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KIWI: AN ORGANIC FRUIT

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1. INTRODUCTION

Kiwi fruit is a berry which is additionally recognised as Chinese gooseberry. It is native to China and style described as candy and tart flavour simply like gooseberry. That's why it is known as as Chinese gooseberry. This fruit is added to the New Zealand from the china in the early twentieth century through the missionaries. Its identify is derived from the native hen of the New Zealand i.e. "Kiwi". It belongs to the household Actinidia and its botanical title is Actinidia delicosa. The species delicosa is the most frequent range located which is additionally recognized as Hayward kiwi. It is declared as the country wide fruit of the China however the Actinidia genus is native to India, Japan and Chile. The biggest producers of this fruit are the Italy, Japan and Chile in the respective order.

Figure:

Cultivation of the fuzzy kiwifruit unfold from China in the early twentieth century, when seeds have been added to New Zealand through Mary Isabel Fraser, the most important of Wanganui Girls' College, who had been travelling mission faculties in Yichang, China. The seeds had been planted in 1906 with the aid of a Wanganui nurseryman, Alexander Allison, with the vines first fruiting in 1910. The first industrial planting of Chinese gooseberries passed off in 1937 in New Zealand with the aid of the orchardist Jim Mac Loughlin. The fruit proved famous with American servicemen in New Zealand for the duration of World War II. In 1952, Mac Loughlin partnered with the New Zealand Fruit Federation to market and export the fruit in the United States market. Due to pioneering lookup into the transportability of the fruit via John Pilkington Hudson and others at the agriculture branch in Wellington, this was once the first global export of the kiwifruit. In this fruit, there is no need to remove the seeds and can be consume as whole. It can be considered delicate, easily chewed and palatable to eat. That's how its maximum nutrition potential is to get obtained. Nutritionally, kiwi fruit is rich source of vitamin C, fair amount of potassium and magnesium content, and small amount of vitamin A.

2. HEALTH BENEFITS OF KIWIFRUIT

Protect from Age-Related Muscular Degeneration (ARMD): s it contain high amount of anti oxidants viz. Vitamin A, C and E abundantly. So it can decrease the risk of developing an eye-related disease named ARMD up to 36 per cent. ARMD is the prime cause of vision impairment in adults.

Helps in Weight Loss: Hundred gram of kiwi fruit has approximately 60 calories, 14 g of carbohydrates, 0.5 g of fat, 3 g of fibre and 1 g of protein. So it helps to lose the weight of the individual by the consumption of less calories food, on the other hand, it fulfil the satiety value also.

Acts as an Anti-aging: The vitamins A, C, and E content of the kiwi fruit helps to fight against the damage caused by the free radicals in body. Thus, it helps to beat the signs of aging. Free radicals acts on the cells and are responsible for early aging signs as well as various illnesses, such as cardiovascular disease and cancer.

Lowers Cholesterol: The dietary fibres present in the kiwi fruit helps to reduce the cholesterol level in the body. So by lowering the cholesterol levels, it also helps to reduce the risk of heart attack. Thus, it improves heart condition of individuals who are

Suffering from the cardiovascular diseases, And also it is the excellent source of the sodium - potassium ratio which is required for healthy heart.

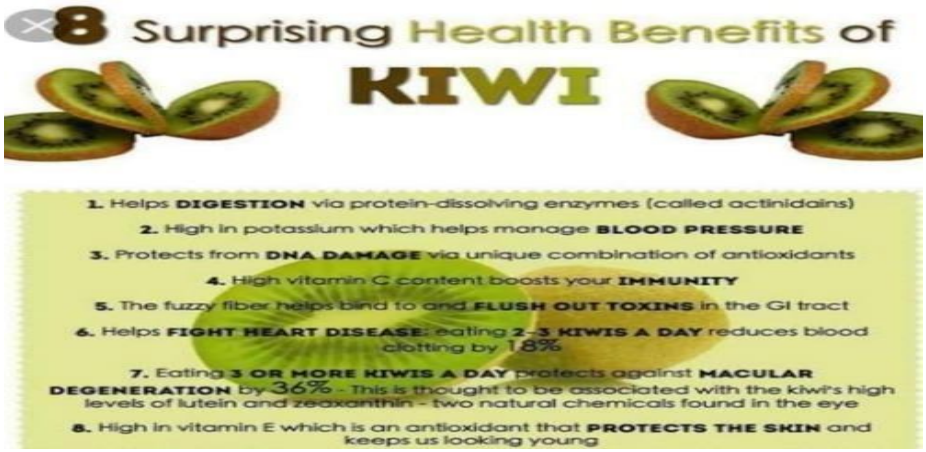
Aids in Diabetes: They are rich source of dietary fibres. A fibre helps in digestion and promotes peristalsis movement and provides laxative effect. So that it improves in diabetes and controlling the blood sugar level.

