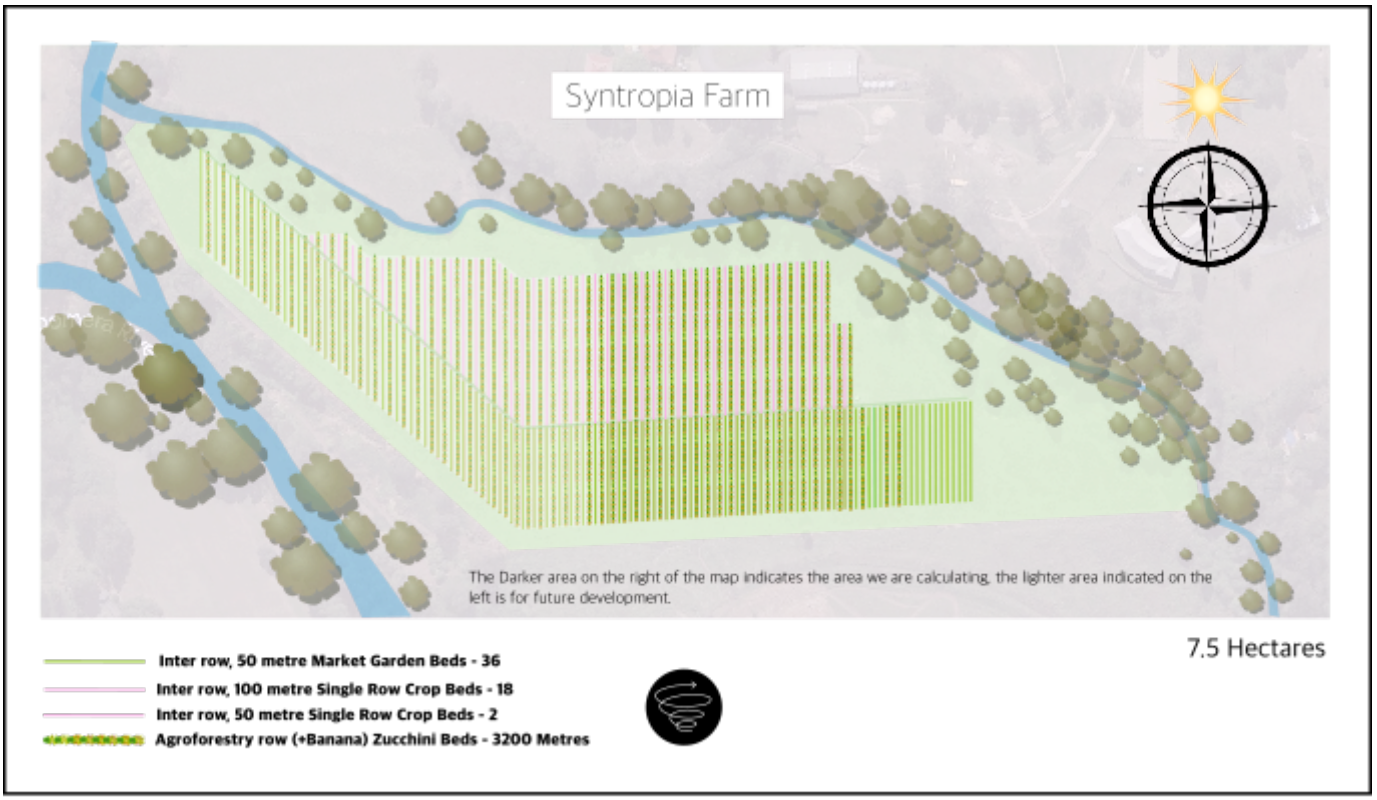
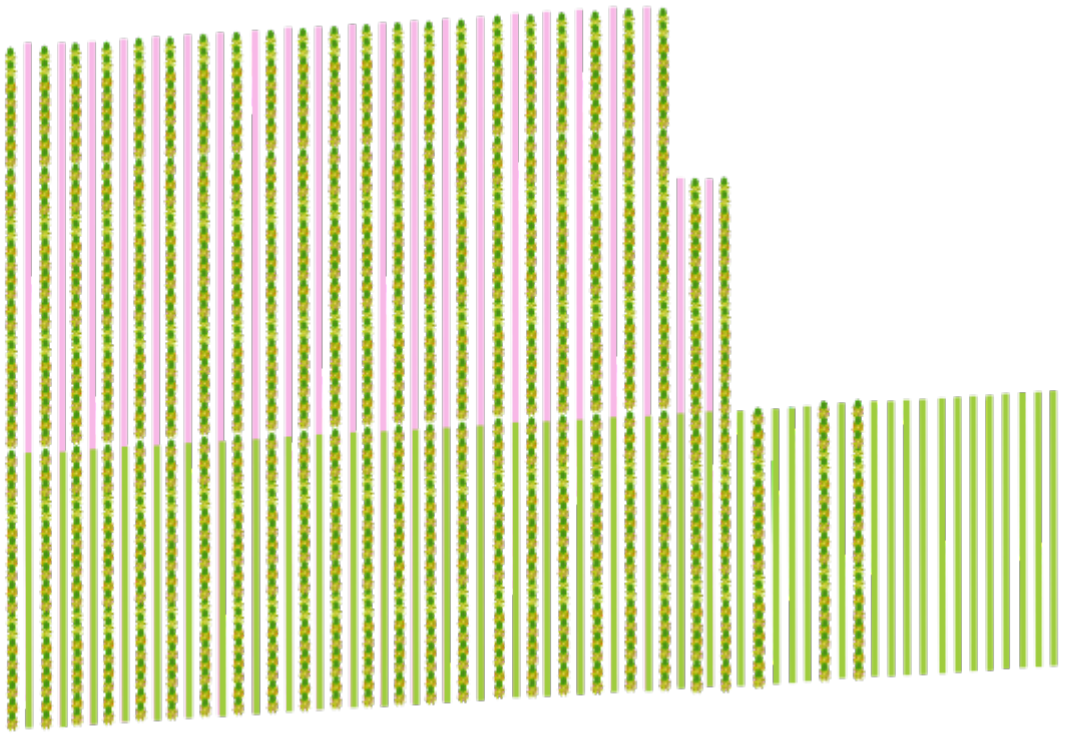
Syntropia Production Plan and Strategy 2024

