

Executive Summary:

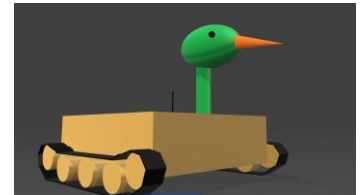
“2 times the work, but only half the harvest” is a common adage that describes the inefficiency of terraced farms, and explains why more and more farmers are abandoning them. According to the NPO “Tanada Network,” in 1993, 12% of all terraced farms in Japan were abandoned or replaced by other more productive methods of farming. This number went up 40% in the 2010s. On these farms, most of the work must be done by hand, due to the unique and complicated structure of the land that makes it impossible for the common tractor and combine to be used- even though 67% of farmers are over 60 and lack physical strength. In addition, there is a general decline in the number of farmers in Japan. The Japanese Ministry of Agriculture, Forestry, and Fisheries released the newest version of the “Agriculture and Forestry Census” in 2015, reporting that 5.4 million people were farmers in 1985; and after 30 years, this number fell 60%, reducing the farming population to less than a shocking 2 million. Alarmingly, 64% of this population is over the age of 65, and less than 7% are under 39. There is obviously a serious need for young farmers; however, the working population of those between ages 15- 29 stooped to 63,000 people, a dramatic decrease compared to 5 years ago, when the number was about 89,000. Taking a hint from the *Aigamo* Farming Method, a traditional method of farming dating back to Japan’s Heian Era, we combined ancient tradition with the newest innovations and created an inexpensive and easy-to-use robot. Introducing the Intelligent Ground-Air Modular Observer (iGAMO) - the ultimate farming robot.

1. Mission

Our sole mission is to spread the use of iGAMO, our revolutionary robot that brings automaticity to the agricultural process of planting, tilling, seeding, and harvesting. We have two target audiences: aspiring farmers with few connections in the farming industry, and well-established veteran farmers. iGAMO’s unique qualities and arsenal of useful and easy-to-use functions will give the users a crucial edge against farmers using more traditional methods. It is unique because not only will it improve the efficiency of how farmers tend their farms, but it will also liberate them from the strenuousness of manual farming, thanks to iGAMO’s automaticity. We are also creating new job opportunities for those willing to work in our company. Our product aims to compensate for the shortage in the number of farmers in Japan by doing all of the menial work that comes with farming; allowing farmers to focus more on other areas of production - like finding better ways to promote their cultivated goods. We also hope to encourage farmers and villagers to dedicate more of their time to restoring abandoned terraces. Our business plan consists of the following steps: first, develop iGAMO’s structure and internal programming; second, launch the company; third, receive orders; fourth, inspect the ready-to-be-shipped product; and fifth, ship to the customer. Our profits will be generated by the sales of our product, and the sales of after-care models. At around the 3rd year, we will release a new updated version of iGAMO based on customer feedback and research, which will become a new source of revenue, bringing our total profits for year 5 to 20 million yen. In the near future, we plan on expanding our company to regions South and Southeast Asia, which also use terrace farming.

2. Operation/Product and Services

One of the distinctive characteristics of iGAMO is that it is a modular system. It has a socket to insert different sickles and plows according to the job it will be performing; whether that be harvesting, weeding, or leveling. When the farmer needs to harvest, the scoop used for harvesting will be affixed to the front, and for weeding, a hoe-like apparatus will be attached. Each iGAMO will have an integrated GPS which will allow it to coordinate its actions with other iGAMO’s so that they can work effectively as a group, or as we like to call it, a *family*. There will be a resupply point for energy and seedlings, which will be placed within the farm. When its battery approaches 15% or it runs out of seedlings to plant, it will head to the resupply point to restock. Also included in the iGAMO package is an aerial reconnaissance drone, which can observe the rice field 3 times a day to look for dangers such as holes and wild animals, eliminating the need for a human lookout. The drone can even observe factors such as climate, create a growth status radar map and ascertain protein content, providing critical information for the farmer to analyze. Should there be a need for emergency action, it will send orders accordingly to the resupply point, which will communicate instructions to operating iGAMO units. The robot itself consists of an outer plastic cover, with an electronic circuit inside that processes the information and orders given from the resupply point. A sensor on the top of the robot is used to identify various conditions and locations. A battery-powered motor will move caterpillar tires that allow it to traverse both land and water. The iGAMO robot will carry out agricultural work that causes physical stress for farmers. The middle part of the iGAMO is used as storage, where seedlings and harvested crops are stored. It comes with a hydroelectric power system, which uses the flow (gravitational potential energy) of water on each step to power each unit through an eco-friendly method. We will connect with organizations of terrace farmers such as the NPO TMTanada NetworkTM and the TMRice Terrace Research Organization,TM which host meetings and presentations regarding terrace farming.



