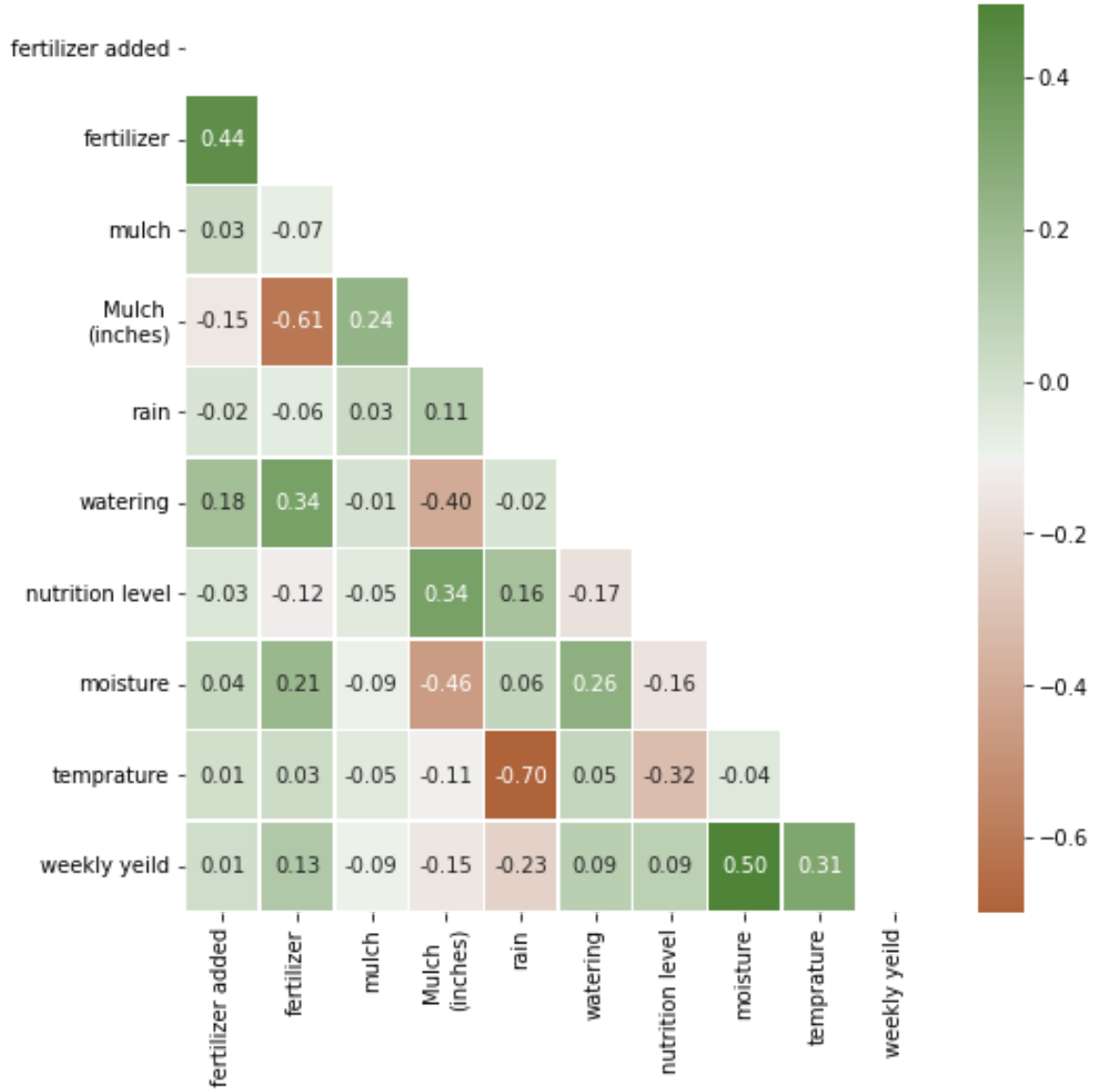
Aman Nagarkar
Findings from the VeganBerries Dataset.
February 2022.

Q: What trends can you identify:

Correlation matrix of the features:



We can see that **weekly yield depends most on moisture and temperature**. We can note that temperature depends on rain and as there is more rain in the later weeks of the year the temperature drops dramatically which affects the weekly yield. The moisture depends on water fertilizer and mulch. Mulch affects moisture the most. Temperature depends a lot on rains.

