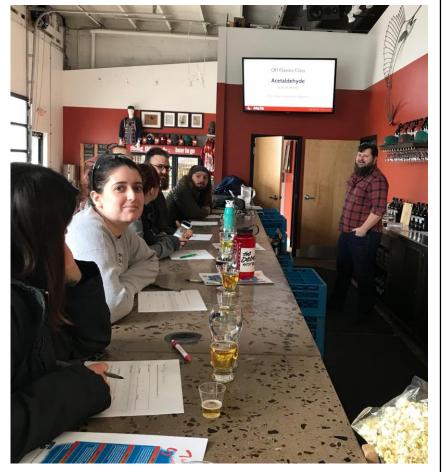
- Brewing, cellar, packaging
- Marketing, serving and sales, development

Establish strong foundations for the future

- Don't wait for something to go wrong!
- Do this favor for yourself and your team
- Create good habits now no coffee, no talking, etc.

Build enthusiasm and support your team

- Investment in skill building is great for morale
- Practicing mindfulness leads to fewer mistakes and safer choices



Good Bare Bones: Basic Sensory Supplies Printer, paper, pens SENSORY Glasses and caps SESSION MATERIALS SENSORY Beer or ingredients A few hours a week FLAVOR SAMPLES 2018 orchive TSENSORY PROGRAM MATERIALS ONLY T

DIY "Spikes" for beginning training

Lightstruck or skunky: set a pitcher in the sun

Oxidation or hop aroma degradation: beer library

Diacetyl: artificial butter flavoring

Acetic acid: white vinegar

Citric acid: check the baking section!

Mineral hardness: baking soda

DMS: Rolling Rock



Sensory Philosophy for Every Brewery

Protect your market share, control costs, and keep making and selling amazing beer!

- Ask the right questions: what do you need to know right now? What is most important to you and your brand?
- Invite everyone! You never know who your best taster will be.
- Leadership must be on board. Work towards TOTAL company buy-in. One bad example can weaken the entire program.
- Sensory is a journey and journeys need to start somewhere.
- ALL SENSORY IS GOOD SENSORY! What is needed, and what is possible, for every brewery is DIFFERENT. Don't let perfect get in the way of good.

Karl Arnberg

Sensory Manager



Sensory Space

Good Lighting

Away from areas with strong smells or noises

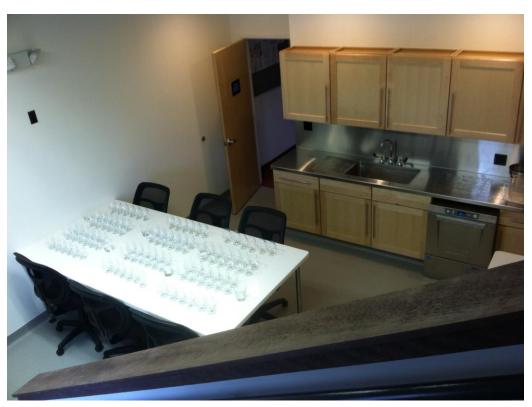
Low foot traffic

Clean glassware

Beer storage

Keep what you're pouring confidential







Description Panel

"What are the characteristics that define this beer?"

Describe the elements of your beer.

What about how your beer looks, smells, tastes or feels sets it apart from other beers, or other beers of a similar style?

Focus on what you actually perceive, not what you know think you should.

Product Release Panel

"Is this sample free of flaws and consistent with its brand?"