3. Market/Industry Analysis

We target those who are looking to start a career in farming, but are fundamentally outclassed in skill due to their relative inexperience working in farms compared to veteran farmers who are already established; as well as aging farmers, because they are in need of a system that enables them to continue working without much physical effort/strength. As regards to the current market, it is evident that the global agriculture and farm equipment market will witness a significant growth between the years 2015 to 2022. It is already widely recognized that adopting farming equipment creates efficiency because it can save time, reduce labor costs, and overall create necessary use of inputs to obtain the desired output. The demand for equipment- such as tractors and harvesting machinery- that can be used for not just one, but for multiple purposes, is what will supposedly contribute to the overall growth of this market. From this, we can infer that in order to make our product appealing, we must come up with something that can be used in multiple steps along the entire farming process- in planting, seeding, plowing, and harvesting. The increasing growth in the world population is also a factor that will expand the market, because it leads to the need to enhance food production. Moreover, the increasing technological advances in agricultural technology is leading to the market’s growth internationally. In such a competitive market, our company plans to differentiate our product from all the others by implementing our aforementioned (in 2. Operation/Product and Services) unique, innovative, and revolutionary ideas. We can also expect support from convenience stores and restaurants, that lack the necessary amount of rice to make their products, and would benefit from the increase in rice production that implementation of iGAMO units in farms would lead to.

4. Marketing/Strategy and Implementation

In order to ensure a sustainable development, our company plans to promote iGAMO and popularize it by: displaying it at the “International Robot Exhibition” and the “Agricultural Material Expo” (short-term plan); putting out ads in provincial newspapers, bulletin boards, the Japan Agricultural News (mid-term plan); creating and hosting opportunities to present and explain about our product to local farmers, alongside already established organizations such as “Tanada Network,” “Japan Agricultural Cooperatives,” and the “Rice Terrace Research Organization” (long-term plan); and partnering with popular YouTubers as a way to get information about our company out to younger audiences easier. In our first year, we will focus on spreading awareness about our product and thus gathering possible users. We will approach veteran farmers by telling them of the amount of physical labour that can be cut with iGAMO. For the younger generations who have the desire to change their lifestyles and become farmers but are worried about how to maintain their farms: we will advertise the ease of surveillance that comes with the aerial surveillance drones. These marketing strategies are effective because it reaches both of our target audiences; both the aspiring young farmers and the older veterans.

5. Finance

(All Amounts in JPY)	Year 1	Year 2	Year 3	Year 4	Year 5
Revenues (a)	47928000	95856000	172740000	215676000	287568000
Product/Service (a=a'*a"+A*A')	47928000	95856000	172740000	215676000	287568000
Units (charger+10 iGamo) sold (a')	30	60	110	135	180
Unit price (a")	1298000	1298000	1298000	1298000	1298000
Drones sold (A=a'/5)	6	12	20	27	36
Drone price (A')	1498000	1498000	1498000	1498000	1498000
Production Costs (b=a'*b'+A*b")	13288800	19800000	36300000	44550000	59400000
Unit cost (raw material + processing)(b')	330000	330000	330000	330000	330000
Plastic	10000	10000	10000	10000	10000
Inner circuit, battery and sensors	70000	70000	70000	70000	70000
outer caterpillar and others	50000	50000	50000	50000	50000
resupply charger	100000	100000	100000	100000	100000
Hydroelectric power system	100000	100000	100000	100000	100000
Drone cost (b")	564800	564800	564800	564800	564800
Expenses (C)	84530000	84530000	94530000	98370000	78370000
Staff Salaries (c1=c1'*c1"+ci*cii)	51200000	51200000	51200000	55040000	55040000
No. of factory staff (c1')	10	10	10	12	12
annual salary (c1")	1920000	1920000	1920000	1920000	1920000
No. of office staff (ci)	8	8	8	8	8
annual salary (cii)	4000000	4000000	4000000	4000000	4000000
Sales/Marketing (c2)	3330000	3330000	3330000	3330000	3330000
Rent (c3)	0	0	0	0	0
Development costs (c4)	30000000	30000000	40000000	40000000	20000000
Other expenses (c5)	0	0	0	0	0
Profit/Loss before tax (d=a-b-c)	-49890800	-8474000	41910000	72756000	149798000
Tax (e)	1040000	1100000	25015050	45269180	72769190
Property tax	980000	980000	980000	980000	980000
Corporate tax and other related tax	0	0	9847050	17712780	37358490
Stamp duty	60000	120000	220000	270000	360000
Income Tax	0	0	13968000	26306400	34070700
Net Profit/Loss (f=d-e)	-50930800	-9574000	16894950	27486820	77028810
Start-up cost (g)	30000000	0	0	0	0
Land and building	29500000	0	0	0	0
Furniture and interior	500000	0	0	0	0
Capital Investment (h)	100000	0	0	10000000	0
Free Cash Flow (i=f-g-h)	-81030800	-9574000	16894950	17486820	77028810
Funding Required/dividends paid	50000000	0	0	0	-51000000
Cash Balance	-31030800	-40604800	-23709850	-6223030	19805780

6. Conclusion

iGAMO will undoubtedly change the dynamics of terrace farming because it provides a much needed solution to the continuous lack of farmers both domestically and internationally. We ask for 50 million yen from venture capitalists, and we guarantee that it will be a risk-free investment if they decide to trust our vision, as our company is capable of advancing our business and creating a stable income for workers after the first 3 years of the company's establishment. We will return our investors 51 million yen, as well as 20 kg of premium-quality rice.