Developed and written by Scott Hall



Farm map



Area slected for this analysis

Contents

All calculations in AUD

Introduction

This is a holistic document containing all possible context, intending to give a strategic overview and goals to achieve in the early stages of Syntropia Farm.

This strategy has been developed to cover the first 2-4 years.

The purpose of this document is to share with others who are interested in learning how to make a living with Syntropic Farming. It is intended to break down the complexity of farm economics in an easy to understand way. This document is my farm analysis and planning, based on my context and shared as an example.

It is important that syntropic farming feels accessible, so this document containing my analysis is shared publicly to help provide encouragement and with hope to reduce any sense of being overwhelmed with getting on with an important mission.

Data in this document comes from 6 years of R&D at "Gabalah Syntropic Farm", co founded by Dr. Victor Pires, Laura Shield, Robert Hall and Scott Hall, with further development and economic research conducted by Laura Shield, Tobias O'Grady, Simon Shaffeur, Maria Lloyd, Robert Hall and Scott Hall

Introduction

Further research has been conducted at scale since the inception of Syntropia Farm on the Gold Coast, a natural evolution towards commercial viability since our first research site became too limited in size for commercial viability. What has been discovered on the larger site is that syntropic agroforestry is much more efficient than we thought, as managing the system as a whole process sees the costs greatly reduced on a per acre basis – the biomass management cycles, which underpin the structure and essential function of the farm are cost effective. Getting good at this and bringing these actions into rhythm are key – it is upon this process that our crops are "piggybacked" which are ultimately a secondary function of managing the whole. Our accounting method reflects this – we accumulated all system management costs, which provide all conditions for plant growth, on a main balance sheet, the crops which piggyback this structural process are then accounted for in isolation using gross margin analysis. This allows us to observe the efficiencies of our practices in real time and adjust immediately to any variations.

With the encouraging gross margin profits gathered from Gabalah, coupled with the efficiencies of managing a syntropic system as a whole with a clear goal, we are now ready to push ahead with a strategy to provide true livelihood, create employment, increase local food security and regenerate country for the wellbeing of all things, now and in the future.

Farming is dynamic, stochastic and to some extent unpredictable, even more so when utilising and developing very contemporary methods such as this. It is a constant process of monitoring outcomes and feeding back adjustments into the system, it is complexity management – managing the complexity of the ecosystem which provides our fertility. With this being the case, we acknowledge that this farm plan is highly subject to change, we will find new efficiencies which are hidden in the future, yet to be revealed by mindful observation and interaction.

For now, we walk into this project with the intentions shared in this document and then observe, adapt and adjust.

Many thanks are owed to Namaste Messerschmidt, Patricia Vaz and Henrique Sousa for their dedicated and selfless support, sharing of deep knowledge and experience, delivered in the warmest and kindest ways.

Syntropic Methodology - Differences and Advantages

Syntropic Agroforestry is very new form of regenerative Agriculture, which is increasingly indicating a very efficient form of primary production due to low cost per unit production. With Agroforestry, the greater part of the fertility is supplied by ecosystem processes, which are facilitated by species succession. This lowers costs.

Ecosystem processes see that there is a constant supply of mulch covering the soil, creating positive feedback loops which see much less water use, increasing fertility and soil carbon accumulation and a much more stable, less entropic and therefore lower cost operation.

There are many other advantages, especially in regards to the dynamics of plant ages and their time (species succession) relationships, seeing them perform different functions in different places in their lifecycles, resulting in maximum root exudate release and strong growth hormone release.

Syntropic Agroforestry is largely management based, as there are relatively few purchased inputs required for the growth of plants. Some basic farm infrastructures are required, for example if the operation requires irrigation, this cost will be the same as conventional agriculture, although the water use will be much less.

A management based system relies upon human labour and decision making, this amounts to a similar labour cost to conventional farming, but with the added advantage of overall fertility increase and less fixed costs such as fertiliser etc, very little costs for weed control and ZERO cost for pest control.

With the establishing trend of food price inflation, syntropic farming sees a huge advantage, as food price inflation has a strong relationship with the inflation of the input side of standard and conventional agriculture. To put it simply, when farming using the ecosystem instead of purchased inputs, we keep the inflation gap as another margin of profit.

All in all, once Syntropic Agroforestry is further proven commercially, I am sure that it will overtake conventional agriculture due to higher profitability.

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Accounting

For me, this type of farming works best with an accounting framework which is an adaptation of holistic management financial strategy, taylored to agroforestry.

There are many different and non linear relationships involved in creating livelihood from ecosystem driven processes, it is very dynamic and very often the whole is more than the sum of the parts. It is much different than a "money in - money out" formula, as a lot of value is created by the ecosystem, which needs to be accounted for differently.