True to Type or True to Brand test

Evaluate a sample of beer against its description and taste for off-flavors



Education



Off-flavors vs. On-flavors

Acetaldehyde

Ethyl acetate

Acetic acid

Ethyl Hexanoate

Diacetyl

Ethyl Decanoate

Dimethyl sulfide

Isoamyl acetate

Lightstruck

4-vinylguauicol

Mercaptan

Malt character

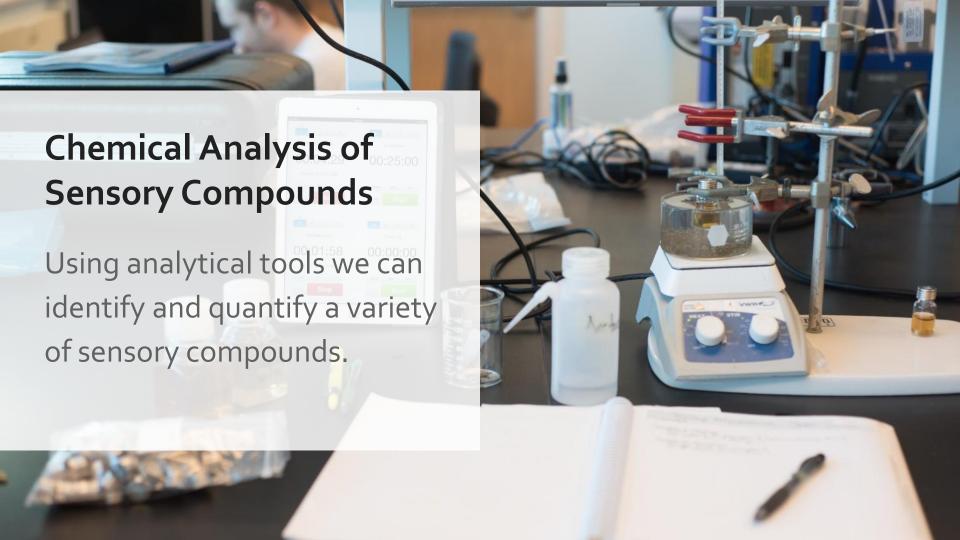
Trans-2-nonenal

Hop character

Luci Benedict

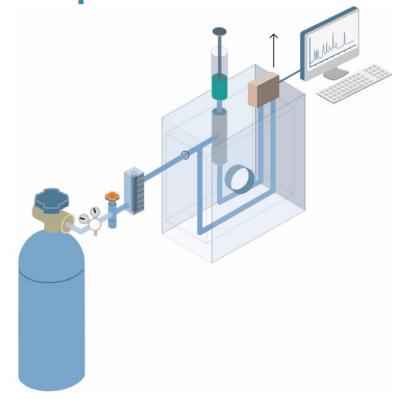
Director of QC² Lab





Chemical Sensory Analysis Options

- Gas Chromatography a powerful technique that is used to separate out volatile compounds.
- Compounds can be detected based on mass spectra or through smell.



Introducing the sample to the GC

- Solid phase microextraction (SPME) expose a fiber to the headspace above a beer
 sample and allow the volatile compounds to
 absorb onto the fiber.
- Direct Headspace Injection Gas from above a beer sample is collected into a gas tight syringe and injected into the GC
- Liquid-Liquid Extraction A beer sample is mixed with a solvent to extract the volatile compounds and the solvent with volatiles is injected into the GC.



GC Detection Options

Olfactory Smelling Port

- allows for the human detection of volatile compounds separated by chromatography
- Qualitative technique

Mass Spectrometry

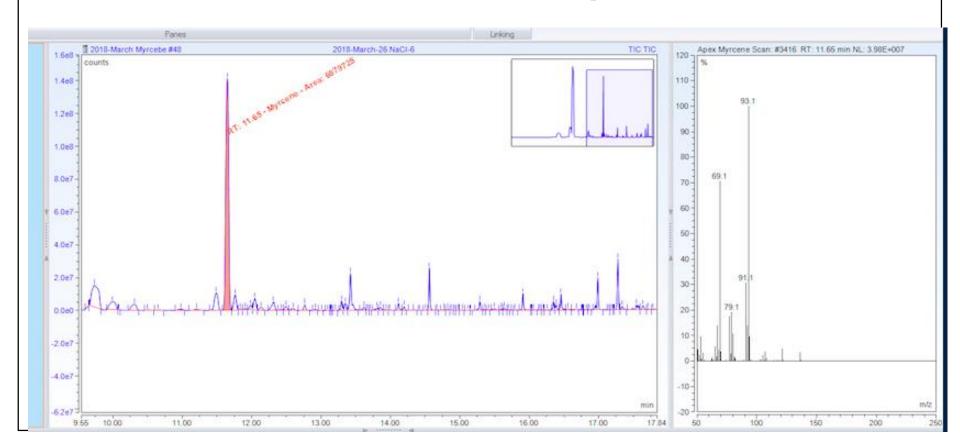
- detects compounds based on their mass spectra response and allows for compound identification

GERSTEL DOP

- Qualitative and Quantitative technique



GC-MS: Powerful tool to separate volatiles



Where to go next...

Getting Creative

- Study and train with other brewers we're all friends here!
- Go to beer, wine, or spirit tastings, solo or with your team
 - oThis makes a great staff outing
- Volunteer to judge home brew competitions
- Have fun with putting together exploratory flights, organized by style, ingredient, region, or brewery
- Ask questions everywhere!