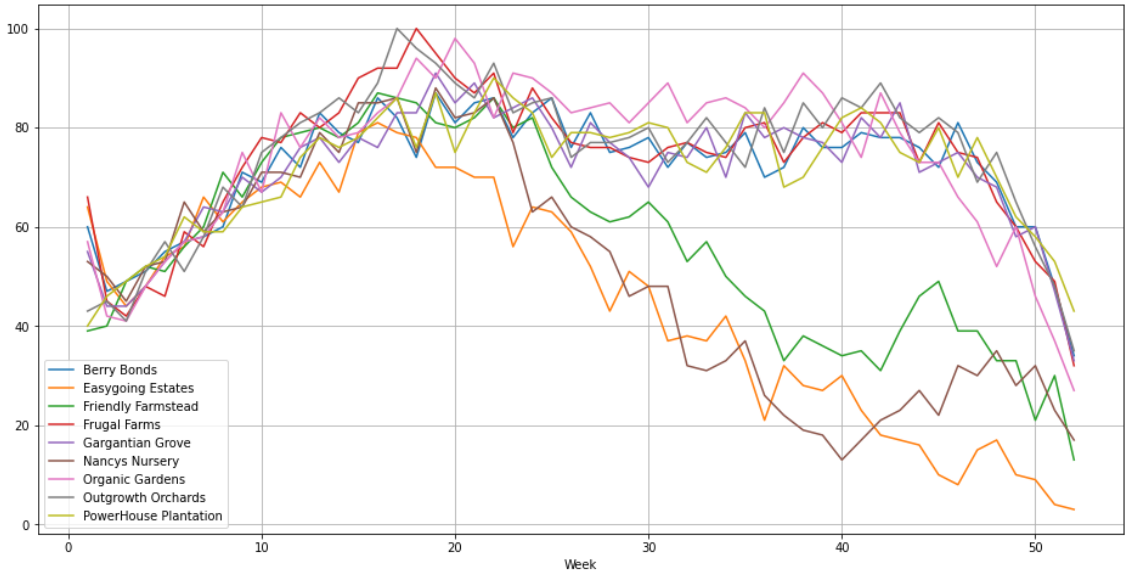
Q: Are there optimal points or should we just add as much mulch/fertilizer/water as possible?

Water and fertilizer mulch affect the moisture level of soil which in turn helps the growth of berries. But temperature is also an important factor. As the temperature rises slowly the yield increases. But **in week 35, after rains, the temperature falls rapidly** which severely affects the growth of crops. This is evident by the fact that yield drops below initial yield even at the same temperature.

Yield per week in lbs	Watering in gallons	Fertilizer in cubic feet	Mulch in Inches
(2.999, 48.0	6.907216	0.126090	3.064155
(48.0, 66.0]	10.578947	0.208907	2.201781
(66.0, 76.0]	8.510638	0.306465	1.729910
(76.0, 82.0]	10.652174	0.298495	2.091263
(82.0, 100.0]	**9.666667**	**0.152564**	**2.480556**

The most yield is obtained when watering is kept around **9.66 gallons per week, Fertilizer is 0.1525 cubic feet Mulch is 2.48 inches**. That is the optimal point. It should be maintained for optimal yield

Q: Which farms are set up for sustained yields? Or will they start failing to produce fruit with the current watering and fertilizing methods?

