

# Innovation on Digging Machine

Mrs. Ashwini Vaze<sup>1</sup>, Veda Thale<sup>2</sup>

<sup>1,2</sup> Department of Applied Science & Humanities

<sup>1,2</sup> Pimpri Chinchwad College of Engineering

## I. INTRODUCTION

Agriculture plays an essential role in sustaining and driving the economy. It is the backbone of everything that drives it. In agriculture sector many innovations are there. So, we are creating a digging machine. We are making this machine at low cost. The purpose of this machine is to save time and money to minimize the quantity of work and to increase production by completing work on time. This machine is easy to use and can be made easily available to every farmer.

## II. RELEVANCE

1. We are making an effort to alleviate the difficulties faced by the farmers while doing the digging work. If the farm work is not completed on time, then the production may decrease. So, labour needs to be hired to complete the work on time.
2. Nowadays, it is difficult to get labour and even if the farmer gets the labour, their wages and the work being done is becoming very costly.
3. Farmers generally cultivate Ivy gourd (tondii) crop in large quantities, mainly during the summer season, also time growing crops (mainly cultivated in a specific season) like bitter gourd (Karla), Bottle gourd, sponge gourd, etc. are grown. This can be used for cultivation of variety of plants like carrot, brinjal, beetroot, sweet potato, Garlic. For these five feet high pavilions are made like grape wine.
4. It takes a lot of labour to dig a pit of about two to three feet bury the wooden poles in the ground. Similarly, a lot of time goes by and not doing these works on time affects the production. There are some these types of machines available in the market but not every farmer can afford it as it is very expensive so we are building one such machine which can be easily made available to every farmer [1]. So, more work will be completed in less time and production will increase more.

## III. LITERATURE REVIEW

We have found a similar machine in the market but their size varies according to the farmer's requirement. They are using fuel engines varying from 50-70cc and the fuel

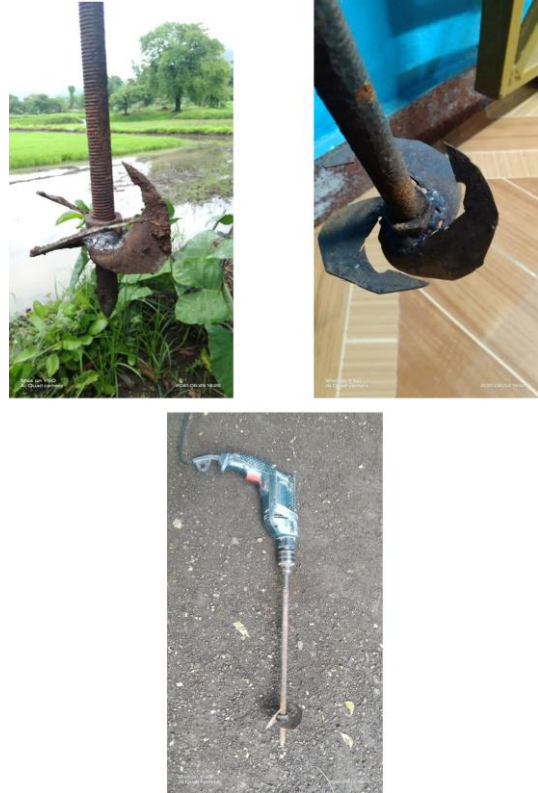
consumption depends upon the type of land and soil. For that machine both fuel and oil are required. It can dig around 120 holes in 2 min but it also consumes 1 litre of fuel in 1 hour. The machine costs 16,500/- and the monthly fuel and oil cost is expensive. But the model on which we are working will be useful for the rural farmers who cannot afford such fuel engines or machines and for those who are not aware of such fuel engines that is they are not civilized.[1]

## IV. MAIN PROJECT ACTIVITY

1. The main project activity is digging the holes in farm. In agriculture field there are many equipments having very high-cost price like hole digger (8000 to 12000), Tractor, Seed Drill etc. but, common farmers cannot buy such type of instruments. Those farmers have to work very hard.
2. One of them is that it takes diggers to push back the planting of vegetables like ivy gourd, bitter gourd, bottle gourd, sponge guard etc. For example, if you want to plant Ivy gourd (tondli) you have to dig a lot of holes. Farmer cannot do this work in a day or two. So, labours have to be hired for help. It takes many days to complete the work even with the help of labours. So, it takes a lot of time and money.
3. This instrument can be made by each farmer himself. Without using electricity, metal sheets, rod, drill bit are used to make this digging machine. First, give the metal sheet a spiral shape and then weld it around the drill bit using welding machine. Now, weld a vertical steel rod to the drill bit and then weld another rod of higher thickness to the vertical steel rod such that it makes a shape of 'T' as shown below in the picture.
4. This digging machine can be used using electricity. Drilling machine, cutting blades, rods, drill bit are used to make this digging machine. the digging machine is made by attaching a cutting blade to the drill bit and attaching it to the rod. More the cutting blades attached to the drill bit, more the instrument will work fast.
5. In the present situation, since there is an electric supply on every farmer's field, it is possible for everyone to use this machine and it does not cost much electricity to use this machine. So many farmers can use it. If there is a problem with electricity then solar (charging battery) can also be used.

6. This machine will be used not only for planting wines in the field but also for compounding the field and filling the poles. A man makes about
7. 10 pits in an hour but using the machine a man can make 30 pits in an hour. If pits are dug using this machine for 5 hours in a day, then 150 pits can be made. Using this machine, farmers can do more work with less power.
8. But this machine is difficult to use in stone areas. It is easy to handle in farm but it is also important to use the machine carefully. In case of loss of control or distraction, there is a risk of injury.
9. By making this machine at low cost and using it, farmers can save their time and money. The main objective of this project is to get profit in production as well as timely completion of agricultural works.
10. The main disadvantage of this machine is we cannot use it in Rainy but mainly used in Rabi Season (November-April).
11. The main difference between these digging machines is that the digging machine without electricity is operated by hand and work needs to be done with more manual power and more time is required as compared to electric digging machine on the other hand digging machine with electricity runs with the help of drilling machine and work will be done with less manual power and in less time.

### With Electricity



### Structure and Demo Example of Machine

#### Without Electricity



### V. CONCLUSION

In this project we conclude that, the problems face by farmers while doing the agriculture work is a major concern. We are trying to solve one of them. In summer season, two or three feet of pits have to be dug for cultivating a particular species. For this we have tried to innovate two digging machines without electricity and using electricity. Most important, this machine will be used not only for planting wines in the field also for compounding the field and filling the poles.

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### REFERENCES

- [1] <https://youtu.be/RDKwpuL59eg>
- [2] <https://youtu.be/S1Bi5UzhJuk>
- [3] [https://www.instagram.com/reel/CQ1ZDV\\_AB6R/?utm\\_medium=copy\\_link](https://www.instagram.com/reel/CQ1ZDV_AB6R/?utm_medium=copy_link)