Where to go next...

Other Community Resources

- Brewers Association Craft Brewers Guide to Building a Sensory Panel
- Master Brewers Association of the Americas, local and national
- Pink Boots Society
- American Society of Brewing Chemists (ASBC)
- Tufts University Sensory Science Center
- UC Davis Applied Sensory and Consumer Science Certificate Program
- Siebel Institute Sensory Panel Management Course
- Oregon State University Sensory Course
- Aroxa Practical Beer Taster Trainer Course
- Beer Judge Certification Program (BJCP)
- Certified Cicerone Exam

Where to go next...

Reference Materials

- Civille, G. V., Carr, B. T., and Meilgaard, M. (2015) Sensory Evaluation Techniques, Fifth Edition. CRC Press, Boca Raton, FL.
- Evaluating Beer (1993), Brewers Publications, Boulder, CO.
- Lawless, H.T. and Heymann, H., (2010) Sensory evaluation of food: principles and practices. Springer Science & Business Media.
- O'Mahony, M., (1986) Sensory evaluation of food: statistical methods and procedures (Vol. 16). CRC Press, Boca Raton, FL
- Pellettieri, M., and Grossman, K. (2015) Quality Management: Essential Planning for Breweries. Brewers Publications, Boulder, CO.
- Stuckey, Barb, (2012) Taste What You're Missing. Free Press, New York, NY.

Big thanks to Jamie Floyd of Ninkasi Brewing for helping to assemble these resource slides.

Questions?

Liz Pratt, Sensory Specialist: me@liz.beer

Karl Arnberg, Sensory Manager,
Allagash Brewing Company: karl@allagash.com

Luci Benedict, Director, University of Southern Maine Quality Control Collaboratory:

<u>lucille.benedict@maine.edu</u>

Super Simple Data Tracking Slides "Can our staff members identify our brands?"

	Α	В	С	D	E	F	G	Н	1	J	K	L	М	N	0
1			Alex	Chris	Jack	Jess	Jon	Kate	Mike	Page	Pete	Tim	Steph	Zoe	Avg Score
2	10/16/2017	Zephyr	F	P	F	F	F	-	-	-	F	F	-	F	20
3	11/2/2017	Cutter	-	F	Р	Р	F	Р	F	F	F	F	F	Р	36
4	11/13/2017	Waypoint	-	Р	-	Р	F	Р	Α	Р	Р	-	Р	Р	92
5	12/4/2017	Daymark	P	U	P	-	P	F	Р	-	P	Р	F	Р	57
6	12/7/2017	Ishmael	P	F	P		P	P	Р	-	F	F		U	56
7	1/4/2018	Waypoint	U	Р	Р	Р	-	-	Р	Р	-	-	-	Р	86
8	1/8/2018	Daymark	F	Р	F	U	F	-	Р	Р	F	F	-	-	33
9	1/15/2018	Daymark	-	F	-	-	Р	-	Р	Р	-	Р	F	-	73
10	1/25/2018	Zephyr	-	Р	-	-	Р	Р	Р	-	F	F	-	Р	71
11	2/8/2018	Ishmael	-	Р	Р	Р	F	F	-	Р	-	Р	F	-	50
12	2/15/2018	Waypoint	Р	-	Р	Р	-	Р	Р	Р	U	F	-	Р	80
13	2/26/2018	Daymark	Р	-	-	-	F	F	Р	-	Р	-	F	Р	70
14	3/1/2018	Ishmael	F	Р	F	Р	Р	Р	Р	F	F	Р		Р	64
15	3/8/2018	Zephyr	Р	-	Р	F	-	-	Α	-	Р	-	-	Р	83
16	3/12/2018	Back Cove	F	Р	-	-	F	-	Р	P	F	-	F	Р	45
17	3/22/2018	Zephyr	-	Р	Р	-	Р	Р	Р	Р	Р	F	-	-	89
18	3/38/2018	Ishmael	Р	Р	F	Р	-	Р	Р	-	Р	-	-	Р	90
19	4/5/2018	Daymark	Р	-	-	F	Р	-	Α	U	Р	-	-	F	63
20		Overall Score	58	71	67	64	50	73	92	73	47	36	14	79	