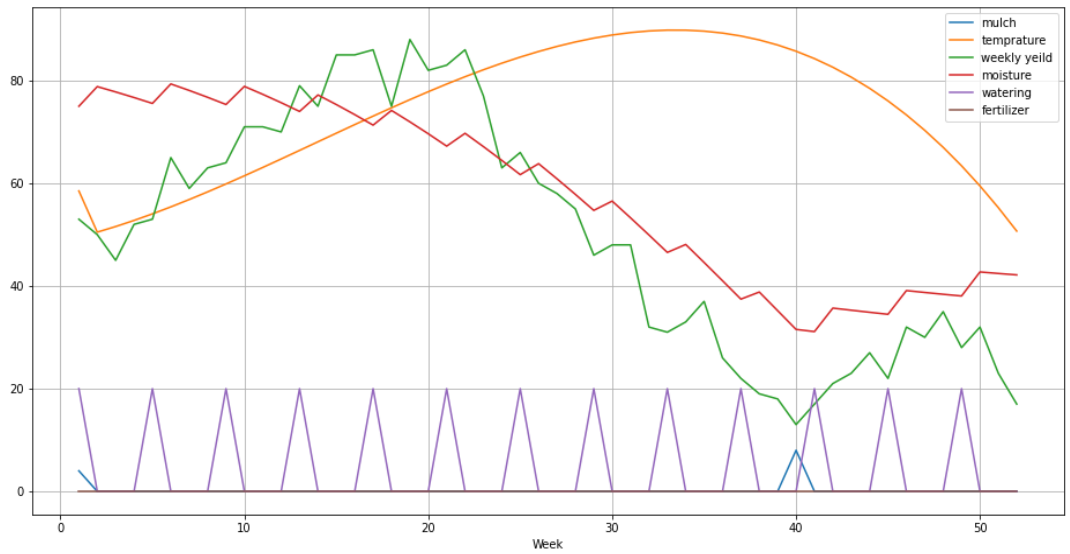


The yields will **fail eventually during the rains** as the **sudden drop in temperature leads to a decrease in the weekly yield**. **Nancy's Nursery, Organic Gardens, Garganitian Grove and Powerhouse plantation** all get a yield of over 18lbs a week. They **are sustainable** when it comes to fruit produce. Berry Bonds has the lowest yield and has a lot of scope to increase productivity.

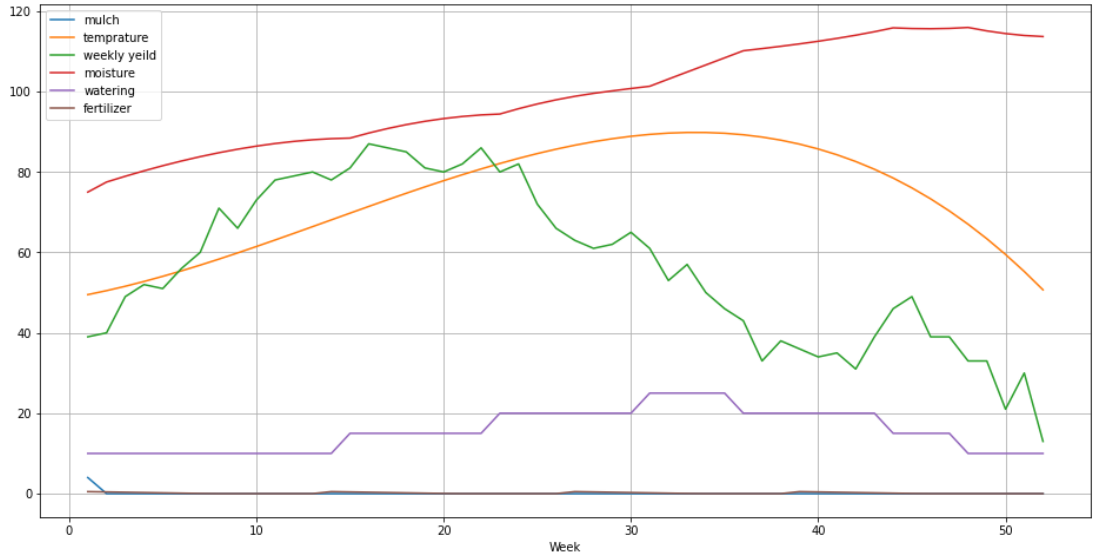
Q: Which farms are going to fail the fastest?

Orchid Name	Trees planted In the year	Total Yeild obtained in lbs	Average Yield per tree in lbs/year
Berry Bonds (LA)	186	3739	14.385
Easygoing Estates (LA)	131	2362	16.716
Friendly Farmstead' (Sac)	146	2950	15.016
Frugal Farms (LA)	258	3874	16.213
Gargantian Grove (SF)'	199	3719	18.688
Nancy's Nursery" (SF)	208	2599	20.102
Organic Gardens' (SF)	229	3828	20.205
Outgrowth Orchards' (Sac)	270	3884	12.495
PowerHouse Plantation' (Sac)	230	3729	18.031