Respiratory Health: It also promotes the respiratory tract of the individual due to the presence of Vitamin C. It also helps to lower the responsible factors that can cause shortness of breath, wheezing and high coughing. Hence prevents asthma.

3. OTHER POSSIBLE HEALTH BENEFITS

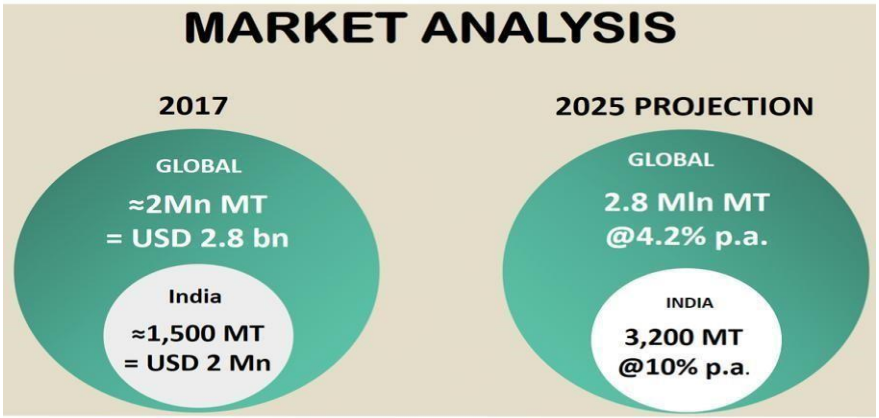
Apart from the benefits mentioned above there are some more health benefits which can't be negotiable. These are in the following way:

- The consumption of this fruit helps to get more stronger metabolism of the body and improves the nervous system
- It also helps to boosts the immune system of the body to fight against the cold and flu
- Presence of Vitamin E in the fruit helps the people who are impotent.
- It is rich source of minerals such as magnesium, potassium and copper
- It also acts as a natural blood thinner
- Presence of folate, which is necessary for the pregnant women to develop cell or embryo growth.



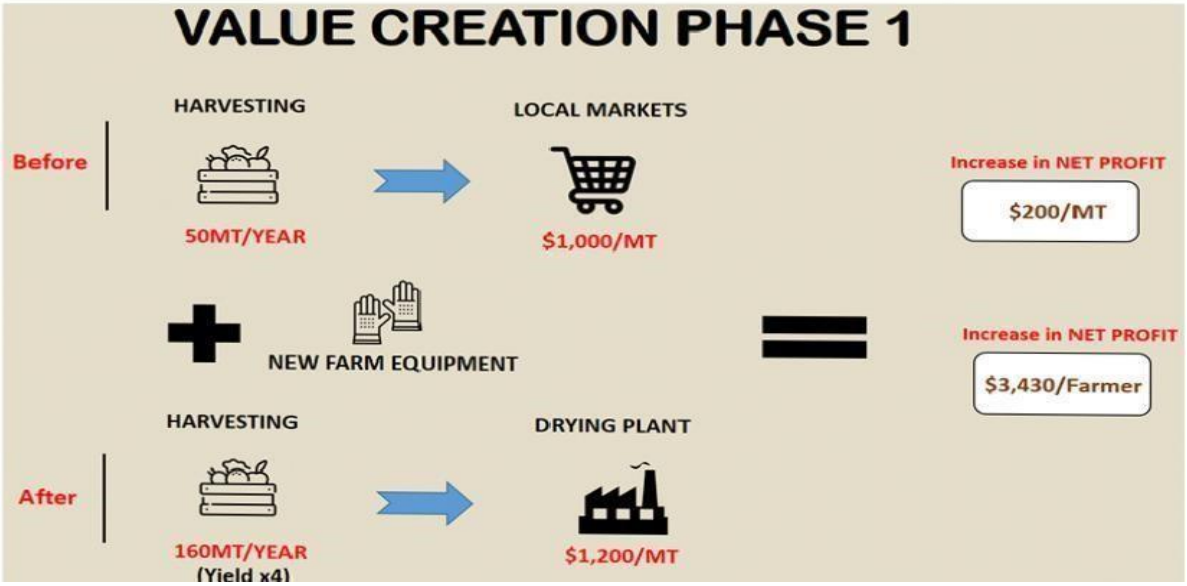
1. Demand:

The international demand for d ried okay iwi ha s regularly elevated advantages such as minerals, fiber and excessive nutritional vitamins over the ultimate a long time due to its . This demand is dietary projected to develop even extra for the subsequent 10 years. In 2017, impartial market research divulge a world market cost for dried kiwi slices at $2.8 Bn for two Mn MT, developing yearly at 4.2 per cent till 2025. India consumes 1,500MT dried kiwi slices annuall y which debts for $2 Mn; this discern is developing at 12 per cent per annum and count on to be 3,200 MT in 2025. 7



2. Revenue:

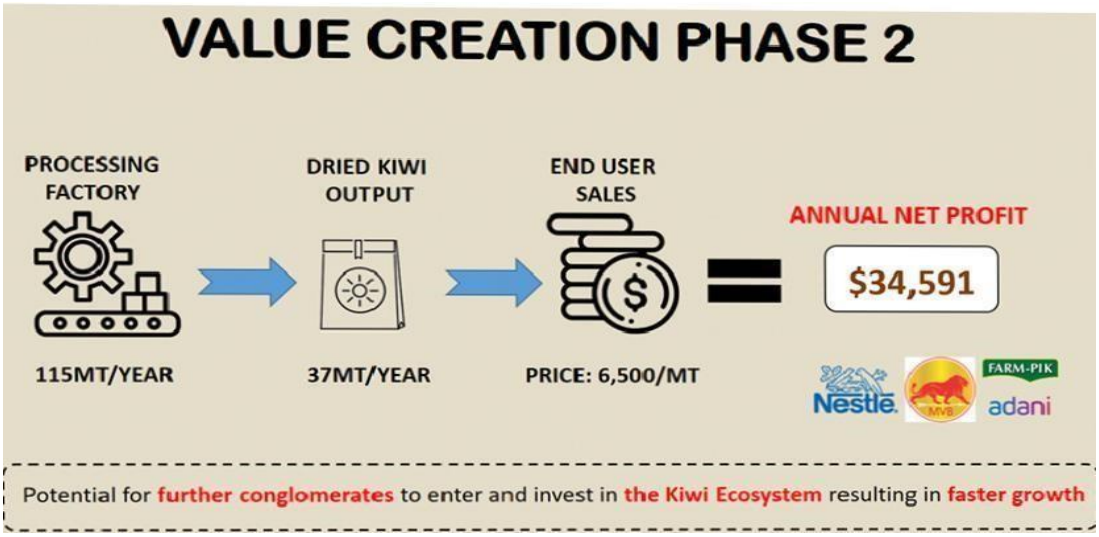
Kiwi Farmers: based on ground researches) Currently, a 32 . farmer cooperative yields 50MT/Year, sold at $1,000/MT (average price After implementation of our solution, the same cooperative will yield 180MT/Year and sell them to the drying factory at $1200/MT. This would provide each farmer with a $4,600 Annual Net Profit (4 times current N et Profit). When designing this model, we wanted to ensure that farmers could increase their revenue by selling their fresh kiwi fruit at a higher price. Hence, selling those kiwi fruits directly to a drying factory instead of local markets ensures a fixed price to farmers unlike a variable price when sselli



a. Dried Kiwi:

Using a production line for capacity of 115MT/Year, the drying factory will yield 37MT of dried kiwi a year. Indeed, the kiwi fruit weight shrinks by almost 70% (from 75g to 25g) when dried. International Corporation will sell this output kiwi fruit quality) to to international make a $35K Annual Net P wholesalers rofit. at $6,500/MT (average price for this premium 9

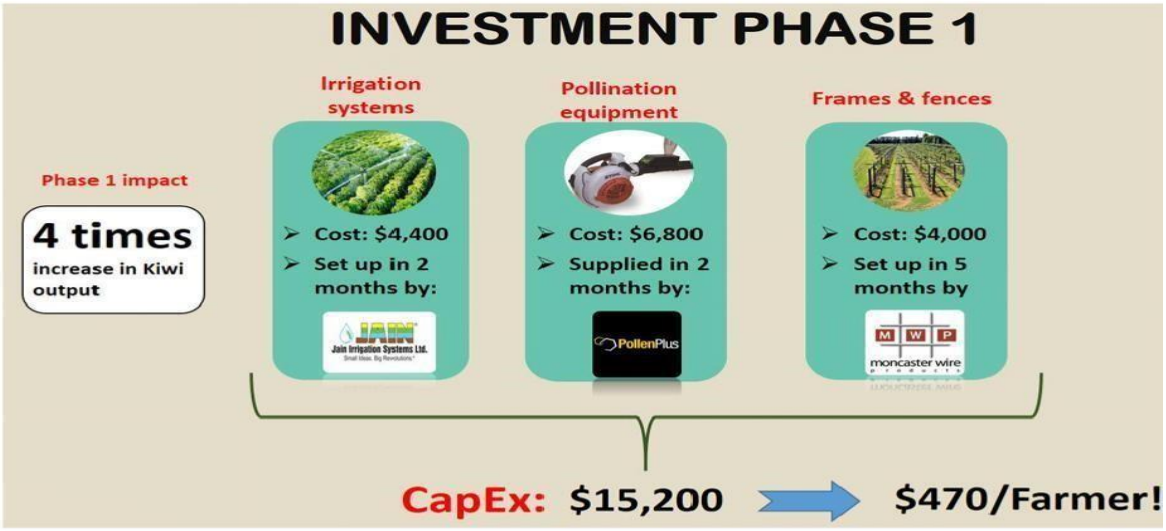
3. Investment:



4. Kiwi farmers:

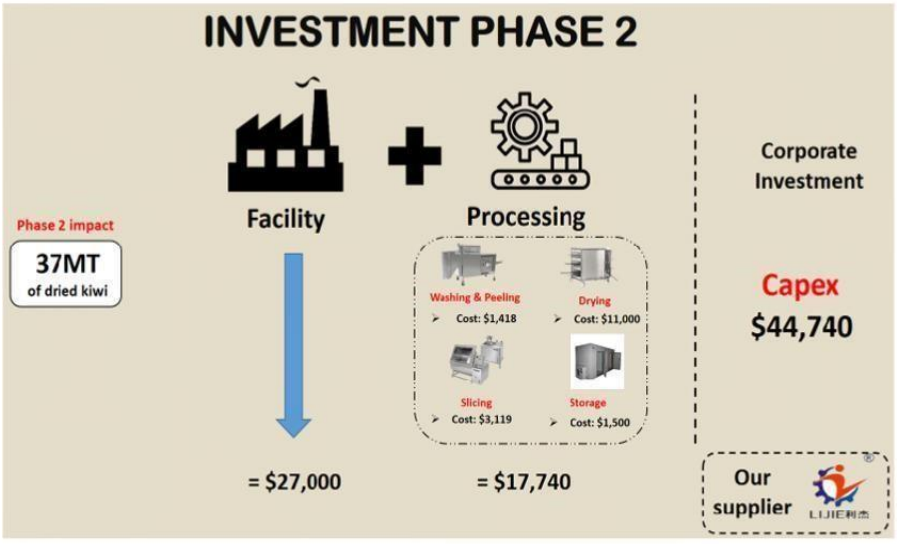
We need pollination equipment, irrigation systems, and frames & fences rise yield to 115MT/Year. This equipment is going to be providing by Jain Irrigation, an Indian irrigation systems specialist, PollenPlus, a New toZealand kiwi growing company, and Moncaster Wire, a British frames provider. Implemented in 5 months, this will cost $15,200 to the farmers' cooperative ($475/Farmer). Also,