	Α	В	С	D	E	F	G	н	1	J	K	L	М	N	0
1	Name and Address of the Publish of t	MINE STEMPO	Alaka	Chris	Jack	Jess	Jon	Kate	Mike	Page	Pete	Tim	Steph	Zoe	Avg Score
2	10/16/2017	Date of	Sacci	ion	F	F	F	-	-	-	F	F	-	F	20
3	11/2/2017	Date of	06331	IOII	Р	Р	F	P	F	F	F	F	F	Р	36
4	11/13/2017	Vaypoint	STATE OF THE PARTY NAMED IN	Р	-	Р	F	Р	Α	Р	Р	-	Р	Р	92
5	12/4/2017	Daymark	P	U	P	-	P	F	P	-	P	Р	F	P	57
6	12/7/2017	shmael	P	F	P	-	P	P	P	-	F	F	-	U	56
7	1/4/2018	Vaypoint	U	Р	Р	Р	-	-	Р	Р	-	-	-	Р	86
8	1/8/2018	Daymark	F	Р	F	U	F	-	P	P	F	F	-	-	33
9	1/15/2018	Daymark	-	F	-	-	Р	-	Р	Р	-	Р	F	-	73
10	1/25/2018	Lephyr	-	Р	-	-	Р	Р	Р	-	F	F	-	Р	71
11	2/8/2018	shmael	-	Р	Р	Р	F	F	-	P	-	Р	F	-	50
12	2/15/2018	Waypoint	Р	-	Р	Р	-	P	Р	P	U	F	-	Р	80
13	2/26/2018	Daymark	Р	•	•	•	F	F	Р	-	Р	-	F	Р	70
14	3/1/2018	shmael	F	Р	F	Р	Р	Р	Р	F	F	Р		Р	64
15	3/8/2018	Zephyr	Р	-	Р	F	-	-	Α	-	Р	-	-	Р	83
16	3/12/2018	Back Cove	F	Р	-	-	F	-	Р	P	F	-	F	Р	45
17	3/22/2018	ephyr	-	Р	Р	-	Р	Р	Р	P	Р	F		-	89
18	3/38/2018	shmael	Р	Р	F	Р	-	P	Р	-	Р	-	-	Р	90
19	4/5/2018	Daymark	Р	-	-	F	Р	-	Α	U	Р	-	-	F	63
20	THE REAL PROPERTY.	Overall Score	58	71	67	64	50	73	92	73	47	36	14	79	

	Α	В	С	D	E	F	G	н	1	J	K	L	М	N	0
1		State Statements	A STATE OF		-	Jess	Jon	Kate	Mike	Page	Pete	Tim	Steph	Zoe	Avg Score
2	10/16/201	Zephyr	Sas	sion I	Focus	F	F	-	-	-	F	F	-	F	20
3	11/2/201	Cutter	Jes	31011 1	ocus	🥻 P	F	Р	F	F	F	F	F	Р	36
4	11/13/201	Waypoint	-	Р		Р	F	Р	Α	P	Р	-	Р	Р	92
5	12/4/201	Daymark	P	U	P	-	P	F	P	-	P	P	F	P	57
6	12/7/201	Ishmael	Р	F	P	-	P	P	P	-	F	F	-	U	56
7	1/4/201	Waypoint	U	Р	Р	P	-	-	Р	P	-	-	-	Р	86
8	1/8/201	Daymark	F	P	F	U	F	-	P	P	F	F	-	-	33
9	1/15/201	Daymark	-	F	-	-	P	-	Р	Р	-	Р	F	-	73
10	1/25/201	Zephyr	-	Р	-	-	P	Р	Р	-	F	F	-	Р	71
11	2/8/201	Ishmael	-	P	Р	P	F	F	-	P	-	Р	F	-	50
12	2/15/201	Waypoint	Р	-	Р	P	-	Р	Р	P	U	F	-	Р	80
13	2/26/201	Daymark	Р	-	-	-	F	F	Р	-	Р	-	F	Р	70
14	3/1/201	Ishmael	F	Р	F	P	P	Р	Р	F	F	Р		Р	64
15	3/8/201	Zephyr	Р	-	Р	F	-	-	Α	-	Р	-	-	Р	83
16	3/12/201	Back Cove	F	P	-	-	F	-	Р	P	F	-	F	Р	45
17	3/22/201	Zephyr	-	Р	Р	-	P	Р	Р	Р	Р	F	-	-	89
18	3/38/201	Ishmael	Р	Р	F	P	-	Р	Р	-	Р	-	-	Р	90
19	4/5/201	Daymark	Р	-	-	F	P	-	Α	U	Р	-	-	F	63
20	1	Overall Score	58	71	67	64	50	73	92	73	47	36	14	79	

