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Review on Coriander Splitting Machine

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Abstract - *The coriander seed used in agricultural purpose. We also, seen the splitting of coriander's hand splitting process having large human efforts and time consuming process. But some time coriander seeds are crushing and this crushing seeds are not used in agriculture. Due to this coriander seeds are not effectively used in agriculture therefore in this project, we have tried to overcome the disadvantages of previous one. Now a day, every instrument was developed and modified according to need and so that in development takes place to fulfill the need of production.*

Key Words: **Coriander, Coriander production, coriander splitting etc.**

1. INTRODUCTION

Coriander (Coriandrum sativum) generally called as "Dhania" belongs to the Apiaceae family. It is mainly grown in Rajasthan, Gujarat, Madhya Pradesh, Tamil-nadu and Uttar Pradesh. It is used as a condiment for its medicinal properties. The green leaves of coriander are also used for culinary purposes. Coriander crop requires a cool climate during the growth stage and warm dry climate at maturity. It can be cultivated in most types of soils, but well-drained loamy soil suits the crop well. Cold climate and high altitudes may lead to superior quality seed and higher essential oil content.

Coriander is native to regions spanning from southern Europe and North Africa to southwestern Asia. It is a soft plant growing to 50 cm (20 in) height. The leaves are variable in shape, broadly lobed at the base of the plant, and slender and feathery higher on the flowering stems. The flowers are borne in small umbels, white or very pale pink, asymmetrical, with the petals pointing away from the center of the umbel longer (5–6 mm) than those pointing toward it (only 1–3 mm). The fruit is a globular, dry schizocarp 3–5 mm (0.12–0.20 in) in diameter. Although sometimes eaten alone, the seeds often are used as a spice or an added ingredient in other foods.

Fig, 1 Coriander

2. LITERATURE REVIEW

The objective of the present chapter is to review previous studies carried out on Corianders, we study the seasonality, process of growing, coriander processing, different grades in coriander, Indian production scenario of coriander. after this process we

visit to farmer because to survey of actual process of growing the coriander.

2.1 Visit to farmer

Name- Balasaheb Radhakrushna Tarvade

Tal- Shrirampur

Dist - A.nagar

Q 1.-What is your cultivation area for coriander?

Ans - Acre.

Q 2 .-How do you plant corianders?

Ans - By traditional method using hands.

Step1- Land preparation.

Step 2- Ploughing.

Step 3- Seed plantation.

Step 4- Irrigation.

Step 5- Harvesting.

Q3.-How do you split the corianders? Do you use any machine or instrument?

Ans- Split is done by hand. No machine is used.

Q4. - At what rate do you split the coriander?

Ans- 2.5 to 3 kg/hr.

Q5. - What is the drawback of splitting corianders with hands?

Ans- Pain in hands and wrist stone or tough surface is used which leads injury to fingers. Back ache due to sitting in an uncomfortable posture for hours. It is a time consuming process. Continuous work leads mental fatigue and boredom and chance of crushing the seed is more and wastage of seed.

Q 6.-What are planning to manufacture of low cost power operated coriander splitter?

Ans- This machine will reduce human effort and increase comfort and the rate of splitting the coriander is increase so we are looking forward to it.

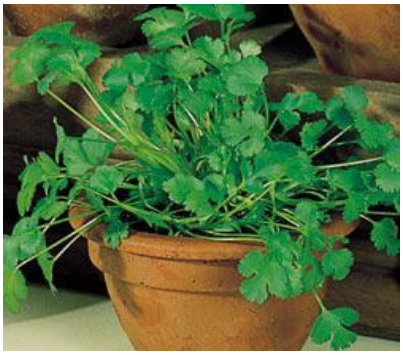
Bo Yuan Lim et.al (2016) an author has been study involved performance evaluation of a Multistage Jatropha Fruit Shelling Machine (PI2015701163) which is used to produce Jatropha kernels (oil-rich nucleus) with higher purity by removing both the outer shells of fruits and husks (seeds' coating). The reduction of shells and husks together, which is not commonly practiced at the moment, can improve oil yield and quality during oil extraction process in biodiesel production. The shelling machine consists of two cracking unit with each having different roller clearance for different stage of decortications. Every roller was featured with male threads on the surface. The male threads in different rotating directions and speeds can provoke more shearing effect onto the loaded Jatropha fruits. The machine design also deploys multistage separation mechanisms consisting of vibratory sieve and blowers for a purpose to produce cleaner kernels

3. HOW TO GROW

Soil: Cilantro/coriander prefers a light well drained, moderately fertile loam or sandy soil. Most soils in Utah are well suited for cilantro production.

Soil Preparation: Before planting, incorporate 2-4 inches of well composted organic matter per 25 square feet of garden area. Work this into the top 4-6 inches of soil leaving a loose seedbed to allow the seeds to emerge easily.