Gross Margins

I isolate all cash earning activities to their own indepentent balance sheet, creating a gross margin specimen of each crop. On this balance sheet are only expenses directly related to the crop itself, plus the gross revenue of the crop earnings. This allows me to keep a constant eye on the process in near real time and make necessary adjustments without any need for a costly and painful audit. The unit of which the crop is accounted for is normally per 50 metre section of bed or row, as the 50 metre length is standard, otherwise anything longer is normally easily divisible by 50 metres.

Costs associated with each crop are

- Any fertiliser or amendments used directly to support the growth of the crops.

- Management of crop plants, eg: banana clump management, pruning of crop species, harvest.

- Planting and harvesting, seedlings, seeds.

- Bed preparation of market garden crops (this is because the bed turns over between crops, preparation of agroforestry beds are not accounted for because they are only done once and therefore that expense goes to the main farm ledger).

- Any posts, wire etc which directly supports the crop plant.

All post harvest handling, boxes, logistics etc are logged on the main farm expenses ledger. The efficiency of production management has no bearing or influence upon any follow on processes (post harvest handling etc), it is then best to keep production isolated and focused for clear monitoring. With post harvest processes separated, they then too can be monitored and improved with greater clarity.

Once all of the gross margin balance sheets are accumulated, they are then added up to get a total gross profit, the expenses logged on main farm ledger are then subtracted from the the gross profit to get the net profit of the enterprise.

Accounting

Main Farm Ledger

The main farm ledger accumulates all of the farm expenses outside the direct costs associated with the crops which are included on the gross margin balance sheets.

There are no cash incomings on this ledger, it only logs the general expenses of the farm, this allows us to clearly see how much it costs to run a syntropic farm, it isolates the "cost of carry".

Because syntropic farms are largely ecosystem driven, with this ledger, we can easily audit our inputs and get a clear picture of what is happening. We can get a good idea if our inputs are too high, which will indicate that we can improve ecosystem function and then make better decisions which will see us improving our husbandry of the ecology. Carbon, nitrogen and much more are accumulated through ecosystem processes.

All management expenses are logged on this ledger, for example when pruning agroforestry rows and managing biomass, those expenses are logged here. When we cycle prune our rows, that labour expense is here. When we manage our banana clumps or prune our crop trees, those expenses are logged on the gross margin balance sheet, so we can see how much that crop costs us, vs management of the system that carries that crop.

Machinery, irrigation, post harvest handling, packing logistics, all expenses outside the direct costs of our crops are here.

Wealth Generation Expenses and Maintenance Expenses

The Main Farm Ledger is split into 2 categories - wealth generating expenses and maintenance expenses.

Wealth generating expenses are a once of purchase, these are non disposable items such as irrigation, machinery and tools and anything else that is necessary for the running of the operation.

It is intended for wealth generating expenses to be paid off by the farm over a specified period of time, for example, if the wealth generating expenses add up to 50,000, then a plan is made, based on the net income of the farm, to pay that expense annually, so it may be that the 50,000 is to be paid off over 4 years at 12500 annual installments. Of course wealth generating don't just stop, there are always new things that can be purchased to improve efficiency, so these purchases are added to the balance and the pay off period and instalments are adjusted to suit.

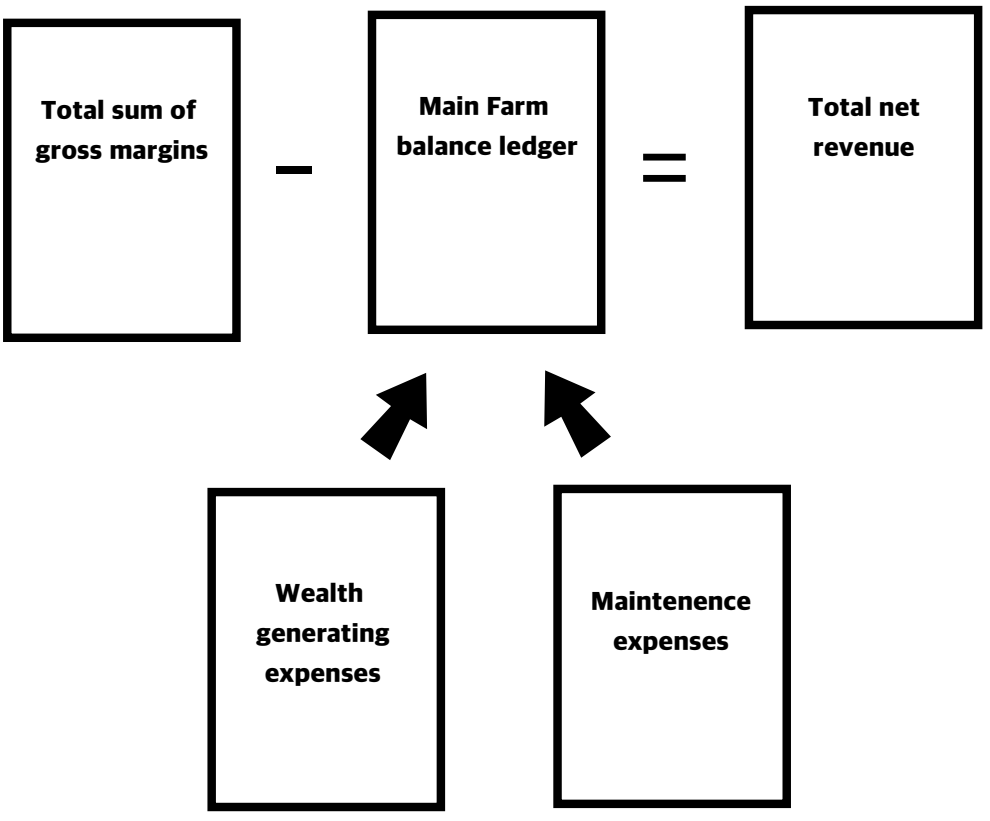
If a specific wealth generating expense is needed again, then it will go over to the maintenence expense ledger.