-	and the second second		hottes and except			Control Description			and the same of	outrama become	distinction in	And Labor.	August Bress for	STREET, STREET	0
1	Participa	ants	Alex	Chris	Jack	Jess	Jon	Kate	Mike	Page	Pete	Tim	Steph	Zoe	vg Score
2			and the same		-			-			and the same	-		and the sale	20
3	11/2/2017	Cutter	-	F	Р	Р	F	Р	F	F	F	F	F	Р	36
4	11/13/2017	Waypoint	-	Р	-	Р	F	P	Α	P	Р	-	Р	Р	92
5	12/4/2017	Daymark	P	U	P	-	P	F	P	-	P	P	F	P	57
6	12/7/2017	Ishmael	P	F	P	-	P	P	P	-	F	F	•	U	56
7	1/4/2018	Waypoint	U	Р	Р	Р	-	-	Р	P	-	-	-	Р	86
8	1/8/2018	Daymark	F	Р	F	U	F	-	Р	P	F	F	•	-	33
9	1/15/2018	Daymark	-	F	-	-	Р	-	Р	P	-	Р	F	-	73
10	1/25/2018	Zephyr	-	Р	-	-	Р	Р	Р	-	F	F		Р	71
11	2/8/2018	Ishmael	-	Р	Р	Р	F	F	-	P	-	Р	F	-	50
12	2/15/2018	Waypoint	Р	-	Р	Р	-	P	Р	P	U	F	-	Р	80
13	2/26/2018	Daymark	Р	-	-	-	F	F	Р	-	Р	-	F	Р	70
14	3/1/2018	Ishmael	F	Р	F	Р	Р	Р	Р	F	F	Р		Р	64
15	3/8/2018	Zephyr	Р	-	Р	F	-	-	Α	-	Р	-	-	Р	83
16	3/12/2018	Back Cove	F	Р	-	-	F	-	Р	Р	F	-	F	Р	45
17	3/22/2018	Zephyr	-	Р	Р	-	Р	Р	Р	Р	Р	F	-	-	89
18	3/38/2018	Ishmael	Р	Р	F	Р	-	P	Р	-	Р	-	-	Р	90
19	4/5/2018	Daymark	Р	-	-	F	Р	-	Α	U	Р	-	-	F	63
20		Overall Score	58	71	67	64	50	73	92	73	47	36	14	79	

	Α	В	С	D	E	F	G	н	1	J	K	L	М	N	0
1			Alex	Chris	Jack	Jess	Jon	Kate	Mike	Page	Pete	Tim	Steph	Zoe	Avg Score
2	10/16/2017	Zephyr	F	P	E CONTRACTOR	E.	and Enco	-	NE STEMPA		-	F	•	F	20
3	11/2/2017	Cutter	-	F	Р	Р	F	V			-	F	F	Р	36
4	11/13/2017	Waypoint	-	Р	-	Р	F	I	S	CORE			Р	Р	92
5	12/4/2017	Daymark	P	U	P	-	P			ACKIN	c	₹ P	F	P	57
6	12/7/2017	Ishmael	P	F	P	-	P	•	INA	CKIN	G	F	•	U	56
7	1/4/2018	Waypoint	U	Р	Р	Р	-					-	-	Р	86
8	1/8/2018	Daymark	F	Р	F	U	F	E F	P = Pas	s, corr	ect	F	-	-	33
9	1/15/2018	Daymark	-	F	-	-	P	. T	F = Fail	inco	rect	P	F	-	73
10	1/25/2018	Zephyr	-	Р	-	-	Р	•		•	1000	F	-	Р	71
11	2/8/2018	Ishmael	-	Р	Р	Р	F		J = Un			P	F	-	50
12	2/15/2018	Waypoint	P	-	Р	Р	-		A = Adi	min		F	-	Р	80
13	2/26/2018	Daymark	Р	-	-	-	F		- = No	t Prese	ent	1 -	F	Р	70
14	3/1/2018	Ishmael	F	Р	F	Р	Р					P		Р	64
15	3/8/2018	Zephyr	Р	-	Р	F	-	The same	-	NAME OF TAXABLE PARTY.	in the same of	-	-	Р	83
16	3/12/2018	Back Cove	F	Р	-	-	F	<i>J</i>	P	Р	F	•	F	Р	45
17	3/22/2018	Zephyr	A STATE OF THE PARTY OF THE PAR			Market Str.	THE PERSON NAMED IN	Р	Р	Р	Р	F	-	-	89
18	3/38/2018	Ishmael	Р	Р	F	Р	-	Р	Р	-	Р	-	-	Р	90
19	4/5/2018	Daymark	Р	-	-	F	Р	-	Α	U	Р	-	-	F	63
20		Overall Score	58	71	67	64	50	73	92	73	47	36	14	79	