Plants: Cilantro/coriander prefers a sunny and dry location. In cooler locations in Utah, plant in the early spring for summer to fall harvest. In warmer areas,



Fig, 2 Coriander plants

plant in the fall and harvest in the spring. Seeds germinate in about 21 days and grow 1-3 feet tall. Cilantro/coriander can also be started indoors. Plant in a peat pots, and minimize root disturbance when transplanting seedlings.

Planting and Spacing: Plant cilantro seeds ½ inch deep and space 2 inches apart if you are planning to use the plant for its leaves. For coriander seed, space the seeds 8-10 inches apart. Rows should be at least 15 inches apart. Successive plantings may be done until late summer if a continued harvest is desired.

Water: Make sure that the young plants don't dry out. Once the plants are established they need little water. Avoid over watering as this plant does not do well in damp or humid conditions.

Fertilization: Fertilize once or twice during the growing season by applying ¼ cup of a nitrogen based fertilizer (21-0-0) per 25 square foot of growing area. Be careful of over fertilization, too much nitrogen can make the plant less flavorful.

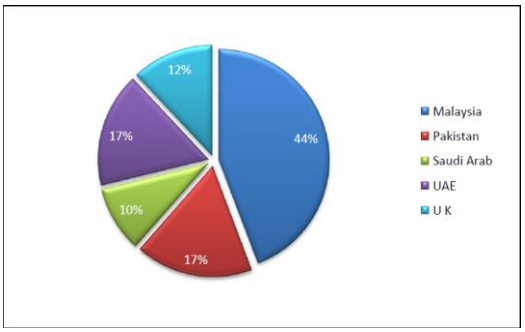
Weeds: Mulch around the plants as soon as they emerge to prevent weeds. Till shallowly to minimize root damage.

4. PRODUCTION RATE

India is the largest producer, consumer and exporter of coriander in the world. India accounts for approximately 80 percent of the total world Coriander production.

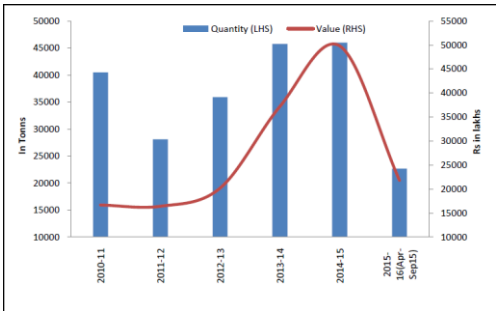
Coriander exports from India have been rising over last two years as supply from the top two competitors i.e. Bulgaria and Romania have dropped as un favorable weather damaged most of the produce in these countries. India has take advantage of the situation and ramped up its exports over the last couple of years.

In 2013-14, Coriander exports have risen to 45,750 tons from 35,902 tons in 2012-13. While in 2014-15 we have seen exports keep up with the same pace and touch 46,000 tons. Over the period of two year Coriander exports have surged by 22 percent during the period of 2013-2015.



Fig, 3 Coriander production shear in countries

In 2014-15, Malaysia was the top importer of Coriander from India followed by Pakistan and Saudi Arab. Malaysia's imports in 2014-15 were recorded at 10,378 tons which was lower as compared to 11,152 tons recorded in 2013-14. Coriander exports to Pakistan have witnessed a significant rise from 2,573 tons in 2013-14 to 4069 tons in 2014-15. While exports to UAE and Saudi Arab were recorded at 3,940 tons and 2,264 tons respectively.



Fig, 4 Graph on coriander export in India

However, in 2015-16 exports from India have lost momentum due a crop failure. In 2015-16 we have recorded an export of 22,650 tons between April-September. With the slow pace of exports and low availability of quality stocks it is unlikely that Indian will meet its export target of 45,000 tons for 2015-16 which was set by the Spice Board of India.

5. CORIANDER SPLITTING

The problems faced by manually crushing of coriander seeds for the cultivation purpose, we decided to manufacture a machine having problem statement as follows:

"Design and development of Coriander Splitter"

This project is agriculture based and is meant for small scale splitting of coriander seeds for easy and quick cultivation for farmers. Also this kind of machine is not available in the market so it is better to use this machine to increase productivity and to reduce wastage .So this coriander splitter machine will have low cost and compact in size.

Flow of process

a) Survey of existing technology available for coriander seeds splitting in the market.

b) Selection of appropriate mechanism for coriander seeds splitting machine.

c) Design of various parts of the machine e.g. Rotter, Shaft, Bearing, Frame, etc.

d) Manufacturing of various parts of the machine.

e) Assembling of the parts of machine.

f) Testing and trial on the machine.

Methodology

Methodology deals with design & fabricated all of component which are to be used in the machine with required modification. Firstly synthesis the all the problem which are consult with project, after that design complete atomize machine, then regarding development done on coriander seeds splitter machine.

Parameters will be selected according to objectives.2D & 3D diagrams of components and assembled machine and line diagrams with labeling. The various instruments used for fabrication of machine. As seen on other projects like groundnut shelling machine, Jatropha splitter machine it is based on manually operated (paddle operated).

ACKNOWLEDGEMENT

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