Accounting

Maintenance Expenses are any expense which is consistent, although the amounts may vary, these expenses never go away. These include labour, which forms the largest expense.

*It is important to understand that labour and the human being is an essential part of this process, the gains that come from the interaction between human beings and the ecosystem a much more effective than most other industries, where the human just becomes another "machine", or "tool". Oftentimes modern accounting and thinking sees labour as something to constantly try to eliminate, as quite often labour is the biggest expense, and although labour, by proportion is the largest expense in syntropic farming, the gains that come about far exceed any other form of input due to the interactive nature and innate qualities of the human interaction with the ecosystem.

Fuel, oil, machinery servicing and anyhting else similar will all go on this balance sheet.



Accounting

Where We Are At With The Main Farm Ledger

So far we have been running on a shoestring, with gear that we already have. We haven't had to spend too much, and labour has been minimal, as we have largely set up the main ecosystem structure for the farm as well as conducting trials.

What we have so far found is that managing the farm on an ecosystem basis, stabilising and increasing ecosystem function has been cheap.

Syntropia Wealth Generating Expenses	
rotary hoe	**500**
hay rake	**2000**
Tools	**3000**
Pump	**1000**
Pipe	**400**
pipe	**3600**
irrigation fittings	**1500**
irrigation (sprinklers and hoses)	**3000**
Planting stock	**3167**
Cold room	**0**
Total	**18167**

As you can see, there is a large investment in irrigation, previously I was building the farm based on perennial production (banana & taro), which needs little to no irrigation. Since reconnecting with other agroforesters and building new connections, I now have the opportunity to increase placenta 1 production using water and build a more diverse and complex farm which will provide more.

Please note, the farm is leased, with the agreement being that when a certain amount of revenue is realised, payments will be negotiated.

Accounting

Syntropia Maintenence Expenses

At this stage, I have been working part time at the farm setting up, conducting trials and expanding planting stock of banana and taro. Agroforestry rows have been planted and there has been a discovery process to examine the best performing plants with good availability and at an affordable price, this has resulted in a clear pathway for plants and methodology in establishment. Another very important discovery has been efficient biomass management at scale, with cycles occurring from 4-5 times per year, this has been possibly the most important discovery and with very impressive results and excellent efficacy.

Tractor work has been calculated on an hourly rate basis, as that machiney is owned by another business, the dry hire rate is calculated at $100 per hour. Each biomass cycle requires tractor slashing and biomass raking, which amounts to 16 tractor hours, totalling $1600 per year, this being done 4 times per year, so far, equals $6400.

With the activities described above, I have estimated all labour costs and machinery costs to a cost per acre of management, which arrives at $3000 per hectare @3.6 per year.

You have guessed right, we are getting a lot of farm for not a lot of labour - these management activities are seeing very healthy plants - banana, taro (taro was drought affected but has not suffered fertility issues) with no fertiliser used as yet.

Moving forward into full time activities on the farm, this number may well change, and a more precise and accurate record keeping will commence - we are already putting in the work now.

We will wait in anticipation to see what the relationship will be between how much more fertility comes as a result of each increment of labour, I am sure that it will be a non linear relationship, and I believe that efficiencies will increase, such is the way of ecosystems and self reinforcing positive feedback loops.

Maintenence Expenses - 3.6 ha @3000 per	**10800**
Wealth Generating Expenses	**18167**
Main Farm ledger total	**28967**

Market Garden

Syntropic market gardening is a figure of speech, because in essence the vegetables grown syntropically are never really in isolation from the rest of the "macro organism" – the vegetables are plugged in via the microbial network, with the rest of the plants, forming the ecosystem. Vegetables are usually annuals, called "Placenta 1", in syntropic jargon, which simply means that annuals are some of the first plants to appear in early species succession. The other function exists when there is disturbance in the ecosystem, which creates a clearing, the response to disturbance is a growth pulse, led by annuals, which have an important role in the early stage of creating a canopy and repopulating the area with plants.

Syntropic "market gardening" is growing vegetables in a relationship with other plants, these plants include the trees around them, the grasses., the plants grown with the vegetables and the vegetables grown with the trees in the same row on a pruning (disturbance) cycle, when a clearing is made.

Doing this has noticeably different effects than growing vegetables in isolation, but going into that is beyond the scope of this document.

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Market Garden

There are basically 3 different ways we grow vegetables in a syntropic system

1. At the beginning we are starting with grasses, we always leave enough area of grasses each side of the vegetable bed to generate enough biomass to be able to be cut and used as mulch for the crops, plus often important pioneers are grown in a centre line between the plants every metre for their purpose of pioneering relationships with the soil life (root exudates etc). This combination of plants forms a successional dynamic, it is this "maco organism" which creates better conditions for plants while building soil.

2. Inter ow cropping (alley cropping). This normally occurs at a later stage in the process, when trees rows have begun to establish. With the tree rows in close vicinity, a relationship is established with the vegetables: the area influenced by a plant is indicated by it's height – the height of a plant will approximately equal the radius of it area of influence. This significantly increases plant health and function: exchanges of nutrients, information, water, sugars etc all take place at a higher level in these conditions.

