Harvester Revisions Speed Sheet

Hey frens, we're nearing completion on the recipes and it's time to pull everything together. The intention of these pages is to as succinctly as possible provide you with as much information as possible to make an informed decision with regards to each proposed harvester recipe revision.

The Sigprop to be brought forth:

1. Keep things the same
2. Recipe A
3. Recipe C + maaker reduction

The Original Problem

It was brought forward many weeks ago that the harvester recipes in their current state:

- Discourage upgrading parcels beyond levels 3 & 4.
- Are too expensive in cost and punishing in yields at the higher levels.
- Easily allow for the Low Leveloor to extract insanely high yields with very little investment.
- Are too inexpensive from a time-to-build perspective. This diminishes the effectiveness of makers and the utility of GLTR.

	Current Rules				
Spacious		upgradooor	expandooor	low levelooor	FUD maxi low levelooor
	Total Cost	2,082,255	447,790	108,235	58,010
	Total Harvested	2,615,427	2,533,722	1,097,658	645,056
	Net Profit	533,172	2,085,932	989,423	587,046
	ROI	26%	466%	914%	1012%
	Liquidated ROI	76%	516%	964%	1062%
	Net Worth	1,574,300	2,309,827	1,043,541	616,051

The above points are best exemplified by this heat map of the current rules.

The Upgradoor has a ridiculously low ROI

You can see the ROI of low Leveloor & FUD maxi is incredible high with a very low total cost. This is a destructive playstyle for the health of the game's economy.

Recipe A – Diminishing Returns Model

Recipe A - FUD Harvester									
Level	FUD	FOMO	Alpha	KEK	FUD Equiv	Multiplier	Build Time	Daily Rate	Multiplier
1	10	5	0	0	20	1	3500	5	1
2	30	15	0	0	60	3.0	8333	8	1.6
3	79.6	40.2	0	0	160	2.7	20833	13	1.6
4	166.3	105	0	4.4	420.3	2.6	41667	22	1.7
5	395.8	250	0	10.4	999.8	2.4	62500	40	1.8
6	831.3	525	0	21.9	2100.3	2.1	83333	75	1.9
7	1267.1	1045.6	0	84.2	4200.3	2.0	166667	150	2.0
8	2097.8	1751.8	0	139.9	7000.4	1.7	250000	310	2.1
9	2160	2700	0	324	10800	1.5	416667	700	2.3
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Recipe A				
	upgradooor	expandooor	low levelooor	FUD maxi low levelooor
Total Cost	1,257,595	638,415	66,425	18,700
Total Harvested	2,616,479	2,561,938	303,664	427,071
Net Profit	1,358,884	1,923,523	237,239	408,371
ROI	108%	301%	357%	2184%
Liquidated ROI	158%	351%	407%	2234%
Net Worth	1,987,682	2,242,730	270,452	417,721

(spacious numbers) – [Full comparison here]

Key differences from original:

Universally cheaper installations across the board
Flattened rate of yield (weaker in the beginning, more powerful at the end)
Slightly increased build times

[Full results of simulations here]

Advantages & Improvements:

- In order to achieve maximum rate of extraction by the end of year two, players are now forced to upgrade beyond the lower levels.
- The quantity yields for the Low Leveloor and FUD Maxi are diminished.
- The path to upgrade is slightly more viable than before
- Slightly improved build times encourages better GLTR price appreciation
- The overpowered Low Leveloor and FUD Maxi strategies may encourage more parcel price appreciation than Recipe C. As players want to expand far and wide, not narrow and tall.

Disadvantages:

- The Low Leveloor and FUD Maxi are still able to fully build their lands with very little investment. The ROI on the FUD Maxi soars from the current recipe to 2234%
- The ROI for smaller parcels is less than Recipe C
- The cost to insta build out a full L5 array of FUD harvesters at current GLTR price (0.00004088) is only 170 GHST. By comparison, an L5 maaker costs 1760 GHST.

Recipe C (merged with Recipe B) – Increasing Returns with Reduced Maker Cost

Recipe C - FUD Harvester

Level	FUD	FOMO	Alpha	KEK	FUD Equiv	Multiplier	Build Time	Daily Rate	Multiplier
1	75	38	0	0	150	1	0	2.9	1
2	100	50	0	0	201	1.3	43200	7.0	2.4
3	123	62	0	0	247	1.2	86400	12.2	1.7
4	131	83	0	3	331	1.3	129600	19.7	1.6
5	185	117	0	5	468	1.4	172800	31.8	1.6
6	262	166	0	7	662	1.4	216000	53.1	1.7
7	268	221	0	18	888	1.3	259200	92.8	1.7
8	329	274	0	22	1096	1.2	302400	169.3	1.8
9	250	312	0	37	1250	1.1	345600	319.3	1.9
					5293		1555200		