	Α	В	С	D	Е	F	G	Н	1	J	K	L	М	N	0
1			Alex	Chris	Jack	Jess	Jon	Kate	Mike	Page	Pete	Tim	Steph	Zoe	Avg Score
2	10/16/2017	Zephyr	F	Р	F	F	F	-	-	-	F	F	-	F	20
3	11/2/2017	Cutter	-	F	P	Р	F	Р	F	F	F	F	F	P	36
4	11/13/2017	Waypoint	-	Р	-	Р	F	Р	Α	Р	Р	-	Р	Р	92
5	12/4/2017	Daymark	P	U	P	-	P	F	P	-	P	P	F	P	57
6	12/7/2017	Ishmael	P	F	P	-	P	P	P	-	F	F	-	U	56
7	1/4/2018	Waypoint	U	Р	Р	Р	-	-	Р	Р	-	-	-	Р	86
8	1/8/2018	Daymark	F	Р	F	U	F	-	Р	Р	F	F	-	-	33
9	1/15/2018	Daymark	-	F	-	-	Р	-	Р	Р	-	Р	F	-	73
10	1/25/2018	Zephyr	-	Р	-	-	Р	Р	Р	-	F	F	-	Р	71
11	2/8/2018	Ishmael	-	Р	Р	Р	F	F	-	Р	-	Р	F	-	50
12	2/15/2018	Waypoint	Р	-	Р	Р	-	Р	Р	Р	U	F	-	Р	80
13	2/26/2018	Daymark	Р	-	-	-	F	F	Р	-	Р	-	F	Р	70
14	3/1/2018	Ishmael	F	Р	F	Р	Р	Р	Р	F	F	Р		Р	64
15	3/8/2018	Zephyr	Р	-	Р	F	-	-	Α	-	Р	-	-	Р	83
-	A characteristic distant	the color of the own	Line Control	Carlo Carlo	a to ordina the	and a	F	-	Р	Р	F	-	F	Р	45
P	articinan	ts Avera	ne Sco	re Ov	er Tin	1e	Р	Р	Р	Р	Р	F	-	-	89
E.	ar croipui	to Tivera	gc 000			P	-	Р	Р	-	Р	-	-	Р	90
19	4/5/2018	Caymark	- Contraction of the Contraction		A I A I A	The same	and the same of		And Annual		A PROPERTY.	MARKET PROPERTY.	WILL STREET	The second second	63
20		Overall Score	58	71	67	64	50	73	92	73	47	36	14	79	3
		0													