3. Planting vegetables in tree rows. This is a very effective way to grow vegetables, as here they are performing their natural ecosystem role – filling the gaps after a disturbance event, forming the first canopy and providing sugars early to the soil microbes, they are feeding the "macro organism". Vegetables grown this way thrive, these situations provide perfect conditions for vines, such as tomatoes, cucumbers etc, especially because when we pollard trees at a height of 3 metres or so, we have a post every 3-4 metres to staple a wire to and provide structure for a trellis. Please see this link for greater insight: https://www.youtube.com/watch?v=2FtsFbaMZTc&list=PL0aDYgtdsD7w_j9Zfevm83QHGJWbhVLKO&index=6

In our context we will be growing vegetables in the first way described, as well as cropping in the tree rows while the trees are young and the placenta is needed.

Market Garden

The MULCHATRON 3000

Covered soil is an essential part of syntropic farming, one of the key differences with market gardening syntropically is the use of the MULCHATRON 3000, which allows other regenerative applications such as no till to be employed, as there are little to no weeds with covered soil and compost use is eliminated, as the mulch breaks down and creates this effect naturally, just like how the ecosystem does it.

The MULCHATRON 3000 is essential to syntropic market gardening, which is totally reliant upon biomass production. In this pic you can see that the biomass is imported due to the patch being new. Importing mulch long term destroys the economics of covering the soil, so biomass rows are essential.

Here we can see the results of using the MULCHATRON 3000 with growing the biomass next to the beds. This arrangement is very efficient, two people can cut and mulch using hand tools and prepare a 50 metre bed in less than an hour, we got the timeframe down to 40 minutes. This application is just as efficient as standard ag, so I am very happy to now be finally planning it's use on a commercial scale now.

Market Garden

Gross Margin Analysis

50 metre Market Garden Beds - 36

The market garden beds are for cropping herbs and greens which have an 8 week lifecycle. These crops will be Scallions and Coriander to be supplied to the wholesale market.

- Each bed being 50 metres will yield 400 bunches every 8 weeks.

- In order to harvest one bed weekly, we need 8 beds, planted and harvested successively.

- We will round down the number of our market garden beds to 32, and keep 4 in reserve.

- 32/8 = 4 – this gives us 4 beds to harvest and plant weekly.

The gross margin analysis below gives us a weekly revenue for 32 beds producing on an 8 week cycle.

Market Garden

Gross Margin Analysis

All calculations based on weekly production to match delivery schedules

2 bunches per metre per row, 4 rows per 50m bed – 400 bunches	
Lifecycle of crop – 8 weeks	
Amount of beds needed to harvest 1 bed weekly – 8 beds	
8 beds = 400 bunches pw	
Sale price per bunch –	**2.00**
Gross revenue per bed –	**800.00**
Gross weekly revenue per 8 beds –	**800.00**
Number of beds total – 32	
Total weekly gross revenue for 32 beds -	**3200.00**

Costs (per bed)	
Labour – 10 hrs labour @$30 (preparation, planting, mulching, picking) –	**300.00**
Fertiliser & ammendments –	**+ 100.00**
	400.00
Total weekly expenses for 32 beds -	**1600.00**

Gross revenue	**3200.00**
Costs	**- 1600.00**
Gross Margin PW 32 beds	**1600.00**

Single Row Crop Beds

100 metre Single Row Crop Beds - 18

50 metre Single Row Crop Beds - 2

For this analysis, we will divide the total (1900m) into 50m units = 38, I will round this down to 36, as I have at least 1 row susceptible to waterlogging.

Single row crops are those that are planted in a single line in the bed, as opposed to multiple row crop beds such as typical market garden greens etc. These crops have a different management system, and such, have their own seperate rows, they are also less intense to manage, as they normally contain plants which are planted once and then harvested over a long period. These rows are more effective at scale.

Single row crops are typically larger plants with longer lifecycles, such as tomatoes, cucumbers etc. These crops are the type which bear fruit and are harvested multiple times during their life, as opposed to market garden greens where normally the whole plant is taken at harvest.

The single row allows for a more simple irrigation solution - one single drip line, as opposed to multiple row beds, which require 3-4 drip lines or sprinklers.

A single row dripline allows for lengths longer than 50 metres, whereas multiple row market garden beds normally reach their water flow limit at 50 metres.

Vine crop beds differ in length, so the calculations will be per 50 metres.

Crops are tomato and cucumber, with a growth period of 6 weeks and a harvest period of 6 weeks - total time 12 weeks.

There are also options for Asian melons such as bitter melon, long melon, winter melon etc. While I do not have the precise data for these crops yet, they have a lot of potential to follow tomato and cucumber crop going into the wet season, being better adapted to warm humid conditions than tomato and cucumber, keeping the beds productive throughout the year.

Single Row Crop Beds

Gross Margin Analysis

Tomato/Cucumber Gross Margin Analysis For 50m	
Plant spacing - .5	
Amount of plants per 50m - 100	
Time until production - 6 weeks	
Production period - 6 weeks	
Production per plant - 4kg	
Sale price per kg - $3.00	
Yield per 50m over 12 week period - 400 kg	
Gross revenue over 14 week period -	**1200.00**
Costs	
Labour - 1 hr planting, 1 hr setting up trellis, 9hrs picking & managing.	**330.00**
Fertiliser & ammendments -	**100.00**
16 Posts (purchased used) -	**80.00**
Wire & String -	**40.00**
Seedlings -	**26.40**
Cassava, pigeon pea, castor oil -	**+ 50.00**
	626.40
Gross revenue -	**1200.00**
Costs -	**- 626.40**
Gross Margin, 50m -	**573.60**
Gross margin total (36x50m units, 12 wks) -	**20628.00**
Weekly revenue -	**1719.00**

Agroforestry Rows

Cucumber crop planted on a pruning cycle, with wire stapled to trees

The agroforestry rows are excellent for vegetable productions, in the past we have had excellent results with cucumber, zucchini and tomato.