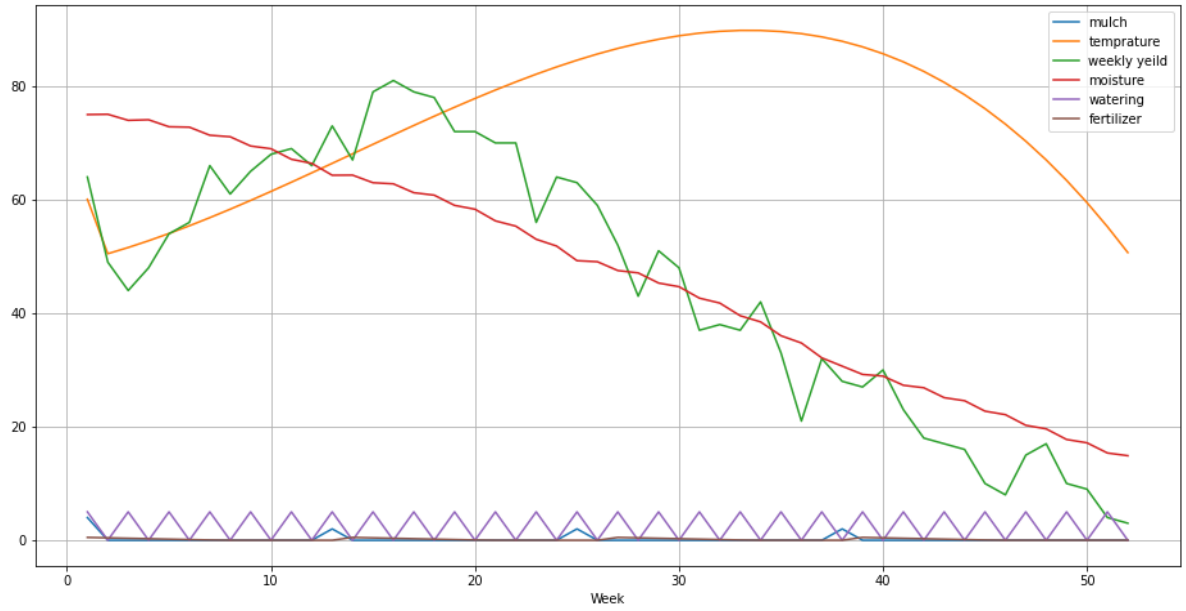
Nancy’s Nursery



Friendly Farmstead



Easygoing Estates



The farms **Easygoing Estate and Nancy's Nursery are failing** the fastest because their **moisture in the soil decreases** gradually over the period of the year which leads

to a decrease in productivity. **Friendly Farmsted** started **over watering** their plants which led to an increase in moisture which also decreased the yield.

Q: Of those who are going to fail or failing, what would you recommend?

To **Easygoing estate,** I would recommend to increase watering to go **from 5 gallons a week to 10 gallons a week**. I would ask them to increase the Mulch layer and improve fertilizer addition so the soil better retains moisture.

Nancy's Nursery should change their **by-weekly 20 gallon water addition to weekly 10 gallon** approach as that is shown to give better yields over the year. A thicker layer of mulch and additional fertilizer can also help soil retain moisture. I would also suggest them to add more trees as they have a high yield per tree.

To **Friendly Farmstead** I would recommend them to **stop overwatering the plants and adopt a 10 gallons a week approach** and **improve** their **mulch and fertilizer addition** as the soil starts to lose the nutrition as they start increasing water per week. I would suggest they add more mulch so reduced watering will not lower moisture percent.

Part 1b: + Install Base of Trees

Q: How much did it cost each of the farms to maintain the trees for the year?

Orchid Name	Revenue in USD	**Expense in USD**	Profit in USD
Berry Bonds (LA)	934.75	**106**	828.75
Easygoing Estates (LA)	590.5	**113**	477.5
Friendly Farmstead' (Sac)	737.5	**121.5**	616.0
Frugal Farms (LA)	968.5	**92**	876.5
Gargantian Grove (SF)'	929.75	**108**	821.75
Nancy's Nursery" (SF)	649.75	**106**	543.75
Organic Gardens' (SF)	957.0	**96**	861.0
Outgrowth Orchards' (Sac)	971.0	**86**	885.0
PowerHouse Plantation' (Sac)	932.25	**103**	829.25

How much did they have in revenue?

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How much did they profit? (revenue - expenses)

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