Maaker

	Original	Proposed					
					Full Recipe		
	FUD Equiv	FUD Equiv	Cost Reduction	FUD	FOMO	Alpha	KEK
1	6350	3180	49.9%	1250	150	250	63
2	12600	9420	25.2%	3738	486	710	187
3	25100	15664	37.6%	6240	780	1186	312
4	50000	21904	56.2%	6572	1095	1643	657
5	74300	28157	62.1%	8525	1402	2122	834
6	100000	34398	65.6%	10318	1720	2580	1032
7	137500	40642	70.4%	8128	2039	3044	1626
8	174900	46876	73.2%	9382	2345	3511	1876
9	212500	53125	75.0%	10625	2625	4000	2125
	793250	253366	68.1%				

Recipe C + Reduced Maker Cost

	upgradooor	expandooor	low levelooor	FUD maxi low levelooor
Total Cost	769,162	758,290	43,564	35,340
Total Harvested	2,650,809	2,582,745	181,196	249,780
Net Profit	1,881,647	1,824,454	137,632	214,440
ROI	245%	241%	316%	607%
Liquidated ROI	295%	291%	366%	657%
Net Worth	2,266,228	2,203,599	159,414	232,110

(spacious numbers) – Full comparison here

Key differences from original:

- Vastly cheaper build cost
- Significantly boosted build times, especially at lower tiers
- Diminished rate of yield across all levels
- Vastly cheaper maaker (build time no change) An L9 now roughly 50% the cost of the L9 aaltar

Full results of simulations here

Advantages & Improvements:

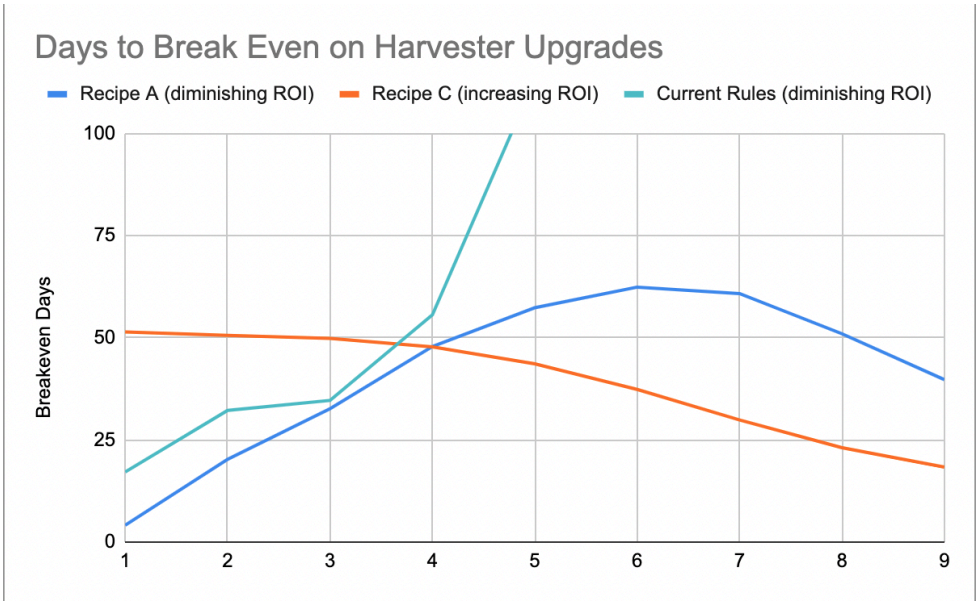
- The Upgradoor and Expandoor are both viable builds with competing ROI
- The Expandoor initially begins with higher ROI, but is outpaced by the Upgradoor in time
- Maximum rate of extraction in two years' time requires Level 6 harvesters
- The cheaper maaker makes it a viable build vs simply spending GLTR
- Weaker yield + longer installation times drives more demand for GLTR or maaker expense
- The Low Leveloor and FUD Maxi have significantly diminished returns

Disadvantages:

- With diminished returns at lower levels, players may be encouraged to grow tall with their lands as opposed to spreading out across a vast empire. This may potentially have a negative impact on parcel prices.
- A cheaper maaker may dissuade players from spending GLTR. However, it's worth introducing some math on this.
    - Current GLTR price: 0.00004088
    - Costs to instantly build a perfect FUD extraction setup of L5/6: 650 GHST of GLTR.
    - Cost of proposed L6 maaker: 930 GHST
    - Cost of original L6 maaker: 2814 GHST
    - GLTR is still vastly superior to the maaker as it is instant vs simultaneous build time

Some Notes

This image better illustrates how the scaling effects work with each model. You can see each harvester level across the X axis and the # of days it takes to break even for each. Note: the original model has been cut as it squashes the entire chart too much to be legible. An L9 original harvester takes over 600 days to break even!



Insta Building

Instant building with GLTR is definitely something players will be capitalising on, especially with the current gap in building from staking. I ran a few calculations to see how much it would cost in GLTR to hit the lower level harvester build out that gives a daily extraction rate of 1248 FUD (the qty needed to drain a spacious parcel in exactly two years' time).

Recipe A - 31.2 L5 harvesters - 170 GHST of GLTR
Recipe C - 23.5 L6 harvesters - 622 GHST of GLTR

Recipe C favours better GLTR price appreciation