NABARD's Capital Investment Subsidy investment per farmer do Scheme could wn to $315! fund 33% of initial capital cost. This could potentially bring the initial investment per farmer down to $315 .



Dried kiwi factory:

An initial capital investment of $45K is required to start the plant. First, a 2,000sqm facility needs to be constructed nearby the crops to ensure a just in time delivery. Basedon our ground researches, such a building will cost $27,000. Then, LIJIE (our Chinese processing machine supplier) will provide a washing & peeling machine for $1.418, three slicing machines for $3,119, a drying machine for $11,000, and a cold storage room for $1,500. Here, we partner with International Corporations (e.g. Nestlé showed interest) that are highly interested in integrating the dried fruit market vertically. We are convinced that the high revenues (Net Profit $35K/Year) generated by this processing plant will attract many other corporations.



5. Operations:

We are focused on increasing local farmers' Kiwifruit cultivation in Year 1 to reach the supply needed to make the drying factory run a 100% throughout the year. Then, in a second time we will start up a dried kiwi production in Year 2.

Kiwi Fruits: There are 3 steps for the kiwi farming: Cultivation, Harvest, and Grading. Farmers will use pollinators and irrigation systems to increase crops' yield. Moreover, frames and fences will be set up to ensure a sustainable production (kiwi plants need wires that hold their branches, otherwise they bend and break). Farmers' cooperatives will monitor the kiwi production for which annual Operation Expenses is estimated at $16,800.

Dried Kiwi: Run by corporations, the processing requires 4 steps: Washing & Peeling, Slicing, Drying and Storing (cold storage room). The annual OpEx for the processing plant is $190,200

6. Supply Chain Management:

The transport company, Truckwaale is ready to take care of picking raw kiwi fruits from the farms, then transport them to the processing plant, and then deliver dried kiwi to city hubs. We do trust Truckwaale to perform on-time deliveries as it is one of the major player in the delivery market in India. From city hubs, dried kiwi slices transportation is taken in charge by worldwide wholesalers.

The transportation from kiwi crops to the dried kiwi factory will take one day as the kiwi factory will be located nearby the crops. This just-in-time system allows farmers not to invest in costly cold storage warehouses and deliver their fresh kiwi fruits straight to the dried kiwi factory. Then, the drying factory can process batches of 450kg of fresh kiwi fruits per day (=126kg of fried kiwi per day). Once processed, this batch is put in large wholesale bags (unbranded) provided by our B2B customers (wholesalers) stored in a cold storage room waiting for the delivery truck to come and pick it up. Tuckwaale will design an efficient delivery route, but they ensured us that they could come pick up the production twice a month. Thus, the cold storage in the factory is designed to store at least 4MT of dried kiwi as the factory will produce 2MT of dried kiwi between each delivery (126kgx15days=1.9MT). The transport to city hubs in Itanagar is still ensured by Truckwaale and takes 1 day. Then, our B2B customers (wholesalers) take over the branding and delivery to end customers.