فالتبارق الماداد الدوير المامادي والما

	Α	В	С	D	E	F	G	H 🧀	No. of Concession,	and the factor of the	Taraba in the	OPPOSITE OF	-	No. of Lot, House, etc.,	0
1			Alex	Chris	Jack	Jess	Jon	Kat	Group	Δυρτο	na Sc	ore hw	Sacci	on I	Avg Score
2	10/16/2017	Zephyr	F	Р	F	F	F	- 1	Jioup	Aveia	ge oct	ore by	26331	011	20
3	11/2/2017	Cutter	-	F	Р	P	F	Р	and by and	and the last of				Р	36
4	11/13/2017	Waypoint	-	Р	-	P	F	Р	Α	P	P	-	Р	P	92
5	12/4/2017	Daymark	P	U	P	-	P	F	P	-	P	P	F	P	57
6	12/7/2017	Ishmael	Р	F	Р		P	P	P	-	F	F	-	U	56
7	1/4/2018	Waypoint	U	Р	Р	Р	-	-	Р	Р	-	-	-	Р	86
8	1/8/2018	Daymark	F	Р	F	U	F	-	Р	Р	F	F	-	-	33
9	1/15/2018	Daymark	-	F	-	-	Р	-	Р	Р	-	Р	F		73
10	1/25/2018	Zephyr	-	Р	-	-	Р	Р	Р	-	F	F	-	Р	71
11	2/8/2018	Ishmael	-	Р	Р	Р	F	F	-	Р	-	Р	F	-	50
12	2/15/2018	Waypoint	Р	-	Р	Р	-	Р	Р	Р	U	F	-	Р	80
13	2/26/2018	Daymark	Р	-	-	-	F	F	Р	-	Р	-	F	Р	70
14	3/1/2018	Ishmael	F	Р	F	Р	Р	Р	Р	F	F	Р		Р	64
15	3/8/2018	Zephyr	Р	-	Р	F	-	-	Α	-	Р	-	-	Р	83
16	3/12/2018	Back Cove	F	Р	-	-	F	-	Р	Р	F	-	F	Р	45
17	3/22/2018	Zephyr	-	Р	Р	-	Р	Р	Р	Р	Р	F	-	-	89
18	3/38/2018	Ishmael	Р	Р	F	Р	-	Р	Р	-	Р	-	-	Р	90
19	4/5/2018	Daymark	Р	-	-	F	Р	-	Α	U	Р	-	-	F	63
20		Overall Score	58	71	67	64	50	73	92	73	47	36	14	7	
															This state of

	A	В	С	D	E	F	G	Н	1	J	K	L	М	N	0
1			Alex	C	- Contract of	- Netherlands	A CONTRACTOR OF THE PARTY OF	-	No. of Concession, Name of Street, or other Persons, Name of Street, or ot	age	Pete	Tim	Steph	Zoe	Avg Score
2	10/16/2017	Zephyr	F	·	Weak	Perfo	rman	ce Ses	sions		F	F	*	F	20
3	11/2/2017	Cutter	•	-		-	-		-	. ∮F	F	F	F	Р	36
4	11/13/2017	Waypoint	-	Р	-	Р	F	Р	Α	Р	Р	-	Р	Р	92
5	12/4/2017	Daymark	P	U	P	•	P	F	Р	•	Р	P	F	P	57
6	12/7/2017	Ishmael	P	F	P	-	P	P	Р	-	F	F	-	U	56
7	1/4/2018	Waynoint	and been	-	P	P	COLUMN TO SERVICE STATE OF THE PERSON STATE OF	-	P	Park		CONTRACTOR OF THE PERSON OF TH		P	
8	1/8/2018	Daymark	F	Р	F	U	F	-	Р	Р	F	F	-	-	33
9	1/15/2018	Daymark	STATE OF THE PERSON	See Section 1	-	Tale to the last		Service Services	man parish		-	Name and Address of the Owner, where	-	Automore	September 193
0	1/25/2018	Zephyr	-	Р	-	-	Р	Р	Р	-	F	F	-	Р	71
1	2/8/2018	Ishmael	-	Р	Р	P	F	F	-	Р	-	Р	F	-	50
2	2/15/2018	Waypoint	Р	21	Р	P	-	Р	Р	Р	U	F	2	Р	80
3	2/26/2018	Daymark	Р	-	-	-	F	F	Р	-	Р	-	F	Р	70
4	3/1/2018	Ishmael	F	Р	F	P	Р	Р	Р	F	F	Р		Р	64
5	3/8/2018	Zenhyr	A PARK		P	water of	COLUMN TO SERVICE	-	-		Para	GOSPANA.		P	93
6	3/12/2018	Back Cove	F	Р	-3	-	F	-	P	Р	F	-	F	P	45
7	3/22/2018	Zepnyr	Service of the last	See of the owner, where	terit pikelet	Service Services	C Alberta Printers	Section 2	Marie Marie M	and the latest	September 1	Name and Address of the Owner, where	AND MARKET	Name and Address of	9
8	3/38/2018	Ishmael	Р	Р	F	Р	-	Р	Р	-	Р	-	-	Р	90
9	4/5/2018	Daymark	Р	-	-	F	Р	-	Α	U	Р	-	-	F	63
0		Overall Score	58	71	67	64	50	73	92	73	47	36	14	79	