With the rows being already set up and managed, it becomes very cheap if when we log the cost of the bed set up on the main farm expenses ledger, which will be offset by the whole farm production - we do this because the management of these rows is part of the farm cycling of biomass, which is a more general management expense.

In order for us to calculate the gross margins for these crops we will not include the expense of bed set up, for reasons stated above, and the fact that they are already done, we just have to plant and manage.

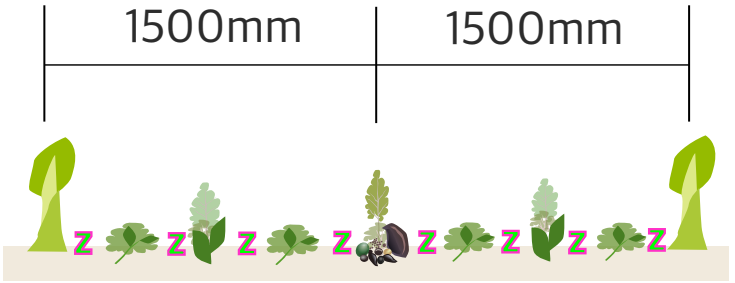
The banana production which will quickly follow will more than offset the costs.

Because we don't yet have trees big enough for posts, we will select zucchini as our agroforestry "Placenta 1" crop.

Agroforestry Rows

Agroforestry row (+Banana) Zucchini production - 3200 Metres

The zucchini being medium strata (40% shade) can be planted with any emergent species, as most of the early succession species in the agroforestry rows are emergent (0% shade), the zucchini is perfectly stratified to fit into the consortium. The zucchini also has a lifecycle of 12 weeks, so it will be gone long before any loger lifecycle medium strata in the consortium needs the space. Also, and importantly, the zucchini can be cropped for many years as a placenta plant used to take the growth of a growth pulse by the pruning cycles. All in all, zucchini is an excellent crop for agroforestry rows.



Zucchini

We can plant 8 zucchini every 3 metres, to fit in and take up the space between the other plants. With a total amount of rows equalling 3200 metres, we can divide that number by 3 and then multiply by 8 to get the total number of plants.

3200/3 = 1066 (rounded down), 1066x8 = 8528 plants.

Here we have a dilemma, as this is going to give us 17 tonne of zucchini. This amount of zucchini will be challenging to market as a wholesale crop.

The course of action will be to either put some different crops in to diversify the yield, or to plant in successional stages.

At any rate, there is potentially around AUD 32000 (@$2.00 per kg) in gross revenue every 12 weeks for this crop, giving a weekly gross revenue of around AUD 2600. The cost is only planting and picking, which is very little.

If I estimate the direct costs of the zucchini crop at 50% of gross revenue, this gives us a potential figure of 32000/2 = 16000, this on a pw basis equals around 1300.

There are 2 cycles, giving a total gross margin of potentially 32000 (16000x2) for the farm for the season.

Agroforesters tip: When planting zucchini on a cycle, leave one more banana sucker than needed because the banana will start taking the lead growth in the consortium about halfway through the life of the zucchini, and they will slow down, as this happens, cut back the extra banana sucker and it will trigger another growth pulse back to the zucchini as placenta 1 will be photosynthesising more than the banana again.

Options Moving Forward

The contents of this document are the opening moves in a strategy.

Things will change as new discoveries come to light and market dynamics change. It is clear that the market gardens are the prime earner in this early stage, but as the conditions improve and the addition of time sees longer lifecycle and longer to establish crops move in, the efficiencies shift.

To simplify this dynamic, we are using market garden in a time based context – these crops have the shortest lifecycle and therefore pay first, while the system develops. As succession shifts, so do the economics, with that, more analysis will take place at a later date, to examine more appropriate and profitable crops. As species succession goes up, fertility increases as do the conditions which suit new crops such as taro.

Banana is an excellent tree row crop, as it yields quickly, but not only that, banana is a feedstock for higher succession species, meaning that when needed, the banana can be cut back and used as mulch in an already improved agroforestry row where new species can be planted, such as lime, custard apple or whatever crop is deemed appropriate.

The fertility has already been created from the growing.

The inter row crops are potentially the most exciting of all, as suggested earlier, taro is a good option, but a mixed fruit production can be placed, including grapes, dragonfruit, pineapples etc.

As another simple and effective crop, potato is excellent, planted on the full moon in August, potato works as a tool as well as a crop and fits a convenient yield gap, while building soil (we grow potato under heavy mulch). Harvested in November, it is an excellent time to plant Asian melon varieties such as Long Melon, Bitter Melon, Winter Melon etc. This also times in with the next biomass cycle.

The Asian market in my area is growing very quickly, with retailers opening all of the time, and franchises appearing. There are good prices for most Asian vegetables, with the ducasse banana, our target banana crop being one.

Chinese taro is a good crop for us, and I am expanding the planting stock now, but it will be some time until I get enough plants to make an impact.

The preparations for the market garden are happening now, but the single row crops may change, it is possible that I plant the whole lot of them out with okra, as this is a good bulk crop which needs little care, and with a lot going on, it may be prudent to supply the market with this vegetable that is in high demand. The only issue with okra is that picking is potentially time consuming, but with a good attitude and the willingness to develop skill and speed, it is very doable.

Further research will be done on Asian melons (long melon, bitter melon, hairy melon, winter melon), as there is high demand and good prices, furthermore, it is well adapted to our subtropical climate. It is also very safe to supply large volumes to the wholesale market with little risk of saturating.

Financial Roundup

These are early days, but this form of primary production looks best to me, it is skill and management based, we don't have to bleed cash for our inputs.