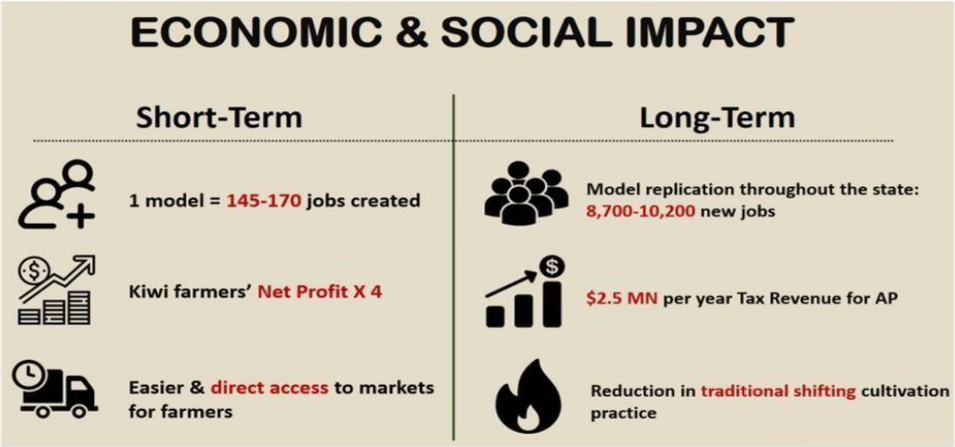
7. Marketing & Branding:

Selling dried kiwi to international wholesalers (e.g. Farmpik and Big Basket) allows us not to spend any money on marketing and branding as those wholesalers brand them themselves. Plus, they will provide the large unbranded bags used to pack the dried kiwi at the drying factory.

8. Social Impact:

One model will create 145-170 jobs while increasing each farmer's net profit by 4 times the current one. Indeed, based on our researches the current average annual net profit of a kiwi farmer is $1,170. This model ensures a rise to $4,600 of net profit per annum. Also, we provide farmers with an easy and sustainable access to global markets through an effective supply chain model. In the long-term, a replication of this model throughout the state by 60 times (conservative assumption regarding the number of kiwi farms in the Arunachal Pradesh State), there will be 8,700-10,200 new jobs created. For the Arunachal Pradesh State, it could bring a new annual tax revenue of $2.5n.

Furthermore, the biodiversity increases as the land and water are preserved from the Jhum practice.



4. MATERIALS AND METHODS

Fruits For this study, we selected Hayward (Actinidia deliciosa), the most common commercially available breed of kiwi, Zespri green kiwi, and Hort16A (Actinidia chinensis), which is known as Zespri gold kiwi. These kiwi fruits (production area is New Zealand) were donated by Zespri Co., Ltd. The flesh was weighed, cut into appropriate sizes, and mixed using a mixer for 30s. Each homogenate was centrifuged (High-capacity refrigerated centrifuge 8800, Kubota Co., Ltd., Tokyo, Japan) at 3000rpm for 10min, and the resulting supernatant was passed through a filter. Each supernatant was centrifuged at 16000 rpm for 1h (Automatic highspeed refrigerated centrifuge 20PR-52, Hitachi Koki Co., Ltd., Tokyo, Japan), and the suspended substances were removed to obtain the sample solution. Fruits for examination of anti-oxidant effects in vitro were purchased at a food store. We selected five frequently consumed fruits besides kiwi fruit. These were apple (production area is Aomori, Japan), navel orange (U.S.A.), mandarin orange (Tokushima, Japan), white grapefruit (Florida, U.S.A.), and ruby grapefruit (Florida, U.S.A.). The flesh was weighed, cut into appropriate sizes, and mixed using a mixer for Japan) was used.

Comparison of the Amounts of Oxidized Lipid Generated by UV Irradiation for Different Time Periods E 30s. Each homogenate

Detection of Polyphenols in Samples:

Polyphenols were detected by the Folin–Ciocalteu method, a routine detection method.26) As a control sample, ()-epicatechin (Wako Pure Chemical Industries, Osaka,

5. CONCLUSION

Kiwis are a nutrient dense food, meaning they are high in nutrients and low in . The possible health benefits of consuming kiwis include maintaining healthy skin tone and texture, reducing blood pressure and preventing heart disease and stroke. The cultivation of kiwi fruits under Indian condition are the challenges that should be shoulder off the health consciousness among human being, if its availability scarier than scare. The knowledge and its benefits among people are also one of the bottlenecks that non-popularization of kiwi fruit in India. The government as well as scientist of concerned field should focus on strengthening and popularization of kiwi fruit that trailering off the expenditure towards diseases and built nation healthy and happy.

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