1			Alex	Chris	Jack	Jess	Jon	Kate	Mike	Page	Pete	Tim	Steph	Zoe	Avg Score
2	10/16/2017	Zephyr	F	P	F	F	F	-	-	-	F	F	-	F	20
3	11/2/2017	Cutter	-	F	Р 💰	AND DEWA	and inflorin	and make in	MANAGER PROPERTY.		STATE OF THE PERSON.	F	F	P	36
4	11/13/2017	Waypoint	-	Р	- 🕻	Folk	s Who	Need	l More	Prac	tice	-	Р	Р	92
5	12/4/2017	Daymark	P	U	P 🐧	1 011			11101			Р	F	P	57
6	12/7/2017	Ishmael	P	F	P - P P - F								-	U	56
7	1/4/2018	Waypoint	U	Р	Р	Р	-	-	Р	Р	-	-	-	P	86
8	1/8/2018	Daymark	F	Р	F	U	F	-	Р	Р	F	F	-	-	33
9	1/15/2018	Daymark	-	F	-	-	Р	-	Р	Р	-	Р	F	-	73
10	1/25/2018	Zephyr	-	Р	-	-	Р	Р	Р	-	F	F	-	Р	71
11	2/8/2018	Ishmael	-	Р	Р	Р	F	F	-	Р	-	Р	F	-	50
12	2/15/2018	Waypoint	Р	-	Р	Р	-	Р	Р	Р	U	F	-	Р	80
13	2/26/2018	Daymark	Р	-	-	-	F	F	Р	-	Р	-	F	Р	70
14	3/1/2018	Ishmael	F	Р	F	Р	Р	Р	Р	F	F	P		Р	64
15	3/8/2018	Zephyr	Р	-	Р	F	-	-	Α	-	P	-	-	Р	83
16	3/12/2018	Back Cove	F	Р	-	-	F	-	Р	Р	F	-	F	Р	45
17	3/22/2018	Zephyr	-	Р	Р	-	Р	Р	Р	Р	Р	F	-	-	89
18	3/38/2018	Ishmael	Р	Р	F	Р	-	Р	Р	-	Р	-	-	Р	90
19	4/5/2018	Daymark	Р	-	-	F	Р	-	Α	U	Р	-	-	F	63

Overall Score

	A	В	С	D	E	F	G	н	OF STEWN	J	К	L	М	ALCO MONEY	0
1		-	ALCOHOLD NO.	electorica Parce	C. Constitution of the	THE RESERVED	NAME OF STREET	ate	Mike	Page	Pete	Tim	Steph	Zoe	vg Score
2	10/16/2017	Zephyr Ex	ceptio	nally	Stron	g Perf	ormei	rs		-	F	F	•	F	20
3	11/2/2017		-	-	en e		OLIVER LIBERT	P	F	F	F	F	F	P	36
4	11/13/2017	Waypoint	-	Р	-	Р	F	Р	Α	P	P	-	P	P	92
5	12/4/2017	Daymark	P	U	P		P	F	P	ŧ -	P	P	F	P	57
6	12/7/2017	Ishmael	P	F	P	-	P	P	P	-	F	F	-	U	56
7	1/4/2018	Waypoint	U	Р	Р	P	-	-	Р	P		-	- 1	Р	86
8	1/8/2018	Daymark	F	Р	F	U	F		Р	P	F	F			33
9	1/15/2018	Daymark	-	F	-	-	Р	-	Р	P	-	Р	F	-	73
10	1/25/2018	Zephyr	-	Р	-	-	Р	Р	Р	ŧ -	F	F	-	Р	71
11	2/8/2018	Ishmael	-	Р	Р	Р	F	F	-	P	-	Р	F		50
12	2/15/2018	Waypoint	Р	91	P	Р	-	Р	Р	P	U	F	-	Р	80
13	2/26/2018	Daymark	Р	91	14.1		F	F	Р	-	Р	-	F	Р	70
14	3/1/2018	Ishmael	F	Р	F	Р	Р	Р	Р	F	F	Р		Р	64
15	3/8/2018	Zephyr	Р	-	P	F	-	- 1	Α	1 -	Р	-		Р	83
16	3/12/2018	Back Cove	F	Р	-		F	-	Р	P	F	-	F	Р	45
17	3/22/2018	Zephyr	-	Р	Р	-	Р	Р	Р	P	Р	F	-	-	89
18	3/38/2018	Ishmael	Р	Р	F	Р	-	Р	Р	1 -	Р	-	-	P	90
19	4/5/2018	Daymark	Р	-	-	F	Р	- 1	Α	U	Р	-	-	F	63
20		Overall Score	58	71	67	64	50	-	92	73	47	36		79	