There will be many upcoming expenses, such as improved wash up facilities, a delivery vehichle and eventually a warehouse to accommodate the wholesale business and a retail outlet.

I will not, at any time be temped to go broadacre monoculture and become beholden to agents and supermarkets. Nope, never, not happening.

Let's have a look at potential numbers.

The market garden will bring a potential gross margin of 3200 per week, we will grow for 40 weeks per year, giving a 12 week layover in the wet season for cover crop, this will bring revenue of 40x3200 = 128000.

Our single row crop beds will give us a weekly revenue of 1719 gross margin, we will cycle this 2 times and also have a potential for a winter crop. With the 2 cycles, we get 24 weeks, 24x1719 = 41256.

For now I will leave the zucchini as an option, but will most probably grow them.

We have now a potential gross revenue of 41256 + 128000 = **169000**.

This is roughly half the capacity of the land currently under management, as there are winter crop options for the single row crop lines, and 3.2 km of agroforestry rows as an option.

Once we get this right, we will use the next half of the block to complete the farm, which will give roughly 4x amount of production.

This is by no means a conclusive analysis, but an opening move, let's see where it goes.

As succession shifts, so do the economics, with that, another analysis will take place at a later date, to examine more appropriate and profitable crops. As species succession goes up, fertility increases as do the conditions which suit new crops such as taro.

Financial Roundup

Potential Options at a Glance

This is an estimate of **full potential options** - scenarios to consider. I will add 50000 in labour, double maintenence costs for post harvest handling and other duties associated, and consider potential net earnings for the area of farm currently under management.

Option 1, zucchini in agroforestry, tomato/cucumber and market garden	
Market Garden Gross Margin (40 weeks)	**64000**
Tomato/cucumber Gross Margin (24 weeks)	**41256**
Zucchini Gross Margin (24 weeks)	**+ 32000**
	137256
Mainenence expenses & labour	**- 71600**
Annual Profit (wealth generating payments to be subtracted)	**65656**
Option 2, zucchini in agroforestry, double market garden and remove tomato/cucmber	
Market Garden Gross Margin (40 weeks)	**64000**
Market Garden Gross Margin (24 weeks)	**64000**
Zucchini Gross Margin (24 weeks)	**+ 32000**
	160000
Mainenence expenses & labour	**- 71600**
Annual Profit, (wealth generating payments to be subtracted)	**88400**

Ultimately, we will feel our way through this and navigate the best passage, but this analysis is a good indicator.

It is important to keep in mind that this accounting methodology uses gross margin analysis for the income of crops, so the maintenence expenses may appear very low due to all labour costs associated with the crop are already accounted for in the gross margin sheets.

As indicated, there are many other options, like okra, Asian melons etc. It all comes down to finding balance all along the way.

Marketing

Marketing is essential to our enterprise. We have chosen wholesale as our groove, as we are not prepared to commit to the massive increase in complexity to become a retail farm (farmers markets), it is just not in our quality of life choices. We would rather build up a wholesale business and form a cooperative to move it towards a retail outlet at a later date.

If you think that it is a serruptitious form of market insurgency aimed at vertical integration from the bottom up, then you are correct.

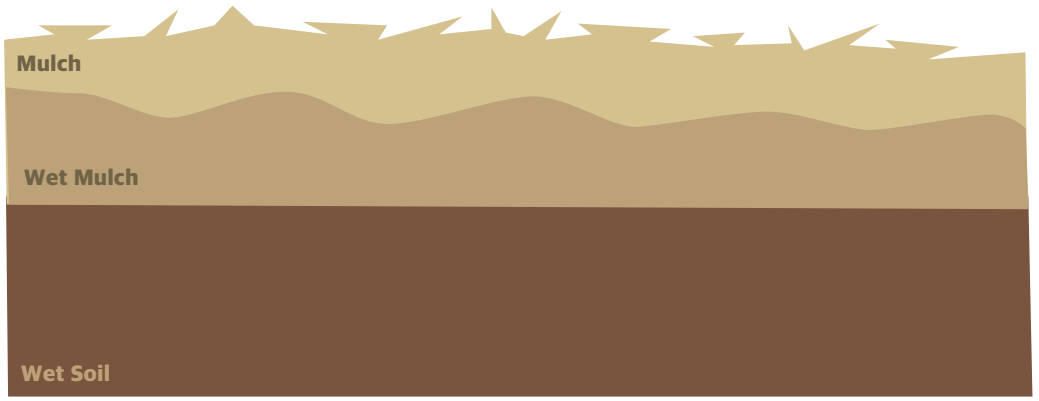
We will be partnering with a wholesaler, who is also an agroforester to move forward with this plan, this gives us a massive boost, as they will be buying nearly all of our production and we will be supporting them by providing produce on a level of freshness and quality that other wholesalers cannot surpass.

We are also aiming at the Asian market, the growth is constantly putting pressure on supply, and with the shifting demographics, this is only going to grow.

A Note on Fertiliser and Irrigation Use

There has been a lot of talk about Syntropic Agriculture needing no fertiliser and no irrigation, and to some extent this is true, but it all depends on context.

I have had amazing results with building soil fertility through accumulation, its totally possible, but the trade off is time. If one wants to grow cash crops that need a decent amount of feeding, then one must use fertiliser if not wanting to wait at least 2 years. The advantage that we still have when using fertiliser (or compost) that other ways of farming do not have, is that we are constantly building soil through mulching and plant exudates, plus no till, which mulching facilitates.



With irrigation, we also have an advantage. Normally in a market garden situation, vegetables are shallow rooted and need frequent watering, often 2 times per day, this is because the soil is either bare, or there is a mulch layer of compost, which wicks water.

When we cover the soil using the MULCHATRON 300, we keep the soil at a very constant level of moisture, mulch acts as a regulator. When mulch becomes wet, on top of wet soil, it keeps the soil wet until the mulch dries out, and then capillary action will slowly draw moisture from the soil. It takes a long time for mulch to dry out, and a reasonable time to wet mulch at the beginning if it is added dry, but once mulch is wet, the soil stays wet, this stabilises the soil moisture. All we must to is make sure the mulch does not completely dry, or better said, make sure that the lower section of the mulch stays wet, the top can dry out, but if the bottom is wet, the soil is wet. This means that we do not need to irrigate so frequently or so much volume, we just need to keep an eye on the mulch and top it up when needed. The mulch is a protective layer and acts as a capacitor.

Mulch saves us a lot of money in expensive irrigation equipment, it makes it simple so a relitavely cheap pump from a river or dam will do the job.

Personal Goals

I love farming, I decided many years ago to turn away from my previous and financially successful business and turn back to my roots as a 5th generation farmer. I could not though, go on and farm in the ways of the past. I was confronted with a deep challenge – either go back to the financial security of my previous pursuits, or make a new way for myself. At that time I had no **real** reference for how to farm in a regenerative way, I had Organic MArket Gardening, Permaculture, Inga Alley cropping and Analog Agroforestry (2006), I decided to do the best I could with this, burn through my savings and hope that when I came out the other end I had a skill set that was functional. It was hard work, I learned a lot, but my big break came when I learned Syntropic Agroforestry in 2016, Ernst Gotsch had decoded ecological succession and put it into a practical, clear and precise framework. Once I had discovered this I knew I had the way forward. My next step was R&D in order to quantify this so a true livelihood could be achieved, that was very challenging, but the numbers came.

Here I am now in full commitment, both excited and needing to dig deep into my spirit to erase any doubts that come from self sabotage, inner irrational self confidence issues, plus stay strong while holding faith and remaining compassionate while many people became very disappointed with me for their perception of my choices. These are the trials in life which I find very healthy for me.

I could have gone to the compost market garden formula, which is fine, but I have a commitment to future generations and I cannot see these types of farming as a solution to my goal – I can earn a living doing this, but it serves little end, in my mind, to our larger needs – being a secure future in an age of depletion and destruction. It is very important to leave more behind me than when I began, and by that I mean fertility and pathways to abundance. The future generations have the agency to make do from that what they will, but they need the base to start from, so that guides me.

Outside of these deeper motivations are my personal preferences for how I want to spend my time working and what feels best and right to me. To work with increasing life, to witness growth and excellent health manifest as a consequence of my work is deeply satisfying – it is how I like to spend my time, it makes me very happy.

I sincerely hope that many people could somehow benefit from anything that I can achieve, from sharing the skills learned from hard lessons, making the journey somewhat easier for others, to seeing our food come from places we know and love, and seeing our landscape and community thrive as a consequence of selfless and loving actions towards the whole – "a rising tide floats all boats".

This path has its ups and downs, it can be stressful, but in the end, everything is good. Every time I feel overwhelmed and in despair, I have found that when I dig deep and connect to what is worth doing, I find myself rising stronger and improving myself as a person.

This may seem like a self indulgent rant, but it is my honest self and it is the driving energy behind this, so I must me honest about it. Without my deep personal needs driving this, it will be nothing.

I hope very much that others who share similar values may find something valuable in this, so I offer this document as some sort of financial and economic quantitative reference, so they may navigate this world in a secure way and keep the wolf from their door.

Conclusion and Future Vision

As mentioned, this is an opening for my strategy, to be continually adjusted along the way. This may seem a little inconclusive and disjointed, but if I were to make it sound certain and as if it were going to happen as I want to anticipate, I will be denying the reality of the stochastic nature of farming and ecosystem function. Strategy is the only way to approach one's goals when working with complexity.

What I have for certain now, is a very informed start for a cash flow plan with the farm for the first 2-4 years. I will begin with the market garden, and create a rythm where the next steps can be added as we go.

The longer term plan is to work with higher succession, which, as stated, will be banana and taro - as a forest ecosystem develops. Taro likes 40% shade and humidity, just the perfect conditions that agroforestry creates for inter row cropping (alley cropping). Trees like jackfruit are already growing, and other species may develop and replace banana as conditions change, which also include the market.

As succession increases there will be more work handling woody biomass, less work picking and managing annual vegetables - a more upright posture will be assumed.

As stated, this plan is only for one half of the total area, so as the farm evolves, a more serious look a the needs for people to be present will be needed. I believe that in the end, 4 staff and a manager will be required, including training and support. All staff should be treated as a key asset in the farming of tomorrow, with full support for those who want to go and get their own farm eventually. As this is a management based system, human input is the biggest expense, which to me is perfect - it is much more regenerative to pay people than it is to pay product, as wages are an investment in community and product purchases are a wealth extraction, often taking our money out of the community, and quite often these purchases are made with debt, which means that there is interest paid to banks, another layer of extraction.

This project is not immune to failure, but I believe that a hard and pragmatic approach to regenerative agriculture is needed now more than ever, as the romance, feel good and over sold regen ag starts to give way to a more pressing environment where outcomes on a livelihood basis are needed. We need to live, and we access need to that.

For now, I am more than happy for the farm to just pay wages and run at cost until we get better, the main goal is to pay its way and develop. For now, that is more than enough, and it will create a sturdy foundation for improvement.

This will have its fits and starts, but these will be valuable lessons to feed back in to the strategy, I cannot understate how valuable this is.

Thanks for reading, I hope this was of some use to you.